

## APPENDIX 1-1—LIST OF TERRESTRIAL VERTEBRATE SPECIES WITHIN THE UPPER SNAKE PROVINCE

**Table 1. Terrestrial vertebrate species within the Upper Snake province and their associations with salmonids and riparian/herbaceous wetlands (source: IBIS 2003; Conservation Status-Idaho Department of Fish and Game, Idaho Conservation Data Center).**

Common Name	Scientific Name	Conservation Status	Salmonid Relationship	Closely Associated with Riparian	Closely Associated with Wetlands
<b>Amphibians (Total Number: 10)</b>					
Tiger salamander	<i>Ambystoma tigrinum</i>	G5/S5		Yes	Yes
Long-toed salamander	<i>Ambystoma macrodactylum</i>	G5/S5		Yes	Yes
Inland tailed frog	<i>Ascaphus montanus</i>	G5/SNA		Yes	
Great Basin spadefoot	<i>Scaphiopus intermontanus</i>	G4/S3		Yes	Yes
Western toad	<i>Bufo boreas</i>	G5/S4		Yes	Yes
Pacific chorus (tree) frog	<i>Pseudacris regilla</i>	G5/S3?		Yes	Yes
Red-legged frog	<i>Rana aurora</i>	G5/S5		Yes	Yes
Columbia spotted frog	<i>Rana luteiventris</i>	G4/S3S4		Yes	Yes
Northern leopard frog	<i>Rana pipiens</i>	G5/S3		Yes	Yes
Bullfrog	<i>Rana catesbeiana</i>	G5/SNA		Yes	Yes
<b>Total Amphibians: 10</b>		<b>Totals</b>	<b>0</b>	<b>10</b>	<b>9</b>
<b>Reptiles (Total Number: 20)</b>					
Mojave black-collared lizard	<i>Crotaphytus bicinctores</i>	G5/S2			
Long-nosed leopard lizard	<i>Gambelia wislizenii</i>	G5/S5			
Short-horned lizard	<i>Phrynosoma douglassii</i>	G5/S5			
Desert horned lizard	<i>Phrynosoma platyrhinos</i>	G5/S4			
Northern sagebrush lizard	<i>Sceloporus graciosus graciosus</i>	G5/T5			
Western fence lizard	<i>Sceloporus occidentalis</i>	G5/S4			
Side-blotched lizard	<i>Uta stansburiana</i>	G5/S5			
Western skink	<i>Eumeces skiltonianus</i>	S5/S5			
Western whiptail	<i>Cnemidophorus tigris</i>	G5/S4			
Rubber boa	<i>Charina bottae</i>	G5/S5			
Racer	<i>Coluber constrictor</i>	G5/S5			
Ringneck snake	<i>Diadophis punctatus</i>	G5/S1?			
Night snake	<i>Hypsiglena torquata</i>	G5/S3			
Striped whipsnake	<i>Masticophis taeniatus</i>	S5/S4			
Gopher snake	<i>Pituophis catenifer</i>	G5/S5			

Common Name	Scientific Name	Conservation Status	Salmonid Relationship	Closely Associated with Riparian	Closely Associated with Wetlands
Western terrestrial garter snake	<i>Thamnophis elegans</i>	G5/S5	Yes		
Common garter snake	<i>Thamnophis sirtalis</i>	G5/S5	Yes	Yes	Yes
Western rattlesnake	<i>Crotalus viridis</i>	G5/S5			
<b>Total: Reptiles: 20</b>		<b>Totals:</b>	<b>2</b>	<b>1</b>	<b>1</b>
<b>Birds (Total Number: 274)</b>					
Common loon	<i>Gavia immer</i>	G5/S1B,S2N	Yes		Yes
Pied-billed grebe	<i>Podilymbus podiceps</i>	G5/S4B,S3N	Yes		Yes
Horned grebe	<i>Podiceps auritus</i>	G5/S1?	Yes		Yes
Red-necked grebe	<i>Podiceps grisegena</i>	G5/S3B	Yes		Yes
Eared grebe	<i>Podiceps nigricollis</i>	G5/S4B			Yes
Western grebe	<i>Aechmophorus occidentalis</i>	G5/S4B	Yes		Yes
Clark's grebe	<i>Aechmophorus clarkii</i>	G5/S2B	Yes		Yes
American white pelican	<i>Pelecanus erythrorhynchos</i>	G3/S1B	Yes		
Double-crested cormorant	<i>Phalacrocorax auritus</i>	G5/S2B	Yes	Yes	
American bittern	<i>Botaurus lentiginosus</i>	G4/S4B			Yes
Least bittern	<i>Ixobrychus exilis</i>	G5/SNA			Yes
Great blue heron	<i>Ardea herodias</i>	G5/S2B	Yes	Yes	
Great egret	<i>Ardea alba</i>	G5/S1B	Yes	Yes	
Snowy egret	<i>Egretta thula</i>	G5/S2B	Yes	Yes	
Cattle egret	<i>Bubulcus ibis</i>	G5/S2B			
Green heron	<i>Butorides virescens</i>	G5/SNA	Yes	Yes	
Black-crowned night-heron	<i>Nycticorax nycticorax</i>	G5/S3B	Yes	Yes	
White-faced ibis	<i>Plegadis chihi</i>	G5/S2B			Yes
Turkey vulture	<i>Cathartes aura</i>	G5/S4B	Yes		
Greater white-fronted goose	<i>Anser albifrons</i>	G5/SNA			
Snow goose	<i>Chen caerulescens</i>	G5/SN2			
Ross's goose	<i>Chen rossii</i>	G4/SNA			
Canada goose	<i>Branta canadensis</i>	S5/S5B,S5N			Yes
Trumpeter swan	<i>Cygnus buccinator</i>	G4/S1B,S2N	Yes		Yes
Tundra swan	<i>Cygnus columbianus</i>	G5/S2N			
Wood duck	<i>Aix sponsa</i>	G5/S4B,S1N		Yes	
Gadwall	<i>Anas strepera</i>	G5/S5B,S3N			Yes
American wigeon	<i>Anas americana</i>	G5/S5B,S5N			Yes
Mallard	<i>Anas platyrhynchos</i>	G5/S5B,S5N	Yes	Yes	Yes
Blue-winged teal	<i>Anas discors</i>	G5/S5B			Yes
Cinnamon teal	<i>Anas cyanoptera</i>	G5/S5B			Yes
Northern shoveler	<i>Anas clypeata</i>	G5/S5B,S1N			Yes

Common Name	Scientific Name	Conservation Status	Salmonid Relationship	Closely Associated with Riparian	Closely Associated with Wetlands
Northern pintail	<i>Anas acuta</i>	G5/S5B,S3N			Yes
Green-winged teal	<i>Anas crecca</i>	G5/S4B,S4N	Yes		Yes
Canvasback	<i>Aythya valisineria</i>	G5/S4B,S2N	Yes		Yes
Redhead	<i>Aythya americana</i>	G5/S5B			Yes
Ring-necked duck	<i>Aythya collaris</i>	G5/S3B		Yes	
Greater scaup	<i>Aythya marila</i>	G5/SNA	Yes		
Lesser scaup	<i>Aythya affinis</i>	G5/S4			Yes
Harlequin duck	<i>Histrionicus histrionicus</i>	G4/S1B	Yes	Yes	
Bufflehead	<i>Bucephala albeola</i>	G5/S3B,S3N			
Common goldeneye	<i>Bucephala clangula</i>	G5/S3B,S3N	Yes		
Barrow's goldeneye	<i>Bucephala islandica</i>	G5/S3B,S3N	Yes		
Hooded merganser	<i>Lophodytes cucullatus</i>	G5/S2B,S3N	Yes	Yes	
Common merganser	<i>Mergus merganser</i>	G5/S5B,S5N	Yes	Yes	
Red-breasted merganser	<i>Mergus serrator</i>	G5/SNA	Yes		
Ruddy duck	<i>Oxyura jamaicensis</i>	G5G5/S5B			Yes
Osprey	<i>Pandion haliaetus</i>	G5/S5B	Yes		
Bald eagle	<i>Haliaeetus leucocephalus</i>	G4/S3B,S4N	Yes		
Northern harrier	<i>Circus cyaneus</i>	G5/S5B,S5N			
Sharp-shinned hawk	<i>Accipiter striatus</i>	G5/S5			
Cooper's hawk	<i>Accipiter cooperii</i>	G5/S4			
Northern goshawk	<i>Accipiter gentilis</i>	G5/S4			
Swainson's hawk	<i>Buteo swainsoni</i>	G5/S4B			
Red-tailed hawk	<i>Buteo jamaicensis</i>	G5/S5B,S5N	Yes		
Ferruginous hawk	<i>Buteo regalis</i>	G4/S3B			
Rough-legged hawk	<i>Buteo lagopus</i>	G5/S4N			
Golden eagle	<i>Aquila chrysaetos</i>	G5/S4B,S4N	Yes		
American kestrel	<i>Falco sparverius</i>	G5/S5B,S5N			
Merlin	<i>Falco columbarius</i>	G5/S1B,S2N			
Peregrine falcon	<i>Falco peregrinus</i>	G4T3/S1B	Yes		
Prairie falcon	<i>Falco mexicanus</i>	G5/S5B,S3N			
Chukar	<i>Alectoris chukar</i>	G5/SNA			
Gray partridge	<i>Perdix perdix</i>	G5/SNA			
Ring-necked pheasant	<i>Phasianus colchicus</i>	G5/SNA		Yes	
Ruffed grouse	<i>Bonasa umbellus</i>	G5/S5		Yes	
Greater sage grouse	<i>Centrocercus urophasianus</i>	G4/S4			
Spruce grouse	<i>Falcapennis canadensis</i>	G5/S4			
Blue grouse	<i>Dendragapus obscurus</i>	G5/S5		Yes	
Sharp-tailed grouse	<i>Tympanuchus phasianellus</i>	G4/S3			
Wild turkey	<i>Meleagris gallopavo</i>	G5/SNA			

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Mountain quail	<i>Oreortyx pictus</i>	G5/S2			
California quail	<i>Callipepla californica</i>	G5/SNA			
Virginia rail	<i>Rallus limicola</i>	G5/S5B			Yes
Sora	<i>Porzana carolina</i>	G5/S5B			Yes
American coot	<i>Fulica americana</i>	G5/S5B			Yes
Sandhill crane	<i>Grus canadensis</i>	S5/S5B			Yes
Whooping crane	<i>Grus americana</i>	G5/N5B,N5N			
Black-bellied plover	<i>Pluvialis squatarola</i>	G5/S2N			
American golden-plover	<i>Pluvialis dominica</i>	G5/SNA			
Snowy plover	<i>Charadrius alexandrinus</i>	G4/SNA			
Semipalmated plover	<i>Charadrius semipalmatus</i>	G5/S2N			
Killdeer	<i>Charadrius vociferus</i>	G5/S5B,S3N	Yes		
Black-necked stilt	<i>Himantopus mexicanus</i>	G5/S4B			Yes
American avocet	<i>Recurvirostra americana</i>	G5/S5B			Yes
Greater yellowlegs	<i>Tringa melanoleuca</i>	G5/S2N	Yes		
Lesser yellowlegs	<i>Tringa flavipes</i>	G5/S2N			
Solitary sandpiper	<i>Tringa solitaria</i>	G5/SNA			
Willet	<i>Catoptrophorus semipalmatus</i>	G5/S4B			Yes
Spotted sandpiper	<i>Actitis macularia</i>	G5/S5B	Yes		
Upland sandpiper	<i>Bartramia longicauda</i>	G5/S1B			
Whimbrel	<i>Numenius phaeopus</i>	G5/SNA			
Long-billed curlew	<i>Numenius americanus</i>	G5/S3B			
Marbled godwit	<i>Limosa fedoa</i>	G5/S2N			
Sanderling	<i>Calidris alba</i>	G5/SNA			
Semipalmated sandpiper	<i>Calidris pusilla</i>	G5/S2N			
Western sandpiper	<i>Calidris mauri</i>	G5/S2N			
Least sandpiper	<i>Calidris minutilla</i>	G5/S2N			
Baird's sandpiper	<i>Calidris bairdii</i>	G5/S2N			
Pectoral sandpiper	<i>Calidris melanotos</i>	G5/SNA			
Dunlin	<i>Calidris alpina</i>	G5/SNA			
Stilt sandpiper	<i>Calidris himantopus</i>	G5/SNA			
Long-billed dowitcher	<i>Limnodromus scolopaceus</i>	G5/S2N			
Common snipe	<i>Gallinago gallinago</i>	G5/N5B,N5N			Yes
Wilson's phalarope	<i>Phalaropus tricolor</i>	G5/S4B			Yes
Red-necked phalarope	<i>Phalaropus lobatus</i>	G4G5/S2N			
Franklin's gull	<i>Larus pipixcan</i>	G4G5/S2B	Yes		Yes
Bonaparte's gull	<i>Larus philadelphia</i>	G5/SNA	Yes		

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Ring-billed gull	<i>Larus delawarensis</i>	G5/S2SB,S3	Yes		
California gull	<i>Larus californicus</i>	G5/S2SB,S3	Yes		
Herring gull	<i>Larus argentatus</i>	G5/S2N	Yes		
Glaucous gull	<i>Larus hyperboreus</i>	G5/N5B,N5N	Yes		
Caspian tern	<i>Sterna caspia</i>	G5/S1B	Yes		
Common tern	<i>Sterna hirundo</i>	G5/S1B	Yes		
Forster's tern	<i>Sterna forsteri</i>	G5/S2S3B	Yes		Yes
Black tern	<i>Chlidonias niger</i>	G4/S2B			Yes
Rock dove	<i>Columba livia</i>	G5/SNA			
Band-tailed pigeon	<i>Columba fasciata</i>	G4/SNA		Yes	
Mourning dove	<i>Zenaidura macroura</i>	G5/S5B		Yes	
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	G5/S1B		Yes	
Barn owl	<i>Tyto alba</i>	G5/S3?			
Flammulated owl	<i>Otus flammeolus</i>	G4/S3B			
Western screech-owl	<i>Otus kennicottii</i>	G5/S4		Yes	
Great horned owl	<i>Bubo virginianus</i>	G5/S5			
Northern pygmy-owl	<i>Glaucidium gnoma</i>	G5/S4			
Burrowing owl	<i>Athene cunicularia</i>	S4/S3S4			
Barred owl	<i>Strix varia</i>	G5/S4			
Great gray owl	<i>Strix nebulosa</i>	G5/S3			
Long-eared owl	<i>Asio otus</i>	G5/S5		Yes	
Short-eared owl	<i>Asio flammeus</i>	G5/S5			Yes
Boreal owl	<i>Aegolius funereus</i>	G5/S2			
Northern saw-whet owl	<i>Aegolius acadicus</i>	G5/S4			
Common nighthawk	<i>Chordeiles minor</i>	G5/S5B			
Common poorwill	<i>Phalaenoptilus nuttallii</i>	G5/S4B			
Black swift	<i>Cypseloides niger</i>	G4/S1B			
Vaux's swift	<i>Chaetura vauxi</i>	G5/S4B			
White-throated swift	<i>Aeronautes saxatalis</i>	G5/S4B			
Black-chinned hummingbird	<i>Archilochus alexandri</i>	G5/S5B			
Calliope hummingbird	<i>Stellula calliope</i>	G5/S5B			
Broad-tailed hummingbird	<i>Selasphorus platycercus</i>	G5/S5B			
Rufous hummingbird	<i>Selasphorus rufus</i>	G5/S5B			
Belted kingfisher	<i>Ceryle alcyon</i>	G5/S5	Yes	Yes	
Lewis's woodpecker	<i>Melanerpes lewis</i>	G4/S4B			
Williamson's sapsucker	<i>Sphyrapicus thyroideus</i>	G5/S5B			
Red-naped sapsucker	<i>Sphyrapicus nuchalis</i>	G5/S5B		Yes	
Downy woodpecker	<i>Picoides pubescens</i>	G5/S5			
Hairy woodpecker	<i>Picoides villosus</i>	G5/S5			

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White-headed woodpecker	<i>Picoides albolarvatus</i>	G4/S2B			
Three-toed woodpecker	<i>Picoides tridactylus</i>	G5/S3?			
Black-backed woodpecker	<i>Picoides arcticus</i>	G5/S3			
Northern flicker	<i>Colaptes auratus</i>	G5/S5			
Pileated woodpecker	<i>Dryocopus pileatus</i>	G5/S4			
Olive-sided flycatcher	<i>Contopus cooperi</i>	G4/S4B			
Western wood-pewee	<i>Contopus sordidulus</i>	G5/S5B			
Willow flycatcher	<i>Empidonax traillii</i>	G5/S5B	Yes	Yes	
Least flycatcher	<i>Empidonax minimus</i>	G5/SNA			
Hammond's flycatcher	<i>Empidonax hammondii</i>	G5/S5B			
Gray flycatcher	<i>Empidonax wrightii</i>	G5/S2B,S2N			
Dusky flycatcher	<i>Empidonax oberholseri</i>	G5/S5B			
Cordilleran flycatcher	<i>Empidonax occidentalis</i>	G5/S4B		Yes	
Say's phoebe	<i>Sayornis saya</i>	G5/S5B			
Ash-throated flycatcher	<i>Myiarchus cinerascens</i>	G5/S3S4B			
Western kingbird	<i>Tyrannus verticalis</i>	G5/S5B			
Eastern kingbird	<i>Tyrannus tyrannus</i>	G5/S4B			
Loggerhead shrike	<i>Lanius ludovicianus</i>	G4/S3			
Northern shrike	<i>Lanius excubitor</i>	G5/S3N			
Cassin's vireo	<i>Vireo cassinii</i>	G5/N3N,N5B			
Warbling vireo	<i>Vireo gilvus</i>	G5/S5B		Yes	
Red-eyed vireo	<i>Vireo olivaceus</i>	G5/S5B		Yes	
Gray jay	<i>Perisoreus canadensis</i>	G5/S5	Yes		
Steller's jay	<i>Cyanocitta stelleri</i>	G5/S5	Yes		
Western scrub-jay	<i>Aphelocoma californica</i>	G5/S2?			
Pinyon jay	<i>Gymnorhinus cyanocephalus</i>	G5/S2?			
Clark's nutcracker	<i>Nucifraga columbiana</i>	G5/S5			
Black-billed magpie	<i>Pica pica</i>	G5/S5	Yes	Yes	
American crow	<i>Corvus brachyrhynchos</i>	G5/S5	Yes		
Common raven	<i>Corvus corax</i>	G5/S5	Yes		
Horned lark	<i>Eremophila alpestris</i>	G5/S5			
Purple martin	<i>Progne subis</i>	G5/N5B			
Tree swallow	<i>Tachycineta bicolor</i>	G5/S5B	Yes	Yes	
Violet-green swallow	<i>Tachycineta thalassina</i>	G5/S5B	Yes		
Northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>	G5/S5B	Yes	Yes	
Bank swallow	<i>Riparia riparia</i>	G5/S5B	Yes	Yes	
Cliff swallow	<i>Petrochelidon pyrrhonota</i>	G5/S5B	Yes	Yes	
Barn swallow	<i>Hirundo rustica</i>	G5/S5B	Yes	Yes	

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Black-capped chickadee	<i>Poecile atricapillus</i>	G5/S5			
Mountain chickadee	<i>Poecile gambeli</i>	G5/S5			
Juniper titmouse	<i>Baeolophus griseus</i>	G5/N5			
Bushtit	<i>Psaltiriparus minimus</i>	G5/S4			
Red-breasted nuthatch	<i>Sitta canadensis</i>	G5/S5			
White-breasted nuthatch	<i>Sitta carolinensis</i>	G5/S4			
Pygmy nuthatch	<i>Sitta pygmaea</i>	G5/S2S3		Yes	
Brown creeper	<i>Certhia americana</i>	G5/S5			
Rock wren	<i>Salpinctes obsoletus</i>	G5/S5B			
Canyon wren	<i>Catherpes mexicanus</i>	G5/S5B			
House wren	<i>Troglodytes aedon</i>	G5/N5B,N5N			
Winter wren	<i>Troglodytes troglodytes</i>	G5/S5	Yes		
Marsh wren	<i>Cistothorus palustris</i>	G5/S5B			Yes
American dipper	<i>Cinclus mexicanus</i>	G5/S5	Yes	Yes	
Golden-crowned kinglet	<i>Regulus satrapa</i>	G5/S5		Yes	
Ruby-crowned kinglet	<i>Regulus calendula</i>	G5/S5B			
Blue-gray gnatcatcher	<i>Polioptila caerulea</i>	G5/S3?			
Western bluebird	<i>Sialia mexicana</i>	G5/S4B			
Mountain bluebird	<i>Sialia currucoides</i>	G5/S4B			
Townsend's solitaire	<i>Myadestes townsendi</i>	G5/S5			
Veery	<i>Catharus fuscescens</i>	G5/S5B		Yes	
Swainson's thrush	<i>Catharus ustulatus</i>	G5/S5B			
Hermit thrush	<i>Catharus guttatus</i>	G5/S5B			
American robin	<i>Turdus migratorius</i>	G5/S5B,S3N	Yes		
Varied thrush	<i>Ixoreus naevius</i>	G5/S5B	Yes		
Gray catbird	<i>Dumetella carolinensis</i>	G5/S5B		Yes	
Northern mockingbird	<i>Mimus polyglottos</i>	G5/S1B			
Sage thrasher	<i>Oreoscoptes montanus</i>	G5/S5B			
European starling	<i>Sturnus vulgaris</i>	G5/SNA		Yes	
American pipit	<i>Anthus rubescens</i>	G5/S4B			
Bohemian waxwing	<i>Bombycilla garrulus</i>	G5/S1B,S3N			
Cedar waxwing	<i>Bombycilla cedrorum</i>	G5/S5B,S3N		Yes	
Orange-crowned warbler	<i>Vermivora celata</i>	G5/S5B			
Nashville warbler	<i>Vermivora ruficapilla</i>	G5/S5B			
Yellow warbler	<i>Dendroica petechia</i>	G5/S5B		Yes	
Yellow-rumped warbler	<i>Dendroica coronata</i>	G5/S5B			
Black-throated gray warbler	<i>Dendroica nigrescens</i>	G5/S3?B		Yes	
Townsend's warbler	<i>Dendroica townsendi</i>	G5/S4B			
American redstart	<i>Setophaga ruticilla</i>	G5/S4B		Yes	
Northern waterthrush	<i>Seiurus noveboracensis</i>	G5/S3?		Yes	

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MacGillivray's warbler	<i>Oporornis tolmiei</i>	G5/S5B			
Common yellowthroat	<i>Geothlypis trichas</i>	G5/S5B		Yes	Yes
Wilson's warbler	<i>Wilsonia pusilla</i>	G5/S5B		Yes	
Yellow-breasted chat	<i>Icteria virens</i>	G5/S5B		Yes	
Western tanager	<i>Piranga ludoviciana</i>	G5/S5B			
Green-tailed towhee	<i>Pipilo chlorurus</i>	G5/S5B			
Spotted towhee	<i>Pipilo maculatus</i>	G5/S5B	Yes		
American tree sparrow	<i>Spizella arborea</i>	G5/S3N			
Chipping sparrow	<i>Spizella passerina</i>	G5/S5B			
Clay-colored sparrow	<i>Spizella pallida</i>	G5/SNA			
Brewer's sparrow	<i>Spizella breweri</i>	G5/S4B			
Vesper sparrow	<i>Pooecetes gramineus</i>	G5/S4B			
Lark sparrow	<i>Chondestes grammacus</i>	G5/S5B			
Black-throated sparrow	<i>Amphispiza bilineata</i>	G5/S2B			
Sage sparrow	<i>Amphispiza belli</i>	G5/S4B			
Savannah sparrow	<i>Passerculus sandwichensis</i>	G5/S5B			
Grasshopper sparrow	<i>Ammodramus savannarum</i>	G5/S3B			
Fox sparrow	<i>Passerella iliaca</i>	G5/S5B		Yes	
Song sparrow	<i>Melospiza melodia</i>	G5/S5B,S5N	Yes		
Lincoln's sparrow	<i>Melospiza lincolnii</i>	G5/S5B		Yes	Yes
White-throated sparrow	<i>Zonotrichia albicollis</i>	G5/SNA			
Harris's sparrow	<i>Zonotrichia querula</i>	G5/SNA			
White-crowned sparrow	<i>Zonotrichia leucophrys</i>	G5/S5B,S4N			
Golden-crowned sparrow	<i>Zonotrichia atricapilla</i>	G5/N5B,N5N			
Dark-eyed junco	<i>Junco hyemalis</i>	G5/S5			
Lapland longspur	<i>Calcarius lapponicus</i>	G5/SNA			
Snow bunting	<i>Plectrophenax nivalis</i>	G5/S3N			
Black-headed grosbeak	<i>Pheucticus melanocephalus</i>	G5/S5B			
Lazuli bunting	<i>Passerina amoena</i>	G5/S5B		Yes	
Bobolink	<i>Dolichonyx oryzivorus</i>	G5/S4B			
Red-winged blackbird	<i>Agelaius phoeniceus</i>	G5/S5B,S3N			Yes
Western meadowlark	<i>Sturnella neglecta</i>	G5/S5B,S3N			
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	G5/S5B			Yes
Brewer's blackbird	<i>Euphagus cyanocephalus</i>	G5/S5B,S5N			
Brown-headed cowbird	<i>Molothrus ater</i>	G5/S5B			
Bullock's oriole	<i>Icterus bullockii</i>	G5/S5B		Yes	

Common Name	Scientific Name	Conservation Status	Salmonid Relationship	Closely Associated with Riparian	Closely Associated with Wetlands
Gray-crowned rosy-finch	<i>Leucosticte tephrocotis</i>	G5/N5			
Black rosy-finch	<i>Leucosticte atrata</i>	G4/S4B,S3N			
Pine grosbeak	<i>Pinicola enucleator</i>	G5/S4			
Purple finch	<i>Carpodacus purpureus</i>	G5/SNA		Yes	
Cassin's finch	<i>Carpodacus cassinii</i>	G5/S5			
House finch	<i>Carpodacus mexicanus</i>	G5/S5			
Red crossbill	<i>Loxia curvirostra</i>	G5/S5			
White-winged crossbill	<i>Loxia leucoptera</i>	G5/S1?			
Common redpoll	<i>Carduelis flammea</i>	G5/S2N			
Pine siskin	<i>Carduelis pinus</i>	G5/S5			
Lesser goldfinch	<i>Carduelis psaltria</i>	G5/S1B		Yes	
American goldfinch	<i>Carduelis tristis</i>	G5/S5			
Evening grosbeak	<i>Coccothraustes vespertinus</i>	G5/S5			
<b>Total Birds: 274</b>		<b>Totals:</b>	<b>61</b>	<b>52</b>	<b>42</b>
<b>Mammals</b>			<b>(Total Number: 97)</b>		
Masked shrew	<i>Sorex cinereus</i>	G5/S5	Yes		
Vagrant shrew	<i>Sorex vagrans</i>	G5/S5	Yes		
Montane shrew	<i>Sorex monticolus</i>	G5/S4?	Yes		
Water shrew	<i>Sorex palustris</i>	G5/S4?	Yes	Yes	
Merriam's shrew	<i>Sorex merriami</i>	G5/S2?			
Dwarf shrew	<i>Sorex nanus</i>	G4/N4			
California myotis	<i>Myotis californicus</i>	G5/S1?			
Western small-footed myotis	<i>Myotis ciliolabrum</i>	G5/S4?		Yes	
Yuma myotis	<i>Myotis yumanensis</i>	G5/S3?		Yes	
Little brown myotis	<i>Myotis lucifugus</i>	G5/S5			
Long-legged myotis	<i>Myotis volans</i>	G5/S3?		Yes	
Fringed myotis	<i>Myotis thysanodes</i>	G4G5/S1?			
Long-eared myotis	<i>Myotis evotis</i>	G5/S3?			
Silver-haired bat	<i>Lasionycteris noctivagans</i>	G5/S4?			
Western pipistrelle	<i>Pipistrellus hesperus</i>	G5/S1?		Yes	
Big brown bat	<i>Eptesicus fuscus</i>	G5/S4?		Yes	
Hoary bat	<i>Lasiurus cinereus</i>	G5/S4?			
Spotted bat	<i>Euderma maculatum</i>	G4/S2			
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	G4/S2?			
Pallid bat	<i>Antrozous pallidus</i>	G5/S1?		Yes	
American pika	<i>Ochotona princeps</i>	G5/S5			
Pygmy rabbit	<i>Brachylagus idahoensis</i>	G5/S3			

Common Name	Scientific Name	Conservation Status	Salmonid Relationship	Closely Associated with Riparian	Closely Associated with Wetlands
Nuttall's (mountain) cottontail	<i>Sylvilagus nuttallii</i>	G5/S5			
Snowshoe hare	<i>Lepus americanus</i>	G5/S5		Yes	
White-tailed jackrabbit	<i>Lepus townsendii</i>	G5/S5			
Black-tailed jackrabbit	<i>Lepus californicus</i>	G5/S5			
Least chipmunk	<i>Tamias minimus</i>	G5/S5			
Yellow-pine chipmunk	<i>Tamias amoenus</i>	G5/S5			
Red-tailed chipmunk	<i>Tamias ruficaudus</i>	G5/S4			
Yellow-bellied marmot	<i>Marmota flaviventris</i>	G5/S5			
Hoary marmot	<i>Marmota caligata</i>	G5/S5			
White-tailed antelope squirrel	<i>Ammospermophilus leucurus</i>	S5/S4			
Townsend's ground squirrel	<i>Spermophilus townsendii</i>	G5/S5			
Paiute ground squirrel	<i>Spermophilus mollis</i>	G5/N5			
Belding's ground squirrel	<i>Spermophilus beldingi</i>	G5/S4?			
Columbian ground squirrel	<i>Spermophilus columbianus</i>	G5/S5			
Golden-mantled ground squirrel	<i>Spermophilus lateralis</i>	G5/S5			
Rock squirrel	<i>Spermophilus variegatus</i>	G5/N5			
Red squirrel	<i>Tamiasciurus hudsonicus</i>	G5/S5			
Northern flying squirrel	<i>Glaucomys sabrinus</i>	G5/S4	Yes		
Northern pocket gopher	<i>Thomomys talpoides</i>	G5/S5			
Idaho pocket gopher	<i>Thomomys idahoensis</i>	G5/S4?			
Townsend's pocket gopher	<i>Thomomys townsendii</i>	G4G5/S4?			
Great Basin pocket mouse	<i>Perognathus parvus</i>	G5/S5			
Little pocket mouse	<i>Perognathus longimembris</i>	G5/S1?			
Dark kangaroo mouse	<i>Microdipodops megacephalus</i>	G5/N5			
Ord's kangaroo rat	<i>Dipodomys ordii</i>	G5/S5			
Chisel-toothed kangaroo rat	<i>Dipodomys microps</i>	G5/S3?			
American beaver	<i>Castor canadensis</i>	G5/S5		Yes	Yes
Western harvest mouse	<i>Reithrodontomys megalotis</i>	G5/S5		Yes	Yes
Deer mouse	<i>Peromyscus maniculatus</i>	G5/S5	Yes	Yes	Yes

