Appendix N

Multi-species Strategy

TABLE OF CONTENTS

Page

Introduction/executive summary N-1
Special/unique habitats N-2
COLD FOREST
- Whitebark pine N-5
- Engelmann spruce/subalpine fir N-8
- Mountain hemlock N-12

DRY FOREST
- Interior Douglas-fir N-15
- Western larch N-19
- Lodgepole pine N-22
- Aspen N-25
- Interior ponderosa pine N-28
- Cottonwood/willow N-31
- Juniper woodlands N-35
- Mixed conifer woodlands N-38

MOIST FOREST
- Grand fir N-40

COOL SHRUB
- Shrub or herb/tree regen N-44
- Mountain mahogany N-46
- Mountain big sagebrush N-49
- Chokecherry/serviceberry/rose N-51

DRY SHRUB
- Antelope bitterbrush/bluebunch wheatgrass N-57

DRY GRASS
- Agropyon bunchgrass N-60
- Fescue-bunchgrass N-63
- Native forb N-66
- Exotic forb/annual grass N-68
- Crop/hay/pasture N-71

OTHER
- Alpine tundra N-73
- Shrub wetlands N-75
- Herbaceous wetlands N-78
- Barren/urban/water N-81

GRAPHS
- Cover types N-85
- Summations N-99

MATRIX N-101
STAND STRUCTURE KEY N-156
COVER TYPE KEY N-157
BIBLIOGRAPHY N-158
GLOSSARY N-159
BIO SECTION N-161

INTRODUCTION

This document is put together to provide a framework or a strategy to assist in land resource management for Wallowa County. One of the goals of this update is to make the document readable, usable, and accessible by the general public. Therefore, we have used common names, non-technical terms, and an extensive use of synonyms that are easily understood. A critical component of this update is the matrix (page N-101). The matrix provides a large amount of information and makes the rest of the document easier to understand. The graphs are a pictorial representation of the matrix and are intended to enhance understanding of the matrix (graphs on page N-7 as an example). Italicized words are defined in the glossary on page N-159.

The largest contributing data source for this document was ICBEMP (Interior Columbia Basin Ecosystem Management Project). This entity provided all baseline data concerning animal species, cover types, and species placement in habitats. However, the prevalent idea in Wallowa County among the scientific professionals is that ICBEMP data is too broad in scope to apply in an acceptable manner. For this reason the local scientists reviewed and edited the data so that it is specific to Wallowa County. The edited data was then used to build the matrix that serves as the core of this document. A rating system was devised to give the data in the matrix levels of credibility. The rating system indicates the reviewing groups' levels of confidence in the data and the contributing entity. With the final, peer reviewed and accepted matrix, summations were performed for the individual habitats, and from these summations, graphs were made to show animal distributions in the various habitats. The text in this document concerning cover types locations, descriptions, uses, and historic range of variability was compiled from research of several land management agencies and private publications.

EXECUTIVE SUMMARY

Wallowa County contains 368 vertebrate animal species, 28 vegetative cover types, and 17 stand structures. "Cover type" is a term used to describe the dominant or climax plant in a community. For example, in the cover type mountain hemlock, this species is the dominant plant in the community and is used to represent all of the associated plant species included in this particular cover type. "Stand structure" is our method of breaking down cover types into different age classes. The mountain hemlock cover type has seven different stand structures, all of which define an age succession or *seral* stage in the cover type. All 28-cover types with their associated stand structures produce 103 individual habitats in Wallowa County.

Graphs #29 and #30 (pages N-7 and N-48 respectively) provide a quantitative summary of all the data used in this document. Graph #29 shows how animal species occur in the stand structures of the cold, dry and moist forests of the tree cover types. Graph #30 shows how animal species occur in the stand structures

of the shrub, grass, and other cover types in the non-tree areas. These two graphs provide an example of how to compare stand structures across cover types.

Each description in this document is intended to give the reader a general knowledge of the plant community, related animal species, historical and current uses, geographic locations, and a comparison with other vegetative communities found in Wallowa County. With a general background in a particular site, the user can consult the matrix to determine which animal species could, do, or may exist in a particular site. With a general site description, the matrix as a tool, and, if needed, professional consultation, a landowner can predict the consequences of their management activities.

All quantitative information concerning animal species occurrences, distribution, and habitat preferences is derived from the matrix. The X-axis (left to right) of the matrix contains all cover type and stand structure combinations that occur in Wallowa County while the Y-axis (top to bottom) is a list of vertebrate animal species occurring in Wallowa County. Each box in the matrix defines a species presence or non-presence in individual cover type stand structure combinations. Presence is denoted by characters that pertain to the rating system that describes the degree of confidence in the information and the entity that confirmed its existence. The rating system and contributing entities are defined in the footer of the matrix. Animal species that are highlighted across the matrix are those of concern as stated by ICBEMP. Data in the matrix that has some other character than X has been contributed by another data source.

SPECIAL/UNIQUE HABITATS

Special or unique habitats are areas utilized by wildlife that are not necessarily defined by vegetative cover type or stand structure. The presence of many animal species in a cover type is often a function of the existence of another habitat need that can be masked by the vegetative characteristics. For example, many amphibians and reptiles show weak correlation to vegetation type while soil, presence of water, and types of cover available are much better predictors. Similarly, the presence of the yellow-bellied marmot is more dependent on talus slope existence than vegetation type. Special or unique habitats in Wallowa County are edges, snags, dead and down woody material, cliffs, talus, and caves. Extensive information concerning special and unique habitats can be found in “Wildlife Habitats in Managed Forests in the Blue Mountains of Oregon and Washington” edited by Jack Ward Thomas.

EDGES

An edge is a place where two successional stages or two different plant communities overlap each other, a place where two separate habitats meet and produce a third habitat with characteristics of both parent habitats. The area of overlap is called an *ecotone*, which can be very rich in plant and animal diversity. *Ecotones* can be areas that provide both feed and cover and are consequently

used in greater proportions than surrounding habitats. Inherent edges tend to be long standing and occur between plant communities. Soil, topography, geomorphology, and microclimate changes dictate these edges. Induced edges are the meeting of successional stages, different aged stands in a plant community bordering each other. Management practices or short-term natural events such as grazing, vegetation manipulation, fire, disease, insects, logging, or floods can create these edges. Inherent edges tend to form a mosaic pattern of islands and peninsulas that resemble a natural progression while induced edges may be more linear and less random.

SNAGS/DEAD AND DOWN WOODY MATERIAL

A snag is defined as a standing dead tree that is at least 6 feet tall with a minimum 4-inch diameter at breast height. In Wallowa County, 63 vertebrate animal species, 39 birds, and 23 mammals use snags for nesting, shelter, or as a food source. Snags provide a growth substrate for fungus, cover and food for insects, and cavities, roosts, and perches for birds. Standing dead trees contain many insects that are a large food source for many birds and mammals. Snags support birds and bats, and these two lifeforms eat insects which contributes to the suppression of insect epidemics. Large standing dead trees have been removed for safety reasons, to reduce fuel loads, and cut down to produce lumber. Currently many forest managers are leaving snags in place or fabricating new ones from existing live trees to maintain this important habitat. Snags are necessary as habitat for many species, but their type, location and number need to be carefully managed.

Dead and down woody material consists of downed logs, root wads, limb piles, and logging slash. This slowly decomposing matter affects mineral cycling, nutrient immobilization, fire, and provides wildlife habitat. In Wallowa County, 179 animal species, 5 amphibians, 9 reptiles, 116 birds, and 49 mammals use dead and down woody material. Birds use this habitat for lookouts, feeding, as a food source, and for nesting cavities. Small mammals utilize the thermal cover, hiding cover, and the food source provided by this habitat. Some small animals such as squirrels will store food in hollow downed logs while others will live, hibernate, and reproduce in them. The decaying organic matter of this habitat contributes rich nutrients to growing plants. In the event of catastrophic fire, most nutrients are redistributed, and long lasting damage is imposed on this resource.

CLIFF/TALUS/CAVE

Cliffs, talus slopes, and caves are defined as unique habitats because they are difficult or impossible to humanly produce, and they have at least one animal species that depends on them for survival. The best habitat of this type is found on volcanic rock terranes. Igneous rocks do not crumble or disintegrate like sedimentary or metamorphic rocks so cliffs, talus slopes, and caves have better longevity in volcanic terranes. Cliffs provide fissures, ledges, and small openings

that are habitat for a variety of reptiles, birds, and mammals. Cliff features are used for roosting, reproduction, hibernation, perching, and shelter. Thermal updrafts common on cliff faces are important for soaring birds to take flight. Talus slopes are the accumulation of angular multisized rocks deposited by erosional forces at the base of steep slopes. Many voids and openings that provide habitat for reptiles, amphibians, birds, and small mammals characterize talus slopes. Herbaceous vegetation often times will border talus, providing a food source for herbivorous animals. Caves provide shelter, protective cover, darkness, solitude, and a stable temperature while maintaining humidity. These features make caves good areas for bats to roost, hibernate, and reproduce. Several other animals use caves for temporary shelter or as places to raise their young. Unused railway/road tunnels, and mine shafts are often used as animal habitat since they resemble caves.

COLD FOREST

COVER TYPE: WHITEBARK PINE (Pinus albicaulis). S208.

Photo by Brother Alfred Brousseau (Calphotos)

LOCATION

Whitebark pine is a subalpine conifer occurring above 6,000 feet in the inland Pacific Northwest. It grows on dry and rocky exposures high in the mountains. It lies in the highest and coldest zones. At timberline, trees may be prostrate due to snow loading, wind, and ice shearing. Whitebark pine is often found in shrublike thickets with subalpine fir and may be found as a *seral* stage species in subalpine fir and mountain hemlock plant associations. After episodes of burning, whitebark pine is a pioneering species on exposed mineral soils and survives fire better due to the severe site location and its scattered nature.

DESCRIPTION/USES

Tree structure is often stunted and between 15 and 50 feet tall. The bark is thin, with whitish scales, and a red brown inner bark. Needles are in bundles of five, 1-3 inches long, and are green to yellow-green with needles occurring at the end of branches. *Ovulate* cones are 2-4 inches long with thick scales and upturned points. *Staminate* cones are red and *ovulate* cones are deep red to purple. Cones disintegrate on the tree rather than fall to the ground intact. Seed dispersal is dependent on the Clark's Nutcracker. The greatest value of the species is as habitat and as a watershed protector through soil stabilization. Whitebark pine has little commercial value for timber products.

STAND STRUCTURE

Seven stand structures are found in the whitebark pine cover type. The stand structures are defined in the stand structure key included in this document (page N-156).

- Old forest single story.
- Old forest multistory.
- Young forest multistory.
- Understory reinitiation.
- Stem exclusion open canopy.
- Stem exclusion closed canopy.
- Stand initiation.

HISTORIC RANGE OF VARIABILITY

Historic range of variability per stand structure.

- Old forest single story:.....1%-10%. Tends to be multistory.
- Old forest multistory:.....1%-10% with an average of 10%.
- Young forest multistory:.....50%-70% with an average of 60%.
- Understory reinitiation:.....5%-25% with an average of 15%.
- Stem exclusion closed canopy: .....5%-25% with an average of 10%.
- Stem exclusion open canopy:.....0%.
- Stand initiation:.....1%-10% with an average of 5%.

ANIMAL SPECIES

Many animal species use the whitebark pine cover type. Woodpeckers, chickadees, nuthatches, finches, crossbills, grosbeaks, and blue grouse use the seeds as a food source. Blue grouse feed on needles and buds. Squirrels, chipmunks, and bears use whitebark pine as caches. The full suite of animal species utilizing the whitebark pine cover type, as it pertains to Wallowa County, can be found in the matrix (page N-101).

GRAPH ANALYSIS

An analysis of the graphs (#1 and #29), concerning the cover type whitebark pine, show that this cover type generally follows the trend set by the summation of tree cover types. Graph #29 shows how many times each species occurs in each stand structure (if a species occurs in more than one cover type then it is counted more than once); graph #1 shows the number of animal species using each stand structure in the whitebark pine cover type.

Table #1

Stand structure	Graph #29. Summation of species occurrences by stand structure for all tree cover types. (%)	Graph #1. Number of species by stand structure for whitebark pine. (%)	Whitebark pine use compared to the summation of tree cover types. % comparison.	Number of species of concern using whitebark pine by stand structure. (See note 1)
Old forest single story.	751 (15%)	63 (22%)	More	12
Old forest multistory.	1084 (21%)	61 (21%)	Similar	11
Young forest multistory.	938 (18%)	53 (19%)	Similar	8
Understory reinitiation.	849 (16%)	47 (17%)	Similar	7
Stem exclusion open canopy.	30 (1%)	0 (0%)	Similar	0
Stem exclusion closed canopy.	666 (13%)	15 (5%)	Less	4
Stand initiation.	829 (16%)	46 (16%)	Similar	7

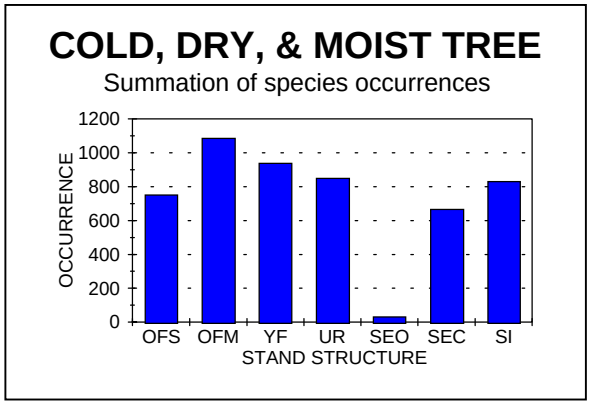
Note 1. Species of concern are highlighted in the **matrix**. Pages N-101-N-155.

When these two graphs are compared we see that the whitebark pine cover type resembles the trend set by the summation of tree cover types as shown in column 4 in the table above. The words “more”, “less”, and “similar” imply how animal species use the whitebark pine stand structures compared to the number

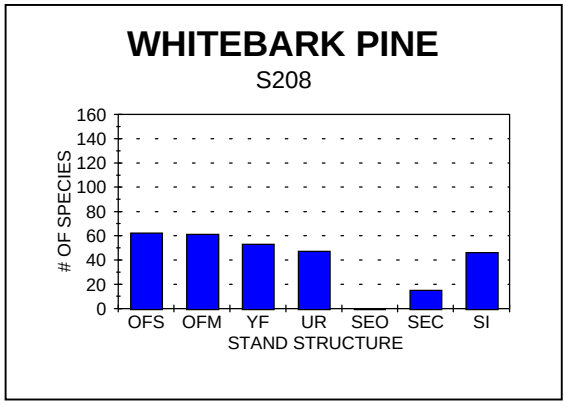
of animal species occurrences for stand structures in the summation of tree cover types.

- More means there is a higher species use of a stand structure in whitebark pine than that stand structure in the summation of tree cover types (difference > 5%).
- Similar means there is close to the same species use of a stand structure in whitebark pine when compared to the summation of tree cover types (same %). Considered similar when percent differs by up to 5%.
- Less means there is a lower species use of a stand structure in whitebark pine than that stand structure in the summation of tree cover types (difference > 5%).

Graph #29



Graph #1



Old forest single story and old forest multistory are the most heavily used stand structures in the whitebark pine cover type. When compared to the summation of tree cover types, old forest single story contributes 8% and old forest multistory contributes 6% of all occurrences in those stand structures. Young forest multistory, understory reinitiation, and stand initiation are slightly lower with each contributing 6%. Stem exclusion closed canopy and stem exclusion open canopy are significantly lower with stem exclusion closed canopy contributing 2% and stem exclusion open canopy not contributing. It is seen in this analysis that old forest single story is the most diverse in animal species use and stem exclusion open canopy is the least used habitat.

COVER TYPE: ENGELMANN SPRUCE/SUBALPINE FIR (Picea engelmannii/Abies lasiocarpa). S206.

ENGELMANN SPRUCE.

Photo by Brother Alfred Brousseau (Calphotos)

LOCATION

Engelmann Spruce is a conifer found in many regions in the western United States, Alaska, and western Canada and is a consistent associate with the subalpine fir plant associations. Engelmann Spruce is found in the Cascades of Washington and Oregon, northern California, the northern mountains of Arizona and New Mexico, the mountains of northeast Oregon, and is rarely found west of the Cascades in Washington and Oregon. Preferred site locations are cold, moist, wet frost pockets in forests often dominated by true firs. Preferred site locations are areas of well-drained soils, meadow margins, streams, and lakes. Stands will occur at mid elevations with sufficient cold airflow. Mid elevation stands are on *alluvial* terraces, wet benches, river bottoms, wet slopes, and northern aspects. Engelmann Spruce at timberline is found on all aspects.

DESCRIPTION

Engelmann Spruce can grow up to 180 feet tall, has a narrow pyramidal crown, and has whorled branches that may extend to the ground in unhindered conditions. The bark is thin, loose, scaly, and reddish to purple brown. Needles are 1-2 inches long, sharply pointed, stiff, bluish green, and whorled. The needle has 4 angles and 2 *stomatal* bands on the top and bottom. Small knobs remain on the branch when the needle is shed. *Staminate* cones are 10-15 millimeters long and *ovulate* cones are 1-2 inches long. They are light brown with papery thin scales and serrated margins. Cones hang below branches, flower from June to July, and shed seeds from September to October. Root rot, spruce bark beetle, blow down and fire are the principal reasons for death. Engelmann Spruce is very sensitive to fire and is often killed by low intensity fire due to its shallow roots and thin resin-filled bark. Extensive information concerning Engelmann spruce and its associated plant species, as they occur in Wallowa County, can be found in “Mid-Montane Wetland Plant Associations of the Malheur, Umatilla and Wallowa-Whitman National Forests” by Elizabeth A. Crow.

USES

Engelmann Spruce is used as lumber, pulp, made into plywood, as an ornamental landscape tree, and was once used to build airplanes due to its lightweight, straight grain, and ease of working. The Native Americans used the bark for canoes and baskets, roots for rope making, and the needles for incense and tea.

HISTORIC RANGE OF VARIABILITY

- *Historic range of variability* data concerning Engelmann spruce is not available for Wallowa County at this time.

SUBALPINE FIR

Photo by John Williams.

LOCATION

Subalpine fir is the most widely distributed fir in North America. It exists in the Yukon, Alberta and British Columbia, Canada, Alaska, the Cascades, the Siskiyous, the Blue and Wallowa Mountains, in the mountains of north and central Idaho, western Montana, Wyoming, Colorado, New Mexico, and Arizona. Subalpine fir occupies subalpine slopes and ridges between 5,000 and 8,000 feet in elevation. In the lower elevations, it is found along streams where there is a presence of cold airflows. At the higher elevations, subalpine fir lives on north and east aspects and on all aspects at timberline. This species occupies cooler sites than grand fir, Douglas fir, and ponderosa pine and is present in cold moist areas with hemlock, Engelmann spruce, whitebark pine and lodgepole pine.

DESCRIPTION

Subalpine fir is a coniferous tree that grows up to 100 feet tall with a spire like crown. The upper branches are short and stiff while the lower branches tend to droop towards the ground. At or near timberline, it can be severely dwarfed and stunted due to cold temperatures, wind, snow, and ice shearing. The bark is thin, ash-gray, and smooth with resin blisters. Older trees have fissured bark at the base. Needles are 1-1.5 inches long, bluish-green, have rounded tips, have *stomatal* bands on both surfaces, and turn upward from spiral arrangements on the branches. *Staminate* cones are bluish and up to 10 millimeters long while *ovulate* cones are deep purple and 2-4 inches long. Cones are cylindrical, upright on the branch, with *bracts* being shorter than the scales. Cones flower in June-early July, shed seeds in September, and disintegrate on the tree. Western spruce budworm, tussock moth, wood rots, fire and snow slides are all contributors to subalpine fir mortality. It is very susceptible to fire due to thin,

resin-filled bark, shallow roots, and dense lower branches. Extensive information concerning subalpine fir and its associated plant species, as they occur in Wallowa County, can be found in “Plant Association of the Wallowa-Snake Province” by Charles G. Johnson, Jr.

USES

Subalpine Fir can be harvested for lumber and is an excellent pulpwood. The Native Americans used the needles as an ingredient in hair tonics and in healing salves, and burning boughs were used to fumigate dwellings.

HISTORIC RANGE OF VARIABILITY

Historic range of variability per stand structure.

- Old forest single story:.....1%-10% Tends to be multistory.
- Old forest multistory:.....5%-25% with an average of 10%.
- Young forest multistory:.....50%-70% with an average of 60%.
- Understory reinitiation:.....5%-25% with an average of 15%.
- Stem exclusion closed canopy: .....5%-25% with an average of 10%.
- Stem exclusion open canopy:.....0%.
- Stand initiation:.....1%-10% with an average of 5%.

ENGELMANN SPRUCE/SUBALPINE FIR

STAND STRUCTURE

Seven stand structures are found in the Engelmann spruce/subalpine fir cover type. The stand structures are defined in the stand structure key included in this document (page N-156).

- Old forest single story.
- Old forest multistory.
- Young forest multistory.
- Understory reinitiation.
- Stem exclusion open canopy.
- Stem exclusion closed canopy.
- Stand initiation.

ANIMAL SPECIES

The Engelmann spruce cover type provides hiding and thermal cover for bear, elk, and deer, and is used by chickadees, nuthatches, owls, and woodpeckers. Spruce, blue and ruffed grouse feed on buds and needles. Squirrels clip buds and young shoots. The seeds are eaten by squirrels, chipmunks, mice, voles, chickadees, nuthatches, crossbills, and siskins.

Subalpine fir stands are used as summer range by mule deer, elk, and bear. Squirrels, mice, woodpeckers, nuthatches, juncos, chickadees, crossbills,

siskins, grouse, and owls all use subalpine fir stands. Buds and needles are utilized as a food source by blue grouse year round.

The full suite of animal species utilizing the Engelmann spruce/subalpine fir cover type, as it pertains to Wallowa County, can be found in the matrix (page N-101).

GRAPH ANALYSIS

An analysis of the graphs (#2 and #29), concerning the cover type Engelmann spruce/subalpine fir, show that this cover type generally follows the trend set by the summation of tree cover types. Graph #29 shows how many times each species occurs in each stand structure (if a species occurs in more than one cover type then it is counted more than once); graph #2 shows the number of animal species using each stand structure in the Engelmann spruce/subalpine fir cover type.

Table #2

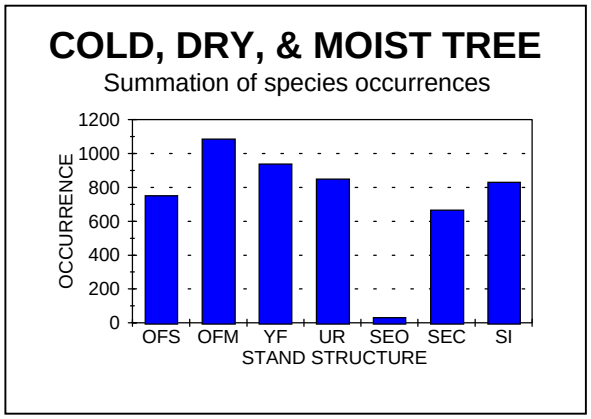
Stand structure	Graph #29. Summation of species occurrences by stand structure for all tree cover types. (%)	Graph #2. Number of species by stand structure for Engelmann spruce/ subalpine fir. (%)	Engelmann spruce/sub-alpine fir use compared to the summation of tree cover types. % comparison.	Number of species of concern using Engelmann spruce/sub-alpine fir by stand structure. (See note 1)
Old forest single story.	751 (15%)	0 (0%)	Less	0
Old forest multistory.	1084 (21%)	88 (26%)	Similar	24
Young forest multistory.	938 (18%)	70 (21%)	Similar	10
Understory reinitiation.	849 (16%)	70 (21%)	Similar	15
Stem exclusion open canopy.	30 (1%)	0 (0%)	Similar	0
Stem exclusion closed canopy.	666 (13%)	48 (14%)	Similar	7
Stand initiation.	829 (16%)	64 (19%)	Similar	12

Note 1. Species of concern are highlighted in the **matrix**. Pages N-101-N-155.

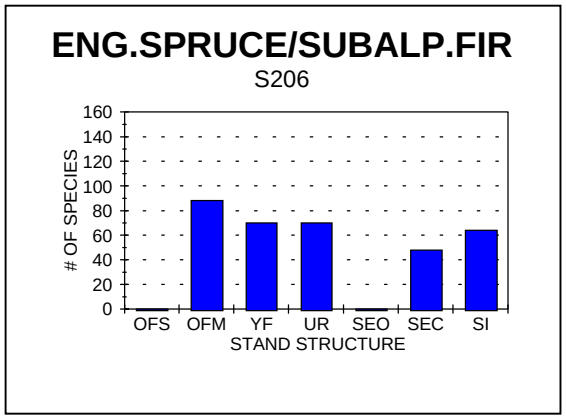
When these two graphs are compared we see that the Engelmann spruce/subalpine fir cover type resembles the trend set by the summation of tree cover types as shown in column 4 in the table above. The words “less” and “similar” imply how animal species use the Engelmann spruce/subalpine fir stand structures compared to the number of animal species occurrences for stand structures in the summation of tree cover types.

- Similar means there is close to the same species use of a stand structure in Engelmann spruce/subalpine fir when compared to the summation of tree cover types (same %). Considered similar when percent differs by up to 5%.
- Less means there is a lower species use of a stand structure in Engelmann spruce/subalpine fir than that stand structure in the summation of tree cover types (difference > 5%).

Graph #29



Graph #2



Old forest multistory is the most heavily used stand structure in the Engelmann spruce/subalpine fir cover type. When compared to the summation of tree cover types, old forest multistory contributes 8% of all occurrences in this stand structure. Somewhat lower are young forest multistory, understory reinitiation, and stand initiation with young forest multistory contributing 7%, understory reinitiation contributing 8%, and stand initiation contributing 8% of all occurrences to these stand structures. Stem exclusion closed canopy is a moderately used habitat contributing 7% of the total species using this habitat. The least used stand structures are old forest single story and stem exclusion open canopy with no animal species using these habitats.

COVER TYPE: MOUNTAIN HEMLOCK (Tsuga mertensiana). S205.

Photo by Charles Webber (Calphotos).

LOCATION

Mountain hemlock is a conifer often found with subalpine fir and Engelmann spruce and ranges from Alaska to California. It is found in the high mountains of northern Washington, northern Idaho, western Montana, northeast Oregon, and north central Nevada. Mountain hemlock is found at timberline, in alpine forests, and in subalpine forests. Preferred sites are on *alluvial* and *colluvial* deposits that are moist and well drained. These preferred sites are on moisture retaining north and east slopes and in cornice areas where snowpacks linger into the late summer.

DESCRIPTION

Mountain hemlock often forms pure stands where the successional time frame is slow, and *silviculture* practices are hindered due to cold soil, frost, short growing season, and deep snowpacks. This species is slow growing, frost tolerant, and very important for watershed protection. Mountain hemlock grows up to 130 feet tall with a shallow root system and a drooping leader. The bark is dark purple to reddish brown with deep furrows, rounded ridges, and is 1-1.5 inches thick. Needles have a thick center, are 4 sided, 1/2-1 inch long, dark green on shaded branches, bluish green on branches exposed to the sun, have *stomatal* blooms on the surfaces, blunt tips, and even length needles arranged in a star-like fashion around the twigs. *Staminate* cones are blue and 1/8 inch long. *Ovulate* cones are brownish purple to deep purple and turn brown at maturity. *Ovulate* cones are cylindrical, thin scaled, 1-3 inches long, and are as broad as they are long. Buds are conical, sharp pointed, red brown, and 1/8 inch long. Mountain hemlock flowers in June-July and sheds seeds in August-October. Agents of mortality are laminated root rot, blow down due to shallow roots, and fire. This species is easily killed by fire. Extensive information concerning mountain hemlock and its associated plant species, as they occur in Wallowa County, can be found in “Plant Association of the Wallowa-Snake Province” by Charles G. Johnson, Jr.

STAND STRUCTURE

Seven stand structures are found in the mountain hemlock cover type. The stand structures are defined in the stand structure key included in this document (page N-156).

- Old forest single story.
- Old forest multistory.
- Young forest multistory.
- Understory reinitiation.
- Stem exclusion open canopy.
- Stem exclusion closed canopy.
- Stand initiation.

HISTORIC RANGE OF VARIABILITY

Historic range of variability per stand structure.

- Old forest single story:.....1%-10% with an average of 5%.
- Old forest multistory:.....1%-10% but tends to be single story.
- Young forest multistory:.....50%-70% with an average of 60%.
- Understory reinitiation:.....5%-25% with an average of 15%.
- Stem exclusion closed canopy: .....5%-25% with an average of 15%.
- Stem exclusion open canopy:.....0%.
- Stand initiation:.....1%-10% with an average of 5%.

ANIMAL SPECIES

The mountain hemlock cover type provides excellent thermal and hiding cover for many animal species. The buds are used by blue grouse, seeds are eaten by siskins and chickadees, and mountain goats eat the twigs and needles. The full suite of animal species utilizing the mountain hemlock cover type, as it pertains to Wallowa County, can be found in the matrix (page N-101).

GRAPH ANALYSIS

An analysis of the graphs (#3 and #29), concerning the cover type mountain hemlock, show that this cover type generally follows the trend set by the summation of tree cover types. Graph #29 shows how many times each species occurs in each stand structure (if a species occurs in more than one cover type then it is counted more than once); graph #3 shows the number of animal species using each stand structure in the mountain hemlock cover type.

Table #3

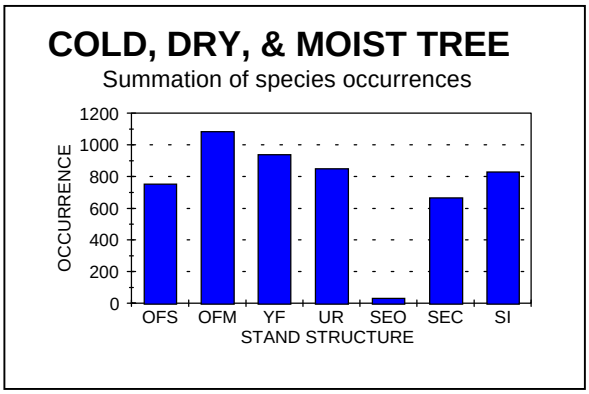
Stand structure	Graph #29. Summation of species occurrences by stand structure for all tree cover types. (%)	Graph #3. Number of species by stand structure for mountain hemlock. (%)	Mountain hemlock use compared to the summation of tree cover types. % comparison.	Number of species of concern using mountain hemlock by stand structure. (See note 1)
Old forest single story.	751 (15%)	84 (20%)	Similar	17
Old forest multistory.	1084 (21%)	85 (20%)	Similar	18
Young forest multistory.	938 (18%)	74 (18%)	Similar	10
Understory reinitiation.	849 (16%)	68 (16%)	Similar	11
Stem exclusion open canopy.	30 (1%)	0 (0%)	Similar	0
Stem exclusion closed canopy.	666 (13%)	51 (12%)	Similar	6
Stand initiation.	829 (16%)	58 (14%)	Similar	7

Note 1. Species of concern are highlighted in the **matrix**. Pages N-101-N-155.

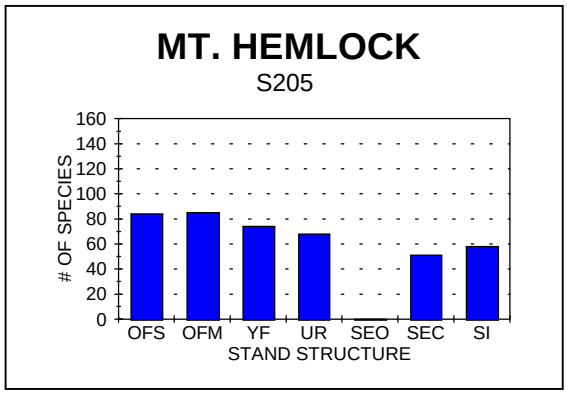
When these two graphs are compared we see that the mountain hemlock cover type resembles the trend set by the summation of tree cover types as shown in column 4 in the table above. The word “similar” implies how animal species use the mountain hemlock stand structures compared to the number of animal species occurrences for stand structures in the summation of tree cover types.

- Similar means there is close to the same species use of a stand structure in mountain hemlock when compared to the summation of tree cover types (same %). Considered similar when percent differs by up to 5%.

Graph #29



Graph #3



In the mountain hemlock cover type, old forest single story and old forest multistory are the most heavily used stand structures. When compared to the summation of tree cover types, old forest single story contributes 11% and old forest multistory contributes 8% of all occurrences in those stand structures. Following closely behind are young forest multistory and understory reinitiation, each contributing 8%. Significantly lower are stand initiation and stem exclusion closed canopy with stand initiation contributing 7% and stem exclusion closed canopy contributing 8% to their respective stand structures. Stem exclusion open canopy is the least diverse animal species habitat in the mountain hemlock cover type adding no species to this stand structure.

DRY FOREST

COVER TYPE: INTERIOR DOUGLAS FIR (Pseudotsuga menziesii (var. glauca)). S210.

Photo by Charles Webber (Calphotos)

LOCATION

Interior Douglas fir is a widely occurring coniferous tree in the Western United Stated and Canada. It is found from southeast British Columbia to Alberta Canada. In the United States it is found in Montana, Idaho, eastern Washington, eastern Oregon, Nevada, Utah, Wyoming, Colorado, New Mexico, and Arizona. This species lives in mid *montane* zones that range from moist to dry and is most abundant in low to mid elevations where it forms climax communities. Douglas fir is found on warmer drier sites than true firs and in colder areas than ponderosa pine. In subalpine fir zones at high elevation, Douglas fir occupies dry cool sites.

DESCRIPTION

Douglas fir has a compact pyramidal crown, drooping and ascending branches, an upright leader, and is up to 150 feet tall. The bark on young trees is thin, smooth, and has resin blisters. On older trees the bark is 3-10 inches thick, reddish brown, with irregular deep furrows, and has grayish to reddish brown layered plates with a cork-like texture. Buds are shiny, sharp pointed, conical, and brown to reddish brown. Needles are 3/4-1 inch long, blue-green, yellow-green, or gray-green, have blunt ends, two white *stomatal* bands on the upper surface, and are spirally arranged on twigs. Cones hang from branches in a pendent fashion. *Staminate* cones are orange to red while *ovulate* cones are yellowish green to purple green and become reddish-brown. *Ovulate* cones are 2-4 inches long and have a three lobed bract with the middle lobe extending beyond scales. Douglas fir flowers from April to May and sheds seeds from August to September. In dry sites, dwarf mistletoe attacks foliage. Other agents of mortality are western spruce budworm, tussock moth, and fire. Young trees are very susceptible to fire while older trees with their thick bark are more fire resistant. In moist habitats, crown fires often destroy stands while on dry sites underburns are more common. Extensive information concerning interior Douglas fir and its associated plant species, as they occur in Wallowa County, can be found in “Plant Association of the Wallowa-Snake Province” by Charles G. Johnson, Jr.

USES

Douglas fir is an important wood with many uses. Trees are harvested to produce lumber, plywood, railroad ties, and firewood. Its conical shape and evenly spaced branches make Douglas fir an ideal species for Christmas and landscape trees. The Native Americans used split Douglas fir for construction, the roots for basket weaving, and the needles for tea.

STAND STRUCTURE

Seven stand structures are found in the Douglas fir cover type. The stand structures are defined in the stand structure key included in this document (page N-156).

- Old forest single story.
- Old forest multistory.
- Young forest multistory.
- Understory reinitiation.
- Stem exclusion open canopy.
- Stem exclusion closed canopy.
- Stand initiation.

HISTORIC RANGE OF VARIABILITY

Historic range of variability per stand structure.

- Old forest single story: ..... 15%-55% with an average of 25% in warm moist areas.
  ..... 15%-55% with an average of 40% in warm dry areas.
- Old forest multistory:.....10%-30% with an average of 20% in warm moist areas.
  .....5%-25% with an average of 15% in warm dry areas.
- Young forest multistory: .....10%-30% with an average of 20% in warm moist areas.
  .....5%-25% with an average of 15% in warm dry areas.
- Understory reinitiation: .....1%-10% with an average of 5% in all areas.
- Stem ex. closed canopy: .....1%-10% with an average of 10% in warm moist areas.
  .....1%-10% with an average of 5% in warm dry areas.
- Stem ex. open canopy:..... 5%-20% with an average of 10% in all areas.
- Stand initiation:.....1%-15% with an average of 10% in all areas.

ANIMAL SPECIES

The Douglas fir cover type provides habitat for many animal species. Deer and elk use Douglas fir for cover and forage while squirrels eat the seeds and use the trees as caches. Clark's nutcracker, nuthatches, crossbills, juncos, and siskins eat Douglas fir seeds. The full suite of animal species utilizing the Douglas fir cover type, as it pertains to Wallowa County, can be found in the matrix (page N-112).

GRAPH ANALYSIS

An analysis of the graphs (#4 and #29), concerning the cover type Douglas fir, show that this cover type generally follows the trend set by the summation of tree cover types. Graph #29 shows how many times each species occurs in each stand structure (if a species occurs in more than one cover type then it is counted more than once); graph #4 shows the number of animal species using each stand structure in the Douglas fir cover type.