Common Name	Scientific Name	Conservation Status	Salmonid Relationship	Closely Associated with Riparian	Closely Associated with Wetlands
Canyon mouse	<i>Peromyscus crinitus</i>	G5/S3,S4			
Piñon mouse	<i>Peromyscus truei</i>	G5/S2			
Northern grasshopper mouse	<i>Onychomys leucogaster</i>	G5/S4			
Desert woodrat	<i>Neotoma lepida</i>	G5/S4			
Bushy-tailed woodrat	<i>Neotoma cinerea</i>	G5/S5		Yes	
Southern red-backed vole	<i>Clethrionomys gapperi</i>	G5/S5		Yes	
Heather vole	<i>Phenacomys intermedius</i>	G5/S4			
Meadow vole	<i>Microtus pennsylvanicus</i>	G5/S5		Yes	Yes
Montane vole	<i>Microtus montanus</i>	G5/S5			Yes
Long-tailed vole	<i>Microtus longicaudus</i>	G5/S5		Yes	Yes
Water vole	<i>Microtus richardsoni</i>	G5/S4		Yes	
Sagebrush vole	<i>Lemmys curtatus</i>	G5/S4			
Muskrat	<i>Ondatra zibethicus</i>	G5/S5		Yes	Yes
Northern bog lemming	<i>Synaptomys borealis</i>	G4/S1			Yes
Black rat	<i>Rattus rattus</i>	G5/NNA			
Norway rat	<i>Rattus norvegicus</i>	G5/SNA			
House mouse	<i>Mus musculus</i>	G5/SNA			
Western jumping mouse	<i>Zapus princeps</i>	S5/S5		Yes	
Common porcupine	<i>Erethizon dorsatum</i>	G5/S5			
Coyote	<i>Canis latrans</i>	S5/S5	Yes		
Gray wolf	<i>Canis lupus</i>	G4/S1	Yes		
Red fox	<i>Vulpes vulpes</i>	G5/S5	Yes		
Kit fox	<i>Vulpes macrotis</i>	G4/N4			
Black bear	<i>Ursus americanus</i>	G5/s5	Yes		
Grizzly bear	<i>Ursus arctos horribilis</i>	G4T3T4/S1	Yes		
Raccoon	<i>Procyon lotor</i>	G5/S4	Yes	Yes	
American marten	<i>Martes americana</i>	G5/S5	Yes		
Fisher	<i>Martes pennanti</i>	G5/S1	Yes	Yes	
Ermine	<i>Mustela erminea</i>	G5/S5			
Long-tailed weasel	<i>Mustela frenata</i>	G5/S5	Yes		
Mink	<i>Mustela vison</i>	G5/S5	Yes	Yes	
Wolverine	<i>Gulo gulo</i>	G5/S2	Yes		
American badger	<i>Taxidea taxus</i>	G5/S5			
Western spotted skunk	<i>Spilogale gracilis</i>	G5/S5			
Striped skunk	<i>Mephitis mephitis</i>	S5/S5	Yes		
Northern river otter	<i>Lutra canadensis</i>	S5/S4	Yes	Yes	Yes
Mountain lion	<i>Puma concolor</i>	G5/S5	Yes		
Canada lynx	<i>Lynx canadensis</i>	G5/S1			
Bobcat	<i>Lynx rufus</i>	G5/S5	Yes		

Common Name	Scientific Name	Conservation Status	Salmonid Relationship	Closely Associated with Riparian	Closely Associated with Wetlands
Rocky Mountain elk	<i>Cervus elaphus nelsoni</i>	G5/S5			
Mule deer	<i>Odocoileus hemionus</i>	G5/S5			
White-tailed deer	<i>Odocoileus virginianus</i>	G5/S5			
Moose	<i>Alces alces</i>	G5/S5			
Pronghorn	<i>Antilocapra americana</i>	G5/S5			
Mountain goat	<i>Oreamnos americanus</i>	G5/S3			
Bighorn sheep	<i>Ovis canadensis</i>	G4T1/S1			
<b>Total Mammals: 97</b>		<b>Totals:</b>	<b>21</b>	<b>22</b>	<b>9</b>
<b>Total Species: 401</b>		<b>Overall Totals:</b>	<b>84</b>	<b>85</b>	<b>62</b>

**Table 2. Occurrence of terrestrial species in the four states of the Upper Snake province.**

Common Name	Idaho	Wyoming	Utah	Nevada
<b>Amphibian</b>				
Tiger salamander	occurs	occurs	occurs	does not occur
Long-toed salamander	occurs	does not occur	does not occur	does not occur
Inland tailed frog	occurs	does not occur	does not occur	does not occur
Great Basin spadefoot	occurs	does not occur	occurs	Occurs
Western toad	occurs	occurs	does not occur	Occurs
Pacific chorus (tree) frog	occurs	does not occur	occurs	Occurs
Red-legged frog	does not occur	does not occur	occurs	does not occur
Columbia spotted frog	occurs	does not occur	does not occur	does not occur
Northern leopard frog	occurs	occurs	occurs	Occurs
Bullfrog	nonnative	does not occur	does not occur	Nonnative
Painted turtle	occurs	does not occur	does not occur	does not occur
<b>Birds</b>				
Common loon	occurs	occurs	occurs	Occurs
Pied-billed grebe	occurs	occurs	occurs	Occurs
Horned grebe	occurs	occurs	occurs	Occurs
Red-necked grebe	occurs	accidental	does not occur	does not occur
Eared grebe	occurs	occurs	occurs	Occurs
Western grebe	occurs	occurs	occurs	Occurs
Clark's grebe	occurs	occurs	occurs	Occurs
American white pelican	occurs	occurs	occurs	Occurs
Double-crested cormorant	occurs	occurs	occurs	Occurs
American bittern	occurs	occurs	occurs	Occurs
Great blue heron	occurs	occurs	occurs	Occurs
Great egret	occurs	accidental	accidental	Occurs
Snowy egret	occurs	occurs	occurs	Occurs
Cattle egret	occurs	accidental	occurs	occurs

<b>Common Name</b>	<b>Idaho</b>	<b>Wyoming</b>	<b>Utah</b>	<b>Nevada</b>
Black-crowned night-heron	occurs	accidental	occurs	occurs
White-faced ibis	occurs	occurs	occurs	occurs
Turkey vulture	occurs	occurs	occurs	occurs
Greater white-fronted goose	occurs	accidental	accidental	occurs
Snow goose	occurs	occurs	occurs	occurs
Ross's goose	occurs	accidental	accidental	accidental
Canada goose	occurs	occurs	occurs	occurs
Trumpeter swan	occurs	occurs	accidental	occurs
Tundra swan	occurs	occurs	occurs	occurs
Wood duck	occurs	occurs	occurs	occurs
Gadwall	occurs	occurs	occurs	occurs
American wigeon	occurs	occurs	occurs	occurs
Mallard	occurs	occurs	occurs	occurs
Blue-winged teal	occurs	occurs	occurs	occurs
Cinnamon teal	occurs	occurs	occurs	occurs
Northern shoveler	occurs	occurs	occurs	occurs
Northern pintail	occurs	occurs	occurs	occurs
Green-winged teal	occurs	occurs	occurs	occurs
Canvasback	occurs	occurs	occurs	occurs
Redhead	occurs	occurs	occurs	occurs
Ring-necked duck	occurs	occurs	occurs	occurs
Greater scaup	accidental	accidental	accidental	occurs
Lesser scaup	occurs	occurs	occurs	occurs
Harlequin duck	occurs	occurs	accidental	does not occur
Bufflehead	occurs	occurs	occurs	occurs
Common goldeneye	occurs	occurs	occurs	occurs
Barrow's goldeneye	occurs	occurs	accidental	accidental
Hooded merganser	occurs	occurs	occurs	occurs
Common merganser	occurs	occurs	occurs	occurs
Red-breasted merganser	occurs	occurs	occurs	occurs
Ruddy duck	occurs	occurs	occurs	occurs
Osprey	occurs	occurs	occurs	occurs
Bald eagle	occurs	occurs	occurs	occurs
Northern harrier	occurs	occurs	occurs	occurs
Sharp-shinned hawk	occurs	occurs	occurs	occurs
Cooper's hawk	occurs	occurs	occurs	occurs
Northern goshawk	occurs	occurs	occurs	occurs
Swainson's hawk	occurs	occurs	occurs	occurs
Red-tailed hawk	occurs	occurs	occurs	occurs
Ferruginous hawk	occurs	occurs	occurs	occurs
Rough-legged hawk	occurs	occurs	occurs	occurs
Golden eagle	occurs	occurs	occurs	occurs
American kestrel	occurs	occurs	occurs	occurs

<b>Common Name</b>	<b>Idaho</b>	<b>Wyoming</b>	<b>Utah</b>	<b>Nevada</b>
Merlin	occurs	occurs	occurs	occurs
Peregrine falcon	occurs	occurs	occurs	occurs
Prairie falcon	occurs	occurs	occurs	occurs
Chukar	nonnative	nonnative	nonnative	nonnative
Gray partridge	nonnative	nonnative	nonnative	nonnative
Ring-necked pheasant	nonnative	does not occur	nonnative	does not occur
Ruffed grouse	occurs	occurs	does not occur	does not occur
Greater sage grouse	occurs	occurs	occurs	occurs
Spruce grouse	occurs	does not occur	does not occur	does not occur
Blue grouse	occurs	occurs	occurs	occurs
Sharp-tailed grouse	occurs	occurs	extirpated	extirpated
Wild turkey	nonnative	does not occur	does not occur	does not occur
Mountain quail	occurs	does not occur	does not occur	occurs
California quail	nonnative	does not occur	nonnative	nonnative
Virginia rail	occurs	accidental	occurs	occurs
Sora	occurs	occurs	occurs	occurs
American coot	occurs	occurs	occurs	occurs
Sandhill crane	occurs	occurs	occurs	occurs
Whooping crane	reintroduced	reintroduced	does not occur	does not occur
Black-bellied plover	occurs	accidental	occurs	accidental
American golden-plover	occurs	accidental	accidental	does not occur
Snowy plover	accidental	does not occur	occurs	does not occur
Semipalmated plover	occurs	accidental	accidental	does not occur
Killdeer	occurs	occurs	occurs	occurs
Black-necked stilt	occurs	accidental	occurs	occurs
American avocet	occurs	occurs	occurs	occurs
Greater yellowlegs	occurs	occurs	occurs	occurs
Lesser yellowlegs	occurs	occurs	occurs	occurs
Solitary sandpiper	occurs	occurs	occurs	occurs
Willet	occurs	occurs	occurs	occurs
Spotted sandpiper	occurs	occurs	occurs	occurs
Upland sandpiper	occurs	accidental	does not occur	does not occur
Long-billed curlew	occurs	occurs	occurs	occurs
Marbled godwit	occurs	occurs	occurs	accidental
Sanderling	occurs	accidental	occurs	does not occur
Semipalmated sandpiper	occurs	occurs	accidental	does not occur
Western sandpiper	occurs	occurs	occurs	occurs
Least sandpiper	occurs	occurs	occurs	occurs
Baird's sandpiper	occurs	occurs	occurs	accidental
Pectoral sandpiper	occurs	accidental	accidental	does not occur
Dunlin	occurs	accidental	occurs	occurs
Long-billed dowitcher	occurs	occurs	occurs	occurs
Wilson's snipe	occurs	occurs	occurs	occurs

<b>Common Name</b>	<b>Idaho</b>	<b>Wyoming</b>	<b>Utah</b>	<b>Nevada</b>
Wilson's phalarope	occurs	occurs	occurs	occurs
Red-necked phalarope	occurs	accidental	occurs	occurs
Franklin's gull	occurs	occurs	occurs	occurs
Bonaparte's gull	occurs	occurs	occurs	accidental
Ring-billed gull	occurs	occurs	occurs	occurs
California gull	occurs	occurs	occurs	occurs
Herring gull	occurs	does not occur	occurs	occurs
Caspian tern	occurs	occurs	occurs	occurs
Common tern	occurs	accidental	accidental	does not occur
Forster's tern	occurs	occurs	occurs	occurs
Black tern	occurs	occurs	occurs	occurs
Rock dove	nonnative	nonnative	nonnative	nonnative
Mourning dove	occurs	occurs	occurs	occurs
Yellow-billed cuckoo	occurs	occurs	accidental	does not occur
Barn owl	occurs	accidental	occurs	occurs
Flammulated owl	occurs	accidental	does not occur	accidental
Western screech-owl	occurs	occurs	occurs	occurs
Great horned owl	occurs	occurs	occurs	occurs
Northern pygmy-owl	occurs	occurs	occurs	does not occur
Burrowing owl	occurs	occurs	occurs	occurs
Barred owl	occurs	accidental	does not occur	does not occur
Great gray owl	occurs	occurs	does not occur	does not occur
Long-eared owl	occurs	occurs	occurs	occurs
Short-eared owl	occurs	occurs	occurs	occurs
Boreal owl	occurs	occurs	does not occur	does not occur
Northern saw-whet owl	occurs	occurs	occurs	occurs
Common nighthawk	occurs	occurs	occurs	occurs
Common poorwill	occurs	occurs	occurs	occurs
Black swift	occurs	occurs	does not occur	does not occur
Vaux's swift	occurs	accidental	does not occur	occurs
White-throated swift	occurs	accidental	occurs	occurs
Black-chinned hummingbird	occurs	occurs	occurs	occurs
Calliope hummingbird	occurs	occurs	occurs	occurs
Broad-tailed hummingbird	occurs	occurs	occurs	occurs
Rufous hummingbird	occurs	occurs	occurs	occurs
Belted kingfisher	occurs	occurs	occurs	occurs
Lewis's woodpecker	occurs	occurs	occurs	occurs
Williamson's sapsucker	occurs	occurs	does not occur	occurs
Red-naped sapsucker	occurs	occurs	occurs	occurs
Downy woodpecker	occurs	occurs	occurs	occurs
Hairy woodpecker	occurs	occurs	occurs	occurs
White-headed woodpecker	occurs	accidental	does not occur	does not occur
Three-toed woodpecker	occurs	occurs	does not occur	does not occur

<b>Common Name</b>	<b>Idaho</b>	<b>Wyoming</b>	<b>Utah</b>	<b>Nevada</b>
Black-backed woodpecker	occurs	occurs	does not occur	does not occur
Northern flicker	occurs	occurs	occurs	occurs
Pileated woodpecker	occurs	accidental	does not occur	does not occur
Olive-sided flycatcher	occurs	occurs	occurs	occurs
Western wood-pewee	occurs	occurs	occurs	occurs
Willow flycatcher	occurs	occurs	occurs	occurs
Least flycatcher	occurs	occurs	does not occur	does not occur
Hammond's flycatcher	occurs	occurs	occurs	occurs
Gray flycatcher	occurs	does not occur	occurs	occurs
Dusky flycatcher	occurs	occurs	occurs	occurs
Cordilleran flycatcher	occurs	occurs	occurs	occurs
Say's phoebe	occurs	occurs	occurs	occurs
Ash-throated flycatcher	occurs	does not occur	occurs	occurs
Western kingbird	occurs	occurs	occurs	occurs
Eastern kingbird	occurs	occurs	occurs	occurs
Loggerhead shrike	occurs	occurs	occurs	occurs
Northern shrike	occurs	occurs	occurs	occurs
Cassin's vireo	occurs	does not occur	occurs	occurs
Warbling vireo	occurs	occurs	occurs	occurs
Red-eyed vireo	occurs	occurs	does not occur	accidental
Gray jay	occurs	occurs	does not occur	does not occur
Steller's jay	occurs	occurs	accidental	occurs
Western scrub-jay	occurs	does not occur	occurs	occurs
Pinyon jay	occurs	accidental	occurs	occurs
Clark's nutcracker	occurs	occurs	occurs	occurs
Black-billed magpie	occurs	occurs	occurs	occurs
American crow	occurs	occurs	occurs	occurs
Common raven	occurs	occurs	occurs	occurs
Horned lark	occurs	occurs	occurs	occurs
Tree swallow	occurs	occurs	occurs	occurs
Violet-green swallow	occurs	occurs	occurs	occurs
Northern rough-winged swallow	occurs	occurs	occurs	occurs
Bank swallow	occurs	occurs	occurs	occurs
Cliff swallow	occurs	occurs	occurs	occurs
Barn swallow	occurs	occurs	occurs	occurs
Black-capped chickadee	occurs	occurs	occurs	occurs
Mountain chickadee	occurs	occurs	occurs	occurs
Chestnut-backed chickadee	occurs	does not occur	does not occur	does not occur
Juniper titmouse	occurs	accidental	occurs	occurs
Bushtit	occurs	does not occur	occurs	occurs
Red-breasted nuthatch	occurs	occurs	occurs	occurs
White-breasted nuthatch	occurs	occurs	occurs	occurs
Pygmy nuthatch	occurs	accidental	does not occur	does not occur

<b>Common Name</b>	<b>Idaho</b>	<b>Wyoming</b>	<b>Utah</b>	<b>Nevada</b>
Brown creeper	occurs	occurs	occurs	occurs
Rock wren	occurs	occurs	occurs	occurs
Canyon wren	occurs	accidental	occurs	occurs
Bewick's wren	occurs	does not occur	accidental	does not occur
House wren	occurs	occurs	occurs	occurs
Winter wren	occurs	occurs	does not occur	occurs
Marsh wren	occurs	occurs	occurs	occurs
American dipper	occurs	occurs	occurs	occurs
Golden-crowned kinglet	occurs	occurs	occurs	occurs
Ruby-crowned kinglet	occurs	occurs	occurs	occurs
Blue-gray gnatcatcher	occurs	accidental	occurs	occurs
Western bluebird	occurs	occurs	does not occur	occurs
Mountain bluebird	occurs	occurs	occurs	occurs
Townsend's solitaire	occurs	occurs	occurs	occurs
Veery	occurs	occurs	occurs	occurs
Swainson's thrush	occurs	occurs	occurs	occurs
Hermit thrush	occurs	occurs	occurs	occurs
American robin	occurs	occurs	occurs	occurs
Varied thrush	occurs	accidental	does not occur	accidental
Gray catbird	occurs	occurs	occurs	does not occur
Northern mockingbird	occurs	accidental	occurs	occurs
Sage thrasher	occurs	occurs	occurs	occurs
European starling	nonnative	nonnative	nonnative	nonnative
American pipit	occurs	occurs	occurs	occurs
Bohemian waxwing	occurs	occurs	occurs	occurs
Cedar waxwing	occurs	occurs	occurs	occurs
Orange-crowned warbler	occurs	occurs	occurs	occurs
Nashville warbler	occurs	accidental	occurs	occurs
Yellow warbler	occurs	occurs	occurs	occurs
Yellow-rumped warbler	occurs	occurs	occurs	occurs
Black-throated gray warbler	occurs	occurs	occurs	occurs
Townsend's warbler	occurs	occurs	occurs	occurs
American redstart	occurs	occurs	occurs	occurs
Northern waterthrush	occurs	occurs	accidental	accidental
MacGillivray's warbler	occurs	occurs	occurs	occurs
Common yellowthroat	occurs	occurs	occurs	occurs
Wilson's warbler	occurs	occurs	occurs	occurs
Yellow-breasted chat	occurs	accidental	occurs	occurs
Western tanager	occurs	occurs	occurs	occurs
Green-tailed towhee	occurs	occurs	occurs	occurs
Spotted towhee	occurs	occurs	occurs	occurs
American tree sparrow	occurs	occurs	occurs	occurs
Chipping sparrow	occurs	occurs	occurs	occurs

<b>Common Name</b>	<b>Idaho</b>	<b>Wyoming</b>	<b>Utah</b>	<b>Nevada</b>
Clay-colored sparrow	accidental	occurs	does not occur	does not occur
Brewer's sparrow	occurs	occurs	occurs	occurs
Vesper sparrow	occurs	occurs	occurs	occurs
Lark sparrow	occurs	occurs	occurs	occurs
Black-throated sparrow	occurs	accidental	occurs	occurs
Sage sparrow	occurs	accidental	occurs	occurs
Savannah sparrow	occurs	occurs	occurs	occurs
Grasshopper sparrow	occurs	accidental	occurs	occurs
Fox sparrow	occurs	occurs	occurs	occurs
Song sparrow	occurs	occurs	occurs	occurs
Lincoln's sparrow	occurs	occurs	occurs	occurs
White-throated sparrow	occurs	occurs	accidental	accidental
Harris's sparrow	occurs	accidental	accidental	accidental
White-crowned sparrow	occurs	occurs	occurs	occurs
Dark-eyed junco	occurs	occurs	occurs	occurs
Lapland longspur	occurs	accidental	occurs	occurs
Snow bunting	occurs	occurs	occurs	accidental
Black-headed grosbeak	occurs	occurs	occurs	occurs
Lazuli bunting	occurs	occurs	occurs	occurs
Bobolink	occurs	occurs	accidental	occurs
Red-winged blackbird	occurs	occurs	occurs	occurs
Western meadowlark	occurs	occurs	occurs	occurs
Yellow-headed blackbird	occurs	occurs	occurs	occurs
Brewer's blackbird	occurs	occurs	occurs	occurs
Brown-headed cowbird	occurs	occurs	occurs	occurs
Bullock's oriole	occurs	occurs	occurs	occurs
Gray-crowned rosy-finch	occurs	occurs	occurs	occurs
Black rosy-finch	occurs	occurs	occurs	occurs
Pine grosbeak	occurs	occurs	does not occur	does not occur
Cassin's finch	occurs	occurs	occurs	occurs
House finch	occurs	occurs	occurs	occurs
Red crossbill	occurs	occurs	occurs	occurs
White-winged crossbill	occurs	accidental	does not occur	does not occur
Common redpoll	occurs	occurs	does not occur	does not occur
Pine siskin	occurs	occurs	occurs	occurs
Lesser goldfinch	occurs	does not occur	occurs	occurs
American goldfinch	occurs	occurs	occurs	occurs
Evening grosbeak	occurs	occurs	occurs	occurs
House sparrow	nonnative	nonnative	nonnative	nonnative
<b>Reptiles</b>				
Common Kingsnake	does not occur	does not occur	does not occur	occurs
California Mountain Kingsnake	does not occur	does not occur	does not occur	occurs
Mojave black-collared lizard	does not occur	does not occur	occurs	occurs

<b>Common Name</b>	<b>Idaho</b>	<b>Wyoming</b>	<b>Utah</b>	<b>Nevada</b>
Long-nosed leopard lizard	occurs	does not occur	occurs	occurs
Short-horned lizard	occurs	occurs	occurs	occurs
Desert horned lizard	occurs	does not occur	does not occur	occurs
Northern sagebrush lizard	occurs	occurs	occurs	occurs
Western fence lizard	occurs	does not occur	occurs	occurs
Side-blotched lizard	occurs	does not occur	occurs	occurs
Western skink	occurs	does not occur	occurs	occurs
Western whiptail	occurs	does not occur	does not occur	occurs
Rubber boa	occurs	occurs	does not occur	occurs
Racer	occurs	does not occur	occurs	occurs
Ringneck snake	occurs	does not occur	does not occur	occurs
Night snake	occurs	does not occur	occurs	occurs
Striped whipsnake	occurs	does not occur	occurs	does not occur
Gopher snake	occurs	does not occur	occurs	occurs
Western terrestrial garter snake	occurs	does not occur	occurs	occurs
Common garter snake	occurs	occurs	occurs	does not occur
Western rattlesnake	occurs	does not occur	does not occur	occurs
<b>Mammals</b>				
Botta's (Pistol River) pocket gopher	does not occur	does not occur	occurs	occurs
Black rat	does not occur	does not occur	occurs	occurs
Gray fox	does not occur	does not occur	does not occur	occurs
Red-legged frog	does not occur	does not occur	does not occur	occurs
Columbia spotted frog	does not occur	occurs	does not occur	occurs
Common kingsnake	does not occur	does not occur	does not occur	occurs
California mountain kingsnake	does not occur	does not occur	does not occur	occurs
Norway rat	nonnative	nonnative	nonnative	nonnative
House mouse	nonnative	does not occur	occurs	occurs
Idaho pocket gopher	occurs	does not occur	does not occur	does not occur
Dwarf shrew	does not occur	occurs	does not occur	does not occur
Masked shrew	occurs	occurs	does not occur	does not occur
Vagrant shrew	occurs	occurs	occurs	occurs
Montane shrew	occurs	occurs	occurs	does not occur
Water shrew	occurs	occurs	occurs	occurs
Merriam's shrew	occurs	occurs	occurs	occurs
California myotis	occurs	does not occur	does not occur	occurs
Western small-footed myotis	occurs	occurs	occurs	occurs
Yuma myotis	occurs	does not occur	occurs	occurs
Little brown myotis	occurs	occurs	occurs	occurs
Long-legged myotis	occurs	occurs	occurs	occurs
Fringed myotis	occurs	does not occur	does not occur	occurs
Long-eared myotis	occurs	occurs	occurs	occurs
Silver-haired bat	occurs	occurs	occurs	occurs

<b>Common Name</b>	<b>Idaho</b>	<b>Wyoming</b>	<b>Utah</b>	<b>Nevada</b>
Western pipistrelle	occurs	does not occur	does not occur	occurs
Big brown bat	occurs	occurs	occurs	occurs
Hoary bat	occurs	occurs	occurs	occurs
Spotted bat	occurs	occurs	does not occur	occurs
Townsend's big-eared bat	occurs	occurs	does not occur	occurs
Pallid bat	occurs	occurs	does not occur	occurs
American pika	occurs	occurs	does not occur	occurs
Pygmy rabbit	occurs	does not occur	occurs	occurs
Nuttall's (mountain) cottontail	occurs	occurs	occurs	occurs
Snowshoe hare	occurs	occurs	does not occur	does not occur
White-tailed jackrabbit	occurs	occurs	occurs	occurs
Black-tailed jackrabbit	occurs	does not occur	occurs	occurs
Least chipmunk	occurs	occurs	occurs	occurs
Yellow-pine chipmunk	occurs	occurs	occurs	occurs
Red-tailed chipmunk	occurs	does not occur	does not occur	does not occur
Yellow-bellied marmot	occurs	occurs	occurs	occurs
Hoary marmot	occurs	does not occur	does not occur	does not occur
White-tailed antelope squirrel	occurs	does not occur	occurs	occurs
Townsend's ground squirrel	occurs	does not occur	does not occur	occurs
Paiute ground squirrel	occurs	does not occur	occurs	does not occur
Belding's ground squirrel	occurs	does not occur	occurs	occurs
Columbian ground squirrel	occurs	does not occur	does not occur	does not occur
Golden-mantled ground squirrel	occurs	occurs	occurs	occurs
Rock squirrel	occurs	does not occur	does not occur	occurs
Red squirrel	occurs	occurs	does not occur	does not occur
Northern flying squirrel	occurs	occurs	does not occur	does not occur
Northern pocket gopher	occurs	occurs	occurs	occurs
Townsend's pocket gopher	occurs	does not occur	does not occur	occurs
Great basin pocket mouse	occurs	does not occur	occurs	occurs
Little pocket mouse	occurs	does not occur	occurs	occurs
Dark kangaroo mouse	does not occur	does not occur	does not occur	occurs
Ord's kangaroo rat	occurs	does not occur	occurs	occurs
Chisel-toothed kangaroo rat	occurs	does not occur	occurs	occurs
American beaver	occurs	occurs	occurs	occurs
Western harvest mouse	occurs	does not occur	occurs	occurs
Deer mouse	occurs	occurs	occurs	occurs
Canyon mouse	occurs	does not occur	occurs	occurs
Pinon mouse	occurs	does not occur	occurs	occurs
Northern grasshopper mouse	occurs	does not occur	occurs	occurs
Desert woodrat	occurs	does not occur	occurs	occurs
Bushy-tailed woodrat	occurs	occurs	occurs	occurs
Southern red-backed vole	occurs	occurs	does not occur	does not occur
Heather vole	occurs	occurs	does not occur	does not occur

<b>Common Name</b>	<b>Idaho</b>	<b>Wyoming</b>	<b>Utah</b>	<b>Nevada</b>
Meadow vole	occurs	occurs	does not occur	does not occur
Montane vole	occurs	occurs	occurs	occurs
Long-tailed vole	occurs	occurs	occurs	occurs
Water vole	occurs	occurs	does not occur	does not occur
Sagebrush vole	occurs	occurs	occurs	occurs
Muskrat	occurs	occurs	occurs	occurs
Northern bog lemming	occurs	does not occur	does not occur	does not occur
Western jumping mouse	occurs	occurs	occurs	occurs
Common porcupine	occurs	occurs	occurs	occurs
Coyote	occurs	occurs	occurs	occurs
Gray wolf	occurs	occurs	does not occur	does not occur
Red fox	occurs	occurs	does not occur	occurs
Kit fox	occurs	does not occur	occurs	occurs
Black bear	occurs	occurs	occurs	does not occur
Grizzly bear	occurs	occurs	extirpated	extirpated
Raccoon	occurs	occurs	occurs	occurs
American marten	occurs	occurs	does not occur	does not occur
Fisher	occurs	does not occur	does not occur	does not occur
Ermine	occurs	occurs	occurs	occurs
Long-tailed weasel	occurs	occurs	occurs	occurs
Mink	occurs	occurs	occurs	occurs
Wolverine	occurs	occurs	does not occur	does not occur
American badger	occurs	occurs	occurs	occurs
Western spotted skunk	occurs	does not occur	occurs	occurs
Striped skunk	occurs	occurs	occurs	occurs
Northern river otter	occurs	occurs	occurs	occurs
Mountain lion	occurs	occurs	occurs	occurs
Canada lynx	occurs	occurs	does not occur	does not occur
Bobcat	occurs	occurs	occurs	occurs
Rocky Mountain elk	occurs	occurs	occurs	occurs
White-tailed deer	occurs	occurs	does not occur	does not occur
Moose	occurs	occurs	does not occur	does not occur
Pronghorn	occurs	occurs	occurs	occurs
Mountain goat	occurs	occurs	does not occur	does not occur
Rocky Mountain bighorn sheep	occurs	occurs	does not occur	occurs
Mule deer	occurs	occurs	occurs	occurs

## Global and State Conservation Ranking Descriptions

(Idaho Department of Fish and Game, Idaho Conservation Data Center)

The network of Natural Heritage Programs and Conservation Data Centers—which currently consists of installations in all 50 states, several Canadian provinces, and several Latin American and Caribbean countries—ranks the status of plants, animals, and plant communities at the rangewide or global (G-rank) and state (S-rank) levels on a scale of 1 to 5. The rank is based primarily on the number of known occurrences, but other factors—such as habitat quality, estimated number of individuals, narrowness of range of habitat, trends in populations and habitat, and threats to the species—are also considered. The ranking system is meant to exist alongside national and state rare species lists because these lists often include additional criteria (e.g., recovery potential and depth of knowledge) that go beyond assessing threats to extinction.