Table #4

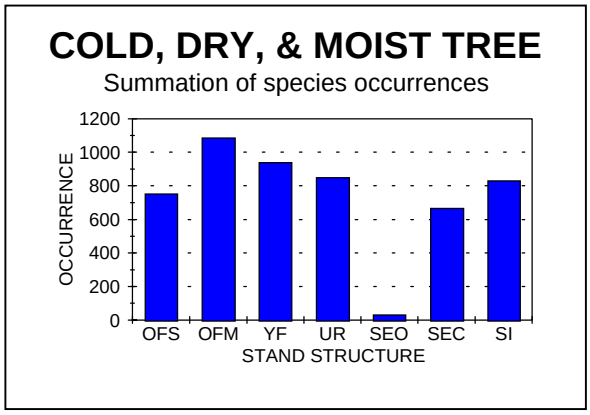
Stand structure	Graph #29. Summation of species occurrences by stand structure for all tree cover types. (%)	Graph #4. Number of species by stand structure for Douglas fir. (%)	Douglas fir use compared to the summation of tree cover types. % comparison.	Number of species of concern using Douglas fir by stand structure. (See note 1)
Old forest single story.	751 (15%)	139 (21%)	More	38
Old forest multistory.	1084 (21%)	137 (20%)	Similar	41
Young forest multistory.	938 (18%)	112 (17%)	Similar	20
Understory reinitiation.	849 (16%)	112 (17%)	Similar	23
Stem exclusion open canopy.	30 (1%)	0 (0%)	Similar	0
Stem exclusion closed canopy.	666 (13%)	77 (11%)	Similar	6
Stand initiation.	829 (16%)	97 (14%)	Similar	17

Note 1. Species of concern are highlighted in the **matrix**. Pages N-101-N-155.

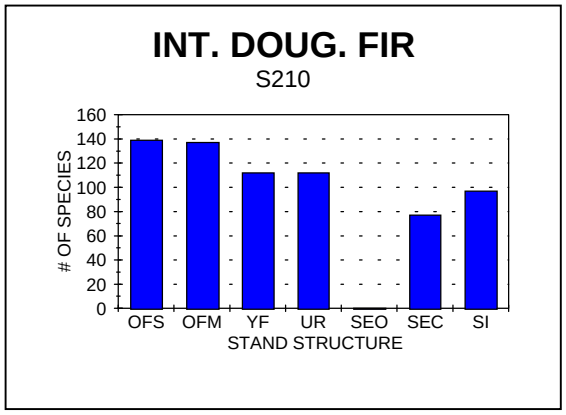
When these two graphs are compared we see that the Douglas fir cover type resembles the trend set by the summation of tree cover types as shown in column 4 in the table above. The words “more” and “similar” imply how animal species use the Douglas fir stand structures compared to the number of animal species occurrences for stand structures in the summation of tree cover types.

- More means there is a higher species use of a stand structure in Douglas fir than that stand structure in the summation of tree cover types (difference > 5%).
- Similar means there is close to the same species use of a stand structure in Douglas fir when compared to the summation of tree cover types (same %). Considered similar when percent differs by up to 5%.

Graph #29



Graph #4



Old forest single story and old forest multistory are the most heavily used habitats in the interior Douglas fir cover type. When compared to the summation of tree cover types, old forest single story contributes 19% and old forest multistory contributes 13% of all occurrences in those stand structures. Somewhat lower, but still heavily used, are young forest multistory and understory reinitiation with each contributing 12% and 13% respectively. Significantly lower are stand initiation and stem exclusion closed canopy with each contributing 12% to their respective stand structures. Stem exclusion open canopy is the least diverse habitat in the interior Douglas fir cover type with no animal species contribution.

COVER TYPE: WESTERN LARCH (Larix occidentalis). S212.

Photo from http://osu.orst.edu/instruct/for241/con/1chgen.html

LOCATION

Western larch is a widely occurring mid *montane* coniferous tree in the Pacific Northwest and southwestern Canada. It is found on the south and east sides of the Cascades, central Oregon, northeast Oregon, northern Washington, and Northern Idaho to northeast Montana. Western larch grows on moist deep soils, dryer gravels, and is prominent on ash influenced soils. This species lives on northeast exposures in the lower limits of its environmental range where it is associated with moist and cool Douglas fir plant associations. At mid and upper elevations western larch is found on all aspects.

DESCRIPTION

Western larch grows up to 180 feet tall, has a long clear trunk, has a short crown, and has horizontal radiating branches. The bark on young trees is thin, scaly, and grayish brown. On older and mature trees, the bark is up to 6 inches thick, has flattened plates between deep furrows, is yellowish brown, and resembles ponderosa pine bark. The buds are small at 1/8th inch long, rounded, and brown in color. The needles on western larch are very unique, as it is our only conifer with *deciduous* needles. Needles are bunched on spurs in groups of 15-30, are pale green that turn bright yellow before shedding, and are 1-2 inches long. *Staminate* cones are yellow and 1/2 inch long. *Ovulate* cones are oblong, one inch long, have *reflexed* reddish brown scales, and have *bracts* with a prominent central spine that is longer than the scales. This tree flowers from May to June and sheds seeds from September to October. With its thick bark, western larch is the most fire resistant tree in the inland Pacific Northwest. Western larch establishes quickly after episodes of burning, grows rapidly, and dominates as a fire pioneer.

USES

Western larch is a valuable wood with many uses. With its high strength, it is used for lumber, utility poles, plywood, veneer, shakes, and is cut for firewood. The Native Americans made a sweet syrup and gum from the resin, made tea out of the bark for colds, coughs, and sore throats, and fashioned bowls out of the wood.

STAND STRUCTURE

Seven stand structures are found in the western larch cover type. The stand structures are defined in the stand structure key included in this document (page N-156).

- Old forest single story.
- Old forest multistory.
- Young forest multistory.
- Understory reinitiation.
- Stem exclusion open canopy.
- Stem exclusion closed canopy.
- Stand initiation.

HISTORIC RANGE OF VARIABILITY

Historic range of variability per stand structure.

- Old forest single story: ..... 0% in cool areas.
  ..... 15%-55% with an average of 40% in warm areas.
- Old forest multistory: ..... 30%-60% with an average of 40% in cool areas.
  ..... 5%-25% with an average of 15% in warm areas.
- Young forest multistory:..... 20%-50% with an average of 30% in cool areas.
  ..... 5%-25% with an average of 15% in warm areas.
- Understory reinitiation:..... 5%-25% with an average of 20% in cool areas.
  ..... 1%-10% with an average of 5% in warm areas.
- Stem ex. closed canopy:..... 1%-10% with an average of 5% in cool areas.
  ..... 1%-10% with an average of 5% in warm areas.
- Stem ex. open canopy:..... 0% in cool areas.
  ..... 5%-20% with an average of 10% in warm areas.
- Stand initiation:..... 1%-10% with an average of 5% in cool areas.
  ..... 1%-15% with an average of 10 % in warm areas.

ANIMAL SPECIES

The western larch cover type provides habitat for many animal species. Deer, elk, and bear use the stands for cover, while crossbills eat the seeds. Blue grouse and spruce grouse use the needles. The full suite of animal species utilizing the western larch cover type, as it pertains to Wallowa County, can be found in the matrix (page N-112).

GRAPH ANALYSIS

An analysis of the graphs (#5 and #29), concerning the cover type western larch, show that this cover type generally follows the trend set by the summation of tree cover types. Graph #29 shows how many times each species occurs in each stand structure (if a species occurs in more than one cover type then it is counted more than once); graph #5 shows the number of animal species using each stand structure in the western larch cover type.

Table #5

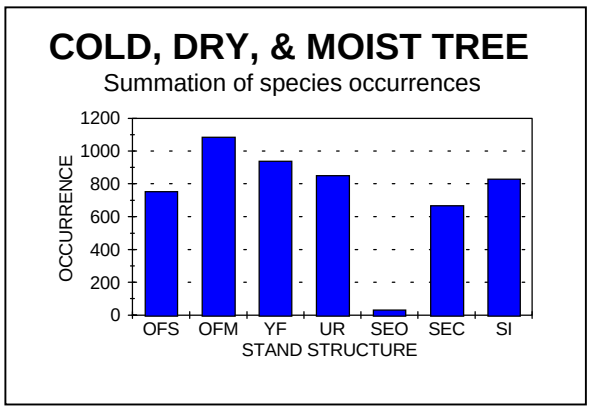
Stand structure	Graph #29. Summation of species occurrences by stand structure for all tree cover types. (%)	Graph #5. Number of species by stand structure for western larch. (%)	Western larch use compared to the summation of tree cover types. % comparison.	Number of species of concern using western larch by stand structure. (See note 1)
Old forest single story.	751 (15%)	118 (21%)	More	29
Old forest multistory.	1084 (21%)	114 (21%)	Similar	32
Young forest multistory.	938 (18%)	91 (17%)	Similar	10
Understory reinitiation.	849 (16%)	87 (16%)	Similar	16
Stem exclusion open canopy.	30 (1%)	0 (0%)	Similar	0
Stem exclusion closed canopy.	666 (13%)	64 (12%)	Similar	5
Stand initiation.	829 (16%)	76 (14%)	Similar	12

Note 1. Species of concern are highlighted in the **matrix**. Pages N-101-N-155.

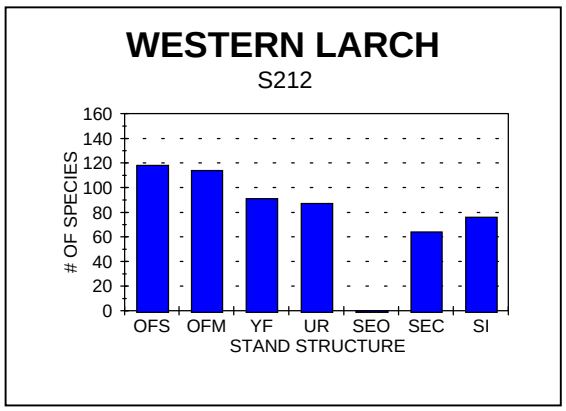
When these two graphs are compared we see that the western larch cover type resembles the trend set by the summation of tree cover types as shown in column 4 in the table above. The words “more” and “similar” imply how animal species use the western larch stand structures compared to the number of animal species occurrences for stand structures in the summation of tree cover types.

- More means there is a higher species use of a stand structure in western larch than that stand structure in the summation of tree cover types (difference > 5%).
- Similar means there is close to the same species use of a stand structure in western larch when compared to the summation of tree cover types (same %). Considered similar when percent differs by up to 5%.

Graph #29



Graph #5



Old forest single story and old forest multistory are the most heavily used stand structures in the western larch cover type. When compared to the summation of tree cover types, old forest single story contributes 16% and old forest multistory contributes 11% of all occurrences in those stand structures. Young forest multistory and understory reinitiation are somewhat lower with each contributing

10%. Significantly lower in species use are stand initiation and stem exclusion closed canopy each contributing 9% and 10% respectively. Stem exclusion open canopy is the least diverse habitat in the western larch cover type with no animal species contribution.

COVER TYPE: LODGEPOLE PINE (Pinus contorta (var. latifolia)). S218.

Photo by Neva Snell (Calphotos)

LOCATION

In North America lodgepole pine is one of the most widely distributed trees and is the conifer with the greatest range in altitude and latitude. Lodgepole pine is found in Alaska, the Yukon to Alberta and Saskatchewan, in the Rocky Mountains to southern Colorado, in the Blue and Wallowa Mountains of Oregon, Idaho, northern Utah, and western Nevada. Habitat sites are in mountain forests from mid to high elevations where it forms extensive pure stands following stand-replacing fires. This tree grows across a wide range of environments, low elevations where it is warm and dry to high elevations where it is cool and moist.

DESCRIPTION

Lodgepole pine is a small conifer that grows up to 100 feet tall, has a long slender trunk, and has a short crown. This species often forms dense stands that have pioneered after episodes of burning. The bark is less than one inch thick, flaky, and gray to dark gray. Buds are ovoid, 1/4 inch long, resinous, and chestnut-brown. Lodgepole pine needles are in bundles of two, 1-3 inches long, stiff, commonly twisted, and are green to yellow green. *Staminate* cones are reddish green, clustered, and up to 0.4 inches long. *Ovulate* cones are 1-2 inches long, ovoid, purplish brown, have knoblike base scales, have a long *prickle*, and hang below branches. Some cones will open after their second year while others will stay on the tree for years and only open to seeding after fire. Cones flower from April to June and shed seeds from September to October. Ground fire will easily kill lodgepole pine due to its thin bark. Ground fires also tend to thin stands while higher intensity fires will tend to destroy a stand by crown burning. Other agents of mortality are mountain pine beetle, dwarf mistletoe, and western gall rust. Extensive information concerning lodgepole pine and its associated plant species, as they occur in Wallowa County, can be found in “Mid-Montane Wetland Plant Associations of the Malheur, Umatilla and Wallowa-Whitman National Forests” by Elizabeth A. Crow.

USES

Lodgepole pine is a valuable wood with many uses. It is used to make small dimension lumber, plywood, posts, paper, and house logs. Native Americans used small trees for teepee poles, pitch and resin for gum, and the inner cambium layer to counter tuberculosis.

STAND STRUCTURE

Seven stand structures are found in the lodgepole pine cover type. The stand structures are defined in the stand structure key included in this document (page N-156).

- Old forest single story.
- Old forest multistory.
- Young forest multistory.
- Understory reinitiation.
- Stem exclusion open canopy.
- Stem exclusion closed canopy.
- Stand initiation.

HISTORIC RANGE OF VARIABILITY

- *Historic range of variability* data concerning lodgepole pine is not available for Wallowa County at this time.

ANIMAL SPECIES

The lodgepole pine cover type provides habitat for many animal species. It provides critical summer range for deer and elk, seeds are used by squirrels and chipmunks, and the needles are eaten by blue and spruce grouse. The full suite of animal species utilizing the lodgepole pine cover type, as it pertains to Wallowa County, can be found in the matrix (page N-112).

GRAPH ANALYSIS

An analysis of the graphs (#6 and #29), concerning the cover type lodgepole pine, show that this cover type generally follows the trend set by the summation of tree cover types. Graph #29 shows how many times each species occurs in each stand structure (if a species occurs in more than one cover type then it is counted more than once); graph #6 shows the number of animal species using each stand structure in the lodgepole pine cover type.

Table #6

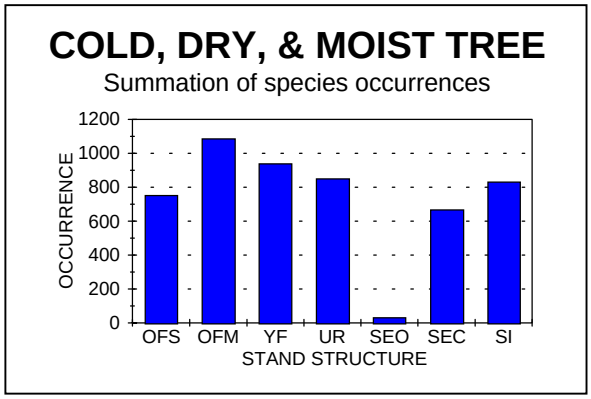
Stand structure	Graph #29. Summation of species occurrences by stand structure for all tree cover types. (%)	Graph #6. Number of species by stand structure for lodgepole pine. (%)	Lodgepole pine use compared to the summation of tree cover types. % comparison.	Number of species of concern using lodgepole pine by stand structure. (See note 1)
Old forest single story.	751 (15%)	96 (20%)	Similar	23
Old forest multistory.	1084 (21%)	92 (19%)	Similar	21
Young forest multistory.	938 (18%)	83 (17%)	Similar	14
Understory reinitiation.	849 (16%)	79 (16%)	Similar	14
Stem exclusion open canopy.	30 (1%)	0 (0%)	Similar	0
Stem exclusion closed canopy.	666 (13%)	62 (13%)	Similar	8
Stand initiation.	829 (16%)	74 (15%)	Similar	12

Note 1. Species of concern are highlighted in the **matrix**. Pages N-101-N-155.

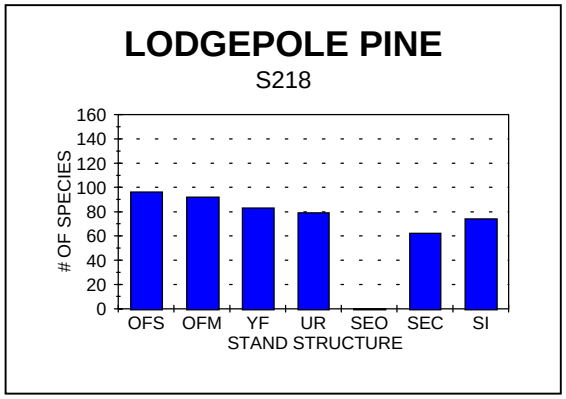
When these two graphs are compared we see that the lodgepole pine cover type resembles the trend set by the summation of tree cover types as shown in column 4 in the table above. The word “similar” implies how animal species use the lodgepole pine stand structures compared to the number of animal species occurrences for stand structures in the summation of tree cover types.

- Similar means there is close to the same species use of a stand structure in lodgepole pine when compared to the summation of tree cover types (same %). Considered similar when percent differs by up to 5%.

Graph #29



Graph #6



Old forest single story and old forest multistory are the most heavily used habitats in the lodgepole pine cover type. When compared to the summation of tree cover types, old forest single story contributes 13% and old forest multistory contributes 8% of all occurrences in those stand structures. Slightly lower are young forest multistory and understory reinitiation with each contributing 9% to their respective stand structures. Slightly lower again are stand initiation and stem exclusion closed canopy with each contributing 9% respectively. The least diverse habitat is stem exclusion open canopy with no animal species contribution.

COVER TYPE: ASPEN (Populus tremuloides). S217.

Photo by Charles Webber (Calphotos)

LOCATION

Aspen is a *deciduous* tree widely occurring in North America. It is found in the Western, upper midwest and the northeast United States and occurs in more states than any other tree. Aspen is found in every province in Canada. In Oregon this species is found in the eastern Cascades, in the mountainous regions of eastern Oregon, and is scarce in western Oregon. Mountain streams, mountain lake edges, meadows, and openings in the woods are all habitats for aspen. This species will grow anywhere but prefers silt or silt loams.

DESCRIPTION

Aspen is a *deciduous* perennial that grows up to 75 feet tall, has a long slender trunk, and a rounded crown. Basal and root sprouts are the most common forms of propagation while reproduction by seed is uncommon. The bark is greenish-white on young trees and may turn dark and furrowed on older trees. Leaves are arranged in an alternating pattern on branches, are ovate to round, 2-3 inches in diameter, have green tops and pale green bottoms, smooth edges with rounded teeth, and turn bright yellow to yellowish orange in the fall before shedding. Fruits are a series of cone shaped capsules attached to a *catkin* that grows up to five inches long. Capsules are up to ¼ inch long, light green to brown, thin walled, and have 3-6 cottony seeds. *Catkin*s droop and hang below branches. Aspen flowers from April to June and fruits ripen from May to July. Aspens are short-lived and sprout profusely from their roots when they are injured. For this reason fire plays an important role in the maintenance of aspen. If fire is free to burn, this species is damaged and sends up vigorous new shoots; if fire is limited, more shade tolerant trees soon replace aspens. Bronze birch bore is the primary insect that destroys aspen. Extensive information concerning aspen and its associated plant species, as they occur in Wallowa County, can be found in “Mid-Montane Wetland Plant Associations of the Malheur, Umatilla and Wallowa-Whitman National Forests” by Elizabeth A. Crow.

USES

In the timber products industry, aspen is used for pulp and for lumber. Aspen bark contains salicin, which is similar to the active ingredients in aspirin. For this reason, the Native Americans and the pioneers used aspen as a fever remedy and to help fight scurvy. A substance similar to turpentine was extracted and used as an expectorant and a counterirritant.

STAND STRUCTURE

Seven stand structures are found in the aspen cover type. The stand structures are defined in the stand structure key included in this document (page N-156).

- Old forest single story.
- Old forest multistory.
- Young forest multistory.
- Understory reinitiation.
- Stem exclusion open canopy.
- Stem exclusion closed canopy.
- Stand initiation.

HISTORIC RANGE OF VARIABILITY

- *Historic range of variability* data concerning aspen is not available for Wallowa County at this time.

ANIMAL SPECIES

The aspen cover type provides habitat for many animal species. The twigs, bark, and buds are browsed by wildlife, and numerous birds eat the seeds. Beavers store cuttings of aspen and feed on the inner bark during the winter. Aspen bark, buds, and, shoots are considered good forage for sheep and fair forage for cattle. The full suite of animal species utilizing the aspen cover type, as it pertains to Wallowa County, can be found in the matrix (page N-123).

GRAPH ANALYSIS

An analysis of the graphs (#7 and #29), concerning the cover type aspen, show that this cover type generally follows the trend set by the summation of tree cover types. Graph #29 shows how many times each species occurs in each stand structure (if a species occurs in more than one cover type then it is counted more than once); graph #7 shows the number of animal species using each stand structure in the aspen cover type.

Table #7

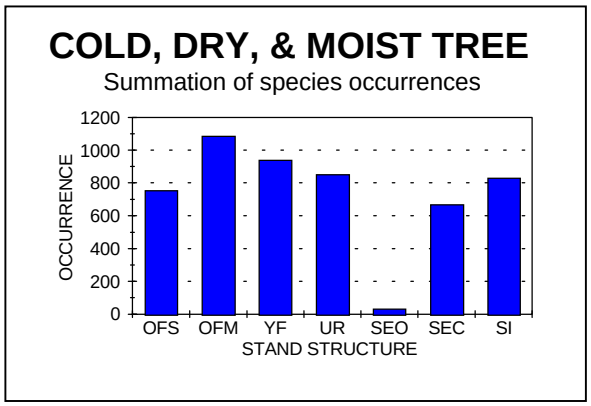
Stand structure	Graph #29. Summation of species occurrences by stand structure for all tree cover types. (%)	Graph #7. Number of species by stand structure for aspen. (%)	Aspen use compared to the summation of tree cover types. % comparison.	Number of species of concern using aspen by stand structure. (See note 1)
Old forest single story.	751 (15%)	0 (0%)	Less	0
Old forest multistory.	1084 (21%)	115 (23%)	Similar	24
Young forest multistory.	938 (18%)	99 (20%)	Similar	8
Understory reinitiation.	849 (16%)	101 (21%)	Similar	15
Stem exclusion open canopy.	30 (1%)	0 (0%)	Similar	0
Stem exclusion closed canopy.	666 (13%)	80 (16%)	Similar	7
Stand initiation.	829 (16%)	95 (19%)	Similar	15

Note 1. Species of concern are highlighted in the **matrix**. Pages N-101-N-155.

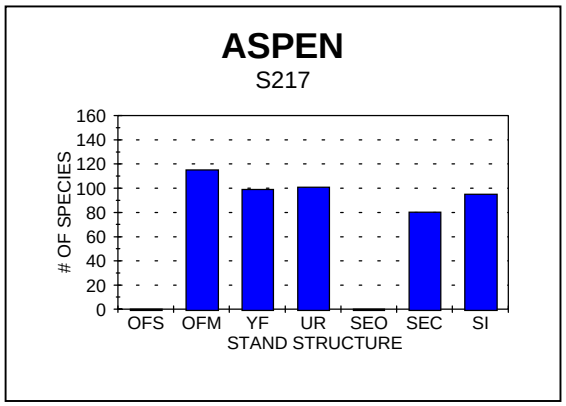
When these two graphs are compared, we see that the aspen cover type resembles the trend set by the summation of tree cover types as shown in column 4 in the table above. The words "less" and "similar" imply how animal species use the aspen stand structures compared to the number of animal species occurrences for stand structures in the summation of tree cover types.

- Similar means there is close to the same species use of a stand structure in aspen when compared to the summation of tree cover types (same %). Considered similar when percent differs by up to 5%.
- Less means there is a lower species use of a stand structure in aspen than that stand structure in the summation of tree cover types (difference > 5 %).

Graph #29



Graph #7



Old forest multistory is the most heavily used habitat in the aspen cover type. When compared to the summation of tree cover types, old forest multistory contributes 11% of all occurrences in this stand structure. Slightly lower are understory reinitiation, young forest multistory, and stand initiation with each contributing 12%, 11%, and 11% respectively. Stem exclusion closed canopy is significantly lower with a contribution of 12% of all animal species using this stand structure. Old forest single story and stem exclusion open canopy are the

least diverse habitats in the aspen cover type with no animal species contributions.

COVER TYPE: INTERIOR PONDEROSA PINE (Pinus ponderosa (var. ponderosa)). S237

Photo by J.E. McClellan (Calphotos)

LOCATION

Ponderosa pine is the most widely distributed pine in North America. It is found from the Pacific coast to South Dakota and from Canada to Mexico. Nearly half of the trees east of the Cascades summit are ponderosa pine. This species occurs on warm dry sites at lower mountain elevations, on intermountain valley and plateau locations, and on a broad spectrum of soils with best development in deep sandy gravels and loams. Warm sunny sites are preferred and severe cold winters are tolerated. Productive forests will grow with as little as 15 inches of annual precipitation. Ponderosa pine forms climax communities on warmer dryer sites than does Douglas fir and true firs, on moister sites than juniper, and is a *seral* species in *mesic* Douglas and grand fir plant associations.

DESCRIPTION

Ponderosa pine is a large conifer that grows up to 180 feet tall, has a clear symmetrical trunk, and has an open pyramidal to flat topped crown. This species can exceed 500 years in age. The bark is dark brown to black on young trees and yellow brown to cinnamon red on mature trees. Large, flat, puzzle-shaped plates occur between deep furrows on older trees. Younger trees have puzzle shaped bark but do not have furrows. Ponderosa pine is the only 3 needled pine. Needles occur in bundles of three and rarely two, are 5-8 inches long, green to yellow-green, flexible, tufted near the ends of branches, and have a 1/4-3/4 inch long basal sheath. *Staminate* cones are yellow to purplish and clustered. *Ovulate* cones are deep reddish-purple and maturing reddish-brown to brown, are 3-6 inches long, egg shaped, and have a *prickle* at the end of a thickened tip. Ponderosa pine flowers from May to June and sheds seed in September. Agents of mortality are fire, western pine beetle, and dwarf mistletoe. Extensive information concerning interior ponderosa pine and its associated plant species, as they occur in Wallowa County, can be found in “Plant Association of the Wallowa-Snake Province” by Charles G. Johnson, Jr.

Ponderosa pine is well adapted to fire with its thick bark, open stands, smooth trunks that are free of lower limbs, deep roots, and ability to readily seed on mineral soils. Fire is essential for this species to become dominant over Douglas

fir and grand fir, which are discouraged by fire. Frequent fires promote thinning of stands and act as a cleaning agent and lead to healthy stands, free of insects and disease. The yellow trunks seen on ponderosa pine are the result of frequent cleansing ground fires. If fire is suppressed, stands can become dense and stagnate so when a fire does occur, many trees could be killed.

USES

Ponderosa pine is one of the most versatile woods in North America. It is very important as it is made into lumber, furniture, window frames, doors, stairs, molding, cabinets, toys, fence pickets, and novelties. The Native Americans ate the cambium for its sweet flavor and nourishment. Captain Lewis of Lewis and Clark used the resin to make a salve for abscesses. Its by-products have been used to make ointments for rheumatism, backaches, and to control dandruff.

STAND STRUCTURE

Seven stand structures are found in the ponderosa pine cover type. The stand structures are defined in the stand structure key included in this document (page N-156).

- Old forest single story.
- Old forest multistory.
- Young forest multistory.
- Understory reinitiation.
- Stem exclusion open canopy.
- Stem exclusion closed canopy.
- Stand initiation.

HISTORIC RANGE OF VARIABILITY

Historic range of variability per stand structure.

- Old forest single story:.....15%-55% with an average of 40% in warm dry areas.
  .....20%-70% with an average of 55% in hot dry/hot moist areas.
- Old forest multistory: .....5%-25% with an average of 15% in warm dry areas.
  .....2%-15% with an average of 10% in hot dry/ hot moist areas.
- Young forest multistory:.....5%-25% with an average of 15% in warm dry areas.
  .....5%-10% with an average of 5% in hot dry/hot moist areas.
- Understory reinitiation:.....1%-10% with an average of 5% in warm dry areas.
- Stem ex. closed canopy:....1%-10% with an average of 5% in warm dry areas.
- Stem ex. open canopy:.....5%-20% with an average 10% in warm dry areas.
  .....5%-25% with an average of 15% in hot dry/hot moist areas.
- Stand initiation:.....1%-15% with an average of 10% in warm dry areas.
  .....1%-15% with an average of 15% in hot dry/hot moist areas.

ANIMAL SPECIES

The ponderosa pine cover type provides habitat for many animal species. Elk, deer, porcupines, and rabbits browse on the needles; mice, chipmunks, and ground squirrels use the roots and stems. The seeds are an important food source for juncos, finches, siskins, grosbeaks, sparrows, and chickadees. Deer

and elk use this cover type for hiding cover and cavity nesters use snags. Eagles, turkeys, and hawks use the trees for roosts and nests. All stand structures are utilized by animal species. The full suite of animal species utilizing the ponderosa pine cover type, as it pertains to Wallowa County, can be found in the matrix (page N-123).

GRAPH ANALYSIS

An analysis of the graphs (#8 and #29), concerning the cover type ponderosa pine, show that this cover type generally follows the trend set by the summation of tree cover types. Graph #29 shows how many times each species occurs in each stand structure (if a species occurs in more than one cover type then it is counted more than once); graph #8 shows the number of animal species using each stand structure in the ponderosa pine cover type.

Table #8

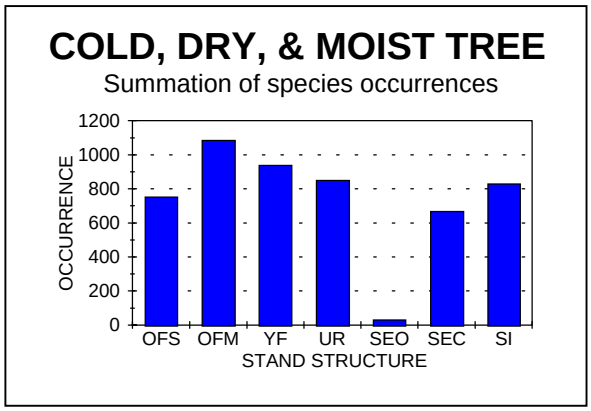
Stand structure	Graph #29. Summation of species occurrences by stand structure for all tree cover types. (%)	Graph #8. Number of species by stand structure for ponderosa pine. (%)	Ponderosa pine use compared to the summation of tree cover types. % comparison.	Number of species of concern using ponderosa pine by stand structure. (See note 1)
Old forest single story.	751 (15%)	129 (20%)	Similar	32
Old forest multistory.	1084 (21%)	119 (18%)	Similar	30
Young forest multistory.	938 (18%)	102 (16%)	Similar	15
Understory reinitiation.	849 (16%)	101 (15%)	Similar	19
Stem exclusion open canopy.	30 (1%)	30 (5%)	Similar	9
Stem exclusion closed canopy.	666 (13%)	76 (12%)	Similar	9
Stand initiation.	829 (16%)	100 (15%)	Similar	18

Note 1. Species of concern are highlighted in the **matrix**. Pages N-101-N-155.

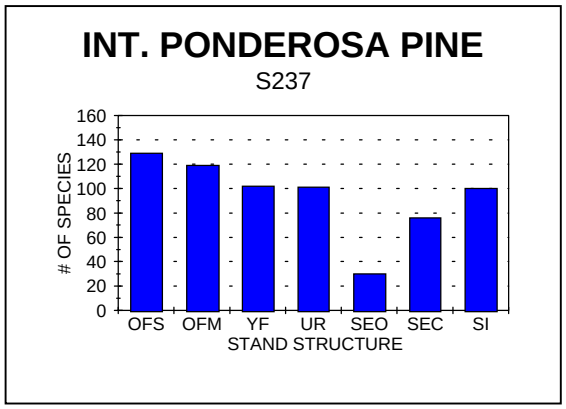
When these two graphs are compared we see that the ponderosa pine cover type resembles the trend set by the summation of tree cover types as shown incolumn 4 in the table above. The word “similar” implies how animal species use the ponderosa pine stand structures compared to the number of animal species occurrences for stand structures in the summation of tree cover types.

- Similar means there is close to the same species use of a stand structure in ponderosa pine when compared to the summation of tree cover types (same %). Considered similar when percent differs by up to 5%.

Graph #29



Graph #8



Old forest single story and old forest multistory are the most heavily used stand structures in the interior ponderosa pine cover type. When compared to the summation of tree cover types, old forest single story contributes 17% and old forest multistory contributes 11% of all occurrences in those stand structures. Significantly lower are young forest multistory, understory reinitiation, and stand initiation contributing 11%, 12%, and 12% respectively. Stem exclusion closed canopy is a moderately used habitat contributing 11% while stem exclusion open canopy contributes 100% and is the least diverse site in the interior ponderosa pine cover type.

COVER TYPE: COTTONWOOD/WILLOW (Populus trichocarpa/Salix species). S235

COTTONWOOD

Photo by Charles Webber (Calphotos)

LOCATION

Cottonwood is a widely occurring tree in the western United states, Canada, Alaska, and Baja California. The eastern extent of cottonwood is to the Dakotas. This species has a large but winding range, as it tends to follow stream courses and avoid hot and dry areas. East of the Cascades cottonwood occur from sea level up to 5000 feet.

DESCRIPTION

Cottonwood is a close relative of poplars and aspens, and they occupy the populus genus. Cottonwood is the tallest and the broadest broadleaf tree in the western United States. It can grow up to 200 feet tall and 6 feet in diameter. This species is a fast growing tree that turns bright yellow in the fall and sprouts easily from root suckers and cut branches. The female trees shed the familiar

cottony fruit that litters the landscape in the early spring. Cottonwood leaves are *deciduous*, simple, and alternating along branches. Spear-shaped leaves occur on sprouts rising from roots at the base of the tree while triangle-shaped leaves occupy the crown of the tree. Leaf margins can be smooth or have small rounded teeth. Lengths are from 3-6 inches and can sometimes be much longer. They have green tops and white bottoms with frequent rusty markings. The bi-color of the leaves is what makes cottonwood seem to shimmer in the wind. The fruits are a series of rounded capsules attached to a string-like twig. Each capsule contains numerous tiny seeds shrouded in cotton. The buds are cigar shaped, perfume the air when open, and sticky due to a resin commonly called balsam. Young trees have a smooth gray bark that becomes furrowed and ridged as the tree matures. Extensive information concerning cottonwood and its associated plant species, as they occur in Wallowa County, can be found in "Mid-Montane Wetland Plant Associations of the Malheur, Umatilla and Wallowa-Whitman National Forests" by Elizabeth A. Crow.

USES

Cottonwood is a tree that can be easily hybridized to form a tree that far outgrows its parent trees. For this reason, it has been hybridized and propagated for plantations to provide wood fiber for the paper products industry. Cottonwood was the earliest planted tree in the region to supply pulp to a paper mill near Oregon City in 1901. This tree has little use as a lumber producer but was used to make packing material before Styrofoam was invented. Other uses are stream bank stabilization, urban landscapes, and shade. Cottonwood was very important to the pioneers along the Oregon Trail as it provided the only shade for nearly 1000 miles along the way.

HISTORIC RANGE OF VARIABILITY

- *Historic range of variability* data concerning cottonwood is not available for Wallowa County at this time.

WILLOW

Photo by John Williams and Bruce Dunn

LOCATION

Willow is a widely occurring plant at all elevations in the western United States, Canada, and Alaska. This plant will grow almost anywhere but is most common along streams and wet ground; if found at treeline it is a prostrate shrub. Willow withstands abundance of water very well and will grow on poorly drained soils.

DESCRIPTION

North America has about 90 different types of willow, and many species will interbreed having the characteristics of both parent plants. All species grow as a shrub and 12 of those species will grow to tree form. All species have multiple stems and indistinct crowns. The leaves are narrow and pointed, have a yellow-green top and white bottom, short leaf stalks, and leafy ears where the stalk joins the twig. Male and female flowers occur on separate plants. The female flower has tear-shaped fruits filled with tiny cottony seeds that are distributed by wind and water. Seeds need to land on moist soil for germination soon after falling, or they will quickly dry out and die. Male flowers simply wilt and fall off the plant. Willow buds are a narrow winter bud that hugs the twig and a cap-like scale covers each. Terminal buds are non existent in favor of laterals where twigs die back to a lateral bud in the winter. Twigs are yellowish-green and will sometimes have tinges of purple or red. Extensive information concerning willow and its associated plant species, as they occur in Wallowa County, can be found in "Mid-Montane Wetland Plant Associations of the Malheur, Umatilla and Wallowa-Whitman National Forests" by Elizabeth A. Crow.

USES

Willow in our region does not reach a commercial size and has no value for lumber products. Willow branches are fashioned into lawn furniture, and thicker stems are made into cricket bats and croquet balls due to its hard springy nature. Willow grows and is often planted along stream banks as a bank protector due to its clinging roots, tangled branches, fast growth, and ability to sprout vigorously. Baskets made from willow twigs were probably among the earliest manufactured products. This tree is often planted as an ornamental and shade tree. Campers and hunters benefit from the slow even burning nature of willow in their campfires and stoves.

HISTORIC RANGE OF VARIABILITY

- *Historic range of variability* data concerning willow is not available for Wallowa County at this time.

COTTONWOOD/WILLOW

STAND STRUCTURE

Seven stand structures are found in the cottonwood/willow cover type. The stand structures are defined in the stand structure key included in this document (page N-156).

- Old forest single story.
- Old forest multistory.
- Young forest multistory.

- Understory reinitiation.
- Stem exclusion open canopy.
- Stem exclusion closed canopy.
- Stand initiation.

ANIMAL SPECIES

Many animal species utilize the cottonwood/willow cover type. Twigs and flowers of willow provide a food source for many wildlife species. Grouse, rabbits, mice, beaver, and many other species eat the bark, while deer and livestock browse on the stems. The full suite of animal species utilizing the cottonwood/willow cover type, as it pertains to Wallowa County, can be found in the matrix (page N-123).

GRAPH ANALYSIS

An analysis of the graphs (#9 and #29), concerning the cover type cottonwood/willow, show that this cover type generally follows the trend set by the summation of tree cover types. Graph #29 shows how many times each species occurs in each stand structure (if a species occurs in more than one cover type then it is counted more than once); graph #9 shows the number of animal species using each stand structure in the cottonwood/willow cover type.

Table #9

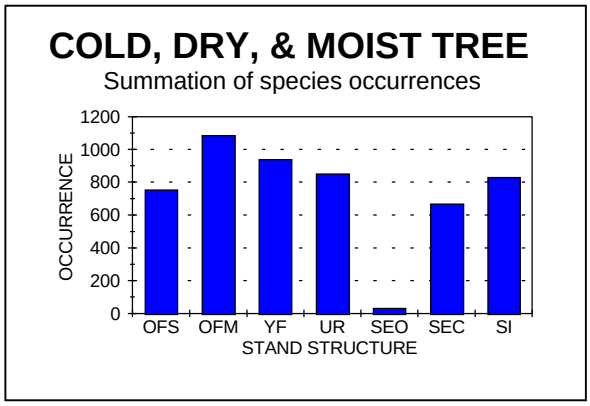
Stand structure	Graph #29. Summation of species occurrences by stand structure for all tree cover types. (%)	Graph #9. Number of species by stand structure for cottonwood/ willow. (%)	Cottonwood/ willow use compared to the summation of tree cover types. % comparison.	Number of species of concern using cottonwood/ willow by stand structure. (See note 1)
Old forest single story.	751 (15%)	0 (0%)	Less	0
Old forest multistory.	1084 (21%)	137 (26%)	Similar	22
Young forest multistory.	938 (18%)	128 (24%)	More	14
Understory reinitiation.	849 (16%)	68 (13%)	Similar	8
Stem exclusion open canopy.	30 (1%)	0 (0%)	Similar	0
Stem exclusion closed canopy.	666 (13%)	94 (18%)	Similar	5
Stand initiation.	829 (16%)	107 (20%)	Similar	9

Note 1. Species of concern are highlighted in the **matrix**. Pages N-101-N-155.
When these two graphs are compared we see that the cottonwood/willow cover type resembles the trend set by the summation of tree cover types as shown in column 4 in the table above. The words “more”, “less”, and “similar” imply how animal species use the cottonwood/willow stand structures compared to the number of animal species occurrences for stand structures in the summation of tree cover types.

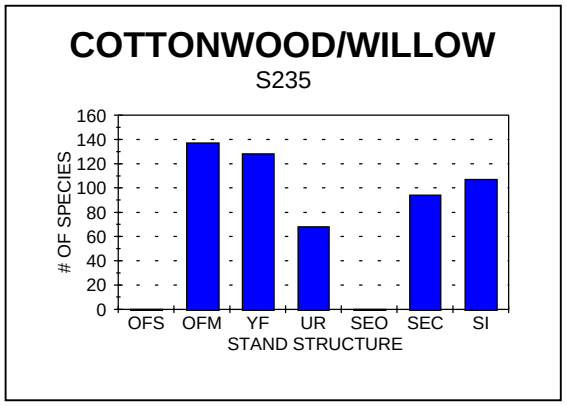
- More means there is a higher species use of a stand structure in cottonwood/willow than that stand structure in the summation of tree cover types (difference > 5 %).

- Similar means there is close to the same species use of a stand structure in cottonwood/willow when compared to the summation of tree cover types (same %). Considered similar when percent differs by up to 5%.
- Less means there is a lower species use of a stand structure in cottonwood/willow than that stand structure in the summation of tree cover types (difference > 5%).

Graph #29



Graph #9



Old forest multistory and young forest multistory are the most heavily used habitats in the cottonwood/willow cover type. When compared to the range of forest cover types, old forest multistory contributes 13% and young forest multistory contributes 14% of all occurrences in those stand structures. Significantly lower are stand initiation and stem exclusion closed canopy with each contributing 13% and 14% respectively. Understory reinitiation is a moderately used habitat accounting for 8% of the total animal species using this stand structure. Old forest single story and stem exclusion open canopy are the least diverse habitats in the cottonwood/willow cover type with no animal species contribution.

COVER TYPE: JUNIPER WOODLANDS (Juniperus occidentalis). CS01.

Photo by Brother Alfred Brousseau (Calphotos).

LOCATION

Juniper is a tree that grows in many arid regions of the western United States. It is found in southeast Washington, eastern Oregon, in the Sierra Nevada Mountains, southwest Idaho, and northwest Nevada. This species occupies dry sites at the lower limits of tree growth and zones between non-forest lands and principal tree growing locations. Juniper has the ability to grow on sites that require the least amount of moisture

needed to grow trees. Moist canyon sites are preferred but this species has spread to dry, sandy, and gravely areas.

DESCRIPTION

Juniper is a small rounded coniferous tree that grows up to 30 feet tall and will reach heights of 20 feet in shrub form. This is a long-lived species that can live for several hundred years. In both tree and shrub form branches usually extend to the ground. Juniper bark in fibrous, furrowed, thin, and grayish-brown with a reddish inner bark. Needles are scale-like, opposite or in groups of three, 1/8 inch long, gray-green, and have a prominent gland on the upper surface that is usually covered by a resin drop. The resin drop is in place to seal a breathing pore and acts as a water conservation device. Needles are scratchy to the touch and have a strong distinctive fragrance that many of us associate with the high desert. Juniper cones resemble a berry more than the typical cone that most of us associate with coniferous evergreen trees. Cones are round, bluish-black, 1/4 inch long, berry shaped, have soft scales that seldom open, are covered with a bluish-white coating called bloom that can be rubbed off, and take two years to mature. This species is easily killed by fire, and young trees are especially susceptible due to their thin bark. Extensive information concerning juniper and its associated plant species, as they occur in Wallowa County, can be found in "Plant Association of the Wallowa-Snake Province" by Charles G. Johnson, Jr.

USES

Juniper has a variety of uses. Poles are cut for fence posts and planters due to their superior longevity and resistance to rot. Boards are milled to produce novelties, clocks, and signs as juniper has very attractive coloration. This species is an important source of firewood in the high desert regions and boughs are used as decoration during the Christmas season. Juniper is also a very common ornamental landscape tree in both tree and shrub form. Dried berries (cones) are edible, and cone oil extracts are used to scent and flavor beverages, seasonings, soaps, and cosmetics.

STAND STRUCTURE

In this document, stand structure for the cover type juniper is defined as woodland. The stand structure woodland includes all growth stages that may occur in this cover type, and they are described further in the following paragraph concerning historic range of variability.

HISTORIC RANGE OF VARIABILITY

Historic range of variability per stand structure.

- Old forest single story:..... 20%-70% with an average of 40%.
- Old forest multistory: ..... 2%-20% with an average of 15%.
- Young forest multistory:..... 5%-20% with an average of 10%.
- Understory reinitiation:..... 0%.

- Stem ex. closed canopy:..... 0%.
- Stem ex. open canopy:..... 5%-35% with an average of 25%.
- Stand initiation:..... 5%-15% with an average of 10%.

ANIMAL SPECIES

One hundred and eighteen animal species utilize the juniper cover type in Wallowa County. Many mammals use the berries (cones) as an important food source; coyotes, chipmunks, ground squirrels, and mice are a few examples. Birds such as grosbeaks, jays, and robins eat the berries, while blue birds and chickadees nest in the natural cavities that juniper provide. Mule deer and cattle will browse the foliage in cases of extreme conditions. The full suite of animal species utilizing the juniper cover type, as it pertains to Wallowa County, can be found in the matrix (page N-134).

GRAPH ANALYSIS

Table #10

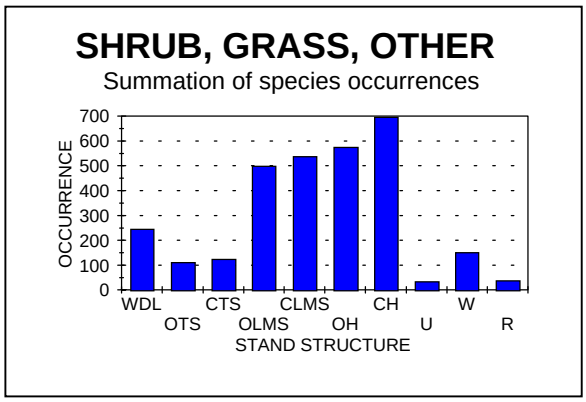
Stand Structure	Graph #30 Summation of species occurrences for woodland in all cover types. (%)	Graph #10 Number of species by stand structure for juniper woodlands. (%)	Juniper woodlands use compared to summation of non-tree cover types. % comparison. (See note 1.)	Number of species of concern using juniper woodlands by stand structure. (See note 2.)
Woodland	244 (100%)	119 (100%)	Similar	21

Note 1. Similar means there is close to the same species use of a stand structure in juniper woodlands when compared to the summation of non-tree cover types (Same %). Considered similar when percent differs by up to 5%.

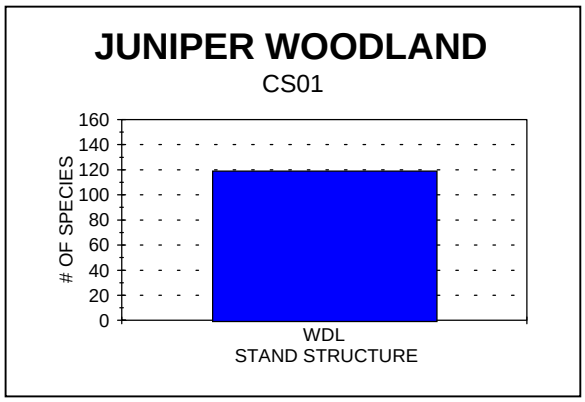
Note 2. Species of concern are highlighted in the **matrix**. Pages N-101-N-155.

Graph #30 shows how many times each species occurs in each stand structure (if a species occurs in more than one cover type then it is counted more than once). Graph #10 shows the number of animal species using each stand structure in the juniper woodland cover type.

Graph #30



Graph #10



- See WDL for juniper woodlands (page 156).

In the summation of non-cover types (graph #30) concerning woodland, there are 244 animal species occurrences. This means that all cover types that have the stand structure woodland have a summation of 244 occurrences. *Of those 244 occurrences, 119 (49%) are contributed by the juniper woodland cover type.*

COVER TYPE: MIXED CONIFER WOODLANDS. CS02.

Photo by John Williams and Bruce Dunn

DESCRIPTION

"Mixed conifer woodlands" pertains to dry forest areas in Wallowa County, where conifers live with several other vegetative types. Mixed conifer woodland is divided into several sub-classifications: conifer/exotic herbs, conifer encroachment/exotic grass, conifer/perennial grass, and conifer encroachment/sagebrush/perennial grass.

Conifer: Dry forest conifer species include interior Douglas fir, western larch, lodgepole pine, interior ponderosa pine, and juniper. All of these species are described in this document and can be extensively researched in "Plant Associations of the Wallowa-Snake Province by Charles G. Johnson, Jr.

Exotic herbs: Non native, non woody plants, dying back each year or dying back to the crown.

Exotic grass: Non native grasses.

Sagebrush: Low sagebrush, stiff sagebrush, and mountain big sagebrush.

Perennial grasses: Grasses that live more than two years.

STAND STRUCTURE

In this document, stand structure for the cover type mixed conifer woodland is defined as woodland. The stand structure woodland includes all growth stages for each species that occur in this cover type as they are found in Wallowa County.

HISTORIC RANGE OF VARIABILITY

- For the mixed conifer woodland cover type *historic range of variability* is not available.

ANIMAL SPECIES

Mixed conifer woodland provides key habitat for many animal species. One hundred and twenty four animals use this habitat: 5 amphibians, 73 birds, 37 mammals, and 9 reptiles. Due to vegetative diversity in this cover type, habitats tend to be site specific within the cover type. Mixed conifer woodland provides thermal and hiding cover, seeds and grasses as a food source, and cavities for cavity nesting birds to name only a few. The full suite of animal species utilizing the mixed conifer woodlands cover type as it pertains to Wallowa County can be found in the matrix (page N-134).

GRAPH ANALYSIS

Table #11

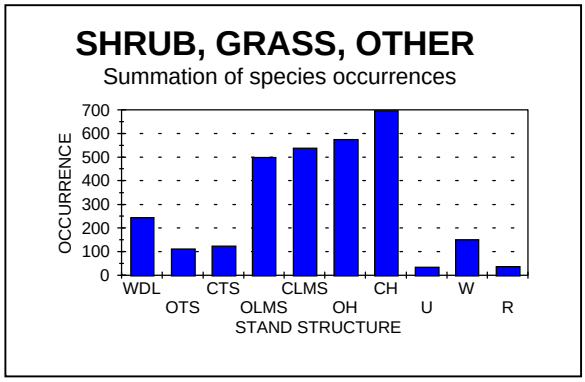
Stand Structure	Graph #30 Summation of species occurrences for woodland in all cover types. (%)	Graph #11. Number of species by stand structure for mixed conifer woodland. (%)	Mixed conifer woodland use compared to summation of non-tree cover types. % comparison. (See note 1.)	Number of species of concern using mixed conifer woodland by stand structure. (See note 2.)
Woodland.	244 (100%)	125 (100%)	Similar	20

Note 1. Similar means there is close to the same species use of a stand structure in mixed conifer woodlands when compared to the summation of non-tree cover types (Same %). Considered similar when percent differs by up to 5%.

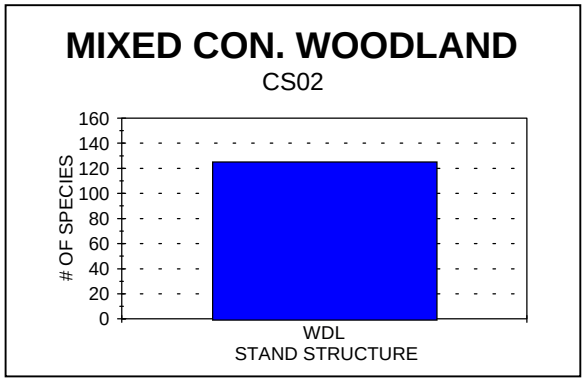
Note 2. Species of concern are highlighted in the **matrix**. Pages N-101-N-155.

Graph #30 shows how many times each species occurs in each stand structure (if a species occurs in more than one cover type then it is counted more than once). Graph #11 shows the number of animal species using each stand structure in the mixed conifer woodlands cover type.

Graph #30



Graph #11



- See WDL for mixed conifer woodlands.

In the summation of non-tree cover types (graph #30) concerning woodland, there are 244 animal species occurrences. This means that all cover types that have the stand structure woodland have a summation of 244 occurrences. *Of those 244 occurrences, 125 (51%) are contributed by the mixed conifer woodland cover type.*

MOIST FOREST

COVER TYPE: GRAND FIR (Abies grandis). CS09.

Photo by Brother Alfred Brousseau (Calphoto).

LOCATION

Grand fir is a far ranging western conifer that will occupy sites from sea level to elevations of 5000 feet. East of the Cascades it is found from southeast British Columbia to the Rocky Mountains in central Idaho. It is also found in southeast Washington, northeast Oregon, and western Montana. Grand fir is a principal *montane* coniferous forest dweller that tends to mingle in mixed forest cover types and represents about 2% of Oregon's conifers. In mixed forest stands east of the Cascades, grand fir is generally found at mid elevations, near streams, in valleys, and on lower slopes. This species occupies cooler and moister sites than climax ponderosa pine and Douglas fir and warmer sites than climax subalpine fir. In these limits it prefers moist mountain slopes, north and east slopes at lower sites, and all aspects at upper sites.

DESCRIPTION

Grand fir will grow up to 250 feet tall, 6 feet in diameter, and has a narrow, open, and usually rounded crown. This tree is the most moisture tolerant conifer of the intermountain species and represents warm to cool and moist environments. These sites are very productive in species' richness and biomass. Grand fir is a very shade tolerant tree so it will form climax forests throughout much of its range. The bark on young trees is smooth, gray to light brown, and has resin blisters. Older trees have bark that is ashy brown, 2-3 inches thick, and furrowed. Inner bark is purplish red. Buds are rounded, yellow brown, covered with resin, and occur in groups of three at the end of stems. Needles are 1-1.5 inches long, have notched ends, are dark green, and are double ranked in a "V" shaped fashion. Lower needle surfaces have *stomatal* bands while upper surfaces do not have a bloom and resin ducts occur near margins. *Ovulate* cones are yellow-green to green, 2-4 inches long, cylindrical, upright on the branch, have *bracts* shorter than scales, and disintegrate on the tree. Flowering occurs from May-June and seeds shed in early September. Grand fir is moderately susceptible to fire depending on site and stand structure. Fire in dry sites tends to underburn with less mortality, while fires in moist sites tend to result in stand replacing burns. Indian paint fungus is the primary wood rotting agent, as grand fir does not exude pitch to seal wounds. Spruce budworm and tussock moth reduce stock on dry and overstocked sites. Extensive information concerning grand fir and its associated plant species as they occur in Wallowa County can be found in "Plant Association of the Wallowa-Snake Province" by Charles G. Johnson, Jr.

USES

Grand fir represents about 10% of Oregon's commercial timber harvest. In some regions, grand fir is a preferred species due to its rapid growth. Wood products include lumber, pulp, and plywood and are shipped to Asia where they are desired for their light color. This species is commercially grown as Christmas trees due to its even conical form, fragrance, and rich green color. The Native Americans used the resin to make a tea to help fight whooping cough and ointments for colds. Needles were boiled to make eyewash and were dried and pulverized to make baby powder.

STAND STRUCTURE

Seven stand structures are found in the grand fir cover type. The stand structures are defined in the stand structure key included in this document (page N-156).

- Old forest single story.
- Old forest multistory.
- Young forest multistory.
- Understory reinitiation.
- Stem exclusion open canopy.

- Stem exclusion closed canopy.
- Stand initiation.

HISTORIC RANGE OF VARIABILITY

Historic range of variability per stand structure.

- Old forest single story: .....0% in cold areas.
  .....0% in cool areas.
  .....15%-55% with an average of 40% in warm areas.
- Old forest multistory: .....30%-60% with an average of 40% in cold areas.
  .....30%-60% with an average of 40% in cool areas.
  .....5%-25% with an average of 15% in warm areas.
- Young forest multistory:.....20%-50% with an average of 35% in cold areas.
  .....20%-50% with an average of 30% in cool areas.
  .....5%-25% with an average of 15% in warm areas.
- Understory reinitiation:.....5%-25% with an average of 15 % in cold areas.
  .....5%-25% with an average of 20% in cool areas.
  .....1%-10% with an average of 5% in warm areas.
- Stem ex. closed canopy:....1%-10% with an average of 5% in cold areas.
  .....1%-10% with an average of 5% in cool areas.
  .....1%-10% with an average of 5% in warm areas.
- Stem ex. open canopy:.....0% in cold areas.
  .....0% in cool areas.
  .....5%-20% with an average of 10% in warm areas.
- Stand initiation:.....1%-5% with an average of 5% in cold areas.
  .....1%-10% with an average of 5% in cool areas.
  .....1%-15% with an average of 10% in warm areas.

ANIMAL SPECIES

The grand fir cover type provides excellent habitat for many animal species. It provides thermal and hiding cover, snags for cavity nesters, hollow logs for dens, and feed for browsing animals. The full suite of animal species utilizing the grand fir cover type, as it pertains to Wallowa County, can be found in the matrix (page N-134).

GRAPH ANALYSIS

An analysis of the graphs (#12 and #29), concerning the cover type grand fir, show that this cover type generally follows the trend set by the summation of tree cover types. Graph #29 shows how many times each species occurs in each stand structure (if a species occurs in more than one cover type then it is counted more than once); graph #12 shows the number of animal species using each stand structure in the grand fir cover type.

Table #12

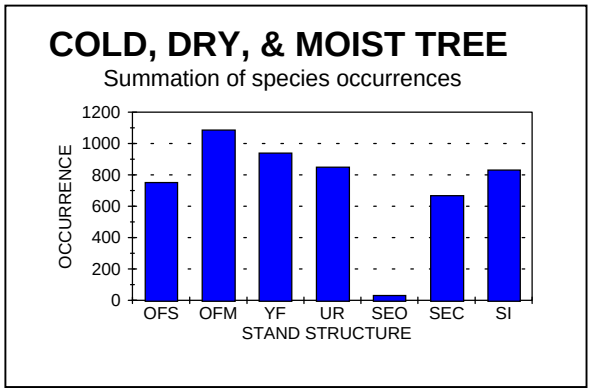
Stand structure	Graph #29. Summation of species occurrences by stand structure for all tree cover types. (%)	Graph #12. Number of species by stand structure for grand fir. (%)	Grand fir use compared to the summation of tree cover types. % comparison.	Number of species of concern using grand fir by stand structure. (See note 1)
Old forest single story.	751 (15%)	123 (17%)	Similar	35
Old forest multistory.	1084 (21%)	136 (19%)	Similar	38
Young forest multistory.	938 (18%)	126 (18%)	Similar	26
Understory reinitiation.	849 (16%)	116 (16%)	Similar	26
Stem exclusion open canopy.	30 (1%)	0 (0%)	Similar	0
Stem exclusion closed canopy.	666 (13%)	99 (14%)	Similar	13
Stand initiation.	829 (16%)	112 (16%)	Similar	21

Note 1. Species of concern are highlighted in the **matrix**. Pages N-101-N-155.

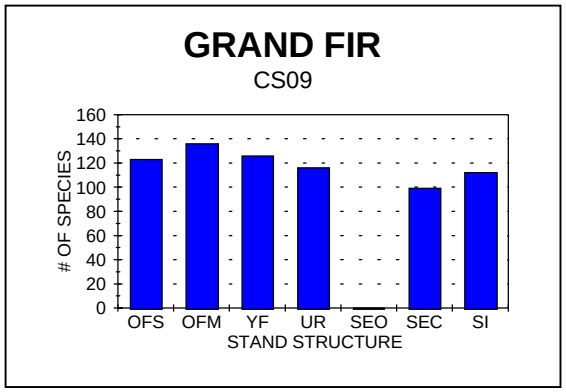
When these two graphs are compared, we see that the grand fir cover type resembles the trend set by the summation of tree cover types as shown in column 4 in the table above. The word “similar” implies how animal species use the grand fir stand structures compared to the number of animal species occurrences for stand structures in the summation of tree cover types.

- Similar means there is close to the same species use of a stand structure in grand fir when compared to the summation of tree cover types (same %). Considered similar when percent differs by up to 5%.

Graph #29



Graph #12



In the grand fir cover type all stand structures are heavily used with the exception of stem exclusion open canopy. When compared to the summation of tree cover types, old forest single story contributes 16%, old forest multistory contributes 13%, young forest multistory contributes 13%, understory reinitiation contributes 14%, stand initiation contributes 14%, and stem exclusion closed canopy contributes 15% of all animal species that use these habitats. Old forest multistory defines the high use end and is the most diverse while stem exclusion open canopy bounds the low end with no animal species contribution.

COOL SHRUB

COVER TYPE: SHRUB OR HERB/TREE REGEN. COO3.

Photo by John Williams and Bruce Dunn

LOCATION/DESCRIPTION

The shrub or herb/tree regen. cover type is an area consisting of shrubs, forbs, grasses, and young trees in the process of re-establishing. The cover type is divided into five groups: general shrub, grass/forb, mountain shrub, ceanothus species, and shrub/regen. This habitat is found in upland areas that have been altered due to fire, logging, or other landscape changing events. The shrub or herb/tree regen. cover type is usually in an early successional stage of development lacking large concentrations of big mature trees and climax vegetative species. Remnant large trees may exist in sparse or small groups. Common shrubs are snowberry, rose, mountain mahogany, and sagebrush while redstem and snowbrush ceanothus are characterizing species of the cover type. Bluebunch wheatgrass and Idaho fescue, a variety of forbs, seedling conifers, and shrubs varying in age are common is this area.

STAND STRUCTURE

Four stand structures are found in the shrub or herb/tree regen. cover type. They are defined in the stand structure key (page N-156).

- Open canopy tall shrub.
- Open canopy low-medium shrub.
- Closed canopy low-medium shrub.
- Closed herb.

ANIMAL SPECIES

The shrub or herb/tree regen cover type is a moderately used habitat by animal species. This cover type is often adjacent to more mature or climax plant communities, and the edge areas between the two provide valuable overlap or areas called *ecotones*. *Ecotones* are areas of diverse animal species use where two separate habitats join and provide additional benefits over one single habitat. The shrub or herb/tree regen cover type provides feed for grazing animals, seeds for birds and rodents, and prey for predatory animals while an adjacent habitat may provide hiding and thermal cover, nesting habitat, or additional food

sources. The full suite of animal species utilizing the shrub or herb/tree regen. cover type, as it pertains to Wallowa County, can be found in the matrix (page N-134).

GRAPH ANALYSIS

Table #13

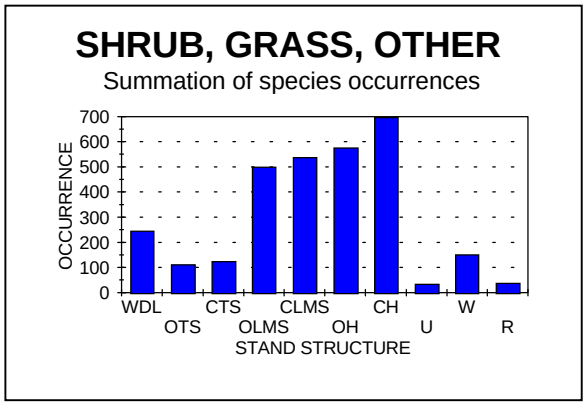
Stand Structure	Graph #30 Summation of species occurrences by stand structure for ots, olms, clms and ch. (%)	Graph #13. Number of species by stand structure for shrub or herb/tree regen. (%)	Shrub or herb/tree regen. use compared to summation of non-tree cover types. % comparison. (See note 1.)	Number of species of concern using shrub or herb/tree regen. by stand structure. (See note 2.)
Open canopy tall shrub	123 (7%)	52 (25%)	More	4
Open canopy low-medium shrub	498 (27%)	54 (26%)	Similar	5
Closed canopy low-medium shrub.	537 (29%)	51 (25%)	Similar	5
Closed herb.	696 (38%)	50 (24%)	Less	5

Note 1. More means there is a higher species use of a stand structure in shrub or herb/tree regen. than that stand structure in the summation of non-tree cover types. Similar means there is close to the same species use of a stand structure in shrub or herb/tree regen. when compared to the summation of non-tree cover types (Same %). Considered similar when percent differs by up to 5%. Less means there is a lower species use of a stand structure in shrub or herb/tree regen. than that stand structure in the summation of non-tree cover types.

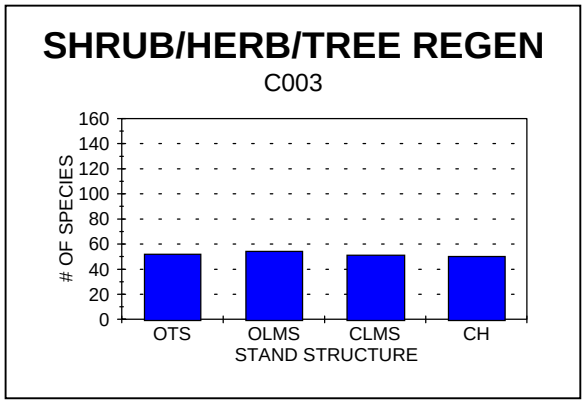
Note 2. Species of concern are highlighted in the **matrix**. Pages N-101-N-155.

Graph #30 shows how many times each species occurs in each stand structure (if a species occurs in more than one cover type then it is counted more than once). Graph #13 shows the number of animal species using each stand structure in the shrub or herb/tree regen. cover type.

Graph #30



Graph #13



- See OTS, OLMS, CLMS, and CH for the shrub or herb/tree regen. cover type (page N-156).

In the summation of non-tree cover types (graph #30) concerning open canopy tall shrub, there are 110 animal species occurrences. This means that all cover types that have the stand structure open canopy tall shrub have a summation of 110 occurrences. *Of those 110 occurrences 52 (47%) are contributed by the shrub or herb/tree regen. cover type.*

In the summation of non-tree cover types (graph #30) concerning open canopy low-medium shrub, there are 498 animal species occurrences. This means that all cover types that have the stand structure open canopy low-medium shrub have a summation of 498 occurrences. *Of those 498 occurrences 54 (11%) are contributed by the shrub or herb/tree regen. cover type.*

In the summation of non-tree cover types (graph #30) concerning closed canopy low-medium shrub, there are 537 animal species occurrences. This means that all cover types that have the stand structure closed canopy low-medium shrub have a summation of 537 occurrences. *Of those 537 occurrences 51 (9%) are contributed by the shrub or herb/tree regen. cover type.*

In the summation of non-tree cover types (graph #30) concerning closed herb, there are 696 animal species occurrences. This means that all cover types that have the stand structure closed herb have a summation of 696 occurrences. *Of those 696 occurrences 50 (7%) are contributed by the shrub or herb/tree regen. cover type.*

COVER TYPE: MOUNTAIN MAHOGANY (Cercocarpus ledifolius). R322.

Photo by Charles Webber (Calphotos).

LOCATION

Mountain mahogany is found in many regions of the western United States. It is found in southern and eastern Oregon, southeast Washington, and into the Rocky Mountains. This species prefers warm, dry, rocky ridges and rim outcroppings. It can be found in pine forest openings, scattered across sagebrush flats, in canyons, and at 3,000 to 9,000 feet in elevation. Mountain mahogany is often found on forest edges where sites are too dry and severe to support forests, on shallow rocky soils, and is associated with ponderosa pine and juniper. The highest concentrations of mountain mahogany are found in areas between higher conifer forests and lower desert steppes, plains, or plateaus where it is a climax species.

DESCRIPTION

Mountain mahogany is a very distinctive shrub that often grows in short, dense, and tangled thickets. This species is easily identified by its curled leaves and silky streamers attached to the seeds. Individuals are usually twisted and unshapely due to browsing animals and the severe climate at site locations. Mountain mahogany is an evergreen, usually about 15 feet tall, and if allowed to grow to tree form, will reach heights of 40 feet with a trunk diameter of two feet. Leaves are simple, alternating or clustered on spurs, elliptical, 1/2-1 inch long, thick, leathery, and emit an aromatic resin. Upper surfaces are dark green, lower sides are pale green, and edges have a distinctive under curling. The bark has furrows and ridges that break into plate-like scales, is red on younger trees, and turns gray-brown on older trees. Flowers are greenish-white, inconspicuous, occur in clusters, and are out from April to June. The fruit is a single 1/2-inch long, hard, narrow, sharp pointed seed that has a very distinctive 3 inch long feathery tail.

Mountain mahogany occasionally occurs in pure stands but usually is found with ponderosa pine, juniper, scrub oak, aspen, and in spruce-fir communities. Common associated shrubs include snowberry, big sagebrush, bitterbrush, rabbitbrush, and Oregon grape. Many grasses are found with mountain mahogany including bluebunch wheatgrass, Idaho fescue, bluegrass, cheatgrass, and a variety of sedges. Extensive information concerning mountain mahogany and its associated plant species as they occur in Wallowa County can be found in “Plant Association of the Wallowa-Snake Province” by Charles G. Johnson, Jr.

USES

Mountain mahogany had many uses in the Native American culture. The wood was used for fire and for smoking meats, leaves were used as a laxative, inner bark for pulmonary problems, and due to their hardness and strength, branches were made into arrow shafts and digging tools.

STAND STRUCTURE

In this document, stand structure for the cover type mountain mahogany has two classifications: open canopy low medium shrub and closed canopy low medium shrub. They are defined in the stand structure key (page N-161).

ANIMAL SPECIES

Many animal species utilize the mountain mahogany cover type. Deer and elk use mountain mahogany as an important fall range. Many animal species use this shrub for protection against the weather and predators. The full suite of

animal species utilizing the mountain mahogany cover type, as it pertains to Wallowa County, can be found in the matrix (page N-134).

GRAPH ANALYSIS

Table #14

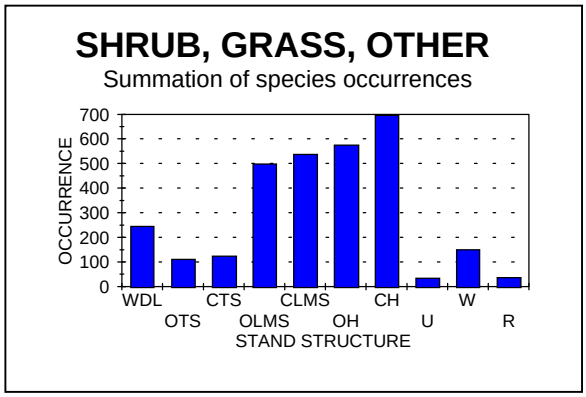
Stand Structure	Graph #30 Summation of species occurrences by stand structure for olms and clms. (%)	Graph #14. Number of species by stand structure for mountain mahogany. (%)	Mountain mahogany use compared to summation of non-tree cover types. % comparison. (See note 1.)	Number of species of concern using mountain mahogany by stand structure. (See note 2.)
Open canopy low-medium shrub.	498 (48%)	81 (55%)	More	14
Closed canopy low-medium shrub.	537 (52%)	67 (45%)	Less	8

Note 1. More means there is a higher species use of a stand structure in mountain mahogany than that stand structure in the summation of non-tree cover types. Less means there is a lower species use of a stand structure in mountain mahogany than that stand structure in the summation of non-tree cover types.

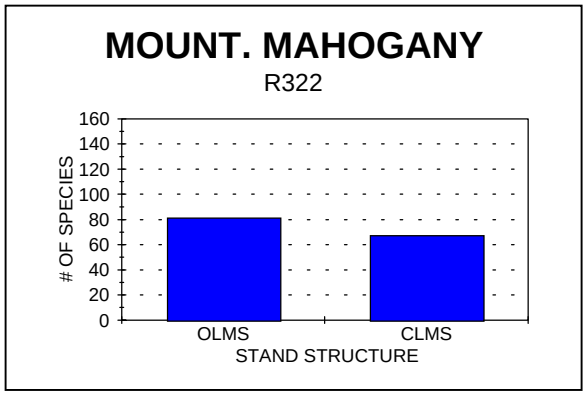
Note 2. Species of concern are highlighted in the **matrix**. Pages N-106-N-160.

Graph #30 shows how many times each species occurs in each stand structure (if a species occurs in more than one cover type then it is counted more than once). Graph #14 shows the number of animal species using each stand structure in the mountain mahogany cover type.

Graph #30



Graph #14



- See OLMS and CLMS for mountain mahogany (page N-156).

In the summation of non-tree cover types (graph #30) concerning open canopy low medium shrub, there are 498 animal species occurrences. This means that all cover types that have the stand structure open canopy low medium shrub

have a summation of 498 occurrences. *Of those 498 occurrences, 81 (16%) are contributed by the mountain mahogany cover type.*

In the summation of non-tree cover types (graph #30) concerning closed canopy low medium shrub there are 537 animal species occurrences. This means that all cover types that have the stand structure closed canopy low medium shrub have a summation of 537 occurrences. *Of those 537 occurrences, 67 (12%) are contributed by the mountain mahogany cover type.*

COVER TYPE: MOUNTAIN BIG SAGEBRUSH (Artemisia tridentata (ssp. vaseyana)). R402.

Photo by Brother Alfred Brousseau (Calphotos).

LOCATION

Mountain big sagebrush is a widespread shrub found east of the Cascades and at higher *montane* elevations. Site locations are in valleys, plains, basins, and mountain slopes. This species is found on rocky basaltic soils and is most abundant on dry, well drained gravely soil types. Upland elevation occurrences of mountain big sagebrush are generally unsuitable for silvicultural practices and have severe tree regeneration difficulties.

DESCRIPTION

Mountain big sagebrush is a medium sized shrub that grows from 2-6 feet tall and has a strong aromatic fragrance. This is a multi-stemmed species where young stems are silver-gray and then turn grayish brown with age. The bark sheds on older stems and branches touching the ground will root. Mountain big sagebrush has both *deciduous* leaves and winter persistent leaves. Leaves are alternating, 1/2-1 1/2 inches long, triangular, silvery green, and have a three lobed apex. Flowers are small, yellow, tubular, and bloom from August to September. The fruits are a dry one seeded nodule called an *achene* surrounded by a husk called a *pericarp*.

Mountain big sagebrush is the dominant species in this cover type. Several other lifeforms commonly occur with mountain big sagebrush. Shrubs that are found co-existing with this species are antelope bitterbrush, green rabbitbrush, gray horsebrush, and in moister areas, mountain snowberry. Associated grasses include Idaho fescue, bluebunch wheatgrass, Sandbag bluegrass, mountain brome, slender wheatgrass, junegrass, onion grass, western needlegrass, and several varieties of sedge. Extensive information concerning mountain big sage

and its associated plant species, as they occur in Wallowa County, can be found in “Plant Association of the Wallowa-Snake Province” by Charles G. Johnson, Jr.

USES

The Native Americans used mountain big sagebrush as thatching, cordage, firewood, and in making baskets. Fruits can be used fresh, dried, or pounded into a meal. Some Native Americans used sage as a laxative. Due to high protein content, this species is considered good winter range for sheep and fair for cattle.

STAND STRUCTURE

In this document, stand structure for the cover type mountain big sagebrush has two classifications: open canopy low medium shrub and closed canopy low medium shrub. They are defined in the stand structure key (page N-156).

ANIMAL SPECIES

Many animal species utilize the mountain big sagebrush cover type. This shrub is lightly used by deer and provides a food source and cover for many kinds of wildlife. The full suite of animal species utilizing the mountain big sagebrush cover type, as it pertains to Wallowa County, can be found in the matrix (page N-134).