### Components of Ranks:

- G** Global rank indicator: rank is based on rangewide status
- T** Trinomial rank indicator: global status is for intraspecific taxa
- S** State rank indicator: rank is based on status within Idaho
- 1** Critically imperiled because of extreme rarity or because some factor of its biology makes it especially vulnerable to extinction (typically 5 or fewer occurrences)
- 2** Imperiled because of rarity or because other factors demonstrably make it very vulnerable to extinction (typically 6 to 20 occurrences)
- 3** Rare or uncommon but not imperiled (typically 21 to 100 occurrences)
- 4** Not rare and apparently secure but with cause for long-term concern (usually more than 100 occurrences)
- 5** Demonstrably widespread, abundant, and secure
- U** Unrankable
- H** Historical occurrence (i.e., formerly part of the native biota; implied expectation is that it might be rediscovered or possibly be extinct)
- X** Presumed extinct or extirpated
- Q** Uncertainty exists about taxonomic status
- ?** Uncertainty exists about the stated rank
- NR** Not ranked
- NA** Conservation status rank is not applicable

### Examples of Use:

**G4T2** = Species is apparently secure rangewide, but this particular subspecies or variety is imperiled.

**S2S3** = Uncertainty exists about whether the species or subspecies should be ranked S2 or S3.

### Components of State Ranks Specific to Long-Distance Migrants (Bats and Birds):

- A** Accidental (occurring only once or a few times) or casual (occurring more regularly although not every year) in Idaho; a few of these species might have bred during one or more of the periods in which they were recorded
- B** Breeding population
- M** Migrant that resident only in an irregular, transitory, and dispersed manner; occurrences cannot be predicted from year to year
- N** Nonbreeding population

**Examples of Use:**

**S4N** = Fairly common winter resident

**S1B,S5N** = Rare breeder but a common winter resident

**S2B,SMN** = Rare breeder and an uncommon spring and fall transient among which a few remain as local and irregular (in location) winter residents

## APPENDIX 1-2—POTENTIAL AND CURRENT NATURAL VEGETATION

**Table 1.** Percent representation of potential natural vegetation, by major watershed, for the Snake Headwaters subbasin (source: ICBEMP 1997). (GHB= Greys–Hoback watershed; GVT= Gros Ventre watershed; PAL=Palisades watershed; SAL=Salt watershed; SHW=Snake Headwaters watershed).

Potential Natural Vegetation	Major Hydrologic Unit (Watershed)					Total Area (km <sup>2</sup> )
	GHB	GVT	PAL	SAL	SHW	
Barren			<1%		<1%	12
Dry Douglas-fir without Ponderosa Pine	14	16	39	47	15	3,507
Dry Grand Fir/White Fir						0
Grand Fir/White Fir Inland						0
Historic Salix/Carex	<1%	2			<1%	46
Historic Agropyron Steppe	<1%	<1%	<1%	<1%	<1%	46
Historic Alpine Shrub-Herbaceous	<1%				5	241
Historic Antelope Bitterbrush			<1%			1
Historic Aspen	24	3	15	12	11	2,148
Historic Big Sage Steppe						0
Historic Big Sage-Cool			<1%	<1%		11
Historic Big Sage-Warm						0
Historic Cottonwood Riverine			<1%		<1%	43
Historic Fescue Grassland						0
Historic Fescue Grassland with Conifer	2	3	11	3	2	504
Historic Juniper						0
Historic Low Sage-Mesic						0
Historic Low Sage-Xeric						0
Historic Mountain Big Sage Mesic West w/Juniper	<1%					1
Historic Mountain Big Sage-Mesic-East	<1%	<1%			<1%	18
Historic Mountain Big Sage-Mesic-East w/Conifer						0
Historic Mountain Big Sage-Mesic-West						0
Historic Mountain Mahogany						0
Historic Mountain Mahogany with ArtRva						0
Historic Mountain Riparian Low Shrub	<1%	<1%			<1%	42
Historic Mountain Shrub						0
Historic Salt Desert Shrub						0

Potential Natural Vegetation	Major Hydrologic Unit (Watershed)					Total Area (km <sup>2</sup> )
	GHB	GVT	PAL	SAL	SHW	
Historic Saltbrush Riparian						0
Historic ThreeTipp Sage						0
Interior Ponderosa Pine						0
Limber Pine						0
Lodgepole Pine-Yellowstone					3	121
Moist Douglas-fir						0
Spruce-Fir Dry with Aspen	38	29	31	33	26	4,657
Spruce-Fir Dry without Aspen	7	21	4	<1%	8	1,057
Spruce-Fir Wet						0
Spruce-Fir(LPP>WBP)	13	22	<1%	4	21	1,896
Water			<1%		4	198
White Bark Pine/Alpine Larch South	<1%	3	<1%	<1%	3	207

**Table 2. Percent representation of potential natural vegetation, by major watershed, for the Upper Snake subbasin (source: ICBEMP 1997). (AMF=American Falls watershed; BFT=Blackfoot watershed; GSE=Goose watershed; IFA= Idaho Falls watershed; LHF=Lower Henrys Fork watershed; Portneuf watershed; RFT=Raft watershed; TET=Teton watershed; UHF=Upper Henrys Fork watershed; LWT=Lake Walcott watershed; WIL=Willow watershed).**

Potential Natural Vegetation	Major Hydrologic Unit (Watershed)												Total Area (km <sup>2</sup> )
	AMF	BFT	GSE	IFA	LHF	PTF	RFT	TET	UHF	USR	LWT	WIL	
Barren													0
Dry Douglas-fir with Ponderosa Pine	<1%	<1%	<1%	<1%	<1%	<1%	<1%	2	3		<1%		229
Dry Douglas-fir without Ponderosa Pine	<1%	5		2	4	8		2	3		<1%	12	955
Dry Grand Fir/White Fir													0
Grand Fir/White Fir Inland							<1%		<1%				24
Historic Salix/Carex		<1%	<1%									10	167
Historic Agropyron Steppe	<1%	<1%	<1%			2	<1%			<1%	<1%	4	162
Historic Alpine Shrub-Herbaceous							<1%	<1%					13
Historic Antelope Bitterbrush	<1%		<1%	<1%			<1%				<1%	<1%	26
Historic Aspen	3	32	3	4	14	23	2	11	19		1	28	4,017
Historic Big Sage Steppe	<1%	4	2	<1%	<1%	2	2	3	<1%	1	<1%	<1%	471
Historic Big Sage-Cool	2	<1%				34					<1%	2	1,424
Historic Big Sage-Warm	81	40	68	88	36	21	64	37	<1%	95	87	16	2,7811

Potential Natural Vegetation	Major Hydrologic Unit (Watershed)												Total Area (km <sup>2</sup> )
	AMF	BFT	GSE	IFA	LHF	PTF	RFT	TET	UHF	USR	LWT	WIL	
Historic Cottonwood Riverine													0
Historic Fescue Grassland	<1%	<1%	2	<1%	<1%	<1%	2	<1%	3	<1%	<1%	2	346
Historic Fescue Grassland with Conifer	<1%			1	4	<1%		<1%	6		<1%	9	528
Historic Juniper			<1%	<1%	<1%		2			<1%	<1%		102
Historic Low Sage-Mesic	6	<1%		<1%		<1%	<1%	<1%		<1%	4		870
Historic Low Sage-Xeric	1			<1%			<1%				<1%		161
Historic Mountain Big Sage Mesic West w/Juniper	2	2	6	<1%	1	2	11		<1%	<1%	2	<1%	1,087
Historic Mountain Big Sage-Mesic-East	<1%	<1%	12	<1%	6	<1%	7		<1%	1	2		1,064
Historic Mountain Big Sage-Mesic-East w/Conifer			<1%				<1%				<1%		18
Historic Mountain Big Sage-Mesic-West	<1%	<1%	<1%	<1%			<1%			<1%	<1%	1	75
Historic Mountain Mahogany	<1%	3	<1%	<1%	<1%	<1%	<1%	7	<1%	<1%	<1%	<1%	389
Historic Mountain Mahogany with ArtRva											<1%		1
Historic Mountain Riparian Low Shrub		<1%										<1%	20
Historic Mountain Shrub	<1%			<1%	<1%			<1%	2		<1%		121
Historic Salt Desert Shrub	<1%			<1%			<1%			<1%	1		209
Historic Saltbrush Riparian	<1%			<1%			<1%				<1%		31
Historic ThreeTipp Sage	<1%	3	6	<1%	<1%	<1%	3	<1%		<1%	<1%	2	516
Interior Ponderosa Pine	<1%	<1%	<1%	<1%		<1%	<1%	1	<1%		<1%		121
Limber Pine													0
Lodgepole Pine-Yellowstone					4			<1%	1				148
Moist Douglas-fir													0
Spruce-Fir Dry with Aspen	<1%	9	<1%	<1%	9	6	<1%	14	20		<1%	13	2,039
Spruce-Fir Dry without Aspen	<1%	<1%		<1%	3	<1%		4	18			<1%	744
Spruce-Fir Wet			<1%				<1%						2
Spruce-Fir(LPP>WBP)		<1%			16	<1%		16	21				1,497
Water		<1%							<1%				22
White Bark Pine/Alpine Larch South					<1%	<1%		<1%	<1%				14

**Table 3. Percent representation of potential natural vegetation, by major watershed, for the Closed Basin subbasin (source: ICBEMP 1997). (BCM=Beaver-Camas watershed; BCK=Birch watershed; Big Lost River watershed; Little Lost River watershed; Medicine Lodge watershed.)**

Potential Natural Vegetation	Major Hydrologic Unit (Watershed)					Total Area (km <sup>2</sup> )
	BCM	BCK	BLR	LLR	MDL	
Barren		5	1	6	<1%	325
Dry Douglas-fir with Ponderosa Pine	3	4	4	4	6	579
Dry Douglas-fir without Ponderosa Pine	<1%	<1%	<1%	<1%	7	260
Dry Grand Fir/White Fir			5			269
Grand Fir/White Fir Inland	<1%	1	<1%	<1%	<1%	75
Historic Salix/Carex						0
Historic Agropyron Steppe	<1%	4	<1%	3	<1%	208
Historic Alpine Shrub-Herbaceous			1			58
Historic Antelope Bitterbrush				<1%	<1%	5
Historic Aspen	5	<1%	<1%	<1%	2	195
Historic Big Sage Steppe	<1%	2		<1%	1	79
Historic Big Sage-Cool	3	21	13	34	2	2,019
Historic Big Sage-Warm	43	2	13	<1%	22	2,380
Historic Cottonwood Riverine			<1%	<1%		46
Historic Fescue Grassland	5					117
Historic Fescue Grassland with Conifer	10	2	4	4	9	820
Historic Juniper	<1%		<1%	<1%	<1%	26
Historic Low Sage-Mesic	<1%	<1%	2	<1%	<1%	100
Historic Low Sage-Xeric	<1%	3	7	2	6	615
Historic Mountain Big Sage Mesic West w/Juniper	2	<1%	1	3	2	229
Historic Mountain Big Sage-Mesic-East	2	28	21	20	5	2,260
Historic Mountain Big Sage-Mesic-East w/Conifer						0
Historic Mountain Big Sage-Mesic-West	<1%			<1%	<1%	13
Historic Mountain Mahogany		<1%	<1%		<1%	5
Historic Mountain Mahogany with ArtRva	<1%	2	<1%	2	<1%	138
Historic Mountain Riparian Low Shrub						0
Historic Mountain Shrub	1		<1%	<1%	<1%	53
Historic Salt Desert Shrub		7	4	3	<1%	430
Historic Saltbrush Riparian	4	6	<1%	5	23	914
Historic ThreeTipp Sage	<1%		<1%			15
Interior Ponderosa Pine	<1%	2	7	3	<1%	509
Limber Pine	1	2	<1%	3	3	241
Lodgepole Pine-Yellowstone						0

Potential Natural Vegetation	Major Hydrologic Unit (Watershed)					Total Area (km <sup>2</sup> )
	BCM	BCK	BLR	LLR	MDL	
Moist Douglas-fir	<1%	<1%	<1%	<1%	<1%	20
Spruce-Fir Dry with Aspen	3					69
Spruce-Fir Dry without Aspen	2	1	2	3	<1%	300
Spruce-Fir Wet						0
Spruce-Fir(LPP>WBP)	10	3	2	3	7	611
Water					<1%	1
White Bark Pine/Alpine Larch South		5	7	2	<1%	526

**Table 4. Percent representation of current vegetation cover types within each of the major watersheds in the Snake Headwaters subbasin (source: GAP II, Scott *et al.* 2002).**

Current Vegetation	Major Hydrologic Unit (Watershed)					Total Area (km <sup>2</sup> )
	GHB	GVT	PAL	SAL	SHW	
Agricultural			6			149.960
Alpine Meadow	5	3	<1%	1	6	551.935
Aquatic Bed						0.000
Aspen	5	2	24	19	<1%	1275.67
Basin & Wyoming Big Sagebrush			2	<1%		45.5803
Bitterbrush			<1%	<1%		6.87057
Broadleaf-Dominated Riparian			<1%	<1%		12.1679
Curl-leaf Mountain Mahogany			<1%	<1%		0.83982
Deep Marsh						0.000
Disturbed, High			<1%			0.05304
Disturbed, Low						0.000
Douglas-fir	14	3	12	19	1	1407.74
Douglas-fir/Limber Pine						0.000
Douglas-fir/Lodgepole Pine			1	<1%		28.9713
Dry Meadow						0.000
Engelmann Spruce	<1%		<1%			3.17065
Exposed Rock			1	<1%		27.1666
Foothills Grassland	<1%	<1%	<1%	1	<1%	93.5269
Graminoid- or Forb-Dominated Riparian			<1%	<1%		0.75338
Herbaceous Burn					3	130.558
Herbaceous Clearcut	<1%	2	<1%	<1%	1	100.477
High Intensity Urban						0.000
Lava						0.000
Lodgepole Pine	23	32	3	8	33	3179.99
Low Intensity Urban	<1%		<1%	<1%		11.8686
Low Sagebrush			<1%	<1%		2.18848

Current Vegetation	Major Hydrologic Unit (Watershed)					Total Area (km <sup>2</sup> )
	GHB	GVT	PAL	SAL	SHW	
Maple			<1%	<1%		0.75639
Mixed Barren Land	<1%	<1%		<1%	<1%	16.5425
Mixed Needleleaf/Broadleaf Forest			4	4		169.467
Mixed Subalpine Forest			9	6		362.462
Montane Parklands and Subalpine Meadow	19	19	3	4	21	2191.97
Mountain Big Sagebrush	9	6	9	13	3	1109.92
Mountain Low Sagebrush			<1%	<1%		7.38071
Mud Flat						0.000
Needleleaf-Dominated Riparian	1	<1%	<1%	<1%	<1%	141.883
Perennial Grass Slope	<1%		<1%	<1%	<1%	25.2782
Perennial Grassland	<1%		<1%	<1%		63.8729
Perennial Ice or Snow			<1%	<1%		4.78497
Pinyon Pine/Juniper						0.000
Rabbitbrush						0.000
Salt-desert Shrub						0.000
Sand Dune						0.000
Shallow Marsh						0.000
Shrub-Dominated Riparian	1	3	1	1	2	247.004
Shrub/Steppe Annual Grass-Forb	<1%					18.3614
Silver Sage				<1%		0.24311
Subalpine Fir	14	22	<1%	<1%	10	1372.66
Subalpine fir/Whitebark Pine			<1%	<1%	2	93.9119
Subalpine Pine			<1%	<1%		0.53553
Utah Juniper			<1%			1.5255
Vegetated Lava						0.000
Vegetated Sand Dune						0.000
Warm Mesic Shrubs			8	1		224.11
Water		<1%	3	<1%	3	221.505
Wet Meadow	<1%		<1%	<1%	<1%	19.5108
Other	5	6	8	20	12	1504.12

**Table 5. Percent representation of current vegetation cover types within each of the major watersheds in the Upper Snake subbasin (source: GAP II, Scott *et al.* 2002).**

Potential Natural Vegetation	Major Hydrologic Unit (Watershed)												Total Area (km <sup>2</sup> )
	AMF	BFT	GSE	IFA	LHF	PTF	RFT	TET	UHF	USR	LWT	WIL	
Agricultural	28	5	13	58	20	13	14	48	2	48	20	6	10,511
Alpine Meadow		<1%					<1%	<1%	<1%			<1%	9

Potential Natural Vegetation	Major Hydrologic Unit (Watershed)												Total Area (km <sup>2</sup> )
	AMF	BFT	GSE	IFA	LHF	PTF	RFT	TET	UHF	USR	LWT	WIL	
Aquatic Bed	<1%		<1%										0
Aspen	1	12	1	1	5	7	2	15	4	<1%	<1%	22	1,892
Basin & Wyoming Big Sagebrush	36	7	15	12	5	14	24	<1%	2	14	42	8	9,754
Bitterbrush	<1%	2	<1%	4	16	2	<1%	<1%	<1%	<1%	<1%	<1%	719
Broadleaf-Dominated Riparian	<1%	<1%	<1%	<1%	2	<1%	<1%	<1%	<1%	<1%	<1%	<1%	193
Curl-leaf Mountain Mahogany	<1%	<1%	<1%			<1%	<1%	<1%			<1%	<1%	4
Deep Marsh	<1%	<1%	<1%	<1%		<1%			<1%	<1%	<1%	5	93
Disturbed, High	<1%	<1%	<1%		<1%	<1%	<1%		<1%	<1%	<1%	<1%	40
Disturbed, Low	<1%		<1%	<1%		<1%	<1%	<1%	<1%	<1%	<1%		11
Douglas-fir	<1%	<1%	<1%	<1%	<1%	7	<1%	6	8	<1%	<1%	<1%	834
Douglas-fir/Limber Pine					<1%				<1%				0
Douglas-fir/Lodgepole Pine		<1%		<1%	<1%	<1%		<1%	1		<1%	<1%	69
Dry Meadow					<1%		<1%		<1%				20
Engelmann Spruce					<1%			2	<1%				68
Exposed Rock		<1%	<1%				<1%	<1%	<1%		<1%	<1%	7
Foothills Grassland	<1%	2	<1%	<1%	<1%	<1%	<1%	<1%	3	<1%	<1%	2	288
Graminoid or Forb-Dominated Riparian	<1%	<1%		<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	78
Herbaceous Burn					5				1				178
Herbaceous Clearcut		<1%			<1%			<1%	6			<1%	201
High Intensity Urban	<1%	<1%	<1%		<1%	2	<1%			<1%	<1%		101
Lava	<1%			<1%							7		631
Lodgepole Pine	<1%	2	<1%	<1%	25	<1%	<1%	10	26	<1%	<1%	<1%	1,763
Low Intensity Urban	<1%	<1%	<1%	<1%	<1%	<1%	<1%		<1%	<1%	<1%	<1%	29
Low Sagebrush	1	2	<1%	3	<1%	<1%	<1%	<1%		<1%	<1%	2	425
Maple		<1%				<1%						<1%	14
Mixed Barren Land	<1%		<1%	<1%	<1%		<1%	<1%	<1%	<1%	<1%		37
Mixed Needleleaf/Broadleaf Forest	<1%	3		<1%	3	2	<1%	2	9		<1%	2	574
Mixed Subalpine Forest	<1%	4	1	<1%	<1%	<1%	<1%	3	5	<1%	<1%	<1%	439
Montane Parklands and Subalpine Meadow	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1	1	<1%	<1%	<1%	103
Mountain Big Sagebrush	3	18	8	<1%	3	18	13	2	8	<1%	3	17	3,110

Potential Natural Vegetation	Major Hydrologic Unit (Watershed)												Total Area (km <sup>2</sup> )
	AMF	BFT	GSE	IFA	LHF	PTF	RFT	TET	UHF	USR	LWT	WIL	
Mountain Low Sagebrush	<1%	<1%	<1%	<1%		<1%	1	<1%	<1%	<1%	<1%	<1%	101
Mud Flat		<1%							<1%			<1%	2
Needleleaf-Dominated Riparian	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	64
Perennial Grass Slope	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	24
Perennial Grassland	5	2	3	7	<1%	2	13	<1%	<1%	29	5	<1%	2,524
Perennial Ice or Snow												<1%	0
Pinyon Pine/Juniper			1				5						209
Rabbitbrush	<1%	<1%		<1%						<1%			26
Salt-desert Shrub	<1%		<1%			<1%	<1%			<1%	<1%		48
Sand Dune				<1%	1								48
Shallow Marsh	<1%	<1%	<1%	<1%	<1%	<1%	<1%		<1%	<1%	<1%	<1%	42
Shrub-Dominated Riparian	1	2	<1%	<1%	<1%	1	<1%	1	4	<1%	<1%	3	433
Shrub/Steppe Annual Grass-Forb	<1%	<1%	29			<1%	9			<1%	<1%		1,228
Silver Sage		<1%							<1%			<1%	5
Subalpine Fir	<1%	<1%	<1%		<1%	<1%	1	<1%	1		<1%	<1%	148
Subalpine fir/Whitebark Pine		<1%			1		<1%	<1%	<1%				45
Subalpine Pine					<1%			<1%	<1%		<1%	<1%	8
Utah Juniper	<1%	<1%	5	<1%	<1%	1	3	<1%	<1%	<1%	<1%	<1%	444
Vegetated Lava	6			2							10		1,487
Vegetated Sand Dune				<1%	<1%								29
Warm Mesic Shrubs	1	6	<1%	1	<1%	8	1	1	1	<1%	<1%	6	863
Water	<1%	2	<1%	<1%	<1%	<1%	<1%	<1%	2	<1%	<1%	<1%	232
Wet Meadow	<1%	<1%		<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	2	95
Other	11	28	19	7	9	20	9	2	10	6	7	19	5,197

**Table 6. Percent representation of current vegetation cover types within each of the major watersheds in the Closed Basin subbasin (source: GAP II, Scott *et al.* 2002).**

Current Vegetation Cover Types	Major Hydrologic Unit (Watershed)					Total Area (km <sup>2</sup> )
	BCM	BCK	BLR	LLR	MDL	
Agricultural	8	2			21	757
Alpine Meadow	<1%	<1%	<1%	<1%	<1%	46
Aquatic Bed			<1%			0
Aspen	2	<1%	<1%	<1%	<1%	63

Current Vegetation Cover Types	Major Hydrologic Unit (Watershed)					Total Area (km <sup>2</sup> )
	BCM	BCK	BLR	LLR	MDL	
Basin & Wyoming Big Sagebrush	7	5	24	19	6	2,131
Bitterbrush	2		<1%		<1%	65
Broadleaf-Dominated Riparian	<1%	<1%	<1%	<1%	<1%	31
Curl-leaf Mountain Mahogany	<1%	2	1	3	1	201
Deep Marsh	<1%		<1%	<1%	<1%	2
Disturbed, High	<1%	<1%	<1%			4
Disturbed, Low	<1%		<1%			2
Douglas-fir	7	7	4	8	6	840
Douglas-fir/Limber Pine						0
Douglas-fir/Lodgepole Pine	<1%		<1%			55
Dry Meadow						0
Engelmann Spruce						0
Exposed Rock	<1%	4	5	6	<1%	503
Foothills Grassland	<1%	<1%	<1%	<1%	<1%	45
Graminoid- or Forb-Dominated Riparian	<1%		<1%	<1%	<1%	3
Herbaceous Burn			<1%			18
Herbaceous Clearcut						0
High Intensity Urban						0
Lava			<1%			1
Lodgepole Pine	1	<1%	<1%	<1%	<1%	88
Low Intensity Urban	<1%	<1%	<1%	<1%	<1%	22
Low Sagebrush	14	7	7	8	8	1,225
Maple						0
Mixed Barren Land			<1%		<1%	2
Mixed Needleleaf/Broadleaf Forest	2		<1%			44
Mixed Subalpine Forest	2		3	<1%	<1%	236
Montane Parklands and Subalpine Meadow	<1%	<1%	<1%	<1%	<1%	109
Mountain Big Sagebrush	27	16	14	10	15	2,291
Mountain Low Sagebrush	<1%	13	8	10	3	973
Mud Flat	<1%		<1%		<1%	1
Needleleaf-Dominated Riparian	<1%	<1%	<1%	<1%	<1%	28
Perennial Grass Slope	<1%	<1%	<1%	1	<1%	55
Perennial Grassland	6	3	3	6	4	582
Perennial Ice or Snow						0
Pinyon Pine/Juniper						0
Rabbitbrush	<1%				<1%	37
Salt-desert Shrub		<1%	<1%	<1%	<1%	8
Sand Dune						0
Shallow Marsh	<1%		<1%	<1%	<1%	25
Shrub-Dominated Riparian	1	<1%	1	<1%	<1%	135

Current Vegetation Cover Types	Major Hydrologic Unit (Watershed)					Total Area (km <sup>2</sup> )
	BCM	BCK	BLR	LLR	MDL	
Shrub/Steppe Annual Grass-Forb		<1%	<1%		<1%	1
Silver Sage	<1%					0
Subalpine Fir	<1%	3	2	3	1	290
Subalpine fir/Whitebark Pine			<1%			7
Subalpine Pine	<1%	6	7	7	2	722
Utah Juniper	<1%	<1%	<1%	<1%		8
Vegetated Lava			<1%			2
Vegetated Sand Dune						0
Warm Mesic Shrubs	<1%	<1%	1	<1%	<1%	80
Water	<1%	<1%	<1%	<1%	<1%	16
Wet Meadow	<1%	<1%	<1%		<1%	8
Other	14	30	15	16	27	2,742

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## **APPENDIX 1-3—RARE AND SENSITIVE VEGETATION IN THE UPPER SNAKE SUBBASINS**

Rare and endemic vegetation is a good indicator of the stability of a natural system. This assessment makes the assumption that rare and threatened vegetation at a point prior to the introduction of anthropogenic effects was sustainable in a natural state. Thus, if a vegetative species is now threatened, it is likely to be highly correlated to changes in its habitat due to human activities. The authors of the assessment did not write the content of this appendix. Rather, this appendix was generated directly from texts of existing literature, including the Idaho Conservation Data Center website (accessed in April 2003) and Atwood et al. (2000).

In the three subbasins of the Upper Snake province, there are 76 documented species of rare vegetation (Table 1). Of these, 16 have detailed records developed by the sources listed above and are included in this appendix.