GRAPH ANALYSIS

Table #15

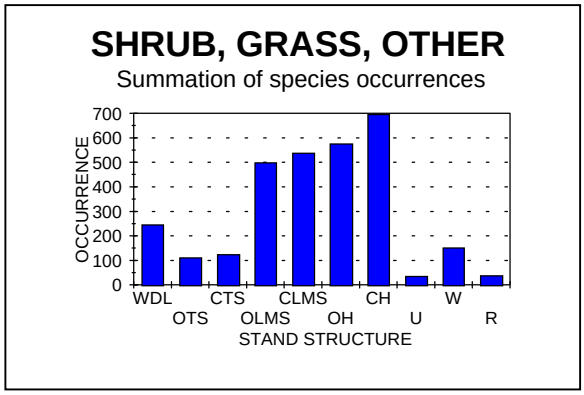
Stand Structure	Graph #30 Summation of species occurrences by stand structure for olms and clms. (%)	Graph #15. Number of species by stand structure for mountain big sagebrush. (%)	Mountain big sagebrush use compared to summation of non-tree cover types. % comparison. (See note 1.)	Number of species of concern using mountain big sagebrush by stand structure. (See note 2.)
Open canopy low-medium shrub.	498 (48%)	122 (54%)	More	25
Closed canopy low-medium shrub.	537 (52%)	106 (46%)	Less	21

Note 1. More means there is a higher species use of a stand structure in mountain big sagebrush than that stand structure in the summation of non-tree cover types. Less means there is a lower species use of a stand structure in mountain big sagebrush than that stand structure in the summation of non-tree cover types.

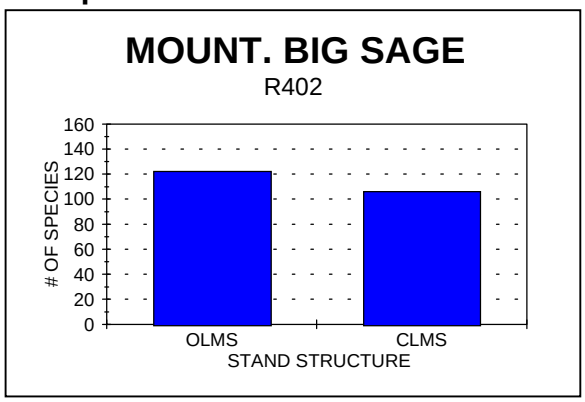
Note 2. Species of concern are highlighted in the **matrix**. Pages N-101-N-155.

Graph #30 shows how many times each species occurs in each stand structure (if a species occurs in more than one cover type then it is counted more than once). Graph #15 shows the number of animal species using each stand structure in the mountain big sagebrush cover type.

Graph #30



Graph #15



- See OLMS and CLMS for mountain big sagebrush (page N-156).

In the summation of non-tree cover types (graph #30) concerning open canopy low medium shrub, there are 498 animal species occurrences. This means that all cover types that have the stand structure open canopy low medium shrub have a summation of 498 occurrences. *Of those 498 occurrences 122 (24%) are contributed by the mountain big sagebrush cover type.*

In the summation of non-tree cover types (graph #30) concerning closed canopy low medium shrub, there are 537 animal species occurrences. This means that all cover types that have the stand structure closed canopy low medium shrub have a summation of 537 occurrences. *Of those 537 occurrences, 106 (20%) are contributed by the mountain big sagebrush cover type.*

COVER TYPE: CHOKECHERRY/SERVICE BERRY/ROSE (Prunus virginiana(var. melanocarpa)/Amelanchier alnifolia(old-florida)/Rosa species). R421.

CHOKECHERRY

Photo by Brother Alfred Brousseau

LOCATION

Chokecherry is found across Canada, the northern United States, and is very common in the Pacific Northwest. This species occurs around seepy outcrops, in cold desert sage locations, grasslands, and lower elevation forests. Chokecherry usually grows in a scattered fashion but thickets can form on canyon rim seepage

sites. Moist soils are preferred but not essential as chokecherry is adapted to a broad range of soil types and will grow along fence rows, roadsides, and in canyons.

DESCRIPTION

Chokecherry is a tall perennial shrub that grows from 3-15 feet tall and at times will reach heights of 30 feet and resemble a small tree. Growth form is upright with horizontal branches and rounded crowns. Reproduction is from seed, *rhizomes*, and basal sprouts. Stems have purplish-gray bark, reddish brown twigs, are long, and slender. Leaves are *deciduous*, alternate, oblong to ovate, 2-4 inches long, and 1/2-2 inches wide. Leaf margins are finely serrated, tops are dark green and lustrous, bottoms are pale green, have an acute apex, round base, and turn bright yellow to orange in the fall. Flowers are white, 5 lobed, short, have obtuse ends, fragrant, and bloom from May to July. Flowers are clustered on an elongated drooping *raceme* up to 6 inches long. Chokecherry fruit is dark red to black, lustrous, thick skinned, 3/8 inch in diameter, and oblong to ovoid. Flesh is juicy, astringent, acidulous, and fruits occur in clusters.

USES

Chokecherry fruits are made into jellies, syrups, and wines, and bark extracts can be used to flavor cough syrups. Forage is fair to poor for livestock and can be poisonous if cyanide levels are high due to drought and freezing. Chokecherry is planted in the urban landscape as an ornamental shrub. The Nez Perce used fresh or dried berries as an ingredient in pemmican, the bark to make a tea to relieve diarrhea and stomach ailments, and the wood to make bows, arrows, and pipe stems. Cyanide levels are reduced if berries are either cooked or dried.

SERVICEBERRY

Photo by Charles Webber (Calphotos).

LOCATION

Serviceberry is widespread throughout the Pacific Northwest and extends into Canada, the Rocky Mountain states, and the upper Midwest. Site locations are canyon slopes, open forest savanna, brushy hillsides, canyons, and creek banks. This species is an early *seral* component of the ponderosa pine-dominated woodlands. Serviceberry is usually found on well-drained soils and will occasionally occur around bogs.

DESCRIPTION

Serviceberry is a tall perennial shrub or small tree that will grow up to 20 feet tall. This species reproduces from seed or *stolons* and tends to form colonies. Stems are reddish brown to gray with alternating branches, and single or clustered trunks will occur. Leaves are *deciduous*, alternating, have parallel veins, oval shaped to oblong, 1-3 inches long, and 1-2 inches wide. Leaf margins have course dentations above the mid point and flattened or truncated bases while the top surface is dark green and bottoms are yellow. Flowers have five long white petals, are in bunches of 3 to 20 on upright ovate clusters, and are out from March to July. The fruit is berry-like, dry, mealy, and not very palatable. They are globe shaped, dark purple, fleshy, and have 3 to 6 seeds.

USES

Serviceberries are made into jams, jellies, wine, and pies. Young growth is fair to good as livestock forage. The Native Americans dried the berries for later use in soups and stews and made arrow shafts and teepee stakes out of the stems.

BALDHIP ROSE

Photo by John Williams and Bruce Dunn

LOCATION/DESCRIPTION/USES

Baldhip rose is widespread in the Pacific Northwest. This species prefers cool moist sites in grand fir plant associations and moist areas in Douglas fir communities. Baldhip rose is an upright, slender, finely branched, low shrub that grows up to three feet tall. Stems are armed with many fine *prickles* resembling raspberry and have reddish stems. Leaves are *deciduous*, alternating, odd-pinnately compound with 5 to 7 leaflets per stem, serrated edges, and are medium to dark green. Flowers are pleasant to the taste and can be used as an edible decoration in salads. They are small (1/2 inch diameter), pink to rose color, occur singly, and bloom from June to July. The fruit is a hip that is high in vitamin C and is often used in teas. Hips are small at 1/2 inch wide, ovoid, and start green then turn to red. Flowers fall from the hip as it matures and leaves a round bald fruit, hence the name baldhip rose.

NOOTKA ROSE

Photo by Brother Alfred Brousseau (Calphotos).

LOCATION/DESCRIPTION/USES

Nootka rose can be found from the Cascades in the Pacific Northwest to the Rocky Mountains. At its lower limits on warmer drier sites this species is often mixed with pearhip rose where these two species often hybridize. Site locations are usually warmer and drier than suitable for baldhip rose and is often found in Douglas fir and ponderosa pine forestlands. This species is an upright, low to mid-sized shrub that grows from 2 to 6 feet tall. The stems are armed with pairs of straight to slightly curved spines. Leaves are dark green, alternating, *deciduous*, and odd-pinnately compound with 5 to 7 leaflets. Leaf edges are serrated with gland tipped teeth. Nootka rose has large, pink, 2 to 3-inch diameter flowers occurring singly at branch ends that are out from May to July. The fruits are a large purplish-red hip with sepals remaining on the hip at fruiting time. Hips are a good source of vitamin C and are used in jellies and teas.

PEARHIP ROSE

Photo by John Williams and Bruce Dunn

LOCATION/DESCRIPTION/USES

Pearhip rose is widespread east of the Cascades where it is commonly found with ninebark and snowberry. On warm dry sites this species is typically mixed with nootka rose where the two roses may hybridize. On moist site locations, pearhip rose is often found with ponderosa pine and Douglas fir. This is an upright, low to mid-sized shrub that grows from 3 to 7 feet tall. The stems are armed with stout slightly curved spines. Leaves are alternating, *deciduous*, odd-pinnately compound with 5 to 9 leaflets, and have serrated margins. Flowers are 1 to 2 inches in diameter, in bunches of 3 to 5 in *terminal cymes*, pink, and out from May to July. The fruit is a round to ovoid red hip that resembles a pear; hence the name pearhip rose. Hips are rich in vitamin C and used to make jellies and teas.

CHOKECHERRY/SERVICEBERRY/ROSE

Chokecherry, serviceberry, and the rose varieties in this cover type are the dominant species found in this community. Each species may occur as a pure

stand but it is more common to find them growing together in mixed stands representing most any combination of the species. Site locations are generally more moist than sage communities and drier than aspen communities. At lower elevation sites, stands occur on protected northern exposures or in snow accumulating depressions. Upper elevation locations are on southern exposures or rocky ridges where quaking aspen or conifer communities can co-exist. Associated shrubs include green rabbitbrush, bitterbrush, horsebrush, Oregon grape, and wild currants. On dry sites this cover type will merge with sage, oak, and other mountain brushes, and on more moist sites it is found with aspen and conifer communities.

STAND STRUCTURE

In this document, stand structure for the cover type chokecherry/serviceberry/rose has three classifications: open canopy tall shrub, open canopy low medium shrub, and closed canopy low medium shrub. They are defined in the stand structure key (page N-156).

ANIMAL SPECIES

Many animal species utilize the chokecherry/serviceberry/rose cover type. Chokecherry provides key browse for mule deer and grouse, magpies, rabbits, and bears eat the fruits. Deer, elk, sheep, and goats browse serviceberry. Grouse use serviceberries in summer and buds in winter. Nootka rose hips are an important winter food for grouse and quail while bear, grouse, and quail eat pearhip rose hips. Roses are intensely browsed by deer, elk, and cattle. The full suite of animal species utilizing the chokecherry/serviceberry/rose cover type, as it pertains to Wallowa County, can be found in the matrix (page N-134).

GRAPH ANALYSIS

Table 16

Stand Structure	Graph #30 Summation of species occurrences by stand structure for ots, olms and clms. (%)	Graph #16. Number of species by stand structure for chokecherry/ serviceberry/ rose. (%)	Chokecherry/ serviceberry/ rose use compared to summation of non-tree cover types. % comparison. (See note 1.)	Number of species of concern using chokecherry/ serviceberry/ rose by stand structure. (See note 2.)
Open canopy tall shrub	110 (10%)	58 (32%)	More	11
Open canopy low-medium shrub.	498 (43%)	66 (37%)	Less	12
Closed canopy low-medium shrub.	537 (47%)	55 (31%)	Less	11

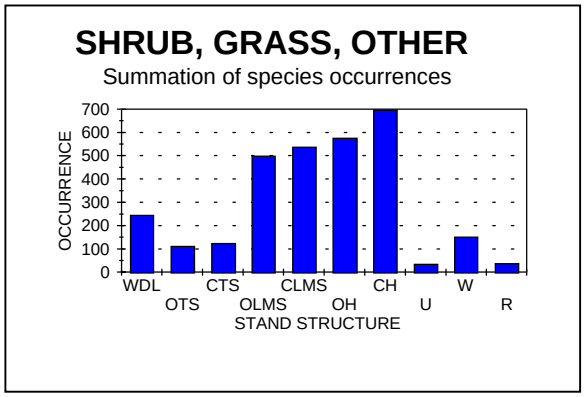
Note 1. More means there is a higher species use of a stand structure in chokecherry/serviceberry/rose than that stand structure in the summation of non-tree cover types. Less means there is a lower

species use of a stand structure in chokecherry/serviceberry/rose than that stand structure in the summation of non-tree cover types.

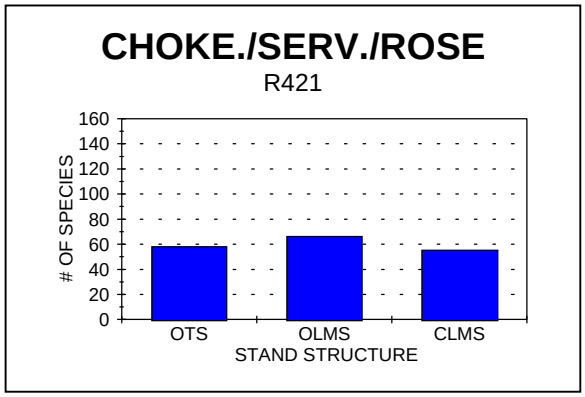
Note 2. Species of concern are highlighted in the **matrix**. Pages N-101-N-155.

Graph #30 shows how many times each species occurs in each stand structure (if a species occurs in more than one cover type then it is counted more than once). Graph #16 shows the number of animal species using each stand structure in the chokecherry/serviceberry/rose cover type.

Graph #30



Graph #16



- See CTS, OLMS, and CLMS for chokecherry/serviceberry/rose.

In the summation of non-tree cover types (graph #30) concerning open canopy tall shrub, there are 110 animal species occurrences. This means that all cover types that have the stand structure open canopy tall shrub have a summation of 110 occurrences. *Of those 110 occurrences, 58 (53%) are contributed by the chokecherry/serviceberry/rose cover type.*

In the summation of non-tree cover types (graph #30) concerning open canopy low medium shrub, there are 498 animal species occurrences. This means that all cover types that have the stand structure open canopy low medium shrub have a summation of 498 occurrences. *Of those 498 occurrences, 66 (13%) are contributed by the chokecherry/serviceberry/rose cover type.*

In the summation of non-tree cover types (graph #30) concerning closed canopy low medium shrub, there are 537 animal species occurrences. This means that all cover types that have the stand structure closed canopy low medium shrub have a summation of 537 occurrences. *Of those 537 occurrences, 55 (10%) are contributed by the chokecherry/serviceberry/rose cover type.*

DRY SHRUB

COVER TYPE: ANTELOPE BITTERBRUSH/BLUEBUNCH WHEATGRASS (Purshia tridentata/Agropyron spicatum). R104.

ANTELOPE BITTERBRUSH

Photo by Charles Webber (Calphotos).

LOCATION

Antelope bitterbrush is found east of the Cascades in Oregon, Washington and northern California and in the western parts of Montana, Wyoming, and Colorado. Habitats are plains, foothills, mountain slopes, mesas, and open woodlands. Preferred sites have well drained sand, gravel, or rocky soils. Colder sites tend to be desert shrublands, and warmer sites are commonly beneath ponderosa pine at the forest fringes.

DESCRIPTION

Antelope bitterbrush is an upright, stiff, evergreen, perennial that will grow up to 8 feet tall but is more commonly less than 5 feet tall. This species is abundantly branched with crowns tending to be round and compact due to heavy wildlife and livestock use. This shrub is very tolerant to drought, withstands heavy grazing, reproduces from seed, and will sprout from branches if they are in contact with the ground. Stems and branches are reddish-brown becoming grayish with age, have many spur shoots or branchlets, and have small scaly buds. Leaves alternate along branches, are 3/4 inch long, wedge shaped, have a 3 lobed apex, and are clustered on spur shoots. Margins are rolled under, tops are green to gray-green, and bottoms are white to gray. Flowers are pale yellow, 5 petaled, and are out from April to June. The flower has a stout, beak-like, persistent *style* and 20 to 25 exposed *stamens*. The fruit is a tear-shaped *achene* up to ½ inch long with a tapered beak. Antelope bitterbrush is sensitive to fire and will have regeneration problems unless soils are moist soon after fire episodes. Extensive information concerning antelope bitterbrush and its associated plant species as they occur in Wallowa County can be found in “Plant Association of the Wallowa-Snake Province” by Charles G. Johnson, Jr.

USES

Antelope bitterbrush provides good forage for cattle, sheep, and goats. The value of this feed is in the late fall and winter when the ground is covered with snow and grasses are not easily obtained. The Native Americans used antelope bitterbrush for firewood, and it is now used as an ornamental landscape shrub.

BLUEBUNCH WHEATGRASS

Photo by John Williams and Bruce Dunn

LOCATION

Bluebunch wheatgrass is found from Alaska to California and east to the Dakotas and New Mexico. This grass is widespread east of the Cascades and very abundant in the Blue and Wallowa Mountains. Bluebunch wheatgrass will occupy plains, mountain slopes, canyons, open woods, and stream banks, from hot dry slopes in grasslands to warm dry forest fringes. On shallow soil scablands, roots penetrate rock fissures to tap moisture at depth. Optimal growth is obtained on deep soils that are dry but moist soils are tolerated.

DESCRIPTION/USES

Bluebunch wheatgrass is a native, perennial, drought resistant grass that forms in bunches or tufts. At higher elevations with moist sites, *rhizomes* may form. Growth begins in April and will stay green well into summer. After late summer dormancy regrowth begins after fall rains. Reproduction is from seed, *tillers*, and *rhizomes*. Of all native grasses, bluebunch wheatgrass produces the most dry weight per acre. Leaves are flat, long, narrow, and have slightly rolled blades up to 16 inches long. Blades have a prominently veined upper surface, bluish appearance, and a reddish to purple base where it connects to the stem. Flowers are an upright spike that is 3 to 6 inches long and contain 6 to 8 individual spikelets. Each spikelet contains 6-8 individual florets that have tails called awns that are up to 3/4 inches long. Associated native grasses include sand dropseed, Kentucky bluegrass, Idaho fescue, and red top. Bluebunch wheatgrass has high palatability and nutritional values and is fed on extensively by cattle, horses, elk, and sheep. Extensive information concerning bluebunch wheatgrass and its associates can be found in “Plant Association of the Wallowa-Snake Province” by Charles G. Johnson, Jr.

ANTELOPE BITTERBRUSH/BLUEBUNCH WHEATGRASS

Bluebunch wheatgrass is the dominant species in this cover type in Wallowa County. Bluebunch wheatgrass and antelope bitterbrush are often found with several other species of shrubs, forbs, and grasses while species cover percentages vary from site to site. Common shrub associates are gray rabbitbrush, green rabbitbrush, and sagebrush species. Sandbergs bluegrass, prairie junegrass and cheatgrass are common grass associates, while arrowleaf balsamroot, western yarrow, lupine, milkvetch, and nine-leaf lomatium are common forb associates. Soils where this cover type occurs are basaltic,

sedimentary, or granitic, with shallow depths of 10-20 inches, and usually over fractured bedrock. The climate that produces the antelope bitterbrush/bluebunch wheatgrass cover type has 10-15 inches of annual precipitation, cold moist winters, and hot dry summers. Temperatures are too hot and sites are too dry to produce Idaho fescue; this cover type defines transition between low elevation sage/grass communities and high elevation fescue communities.

STAND STRUCTURE

In this document, stand structure for the cover type antelope bitterbrush/bluebunch wheatgrass has one classification: closed canopy low medium shrub. This stand structure is described in the stand structure key (page N-156).

ANIMAL SPECIES

The antelope bitterbrush/bluebunch wheatgrass cover type provides key habitat for several animal species. With its high palatability, antelope bitterbrush provides very important winter range browse for deer, antelope, and elk. Pica, squirrels, and chipmunks eat and cache bitterbrush seeds in great quantity. Bluebunch wheatgrass has high palatability and nutritional values in the fall and winter months. This grass is used extensively by cattle, horses, elk, and sheep as winter-feed. The full suite of animal species utilizing the antelope bitterbrush/bluebunch wheatgrass cover type, as it pertains to Wallowa County, can be found in the matrix (page N-134).

GRAPH ANALYSIS

Table #17

Stand Structure	Graph #30 Summation of species occurrences by stand structure for clms. (%)	Graph #17. Number of species by stand structure for antelope bitterbrush/blue bunch wheatgrass. (%)	Antelope bitterbrush/blue bunch wheatgrass use compared to summation of non-tree cover types. % comparison. (See note 1.)	Number of species of concern using antelope bitterbrush/ bluebunch wheatgrass by stand structure. (See note 2.)
Closed canopy low-medium shrub.	537 (100%)	92 (100%)	Similar	15

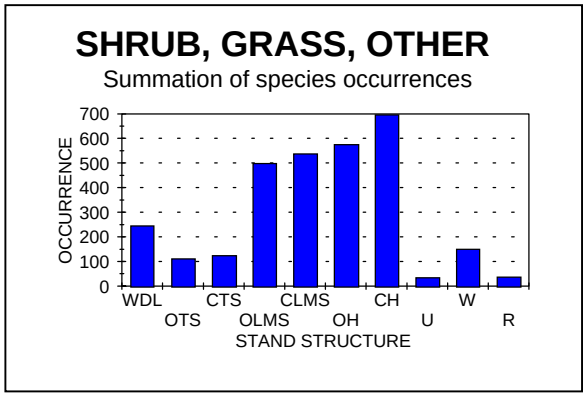
Note 1. Similar means there is close to the same species use of a stand structure in antelope bitterbrush/bluebunch wheatgrass when compared to the summation of non-tree cover types (Same %). Considered similar when percent differs by up to 5%.

Note 2. Species of concern are highlighted in the **matrix**. Pages N-101-N-155.

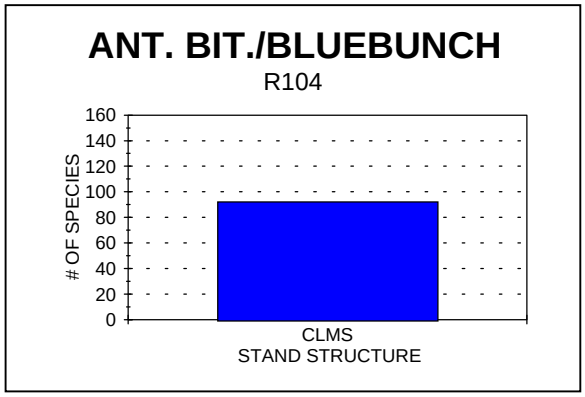
Graph #30 shows how many times each species occurs in each stand structure (if a species occurs in more than one cover type then it is counted more than

once). Graph #17 shows the number of animal species using each stand structure in the antelope bitterbrush/bluebunch wheatgrass cover type.

Graph #30



Graph #17



- See CLMS for mountain mahogany.

In the summation of non-tree cover types (graph #12) concerning closed canopy low medium shrub, there are 537 animal species occurrences. This means that all cover types that have the stand structure closed canopy low medium shrub have a summation of 537 occurrences. *Of those 537 occurrences, 92 (17%) are contributed by the antelope bitterbrush/bluebunch wheatgrass cover type*.

DRY GRASS

COVER TYPE: AGROPYON BUNCHGRASS (Agropyron spicatum): CS06

BLUEBUNCH WHEATGRASS

Photo by John Williams and Bruce Dunn

LOCATION

Bluebunch wheatgrass is found from Alaska to California and east to the Dakotas and New Mexico. This grass is widespread east of the Cascades and very abundant in the Blue and Wallowa Mountains. Bluebunch wheatgrass will occupy plains, mountain slopes, canyons, open woods, and stream banks; from hot dry slopes in grasslands to warm dry forest fringes. On shallow soil scablands roots penetrate rock fissures to tap moisture at depth. Optimal growth is obtained on deep soils that are dry but moist soils are tolerated.

DESCRIPTION/USES

Bluebunch wheatgrass is a native, perennial, drought resistant grass that forms in bunches or tufts. At higher elevations with moist sites, *rhizomes* may form.

Growth begins in April and will stay green well into summer. After late summer dormancy regrowth begins after fall rains. Reproduction is from seed, *tillers*, and *rhizomes*. Of all native grasses, bluebunch wheatgrass produces the most dry weight per acre. Leaves are flat, long, narrow, and have slightly rolled blades up to 16 inches long. Blades have a prominently veined upper surface, bluish appearance, and a reddish to purple base where it connects to the stem. Flowers are an upright spike that is 3 to 6 inches long and contain 6 to 8 individual spikelets. Each spikelet contains 6-8 individual florets that have tails called awns that are up to 3/4 inches long.

In the agropyon bunchgrass cover type, bluebunch wheatgrass is the dominant and most common grass. Sandbergs bluegrass and junegrass are consistent associates but accounts for a very small percentage of the cover types' annual production. No other perennial grass occurs commonly throughout this cover type but several grasses are found site specifically. Sand dropseed, red threeawn, and cheatgrass are examples of grasses found site specifically. While few forbs are common throughout the cover type, many are found in the cover type. Yarrow, milkvetch, balsamroot, fleabane, biscuitroot, lupine, and phlox are examples of perennial forbs found in this cover type. Common annual forbs are spring whitlow wort, Indian wheat, and shining chickweed. In this cover type, grasses account for up to 90% of the annual production while forbs can yield up to 20%. Forb production is lowest on dry sites. Agropyon bunchgrass occupies the driest bunchgrass sites in the Pacific Northwest where annual precipitation is from 8-20 inches. Bluebunch wheatgrass has high palatability and nutritional values and is fed on extensively by cattle, horses, elk, and sheep. Extensive information concerning bluebunch wheatgrass and its associates can be found in "Plant Association of the Wallowa-Snake Province" by Charles G. Johnson, Jr.

STAND STRUCTURE

In this document, stand structure for the cover type agropyon bunchgrass has two classifications: closed herb and open herb. They are defined in the stand structure key (page N-156).

ANIMAL SPECIES

The agropyon bunchgrass cover type provides key habitat for many animal species. Bluebunch wheatgrass retains high palatability and nutritional values in the fall and winter months after curing. This grass is used extensively by cattle, horses, elk, and sheep as winter-feed. Bearded wheatgrass provides good forage for sheep, elk, and cattle, and ground squirrels use the seeds. Forage values are excellent when green, poor in summer and good in the fall and winter. The full suite of animal species utilizing the agropyon bunchgrass cover type, as it pertains to Wallowa County, can be found in the matrix (page N-145).

GRAPH ANALYSIS

Table #18

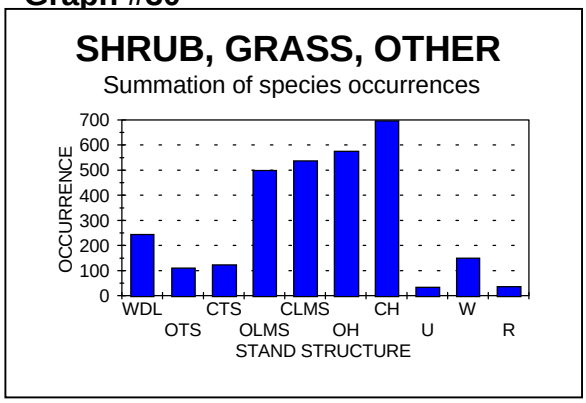
Stand Structure	Graph #30 Summation of species occurrences by stand structure for ch and oh. (%)	Graph #18. Number of species by stand structure for agropyon bunchgrass. (%)	Agropyon bunchgrass use compared to summation of non-tree cover types. % comparison. (See note 1.)	Number of species of concern using agropyon bunchgrass by stand structure. (See note 2.)
Closed herb	696 (55%)	108 (48%)	Less	12
Open herb	575 (45%)	117 (52%)	More	14

Note 1. More means there is a higher species use of a stand structure in agropyon bunchgrass than that stand structure in the summation of non-tree cover types. Less means there is a lower species use of a stand structure in agropyon bunchgrass than that stand structure in the summation of non-tree cover types.

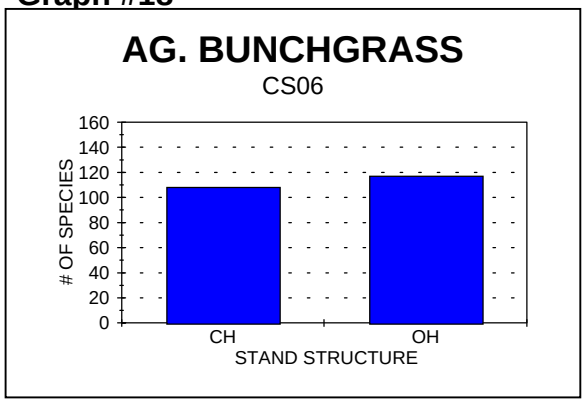
Note 2. Species of concern are highlighted in the **matrix**. Pages N-101-N-155.

Graph #30 shows how many times each species occurs in each stand structure (if a species occurs in more than one cover type then it is counted more than once). Graph #18 shows the number of animal species using each stand structure in the agropyon bunchgrass cover type.

Graph #30



Graph #18



- See CH and OH for agropyon bunchgrass.

In the summation of non-tree cover types (graph #30) concerning closed herb, there are 696 animal species occurrences. This means that all cover types that have the stand structure closed herb have a summation of 696 occurrences. *Of those 696 occurrences 10,8 (16%) are contributed by the agropyon bunchgrass cover type.*

In the summation of non-tree cover types (graph #30) concerning open herb, there are 575 animal species occurrences. This means that all cover types that

have the stand structure open herb have a summation of 575 occurrences. *Of these 575 occurrences, 117 (20%) are contributed by the agropyon bunchgrass cover type.*

COVER TYPE: FESCUE-BUNCHGRASS (Festuca idahoensis-Agropyron spicatum). CS13.

IDAHO FESCUE

Photo by John Williams and Bruce Dunn

LOCATION

Idaho fescue is a widespread grass found in the western United States and Canada from the Cascades to the Sierras and east to the Rocky Mountains. Site locations are warm, dry to warm, and moist grasslands where it is often associated with bluebunch wheatgrass and prairie junegrass. This species occupies the moist zones of the bunchgrass regions where annual precipitation is from 14-22 inches. Idaho fescue is found in foothill rangelands, open woods and rocky slopes where it grows on all exposures and in many soil types. This species is most abundant on well-drained loams that are neutral to slightly alkaline while elevation range is from 900 to 12,000 feet.

DESCRIPTION/USES

Idaho fescue is a native perennial that is the second most common and important grass, behind bluebunch wheatgrass, in the Blue and Wallowa Mountains. Growth starts in early spring with seeds maturing in the mid summer months. This species reproduces from seeds and *tillers* and will withstand some excessive grazing pressure. Stems are up to 2 1/2 feet tall, smooth, and have a bluish waxy coating. Leaves are fine, 2-5 inches long, green with a bluish cast, tightly inrolled, and occur at the base of the plant. Flowers (inflorescence) are a 3-6 inch long narrow *panicle* with upright ascending spikelets. Each spikelet contains 5-7 florets that have a stout, straight, short tail called an awn.

In the fescue-bunchgrass cover type, Idaho fescue is usually dominant and always present while bluebunch wheatgrass can be co-dominant and is usually present. Foliage cover is about 60% greater than in the agropyon bunchgrass cover type with several grasses, forbs, and annuals commonly associated. Grass to forb ratios vary greatly with forbs contributing up to 65% of total annual production. Grasses found in this cover type include Sandberg's bluegrass, prairie junegrass, slender wheatgrass, intermediate oatgrass, western needlegrass, mountain brome, and Wheeler's bluegrass, in addition to a variety of sedges. Forbs include yarrow balsamroot, bessaya, prairie smoke aven,

lupine, cinquefoil, phlox, salsify, wild hyacinth, Indian paintbrush, western hawkweed, and fringecup. Annuals found in this cover type are rattlesnake brome, Japanese brome, cheatgrass, spring whitlow wort, and shining chickweed. The palatability of Idaho fescue varies with season and location in Wallowa County. Elk, sheep, and cattle feed heavily on this grass during the spring and as palatability decreases in the summer, it is fed upon lightly. Extensive information concerning Idaho fescue and its associates can be found in “Plant Association of the Wallowa-Snake Province” by Charles G. Johnson, Jr.

BLUEBUNCH WHEATGRASS

Photo by John Williams and Bruce Dunn

LOCATION

Bluebunch wheatgrass is found from Alaska to California and east to the Dakotas and New Mexico. This grass is widespread east of the Cascades and very abundant in the Blue and Wallowa Mountains. Bluebunch wheatgrass will occupy plains, mountain slopes, canyons, open woods, and stream banks; from hot dry slopes in grasslands to warm dry forest fringes. On shallow soil scablands roots penetrate rock fissures to tap moisture at depth. Optimal growth is obtained on deep soils that are dry but moist soils are tolerated.

DESCRIPTION/USES

Bluebunch wheatgrass is a native, perennial, drought resistant grass that forms in bunches or tufts. At higher elevations on moist sites, *rhizomes* may form. Growth begins in April and will stay green well into summer. After late summer dormancy regrowth begins after fall rains. Reproduction is from seed, *tillers*, and *rhizomes*. Of all native grasses, bluebunch wheatgrass produces the most dry weight per acre. Leaves are flat, long, narrow, and have slightly rolled blades up to 16 inches long. Blades have a prominently veined upper surface, bluish appearance, and a reddish to purple base where it connects to the stem. Flowers are an upright spike that is 3 to 6 inches long and contain 6 to 8 individual spikelets. Each spikelet contains 6-8 individual florets that have tails called awns that are up to 3/4 inches long. Bluebunch wheatgrass has high palatability and nutritional values and is fed on extensively by cattle, horses, elk, and sheep. Extensive information concerning bluebunch wheatgrass and its associates can be found in “Plant Association of the Wallowa-Snake Province” by Charles G. Johnson, Jr.

STAND STRUCTURE

In this document, stand structure for the cover type fescue-bunchgrass has two classifications: closed herb and open herb. They are defined in the stand structure key (page N-156).

ANIMAL SPECIES

Idaho fescue is excellent forage for livestock and wildlife. This species is an important feed late in the growing season, as it remains green longer than other grasses. Although an important feed for grazing animals, Idaho fescue is often by-passed in favor of other rangeland feeds. Elk, cattle, and sheep feed heavily on Idaho fescue in the lowlands during the spring, and at higher elevations during the summer this grass is lightly used. Bluebunch wheatgrass provides key habitat for many animal species as well as retaining high palatability and nutritional values in the fall and winter months after curing. This grass is used extensively by cattle, horses, elk, and sheep as winter-feed. The full suite of animal species utilizing the fescue-bunchgrass cover type, as it pertains to Wallowa County, can be found in the matrix (page N-145).

GRAPH ANALYSIS

Table #19

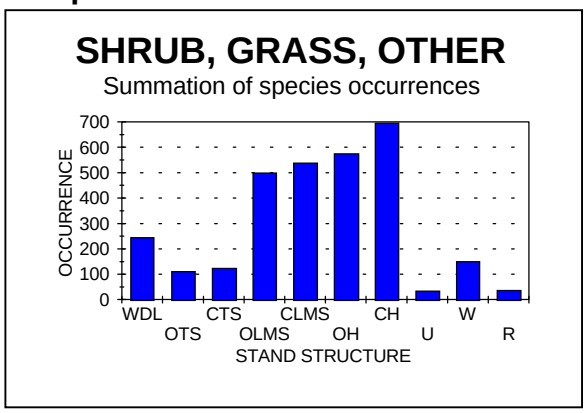
Stand Structure	Graph #30 Summation of species occurrences by stand structure for ch and oh. (%)	Graph #19. Number of species by stand structure for fescue bunchgrass. (%)	Fescue bunchgrass use compared to summation of non-tree cover types. % comparison. (See note 1.)	Number of species of concern using fescue bunchgrass by stand structure. (See note 2.)
Closed herb.	696 (55%)	107 (48%)	Less	16
Open herb.	575 (45%)	117 (52%)	More	16

Note 1. More means there is a higher species use of a stand structure in fescue-bunchgrass than that stand structure in the summation of non-tree cover types. Less means there is a lower species use of a stand structure in fescue-bunchgrass than that stand structure in the summation of non-tree cover types.

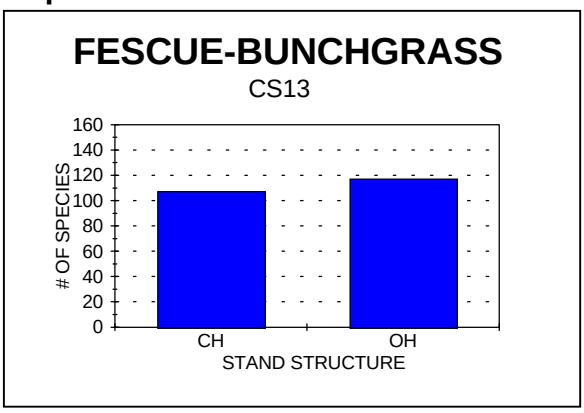
Note 2. Species of concern are highlighted in the **matrix**. Pages N-101-N-155.

Graph #30 shows how many times each species occurs in each stand structure (if a species occurs in more than one cover type then it is counted more than once). Graph #19 shows the number of animal species using each stand structure in the fescue-bunchgrass cover type.

Graph #30



Graph #19



- See CH and OH for fescue-bunchgrass (page N-156).