**Table 1. Vegetation in the Upper Snake province that is listed as either globally (G Rank 1-3) or state (S Rank 1-2) rare (IDCDC 2003). These data were accessed in 2003 and may have changed since. Also, this list is restricted to watersheds in Idaho.**

Common Name	Scientific Name	Watershed																		
		AMF	BCK	BCM	BFT	BLR	CJS	GSE	IFA	LHF	LLR	LWT	MDL	PAL	PTF	RFT	SAL	TET	UHF	USR
Pink agoseris	<i>Agoseris lackschewitzii</i>			X															X	
Iodine bush	<i>Allenrolfea occidentalis</i>	X																		
Two-headed onion	<i>Allium anceps</i>										X									X
Green spleenwort	<i>Asplenium trichomanes-ramosum</i>												X							
Rush aster	<i>Aster junciformis</i>					X												X	X	
Lost river milkvetch	<i>Astragalus amnis-amissi</i>					X					X									
Goose creek milkvetch	<i>Astragalus anserinus</i>							X												
Lemhi milkvetch	<i>Astragalus aquilonius</i>					X					X									
Two-groove milkvetch	<i>Astragalus bisulcatus</i> var. <i>bisulcatus</i>			X								X							X	
Meadow milkvetch	<i>Astragalus diversifolius</i>	X	X			X					X									
Drummond's milkvetch	<i>Astragalus drummondii</i>		X	X								X								
Plains milkvetch	<i>Astragalus gilviflorus</i>		X																X	
Picabo milkvetch	<i>Astragalus oniciformis</i>										X									X
Payson's milkvetch	<i>Astragalus paysonii</i>												X							
Blue gramma	<i>Bouteloua gracilis</i>			X								X								
Winged-seed evening primrose	<i>Camissonia pterosperma</i>		X			X					X									
Maritime sedge	<i>Carex incurviformis</i> var. <i>incurviformis</i>					X														
Pale sedge	<i>Carex livida</i>																	X	X	
Idaho sedge	<i>Carex parryana</i> ssp. <i>idaho</i>		X	X	X							X				X				
Mt. Shasta sedge	<i>Carex stramineiformis</i>					X														
Foothill sedge	<i>Carex tumulicola</i>	X													X					
Christ's indian paintbrush	<i>Castilleja christii</i>							X												
Beautiful indian paintbrush	<i>Castilleja pulchella</i>																			X
McCune earth lichen	<i>Catapyrenium congestum</i>		X			X														
Centennial rabbitbrush	<i>Chrysothamnus parryi</i> ssp. <i>montanus</i>											X								
Bulb-bearing waterhemlock	<i>Cicuta bulbifera</i>																			X
Yellow spring-beauty	<i>Claytonia lanceolata</i> var. <i>multiscapa</i>																			X
Sepal-tooth dodder	<i>Cuscuta denticulata</i>		X																	

Common Name	Scientific Name	Watershed																			
		AMF	BCK	BCM	BFT	BLR	CJS	GSE	IFA	LHF	LLR	LWT	MDL	PAL	PTF	RFT	SAL	TET	UHF	USR	
Davis' wavewing	<i>Cymopterus davisii</i>							X								X					
Douglass' wavewing	<i>Cymopterus douglassii</i>					X					X										
Austrian draba	<i>Draba fladnizensis</i>					X															
Pointed draba	<i>Draba globosa</i>		X			X															
Yellowstone draba	<i>Draba incerta</i>												X							X	
Slender spike-rush	<i>Eleocharis tenuis</i>																			X	
Giant helleborine	<i>Epipactis gigantea</i>								X				X							X	
Low fleabane	<i>Erigeron humilis</i>					X					X										
Welsh's buckwheat	<i>Eriogonum capistratum</i> var. <i>welshii</i>					X					X										
Green keeled cotton-grass	<i>Eriophorum viridicarinatum</i>																	X	X		
Four-parted gentian	<i>Gentianella propinqua</i>					X														X	
Slender gentian	<i>Gentianella tenella</i>					X															
Spreading gilia	<i>Ipomopsis polycladon</i>	X	X			X					X										
Simple kobresia	<i>Kobresia simpliciuscula</i>		X								X								X		
Manyhead bladderpod	<i>Lesquerella multiceps</i>	X																			
Payson's bladderpod	<i>Lesquerella paysonii</i>													X							
Marsh felwort	<i>Lomatogonium rotatum</i>		X			X					X										
Northern bog clubmoss	<i>Lycopodiella inundata</i>																			X	
Green muhly	<i>Muhlenbergia racemosa</i>	X			X					X								X	X		
St. Anthony evening primrose	<i>Oenothera psammophila</i>								X	X											
Hall's orthotrichum moss	<i>Orthotrichum hallii</i>					X					X										
Kotzebue's grass-of-parnassus	<i>Parnassia kotzebuei</i> var. <i>kotzebuei</i>					X															
Idaho penstemon	<i>Penstemon idahoensis</i>							X													
Obscure phacelia	<i>Phacelia inconspicua</i>	X				X						X									
White spruce	<i>Picea glauca</i>																			X	
Small-flowered ricegrass	<i>Piptatherum micranthum</i>		X																		
Marsh's bluegrass	<i>Poa abbreviata</i> ssp. <i>marshii</i>		X			X															
Kruckeberg's sword-fern	<i>Polystichum kruckebergii</i>															X					
Alkali primrose	<i>Primula alcalina</i>		X								X										
Jones' primrose	<i>Primula incana</i>																		X		
Arctic buttercup	<i>Ranunculus gelidus</i>					X															
Pygmy buttercup	<i>Ranunculus pygmaeus</i>					X															
Red glasswort	<i>Salicornia rubra</i>	X													X	X	X				

Common Name	Scientific Name	Watershed																		
		AMF	BCK	BCM	BFT	BLR	CJS	GSE	IFA	LHF	LLR	LWT	MDL	PAL	PTF	RFT	SAL	TET	UHF	USR
Hoary willow	<i>Salix candida</i>		X		X						X						X	X		
Gray willow	<i>Salix glauca</i>												X					X		
False mountain willow	<i>Salix pseudomonticola</i>		X								X							X		
Sierra sanicle	<i>Sanicula graveolens</i>																	X		
Wedge-leaf saxifrage	<i>Saxifraga adscendens</i> var. <i>oregonensis</i>					X					X									
Nodding saxifrage	<i>Saxifraga cernua</i>					X					X							X		
Pod grass	<i>Scheuchzeria palustris</i>																	X		
Rolland bulrush	<i>Scirpus rollandii</i>		X								X									
Petalless campion	<i>Silene uralensis</i> ssp. <i>montana</i>					X					X									
Ute ladies' tresses	<i>Spiranthes diluvialis</i>								X					X						
Tall dropseed	<i>Sporobolus asper</i>																		X	
Green needlegrass	<i>Stipa viridula</i>												X		X					
James' saxifrage	<i>Telesonix jamesii</i> sensu lato																	X		
Wovenspore lichen	<i>Texosporium sancti-jacobi</i>						X													
Purple meadow-rue	<i>Thalictrum dasycarpum</i>															X		X		

## ***Allium anceps* Kellogg— twinleaf onion, Kellogg's onion**

### **Liliaceae (Lily family)**

**General Description**—Perennial forbs with broadly egg-shaped underground bulbs having a thick, yellowish, cellular-patterned coat. Bulbs give rise to a flattened, minutely scabrous-margined stem about 10–15 cm tall; each with a pair of sickle-shaped, scabrous-margined leaves 4–6 mm wide and up to twice as long as the scape. The leaves fall off the plant at maturity. Stems are terminated by an umbel containing 15–25 pinkish-colored flowers that have a diffuse green midrib. The slender, lance-linear-shaped tepals are 6–10 mm long and attached to the umbel by pedicels roughly three times as long as the tepals.

**Field Identification Tips**—The flattened stems; pair of relatively narrow, more-or-less sickle-shaped leaves; slender, lance-linear-shaped tepals; and stamens equaling or shorter than the tepals provide a combination of field characteristics to help distinguish *Allium anceps*.

**Phenology**—Flowering begins in the spring, sometimes by early April, and continues into June.

**Similar Species**—About ten other onion species overlap the range of *Allium anceps* in Idaho. It is most likely to be confused with several that also possess a pair of sickle-shaped leaves, including *A. lemmonii* (Lemmon's onion), *A. tolmiei* (Tolmie's

onion), and *A. parvum* (small onion). *Allium anceps* has slender tepals mostly more than 4 times as long as wide, compared to tepals mostly less than 4 times as long as wide for the other three species. One or more differences in bulb coat, leaf length and width, tepal and midrib color, and stamen length characters can also be used to separate *A. anceps* from these similar species.

**Habitat**—Heavy soils of volcanic origin in or around seasonally wet playas, swales, and other low places, or thin, rocky soil in the sagebrush zone. Sites are usually flat to gently sloping, and sparsely vegetated.

**Global Distribution**—Widespread in Nevada, extending into northeastern California, southeastern Oregon, and southern Idaho.

**Idaho Distribution**—Most known Idaho populations are in Twin Falls County. One occurrence is also known from Jerome County north of the Snake River. Populations in Owyhee and Cassia counties should also be expected. (See also [http://fishandgame.idaho.gov/tech/CDC/spp\\_accounts\\_plants/allanc\\_dis.cfm](http://fishandgame.idaho.gov/tech/CDC/spp_accounts_plants/allanc_dis.cfm).)

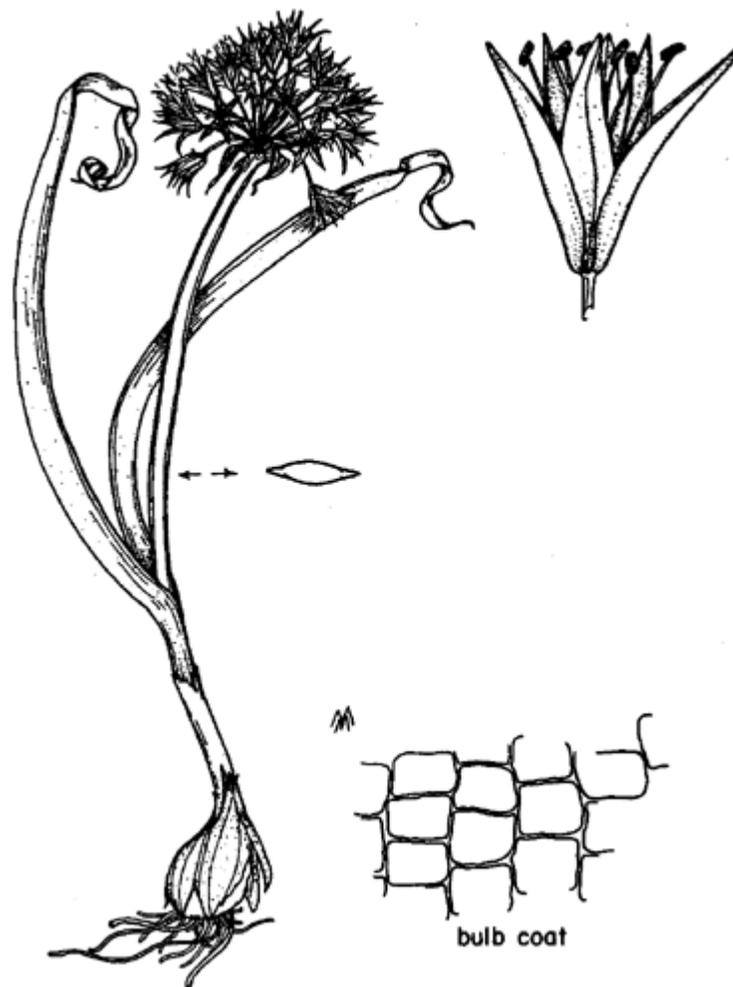
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Photo © Robert K. Moseley  
*Allium anceps* (twinleaf onion, Kellogg's onion) habitat



*Allium anceps*  
twinleaf onion, Kellogg's onion

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***Astragalus aquilonius*  
(Barneby) Barneby—  
Lemhi milkvetch**

**Fabaceae (Pea, Legume family)**

**General Description**—A taprooted, herbaceous, short-lived perennial with numerous, decumbent or trailing stems up to

about 35 cm long and often purplish-tinged. The herbage is greenish-ashy in color due to short, fine hairs. The compound leaves consist of 9–23 oval, oblong, or oblanceolate, rounded to apically notched leaflets 5–16 mm long. The inflorescence is a loose raceme of 4–15 greenish-white flowers, each about 1 cm long. The keel petal is often purplish tipped, while the calyx has white and gray-brown,

more or less straight, appressed hairs. The one-celled fruit pods are 2.5–4 cm long by 1.3–1.7 cm in diameter, sessile, inflated, ellipsoid, membranous, green and not mottled, and glabrous to minutely hairy.

**Field Identification Tips**—Lemhi milkvetch is the only *Astragalus* species in east-central Idaho with a large, bladderly, unilocular fruit pod. Robust plants with numerous stems can have a low, rounded shape. The purplish-tinged stems and greenish-gray color of the herbage also help distinguish this species.

**Phenology**—Plants in flower from mid- to late May into July. Fruits may still be present into September.

**Similar Species**—The range of Lemhi milkvetch partly overlaps and is most likely to be confused with *A. amblytropis* (Challis milkvetch) because of its similar habit and greatly swollen fruit pod. Challis milkvetch differs, however, by having a two-chambered fruit.

**Habitat**—On dry, gentle to often steep and unstable slopes, talus, washes, alluvial debris, and flats. It occurs on various, but often southerly aspects having gravelly and sandy, to ashy and occasionally clayey soils. The surrounding shrub-steppe vegetation is dominated by *Artemisia tridentata* ssp. *wyomingensis*, *Atriplex confertiflora*, *Pseudoroegneria spicata*, *Elymus elymoides*, *Poa secunda*, and *Leymus salinus* ssp.

*salmonis*. Along the Salmon River it is often associated with two other Challis region endemics, *Astragalus amblytropis* and *Oxytropis besseyi* var. *salmonensis*.

**Global Distribution**—Endemic to east-central Idaho, in Custer, Butte, and Lemhi counties.

**Idaho Distribution**—The main center of distribution for Lemhi milkvetch includes the lower slopes of the Salmon River valley from near Ellis to Clayton, and the East Fork Salmon River upstream to the vicinity of Herd Creek. Populations are also known from the southern end of the Lemhi Range, the Lemhi River valley around Lemhi, and scattered locations in the Pahsimeroi and Lost River valleys. (See also [http://fishandgame.idaho.gov/tech/CDC/spp\\_accounts\\_plants/astagu\\_dis.cfm](http://fishandgame.idaho.gov/tech/CDC/spp_accounts_plants/astagu_dis.cfm))

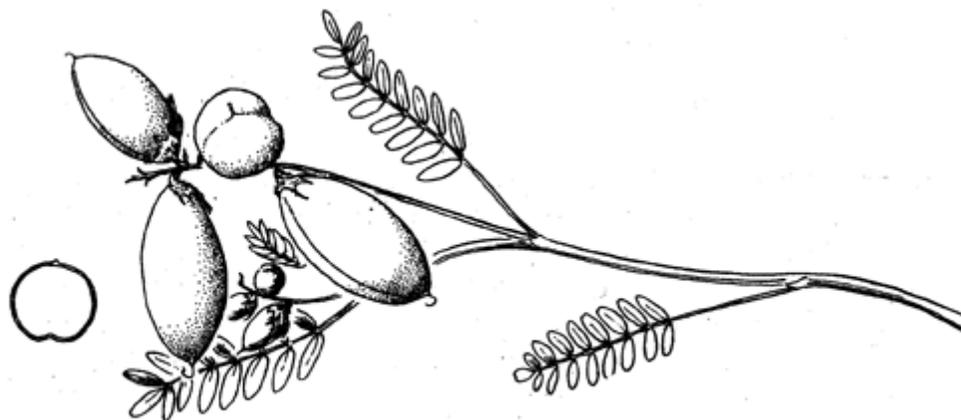
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Photo © Robert K. Moseley  
*Astragalus aquilonius*  
Lemhi milkvetch



*Astragalus aquilonius*  
Lemhi milkvetch

Hitchcock, C.L., A. Cronquist, M. Ownbey, and J.W. Thompson. 1961. Vascular plants of the Pacific Northwest. Part 3. University of Washington Press, Seattle. 614 pp. Illustration by Jeanne Janish. Reprinted with permission of the University of Washington Press.

***Astragalus bisulcatus*  
(Hook.) A. Gray var.  
*bisulcatus*—Two-grooved  
milkvetch**

**Fabaceae (Pea, Legume family)**

**General Description**—A stout, erect, clump-forming, leafy, and thinly pubescent perennial herb 15–70 cm tall. The compound leaves have 15–35, more or less oblong leaflets, each between 5 and 30 mm long. The inflorescence is a dense raceme of whitish or purplish flowers. The banner is 11–17 mm long, and longer than the wings or keel petal. The calyx is 5–10 mm long, often red-purple, with thin white or black hairs, and the base swollen on one side. The pendulous, linear or narrowly oblong fruit pods have a short stipe, a thick papery texture, and are 10–20 mm long. The front face of the pod is openly grooved lengthwise along either side of the raised suture.

**Field Identification Tips**—Two-grooved milkvetch is recognized by its very leafy, clumpy habit, dense inflorescence of relatively large whitish to purplish flowers, basally pouched calyx, and pendulous, two-grooved fruit pod. Bagged plants and those drying in a plant press often give off a strong, disagreeable smell of selenium.

**Phenology**—Flowers May to August.

**Similar Species**—Two-grooved milkvetch is most likely to be confused with other robust, leafy milkvetches having many leaflets and many, relatively large flowers. *Astragalus canadensis* (Canada milkvetch) is most readily distinguished by its erect, sessile, more or less leathery-textured fruit pods. Additional distinguishing characteristics include its rhizomatous root system, pick-shaped pubescence, and greenish-white or yellowish-white-colored flowers. While the

Pods of *A. drummondii* (Drummond's milkvetch) are pendulous like two-grooved milkvetch, they differ in being bluntly three-angled in shape and having a longer stipe (5–11 mm long). In addition, the flowers tend to be larger (17–25 mm) and the foliage more hairy.

**Habitat**—Open grasslands, badlands, gullies, roadsides, and valley bottoms. In Idaho, populations occur in relatively moist sagebrush/grassland or creek bottom habitats, sometimes in degraded condition. Associated species include *Artemisia tridentata* ssp. *tridentata*, *A. tridentata* ssp. *wyomingensis*, *Rosa woodsii*, *Salix* spp., *Leymus cinereus*, *Pascopyrum smithii*, and *Poa pratensis*.

**Global Distribution**—Central Alberta to southwestern Manitoba, south to Kansas and New Mexico, and west to north-central Arizona, Utah, east-central Idaho, and southwestern Montana.

**Idaho Distribution**—Foothills of the southern Beaverhead and Centennial Mountain Ranges in Clark County, the Henrys Lake area in Fremont County, and the Lemhi River drainage in Lemhi County. (See also [http://fishandgame.idaho.gov/tech/CDC/spp\\_accounts\\_plants/astbis\\_dis.cfm](http://fishandgame.idaho.gov/tech/CDC/spp_accounts_plants/astbis_dis.cfm).)

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Bean Life Science Museum, Brigham Young

University, Provo, UT. 1007 pp.



Photo © Robert K. Moseley  
*Astragalus bisulcatus bisulcatus*  
two-grooved milkvetch



*Astragalus bisulcatus bisulcatus*  
two-grooved milkvetch

Hitchcock, C. L., A. Cronquist, M. Ownbey, and J.W. Thompson. 1961. Vascular plants of the Pacific Northwest. Part 3. University of Washington Press, Seattle. 614 pp. Illustration by Jeanne Janish. Reprinted with permission of the University of Washington Press.

***Astragalus diversifolius***  
**Barneby—meadow**  
**milkvetch**

**Fabaceae (Pea, Legume family)**

**General Description**—A diffuse or prostrate perennial forb with weak, slender, sparsely leafy, simple or branched stems radiating

from the root crown. Leaves are 2–5.5 cm long, with 1–5 linear, grasslike, or ovate leaflets 2–5 mm broad. The terminal leaflet is always the longest and continuous with the leaf stalk. The inflorescence is a loose raceme of 2–8 white, cream, or yellowish-white flowers. The flowers are often faintly purplish-tinged/tipped, with the banner petal being 7–13 mm long. The calyx is 3.5–6.5 mm long and has short, appressed, black or

white hairs. Fruit pods are oblong, straight or slightly curved, 10–17 mm long by 3–4 mm broad, with the thin green pod becoming papery and straw or gray-brown colored.

**Field Identification Tips**—The slender, often prostrate, sparsely leafy habit of meadow milkvetch, combined with a terminal leaflet larger than the lateral leaflets, makes this species relatively easy to identify. However, these same features can make it difficult to see in the field, especially if done flowering. The narrow leaflets mimic blades of grass and the whole plant becomes seemingly hidden in the vegetation.

**Phenology**—Plants begin to flower in June and peak during July. More fruits than flowers are observed by August.

**Similar Species**—Meadow milkvetch is most likely to be confused with other diffuse-looking, sparsely leafy *Astragalus* species occurring within its range. *Astragalus convallarius* (lesser rushy milkvetch) has narrow fruits over 20 mm long, very narrow leaflets, and occurs in drier habitats. *Astragalus ceramicus* (painted milkvetch) has inflated, reddish- to purplish-mottled pods and occurs in dry, sandy habitats. *Astragalus leptaleus* (Park milkvetch) occurs in several of the same east-central Idaho wetland systems as meadow milkvetch. It is readily distinguished by having leaves with 15–25 leaflets, smaller flowers, and an inflorescence that does not extend much above the middle of the plant.

**Habitat**—Moist soils in alkaline meadows with flat or hummocky topography supporting graminoid or medium height shrub vegetation. Associated species may include

*Juncus balticus*, *Poa secunda*, *Leymus cinereus*, *Spartina gracilis*, *Senecio debilis*, *Phlox kelsyi*, *Glaux maritima*, *Sarcobatus vermiculatus*, and *Potentilla fruticosa*.

**Global Distribution**—Widely separated populations are known from east-central Idaho, the southwestern edge of the Salt Lake Desert in western Juab and Tooele counties, Utah, and the Spring Valley area in southern White Pine County, Nevada. There is also a historical record for this species from the Green River Basin in western Wyoming.

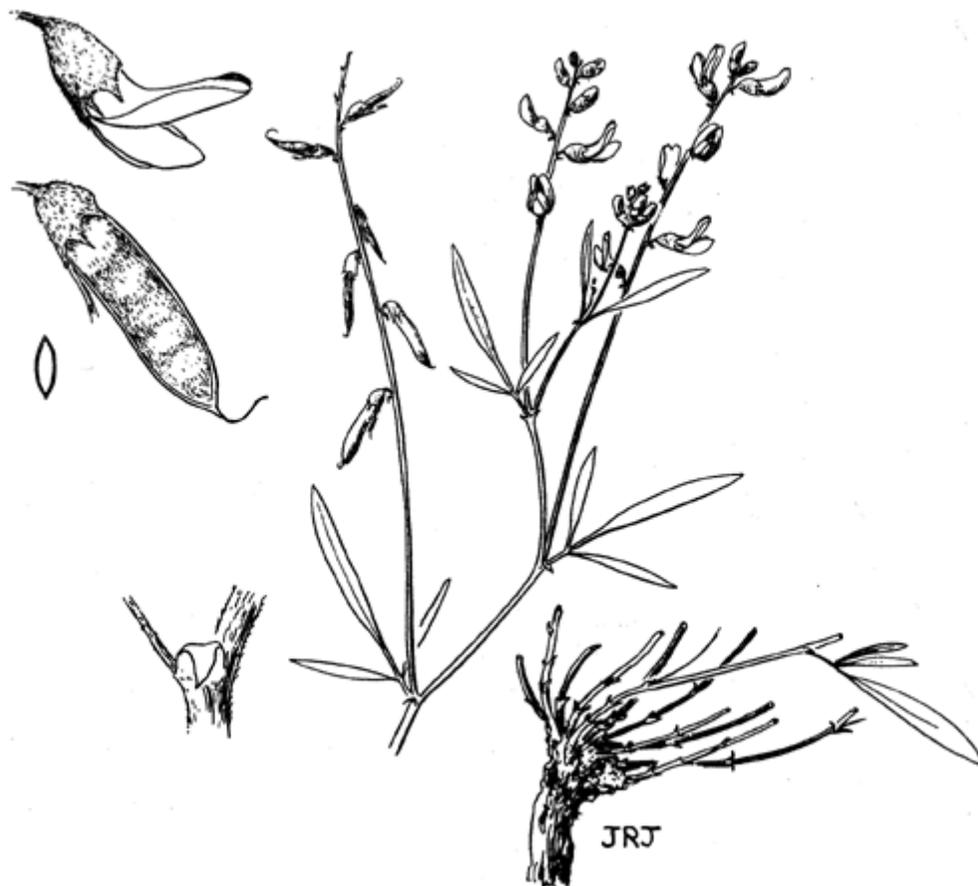
**Idaho Distribution**—Most Idaho populations are located in Custer and Lemhi counties, in the intermountain valleys of the Big Lost, Little Lost, Pahsimeroi, and Lemhi rivers, and Birch Creek. The meadow milkvetch population reported from the upper Snake River Plain, near Springfield, in Bingham County, has probably been extirpated. (See also [http://fishandgame.idaho.gov/tech/CDC/spp\\_accounts\\_plants/astdiv\\_dis.cfm](http://fishandgame.idaho.gov/tech/CDC/spp_accounts_plants/astdiv_dis.cfm).)

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Photo © Robert K. Moseley  
*Astragalus diversifolius*  
meadow milkvetch



*Astragalus diversifolius*  
meadow milkvetch

Hitchcock, C. L., A. Cronquist, M. Ownbey, and J. W. Thompson. 1961. Vascular plants of the Pacific Northwest. Part 3. University of Washington Press, Seattle. 614 pp. Illustration by Jeanne Janish. Reprinted with permission of the University of Washington Press.

***Astragalus drummondii***  
**Douglas ex. Hook.—**  
**Drummond's milkvetch**

**Fabaceae (Pea, Legume family)**

**General Description**—A stout, villous-hairy, perennial forb with several erect stems 25–55 cm tall. The compound leaves have 13–33 oblong-elliptic to obovate, obtuse or notched bicolored leaflets that are pale green beneath and bright green above; the larger ones 12–30

mm long. Racemes have 15–30, nodding, white to yellow-white flowers on stout, erect stems 4–14 cm long. Banner petals are 15–25 mm long and the keel petal lilac-tipped. The calyx is 7–13 mm long and commonly has black hairs. The stipitate, hanging fruit pods are 17–32 mm long by 3–6 mm wide and more or less linear in profile with three blunt angles. Pods are green and totally hairless, have a prominent brown suture, and become almost leathery in age.

**Field Identification Tips**—Drummond’s milkvetch is recognized by its coarse habit, foliage with spreading hairs, large, whitish, nodding flowers, and pendulous, stipate, glabrous pods.

**Phenology**—Flowers in late spring, usually peaking in June and done by early to mid-July.

**Similar Species**—None of the several other *Astragalus* species that could co-occur in Idaho, such as *Astragalus miser* (weedy milkvetch), *A. convallarius* (lesser weedy milkvetch), *A. cibarius* (browse milkvetch), and *A. lentiginosus* (freckled milkvetch) should be confused with Drummond’s milkvetch. Larger flowers, and several features of the fruit pod will distinguish Drummond’s milkvetch from *A. bisulcatus* var. *bisulcatus* (two-grooved milkvetch).

**Habitat**—In Idaho, Drummond’s milkvetch occurs in sagebrush-bunchgrass habitats on open, gentle to moderately steep, predominately south- to west-facing slopes with gravelly to rocky soils. Associated species include *Artemisia tridentata* ssp.

*vaseyana*, *Chrysothamnus* spp., *Tetradymia canescens*, *Festuca idahoensis*, and *Pseudoroegneria spicata*.

**Global Distribution**—Widespread over the high plains and Rocky Mountains from southern Canada, south to New Mexico, and entering the Intermountain region in portions of Utah and eastern Idaho. It is most common along the east slope of the Rockies and adjacent plains.

**Idaho Distribution**—Sagebrush plains and lower slopes along the southern Beaverhead and western Centennial ranges in northern and central Clark County. Also known from the eastern base of the Lemhi Range in the Birch Creek Valley, in the southwestern corner of Clark County. (See also [http://fishandgame.idaho.gov/tech/CDC/spp\\_accounts\\_plants/astdru\\_dis.cfm](http://fishandgame.idaho.gov/tech/CDC/spp_accounts_plants/astdru_dis.cfm).)

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Photo © Robert K. Moseley  
*Astragalus drummondii*  
Drummond's milkvetch



*Astragalus drummondii*  
Drummond's milkvetch

Hitchcock, C. L., A. Cronquist, M. Ownbey, and J. W. Thompson. 1961. Vascular plants of the Pacific Northwest. Part 3. University of Washington Press, Seattle. 614 pp. Illustration by Jeanne Janish. Reprinted with permission of the University of Washington Press.

***Astragalus gilviflorus* E.  
Sheldon—plains  
milkvetch, plains  
orophaca**

**Fabaceae (Pea, Legume family)**

**Synonyms**—*Astragalus triphyllus* Pursh;  
*Orophaca triphylla* (Eaton & Wright) Britton

**General Description**—A stemless, tufted perennial forming small mats up to about 15 cm in diameter, and foliage with silvery, lustrous, straight, appressed hairs. The compound leaves are comprised of 3, sessile, palmately arranged leaflets 5–30 mm long, and having a reverse lance- or reverse egg-shape narrowing at the point of attachment. The short inflorescence has 1–3 (mostly 2) erect, yellowish to whitish flowers tucked in

the leaf axils. Banner petals are 16–28 mm long. The calyx is narrowly cylindrical and 9–20 mm long. Fruit pods are erect and commonly concealed among the persistent sepals and stipules. They are ovoid-elliptic in shape, hairy, one-celled, 6–10 mm long by 2.5–5 mm broad, and have thin fleshy valves that become leathery in age.

**Field Identification Tips**—The stemless, densely tufted habit, palmately tri-foliolate leaves of steely gray-blue color, and relatively large yellowish to whitish flowers tucked within or barely exceeding the leaves readily identifies plains milkvetch in the field.

**Phenology**—Flowering in early May to about early June.

**Similar Species**—Although a number of other low-growing *Astragalus* species occur in east-central Idaho, none should be confused with plains milkvetch. *Astragalus calycosus* (Torrey’s milkvetch) may look superficially similar when flowers or fruits are not present, but it does not have palmately 3-foliolate leaflets.

**Habitat**—Open, more or less sparsely vegetated, rocky, gentle to steeper limestone slopes with little soil development. It occurs on all aspects. Associated species include *Petrophytum caespitosum*, *Artemisia nova*, *A. frigida*, *Cercocarpus ledifolius*, *Tanacetum nuttallii*, *Penstemon* spp., *Hymenopappus filifolius* var. *idahoensis*, and *Arenaria kingii*.

**Global Distribution**—Widespread on the high plains from southern Alberta and Manitoba, south to Oklahoma, west to the Rocky Mountain foothills, and in the Intermountain Region in east-central Idaho and northeastern Utah.

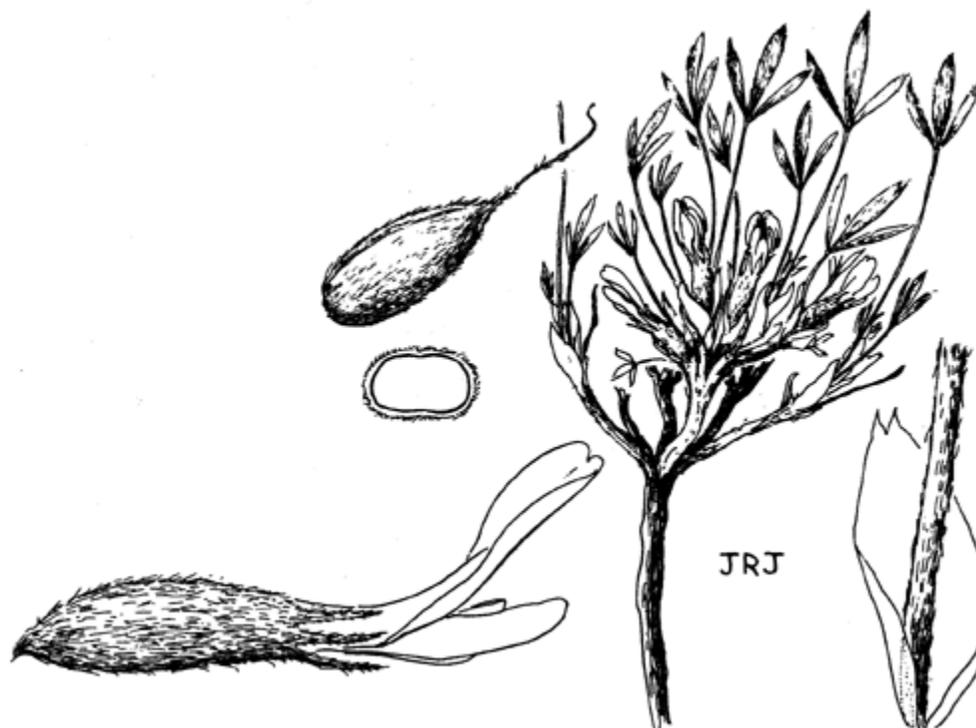
**Idaho Distribution**—West slope of the Beaverhead Range in and near the Lemhi River and Birch Creek valleys in Lemhi and Clark counties. Plains milkvetch has also been collected from near Henrys Lake in Fremont County. (See also [http://fishandgame.idaho.gov/tech/CDC/spp\\_accounts\\_plants/astgil\\_dis.cfm](http://fishandgame.idaho.gov/tech/CDC/spp_accounts_plants/astgil_dis.cfm).)

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Photo © Robert K. Moseley  
*Astragalus gilviflorus*  
plains milkvetch; plains orophaca



*Astragalus gilviflorus*  
plains milkvetch; plains orophaca

Hitchcock, C. L., A. Cronquist, M. Ownbey, and J. W. Thompson. 1961. Vascular plants of the Pacific Northwest. Part 3. University of Washington Press, Seattle. 614 pp. Illustration by Jeanne Janish. Reprinted with permission of the University of Washington Press.

### ***Camissonia pterosperma* (S. Wats.) Raven—wing-seeded evening-primrose**

#### **Onagraceae (Evening-primrose family)**

**General Description**—A slender, simple or branched, diminutive annual herb up to about 15 cm tall. The herbage has few to many tiny spreading hairs and becomes glandular in the inflorescence. Stem leaves are entire, mostly lance-shaped, and up to about 1.5 cm long (occasionally longer) and 5 mm wide. Flowers are erect on short pedicels in the upper leaf axils. The petals are small, 1.5–3 mm long, white with a yellow base, aging to a pinkish color. Sepals are small and reflexed.

The fruit capsule is more or less straight, cylindrical, shortly stalked, 1–2 cm long, and slightly to more often widely spreading by maturity. Seeds have a pair of conspicuous, incurved marginal wings.

**Field Identification Tips**—The slender, diminutive habit, entire, narrow leaves, small white flowers with a yellow base, and shortly-stalked, straight fruit capsules are good field characteristics. The white flowers with a yellow base and seeds having a pair of conspicuous, thick, incurved marginal wings are diagnostic.

**Phenology**—Flowers from approximately mid-May to mid-June.

**Similar Species**—There are several other annual *Camissonia* species in east-central Idaho. They all differ in one or more readily viewed field characteristics, including having toothed versus entire leaves; having mostly basal leaves versus leaves mostly along the stem; having sessile versus stalked fruit capsules; having bent/contorted versus straight fruit capsules; or having yellow versus white flowers. The elongated fruit capsule positioned below (inferior) the sepals distinguishes species of *Camissonia* from most other small annual forb species encountered in east-central Idaho.

**Habitat**—Dry, open slopes, ridges, and washes in the sagebrush and juniper zones. Most known Idaho populations occur on gravelly-silty soils, on southerly-facing limestone slopes. It is also known from volcanic-derived substrates in a few places. The vegetation is dominated by open *Juniperus osteosperma*, *Artemisia arbuscula*, or *Artemisia nova* communities. Other associated species in this open habitat include *Pseudoroegneria spicata*, *Poa secunda*, *Achnatherum hymenoides*, *Eriogonum* spp., *Phlox hoodii*, and *Mentzelia albicaulis*.

**Global Distribution**—Southeastern Oregon and adjacent very southwestern Idaho, south

through Nevada to Inyo County, California, northern Arizona, and portions of Utah; then disjunct in east-central Idaho.

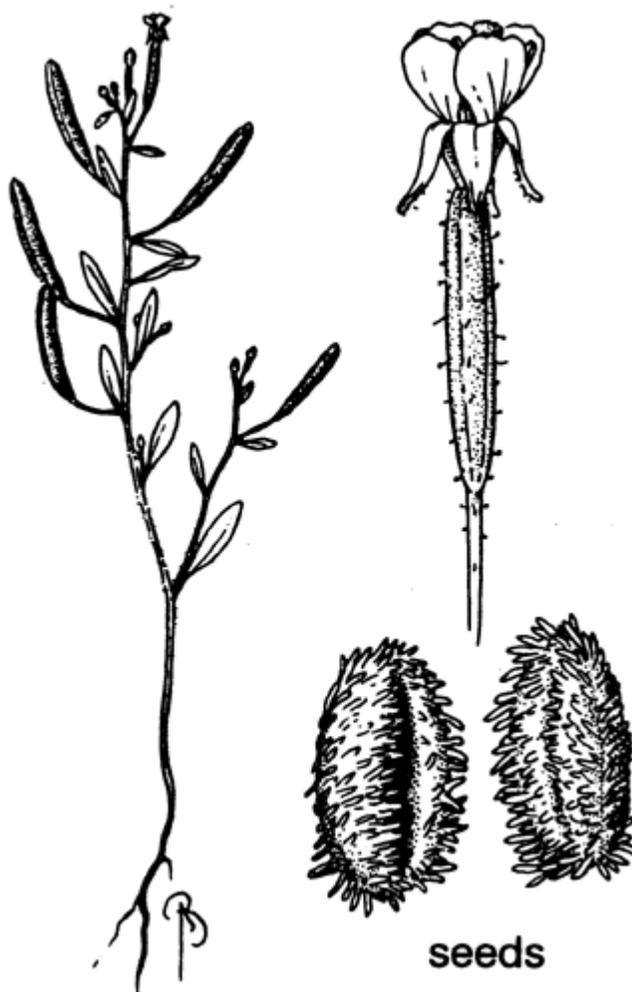
**Idaho Distribution**—Most Idaho populations of wing-seeded evening-primrose are known from the low, southern ends of the Lost River, Lemhi, and Beaverhead ranges in Butte and Clark counties. It has also been collected from near the South Fork Owyhee River in Owyhee County, in very southwestern Idaho. (See also [http://fishandgame.idaho.gov/tech/CDC/spp\\_accounts\\_plants/camppte\\_dis.cfm](http://fishandgame.idaho.gov/tech/CDC/spp_accounts_plants/camppte_dis.cfm).)

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Photo © Robert K. Moseley  
*Camissonia pterosperma*  
wing-seeded evening-primrose



*Camissonia pterosperma*  
wing-seeded evening-primrose

Illustration by Bobbi Angell. Reprinted with permission from Intermountain Flora: Vascular plants of the Intermountain West, U.S.A., by A. Cronquist, N. H. Holmgren, and P. K. Holmgren, Vol. 3A Subclass Rosidae (except Fabales), p. 187, copyright 1997, The New York Botanical Garden.

***Carex livida* (Wahlenb.)  
Willd.—pale sedge**

**Cyperaceae (Sedge family)**

**General Description**—Grass-like perennial growing in small clumps with flowering stems up to 20 cm tall arising from long-slender rhizomes. Leaves are deeply

channeled, 1–4 mm wide, clustered on the lower third of the stem, and have a glaucous blue-green color. The inflorescence consists of 2–3, or sometimes 4, loosely clustered spikes. The narrow terminal spike is usually wholly staminate. The lateral spikes are pistillate and nearly sessile. Flowers have 3 stigmas, and the oval-shaped scales subtending the perigynia have a green

midvein stripe, brown marginal stripes, and membranous edges. The perigynia are 2–4 mm long, pale green, elliptic or ovate in outline, and have a minutely bumpy surface.

**Field Identification Tips**—The pale blue–green, stiff, channeled, more or less falcate–shape leaves are quite distinctive in the field.

**Phenology**—Fruit matures in late June–August.

**Similar Species**—*Carex aquatilis* has long-stalked lateral spikes and flowers with two stigmas. *Carex limosa* is rhizomatous and has three stigmas, but has drooping lateral spikes on slender stalks. *Carex buxbaumii* has 3 stigmas and bluish-green foliage, but differs in having pistillate flowers at the tip of the upper spike and long-awned scales.

**Habitat**—Bogs and fens, swampy woods, or sometimes on mineral substrates adjacent to slow moving streams; from low to moderately high elevations.

**Global Distribution**—Circumboreal; in the western part of North America it reaches from southern Alaska south to northwestern California, Oregon, Washington, Idaho, Montana, Wyoming, Colorado, and Utah.

**Idaho Distribution**—Known from four widely separated areas in Idaho. It occurs in the Panhandle region; the Sawtooth Valley in the central mountains; the upper Lemhi River in east-central Idaho; and the Greater Yellowstone region near the state's eastern border. (See also

[http://fishandgame.idaho.gov/tech/CDC/spp\\_accounts\\_plants/carliv\\_dis.cfm](http://fishandgame.idaho.gov/tech/CDC/spp_accounts_plants/carliv_dis.cfm).)

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Photo © Robert Moseley  
*Carex livida*  
pale sedge



*Carex livida*  
pale sedge

Hitchcock, C. L., A. Cronquist, and M. Ownbey. 1969. Vascular plants of the Pacific Northwest. Part 1. University of Washington Press, Seattle. 914 pp. Illustration by Jeanne Janish. Reprinted by permission of the University of Washington Press.

## ***Carex tumulicola*** **Mackenzie—foothill sedge**

### **Cyperaceae (Sedge family)**

**General Description**—A grass-like perennial forming loose tufts up to about 80 cm tall. Leaves are flat, 1–3 mm wide, elongate, but shorter than the stems, and not all clustered at the very base of the plant. Spikes several, small, few-flowered, with male flowers above the female flowers, and loosely aggregated into an oblong- or cylindrical-shaped head 1.5–4 cm long. Bracts are usually well developed and with the lower ones generally (but not always) surpass their subtended spike. The greenish-straw to pale coppery perigynia are narrowly to broadly egg-shaped, 3.5–5 mm long, and have 2 stigmas. Scales are straw to brownish in color with whitish margins, fairly broad, tending to be shortly awn-tipped, and equaling or surpassing the more or less appressed perigynia.

**Field Identification Tips**—Foothill sedge occurs in relatively dry habitats. Useful field characteristics include its loosely tufted habit, small, few-flowered inflorescences with heads having male flowers above the female, and generally well developed bract surpassing the lower spike. Positive identification requires use of a technical key and hand lens or microscope.

**Phenology**—June and July.

**Similar Species**—Many other sedge species resemble foothill sedge in general appearance. It is most likely to be confused with other

tufted, upland habitat sedges that have male flowers above the female in the inflorescence. *Carex hoodii* (Hood's sedge) has spikes that are more tightly clustered and more markedly bicolored. *Carex vallicola* (valley sedge) does not get over about 40 cm tall, and has pale scales usually shorter than the perigynia. *Carex occidentalis* (western sedge), like these other two sedges, does not have well-developed subtending bracts that surpass the lower spikes.

**Habitat**—Open, often grassy slopes and dry meadows.

**Global Distribution**—Mainly distributed west of the Cascade Mountains, from southern Washington to central California, and up the Columbia River to western Klickitat County. Disjunct populations have been reported in southwestern and eastern Idaho.

**Idaho Distribution**—Owyhee County in southwestern Idaho, and historical collections from Bannock and Power counties in the eastern part of the state. (See also [http://fishandgame.idaho.gov/tech/CDC/spp\\_accounts\\_plants/cartum\\_dis.cfm](http://fishandgame.idaho.gov/tech/CDC/spp_accounts_plants/cartum_dis.cfm).)

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*Carex tumulicola*  
foothill sedge

Hitchcock, C. L., A. Cronquist, M. Ownbey, and J. W. Thompson. 1969. Vascular plants of the Pacific Northwest. Part 1. University of Washington Press, Seattle. 914 pp. Illustration by Jeanne Janish. Reprinted with permission of the University of Washington Press.

### ***Castilleja christii*—Christ's Indian paintbrush**

#### **Scrophulariaceae (Figwort family)**

**General Description**—Christ's Indian paintbrush is a perennial forb 15 to 30 cm (6 to 12 inches) tall consisting of several stems clustered together. Herbage can be smooth or with bristle-like hairs, at least some of which

is gland-tipped near the inflorescence. Leaves are lance-shaped and usually lobed. The inflorescence is yellow to yellow-orange in color and with gland-tipped hairs. The corolla (concealed by the colorful bracts) is 20 to 30 mm (about 0.75 to 1.25 inches) long, with the upper, hooded portion (galea) being about 8–11 mm long.

**Technical Description**—Perennial herb, 1.5–3 dm tall; stems erect to ascending, usually

unbranched, several to a cluster; herbage glabrous to hispid with some of the hairs gland-tipped near the inflorescence; leaves 2.5 (6) cm long, narrowly to broadly lanceolate, with 1 (2) pair of lateral lobes above, sometimes all entire; inflorescence glandular-villous, yellow to yellow-orange, the bracts lanceolate to ovate, with 1 or 2 pairs of narrow lateral lobes; calyx 17–22 (24) mm long, the primary lobes more deeply cleft in front, 9–12 (13) mm, than behind, 7–11 mm, the segments 2–6.5 (8.5) mm long, lanceolate to narrowly lanceolate, acute to obtuse; corolla 20–20 mm long, the galea 8–11 mm long, the lower lip much reduced with incurved teeth, the tube 12–19 mm long; capsule 10–14 mm long (Cronquist et al. 1984).

**Diagnostic Characteristics**—Diagnostic characteristics include the yellow to yellow-orange colored inflorescence with gland-tipped hairs, the galea being at least 8 mm long, the calyx being slightly more deeply cleft in front than in the back, and the lanceolate-shaped leaves with usually one pair of narrow lateral segments.

**Infraspecific Taxa**—There are no infraspecific taxa for *Castilleja christii*.

**Similar-appearing Taxa**—*Castilleja christii* is the only yellow to yellow-orange flowered paintbrush on the Mount Harrison summit. It is also the only paintbrush occurring in the moist snowbed and graminoid communities around the summit. Three other species of *Castilleja* occur on and around Mount Harrison and can be distinguished using the following combination of characteristics (Moseley 1993):

Calyx decidedly more deeply cleft in front (7–22 mm) than in back (2–8 mm). Calyx conspicuous, bearing most of the red coloration of the inflorescence. Occurs on the lower-elevation big sagebrush slopes of

Mount Harrison, occasionally extending higher on south-facing slopes. *C. linariifolia*.

Calyx more deeply cleft in back than in front. The bracts bearing most of the attractive coloration of the inflorescence and partly concealing the relatively inconspicuously-colored flowers. Low, unbranched plant on exposed ridgelines and shallow soils with low sagebrush (*Artemisia arbuscula*). Inflorescence pale yellow to whitish, occasionally purple-tinged. *C. angustifolia* var. *flavescens*.

Calyx slightly more deeply cleft in front than in back. Bracts bearing most of the color and concealing the relatively inconspicuously-colored flowers. Leaves, at least the upper, with 1 or more pair of long, narrow lateral segments. Inflorescence yellow to yellow-orange. Occurs in moist, gently sloping communities, usually not directly associated with sagebrush. *C. christii*.

Calyx more deeply cleft in front than in back. Bracts provide coloration and conceal the relatively inconspicuously-colored flowers. Leaves all entire, generally shiny-green, rarely the uppermost deeply 3-parted. Inflorescence scarlet. Generally in deep soils in conifer and aspen stands, although occasionally in swales within big sagebrush communities. *C. miniata*.

**Identification of this Taxon in Idaho**—At Mount Harrison, no other species of *Castilleja* has a yellow to yellow-orange colored inflorescence with gland-tipped hairs.

**Global**—*Castilleja christii* is known only from the type location at Mount Harrison, at the northern end of the Albion Mountains in Cassia County, Idaho. It occurs entirely on U.S. Forest Service land. The single population extends over approximately 200 acres and consists of an estimated 10,000 individuals. The southern limit of the

population begins approximately 250 feet north of the summit lookout and continues north for about 0.75 mile. The east-west extent of the population is somewhat over one mile in width. The population is entirely managed by the U.S. Forest Service, Burley Ranger District, Sawtooth National Forest. Roughly 23% of the population (90 acres) occurs in the proposed Mount Harrison Research Natural Area. The population appears to be in excellent vigor and all size classes are represented.

The largest direct loss of paintbrush habitat can be attributed to the construction of several roads, and may amount to as much as 20 acres. The main road to the lookout atop Mt. Harrison (Howell Canyon Road) roughly bisects the population of *C. christii* and is maintained annually. Several other unofficial dirt roads branch off near the summit, and traverse through habitat occupied by *C. christii*. In addition to the roads, an underground vault, buried power cable, and fire lookout tower are located at the summit of Mount Harrison. The large underground vault was constructed by the military during the 1960's. The area adjacent to the vault was disturbed during construction and is currently used for random parking near the lookout. No *C. christii* presently occupies this area. During 1969–1970, an underground power cable was installed from a point near the lookout, north to a microwave site on a 9033-foot peak near Lake Cleveland. Installation of the cable went through part of the *C. christii* population. The species appears to have re-established on the site disturbed by placement of the cable. The Forest Service reconstructed the fire lookout during 1977. *Castilleja christii* does not occur around the lookout. Major human activities in the Mount Harrison area include recreation and operations associated with the fire lookout. Recreational activities are seasonally important and account for a large influx of human activity during the snow-free summer and fall months.

**Several Classes of Threats Assessed**—The present or threatened destruction, modification, or curtailment of its habitat or range. The Forest Service restricts vehicle traffic to established roads, although there is ample evidence this is ignored and vehicles traverse the paintbrush population away from the roads. Use of the summit as a hangglider launch site has increased rapidly in the past few years. To access hang-glider launch sites at Harrison Peak and Peak 9033, several two-track, unimproved roads lead through portions of the *C. christii* population. Currently, parking at the summit occurs at random over approximately a 0.5 acre area near the lookout. This is outside the limits of the *C. christii* population. The greatest direct threat to remaining habitat is from vehicles that leave the existing roads. Much of this activity probably results from late-lying snowbanks blocking access to the lookout and the electronic sites on Peak 9033. By driving out across the relatively gentle slopes to get around the drifts, vehicles create large erosion channels and small gullies in the plant's habitat. The Howell Canyon Road is scheduled for improvements, including paving to the lookout atop Mount Harrison. Direct and indirect impacts associated with road construction and staging are likely because plants occur right next to the existing road in some places. Road maintenance activities could also potentially impact portions of the population. Installation of a new underground power cable in 1995 went through a small amount of *C. christii* habitat. Placement of the new cable is scheduled for 1995.

**Overutilization for Commercial, Recreational, Scientific, or Educational purposes**—Although plant collection may increase if the access road is paved, overutilization is not anticipated to be a major threat to the *C. christii* population.

**Disease or Predation**—The summit plateau of Mount Harrison, including the entire area occupied by *C. christii* is currently closed to livestock grazing. Because of this, livestock grazing is not considered a threat at this time.

### **inadequacy of Existing Regulatory**

**Mechanisms**—Presently, existing regulatory mechanisms are inadequate to control unauthorized off-road vehicle use and hang-gliding activities that may be impacting *C. christii* habitat.

### **Other Natural or Manmade Factors**

**Affecting Its Continues Existence**—Limited hiking takes place from near the lookout as a cutoff to the Skyline Trail, west of, and approximately 800 feet below the lookout. There is no designated trailhead at the summit. Hikers walking near the summit may impact portions of the population by trampling plants.

**Idaho**—The Association for Biodiversity Information rank for *Castilleja christii* is G1/S1. A global (G) rank of 1 is for taxa critically imperiled because of extreme rarity or because of some factor of its biology making it especially vulnerable to extinction. Because this species is endemic to Idaho, the state (S) rank equals the global rank. *Castilleja christii* is on the Idaho Native Plant Society's globally rare list with a priority of 8 (taxa facing imminent threats of low magnitude).

### **Distribution**

**Global**—*Castilleja christii* is endemic to Mount Harrison in the northern portion of the Albion Range, Cassia County, Idaho. (See also [http://fishandgame.idaho.gov/tech/CDC/spp\\_accounts\\_plants/caschr\\_dis.cfm](http://fishandgame.idaho.gov/tech/CDC/spp_accounts_plants/caschr_dis.cfm).)

**Idaho**—See Global Distribution comments. (See also

[http://fishandgame.idaho.gov/tech/CDC/spp\\_accounts\\_plants/caschr\\_dis.cfm](http://fishandgame.idaho.gov/tech/CDC/spp_accounts_plants/caschr_dis.cfm).)

### **Habitat**

**Elevation (Global)**—8,600 to 9,200

**Elevation (Idaho)**—8,600 to 9,200

**Global**—*Castilleja christii* occurs primarily on gentle, northerly-facing slopes. Plants are found in three distinct communities:

**Snowbed**—areas of the latest-lying snowbanks. The community is forb dominated, with *Solidago multiradiata*, *Aster foliaceus*, and *Cymopterus davisii* being the most prominent. *Castilleja christii* is present in low densities in this community.

**Graminoid**—*Festuca idahoensis*, *Agropyron caninum*, and *Elymus trachycaulus* dominate this community. *Artemisia tridentata* ssp. *vaseyana* is absent. The paintbrush reaches its highest density in this community.

*Artemisia tridentata* ssp. *vaseyana*/*Festuca idahoensis* habitat type: much of the area covered by this community on Mount Harrison is patterned ground. Density of *C. christii* is inversely related to the density of sagebrush. It generally occurs only in openings in the sagebrush and within the nearly shrubless swales of the patterned ground. Soils are relatively deep and gravelly. The dominant soils in the area are Typic Cryoborolls, loamy skeletal.

**Idaho**—See Global Habitat comments.

### **Ecology**

**Global**—No specific information is known regarding the autecology of *C. christii*. The one known population occurs in an area where deep snows accumulate, and in some places may last the summer in some years. Apparently, the Mount Harrison area was

heavily grazed by sheep years ago, but what affects, if any, this had on the paintbrush population is unknown. The density of paintbrush is inversely related to the density of mountain big sagebrush, and usually occurs in openings in the sagebrush. This may indicate a level of shade intolerance, or perhaps some other kind of interaction. *Castilleja christii* achieves its highest density in the snowbed and graminoid communities where there is no sagebrush. Within sagebrush stands, the paintbrush only occurs in openings between the shrubs (Moseley 1993). *Castilleja christii* occurs almost exclusively on gentle, northerly-facing slopes. These sites tend to be fed by late-lying snow during the early part of the growing season, and likely remain moist well into August most years. Considerable pocket gopher activity takes place within the paintbrush's habitat. Species of *Castilleja* are hemiparasitic. It is not known which species or group of species *C. christii* may form such a hemiparasitic relationship.

**Idaho**—See Global Ecology comments.

### Reproduction

**Global**—*Castilleja christii* reproduces by seed. Nothing is known about seed dispersal or seed bank dynamics. Flowering begins in early July, and mature seeds are apparently not present until late in the month. No specific pollinators have been documented. Seed germination studies conducted by the Denver Botanical Garden indicate *C. christii* has a strong dormancy. It is speculated seeds may require prolonged (three months or longer) cool and moist conditions to germinate. Approximately 3000 seeds are in seed storage at the National Seed Storage Laboratory in Fort Collins, Colorado.

**Idaho**—See Global comments on reproduction.

**Phenology (Idaho)**—Growth begins slightly before or soon after the snow melts in early July. Peak flowering occurs from mid-July to mid-August depending on the year. Fruits begin to mature soon afterward and probably dehisce by mid-September.

### Management

**Global**—The one known population of *Castilleja christii* occurs entirely on U. S. Forest Service land. Due to its restricted range and specific habitat requirements, in combination with increasing recreational pressure and access and facility development proposals, any further destruction of habitat could potentially affect the long-term viability of *C. christii*. To address these concerns, a Conservation Agreement involving the U. S. Fish and Wildlife Service and the Sawtooth National Forest has been completed and approved (U. S. Fish and Wildlife Service 1995). The Conservation Agreement includes 21 proposed conservation actions for which the U. S. Forest Service are responsible, and 3 for which the U. S. Fish and Wildlife Service are responsible. Approximately 23% of the paintbrush population occurs in the proposed Mount Harrison Research Natural Area (RNA).

Establishment of the RNA is one of the proposed conservation actions listed in the Conservation Agreement. Other proposed conservation measures include establishment of a monitoring program, conducting field inventories, cooperating with the Denver Botanical Garden to maintain an off-site seed storage program, continuation of the livestock grazing closure in the area, complete a mineral withdrawal for the area covered by the paintbrush population, development of an interpretive program, and support studies researching the species' biology and ecology. Additional measures address problems related to roads, planned developments, and access. Finally, several administrative measures have

been identified. *Castilleja christii* is sympatric with another rare local endemic, Davis' wavewing (*Cymopterus davisii*). Shasta daisy (*Machaeranthera shastensis latifolia*) is another rare plant known from the area. The proposed conservation actions for *C. christii* will also benefit these other rare plants.

**Idaho**—See Global Management comments.

### Inventory

**General Comments (Idaho)**—There have been a number of surveys for *Castilleja christii* in the Albion and adjacent mountain ranges over the years. The most comprehensive was conducted by Moseley (1993).

**Inventory Needs (Idaho)**—High elevation potential habitats in the Albion Range have been thoroughly surveyed in the past. However, one of the conservation activities proposed in the Conservation Agreement between the U. S. Fish and Wildlife Service and the Sawtooth National Forest is that inventories of potential habitat be conducted as funding becomes available.

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### ***Chrysothamnus parryi* ssp. *montanus*—centennial rabbitbrush**

**Asteraceae (Aster family)**

**General Description**—*Chrysothamnus parryi* ssp. *montanus* is a low growing, branching shrub with stems mostly covered by compacted, feltlike hairs (not always easy to see). It has linear leaves 0.5–1.5 inches long that are somewhat sticky to the touch. The inflorescence has one or a few heads and is overtopped by the uppermost stem leaves. Each head is about 0.5 inch long and usually contains 8–10 yellow disk flowers, but no ray flowers. The bracts forming the base of each head are lance-shaped with hairs spaced along the margins and long pointed green tips. They overlay each other like shingles on a roof. The

seeds have numerous long, thin, stiff hairs at the top.

**Technical Description**—Intricately branched, low, spreading shrubs, 1–2 (3) dm tall; leaves green, alternate, entire, linear, 2–3.5 cm long, 1–2 mm wide, viscidulous, upper ones surpassing the few-headed cymose inflorescence; heads 10–11.5 mm long, involucral bracts (11) 13–17 (18), viscidulous, more or less in vertical rows, outer bracts lanceolate-ovate with ciliate margins and long acuminate, herbaceous tips, inner ones broadly lanceolate-elliptic with acuminate tips; disk flowers (4) 5–11 (12), yellow, corollas 9–10 mm long, lobes 1.4–1.7 mm long, broadly lanceolate, styles variable with stigmatic lines much shorter to slightly longer than the style appendages (27–52% of total style branch length); achenes 8 mm long, pubescent; n = 9 (Anderson 1978).

**Diagnostic Characteristics**—*Chrysothamnus parryi* ssp. *montanus* is a low shrub with white stems, linear, glabrous leaves, the inflorescence overtopped by the uppermost leaves, and involucral bracts aligned in vertical ranks. This set of morphological characters combined with its high-elevation habitat distinguishes it from other similar species.

**Infraspecific Taxa**—*Chrysothamnus parryi* ssp. *salmonensis*.

**Similar-appearing Taxa**—There are several similar looking species that are sympatric, or occur in the vicinity with *Chrysothamnus parryi* ssp. *montanus*. *Chrysothamnus viscidiflorus* and *C. nauseosus* are common and widespread species of rabbitbrush. The former has wider leaves and twigs that are not white. The latter has white stems and narrow leaves, but the leaves are also white-hairy and the inflorescence is borne well above the uppermost leaves. Additionally, both species tend to be taller than the 10 to 30 cm height of *Chrysothamnus parryi* ssp. *montanus*. *Haplopappus suffruticosus* is common in rocky, high elevation habitats, but its stems are not white, it has wider leaves, and has heads with ray flowers.