In the summation of non-tree cover types (graph #30) concerning closed herb, there are 696 animal species occurrences. This means that all cover types that have the stand structure closed herb have a summation of 696 occurrences. *Of those 696 occurrences, 107 (15%) are contributed by the fescue-bunchgrass cover type.*

In the summation of non-tree cover types (graph #30) concerning open herb, there are 575 animal species occurrences. This means that all cover types that have the stand structure open herb have a summation of 575 occurrences. *Of those 575 occurrences, 117 (20%) are contributed by the fescue-bunchgrass cover type.*

COVER TYPE: NATIVE FORB. CS07.

Photo by John Williams and Bruce Dunn

LOCATION/DESCRIPTION

Native forbs are herbaceous plants other than grasses and grass-like plants that occurred in North America prior to the settlement of European peoples. Native forbs are found in all areas and elevations of Wallowa County: forestlands, steppe, alpine, riparian, and wetlands. These plants are associated with many plant communities and can account for a large percentage of cover in a stand. In this document the native forb cover type has five sub-classifications: deschampsia/calamagrostis species, exotic moist herbs,

exotic riparian herbs, native forbs, and pioneer forbs. Common native forbs include strawberry, yarrow, lupine, and phlox. For further information concerning forbs consult the forb section of "Common Plants of the Inland Pacific Northwest" by Charles G. Johnson, Jr.

USES

Plants in the native forb cover type provide humans with many beneficial products. Several of these forbs have medicinal uses to relieve a variety of ailments. Native Americans used arnica flowers in a salve to help heal wounds or cuts. Avens tea can be ingested to improve digestion. Yarrow taken in tea form relieves fever while maintaining strength as it has stimulative properties, is used to suppress colds, and can prevent hair loss. Many forbs are used for esthetic reasons in our landscapes and as wildflower arrangements. Some forbs such as prickly pear can be eaten, and arrowleaf balsamroot can be put into salads.

STAND STRUCTURE

In this document, stand structure for the cover type native forb has two classifications: closed herb and open herb. They are defined in the stand structure key (page N-156).

ANIMAL SPECIES

The native forb cover type provides habitat for many animal species. This cover type provides forage for livestock and wildlife, seeds for birds, and food for rodents. Grouse and rodents eat fruits found on many forbs. While some forbs are poisonous, most are not, and almost all forbs are used by animals in some form or another. The full suite of animal species utilizing the native forb cover type, as it pertains to Wallowa County, can be found in the matrix (page N-145).

GRAPH ANALYSIS

Table #20

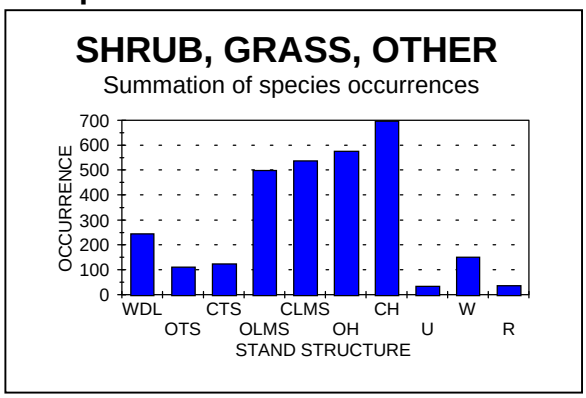
Stand Structure	Graph #30 Summation of species occurrences by stand structure for ch and oh. (%)	Graph #20. Number of species by stand structure for native forb. (%)	Native forb use compared to summation of non-tree cover types. % comparison. (See note 1.)	Number of species of concern using native forb by stand structure. (See note 2.)
Closed herb.	696 (55%)	121 (49%)	Less	15
Open herb.	575 (45%)	127 (51%)	More	13

Note 1. More means there is a higher species use of a stand structure in native forb than that stand structure in the summation of non-tree cover types. Less means there is a lower species use of a stand structure in native forb than that stand structure in the summation of non-tree cover types.

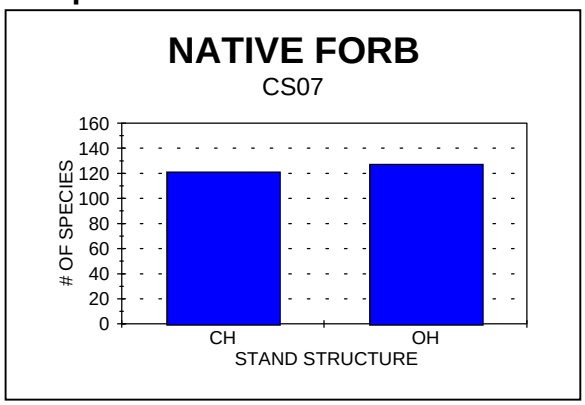
Note 2. Species of concern are highlighted in the **matrix**. Pages N-101-N-155.

Graph #30 shows how many times each species occurs in each stand structure (if a species occurs in more than one cover type then it is counted more than once). Graph #20 shows the number of animal species using each stand structure in the native forb cover type.

Graph #30



Graph #20



- See CH and OH for native forb.

In the summation of non-tree cover types (graph #30) concerning closed herb, there are 696 animal species occurrences. This means that all cover types that have the stand structure closed herb have a summation of 696 occurrences. *Of those 696 occurrences, 121 (17%) are contributed by the native forb cover type.*

In the summation of non-tree cover types (graph #30) concerning open herb, there are 575 animal species occurrences. This means that all cover types that have the stand structure open herb have a summation of 575 occurrences. *Of those 575 occurrences, 127 (22%) are contributed by the native forb cover type.*

COVER TYPE: EXOTIC FORBS/ANNUAL GRASS. CS08.

Photo by John Williams and Bruce Dunn

DESCRIPTION/USES

The exotic forb/annual grass cover type consists of forbs and annual grasses that are not indigenous to Wallowa County. Exotic forbs are herbaceous plants other than grasses or grass-like plants that have been introduced from another area. Annual grasses are grasses that complete their life cycle in one growing season. A few exotic forbs are prickly lettuce, goatweed, and yellow salsify, while soft chess, Japanese brome, and cheatgrass are examples of annual grasses. Many of these exotic plants are considered noxious and therefore undesirable, while others are invaders that will follow a

successional sequence and be replaced by more desirable plants. Several of the plants in this cover type have human uses. Yellow salsify juice was used by the Native Americans to help cure indigestion, and prickly lettuce greens can be cooked or put into salads. This cover type is divided into five sub-classifications; exotic forb, exotic grass, exotic herbaceous, exotic herbs, and exotic perennial grass. For further information concerning exotic forbs and annual grasses consult the forb and grass sections of "Common Plants of the Inland Pacific Northwest" by Charles G. Johnson, Jr.

LOCATION

The plants of this cover type exist in a variety of locations. They are found in canyons, ridgetops, forest communities, and rangelands. Many of the species in this group tend to grow in disturbed areas. Many of the plants in this cover type have naturalized themselves to the western landscape and co-exist with native plants yet others tend to crowd out native plants and take over an area. This cover type contains several desirable and undesirable plants.

STAND STRUCTURE

In this document, stand structure for the cover type exotic forbs/annual grass has two classifications: closed herb and open herb. They are defined in the stand structure key (page N-156).

ANIMAL SPECIES

The exotic forbs/annual grass cover type provides habitat for many animal species. This cover type provides forage for livestock and wildlife, seeds for birds, and food for rodents. Grouse and rodents eat fruits found on many forbs. While some forbs are poisonous, most are not, and almost all forbs are used by animals in some form or another. The full suite of animal species utilizing the exotic forb/annual grass cover type, as it pertains to Wallowa County, can be found in the matrix (page N-145).

GRAPH ANALYSIS

Table #21

Stand Structure	Graph #30 Summation of species occurrences by stand structure for ch and oh. (%)	Graph #21. Number of species by stand structure for exotic forbs/annual grass. (%)	Exotic forbs/annual grass use compared to summation of non-tree cover types. % comparison. (See note 1.)	Number of species of concern using exotic forbs/annual grass by stand structure. (See note 2.)
Closed herb.	696 (55%)	103 (49%)	Less	9
Open herb.	575 (45%)	106 (51%)	More	8

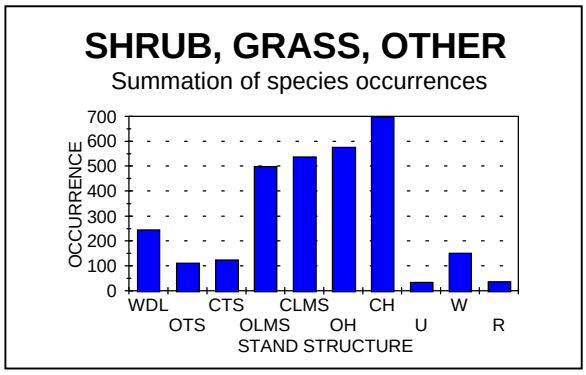
Note 1. More means there is a higher species use of a stand structure in exotic forb/annual grass than that stand structure in the summation of non-tree cover types. Less means there is a lower species use of a stand

structure in exotic forb/annual grass than that stand structure in the summation of non-tree cover types.

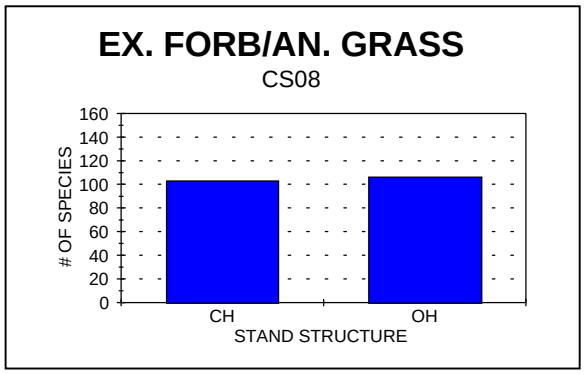
Note 2. Species of concern are highlighted in the **matrix**. Pages N-101-N-155.

Graph #30 shows how many times each species occurs in each stand structure (if a species occurs in more than one cover type then it is counted more than once). Graph #21shows the number of animal species using each stand structure in the exotic forb/annual grass cover type.

Graph #30



Graph #21



- See CH and OH for exotic forb/annual grass (page N-156).

In the summation of non-tree cover types (graph #30) concerning closed herb, there are 696 animal species occurrences. This means that all cover types that have the stand structure closed herb have a summation of 696 occurrences. *Of those 696 occurrences, 103 (15%) are contributed by the exotic forbs/annual grass cover type.*

In the summation of non-tree cover types (graph #30) concerning open herb, there are 575 animal species occurrences. This means that all cover types that have the stand structure open herb have a summation of 575 occurrences. *Of those 575 occurrences 10,6 (18%) are contributed by the exotic forbs/annual grass cover type.*

COVER TYPE: CROP/HAY/PASTURE. CS12.

Photo by John Williams and Bruce Dunn

LOCATION

In Wallowa County on private lands, agriculture and grazing lands are extensive. Irrigated crops are grown in the moist areas, and dryland crops are cultivated on they dry upland sites. Crops and hay are grown below the forest communities on the mountain slopes, in the river valleys, on the rolling hills, and out into the dry regions of the County. Summer livestock grazing is extensive including upland timber sites, fenced pasture throughout the valleys, dry rangeland, and in the canyons. In the winter, livestock are kept in feedlots in the warmer canyons, moved to the valleys and fed hay, or in some cases moved out of the county to warmer climates. Wilderness areas on the national forests are not exempt from grazing pressures, as recreational grazing can be quite extensive during the summer and fall months.

DESCRIPTION

The crop/hay/pasture cover type includes all agricultural grounds both irrigated and non-irrigated where crops and hay are grown, where livestock graze, and areas set aside in *CRP*. Examples of crop species include wheat, barley, oats, canola, rape, and winter peas. Most hay grounds consist of alfalfa, smooth brome, orchard grass, timothy, and clover. Pasture grasses are generally made up of Kentucky bluegrass, orchard grass, smooth brome, and clover. In Wallowa County, there are 27,700 crop acres, 40,700 hay acres, and 12,600 acres currently in *CRP*. There are 81,000 total acres harvested and *CRP* acres in Wallowa County. Extensive information concerning crop, hay, and pasture vegetative types can be obtained at the OSU Extension Service or the NRCS (Natural Resources Conservation Service).

STAND STRUCTURE

In this document, stand structure for the cover type crop/hay/pasture has one classification: closed herb. Closed herb is defined in the stand structure key (page N-156).

ANIMAL SPECIES

The crop/hay/pasture cover type provides important habitat for many animal species. Deer, elk, rodents, and birds use this area as an important food source. Large game animals feed on crops and hay grounds, predators feed on rodents,

and migrating/resident geese feed on the grain crops. Irrigation ditch banks provide habitat for muskrats and weasels, and fence lines give game birds valuable cover. The full suite of animal species utilizing the cropland/hay/pasture cover type, as it pertains to Wallowa County, can be found in the matrix (page N-145).

GRAPH ANALYSIS

Table #22

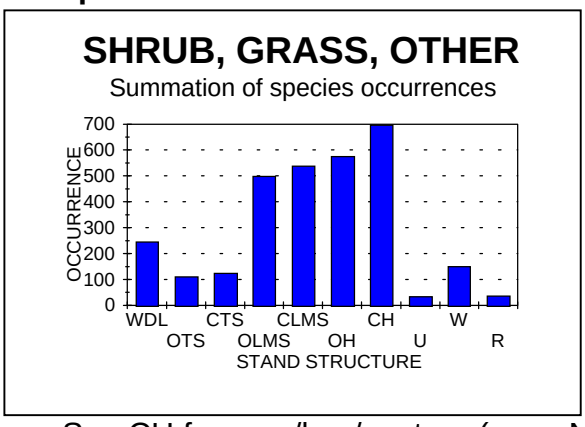
Stand Structure	Graph #30 Summation of species occurrences in all cover types for the stand structure ch. (%)	Graph #22. Number of species by stand structure for crop/hay/ pasture. (%)	Crop/hay/ pasture use compared to summation of non-tree cover types. % comparison. (See note 1.)	Number of species of concern using crop/hay/pasture by stand structure. (See note 2.)
Closed herb.	696 (100%)	108 (100%)	Similar	9

Note 1. Similar means there is close to the same species use of a stand structure in crop/hay/pasture when compared to the summation of non-tree cover types (Same %). Considered similar when percent differs by up to 5%.

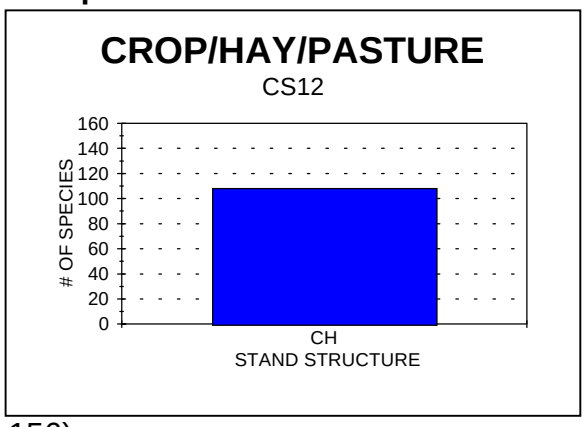
Note 2. Species of concern are highlighted in the **matrix**. Pages N-101-N-155.

Graph #30 shows how many times each species occurs in each stand structure (if a species occurs in more than one cover type then it is counted more than once). Graph #22 shows the number of animal species using each stand structure in the crop/hay/pasture cover type.

Graph #30



Graph #22



- See CH for crop/hay/pasture (page N-156).

In the summation of non-tree cover types (graph #30) concerning closed herb, there are 696 animal species occurrences. This means that all cover types that have the stand structure closed herb have a summation of 696 occurrences. *Of those 696 occurrences, 108 (16%) are contributed by the crop/hay/pasture cover type.*

OTHER

COVER TYPE: ALPINE TUNDRA. C005.

Photo by Coby Menton

DESCRIPTION

"Tundra is a word that describes an area, a kind of vegetation, and a specific ecosystem. The land beyond tree limit, whether it be marshy grasslands or with permanently frozen soils, or high alpine reaches" (Mason, 1975). It is the zone between upper tree limits and perpetual snow line of high mountains. Alpine is a word, relating to the biogeographic zone including the elevated slopes above timberline. The northern hemisphere contains 9 million square miles of tundra and 40% is classified as alpine. In Wallowa County, alpine tundra pertains to the areas above timberline supporting a specific ecosystem including plants, animals and soils, and is dictated by severe weather conditions. Strong winds, large lingering snowpacks, and extreme cold conditions characterize climate in the alpine tundra. Tundra vegetation is more uniform in aspect and composition throughout its extent than any other vegetation type. Tundra in Wallowa County closely resembles tundra found in other parts of the world. Surface features found in tundra include frost heaving, *patterned ground*, and *needle ice,* all of which are the result of severe weather conditions.

Timberline in Wallowa County varies in elevation from 7,100-9,000 feet and averages at 8,000 feet. If trees do occur above this line, they form small groups that are dwarfed, twisted, and one-sided due to wind, avalanches, and deep snow. Trees above timberline are few in number and are whitebark pine or alpine fir. Tundra vegetation consists of low growing plant communities that are adapted to extreme cold mountain conditions. Plants with short stems, a sprawling nature, and hairy stems and foliage characterize high elevation plant communities. Communities tend to be sparse, and individuals take advantage of depressions, cracks, and crevices for shelter. In Wallowa County, the pink mountain heather is a plant that characterizes the alpine tundra while many grasses, sedges, forbs, and shrubs can be found in this region. Extensive information concerning plants found in the alpine tundra cover type can be found in "Guide to the Plants of the Wallowa Mountains of Northeastern Oregon" by Georgia Mason.

STAND STRUCTURE

In this document, stand structure for the cover type alpine tundra has two classifications: open canopy low-medium shrub and closed canopy low-medium shrub. They are defined in the stand structure key (page N-156).

ANIMAL SPECIES

Several large mammals are found in the alpine tundra regions: elk, deer, mountain goats, bighorn sheep, coyote, and mountain lions. Rodents found include marmots, pica, pocket gophers, voles, mice, and shrews. The horned lark, cliff swallow, and mountain bluebird are examples of birds found in the tundra. Many of these animals are seasonal residents, living on the tundra during the summer months then moving to more tolerable climates during the winter. Many of the rodents are adapted to live in this area year round by hibernating or storing food for the winter months. The pocket gopher stays active year round as it lives under ground most of its life and feeds on the root systems of tundra plants. The full suite of animal species utilizing the alpine tundra cover type, as it pertains to Wallowa County, can be found in the matrix (page N-145).

GRAPH ANALYSIS

Table #23

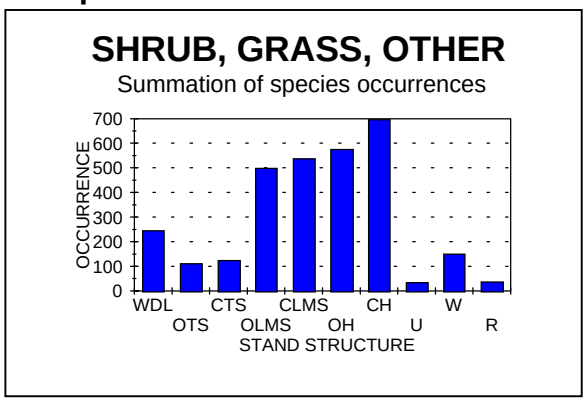
Stand Structure	Graph #30 Summation of species occurrences by stand structure for olms and clms. (%)	Graph #23. Number of species by stand structure for alpine tundra. (%)	Alpine tundra use compared to summation of non-tree cover types. % comparison. (See note 1.)	Number of species of concern using alpine tundra by stand structure. (See note 2.)
Open canopy low-medium shrub.	498 (48%)	34 (51%)	Similar	7
Closed canopy low-medium shrub.	537 (52%)	33 (49%)	Similar	7

Note 1. Similar means there is close to the same species use of a stand structure in alpine tundra when compared to the summation of non-tree cover types (Same %). Considered similar when percent differs by up to 5%.

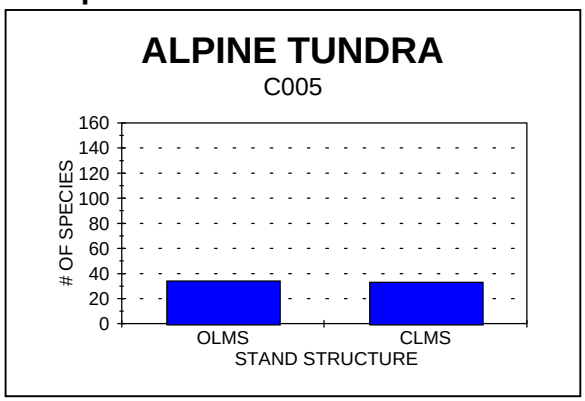
Note 2. Species of concern are highlighted in the **matrix**. Pages N-101-N-155.

Graph #30 shows how many times each species occurs in each stand structure (if a species occurs in more than one cover type then it is counted more than once). Graph #23 shows the number of animal species using each stand structure in the alpine tundra cover type.

Graph #30



Graph #23



- See OLMS and CLMS for alpine tundra (page N-156).

In the summation of non-tree cover types (graph #30) concerning open canopy low-medium shrub, there are 498 animal species occurrences. This means that all cover types that have the stand structure open canopy low-medium shrub have a summation of 498 occurrences. *Of those 498 occurrences, 34 (7%) are contributed by the alpine tundra cover type.*
In the summation of non-tree cover types (graph #30) concerning closed canopy low-medium shrub, there are 537 animal species occurrences. This means that all cover types that have the stand structure closed canopy low-medium shrub have a summation of 537 occurrences. *Of those 537 occurrences, 33 (6%) are contributed by the alpine tundra cover type.*

COVER TYPE: SHRUB WETLANDS. CS05.

Photo by Mike Straw.

DESCRIPTION

Wetlands are a very important component in the overall health of a landscape. They provide extensive habitat for a large number of animal and plant species. Wetlands account for a small part of the total landmass but have proportionately high productivity for plants and animals. Alders, willows, sedges, and grasses are all characteristic plants found in wetland communities. A wetland is defined as an “Area that is between terrestrial and aquatic systems and is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (Federal Interagency Committee for Wetland Delineation 1989). Wetland vegetation is defined as a “term used to describe vegetation within or adjacent to, and hydrologically influenced by, streams, rivers, lakes, meadows, and seeps” (USFWS, Cowardin and others 1979). Extensive information concerning shrub

wetlands can be found in “Mid-Montane Wetland Plant Associations of the Malheur, Umatilla, and Wallowa-Whitman National Forests” by Elizabeth A. Crow.

USES

The shrub wetland cover type has many human uses agriculturally, ecologically, esthetically, and monetarily. Wetlands provide and store water and act as filters. Under certain conditions water that passes through a wetland filter strip can leave cleaner than when it entered and can therefore benefit instream water quality. Wetlands can be very attractive features in the landscape with their lush vegetative growth and abundance of bird species. These features aid in flood controls, which keep our cities and transportation networks intact, while at the same time providing excellent habitat for game birds and animals.

STAND STRUCTURE

In this document, stand structure for the cover type shrub wetlands has three classifications: closed canopy tall shrub, open canopy low-medium shrub, and closed canopy low-medium shrub. They are defined in the stand structure key (page N-156).

ANIMAL SPECIES

The shrub wetland cover type is one of the most heavily used by animal species in Wallowa County. Amphibians, birds, mammals, and reptiles are all found in abundance in this habitat. The vegetative characteristics of this cover type provide hiding cover, nesting habitat, and feed for a variety of animals. The presence of water allows the residence of many water-dependent animals while providing a water source for many non-resident species. The presence of water also provides an abundance of insects for many birds, bats, and insect-eating animals to feed on. Predators such as hawks, eagles, and coyotes prosper in this habitat due to the large number of prey animals. The full suite of animal species utilizing the shrub wetlands cover type, as it pertains to Wallowa County, can be found in the matrix (page N-145).

GRAPH ANALYSIS

Table #24

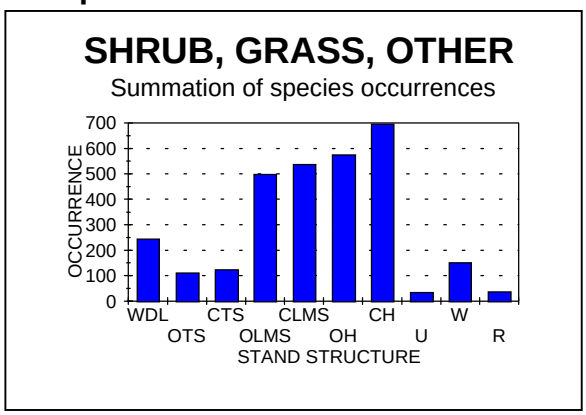
Stand Structure	Graph #30 Summation of species occurrences by stand structure for cts, olms and clms. (%)	Graph #24. Number of species by stand structure for shrub wetlands. (%)	Shrub wetlands use compared to summation of non-tree cover types. % comparison. (See note 1.)	Number of species of concern using shrub wetlands by stand structure. (See note 2.)
Closed canopy tall shrub.	123 (11%)	123 (31%)	More	10
Open canopy low-medium shrub.	498 (43%)	141 (36%)	Less	12
Closed canopy low-medium shrub.	537 (46%)	133 (34%)	Less	12

Note 1. More means there is a higher species use of a stand structure in shrub wetland than that stand structure in the summation of non-tree cover types. Less means there is a lower species use of a stand structure in shrub wetland than that stand structure in the summation of non-tree cover types.

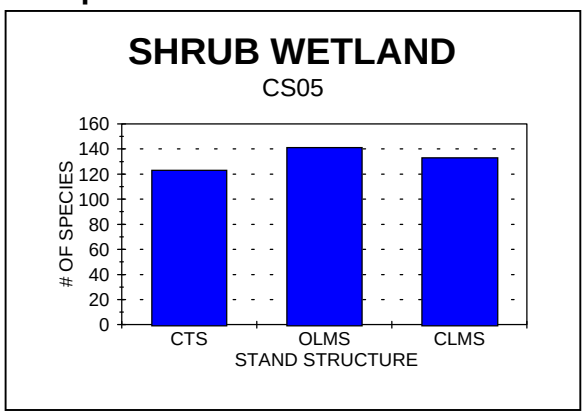
Note 2. Species of concern are highlighted in the **matrix**. Pages N-101-N-155.

Graph #30 shows how many times each species occurs in each stand structure (if a species occurs in more than one cover type then it is counted more than once). Graph #24 shows the number of animal species using each stand structure in the shrub wetlands cover type.

Graph #30



Graph #24



- See CTS, OLMS and CLMS for shrub wetland (page N-156).

In the summation of non-tree cover types (graph #30) concerning closed canopy tall shrub, there are 123 animal species occurrences. This means that all cover types that have the stand structure closed canopy tall shrub have a summation of 123 occurrences. *Of those 123 occurrences, 123 (100%) are contributed by the shrub wetlands cover type.*

In the summation of non-tree cover types (graph #30) concerning open canopy low-medium shrub, there are 498 animal species occurrences. This means that all cover types that have the stand structure open canopy low-medium shrub have a summation of 498 occurrences. *Of those 498 occurrences, 141 (28%) are contributed by the shrub wetlands cover type.*

In the summation of non-tree cover types (graph #30) concerning closed canopy low-medium shrub, there are 537 animal species occurrences. This means that all cover types that have the stand structure closed canopy low-medium shrub have a summation of 537 occurrences. *Of those 537 occurrences, 133 (25%) are contributed by the shrub wetlands cover type.*

COVER TYPE: HERBACEOUS WETLANDS. C007.

Photo by Mike Straw.

DESCRIPTION

Wetlands are a very important component in the overall health of a landscape. They provide extensive habitat for a large number of animal and plant species. Wetlands account for a small part of the total landmass but have proportionately high productivity for plants and animals. Cattails, sedges, and grasses are all characteristic plants found in herbaceous wetland communities. A wetland is defined as an "Area that is between terrestrial and aquatic systems and is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (Federal Interagency Committee for Wetland Delineation 1989). Wetland vegetation is defined as a "term used to describe vegetation within or adjacent to, and hydrologically influenced by, streams, rivers, lakes, meadows, and seeps" (USFWS, Cowardin and others 1979). Extensive information concerning herbaceous wetlands can be found in "Mid-Montane Wetland Plant Associations of the Malheur, Umatilla, and Wallowa-Whitman National Forests" by Elizabeth A. Crow.

USES

The herbaceous wetland cover type has many human uses agriculturally, ecologically, esthetically, and monetarily. Wetlands provide and store water and act as filters. Under certain conditions water that passes through a wetland filter strip can leave cleaner than it entered and can therefore benefit instream water quality. Wetlands can be very attractive features in the landscape with their lush vegetative growth and abundance of bird species. These features aid in flood controls, which keep our cities and transportation networks intact while at the same time providing excellent habitat for game birds and animals.

STAND STRUCTURE

In this document, stand structure for the cover type herbaceous wetlands has two classifications: closed herb and open herb. They are defined in the stand structure key (page N-156).

ANIMAL SPECIES

The herbaceous wetland cover type is one of the most heavily used by animal species in Wallowa County. Amphibians, birds, mammals, and reptiles are all found in abundance in this habitat. The vegetative characteristics of this cover type provide hiding cover, nesting habitat, and feed for a variety of animals. The presence of water allows the residence of many water-dependent animals and provides a water source for many non-resident species. The presence of water also provides an abundance of insects for many birds and insect-eating animals. Predators such as hawks, eagles, and coyotes can prosper in this habitat due to the large number of prey animals. The full suite of animal species utilizing the herbaceous wetlands cover type, as it pertains to Wallowa County, can be found in the matrix (page N-145).

GRAPH ANALYSIS

Table 25

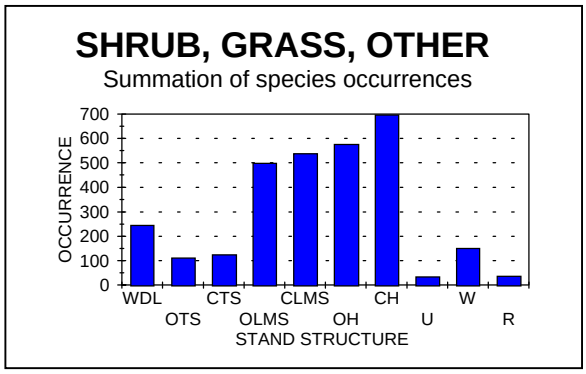
Stand Structure	Graph #30 Summation of species occurrences by stand structure for ch and oh. (%)	Graph #25. Number of species by stand structure for herbaceous wetlands. (%)	Herbaceous wetlands use compared to summation of non-tree cover types. % comparison. (See note 1.)	Number of species of concern using herbaceous wetlands by stand structure. (See note 2.)
Closed herb.	696 (55%)	99 (48%)	Less	7
Open herb.	575 (45%)	108 (52%)	More	9

Note 1. More means there is a higher species use of a stand structure in herbaceous wetland than that stand structure in the summation of non-tree cover types. Less means there is a lower species use of a stand structure in herbaceous wetland than that stand structure in the summation of non-tree cover types.

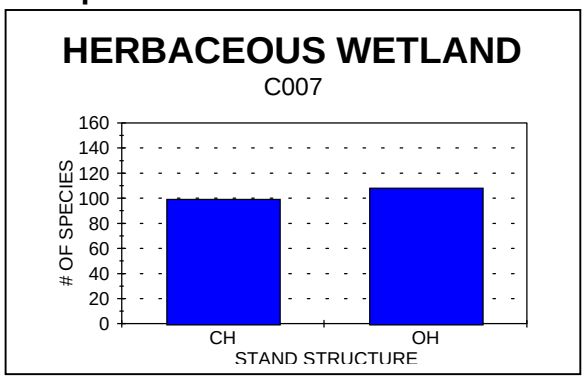
Note 2. Species of concern are highlighted in the **matrix**. Pages N-101-N-155.

Graph #30 shows how many times each species occurs in each stand structure (if a species occurs in more than one cover type then it is counted more than once). Graph #25 shows the number of animal species using each stand structure in the herbaceous wetlands cover type.

Graph #30



Graph #25



- See CH and OH for herbaceous wetlands.

In the summation of non-tree cover types (graph #30) concerning closed herb, there are 696 animal species occurrences. This means that all cover types that have the stand structure closed herb have a summation of 696 occurrences. *Of those 696 occurrences, 99 (14%) are contributed by herbaceous wetlands cover type.*

In the summation of non-tree cover types (graph #30) concerning open herb, there are 575 animal species occurrences. This means that all cover types that have the stand structure open herb have a summation of 575 occurrences. *Of those 575 occurrences, 108 (19%) are contributed by the herbaceous wetlands cover type.*

COVER TYPES: BARREN: C006, URBAN: CS19, and WATER: CS20.

DESCRIPTION

BARREN: Rock or barrenlands. Lands without vegetation including gravel pits, quarries, rock outcrops or talus slopes. The lack of vegetation in this cover type results in no stand structure classification; the cover type is therefore the structure.

URBAN: Urbanland. Lands including cities and towns. Lands dominated by buildings, transportation networks, and neighborhoods.

WATER: Aquatic communities including lakes, ponds, rivers, and creeks. Aquatic environments have several classifications to determine quality and health of the environment. These classifications are extensively described by drainage and reach in the original Wallowa County Salmon Plan.

ANIMAL SPECIES

BARREN

Photo By John Williams

The barren cover type provides habitat for 36 animal species in Wallowa County. The number of animals found in this cover type is few but the lifeforms are diverse. Amphibians, reptiles, birds, and mammals all use this habitat. Food for predators, dens for rodents, nesting habitat for birds, and cover for reptiles and amphibians are provided in this cover type. In the summation of non-tree cover types (graph #30), the barren cover type contributes all animal species (100%) represented in this graph. The full suite of animal species found in the barren cover type, as it pertains to Wallowa County, can be found in the matrix (page N-145).

GRAPH ANALYSIS

Table #26

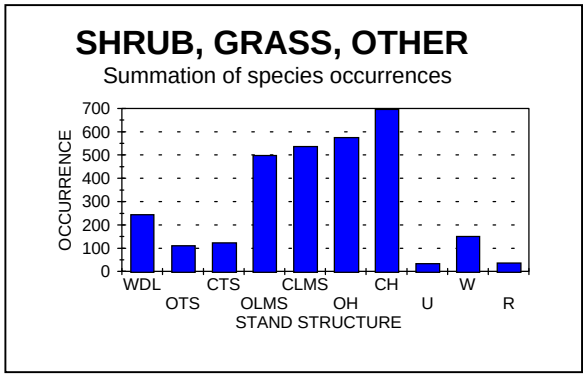
Stand Structure	Graph #30 Summation of species occurrences for R by stand structure. (%)	Graph #26. Number of species by stand structure for barren. (%)	Barren use compared to summation of non-tree cover types. % comparison. (See note 1.)	Number of species of concern using barren by stand structure. (See note 2.)
Rock/barren.	36 (100%)	36 (100%)	Similar	11

Note 1. Similar means there is close to the same species use of a stand structure in barren when compared to the summation of non-tree cover types (Same %). Considered similar when percent differs by up to 5%.

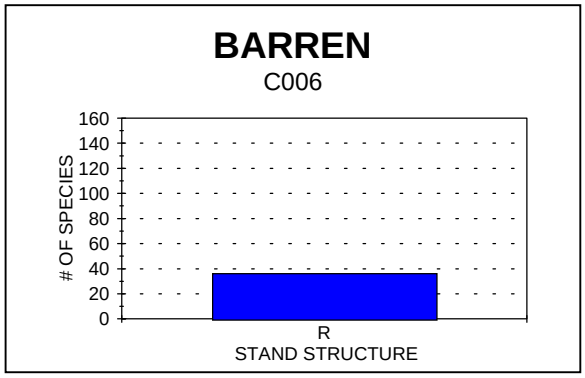
Note 2. Species of concern are highlighted in the **matrix**. Pages N-101-N-155.

Graph #30 shows how many times each species occurs in each stand structure (if a species occurs in more than one cover type then it is counted more than once). Graph #26 shows the number of animal species using each stand structure in the barren cover type.

Graph #30



Graph #26



- See R for barren (page N-156).

URBAN

Photo by John Williams.

The urban cover type provides habitat for 33 animal species in Wallowa County. This habitat is not extensively used when compared to the other habitats found in Wallowa County. The animals found in urban areas are those that have adapted to or found benefits from human development. Birds, mammals, reptiles, and amphibians can be found in areas of urban development. In the summation of non-tree cover types (graph #30), the urban cover type contributes all animal species (100%) represented in this graph. The full suite of animal species found in the urban cover type, as it pertains to Wallowa County, can be found in the matrix (page N-145).

GRAPH ANALYSIS

Table #27

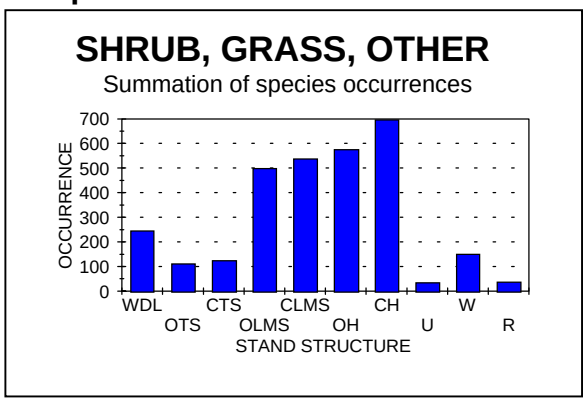
Stand Structure	Graph #30 Summation of species occurrences for U by stand structure. (%)	Graph #27. Number of species by stand structure for urban. (%)	Urban use compared to summation of non-tree cover types. % comparison. (See note 1.)	Number of species of concern using urban by stand structure. (See note 2.)
Urban.	33 (100%)	33 (100%)	Similar	7

Note 1. Similar means there is close to the same species use of a stand structure in urban when compared to the summation of non-tree cover types (Same %). Considered similar when percent differs by up to 5%.