**Identification of this Taxon in Idaho**—*Chrysothamnus parryi* ssp. *montanus* is a low shrub with white stems, linear, glabrous leaves, inflorescences overtopped by the uppermost stem leaves, and involucre bracts aligned in vertical ranks. This set of morphological characters combined with its rocky, high elevation habitat distinguishes it from similar species.

### Global Comments

**Idaho Comments**—*Chrysothamnus parryi* ssp. *montanus* was not described until 1978 (Anderson 1978). Previous to this date, it was referenced as *Chrysothamnus parryi* var. *b* in Flora of the Pacific Northwest (Hitchcock and Cronquist 1973).

### Status

**Global**—*Chrysothamnus parryi* ssp. *montanus* is a local endemic comprised of approximately 3,700 individuals in four occurrences, and confined to less than 2,000 acres in the Red Conglomerate Peaks area along the Continental Divide in Clark County, Idaho, and Beaverhead County Montana. Four occurrences are known for Idaho and support

approximately 3,500 plants. One occurrence extends across the Continental Divide into adjacent Montana. The Montana portion of the occurrence contains an estimated 200 additional plants. All known populations are on public land administered by the U. S. Forest Service, the Targhee National Forest, Dubois Ranger District, and the Beaverhead National Forest, Dillon Ranger District.

The habitat is remote and there are no apparent threats at this time. Livestock are grazed on the slopes of the Red Conglomerate Peaks area, but their use of the species' rocky ridge habitat seems minimal. There are no roads penetrating the high subalpine ridges, and off-road vehicle use in the area seem unlikely to be a major problem. The area is used by hunters in the fall, but there are few maintained trails. No mining activity is known from the area. However, the small population sizes and local distribution pattern make the species vulnerable to any disturbances in the area. All management plans for the Red Conglomerate Peaks area should consider the possible effects on this plant. It has been recommended that the Forest Service consider establishing a long-term monitoring trend study (Lesica 1992).

Until the U.S. Fish and Wildlife Service recently revised their candidate system, *Chrysothamnus parryi* ssp. *montanus* was a Category 2 (C2) candidate for listing under the Endangered Species Act. Under the revised system it is no longer considered a federal candidate species. In 1993, it was recommended for Category 1 (C1) status at the Idaho Native Plant Society's annual Idaho rare plant conference. It is a U. S. Forest Service Region 4 sensitive species for the Targhee National Forest in Idaho, and a Region 1 sensitive species for the Beaverhead National Forest in Montana.

*Chrysothamnus parryi* ssp. *montanus* is listed by the Idaho Conservation Data Center and

the Montana Natural Heritage Program as critically imperiled globally (G5T1/S1), because of extreme rarity in both states.

**Idaho**—*Chrysothamnus parryi* ssp. *montanus* is on the Idaho Native Plant Society's list of globally rare taxa. It has a priority of 9, indicating threats are imminent, but of low magnitude.

### Distribution

**Global**—*Chrysothamnus parryi* ssp. *montanus* is a narrow endemic known only from the Red Conglomerate Peaks area, near the Continental Divide, in the southern Beaverhead Range of Idaho and Montana.

**Idaho**—Restricted to the Red Conglomerate Peaks area of the southern Beaverhead Range. All known populations occur on the Idaho side of the Continental Divide, with one extending into adjacent Montana. (See also [http://fishandgame.idaho.gov/tech/CDC/spp\\_accounts\\_plants/chrpar\\_dis.cfm](http://fishandgame.idaho.gov/tech/CDC/spp_accounts_plants/chrpar_dis.cfm).)

### Habitat

**Elevation (Global)**—8,800 to 10,000 feet

**Elevation (Idaho)**—8,800 to 10,000 feet

**Global**—*Chrysothamnus parryi* ssp. *montanus* occurs on high elevation slopes or windswept ridge crests with southerly exposures between 8,800 and 10,000 feet. It is restricted to rocky, calcareous substrates of the Beaverhead Conglomerate Formation. It occurs where bedrock is at or near the surface, resulting in minimal soil development. Adjacent sites characterized by deeper, more fully developed soils do not support *Chrysothamnus parryi* ssp. *montanus*. Populations are most extensive on rocky spur ridges descending from the Continental Divide. Plants can be locally common, but overall, occupied habitat covers limited acreage.

Beaverhead Conglomerate is the lithified bed of a large ancient river. The extent of this rock type is limited. Approximate boundaries in Idaho are from the head of Irving Creek, eastward to an area northwest of Paul Reservoir. Beaverhead Conglomerate rocks do not surface east of Monida Pass. The situation is similar for Montana, where the only high elevation outcrops are around Red Conglomerate Peaks, although lower elevation exposures are found along the Red Rock River in southern Beaverhead County. A nearly identical formation, the Sphinx Mountain Conglomerate, occurs around Sphinx Mountain in the central Madison Range southeast of Ennis. It outcrops at 9,000 feet to well above timberline.

The community in which *Chrysothamnus parryi* ssp. *montanus* occurs is unclassified. Associated vegetation is sparse and not dominated by graminoids. Associate species include *Chrysothamnus viscidiflorus* ssp. *lanceolatus*, *Haplopappus acaulis*, *H. suffruticosus*, *Erigeron caespitosus*, *Antennaria umbrinella*, *Astragalus kentrophyta*, *Phlox pulvinata*, *Ivesia gordonii*, *Petrophytum caespitosum*, *Draba oligosperma*, *Leucopoa kingii*, *Agropyron scribneri* and *Poa interior*.

**Idaho**—See Global Habitat comments.

### Ecology

**Global**—There have been no studies investigating the autecology of *Chrysothamnus parryi* ssp. *montanus*. It occurs on high elevation slopes or windswept ridge crests with southerly exposures. It has not been observed on north-facing slopes, suggesting it requires the warmer conditions prevailing on the southerly aspects. Evapotranspiration is high and snow cover minimal on these exposed sites, dry sites. Seedlings would likely have to depend on spring snow or rain to become established.

Recruitment may therefore, be limited to years with reliable spring precipitation (Lesica 1992).

Plants are found in sparsely vegetated sites, suggesting abiotic interactions may be more important than competition in regulating recruitment and survival. However, these habitats may also be very dry, at least seasonally. At these times competition for water may be important.

The species is apparently substrate specific, occurring only on substrate of the Beaverhead Conglomerate formation where bedrock is at or close to the surface. However, it is unknown if edaphic factors play a principal role in controlling the distribution of *Chrysothamnus parryi* ssp. *montanus*, or what the environmental factors related to this substrate specificity may be.

The palatability of *Chrysothamnus parryi* ssp. *montanus* is unknown. Some other rabbitbrush species are palatable and grazed by wild animals. There is no information on the species' response to disturbances.

**Idaho**—See Global Ecology comments.

### Reproduction

**Global**—Reproduction appears to be entirely by seed. The pollinators of *Chrysothamnus parryi* ssp. *montanus* are not known. The species' windy, exposed habitat makes it likely that strong-flying pollinators such as bees may be important (Lesica 1992). The achenes of *Chrysothamnus parryi* ssp. *montanus* have numerous capillary bristles and are likely shed in late fall or early winter. The habitat is windy, so dispersal is likely via wind. Large animals such as bighorn sheep and mountain goats may also play a role.

**Idaho**—See Global Reproduction comments.

**Phenology (Idaho)**—*Chrysothamnus parryi* ssp. *montanus* was observed flowering in mid-August (Mancuso and Moseley 1990). It probably flowers throughout much of August and early September. Achenes are likely shed by late fall or early winter.

### Management

**Global**—*Chrysothamnus parryi* ssp. *montanus* is a local endemic comprised of approximately 3,700 individuals in four occurrences, and confined to less than 2,000 acres in the Red Conglomerate Peaks area along the Continental Divide in Clark County, Idaho, and Beaverhead County Montana. Four occurrences are known for Idaho and support approximately 3,500 plants. One occurrence extends across the Continental Divide into adjacent Montana. The Montana portion of the occurrence contains an estimated 200 additional plants. All known populations are on public land administered by the U.S. Forest Service, the Targhee National Forest, Dubois Ranger District, and the Beaverhead National Forest, Dillon Ranger District.

Although there are no immediate threats to maintaining the existing populations of *Chrysothamnus parryi* ssp. *montanus*, its small population sizes and restricted distribution make the species vulnerable to any disturbances in the Red Conglomerate Peaks area. All management plans for this area should consider possible effects on this species. Lesica (1992) has recommended that wildlife numbers in the area be monitored, as a large increase could potentially have an adverse effect on *Chrysothamnus parryi* ssp. *montanus*. He also recommends the Forest Service establish a long-term trend monitoring study. This species is a Forest Service sensitive species for both Region 1 (includes the Beaverhead National Forest) and Region 4 (includes the Targhee National Forest).

**Idaho**—See Global Management comments.

### Inventory

**General Comments (Idaho)**—A systematic field investigation for *Chrysothamnus parryi* ssp. *montanus* was conducted in Idaho in 1990 (Mancuso and Moseley 1990). The investigation was a cooperative Challenge Cost-share project involving the Idaho Conservation Data Center and Targhee National Forest. Specific areas searched included the southern Beaverhead Range from the head of Warm Creek, east along the Continental Divide and associated ridges, to Monida Pass, and in the Centennial Range, in the Taylor Mountain, and Jefferson to Sawtell peaks areas.

Field surveys have also been conducted in Montana (Lesica 1992), including the southern Beaverhead Range along the Continental Divide from the head of Little Beaver Creek west to the head of Sawmill Creek, and the southern slopes of the Lima Peaks. Some additional areas containing outcrops of the Beaverhead Conglomerate Formation or similar geology have been investigated in Montana. Specifically, along the Red Rock River in southern Beaverhead County, and around Sphinx Mountain in the central Madison Range.

**Inventory Needs (Idaho)**—No additional areas needing survey work have been identified for Idaho. Land Managers and field personnel on the Targhee and Beaverhead National Forests should be aware of this species and document any new discoveries.

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- Author: M. Mancuso  
Updated: 96-04-29 Produced by The Nature Conservancy, the Natural Heritage Network, and the Idaho Conservation Data Center.



***Cuscuta denticulata*  
Engelm.—desert dodder,  
sepal-toothed dodder**

**Cuscutaceae (Dodder family)**

**General Description**—A rootless, leafless, twining, non-green, parasitic herb with slender, pale yellow stems that grows on various desert shrubs. Flowers are white, sessile or subsessile, single and scattered, or congested into small clusters. The corolla is 5-merous, with lobes about 1.5 mm long, rounded at the apex and irregularly finely toothed. The non-fleshy calyx has deeply divided lobes that are more or less circular in outline. They have irregularly finely-toothed margins, and become shiny-translucent and finely lined when dry. The stamens are shorter than the corolla lobes and have anthers about equaling the filaments. Scales between the stamens are well developed and finely toothed. The styles are capitate. Capsules are narrowly pear-shaped, usually one-seeded, and have a crested thickening around the base of the style.

**Field Identification Tips**—The genus *Cuscuta* is readily recognized by its rootless, twining, non-green habit. Field identification to species is difficult due to the small size of the flowers. Features of the stigma, stamens

and scales between the stamens are key to identifying species of *Cuscuta*.

**Phenology**—Flowers from July through August.

**Similar Species**—Dodders known to occur in eastern Idaho include *Cuscuta indecora* (bigseed alfalfa dodder), *C. californica* (chaparral dodder), *C. pentagona* (five-angled dodder), *C. approximata* (alfalfa dodder), and perhaps others. All resemble desert dodder at first glance, and most occur on a wide range of hosts.

**Habitat**—Occurs on various desert shrubs, especially *Artemisia* spp. and *Chrysothamnus* spp.

**Global Distribution**—California to Nevada, Arizona, and Baja California; with disjunct populations known from Washington and Idaho.

**Idaho Distribution**—Known from Hells Canyon in Idaho County and the Birch Creek Valley in Clark County. (See also [http://fishandgame.idaho.gov/tech/CDC/spp\\_accounts\\_plants/cusden\\_dis.cfm](http://fishandgame.idaho.gov/tech/CDC/spp_accounts_plants/cusden_dis.cfm).)

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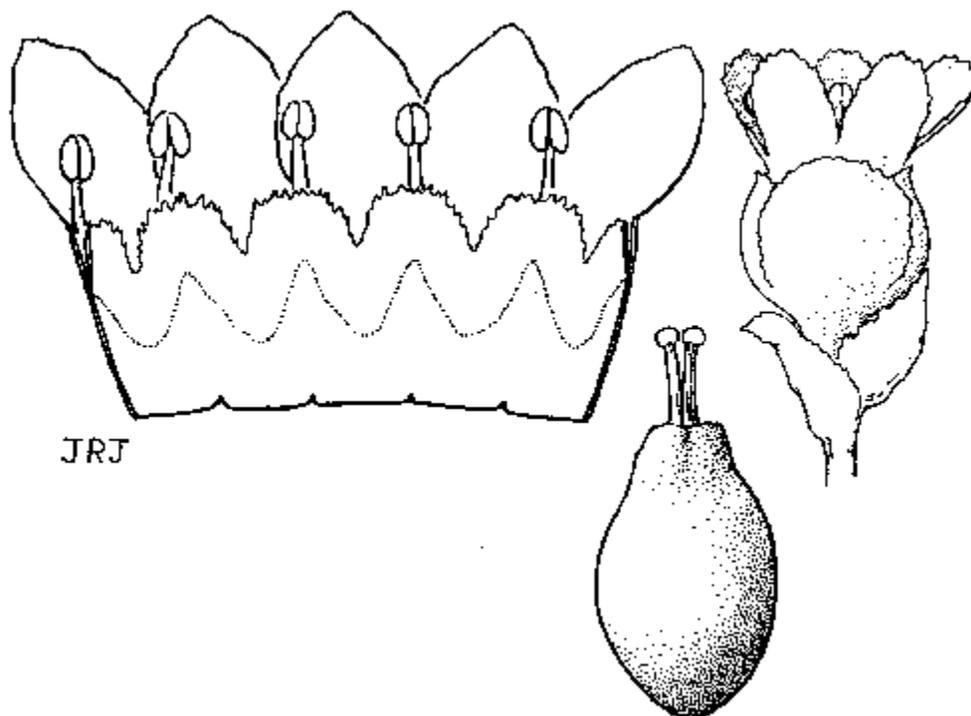
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Photo © Florence Caplow, WANHP  
*Cuscuta denticulata*  
desert dodder, sepal-toothed dodder



*Cuscuta denticulata*  
desert dodder, sepal-toothed dodder

Hitchcock, C.L., A. Cronquist, M. Ownbey, and J.W. Thompson. 1959. Vascular plants of the Pacific Northwest. Part 4. University of Washington Press, Seattle. 510 pp. Illustration by Jeanne Janish. Reprinted with permission of the University of Washington Press.

### ***Epipactis gigantea* Douglas ex Hook.—Giant helleborine**

#### **Orchidaceae (Orchid family)**

**General Description**—A leafy, glabrous, perennial herb up to 1.5 m tall, with 1 to several stems from a creeping rhizome. Leaves are numerous, alternate, sessile, and 5–20 cm long. The lower are oval, but the leaves become more lance-shaped further up the stem. Flowers are rather showy and borne singly in a long, narrow, open, mostly one-sided, leafy-bracted inflorescence at the top of the stem. Sepals and upper petals are 1.3–1.7 cm long, greenish-yellow or brownish in color

with purple veins. The lip petal is 1.5–2 cm long, greenish with purple veins, and divided into 3 unequal segments. The fruit is an elliptic, drooping capsule 2–2.5 cm long.

**Field Identification Tips**—A relatively large stature, numerous long clasping leaves, large brownish flowers, and drooping fruits combine to make giant helleborine a distinctive species.

**Phenology**—Flowers June to August.

**Similar Species**—Vegetative plants may be confused with some members of the orchid genus *Platanthera*, or more likely with *Maianthemum stellatum*, in the lily family, species that can co-occur with giant

helleborine. The prominently clasping leaf bases and taller habit of giant helleborine distinguishes it from *Maianthemum*, and its generally more numerous and larger leaves and taller habit from *Platanthera*.

**Habitat**—In general, giant helleborine occurs in moist areas along streambanks, lake margins, seeps and springs. In Idaho it is associated with thermal waters at higher elevations, or cold springs at lower elevations such as along the Snake River.

**Global Distribution**—From central Mexico northward to Texas and throughout the western United States to southern British Columbia.

**Idaho Distribution**—Widespread in Idaho: Bonner, Boundary, and Nez Perce counties in northern Idaho; Idaho, Adams, Valley, Boise, Custer, and Lemhi counties in central Idaho; Elmore, Camas, Gooding, Jerome, Twin Falls, and Owyhee counties in southern Idaho; and Clark and Madison counties in the eastern part of the state. (See also [http://fishandgame.idaho.gov/tech/CDC/spp\\_accounts\\_plants/epigig\\_dis.cfm](http://fishandgame.idaho.gov/tech/CDC/spp_accounts_plants/epigig_dis.cfm).)

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*Epipactis gigantea*  
giant helleborine

Hitchcock, C.L., A. Cronquist, M. Ownbey, and J.W. Thompson. 1969. Vascular plants of the Pacific Northwest. Part 1. University of Washington Press, Seattle. 914 pp. Illustration by Jeanne Janish. Reprinted with permission of the University of Washington Press.



Photo © Robert K. Moseley  
*Epipactis gigantea*  
 giant helleborine

***Eriogonum capistratum* Rev.  
 var. *welshii* Rev.—  
 Welsh's buckwheat**

**Polygonaceae (Buckwheat family)**

**General Description**—A low, mat-forming, perennial with blue-green colored foliage. Leaves are covered with dense, soft, white, wooly hairs. They are non-glandular, elliptic to spoon-like in shape, and 5–12 mm long on petioles 4–9 mm long. Flowering stems are leafless, 2–10 cm long, and covered with

dense, sometimes tangled, long, wooly hairs. The tight, ball-like inflorescence terminating the flowering stem is subtended by a bell-shaped, 5–7-toothed involucre covered with sparse to dense soft, wooly hairs. Flowers are golden-yellow, without hairs, 2–3 mm long, have a greenish to reddish-brown mid-rib, and become rosy-yellow upon maturity.

**Field Identification Tips**—Welsh's buckwheat is distinguished by its low, matted habit, bluish-green leaves covered by white tomentum, and head-like inflorescence of

yellow to golden flowers on densely hairy flowering stems.

**Phenology**—Flowering peaks in late June to early July most years.

**Similar Species**—*Eriogonum mancum* (imperfect buckwheat) can be readily distinguished by its cream to pinkish colored tepals when flowers are present. Without flowers it is distinguished by leaves having grayish wooly hairs, versus the white wooly tomentum of Welsh's buckwheat. However, this feature is not always easy to distinguish in the field. Care must be taken to distinguish *E. verrucosum* (graceful buckwheat) on volcanic substrates near the northern edge of Welsh's buckwheat range. *Eriogonum verrucosum* is identified by glabrous to only thinly hairy flowering stems and pustulose (with tiny blisters) flowers. In some areas, individuals of Welsh's buckwheat seem to have intermediate characteristics and intergrade with related species known from east-central Idaho. *Eriogonum capistratum* var. *capistratum* (hidden buckwheat) has glabrous or glandular flowering stems, but they are not covered with white, wooly hairs.

**Habitat**—Primarily on dry, windswept, sparsely vegetated sites characterized by

shallow, clay-rich soils. It is found on either calcareous (mainly limestone) or Challis Volcanics substrates, generally on convex-shaped, gently sloping (but sometimes flat or steeper) sites. Occurrences are known from between approximately 6,000 to 7,800 feet elevation. Welsh's buckwheat ranges from valley bottom alluvial fans and benches to foothill ridges and bluffs of the surrounding mountains.

**Global Distribution**—Endemic to east-central Idaho.

**Idaho Distribution**—Endemic to the valleys and foothills of the upper Big Lost, Little Lost, and Pahsimeroi rivers, and immediate vicinity, in Custer and adjacent portions of Lemhi and Butte counties in east-central Idaho. (See also [http://fishandgame.idaho.gov/tech/CDC/spp\\_accounts\\_plants/ericap\\_dis.cfm](http://fishandgame.idaho.gov/tech/CDC/spp_accounts_plants/ericap_dis.cfm).)

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Photo © Chris Murphy  
*Eriogonum capistratum welshii*  
 Welsh's buckwheat

***Eriophorum viridicarinatum*  
 (Engelm.) Fern—green  
 keeled cotton-grass**

**Cyperaceae (Sedge family)**

**General Description**—Stems widely spaced from an extensive creeping rhizome, from 20 to 60(90) cm tall. The long, largely flat, sheathing basal and stem leaf blades are 2–6 mm wide. The stem is terminated by 2–8, somewhat nodding spikelets borne in an umbel-like inflorescence. Scales are blackish-green with a prominent pale midrib that reaches the tip of the scale. Numerous prominent, white perianth bristles greatly exceed the scales and achenes and give the appearance of a cotton ball attached to the top of the plant.

**Field Identification Tips**—The cotton-grasses are characterized by the long, whitish,

cottony perianth bristles that completely obscure the flower scales, bracts, and fruits. *Eriophorum viridicarinatum* often forms large colonies from creeping rhizomes.

**Phenology**—Flowers June through July.

**Similar Species**—*Eriophorum viridicarinatum* closely resembles *E. polystachion*, but has scales that are consistently blackish-green with a well-developed, notably paler midrib that tends to be expanded distally and reaches to the tip of the scale. *Eriophorum polystachion* has tawny to brownish or blackish-green scales with a slender midrib that is attenuated and does not reach the tip of the scale.

**Habitat**—Bogs, peatlands, and wet meadows.

**Global Distribution**—From Newfoundland to Alaska, south to New York, Michigan,

Colorado, Wyoming, Washington, Idaho, and Montana.

**Idaho Distribution**—Boundary and Bonner counties in the Panhandle region, and Valley, Fremont, and Teton counties to the south and east. (See also [http://fishandgame.idaho.gov/tech/CDC/spp\\_accounts\\_plants/erivir\\_dis.cfm](http://fishandgame.idaho.gov/tech/CDC/spp_accounts_plants/erivir_dis.cfm).)

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*Eriophorum viridicarinatum*  
green keeled cotton-grass

Hitchcock, C.L., A. Cronquist, and M. Ownbey. 1969. Vascular plants of the Pacific Northwest. Part 1. University of Washington Press, Seattle. 914 pp. Reprinted by permission of the University of Washington Press.



Photo © Robert Bursik  
*Eriophorum viridicarinatum*  
green keeled cotton-grass

***Ipomopsis polycladon* (Torr.)  
V. Grant—spreading  
ipomopsis,  
manybranched  
ipomopsis**

**Polemoniaceae (Phlox family)**

**Synonym**—*Gilia polycladon* Torr.  
(Spreading gilia)

**General Description**—A taprooted annual up to about 15 cm tall with several slender, rigid, ascending-spreading (not prostrate) branches

from the base. The herbage is glandular and hairy, with the stems more glandular, the leaves more hairy. Leaves are clustered at the base and again just below the flower heads, otherwise the stems are leafless or nearly so. Basal leaves are 1–3 cm long and have a few lobes or teeth. Those subtending the flower heads are similar or smaller and less cleft. The inflorescence is a dense cluster of small, white flowers terminating the branches. Corollas are 3–6 mm long and have small spreading lobes, while the calyx is 2–6 mm long and pointy-tipped.

**Field Identification Tips**—Spreading ipomopsis is recognized by its slender, stiff,

divaricate, subnaked, ascending-spreading stems branching from the base, and terminal, leafy-bracted flower heads. Additional characteristics include the lobed or toothed basal cluster of leaves, the glandular and hairy herbage, and dense head of small white flowers.

**Phenology**—Flowers April through June.

**Similar Species**—A few other desert annuals such as *Gilia leptomeria*, *Phacelia glandulifera*, or *Navarretia* spp. can look superficially similar.

**Habitat**—Dry, open areas in desert shrub communities. In southwestern Idaho, spreading ipomopsis occurs in *Artemisia tridentata* ssp. *wyomingensis* and desert shrub communities. It occurs on silt, sand, and clay soils, or on cindery or gravelly exposures that tend to be flat to gently sloping. Associated species include *A. tridentata* ssp. *wyomingensis*, *Atriplex confertifolia*, *Chrysothamnus* spp., *Tetradymia glabrata*, *Grayia spinosa*, *Achnatherum hymenoides*, *Bromus tectorum*, *Stanleya pinnata*, *Mentzelia albicaulis*, and *Phlox* spp. In eastern Idaho, spreading ipomopsis is usually associated with rocky *Artemisia nova* slopes on volcanic substrates. Associated species at

eastern Idaho sites include *A. nova*, *Leymus salinus*, and *Pseudoroegneria spicata*.

**Global Distribution**—Mexico, northward to California, west Texas, New Mexico, Arizona, western Colorado and Wyoming, most of Utah and Nevada, southern Idaho and adjacent Oregon.

**Idaho Distribution**—Populations are known from Ada, Elmore, and Owyhee counties in southwestern Idaho, and Butte and Power counties in the eastern part of the state. (See also [http://fishandgame.idaho.gov/tech/CDC/spp\\_accounts\\_plants/ipopol\\_dis.cfm](http://fishandgame.idaho.gov/tech/CDC/spp_accounts_plants/ipopol_dis.cfm).)

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Photo © Duane Atwood  
*Ipomopsis polycladon*  
spreading ipomopsis, manybranched ipomopsis



*Ipomopsis polycladon*  
spreading ipomopsis, manybranched ipomopsis

Hitchcock, C.L., A. Cronquist, M. Ownbey, and J.W. Thompson. 1959. Vascular plants of the Pacific Northwest. Part 4. University of Washington Press, Seattle. 510 pp. Illustration by Jeanne Janish. Reprinted with permission of the University of Washington Press.

***Muhlenbergia racemosa*  
(Michx.) Britton, Sterns, &  
Puggenb.—green muhly**

**Poaceae (Grass family)**

**General Description**—A stiffly erect perennial grass, 25–100 cm tall, from long, creeping, scaly rhizomes. The flat leaf blades are more or less evenly distributed along the culm and 5–15 cm long by 2–7 mm broad. Internodes are glabrous. The membranous ligules are up to about 1.5 mm long. The inflorescence is a narrow, spike-like panicle 4–17 cm long with densely clustered, light green, 1-flowered spikelets. The subequal glumes are 3–7 mm long and taper into a short awn. Lemmas are 2–4 mm long, pubescent along the lower half, and either awnless or with a short awn tip. Anthers are small, up to 0.8 mm long.

**Field Identification Tips**—The relatively tall, rhizomatous habit, spike-like inflorescence, 1-flowered, light green-colored spikelets, and short-awned glumes are useful field characteristics. Positive identification requires using a technical key and measuring technical morphological characteristics.

**Phenology**—Flowers July to September.

**Similar Species**—Several perennial *Muhlenbergia* species with spike-like inflorescences that occur in moist habitats could be confused with *M. racemosa*. *Muhlenbergia glomerata* (marsh muhly) closely resembles *M. racemosa*, and the two have been merged in some treatments. *Muhlenbergia glomerata* differs in its finely puberulent internodes, shorter ligules (0.2–0.6

mm), and slightly longer anthers (about 1 mm long). In addition, *M. glomerata* typically occupies wetter habitats such as streambanks, wet meadows, and lakeshores. *Muhlenbergia andina* (foxtail muhly) differs in a number of technical characters. The easiest one to see in the field is the dense, silky callus hairs about as long as the lemma. *Muhlenbergia mexicana* (Mexican muhly) has puberulent internodes, shorter glumes (up to about 3.5 mm long), and slightly spreading branches in the inflorescence.

**Habitat**—Drying meadows, rocky slopes, along irrigation ditches, and often in cultivated and other disturbed sites.

**Global Distribution**—Alberta to Ontario, south throughout much of the United States, except for the southeast and parts of the northeast. Uncommon in the Intermountain Region.

**Idaho Distribution**—The disposition of several Idaho populations is unresolved. Reports of this species are known from Bonner and Boundary counties in northern Idaho, and Bannock, Caribou, Fremont, and Teton counties in the eastern part of the state. (See also [http://fishandgame.idaho.gov/tech/CDC/spp\\_accounts\\_plants/muhrac\\_dis.cfm](http://fishandgame.idaho.gov/tech/CDC/spp_accounts_plants/muhrac_dis.cfm).)

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*Muhlenbergia racemosa*  
green muhly

Hitchcock, C.L., A. Cronquist, M. Ownbey, and J.W. Thompson. 1969. Vascular plants of the Pacific Northwest. Part 1. University of Washington Press, Seattle. 914 pp. Illustration by Jeanne Janish. Reprinted with permission of the University of Washington Press.

***Oenothera psammophila*  
Nels. & Macbr.—St.  
Anthony evening-  
primrose, St. Anthony  
sand-lily**

**Onagraceae (Evening-primrose family)**

**Synonyms**—*Oenothera caespitosa* Nutt. var. *psammophila* (Nels. & Macbr.) Munz

**General Description**—A glabrous, herbaceous perennial from a thick taproot 10–30 cm tall. Stems can become woody and buried in the drifting sand and give rise to numerous branches that then emerge from the sand. The multiple stems and branches can give plants a clumped or bunchy appearance spreading up to about 60 cm wide. Leaves are

usually 7–15 cm long and 1–3 cm wide, reverse lance-shaped, and entire or with wavy teeth along the margins. Flowers are borne singly in the leaf axils. Petals are bi-lobed at the summit, 2.5–4.5 cm long, and white, but turn pink or reddish-purple with age. The sepals are reflexed and 2–3 cm long, while the floral tube is 4–6 cm long. The sessile, ascending or erect fruit capsules are cylindrical in outline, strongly angled, 3–5 cm long, and become rather woody at maturity, with the open capsules sometimes remaining attached to the stem throughout the winter.