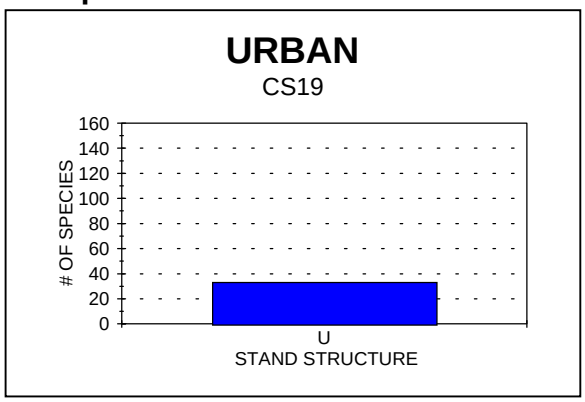
Note 2. Species of concern are highlighted in the **matrix**. Pages N-101-N-155.

Graph #30 shows how many times each species occurs in each stand structure (if a species occurs in more than one cover type then it is counted more than once). Graph #27 shows the number of animal species using each stand structure in the urban cover type.

Graph #30



Graph #27



- See U for urban (page N-156).

WATER

Photo by John Williams.

The water cover type is the most diverse in vertebrate animal species occurrences and lifeform diversity in Wallowa County. Fish, amphibians, mammals, birds, and reptiles are all found in this habitat. Fish are the dominant lifeform and the heaviest users in this cover type. Of the 368 vertebrate species found in Wallowa County, 150 use this habitat at some time in their life cycle. In the summation of non-tree cover types (graph #30), the water cover type contributes all animal species (100%) represented in this graph. The full suite of animal species found in the water cover type, as it pertains to Wallowa County, can be found in the matrix.

GRAPH ANALYSIS

Table #28

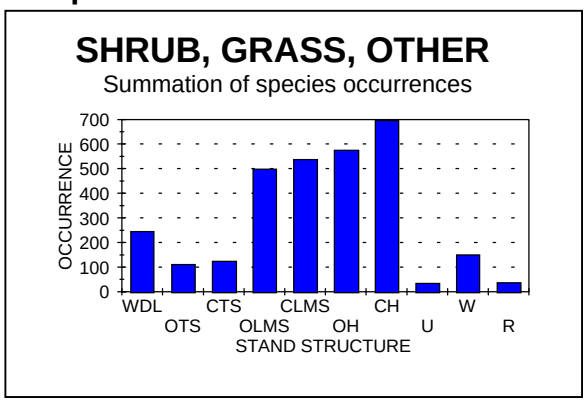
Stand Structure	Graph #30 Summation of species occurrences for W by stand structure. (%)	Graph #28. Number of species by stand structure for water. (%)	Water use compared to summation of non-tree cover types. % comparison. (See note 1.)	Number of species of concern using water by stand structure. (See note 2.)
Water.	150 (100%)	150 (100%)	Similar	17

Note 1. Similar means there is close to the same species use of a stand structure in water when compared to the summation of non-tree cover types (Same %). Considered similar when percent differs by up to 5%.

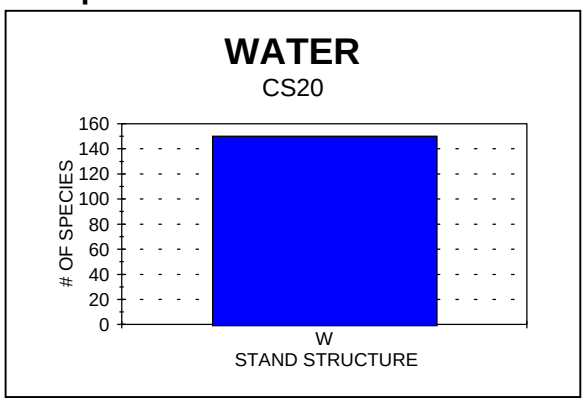
Note 2. Species of concern are highlighted in the **matrix**. Pages N-101-N-155.

Graph #30 shows how many times each species occurs in each stand structure (if a species occurs in more than one cover type then it is counted more than once). Graph #28 shows the number of animal species using each stand structure in the water cover type.

Graph #30



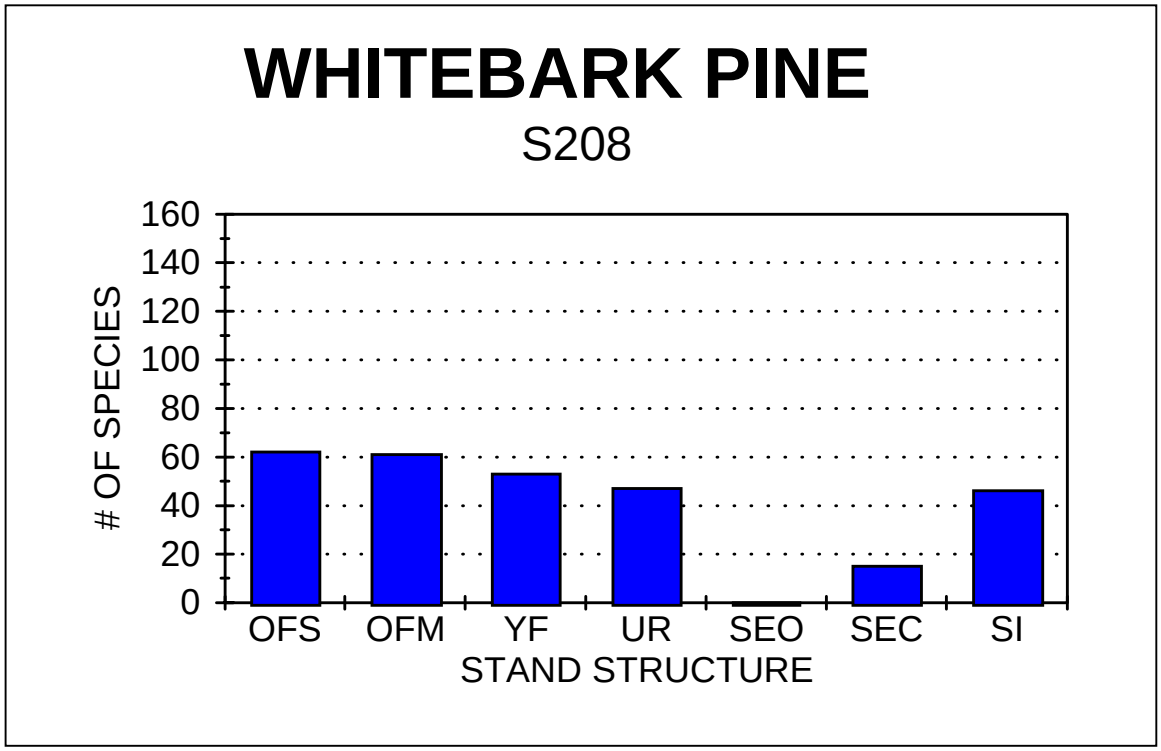
Graph #28



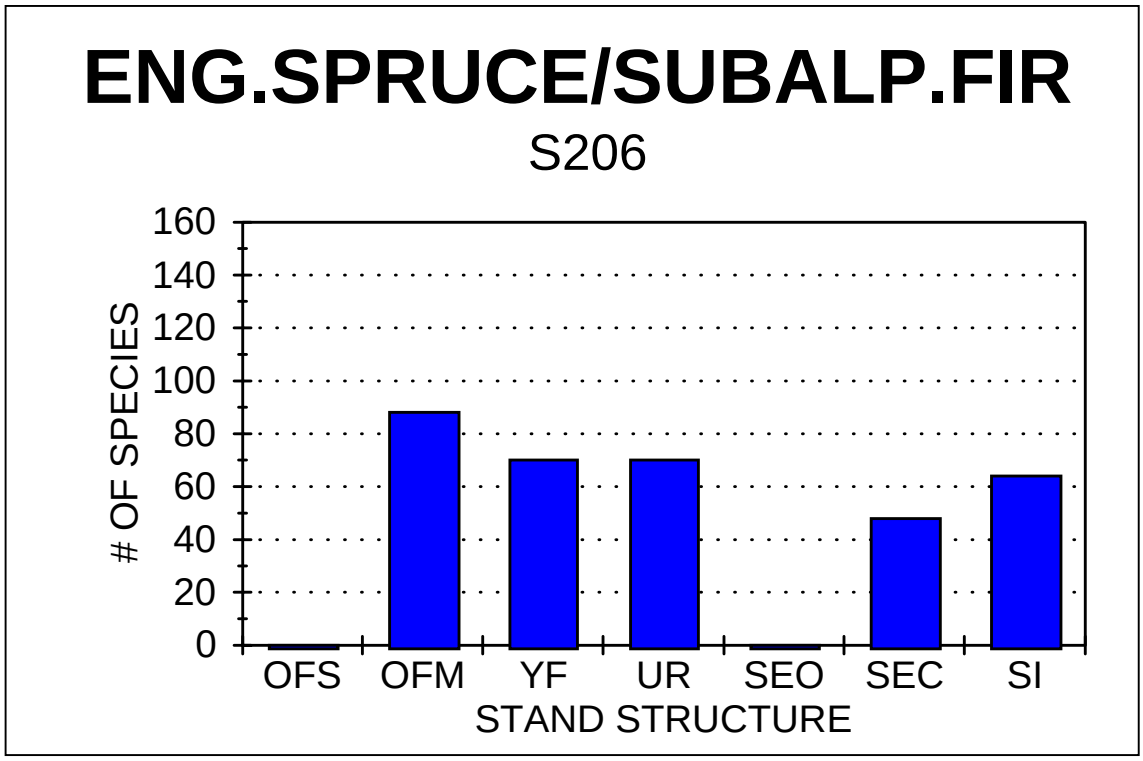
- See W for water (page N-156).