**Field Identification Tips**—St. Anthony evening-primrose is recognized by its clumped, hairless habit, large white flowers that fade pinkish to reddish, and sessile capsules twisted and curved near the top that lack distinctive rows of warty projections. The distinctive sandy, inter-dunal habitat is also a good tip.

**Phenology**—Flowers June and July.

**Similar Species**—St. Anthony evening-primrose is most likely to be confused with one of the varieties of *Oenothera caespitosa* (evening-primrose) that occur in the St. Anthony area. *Oenothera caespitosa* var. *marginata* has straight capsules on short pedicels with distinctive wart-like projections in ridges or rows. In addition, plants are usually obviously hairy, with more deeply toothed leaves, and floral tubes usually over 7 cm long. *Oenothera caespitosa* var. *caespitosa* is often (but not always) shortly pubescent to one degree or another, and has leaves all in a basal cluster. It also has fruit capsules that are not twisted and only slightly curved at the top. *Oenothera pallida* (pale evening-primrose) is a rhizomatous perennial that sometimes co-occurs with St. Anthony

evening-primrose. It generally has a more erect habit, poorly developed or no basal leaves, usually smaller flowers, and more or less spreading, sometimes rather contorted fruit capsules.

**Habitat**—The trailing margins of migrating sand dunes in inter-dunal areas having sand-filled cracks over basalt outcrops and developing primary plant communities. St. Anthony evening-primrose is apparently limited to areas where the sand is less than approximately 50 cm deep. Associated species include *Leymus flavescens*, *Achnatherum hymenoides*, *Psoralea lanceolata*, *Ipomopsis congesta*, *Oenothera pallida*, and *Lygodesmia juncea*. Plants do not occur on the bodies of sand dunes, nor in surrounding sagebrush-steppe habitats.

**Global Distribution**—Endemic to the St. Anthony Sand Dune complex in eastern Idaho.

**Idaho Distribution**—The St. Anthony Sand Dune complex in southwestern Fremont County. (See also [http://fishandgame.idaho.gov/tech/CDC/spp\\_accounts\\_plants/oenpsa\\_dis.cfm](http://fishandgame.idaho.gov/tech/CDC/spp_accounts_plants/oenpsa_dis.cfm).)

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U.S. Fish and Wildlife Service Photo  
*Oenothera psammophila*  
St. Anthony evening primrose; St. Anthony sand-lily



*Oenothera psammophila*  
St. Anthony evening primrose; St. Anthony sand-lily

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***Piptatherum micranthum***  
**(Trin. & Rupr.)**  
**Barkworth—small-**  
**flowered ricegrass**

Poaceae (Grass family)

**Synonym**—*Oryzopsis micrantha* (Trin. & Rupr.) Thurb.

**General Description**—A strongly tufted perennial grass 30–70 cm tall. Leaf blades are flat or slightly inrolled, 1-2 mm wide, while sheaths are open and smooth to slightly pubescent with fine, short hairs. Ligules are small, up to about 1 mm long and finely hairy along the edges. The inflorescence is a narrow

panicle 7–15 cm long having short, ascending or slightly spreading branches. Glumes are equal, papery, transparent, sharply pointed, and about 3–4 mm long. Lemmas are hairless or occasionally have fine hairs and have a straight, stiff awn 4–8 mm long. They are also shiny and become hard and brownish in color. The callus is also hairless. Anthers are about 1 mm long.

**Field Identification Tips**—Small-flowered ricegrass is recognized by its tufted habit, thin leaves, narrow panicle with ascending or slightly spreading branches, glabrous callus, and lemmas becoming shiny, brownish, and hardened as they mature and having a straight, relatively long awn.

**Phenology**—Flowers June to early August.

**Similar Species**—Small-flowered ricegrass could be confused with *Piptatherum exiguum* (*Oryzopsis exigua*). This species differs in its spike-like, appressed inflorescence and obviously bent awn of the lemma. Some species of *Achnatherum* (*Stipa* in part) can also look similar, but differ in having lemmas with longer (usually >15 mm), often bent, and sometimes pubescent awns, and a hairy callus.

**Habitat**—Dry, open, often sandy soil or rocky ridge areas from the sagebrush foothills to open forests at middle elevations. The known Idaho population occurs in cracks and on ledges in a limestone cliff alcove. It has no associates at this site.

**Global Distribution**—British Columbia to Saskatchewan, south to eastern California and Texas.

**Idaho Distribution**—Known from the Birch Creek Valley south of Blue Dome in Clark County. (See also [http://fishandgame.idaho.gov/tech/CDC/spp\\_accounts\\_plants/pipmic\\_dis.cfm](http://fishandgame.idaho.gov/tech/CDC/spp_accounts_plants/pipmic_dis.cfm).)

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Photo © Robert K. Moseley  
*Piptatherum micranthum*  
small-flowered ricegrass



*Piptatherum micranthum*  
small-flowered ricegrass

Hitchcock, C.L., A. Cronquist, M. Ownbey, and J.W. Thompson. 1969. Vascular plants of the Pacific Northwest. Part 1. University of Washington Press, Seattle. 914 pp. Illustration by Jeanne Janish. Reprinted with permission of the University of Washington Press.

***Primula alcalina* A. Cholewa  
& D. Henderson—Alkali  
primrose**

**Primulaceae (Primrose family)**

**General Description**—A perennial herb from a flat basal rosette of light green, crinkly leaves, each 1–4 cm long. Young leaves have a white mealy coating that disappears as the leaves age. The leaf blades are elliptic and

gradually narrow at the base to a winged petiole. Flowering stems are leafless and range between 5–30 cm tall. The inflorescence is a tight cluster of 3–10 erect flowers terminating the leafless stem. Flowers are white with a yellow center; the petals fused into a tube for their lower half, then flaring into 5 lobes, each about 1 cm long and clearly notched at the apex. The calyx is bell-shaped, with a somewhat white mealy coating. The involucre bracts at the base of

the inflorescence also have a somewhat white mealy coating.

**Field Identification Tips**—Alkali primrose is distinguished by its tight rosette of crinkly leaves, and solitary, leafless flower stalk usually around 15 cm tall terminated by a tight umbel of white flowers. The white mealy bloom covering young leaves is absent from older, mature leaves.

**Phenology**—Flowers in May and early June. Fruits develop through June, July, and August. The basal rosettes, with their distinctive wavy leaves remain green at least until the end of August. The leaves and flowering stem enlarge over the growing season, and by the time the capsules are ripe, may be several times their length compared to when first flowering.

**Similar Species**—*Primula incana* (Jones' primrose) is a widespread species rare in Idaho. It occurs in wetland habitats, but differs from alkali primrose in having lavender-colored flowers and mature leaves covered with a white, mealy powder. There are also technical differences in the flowers to distinguish the occasional white (albino) Jones' primrose plant that may be found. Other *Primula* species known for Idaho do not occur in wet, alkaline meadow habitats. The basal rosettes of alkali primrose and another member of the primrose family, *Dodecatheon pulchellum* (few-flowered shooting star), are similar in size and shape. However, the *Dodecatheon* leaves are not white-mealy at any stage, nor do they have crenulate margins.

**Habitat**—Alkali primrose occurs in wet, spring-fed, alkaline, intermontane valley meadow systems. The alluvial soils are fine-textured, light-colored, and derived from predominantly calcareous outwash. Plants occur in the lowest topographic position in the meadows, where the subirrigated soil is

saturated throughout the growing season. Plants are found on low, relatively level benches immediately adjacent to creeks and spring heads, as well as on low benches with hummocky microtopography, where plants are restricted to the tops and sides of the hummocks. Alkali primrose is not known from creeks having large seasonal or annual flows, or channel scouring from floods. Graminoids dominate the wet meadow habitats supporting alkali primrose, including *Eleocharis pauciflora*, *Carex scirpoidea*, *C. simulata*, *Kobresia simpliciuscula*, and *Juncus balticus*. Associated forbs are diverse, but have relatively low cover, and include *Dodecatheon pulchellum*, *Triglochin maritimum*, and *Thalictrum alpinum*. Hummocks are sometimes shared with shrubs such as *Betula glandulosa*, *Potentilla fruticosa*, and several *Salix* species.

**Global Distribution**—Narrowly endemic to east-central Idaho and immediately adjacent southwestern Montana.

**Idaho Distribution**—Known from a series of wet, spring-fed, alkaline meadows in the large intermontane valleys of east-central Idaho, in Lemhi, Butte, and Custer counties. (See also [http://fishandgame.idaho.gov/tech/CDC/spp\\_accounts\\_plants/prialc\\_dis.cfm](http://fishandgame.idaho.gov/tech/CDC/spp_accounts_plants/prialc_dis.cfm).)

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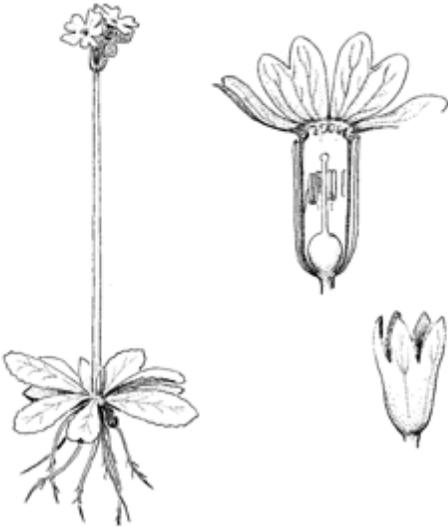
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Cholewa, A. F., and D. Henderson. 1984.  
*Primula alcalina* (Primulaceae): a new

species from Idaho. *Brittonia* 36(1): 59–62.  
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Botanical Press.



Photo © Robert K. Moseley  
*Primula alcalina* (alkali primrose) habitat



*Primula alcalina*  
alkali primrose

## ***Rhynchospora alba* (L.) Vahl—white beakrush**

### **Cyperaceae (Sedge family)**

**General Description**—A grass-like perennial, 15–50 cm tall that grows in densely tufted clumps. The thin stems are triangular and solid. It has several leaves, the lowest often more or less reduced to scales, the others slender and no more than about 1 mm wide. The inflorescence has 1–3 compact head-like clusters that are whitish in appearance, especially at anthesis. They are mostly 5–15 mm wide, with the terminal cluster of spikelets larger than the others. Achenes are 1.5–2 mm long and capped by an elongate, narrow tubercle. They are subtended by 10–12 well developed, minutely barbellate perianth bristles.

**Field Identification Tips**—The inflorescence's whitish appearance is a good field character.

**Phenology**—Flowers in July-August.

**Similar Species**—The whitish, head-like inflorescence, fruits with bristles, and the lack of a perigynia distinguish *R. alba* from all sedge (*Carex*) species.

**Habitat**—Bogs, fens, and other very wet places at moderate and low elevations.

**Global Distribution**—Interruptedly circumboreal, but not at the highest latitudes. In North America it ranges from

Newfoundland to North Carolina, inland to the Great Lakes region. The range is continuous across southern Canada to the Pacific, where it occurs from the Alaskan panhandle to central California. It is chiefly found west of the Cascade-Sierran summits, but also inland in northern Idaho.

**Idaho Distribution**—Boundary, Bonner, and Kootenai counties in the Panhandle region, and at Warm Lake in central Valley County. (See also [http://fishandgame.idaho.gov/tech/CDC/spp\\_accounts\\_plants/rhyalb\\_dis.cfm](http://fishandgame.idaho.gov/tech/CDC/spp_accounts_plants/rhyalb_dis.cfm).)

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Photo © Robert Moseley  
*Rhynchospora alba*  
white beakrush



*Rhynchospora alba*  
white beakrush

Hitchcock, C.L., A. Cronquist, and M. Ownbey. 1969. Vascular plants of the Pacific Northwest. Part 1. University of Washington Press, Seattle. 914 pp. Illustration by Jeanne Janish. Reprinted by permission of the University of Washington Press.

## ***Salix candida* Fluegge ex Willd.—hoary willow**

### **Salicaceae (Willow family)**

**General Description**—A freely-branched, low- to medium-sized shrub, 0.2–1.5 m tall. Twigs of the season are thinly to moderately tomentose on early season growth, becoming very dense on late season growth. Some of the pubescence usually persists into the second year. Leaves are mostly oblanceolate to narrowly oblong, the larger ones about 5–8 cm long and 0.7–1.5 cm wide, and with entire and inrolled margins. The lower leaf surfaces are covered with a dense, white, felt-like tomentum comprised of fine, tangled hairs; the upper surface glabrous or only thinly pubescent. The catkins are nearly sessile, the staminate ones about 1–2 cm long, and the pistillate ones mostly 1–3 cm long. The ovaries and capsules are pubescent and borne on short stipes. The persistent floral bracts are pale to dark brown.

**Field Identification Tips**—Readily distinguished by its relatively short stature and dense, white, felt-like tomentum on the lower leaf surfaces and twigs.

**Phenology**—Flowers in May–June. Its distinguishing vegetative characters allow this species to be identified throughout the summer.

**Similar Species**—*Salix brachycarpa* which is similar in stature, floral morphology, and habitat can resemble *S. candida*, especially early in the season. However, *S. candida* has notably longer and narrower leaves that are more densely wooly-white beneath and have revolute margins. *Salix wolfii* has shorter leaves with silvery, appressed hairs on both top and bottom surfaces.

**Habitat**—Bogs, fens, marshes, pond edges, and seepage areas.

**Global Distribution**—From Alaska to Labrador, south to New Jersey, Iowa, North and South Dakota, Washington, Idaho, Montana, Wyoming, and Colorado.

**Idaho Distribution**—Boundary and Bonner counties in the Panhandle region, and Butte, Custer, Lemhi, Fremont, Teton, and Caribou counties in the east-central and eastern parts of the state. (See also [http://fishandgame.idaho.gov/tech/CDC/spp\\_accounts\\_plants/salcan\\_dis.cfm](http://fishandgame.idaho.gov/tech/CDC/spp_accounts_plants/salcan_dis.cfm).)

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Photo © Robert Moseley  
*Salix candida*  
hoary willow



*Salix candida*  
hoary willow

Hitchcock, C.L., A. Cronquist, M. Ownbey, and J.W. Thompson. 1964. Vascular plants of the Pacific Northwest. Part 2. University of Washington Press, Seattle. 597 pp. Illustration by Jeanne Janish. Reprinted by permission of the University of Washington Press.

### ***Scheuchzeria palustris* L.— pod grass**

#### **Scheuchzeriaceae (Scheuchzeria family)**

**General Description**—Pod grass is a trailing, strongly rhizomatous rush-like plant, 20–40 cm tall. Each erect stem has 3 or 4 linear, stiff, alternate leaves that are gradually reduced upward and arranged in a 2-ranked

fashion. Leaves are round in cross-section, and broadly sheathing at the base with a prominent ligule 2–10 mm long at the juncture of the sheath and blade. The inflorescence is a few- to several-flowered raceme. The obscure flowers produce three compressed fruits arranged in a spreading, triangular cluster.

**Illustration**—See

[http://fishandgame.idaho.gov/tech/CDC/spp\\_accounts\\_plants/schpal\\_illus.cfm](http://fishandgame.idaho.gov/tech/CDC/spp_accounts_plants/schpal_illus.cfm).

**Field Identification Tips**—The entire plant has a greenish-brown appearance. The broadly sheathing leaf bases and prominent ligule help distinguish this species.

**Phenology**—Flowers in May and June, but can be identified in the field throughout the summer.

**Similar Species**—Possible to confuse with sedge (*Carex*) or rush (*Juncus*) species until closer examination reveals many differences, most notably in the fruits. It could also be confused with an arrow-grass (*Triglochin*), which has mostly basal leaves and a different kind of fruit.

**Habitat**—In bogs, where it is usually associated with *Sphagnum*, or on lake margins, where often with *Carex* spp.

**Global Distribution**—Southern Alaska to Labrador and Newfoundland, south in British Columbia and Washington to northern California, and to Idaho, North Dakota, Indiana, Iowa, and New Jersey. It is also found in Eurasia.

**Idaho Distribution**—Known from Boundary, Bonner, and Kootenai counties in the Panhandle region. Also known from Valley County, and the Yellowstone National Park area. (See also [http://fishandgame.idaho.gov/tech/CDC/spp\\_accounts\\_plants/schpal\\_dis.cfm](http://fishandgame.idaho.gov/tech/CDC/spp_accounts_plants/schpal_dis.cfm).)

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Photo © Joe Duft  
*Scheuchzeria palustris*  
pod grass



*Scheuchzeria palustris*  
pod grass

Hitchcock, C.L., A. Cronquist, and M. Ownbey. 1969. Vascular plants of the Pacific Northwest. Part 1. University of Washington Press, Seattle. 914 pp. Illustration by Jeanne Janish. Reprinted by permission of the University of Washington Press.

***Scirpus rollandii* Fern.—  
Rolland's bulrush, dwarf  
bulrush, small clubrush**

**Cyperaceae (Sedge family)**

**Synonyms**—*Scirpus pumilus* Vahl.; *Scirpus pumilus* Vahl. ssp. *rollandii* (Fern.) Raymond; *Trichophorum rollandii* (Fern.) Hultn.; *Trichophorum pumilum* (Vahl.) Schinz & Thellung

**General Description**—A glabrous, grass-like perennial with loosely tufted, slender stems 5–12 cm tall and arising from slender rhizomes clothed in the remains of dead culms and persistent leaf bases. The leaves have slender blades 5–15 mm long and up to 1 mm broad above, but consist only of shorter sheaths near the base. The inflorescence is a small, solitary spikelet of 3–6 flowers borne on the stem tip and subtended by a brown, blunt-tipped bract. Each flower consists of a brown scale with thin, whitish margins

subtending 3 stamens and an ovary with 3 stigmas. The scales fall off as the ovaries mature into smooth, blackish achenes (fruits) 1-2 mm long.

**Field Identification Tips**—Rolland's bulrush can be recognized by its small, loosely tufted, slender, stems, small leaves, and minute, solitary, terminal spikelet. After the achenes mature plants look like a tiny stick with a few tiny black eggs glued on top. Rolland's bulrush is an inconspicuous plant easy overlooked in its graminoid-dominated habitat.

**Phenology**—Flowers July, August and early September.

**Similar Species**—Most *Scirpus* species in Idaho have more than one flowering spike, as well as one or more elongated bracts below the inflorescence. However, two species have small, solitary, terminal spikelets similar to Rolland's bulrush. *Scirpus caespitosus* is a larger plant that forms distinctive tussocks and in Idaho appears to be restricted to peatland habitats. *Scirpus hudsonianus* has triangular stems and conspicuous, elongated perianth bristles. In comparison, Rolland's bulrush has more rounded stems and no perianth bristles. *Eleocharis* species (spike-rushes) have solitary, terminal spikelets and can also look similar. They can be distinguished by lacking leaf blades and technical differences in the flower such as thickened style bases which appear as a cap-like feature on the achenes. *Kobresia simpliciuscula* has multiple terminal spikelets and is commonly taller and more leafy than Rolland's bulrush.

**Habitat**—Rich fens; wet calcareous soils. Associated species at Idaho populations include *Eleocharis pauciflora*, *Kobresia simpliciuscula*, *Deschampsia cespitosa*, *Triglochin maritima*, and *Primula alcalina*.

**Global Distribution**—Circumboreal; in North America extending from the Yukon to Quebec and southward to Montana, Idaho, Wyoming, Colorado, and in California.

**Idaho Distribution**—Known from the upper Little Lost River Valley in Custer County, and Birch Creek in Clark County. (See also [http://fishandgame.idaho.gov/tech/CDC/spp\\_accounts\\_plants/scirol\\_dis.cfm](http://fishandgame.idaho.gov/tech/CDC/spp_accounts_plants/scirol_dis.cfm).)

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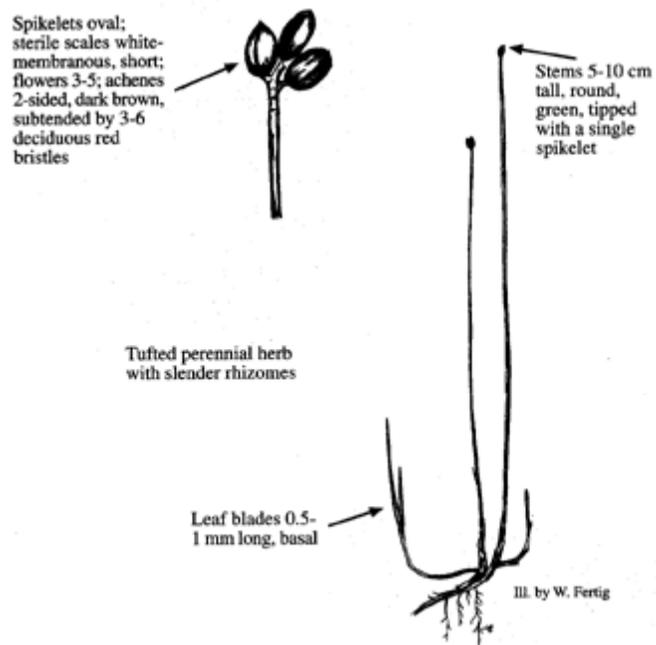
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Photo © Robert K. Moseley

*Scirpus rollandii*

Rolland's bulrush; dwarf bulrush; small clubrush



*Scirpus rollandii*  
Rolland's bulrush; dwarf bulrush; small clubrush

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## APPENDIX 1-4—DAMS WITHIN THE UPPER SNAKE PROVINCE.

Table 1. Inventory of Dams in the Upper Snake province. (Source: Idaho Department of Water Administration (IDWA). 1971. Inventory of Dams in the State of Idaho, August 1970. 97 pp.)

GHB= Greys–Hoback watershed; GVT= Gros Ventre watershed; PAL=Palisades watershed; SAL=Salt watershed; SHW=Snake Headwaters watershed; AMF=American Falls watershed; BFT=Blackfoot watershed; GSE=Goose watershed; IFA= Idaho Falls watershed; LHF=Lower Henrys Fork watershed; Portneuf watershed; RFT=Raft watershed; TET=Teton watershed; UHF=Upper Henrys Fork watershed; LWT=Lake Walcott watershed; WIL=Willow watershed; BCM=Beaver-Camas watershed; BCK=Birch Creek watershed; Big Lost River watershed; Little Lost River watershed; Medicine Lodge watershed.

Purpose: A=aesthetics; B= mining; C=commercial; D=domestic; E=erosion control; E=erosion control; F=flood control; G=wildlife propagation; H=fish propagation; I=irrigation; J=stock water and irrigation; K=domestic and stock and irrigation; L=domestic and irrigation; M=municipal supply; N=industrial; O=other; P=power; Q=fire protection; R=recreation; S=stock water; T=mine tailings. Auxdam.

Size Category: 1 = >40 feet or stores >4,000 acre-feet; 2 = 20-40 feet or stores 100-4,000 acre-feet; 3 = Height <20 feet or stores <100 acre-feet.

BASIN	State	HUC ABB	Dam Name	Fed Agency	Owner Name	Size Category	Purposes	Year Completed	River or Stream	Max. Storage	Normal Storage	Storage-Max or*	Normal	Surface Area
UpMidS UpSn	ID	USR	Milner		Milner Dam Inc	1	I	1905	Snake River	36300	0	36300		4000
UpMidS UpSn	ID	USR	Murtaugh Lake		Twin Falls Canal Co	1	I	1905	Snake River (Os)	7720	0	7720		827
UpMidS UpSn	ID	USR	Wilson Lake		North Side Canal Co	1	I	1909	Snake River (Os)	4600	0	4600		504
UpMidS UpSn	ID	USR	Shoshone Falls		Idaho Power Co	2	P	1927	Snake River	750	0	750		120
UpMidS UpSn	ID	USR	Twin Falls		Idaho Power Co	2	P	1935	Snake River	1000	0	1000		96
UpMidS UpSn	ID	USR	Dry Creek		Dry Creek Strong Ditch Inc	3	E	1975	Dry Creek (Os)	5	0	5		1

Upper Snake Provincial Assessment

BASIN	State	HUC ABB	Dam Name	Fed Agency	Owner Name	Size Category	Purposes	Year Completed	River or Steam	Max. Storage	Normal Storage	Storage-Max or*	Normal	Surface Area
UpSnake	ID	LHF	Grassy Lake	USBR		1	I	1939	Grassy Creek	16200	15500	16200		310
UpSnake	ID	LHF	Grassy Lake	USBR		1	I	1939	Grassy Creek	16200	15500	16200		310
UpSnake	ID	BFT	Conda Partnership		Nu-West Industries Inc	1	T	1978	Tr-Bear River (Os)	1250	0	1250		59
UpSnake	ID	AMF	American Falls	USBR	U.S. Bureau Of Reclamation	1	IFP	1978	Snake River	1671300	0	1671300		56055
UpSnake	ID	LHF	Ashton		PacifiCorp	1	P	1913	Henrys Fork	9800	0	9800		404
UpSnake	ID	BFT	Blackfoot		U.S. Bureau Of Indian Affairs	1	L	1911	Blackfoot River	350000	0	350000		18000
UpSnake	ID	AMF	Gem State		City Of Idaho Falls	1	IPR	1988	Snake River	5000	0	5000		305
UpSnake	ID	WIL	Grays Lake-Clarks Cut		U.S. Bureau Of Indian Affairs	1	AUXDAM	1988	Tr-Meadow Creek	0	0	0		27000
UpSnake	ID	WIL	Grays Lake-N End Outlet		U.S. Bureau Of Indian Affairs	1	IG	1924	Grays Lake Outlet	40000	0	40000		27000
UpSnake	ID	UHF	Henrys Lake		North Fork Reservoir Co	1	L	1923	Henrys Fork	58700	0	58700		6050
UpSnake	ID	UHF	Island Park	USBR	U.S. Bureau Of Reclamation	1	L	1938	Henrys Fork	127646	0	127646		7794
UpSnake	ID	LWT	Minidoka (Lake Walcott)	USBR	U.S. Bureau Of Reclamation	1	IP	1906	Snake River	210000	0	210000		11850
UpSnake	ID	GSE	Oakley		Oakley Canal Co	1	I	1916	Goose Creek	76000	0	76000		1350
UpSnake	ID	PTF	Portneuf		Portneuf-Marsh Valley Canal Co	1	L	1912	Portneuf River	23695	0	23695		1593
UpSnake	ID	WIL	Ririe	USBR	U.S. Bureau Of Reclamation	1	IF	1976	Willow Creek	100500	0	100500		1560
UpSnake	ID	RFT	Sublett		Sublett Irrigation Co	1	I	1914	Sublett Creek	2742	0	2742		113
UpSnake	ID	LHF	Bergman Lake			2	I	1953	Indian Creek	373	201	373		37
UpSnake	ID	LHF	Indian Lake			2	I	1954	Indian Lake Basin	2034	904	2034		252
UpSnake	ID	LHF	Arcadia Lower		Arcadia Canal And Reservoir Co.	2	I	1912	Sand Creek	882	0	882		68
UpSnake	ID	LHF	Arcadia Upper		Arcadia Canal And Reservoir Co	2	I	1912	Sand Creek (Control Inflow)	300	0	300		40

Upper Snake Provincial Assessment

BASIN	State	HUC ABB	Dam Name	Fed Agency	Owner Name	Size Category	Purposes	Year Completed	River or Stream	Max. Storage	Normal Storage	Storage-Max or*	Normal	Surface Area
UpSnake	ID	BFT	Blackfoot Equalizing		U.S. Bureau Of Indian Affairs	2	O	1937	Blackfoot River	1500	0	1500		640
UpSnake	ID	LHF	Blue Creek No 3		Idaho Fish And Game Department	2	H	1965	Blue Creek	168	0	168		39
UpSnake	ID	LHF	Blue Creek No 4		Idaho Fish And Game Department	2	H	1960	Blue Creek	390	0	390		78
UpSnake	ID	LHF	Cross Cut Diversion		Fremont-Madison Irrig Dist	2	I	1938	Henrys Fork	250	0	250		35
UpSnake	ID	LWT	Dewey		Skaggs 6S Ranch	2	I	1913	Marsh Creek	478	0	478		78
UpSnake	ID	WIL	Elkington		Elkington Brothers	2	I	1994	Squaw Creek	90	0	90		6
UpSnake	ID	UHF	Golden Lake		Idaho Dept Parks And Recreation	2	R	1915	Thurmon Creek	112	0	112		41
UpSnake	ID	WIL	Green Valley Ranch		Green Valley Ranch Inc	2	I	1986	Birch Creek	25	0	25		5
UpSnake	ID	PTF	Hawkins		Marsh Center Irrigation Co	2	I	1870	Hawkins Creek	880	0	880		54
UpSnake	ID	UHF	Icehouse Creek East		Brent Matsuura	2	H	1914	Icehouse Creek (Os)	200	0	200		64
UpSnake	ID	LWT	Lamb-Weston		Lamb-Weston Inc	2	N	1974	Tr-Snake River	153	0	153		15
UpSnake	ID	WIL	Little Valley		Gentile Valley Land & Cattle Co	2	J	1897	Little Valley Creek	1000	0	1000		265
UpSnake	ID	IFA	Power Dam No 1 Upper		City Of Idaho Falls	2	P	1982	Snake River	800	0	800		300
UpSnake	ID	IFA	Power Dam No 2 Upper		City Of Idaho Falls	2	AUXDAM	1982		0	0	0		300
UpSnake	ID	IFA	Power Dam No 3		City Of Idaho Falls	2	P	1982	Snake River	400	0	400		125
UpSnake	ID	IFA	Power Dam No 4 Lower		City Of Idaho Falls	2	P	1982	Snake River	800	0	800		125
UpSnake	ID	UHF	Sheridan		Mike Webster	2	J	1873	Sheridan, Dry Creeks (Os)	3398	0	3398		415

Upper Snake Provincial Assessment

BASIN	State	HUC ABB	Dam Name	Fed Agency	Owner Name	Size Category	Purposes	Year Completed	River or Stream	Max. Storage	Normal Storage	Storage-Max or*	Normal	Surface Area
UpSnake	ID	UHF	Silver Lake		Idaho Dept Parks And Recreation	2	R	1915	Thurmon Creek	340	0	340		135
UpSnake	ID	AMF	Simplot Effluent Irrig		J R Simplot Co	2	I	1981	Tr-Ft Hall Canal,Effluent	860	0	860		38
UpSnake	ID	PTF	Twenty Four Mile		Chesterfield Canal And Res Co	2	L	1928	Twenty Four Mile Creek	700	0	700		44
UpSnake	ID	AMF	Twin Buttes No 1		Idaho Department Of Lands	2	S	1974	Lava Draw	180	0	180		44
UpSnake	ID	BFT	Unit 3 Haulroad		Rhone-Poulenc Chemical	2	O	1979	Tr-Angus Creek	40	0	40		14
UpSnake	ID	LHF	Bergman Lake			2	I	1953	Indian Creek	373	201	373		37
UpSnake	ID	LHF	Indian Lake			2	I	1954	Indian Lake Basin	2034	904	2034		252
UpSnake	ID	BFT	Blackfoot China Hat		U.S. Bureau Of Indian Affairs	3	AUXDAM	1925		0	0	0		18000
UpSnake	ID	UHF	Egbert Dike		Kevin Egbert	3	AUXDAM	0		0	0	0		9
UpSnake	ID	UHF	Icehouse Creek West		Brent Matsuura	3	AUXDAM	0		0	0	0		64
UpSnake	ID	BFT	Angus Creek		Rhone-Poulenc Chemical	3	B	1972	Angus Creek	20	0	20		3
UpSnake	ID	TET	B And R Farms		B And R Farms	3	I	1982	Tr-Spring Creek	9	0	9		2
UpSnake	ID	LHF	Blue Creek No 1		Idaho Fish And Game Department	3	H	1977	Blue Creek	56	0	56		16
UpSnake	ID	LHF	Blue Creek No 2		Idaho Fish And Game Department	3	H	1969	Blue Creek (Os)	77	0	77		18
UpSnake	ID	LHF	Blue Creek Upper		Idaho Fish And Game Department	3	L	1920	Blue Creek	67	0	67		12
UpSnake	ID	LWT	Champagne Mine Det No 1		Idaho Gold Corp	3	B	1989	Champagne Creek (Os)	21	0	21		2
UpSnake	ID	LWT	Champagne Mine Det No 2		Idaho Gold Corp	3	B	1989	Champagne Creek (Os)	22	0	22		2
UpSnake	ID	UHF	Cherry		Frank Summers	3	I	1980	Blue Creek	93	0	93		19

Upper Snake Provincial Assessment

BASIN	State	HUC ABB	Dam Name	Fed Agency	Owner Name	Size Category	Purposes	Year Completed	River or Stream	Max. Storage	Normal Storage	Storage-Max or*	Normal	Surface Area
UpSnake	ID	UHF	Egbert		Kevin Egbert	3	I	1982	Spring Creek	68	0	68		9
UpSnake	ID	BFT	Enders		Olive Enders	3	L	1910	Cutoff Canyon Creek	60	0	60		25
UpSnake	ID	TET	Felt		Fall River Rural Electric Coop	3	P	1921	Teton River	40	0	40		10
UpSnake	ID	RFT	Gunnell		Lelan P Gunnell	3	I	1949	Six Mile Creek	15	0	15		2
UpSnake	ID	LWT	Hayes Lower		Bob Knudsen Jr	3	I	1964	Hess Spring Creek	19	0	19		2
UpSnake	ID	UHF	Henry's Fork Ranch		Henry's Fork Ranch	3	R	1987	Tr-Henry's Fork	90	0	90		10
UpSnake	ID	UHF	Howell Lower		Frank Vandersloot	3	I	1976	Strong Creek	25	0	25		6
UpSnake	ID	UHF	Howell Upper		Frank Vandersloot	3	IH	1962	Strong Creek	30	0	30		5
UpSnake	ID	BFT	Indian Creek Lower		Phil Yost	3	I	1977	Chicken Creek	15	0	15		4
UpSnake	ID	BFT	Indian Creek Upper		Phil Yost	3	I	1975	Chicken Creek	48	0	48		5
UpSnake	ID	UHF	Jacobs		F Mitchell Jacobs	3	HRS	1935	Sheep Creek	75	0	75		20
UpSnake	ID	LWT	J-Canal Reregulating		Craig Larson	3	0	1994	Tr-Snake River	42	0	42		8
UpSnake	ID	LWT	Lake Cleveland		Denaughel, Montgomery, Anderson	3	IR	1914	Land Creek	99	0	99		24
UpSnake	ID	PTF	Lava Ranch		Lava Ranch Property Owners Assn	3	SH	1960	Deer Creek	15	0	15		2
UpSnake	ID	LHF	Mikesell Lower		Glen Moon And Lynn Bowman	3	I	1940	Spring Creek	70	0	70		20
UpSnake	ID	LHF	Mikesell Upper		Glen Moon & Lynn Bowman	3	I	1945	Spring Creek	80	0	80		16
UpSnake	ID	UHF	Osborne Fish Pond		Idaho Dept Parks And Recreation	3	JG	1915	Tr-Henry's Fork	85	0	85		27
UpSnake	ID	PTF	Perkins		C V Cattle Co	3	I	1972	Tr-Portneuf River (Os)	99	0	99		26

Upper Snake Provincial Assessment

BASIN	State	HUC ABB	Dam Name	Fed Agency	Owner Name	Size Category	Purposes	Year Completed	River or Steam	Max. Storage	Normal Storage	Storage-Max or*	Normal	Surface Area
UpSnake	ID	RFT	Sessions		Jeff Sessions	3	I	1994	Round Mountain Creek	12	0	12		2
UpSnake	ID	LWT	Smyer East		Bennie Smyer	3	J	1988	Summit Creek	25	0	25		25
UpSnake	ID	LWT	Smyer West		Bennie Smyer	3	J	1989	Pine-Anton Creeks	15	0	15		4
UpSnake	ID	PTF	Thompson		Thayne Thompson	3	I	1958	Yago Creek (Os)	8	0	8		2
UpSnake	ID	LWT	Udy Brothers		Udy Brothers	3	I	1960	Tr-Rock Creek	10	0	10		2
UpSnake	ID	IFA	Webster (Leatham)		K Merle Jeppesen	3	I	1976	Lyons Creek	55	0	55		6
UpSnake	ID	RFT	Whitaker		Art Whitaker	3	S	1987	Eightmile Creek	8	0	8		2
UpSnake	ID	PTF	Wiregrass		Marsh Center Irrigation Co	3	I	1943	Wiregrass Creek	71	0	71		6
UpSnakeClo	ID	BLR	Mackay		Big Lost River Irrigation Dist	1	J	1918	Big Lost River	44500	0	44500		1341
UpSnakeClo	ID	LLR	Summit		Triple T Summit Ranch	2	I	1921	Pass And Big Gulch Creeks	600	0	600		100
UpSnake Closed	ID	BCM	Hagenbarth		David And James Hagenbarth	3	I	1986	Tr-Crooked Creek	60	0	60		8
UpSnake Closed	ID	BLR	Lehman Creek		Ronold Van Hagen	3	I	1925	Lehman Creek	54	0	54		6
UpSnake Closed	ID	BCM	Paul		Upper Snake River Cattle Assn	3	L	1911	East Modoc Creek	50	0	50		6
UpSnake HW	WY	SHW	Jackson Lake	USBR		1	ICRF	1911	Snake River	873000	847000	873000		25530
UpSnake HW	WY	SHW	Jackson Lake	USBR		1	ICRF	1911	Snake River	873000	847000	873000		25530
UpSnake HW	WY	SAL	Afton Electric	FSR		2	H	1938	Swift Creek	69	48	69		5

Upper Snake Provincial Assessment

BASIN	State	HUC ABB	Dam Name	Fed Agency	Owner Name	Size Category	Purposes	Year Completed	River or Steam	Max. Storage	Normal Storage	Storage-Max or*	Normal	Surface Area
UpSnake HW	WY	SAL	Cottonwood Lake	FSR		2	FI	1918	Cottonwood Creek	240	70	240		32
UpSnake HW	WY	SAL	Strawberry Creek	FSR		2	H	1951	Strawberry Creek	0	10	10	*normal	3
UpSnake HW	WY	SAL	Upper Swift Creek	FSR		2	H	1940	Swift Creek	0	22	22	*normal	2
UpSnake HW	WY	SAL	Afton Electric	FSR		3	H	1938	Swift Creek	69	48	69		5
UpSnake HW	WY	SAL	Cottonwood Lake	FSR		3	FI	1918	Cottonwood Creek	240	70	240		32
UpSnake HW	WY	SHW	Leidy Lake			3	F	1983	Leidy Creek	0	65	65	*normal	14
UpSnake HW	WY	SHW	Porter	FSR		3	IP	1951	Wallace Creek	62	52	62		7
UpSnake HW	WY	SAL	Strawberry Creek	FSR		3	H	1951	Strawberry Creek	0	10	10	*normal	3
UpSnake HW	WY	SAL	Teal	USDA		3	F	1992	Salt River	0	80	80	*normal	32
UpSnake HW	WY	SAL	Upper Swift Creek	FSR		3	H	1940	Swift Creek	22	22	22	*normal	2
UpSnake HW	WY	SHW	Leidy Lake			3	F	1983	Leidy Creek	0	65	65	*normal	14
UpSnake HW	WY	SHW	Porter	FSR		3	IP	1951	Wallace Creek	62	52	62		7
UpSnake HW	WY	SAL	Teal	USDA		3	F	1992	Salt River	0	80	80	*normal	32
UpSnake HW	ID	SAL	Smoky Canyon		J R Simplot Co	1	T	1983	Roberts Creek	2500	0	2500		83
UpSnake HW	ID	SAL	Smoky Canyon No 2		J R Simplot Co	1	T	1991	Tygee Creek	20450	0	20450		480
UpSnake HW	ID	PAL	Palisades	USBR	U.S. Bureau Of Reclamation	1	IFP	1957	Snake River	1401000	0	1401000		16150

Upper Snake Provincial Assessment

BASIN	State	HUC ABB	Dam Name	Fed Agency	Owner Name	Size Category	Purposes	Year Completed	River or Stream	Max. Storage	Normal Storage	Storage-Max or*	Normal	Surface Area
UpSnake HW	WY	GHB	Flat Creek Ranch			2	F	1967	Flat Creek	0	151	151	*normal	46
UpSnake HW	WY	GHB	Jackson Wastewater Treatment Plant			2	DO	1980	Snake River Offstream	0	260	260	*normal	20
UpSnake HW	WY	SHW	Tracy Lake	FSR		2	R	1928	Randolph Creek	646	420	646		47
UpSnake HW	WY	SHW	Uhl	NPS		2	IF	1948	Spread Creek	756	423	756		83
UpSnake HW	WY	GHB	Jackson Wastewater Treatment Plant			2	DO	1980	Snake River Offstream	0	260	260	*normal	20
UpSnake HW	WY	SHW	Tracy Lake	FSR		2	R	1928	Randolph Creek	646	420	646		47
UpSnake HW	WY	SHW	Uhl	NPS		2	IF	1948	Spread Creek	756	423	756		83
UpSnake HW	ID	PAL	Antelope Creek		Foster Land And Cattle Co	3	I	1991	Antelope Creek	40	0	40		10
UpSnake HW	ID	SAL	Clark		Ross Clark	3	H	1983	Tr-Crow Creek	20	0	20		2
UpSnake HW	ID	SAL	Clark Middle		Ross Clark	3	H	1960	Tr-Crow Creek	10	0	10		1
UpSnake HW	ID	SAL	Clark Upper		Ross Clark	3	H	1990	Tr-Crow Creek	7	0	7		1
UpSnake HW	ID	SAL	Stewart Ranch		Stewart Bros Crow Creek Ranch	3	IR	1965	Tr-Crow Creek	50	0	50		10
UpSnake HW	WY	GHB	Flat Creek Ranch			3	F	1967	Flat Creek	0	151	151	*normal	46

## APPENDIX 1-5—WATER QUALITY LIMITED STREAMS WITHIN THE UPPER SNAKE PROVINCE

Table 1. Idaho’s 1998 303(d) list. This list is required by the Clean Water Act, where States are required to submit this list to the U.S. Environmental Protection Agency. The list represents a comprehensive status of water quality in the Upper Snake province. Streams, rivers, lakes and reservoirs are evaluated for this list. HUC=Hydrologic Unit Code; WQLSEG=Water Quality Limited Segment Number; BACT=Bacteria; CO=Dissolved Oxygen; FLOWAL=Flow alteration ; HABALT=Habitat alteration MET=Metals (Hg); NH3=Ammonia; NUTR=nutrients; O-G=Oil or gas; ORG=Organic; PEST=Pesticides; SAL=Salinity; SED=Sediment; TEMP=Temperature; UNKN=Unknown.

Basin	HUC	Name	TMDL Schedule	Length (m)	Status	Threat	BACT	DO	FLOWAL	HABALT	MET	NH3	NUTR	O_G	ORG	PEST	SAL	SED	TEMP	UNKN
<b>Upper Snake Subbasin</b>																			<b>Total Length (m) 2,319,998</b>	
UpSnake	USR	Dry Creek	1999	16389	Current 303(d)		X		X									X	X	
UpSnake	USR	Milner Lake	1999	3991	Current 303(d)			X	X				X	X				X		
UpSnake	USR	Shoshone Falls Reservoir	1999	4054	Current 303(d)			X	X									X		
UpSnake	USR	Snake River	1999	32483	Current 303(d)		X	X	X			X						X	X	
UpSnake	USR	West Fork Dry Creek	1999	10042	Current 303(d)		X	X	X				X					X		
UpSnake	AMF	American Falls Reservoir	2003	77564	Current 303(d)			X					X					X		
UpSnake	AMF	Bannock Creek	2003	82844	Current 303(d)		X						X					X		
UpSnake	AMF	Knox Creek	2006	18223	1998 303(d) Additions															X
UpSnake	AMF	McTucker Creek	2003	3609	Current 303(d)													X		
UpSnake	AMF	Moonshine Creek	2003	2184	Current 303(d)													X		
UpSnake	AMF	Rattlesnake Creek	2003	23568	Current 303(d)													X		
UpSnake	AMF	Snake River	1999	89119	Current 303(d)	X		X	X				X					X		
UpSnake	AMF	West Fork Bannock Creek	2003	5871	Current 303(d)													X		
UpSnake	BFT	Angus Creek	1999	12930	Current 303(d)													X		
UpSnake	BFT	Bacon Creek	1999	4825	Current 303(d)													X		

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Basin	HUC	Name	TMDL Schedule	Length (m)	Status	Threat	BACT	DO	FLOWAL	HABALT	MET	NH3	NUTR	O_G	ORG	PEST	SAL	SED	TEMP	UNKN
UpSnake	BFT	Blackfoot River	1999	169830	Current 303(d)	X			X				X		X			X		
UpSnake	BFT	Brush Creek	2006	24636	1998 303(d) Additions															X
UpSnake	BFT	Corral Creek	1999	29846	Current 303(d)													X		
UpSnake	BFT	Diamond Creek	1999	32349	Current 303(d)													X		
UpSnake	BFT	Dry Valley Creek	1999	17961	Current 303(d)													X		
UpSnake	BFT	Grizzly Creek	2006	11987	1998 303(d) Additions															X
UpSnake	BFT	Lanes Creek	1999	16728	Current 303(d)													X		
UpSnake	BFT	Maybe Creek	2006	4583	1998 303(d) Additions															X
UpSnake	BFT	Meadow Creek	1999	49744	Current 303(d)													X		
UpSnake	BFT	Sheep Creek	1999	12711	Current 303(d)													X		
UpSnake	BFT	Slug Creek	1999	37992	Current 303(d)													X		
UpSnake	BFT	Trail Creek	1999	13035	Current 303(d)													X		
UpSnake	BFT	Wolverine Creek	1999	10228	Current 303(d)								X					X		
UpSnake	GSE	Beaverdam Creek	2006	8644	1998 303(d) Additions															X
UpSnake	GSE	Big Cottonwood Creek	2006	21086	1998 303(d) Additions															X
UpSnake	GSE	Birch Creek	2002	24102	Current 303(d)		X	X										X		
UpSnake	GSE	Blue Hill Creek	2006	9195	1998 303(d) Additions															X
UpSnake	GSE	Cold Creek	2006	13298	1998 303(d) Additions															X
UpSnake	GSE	Goose Creek	2002	24649	Current 303(d)		X	X	X				X					X	X	
UpSnake	GSE	Lower Goose Creek Reservoir	2002	10179	Current 303(d)			X	X				X					X		
UpSnake	GSE	Trapper Creek	2002	12328	Current 303(d)		X	X	X									X		

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Basin	HUC	Name	TMDL Schedule	Length (m)	Status	Threat	BACT	DO	FLOWAL	HABALT	MET	NH3	NUTR	O_G	ORG	PEST	SAL	SED	TEMP	UNKN
UpSnake	IFA	Birch Creek	2006	17074	1998 303(d) Additions															X
UpSnake	IFA	North Fork Willow Creek	2002	16422	Current 303(d)													X		
UpSnake	IFA	Snake River	2002	3785	Current 303(d)	X			X											
UpSnake	IFA	South Fork Willow Creek	2002	15757	Current 303(d)													X		
UpSnake	IFA	Willow Creek	2002	16786	Current 303(d)													X		
UpSnake	LHF	GRASSY CR		730							X									
UpSnake	LHF	North Fork Teton River	1999	8570	Current 303(d)								X					X		
UpSnake	LWT	East Fork Rock Creek	1999	8576	Current 303(d)													X		
UpSnake	LWT	Marsh Creek	2006	32137	1998 303(d) Additions															X
UpSnake	LWT	Milner Lake	1999	56939	Current 303(d)			X	X				X	X				X		
UpSnake	LWT	Raft River	2002	1386	Current 303(d)		X	X	X			X	X					X		
UpSnake	LWT	Rock Creek	1999	21005	Current 303(d)													X		
UpSnake	LWT	Snake River	1999	49779	Current 303(d)			X								X		X		
UpSnake	LWT	South Fork Rock Creek	2006	50825	1998 303(d) Additions															X
UpSnake	PTF	American Falls Reservoir	2003	5037	Current 303(d)			X					X					X		
UpSnake	PTF	Arkansas Creek	2006	8693	1998 303(d) Additions															X
UpSnake	PTF	Birch Creek	1998	10413	Current 303(d)								X					X		
UpSnake	PTF	Cherry Creek	1998	11948	Current 303(d)								X					X		
UpSnake	PTF	Garden Creek	1998	12120	Current 303(d)								X					X		
UpSnake	PTF	Hawkins Creek	1998	24233	Current 303(d)								X					X		
UpSnake	PTF	Hawkins Reservoir	1998	1192	Current 303(d)			X					X							

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Basin	HUC	Name	TMDL Schedule	Length (m)	Status	Threat	BACT	DO	FLOWAL	HABALT	MET	NH3	NUTR	O_G	ORG	PEST	SAL	SED	TEMP	UNKN
UpSnake	PTF	Indian Creek	2006	5577	1998 303(d) Additions															X
UpSnake	PTF	Marsh Creek	1998	78025	Current 303(d)								X					X		
UpSnake	PTF	Pocatello Creek	1998	7938	Current 303(d)													X		
UpSnake	PTF	Portneuf River	1998	169116	Current 303(d)	X	X		X				X	X				X		
UpSnake	PTF	Rapid Creek	1998	10038	Current 303(d)													X		
UpSnake	PTF	Twentyfourmile Creek	1998	20836	Current 303(d)													X		
UpSnake	RFT	Cassia Creek	2002	20570	Current 303(d)	X				X								X		
UpSnake	RFT	Fall Creek	2006	3685	1998 303(d) Additions															X
UpSnake	RFT	Raft River	2002	122804	Current 303(d)		X	X	X			X	X				X	X	X	
UpSnake	RFT	Sublett Creek	2006	13324	1998 303(d) Additions		X	X	X				X					X		
UpSnake	RFT	Sublett Reservoir	2002	1977	Current 303(d)			X	X				X					X		
UpSnake	TET	Badger Creek	1999	13752	1998 303(d) Additions													X		
UpSnake	TET	Darby Creek	1999	5596	Current 303(d)				X									X		
UpSnake	TET	Fox Creek	1999	14766	Current 303(d)				X									X	X	
UpSnake	TET	Horseshoe Creek	1999	11332	Current 303(d)				X											
UpSnake	TET	Moody Creek	1999	40792	Current 303(d)								X							
UpSnake	TET	North Fork Teton River	1999	28300	Current 303(d)								X					X		
UpSnake	TET	North Leigh Creek	2006	7885	1998 303(d) Additions															X
UpSnake	TET	Packsaddle Creek	1999	15938	Current 303(d)				X									X		
UpSnake	TET	South Leigh Creek	1999	18304	Current 303(d)													X		
UpSnake	TET	Spring Creek	1999	20377	Current 303(d)				X									X	X	
UpSnake	TET	Teton River	1999	52997	Current 303(d)					X			X					X		

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Basin	HUC	Name	TMDL Schedule	Length (m)	Status	Threat	BACT	DO	FLOWAL	HABALT	MET	NH3	NUTR	O_G	ORG	PEST	SAL	SED	TEMP	UNKN	
UpSnake	UHF	Sheridan Creek	2006	25139	1998 303(d) Additions													X			
UpSnake	WIL	Birch Creek	2002	11333	Current 303(d)													X			
UpSnake	WIL	Brockman Creek	2002	20426	Current 303(d)								X					X			
UpSnake	WIL	Buck Creek	2006	4178	1998 303(d) Additions															X	
UpSnake	WIL	Corral Creek	2002	6897	Current 303(d)													X	X		
UpSnake	WIL	Crane Creek	2002	24499	Current 303(d)													X			
UpSnake	WIL	Grays Lake Outlet	2002	9620	Current 303(d)								X					X			
UpSnake	WIL	Hell Creek	2002	22476	Current 303(d)								X					X			
UpSnake	WIL	Homer Creek	2002	31767	Current 303(d)													X			
UpSnake	WIL	Lava Creek	2002	11372	Current 303(d)													X	X		
UpSnake	WIL	Long Valley Creek	2002	10597	Current 303(d)													X	X		
UpSnake	WIL	Meadow Creek	2002	17047	Current 303(d)													X			
UpSnake	WIL	Mill Creek	2002	10293	Current 303(d)													X	X		
UpSnake	WIL	Ririe Reservoir	2002	18887	Current 303(d)													X			
UpSnake	WIL	Sawmill Creek	2002	4946	Current 303(d)													X	X		
UpSnake	WIL	Sellars Creek	2002	6789	Current 303(d)				X									X	X		
UpSnake	WIL	Seventy Creek	2002	4914	Current 303(d)				X									X	X		
UpSnake	WIL	Tex Creek	2002	13432	Current 303(d)													X			
UpSnake	WIL	Willow Creek	2002	65243	Current 303(d)													X			
<b>Closed Basin Subbasin</b>																	<b>Total Length (m) 544,218</b>				
UpSnake Clo	BCK	Birch Creek	2004	27100	Current 303(d)				X	X			X					X			
UpSnake Clo	BCM	Beaver Creek	2004	52178	Current 303(d)				X	X			X					X	X		
UpSnake Clo	BCM	Camas Creek	2004	85169	Current 303(d)				X	X			X					X	X		
UpSnake Clo	BCM	Cow Creek	2006	7798	1998 303(d) Additions															X	

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Basin	HUC	Name	TMDL Schedule	Length (m)	Status	Threat	BACT	DO	FLOWAL	HABALT	MET	NH3	NUTR	O_G	ORG	PEST	SAL	SED	TEMP	UNKN
UpSnake Clo	BLR	Antelope Creek	2003	26003	Current 303(d)				X									X	X	
UpSnake Clo	BLR	Big Lost River	2003	54396	Current 303(d)			X	X				X					X	X	
UpSnake Clo	BLR	East Fork Big Lost River	2003	46158	Current 303(d)					X								X	X	
UpSnake Clo	BLR	Little Boone Creek	2006	3820	1998 303(d) Additions															X
UpSnake Clo	BLR	Spring Creek	2003	27542	Current 303(d)			X	X				X					X	X	
UpSnake Clo	BLR	Twin Bridges Creek	2003	14632	Current 303(d)								X					X		
UpSnake Clo	BLR	Warm Springs Creek	2006	13899	1998 303(d) Additions															X
UpSnake Clo	LLR	Little Lost River	2006	51333	1998 303(d) Additions														X	X
UpSnake Clo	LLR	Sawmill Creek	1999	19938	Current 303(d)													X	X	
UpSnake Clo	LLR	Wet Creek	1999	25543	Current 303(d)	X			X									X	X	
UpSnake Clo	MDL	Camas Creek	2004	3040	Current 303(d)								X					X		
UpSnake Clo	MDL	Eddie Creek	2004	12454	Current 303(d)					X			X					X		
UpSnake Clo	MDL	Fritz Creek	2004	4646	Current 303(d)								X						X	
UpSnake Clo	MDL	Irving Creek	2004	11165	Current 303(d)					X			X					X		
UpSnake Clo	MDL	Medicine Lodge Creek	2004	26080	Current 303(d)				X									X	X	
UpSnake Clo	MDL	Warm Springs Creek	2004	31324	Current 303(d)								X					X		

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Basin	HUC	Name	TMDL Schedule	Length (m)	Status	Threat	BACT	DO	FLOWAL	HABALT	MET	NH3	NUTR	O_G	ORG	PEST	SAL	SED	TEMP	UNKN
<b>Upper Snake Headwaters</b>																			<b>Total Length (m) 278,964</b>	
UpSnake HW	GHB	Cache Creek		14415							X							X		
UpSnake HW	GHB	Horse Creek		2740						X										
UpSnake HW	GHB	Little Granite Creek		11936														X		
UpSnake HW	GHB	Snake River		37571						X										
UpSnake HW	GVT	Gros Ventre River		26662						X								X		
UpSnake HW	PAL	Antelope Creek	2000	18516	Current 303(d)	X												X		
UpSnake HW	PAL	Bear Creek	2006	19318	1998 303(d) Additions															X
UpSnake HW	PAL	Camp Creek	2006	7347	1998 303(d) Additions															X
UpSnake HW	PAL	Elk Creek	2006	5299	1998 303(d) Additions															X
UpSnake HW	PAL	Fall Creek	2006	19597	1998 303(d) Additions															X
UpSnake HW	PAL	Little Elk Creek	2006	7292	1998 303(d) Additions															X
UpSnake HW	PAL	North Fork Indian Creek	2006	1733	1998 303(d) Additions															X
UpSnake HW	PAL	Sheep Creek	2006	8653	1998 303(d) Additions															X
UpSnake HW	PAL	Snake River		654						X										
UpSnake HW	PAL	Snake River	2000	65694	Current 303(d)	X			X											

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Basin	HUC	Name	TMDL Schedule	Length (m)	Status	Threat	BACT	DO	FLOWAL	HABALT	MET	NH3	NUTR	O_G	ORG	PEST	SAL	SED	TEMP	UNKN
UpSnake HW	SAL	Boulder Creek	2006	10510	1998 303(d) Additions															X
UpSnake HW	SHW	Pacific Creek		21027						X								X		
<b>Grand Total</b>				<b>3143180</b>																

### APPENDIX 1-6—NOXIOUS WEEDS

**Table 1. Plant species considered to be noxious weeds in the Upper Snake Province. Data provided by Idaho State Department of Agriculture (2003), and Teton County Weed Control (Teton County, WY [2003]).**

Common Name	Watershed																					
	AMF	BCK	BCM	BFT	BLR	GHB	GSE	GVT	IFA	LHF	LLR	LWT	MDL	PAL	PTF	RFT	SAL	SHW	TET	UHF	USR	WIL
Absinthe wormwood	X	X	X	X	X		X			X	X	X	X	X	X	X	X		X	X	X	
Bittersweet nightshade						X												X				
Black henbane	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
Black medic						X												X				
Bull thistle						X		X										X	X			
Canada thistle	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X
Cheatgrass																		X				
Common mullein						X		X										X	X			
Common tansy						X		X										X	X			
Common timothy						X		X										X				
Dalmatian toadflax	X		X			X		X	X	X					X		X	X	X	X	X	X
Diffuse knapweed	X				X		X			X		X				X		X				X
Dyer's woad	X		X	X		X	X	X		X		X			X	X	X	X		X	X	
False madwort																		X				
Field bindweed	X			X	X	X		X		X		X			X	X	X	X	X		X	
Field scabiosa						X																
Hawkweed						X														X		
Houndstongue						X		X										X	X			
Kentucky bluegrass																		X				
Leafy spurge	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Mayweed														X								
Mule-ears																						X
Musk thistle	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X
Orange hawkweed																		X				
Other	X	X	X	X		X		X	X			X	X		X	X		X			X	
Perennial pepperweed	X			X		X	X	X	X						X	X		X				X
Perennial sowthistle		X							X										X			
Poison hemlock	X			X						X		X	X		X		X		X	X	X	

Common Name	Watershed																					
	AMF	BCK	BCM	BFT	BLR	GHB	GSE	GVT	IFA	LHF	LLR	LWT	MDL	PAL	PTF	RFT	SAL	SHW	TET	UHF	USR	WIL
Russian olive						X																
Scentless corn chamomile						X		X										X	X			
Scotch thistle	X		X	X	X	X	X					X				X	X				X	
Smooth brome						X		X										X				
Sowthistle						X		X										X	X			
Spotted knapweed	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
St. Johnswort						X				X								X	X	X		
Sulphur cinquefoil	X					X		X										X	X			
Unknown		X	X					X										X				
Western salsify																		X				
Whitetop	X	X		X	X	X	X	X	X	X	X					X	X	X	X	X	X	X
Yellow hawkweed																		X				
Yellow sweetclover						X		X										X				
Yellow toadflax	X	X	X	X		X		X	X	X						X		X	X	X	X	X