GRAPHS

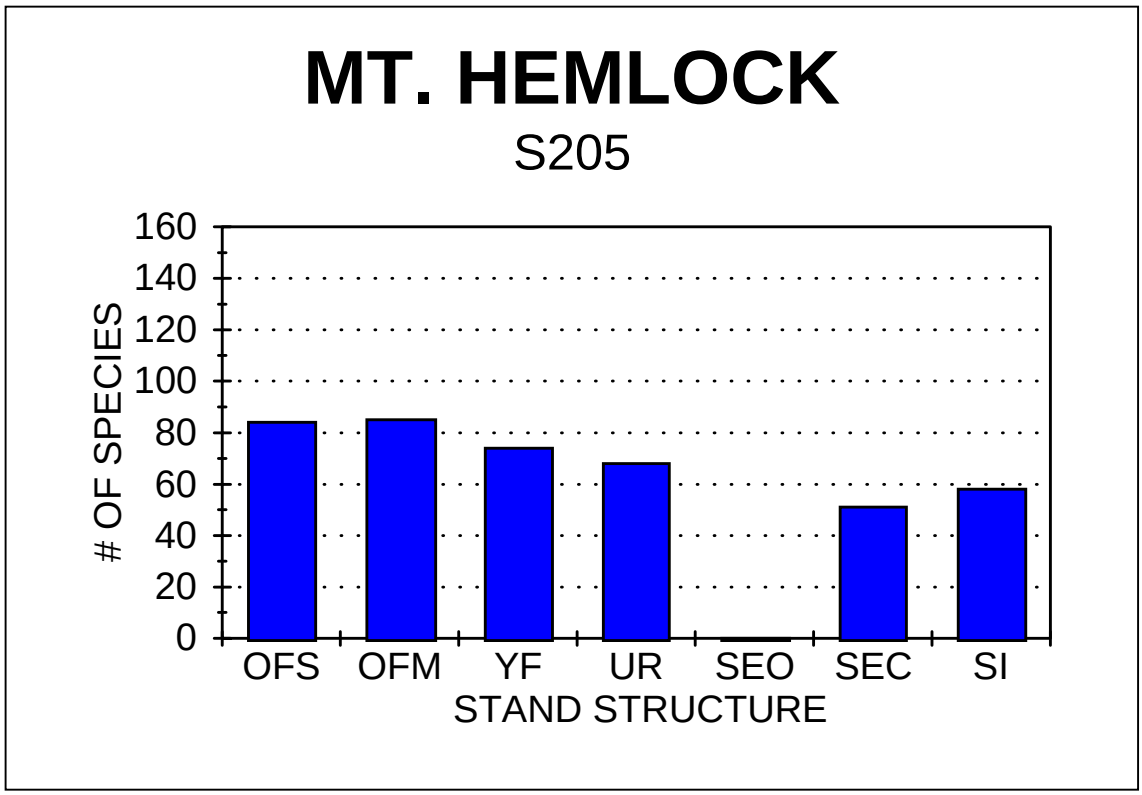
Graph #1



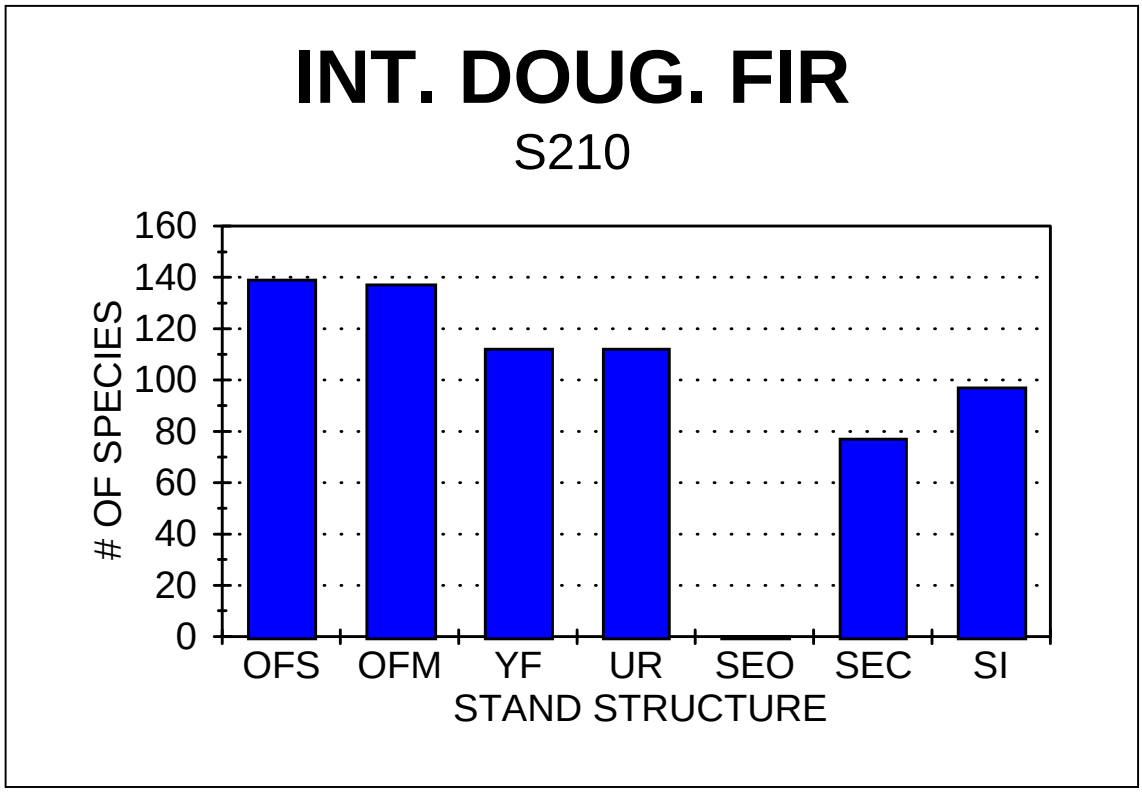
Graph #2



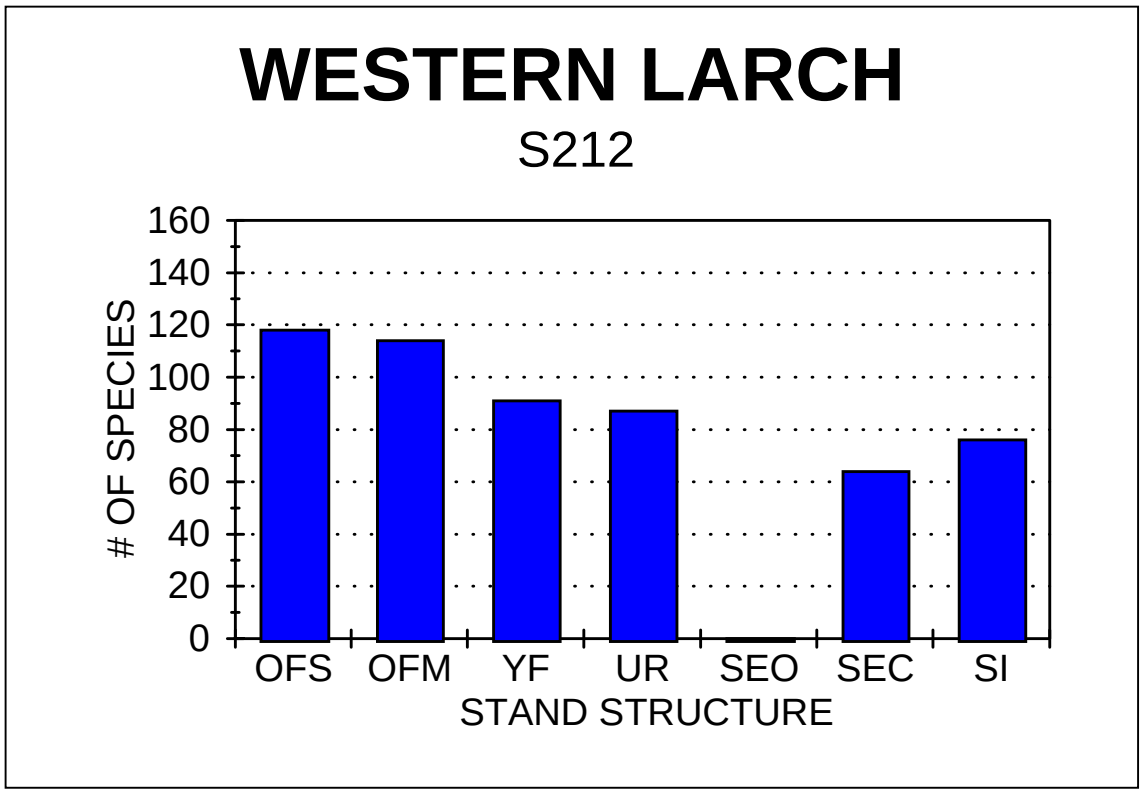
Graph #3



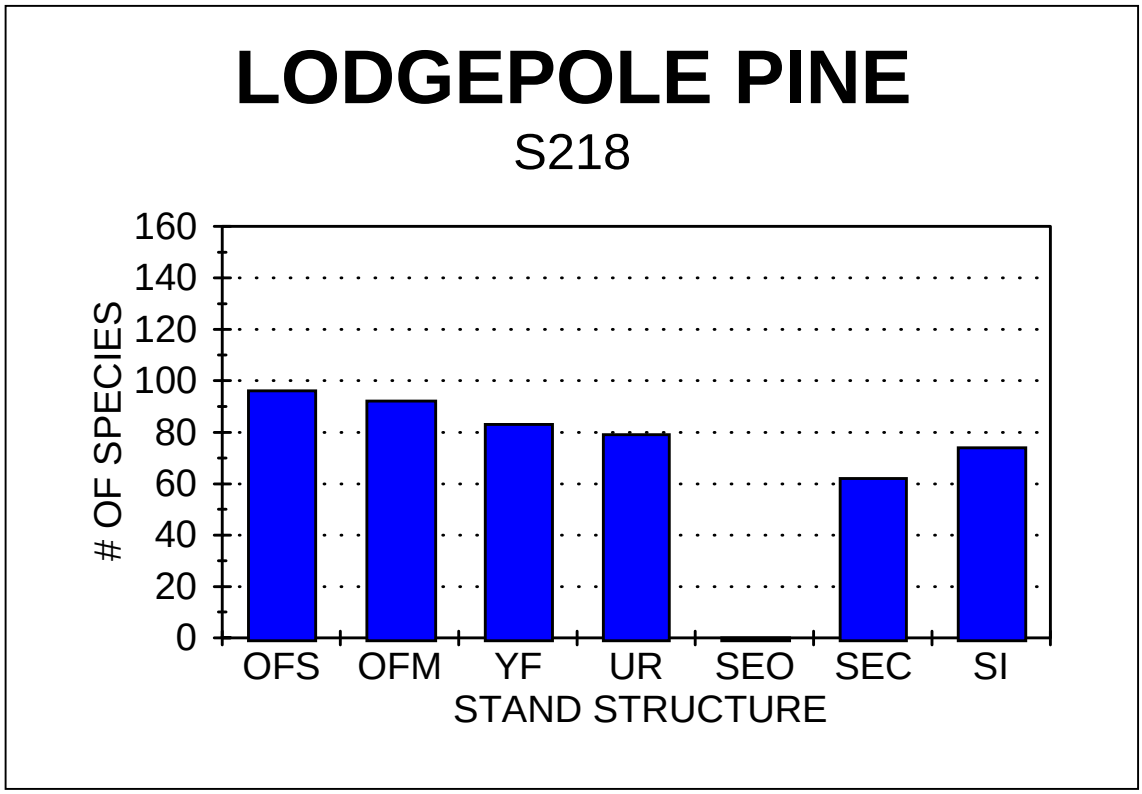
Graph #4



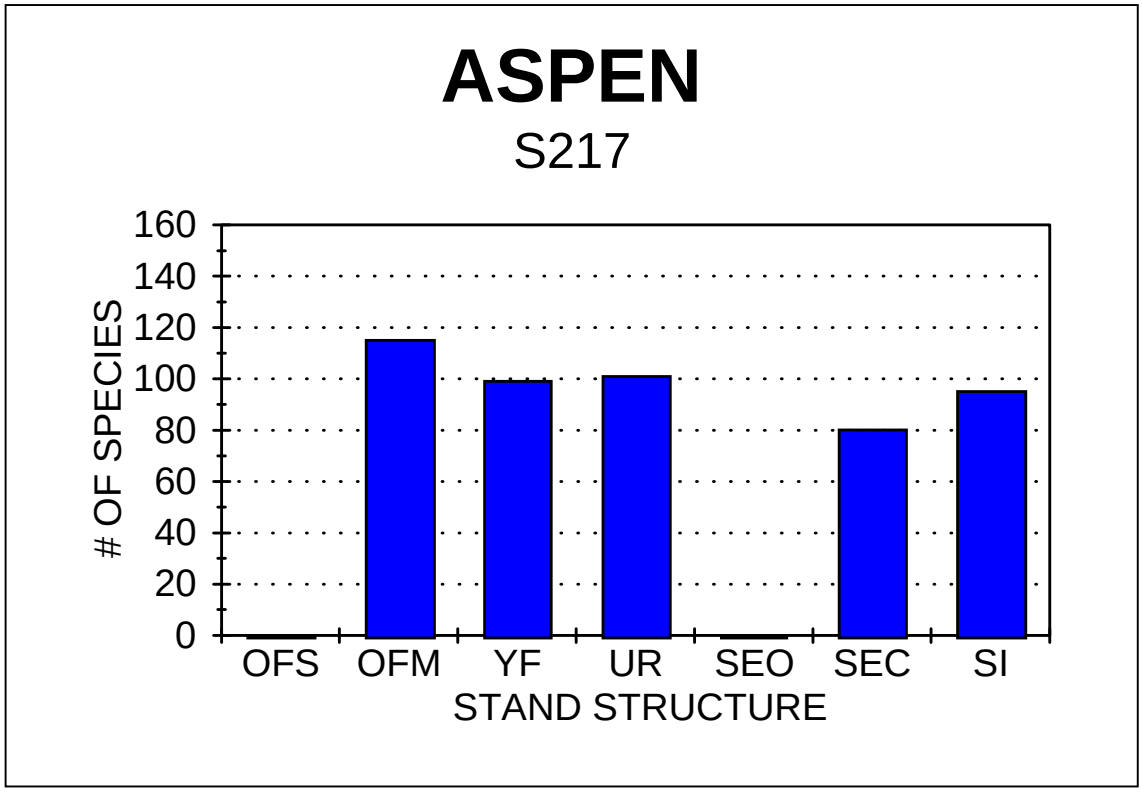
Graph #5



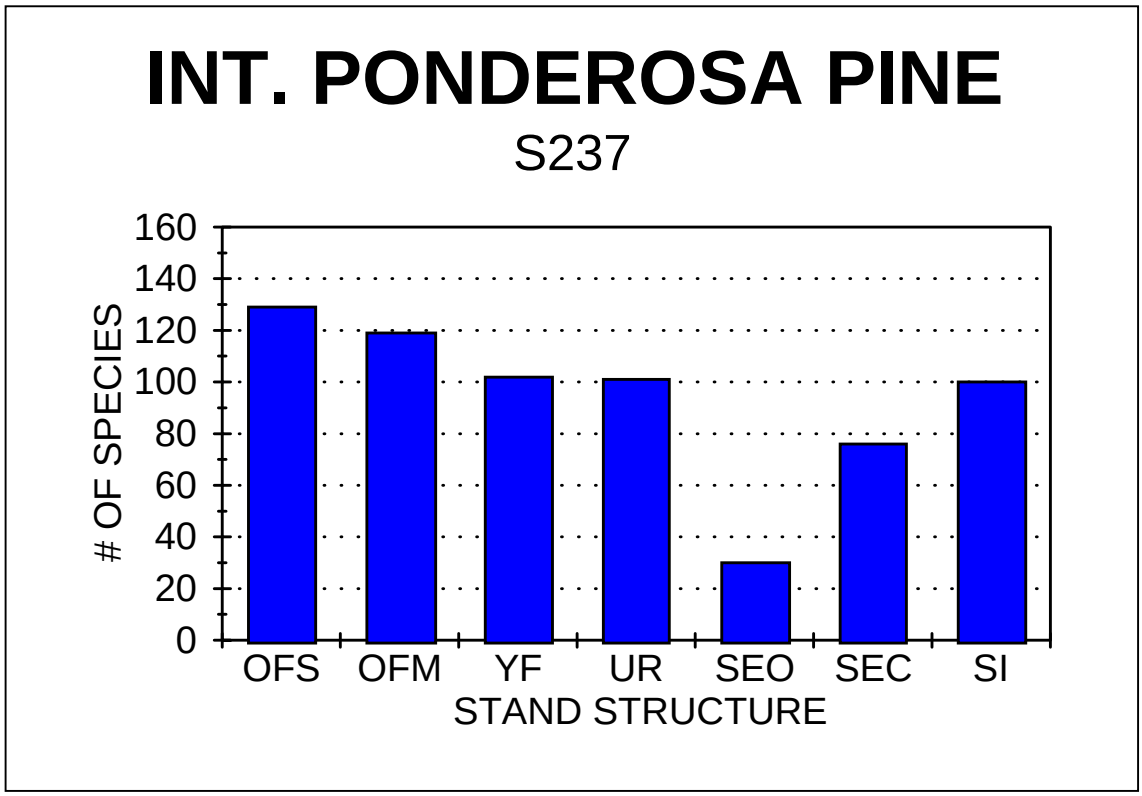
Graph #6



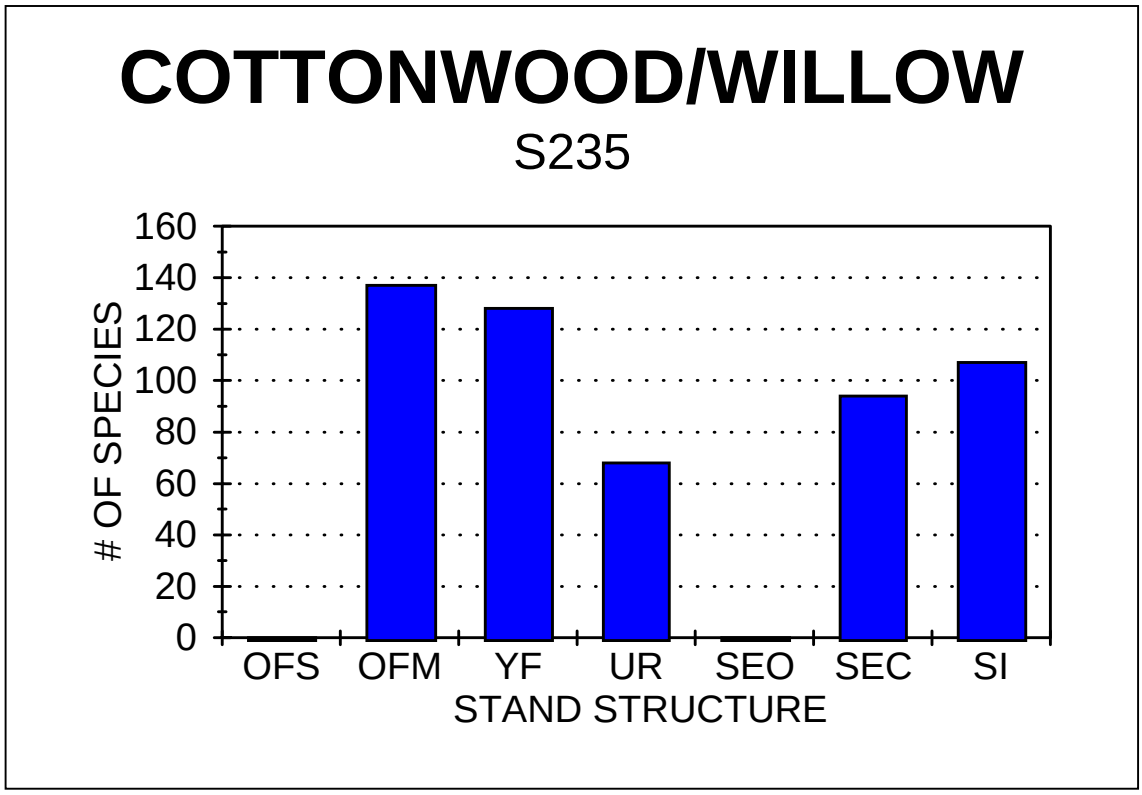
Graph #7



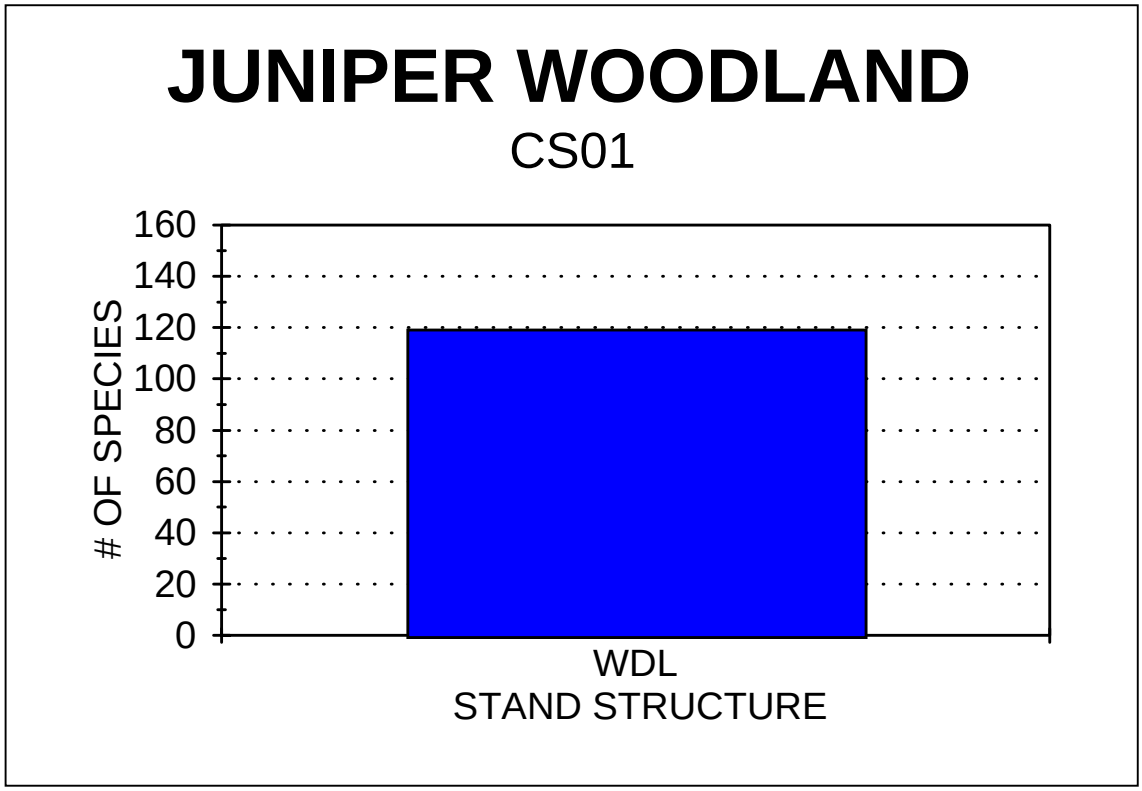
Graph #8



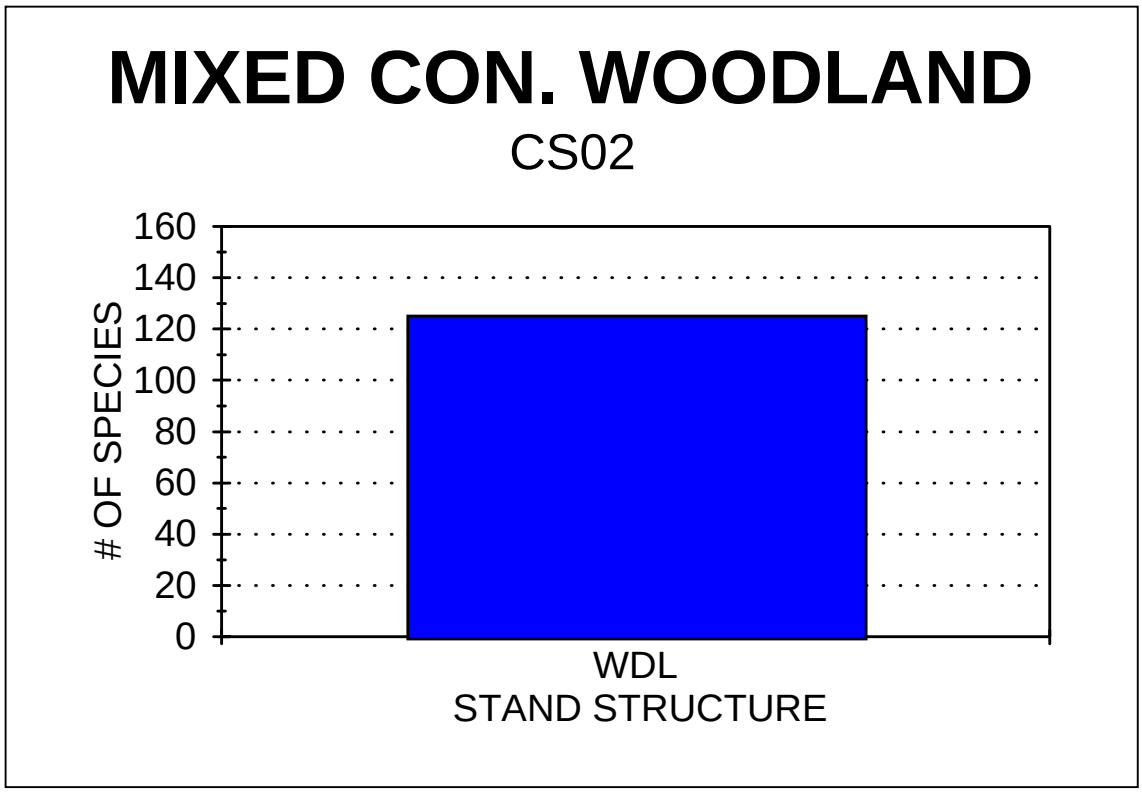
Graph #9



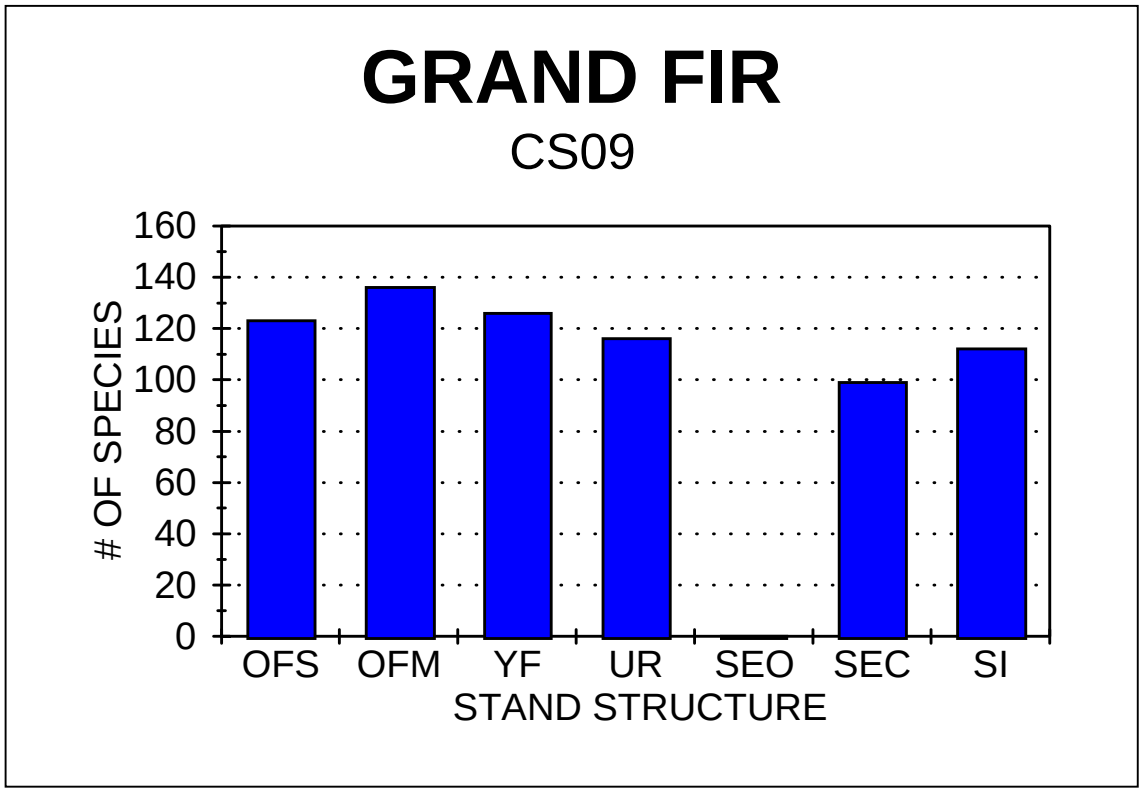
Graph #10



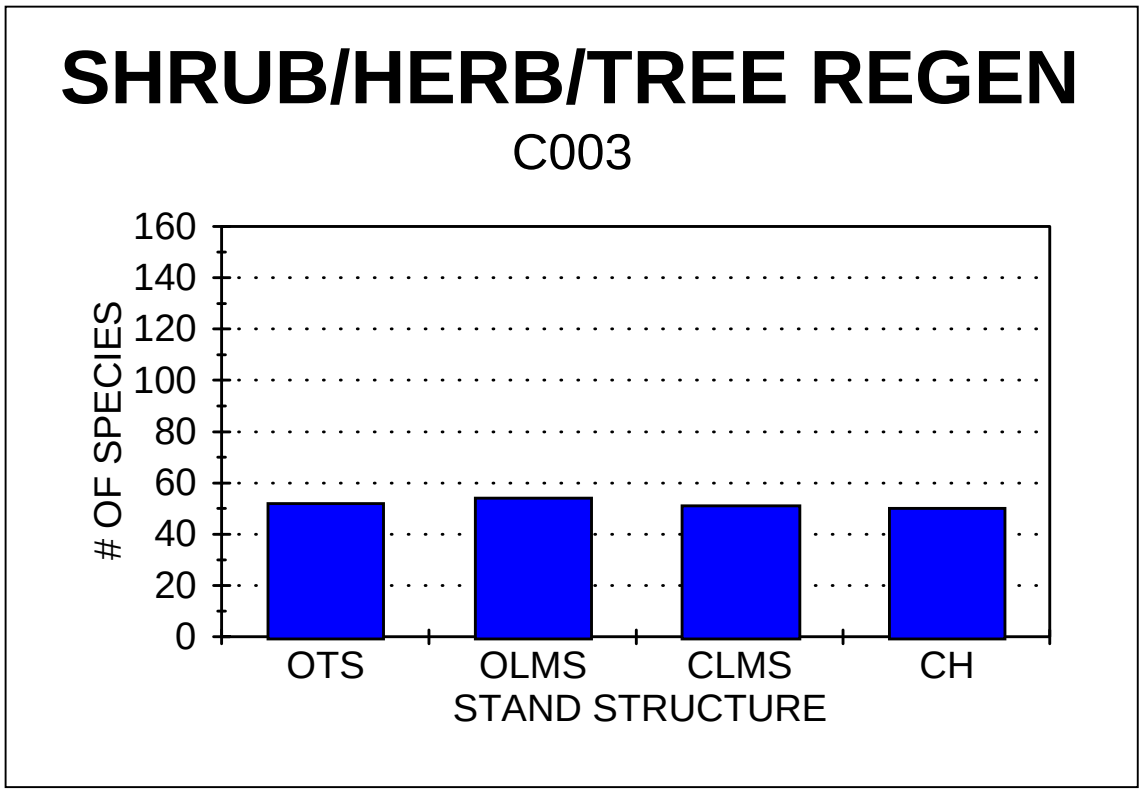
Graph #11



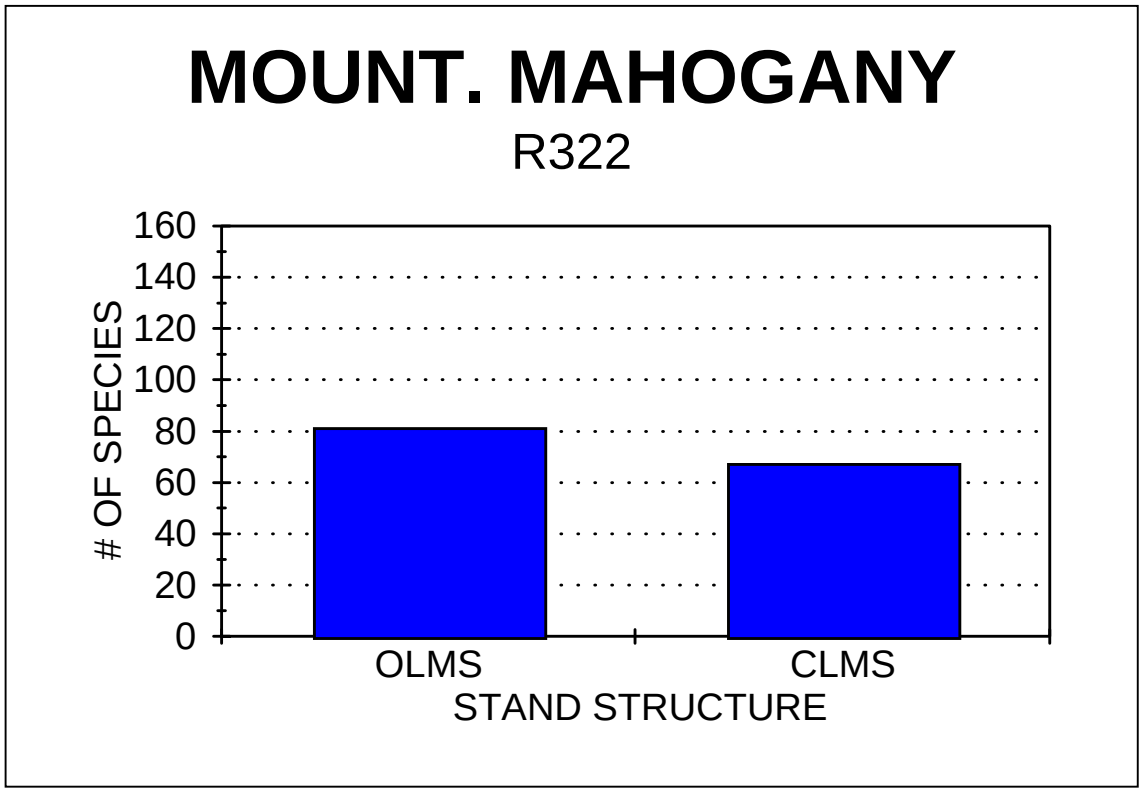
Graph #12



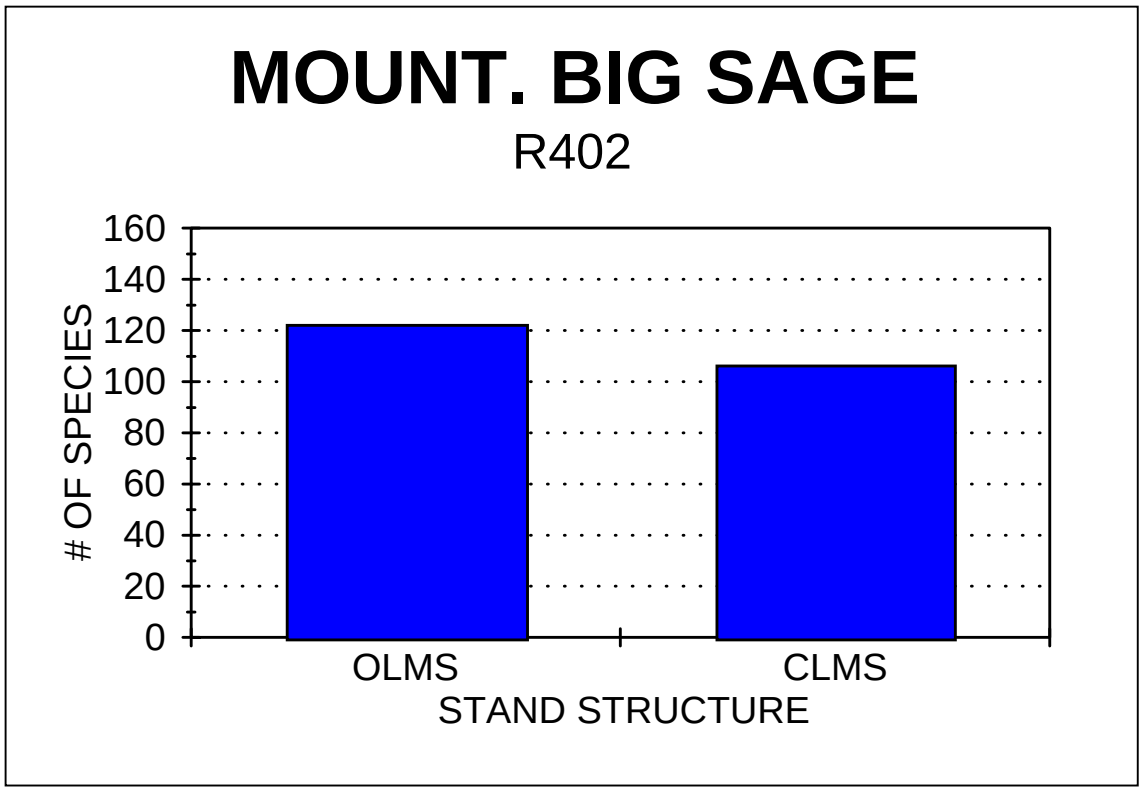
Graph #13



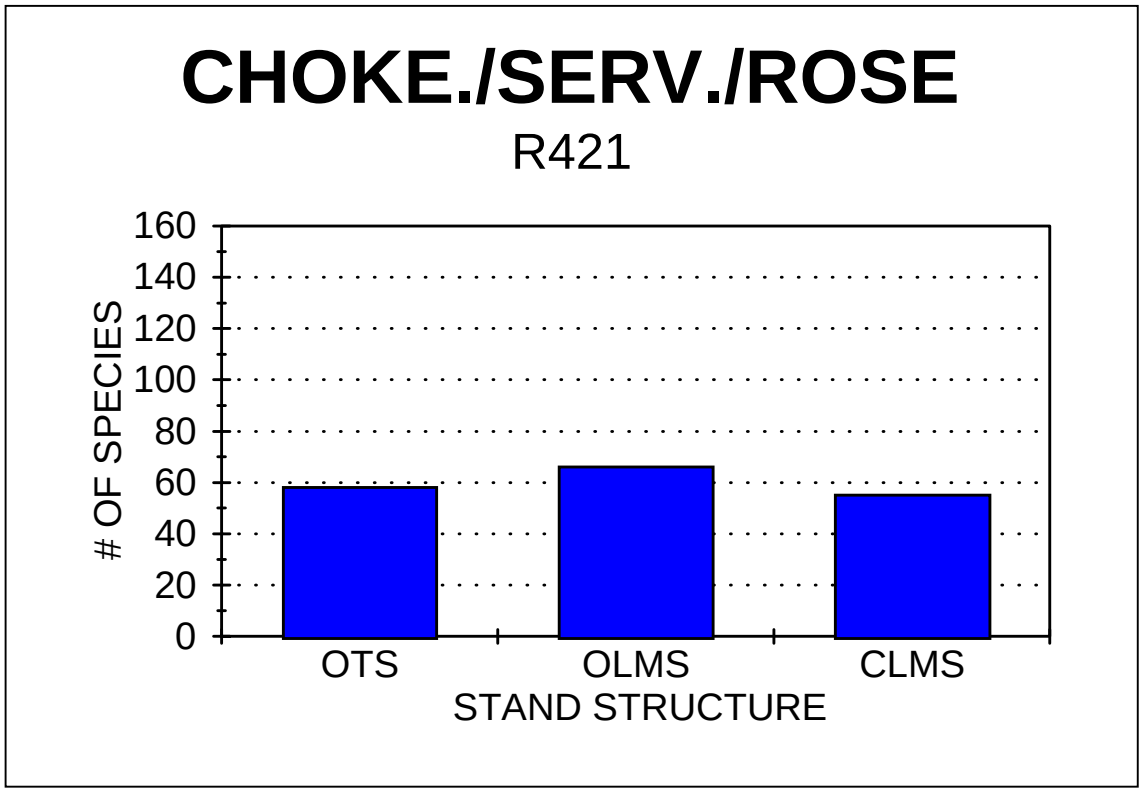
Graph #14



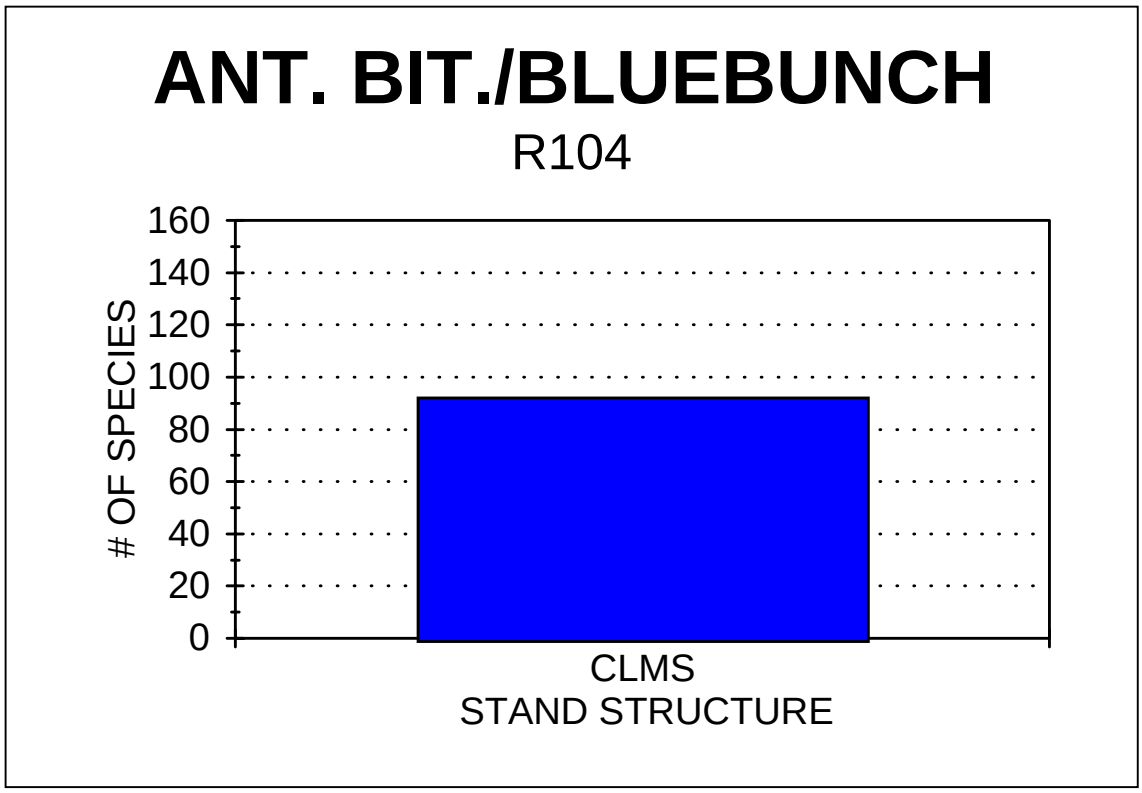
Graph #15



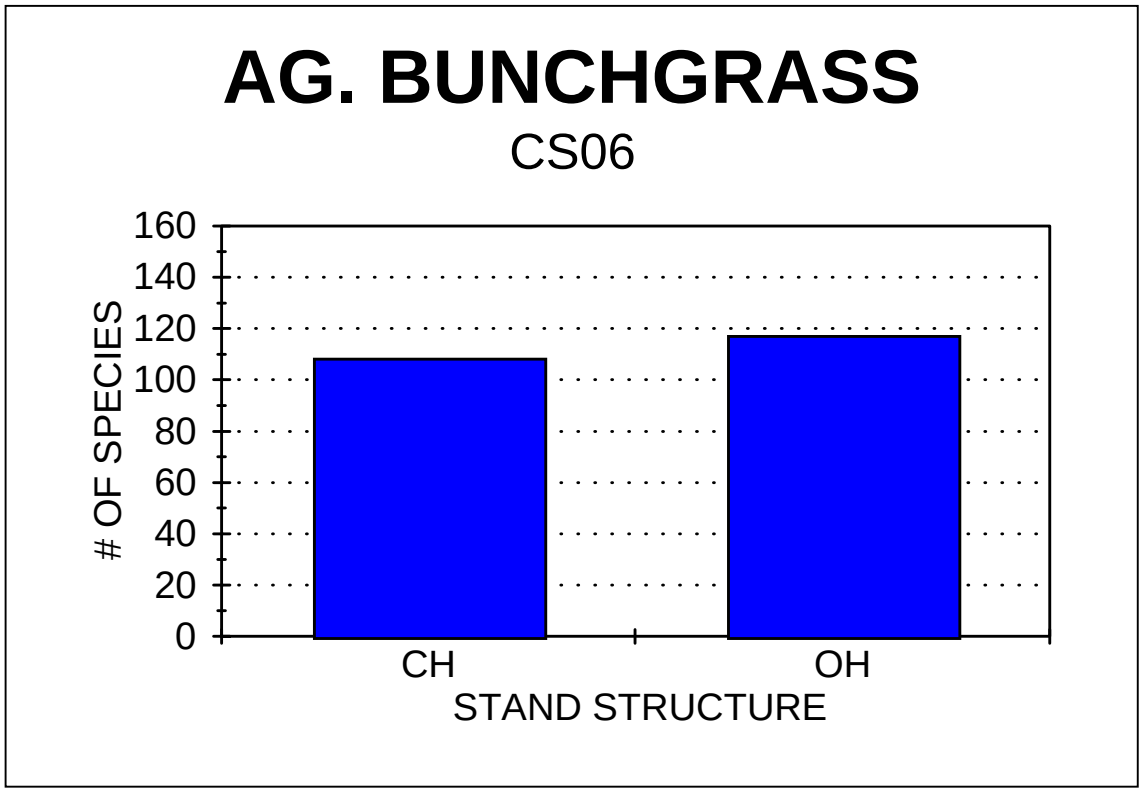
Graph #16



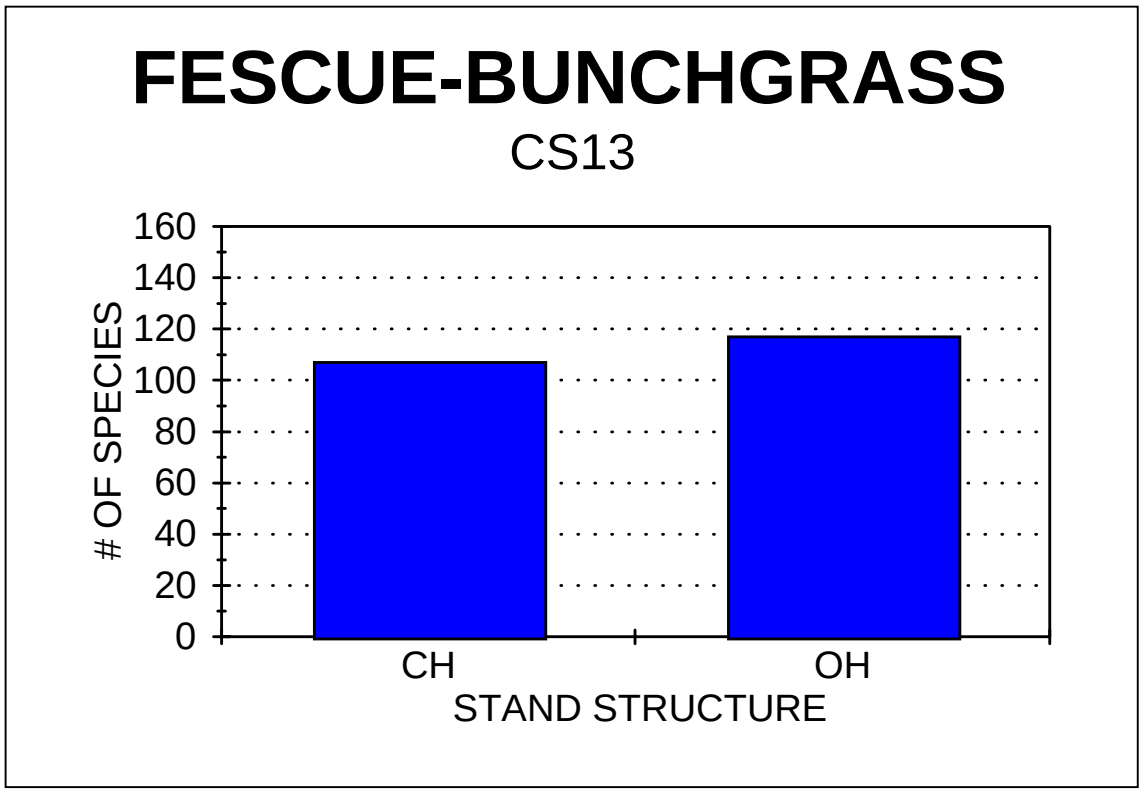
Graph #17



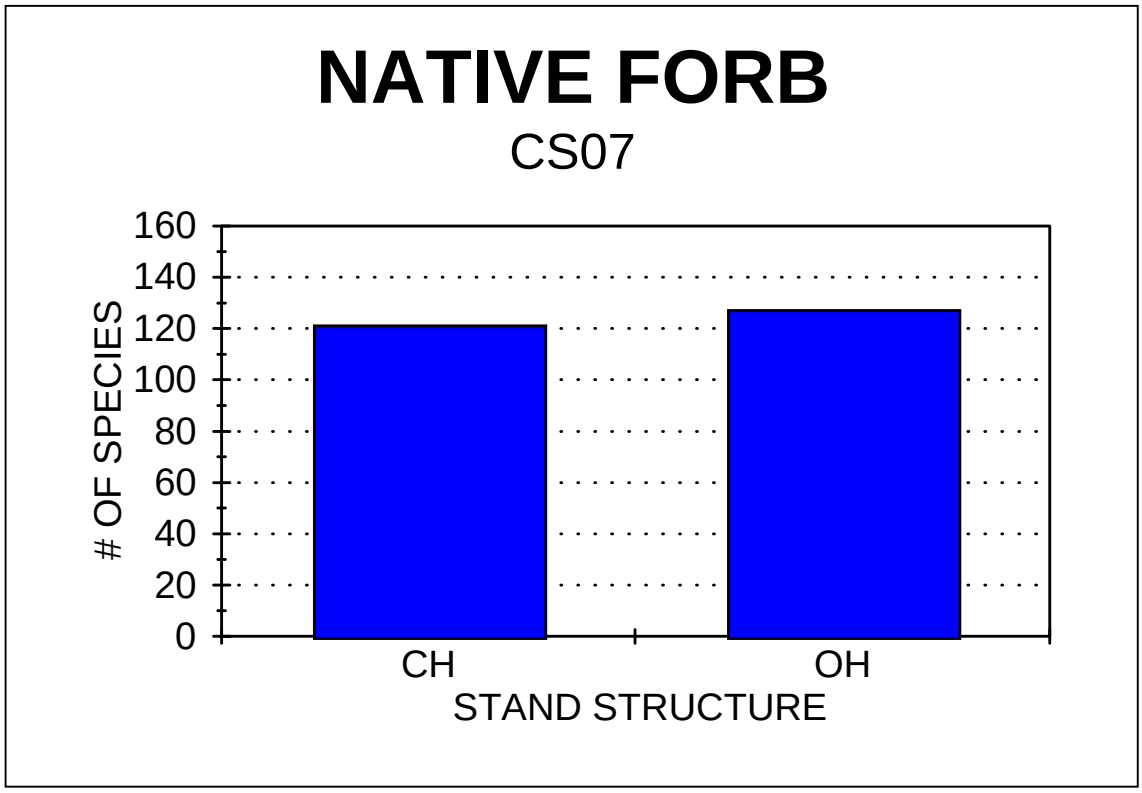
Graph #18



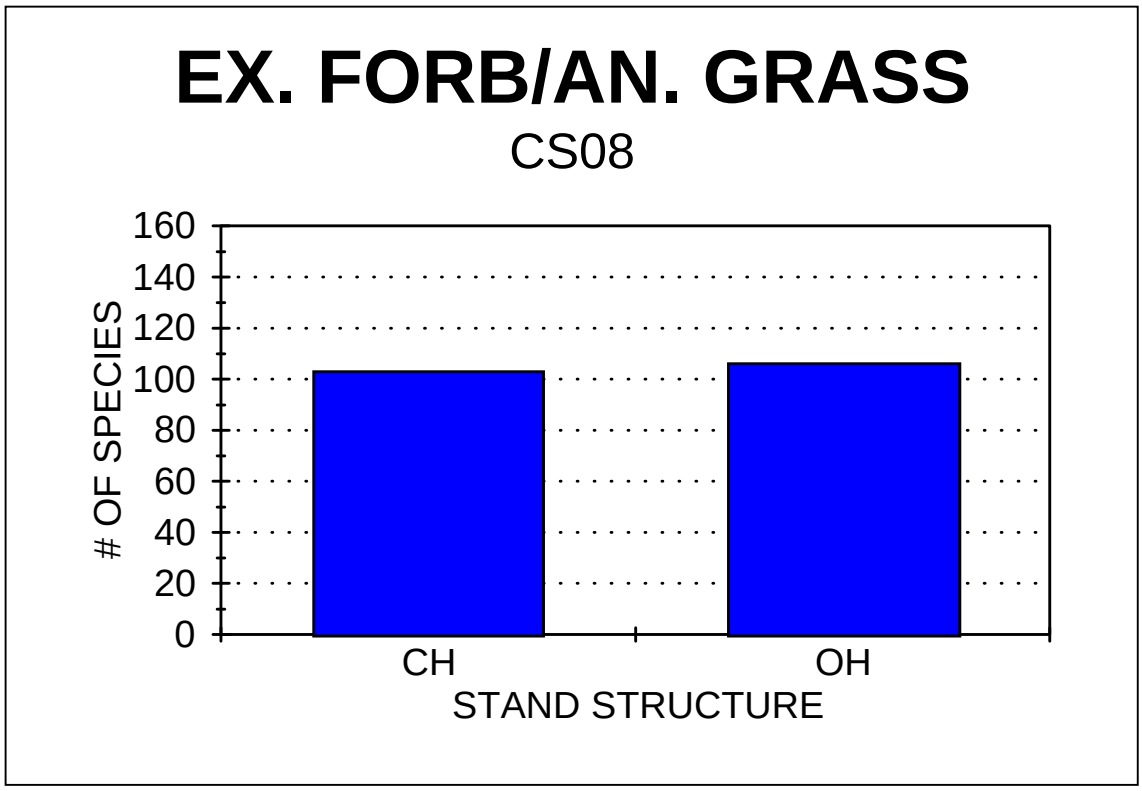
Graph #19



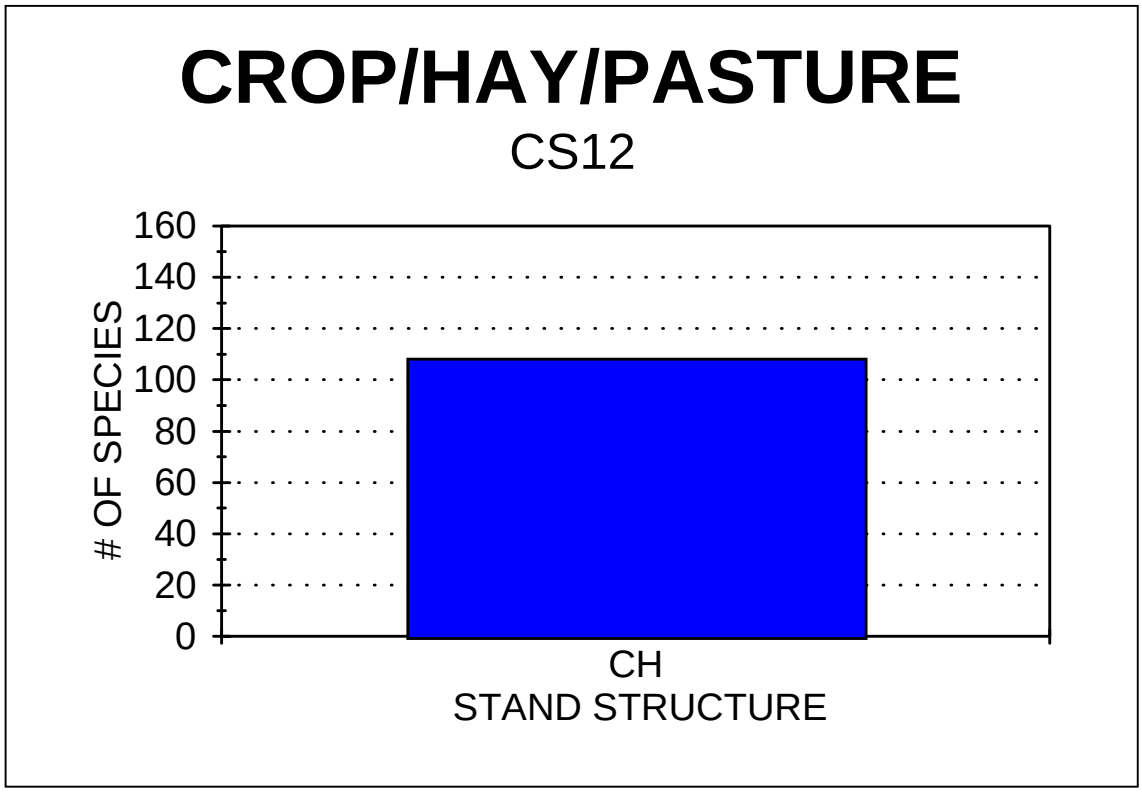
Graph #20



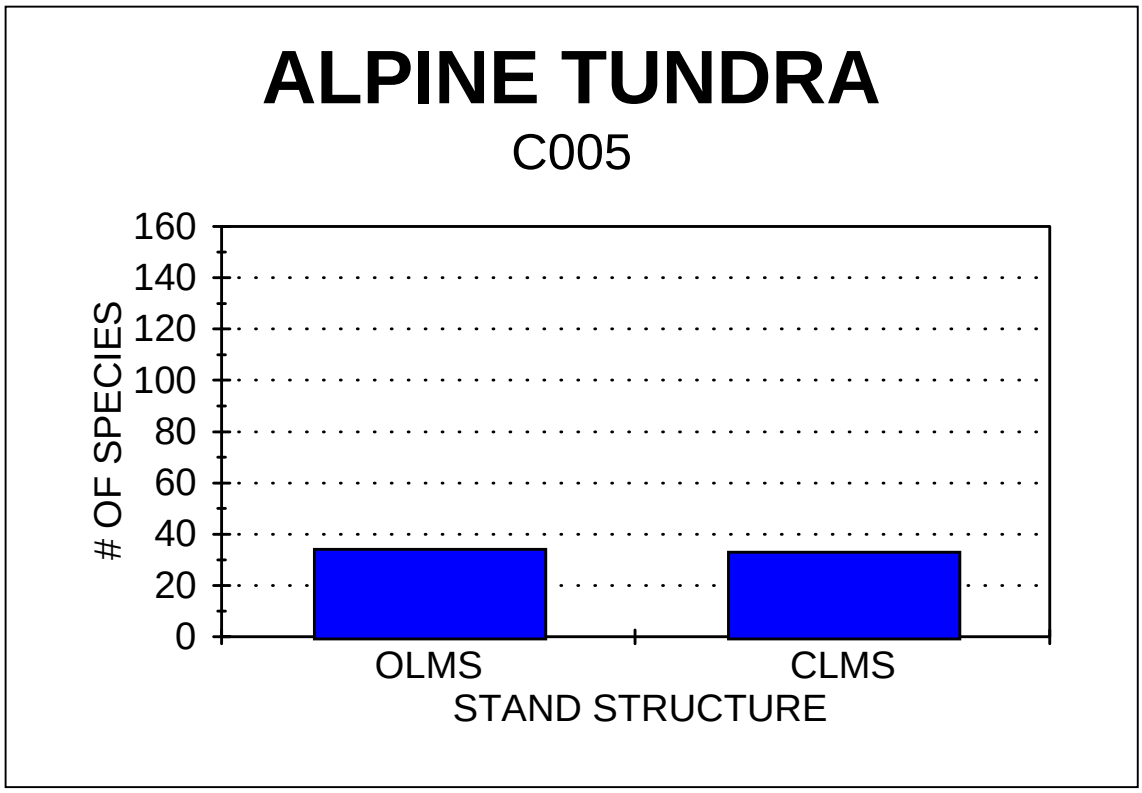
Graph #21



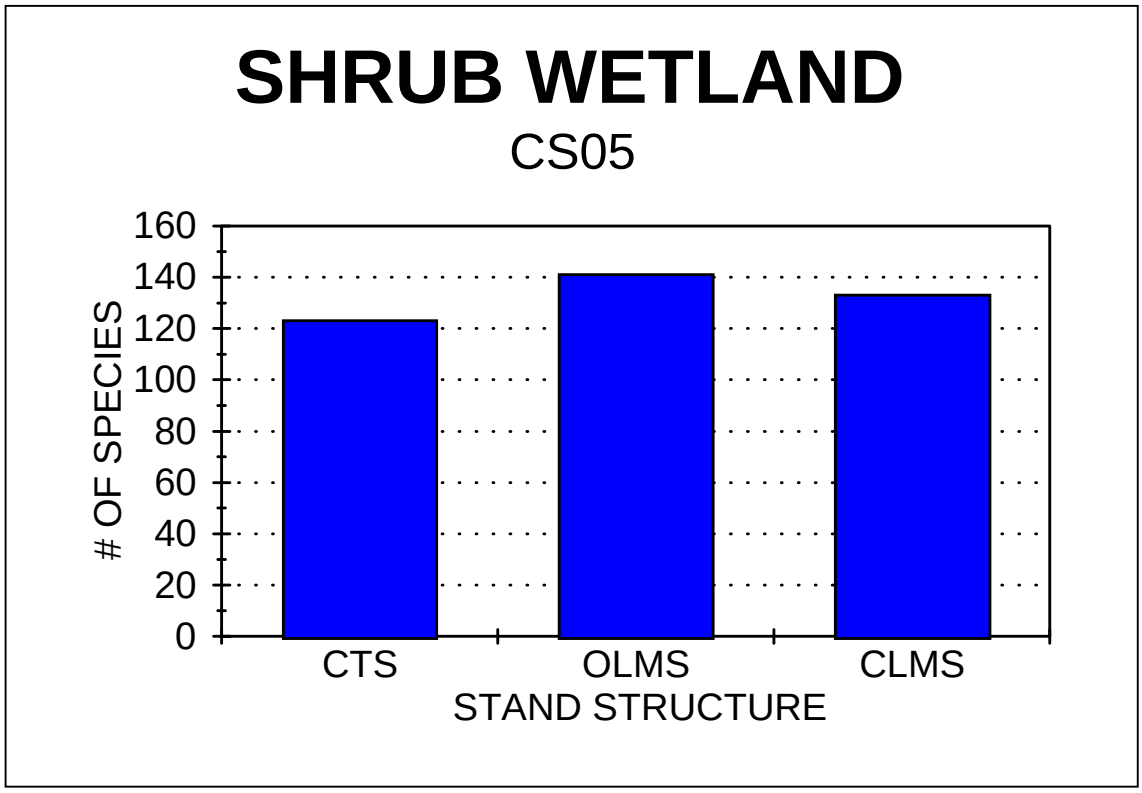
Graph #22



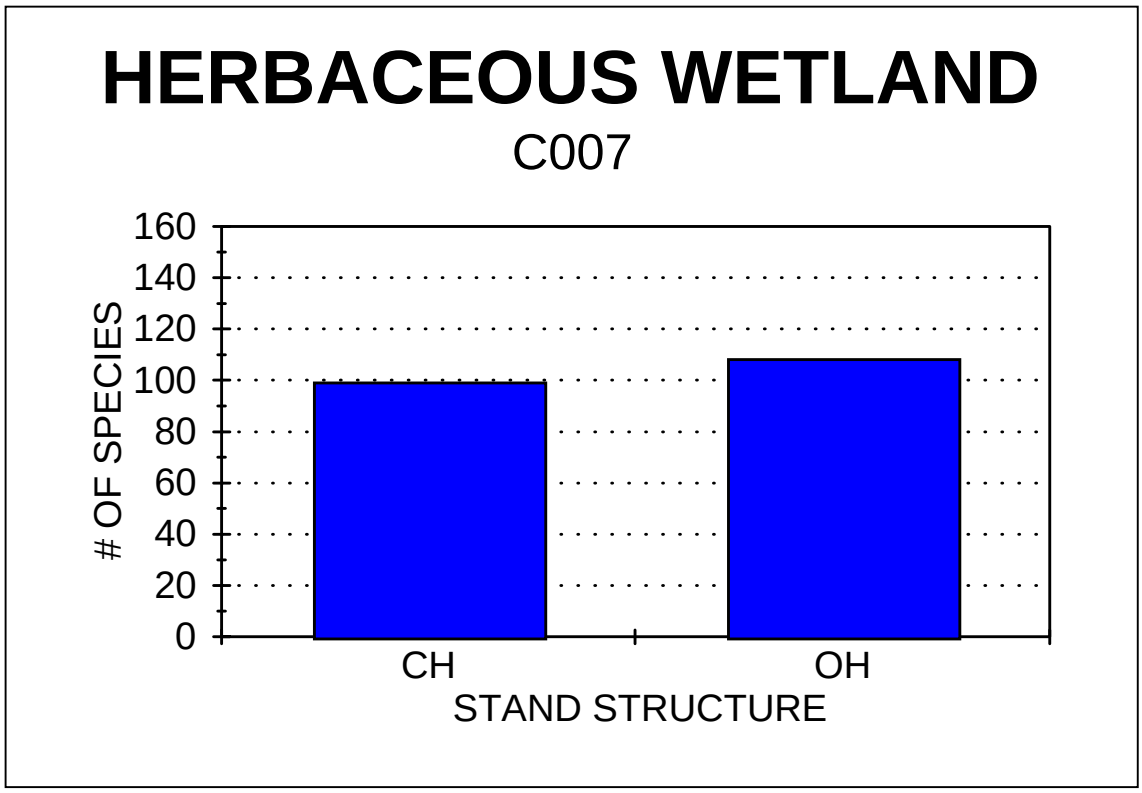
Graph #23



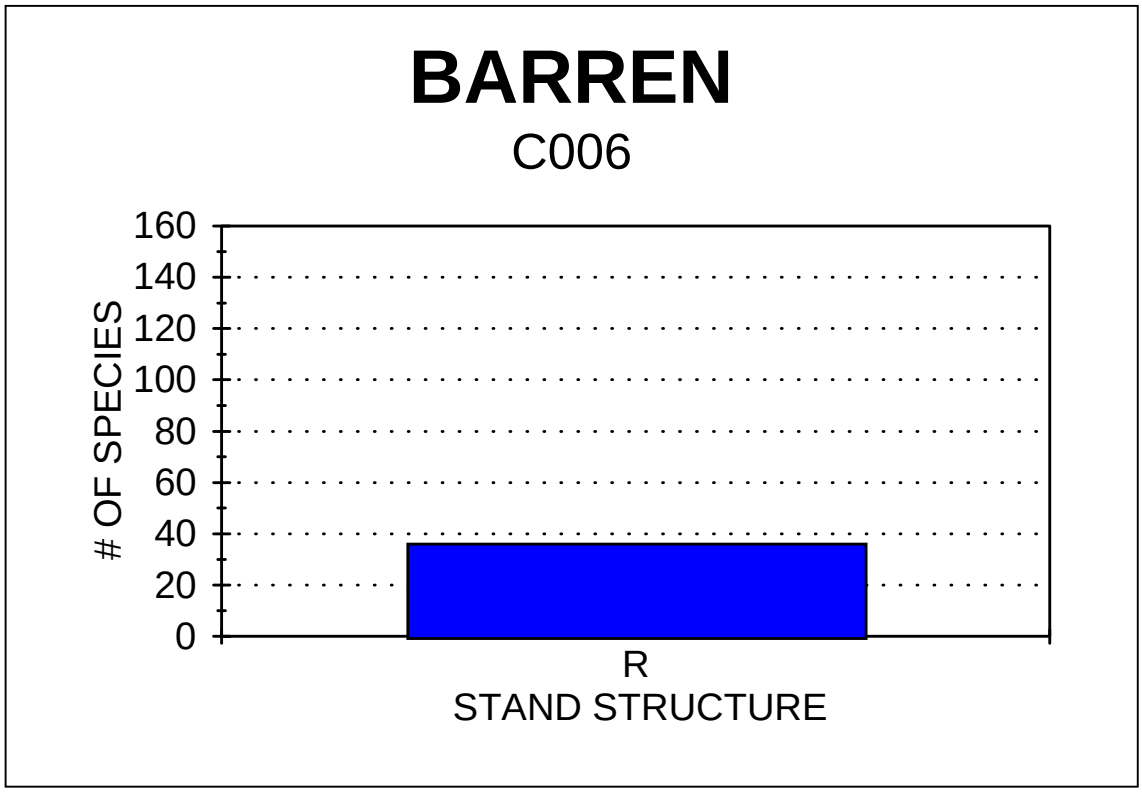
Graph #24



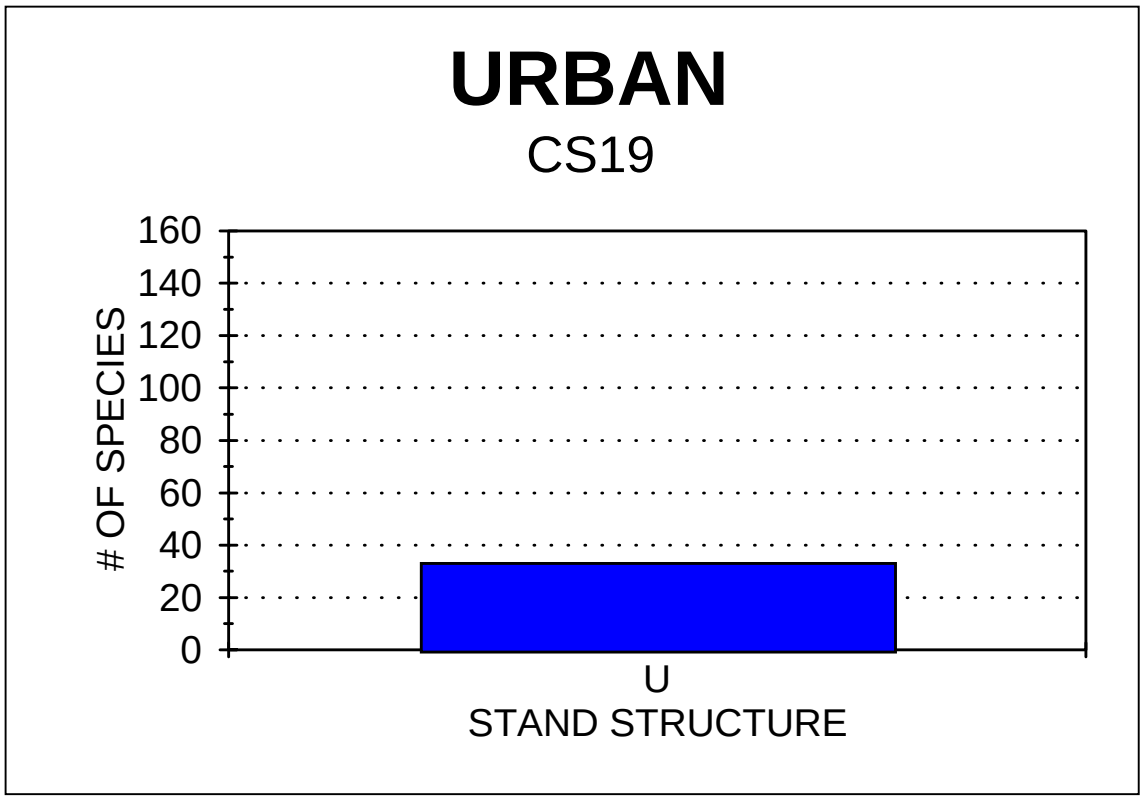
Graph #25



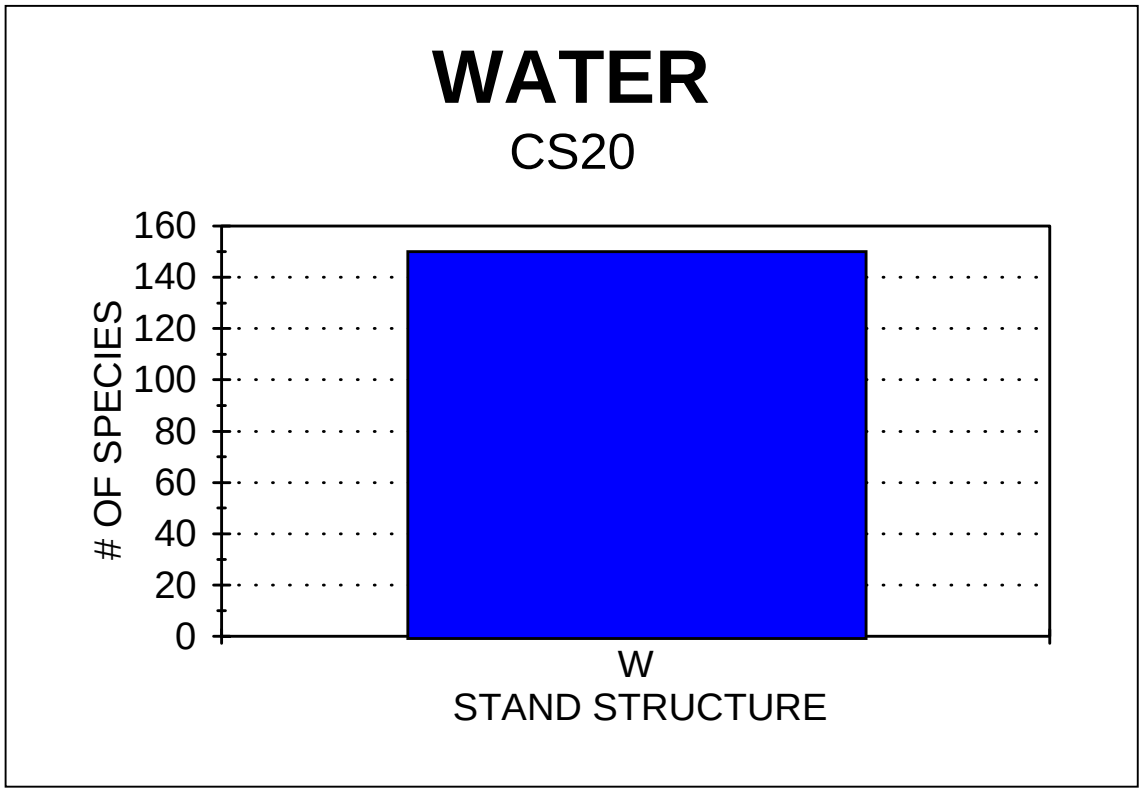
Graph #26



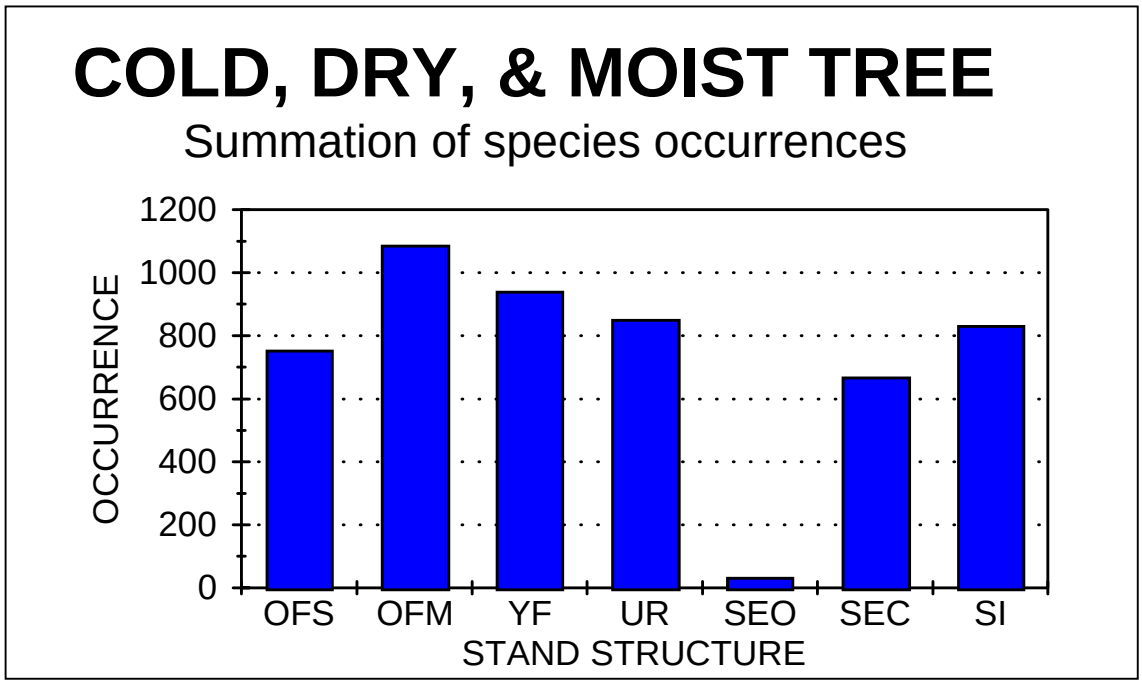
Graph #27



Graph #28

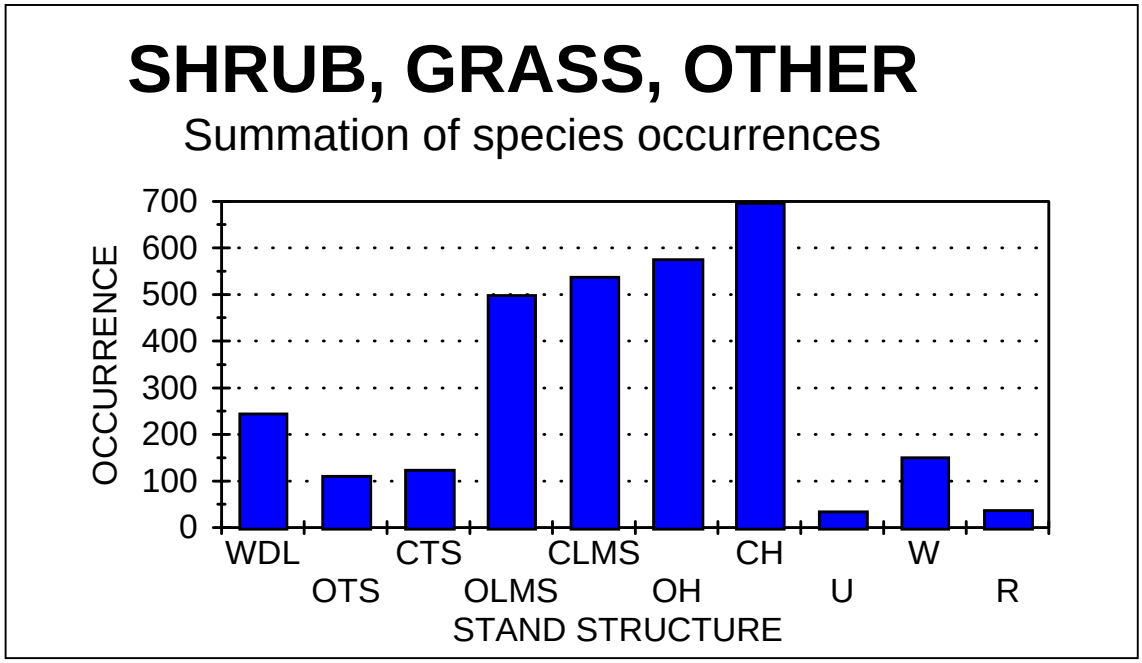


Graph #29



The bars in the graph represent how many animal species occurrences there are by stand structure in all of the cold, dry and moist forest tree cover types. The Y-axis is labeled occurrence because a species may be counted more than once as it may occur in several of the included cover types.

Graph #30



The bars in the graph represent how many animal species occurrences there are by stand structure in all of the shrub, grass and other cover types. The Y-axis is labeled occurrence because a species may be counted more than once as it may occur in several of the included cover types.

MATRIX

The format of this matrix is designed to provide the reader with a simple way to find out what animal species can, may or do exist in specific habitats in Wallowa County. The left column of the matrix is a full vertebrate animal species roster that repeats every eleven pages and the page headings are specific cover type and stand structure combinations that are found in Wallowa County. Characters or the lack of characters in the matrix boxes denote animal species existence or non-existence in a specific habitat (characters denote existence). All codes and abbreviations in the page headings are defined in the cover type and stand structure keys.

Matching an animal across a row with a cover type stand structure combination down a column denotes a species existence or non-existence in that habitat. If a character is found in that particular box of the matrix, then that animal lives in that habitat at some point in their life cycle. If the reader wants to know what animals can be found in a particular habitat then find that habitat in the matrix headings, follow that column down the matrix, and match characters with animal species in the left column.

Baseline data for the building of this matrix was provided by ICBEMP (Interior Columbia Basin Ecosystem Management Project). All data in the matrix provided by ICBEMP is denoted by an “X”. Species of concern are highlighted in the matrix, were also provided by ICBEMP and are denoted by an “X”. Extensive songbird information in Grand Fir stands was provided by Rex Sallabanks, a songbird biologist contracted by Boise Cascade. The fish species were verified by ODFW (Oregon Department of Fish and Wildlife). All data, cover types, stand structures and animal species have been verified by scientists working in Wallowa County.

A rating system for the data in this matrix has been developed to define levels of confidence in the contributor or the source. A “1” means that the lowest confidence has been assigned to that data, a “2” denotes moderate confidence, and a “3” defines a high degree of confidence. A “1” has been assigned to all ICBEMP data because it has not been intensively peer-reviewed for Wallowa County applications. All species of concern are given a “2” because these species are more intensively studied, and the data concerning these species has been intensively peer reviewed. Data that has a “3” rating has been contributed by a local scientist who can replicate field observations and has agreement among local peers.

The matrix has been reviewed by several government, academic and private entities. Government entities include the United States Forest Service, Oregon Department of Forestry, Oregon Department of Fish and Wildlife and the Nez Perce Tribe. Academic reviewers are Oregon State University and the University of Idaho. Private reviewers include Boise Cascade, RY Timber and several local people with extensive natural resource backgrounds.

	COLD FOREST																				
	WHITEBARK PINE							ENGELMANN SPRUCE/SUBALPINE FIR							MT. HEMLOCK						
COVER TYPES	S208	S208	S208	S208	S208	S208	S208	S206	S206	S206	S206	S206	S206	S206	S205	S205	S205	S205	S205	S205	S205
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Amphibian																					
Bullfrog																					
Columbia Spotted Frog	2x	2x	2x	2x		2x	2x		2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x
Long-toed Salamander	1x	1x	1x	1x			1x		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Pacific Treefrog																					
Tailed Frog	2x	2x	2x	2x		2x	2x		2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x
Western Toad	2x	2x	2x	2x		2x	2x		2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x
Leopard Frog																					
Bird																					
American Avocet																					
American Bittern																					
American Coot																					
American Crow																					
American Dipper	1x	1x	1x						1x	1x					1x	1x	1x				
American Goldfinch				1x			1x				1x			1x							
American Kestrel							1x							1x							1x
American Redstart																					
American Robin	1x	1x	1x	1x		1x	1x		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
American Tree Sparrow																					
American White Pelican																					
American Widgeon																					
Ash-throated Flycatcher																					
Baird's Sandpiper																					
Bald Eagle															2x	2x					
Bank Swallow																					
Barn Owl																					
Barrows Goldeneye																					
Belted Kingfisher															1x	1x	1x	1x		1x	1x
Black Rosy Finch																					
Black Tern																					
Black Swift																					
Black-backed Woodpecker									2x												
Black-billed Magpie																					
Black-cappedChickadee							1x							1x	1x		1x	1x		1x	1x
Black-chinned Hummingbird																					

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	COLD FOREST																				
	WHITEBARK PINE							ENGELMANN SPRUCE/SUBALPINE FIR							MT. HEMLOCK						
COVER TYPES	S208	S208	S208	S208	S208	S208	S208	S206	S206	S206	S206	S206	S206	S206	S205	S205	S205	S205	S205	S205	S205
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Black-crowned Night-heron																					
Black-headed Grosbeak										1x	1x		1x				1x	1x		1x	
Black-throated Gray Warbler																					
Black-necked Stilt																					
Blue Grouse																					
Blue-winged Teal																					
Bobolink																					
Bohemian Waxwing																					
Bonaparte's Gull																					
Boreal Owl									2x		2x										
Brewer's Blackbird																					
Brewer's Sparrow																					
Broad-tailed hummingbird									2x		2x		2x	2x							
Brown Creeper									2x						2x	2x					
Brown-headed Cowbird																					
Bufflehead																					
Burrowing Owl																					
California Gull																					
Calliope Hummingbird	1x					1x	1x						1x	1x	1x					1x	1x
Canada Goose																					
Canvasback																					
Canyon Wren																					
Cassin's Finch	1x	1x	1x	1x					1x	1x	1x				1x	1x	1x	1x			
Cassin's Vireo																					
Cedar Waxwing																					1x
Chestnut-backed Chickadee									2x						2x	2x					
Chipping Sparrow	1x	1x	1x	1x		1x	1x		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Chukar																					
Cinnamon Teal																					
Clark's Nutcracker	1x	1x	1x	1x					1x	1x	1x				1x	1x	1x	1x			
Cliff Swallow																					
Columbian sharp-tailed Grouse																					
Common Goldeneye																					
Common Loon																					
Common Merganser																					
Common Nighthawk													1x	1x						1x	1x

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	COLD FOREST																				
	WHITEBARK PINE							ENGELMANN SPRUCE/SUBALPINE FIR							MT. HEMLOCK						
COVER TYPES	S208	S208	S208	S208	S208	S208	S208	S206	S206	S206	S206	S206	S206	S206	S205	S205	S205	S205	S205	S205	S205
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Common Poorwill																					
Common Raven	1x	1x							1x						1x	1x					
Common Redpoll																					
Common Snipe	2x	2x	2x	2x		2x	2x		2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x
Common Tern																					
Common Yellowthroat																					
Cooper's Hawk		1x	1x						1x	1x						1x	1x				
Dark-eyed Junco	1x	1x	1x	1x			1x		1x	1x	1x			1x	1x	1x	1x	1x			1x
Double-crested Cormorant																					
Downy Woodpecker																					
Dusky Flycatcher		1x	1x	1x			1x		1x	1x	1x			1x		1x	1x	1x			1x
Eared Grebe																					
Eastern Kingbird																					
European Starling																					
Evening Grosbeak	1x	1x	1x						1x	1x					1x	1x	1x				
Ferruginous Hawk																					
Flammulated Owl																					
Forster's Tern																					
Fox Sparrow														2x							2x
Franklin's Gull																					
Gadwall																					
Golden-crowned Kinglet	2x	2x							2x						2x	2x					
Golden-crowned Sparrow																					
Golden Eagle																					
Grasshopper Sparrow																					
Gray Catbird																					
Cray-crowned Rosy Finch																					
Gray Jay									1x	1x	1x		1x		1x	1x	1x				
Gray Partridge																					
Great Egret																					
Great Blue Heron																					
Great Gray Owl									2x		2x			2x							
Great Horned Owl	1x	1x							1x						1x	1x					
Greater Sandhill Crane																					
Greater Scaup																					
Greater Yellowlegs																					

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	COLD FOREST																				
	WHITEBARK PINE							ENGELMANN SPRUCE/SUBALPINE FIR							MT. HEMLOCK						
COVER TYPES	S208	S208	S208	S208	S208	S208	S208	S206	S206	S206	S206	S206	S206	S206	S205	S205	S205	S205	S205	S205	S205
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Green-winged Teal																					
Gyrfalcon																					
Hairy Woodpecker	1x	1x	1x	1x					1x	1x	1x				1x	1x	1x	1x			
Hammond's Flycatcher									2x												
Harlequin Duck									2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x
Harris' Sparrow																					
Hermit Thrush	1x	1x	1x	1x					1x	1x	1x				1x	1x	1x	1x			
Hooded Merganser																					
Horned Grebe																					
Horned Lark																					
House Finch																					
House Sparrow																					
House Wren	1x	1x	1x	1x		1x	1x		1x		1x		1x	1x	1x	1x	1x	1x		1x	1x
Killdeer																					
Lark Sparrow																					
Lazuli bunting														2x							
Least Sandpiper																					
Lesser Scaup																					
Lesser Yellowlegs																					
Lewis' Woodpecker																					
Lincoln's Sparrow										1x	1x		1x	1x			1x	1x		1x	1x
Loggerhead Shrike																					
Long-billed Curlew																					
Long-billed Dowitcher																					
Long-eared Owl																					
Macgillivray's Warbler									1x	1x	1x			1x	1x	1x	1x	1x			1x
Mallard																					
Marbled Godwit																					
Marsh Wren																					
Merlin																					
Mountain Bluebird							1x							1x							1x
Mountain Chickadee									1x	1x	1x		1x		1x	1x	1x	1x		1x	
Mountain Quail																					
Mourning Dove																					
Nashville Warbler																					
Northern Flicker															1x	1x	1x	1x		1x	1x

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	COLD FOREST																				
	WHITEBARK PINE							ENGELMANN SPRUCE/SUBALPINE FIR							MT. HEMLOCK						
COVER TYPES	S208	S208	S208	S208	S208	S208	S208	S206	S206	S206	S206	S206	S206	S206	S205	S205	S205	S205	S205	S205	S205
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Northern Goshawk		2x																			
Northern Harrier																					
Northern Oriole																					
Northern Pintail																					
Northern Pygmy Owl																1x					
Northern Rough-winged Swallow																					
Northern Saw-whet Owl																					
Northern Shoveler																					
Northern Shrike																					
Olive-sided Flycatcher									2x												
Orange-crowned Warbler															1x		1x			1x	
Osprey	1x	1x	1x	1x					1x	1x	1x				1x	1x	1x	1x			
Peregrine Falcon	1x	1x	1x	1x			1x		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Pied-billed Grebe																					
Pileated Woodpecker									2x												
Pine Grosbeak	1x	1x	1x						1x	1x					1x	1x	1x				
Pine Siskin									2x	2x	2x				2x	2x	2x	2x			
Prairie Falcon																					
Purple Finch																					
Pygmy Nuthatch																					
Red Crossbill									1x	1x					1x	1x	1x				
Red-breasted Nuthatch	1x	1x	1x						1x	1x					1x	1x	1x				
Red-breasted Sapsucker																					
Red-eyed Vireo																					
Red-naped Sapsucker																					
Red-necked Grebe									2x	2x	2x		2x	2x							
Red-necked Phalarope																					
Red-tailed Hawk	1x	1x	1x	1x					1x	1x	1x			1x		1x	1x	1x			1x
Red-winged blackbird																					
Redhead																					
Ring-billed Gull																					
Ring-necked Duck													2x	2x							
Ring-necked Pheasant																					
Rock Dove																					
Rock Wren																					
Ross' Goose																					

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	COLD FOREST																				
	WHITEBARK PINE							ENGELMANN SPRUCE/SUBALPINE FIR							MT. HEMLOCK						
COVER TYPES	S208	S208	S208	S208	S208	S208	S208	S206	S206	S206	S206	S206	S206	S206	S205	S205	S205	S205	S205	S205	S205
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Rough-legged Hawk																					
Ruby-crowned Kinglet	1x	1x	1x						1x	1x	1x				1x	1x	1x	1x			
Ruddy Duck																					
Ruffed Grouse									1x	1x	1x		1x			1x	1x	1x		1x	
Rufous Hummingbird									2x		2x			2x	2x	2x		2x			2x
Sage Sparrow																					
Sage Thrasher																					
Savannah Sparrow																					
Say's Phoebe																					
Semipalmated Plover																					
Sharp-shinned Hawk			1x	1x		1x				1x	1x		1x				1x	1x		1x	
Short-eared Owl																					
Snow Bunting																					
Snow Goose																					
Snowy Owl																					
Solitary Sandpiper																					
Sora									2x	2x	2x		2x	2x							
Spotted Sandpiper	2x	2x	2x	2x		2x	2x		2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x
Spotted Towhee																					
Spruce Grouse									1x	1x	1x										
Steller's Jay	1x	1x	1x	1x					1x	1x	1x				1x	1x	1x	1x			
Swainson's Hawk																					
Swainson's Thrush									1x	1x	1x				1x	1x	1x	1x			
Three-toed Woodpecker	2x	2x							2x						2x	2x					
Townsend's Solitaire	1x	1x	1x				1x		1x	1x				1x	1x	1x	1x				1x
Townsend's Warbler																					
Tree Swallow							1x							1x							1x
Trumpeter Swan																					
Tundra Swan																					
Turkey Vulture	1x	1x	1x	1x		1x	1x		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Upland Sandpiper									2x												
Varied Thrush															2x	2x					
Vaux's Swift																					
Veery																					
Vesper Sparrow																					
Violet-green Swallow	1x	1x	1x	1x		1x			1x	1x	1x		1x		1x	1x	1x	1x		1x	

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	COLD FOREST																				
	WHITEBARK PINE							ENGELMANN SPRUCE/SUBALPINE FIR							MT. HEMLOCK						
COVER TYPES	S208	S208	S208	S208	S208	S208	S208	S206	S206	S206	S206	S206	S206	S206	S205	S205	S205	S205	S205	S205	S205
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Virginia Rail																					
Warbling Vireo																					
Western Bluebird																					
Western Grebe																					
Western Kingbird																					
Western Meadowlark																					
Western Screech Owl																					
Western Tanager	1x	1x							1x						1x	1x					
Western Wood-Pewee	1x	1x	1x	1x					1x	1x					1x	1x	1x	1x			
White-breasted Nuthatch																					
White-crowned Sparrow																		1x			1x
White-faced Ibis																					
White-headed Woodpecker																					
White-throated Sparrow																					
White-throated Swift																					
White-winged Crossbill									2x		2x										
Wild Turkey																					
Willet																					
Williamson's Sapsucker																					
Willow Flycatcher																					
Wilson's Phalarope																					
Wilson's Warbler																					
Winter Wren																2x					
Wood Duck																					
Yellow Warbler																					
Yellow-bellied Sapsucker																					
Yellow-billed Cuckoo																					
Yellow-breasted Chat																					
Yellow-headed Blackbird																					
Yellow-rumped Warbler	2x	2x	2x	2x					2x	2x	2x		2x		2x	2x	2x	2x		2x	
Mammal																					
American Badger																					
American Beaver				1x			1x				1x			1x				1x		1x	1x
American Marten	2x	2x	2x						2x	2x					2x	2x	2x				
American Pika																					

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	COLD FOREST																				
	WHITEBARK PINE							ENGELMANN SPRUCE/SUBALPINE FIR							MT. HEMLOCK						
COVER TYPES	S208	S208	S208	S208	S208	S208	S208	S206	S206	S206	S206	S206	S206	S206	S205	S205	S205	S205	S205	S205	S205
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Belding's Ground Squirrel																					
Big Brown Bat	1x	1x	1x	1x			1x								1x	1x	1x	1x		1x	1x
Black Bear	1x	1x	1x	1x			1x		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Bobcat	1x	1x	1x	1x			1x		1x	1x	1x			1x	1x	1x	1x	1x		1x	1x
California Myotis															1x	1x	1x	1x		1x	1x
Columbian Ground Squirrel														1x							1x
Common Muskrat																					
Common Porcupine		1x	1x	1x			1x		1x	1x	1x		1x	1x							
Common Raccoon																					
Coyote	1x	1x	1x	1x			1x		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Deer Mouse	1x	1x	1x	1x			1x		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Dusky Shrew																					
Eastern Fox Squirrel																					
Ermine	1x	1x	1x	1x			1x		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Fisher																					
Fringed Myotis																					
Gapper Red-backed Vole																					
Great Basin Pocket Mouse																					
Golden-mantled Ground Squirrel	1x	1x	1x	1x			1x		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Heather Vole	1x	1x					1x		1x					1x	1x	1x					
Hoary Bat	2x	2x							2x					2x	2x	2x					
House Cat(feral)																					
House Mouse																					
Little Brown Myotis									1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Long-eared Myotis			2x	2x			2x				2x		2x	2x				2x		2x	2x
Long-legged Myotis											2x		2x		2x	2x	2x	2x		2x	
Long-tailed Myotis																					
Long-tailed Vole	1x	1x	1x				1x		1x	1x				1x	1x	1x	1x				1x
Long-tailed Weasel	1x	1x	1x	1x			1x		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Lynx									1x	1x	1x		1x	1x						1x	
Merriam's Shrew																					
Mink	1x	1x	1x	1x			1x		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Mountain vole	1x														1x						
Moose									1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Mountain Cottontail																					
Mountain Goat	2x	2x	2x	2x		2x	2x		2x	2x	2x			2x							

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	COLD FOREST																				
	WHITEBARK PINE							ENGELMANN SPRUCE/SUBALPINE FIR							MT. HEMLOCK						
COVER TYPES	S208	S208	S208	S208	S208	S208	S208	S206	S206	S206	S206	S206	S206	S206	S205	S205	S205	S205	S205	S205	S205
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Mountain Lion	1x	1x	1x	1x			1x		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Mule Deer	1x	1x	1x	1x			1x		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Northern Flying Squirrel	2x	2x	2x	2x					2x	2x	2x				2x	2x	2x	2x			
Northern Pocket Gopher	1x	1x							1x						1x	1x					
Northern River Otter	1x	1x	1x	1x			1x		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Pale Western Big-eared Bat																					
Pallid Bat																					
Preble's Shrew																					
Red Fox(native)	1x						1x							1x							
Red Squirrel	1x	1x	1x						1x	1x					1x	1x	1x				
Rocky Mountain(Bighorn)Sheep	2x						2x														
Sagebrush Vole																					
Silver-haired Bat	2x																				
Snowshoe Hare				1x			1x				1x		1x	1x				1x		1x	1x
Spotted Bat																					
Striped Skunk																					
Townsend's Big-eared Bat																					
Townsend's Ground Squirrel																					
Vagrant Shrew															1x	1x	1x	1x		1x	1x
Wapiti(elk)	1x	1x	1x	1x			1x		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Water Shrew									2x	2x	2x		2x		2x	2x	2x	2x		2x	
Water Vole									2x						2x	2x					
Western Harvest Mouse																					
Western Jumping Mouse													1x	1x							
Western Pipistrelle																					
Western Small-footed Myotis																					
Western Spotted Skunk																					
White-tailed Deer									1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
White-tailed Jackrabbit																					
Wolf		1x				1x	1x		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Wolverine	2x	2x	2x	2x		2x	2x		2x	2x	2x			2x	2x	2x	2x	2x			2x
Yellow-bellied Marmot																					
Yellow-pine Chipmunk	1x	1x	1x	1x			1x		1x	1x	1x			1x	1x	1x	1x	1x			1x
Yuma Myotis										2x					2x	2x	2x	2x			
Reptiles																					

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	COLD FOREST																				
	WHITEBARK PINE							ENGELMANN SPRUCE/SUBALPINE FIR							MT. HEMLOCK						
COVER TYPES	S208	S208	S208	S208	S208	S208	S208	S206	S206	S206	S206	S206	S206	S206	S205	S205	S205	S205	S205	S205	S205
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Common Garter Snake															2x	2x	2x	2x		2x	2x
Gopher Snake																					
Painted Turtle																					
Racer																					
Rubber Boa																					
Western Fence Lizard																					
Western Rattlesnake																					
Western Skink																					
Western Terrestrial Garter Snake	1x			1x			1x				1x			1x	1x			1x			1x
Fish																					
Black Bullhead																					
Black Crappie																					
Bluegill																					
Bridgelip Sucker																					
Brook Trout																					
Brown Bullhead																					
Bulltrout																					
Channel Catfish																					
Chinook Salmon																					
Chiselmouth																					
Common Carp																					
Cutthroat Trout																					
Flathead Catfish																					
Golden Trout																					
Goldfish																					
Largemouth Bass																					
Lake Trout																					
Largescale Sucker																					
Longnose Dace																					
Mountain Sucker																					
Mountain Whitefish																					
Northern Squawfish																					
Pacific Lamprey																					
Paiute Sculpin																					
Peamouth																					

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	COLD FOREST																				
	WHITEBARK PINE							ENGELMANN SPRUCE/SUBALPINE FIR							MT. HEMLOCK						
COVER TYPES	S208	S208	S208	S208	S208	S208	S208	S206	S206	S206	S206	S206	S206	S206	S205	S205	S205	S205	S205	S205	S205
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Pumpkinseed																					
Redband Trout																					
Rainbow Trout																					
Redside Shiner																					
American Shad																					
Shorthead Sculpin																					
Smallmouth Bass																					
Sockeye(incl. Kokanee)Salmon																					
Speckled Dace																					
Steelhead Trout																					
Tadpole Madtom																					
Torrent Sculpin																					
White Crappie																					
White Sturgeon																					
Yellow Bullhead																					
Yellow Perch																					

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY FOREST																				
	INTERIOR DOUGLAS FIR							WESTERN LARCH							LODGEPOLE PINE						
COVER TYPES	S210	S210	S210	S210	S210	S210	S210	S212	S212	S212	S212	S212	S212	S212	S218	S218	S218	S218	S218	S218	S218
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Amphibian																					
Bullfrog	1x	1x	1x	1x		1x	1x	1x	1x	1x			1x	1x							
Columbia Spotted Frog	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x
Long-toed Salamander	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Pacific Treefrog																					
Tailed Frog	2x	2x	2x	2x		2x	2x		2x	2x	2x		2x	2x	2x		2x	2x		2x	2x
Western Toad	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x
Leopard Frog																					
Bird																					
American Avocet																					
American Bittern																					
American Coot																					
American Crow																					
American Dipper	1x	1x	1x					1x	1x	1x					1x	1x	1x				
American Goldfinch				1x			1x														
American Kestrel							1x							1x							1x
American Redstart	2x	2x						2x													
American Robin	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
American Tree Sparrow																					
American White Pelican																					
American Widgeon																					
Ash-throated Flycatcher																					
Baird's Sandpiper																					
Bald Eagle	2x	2x						2x	2x												
Bank Swallow																					
Barn Owl																					
Barrows Goldeneye	2x	2x	2x	2x		2x		2x							2x	2x	2x	2x		2x	2x
Belted Kingfisher	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Black Rosy Finch																					
Black Tern	2x	2x	2x	2x		2x	2x	2x		2x	2x				2x	2x	2x	2x		2x	2x
Black Swift																					
Black-backed Woodpecker	2x	2x						2x	2x						2x	2x	2x				
Black-billed Magpie																					
Black-cappedChickadee	1x		1x	1x		1x	1x	1x		1x			1x	1x							
Black-chinned Hummingbird	2x	2x	2x	2x			2x	2x													

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY FOREST																				
	INTERIOR DOUGLAS FIR							WESTERN LARCH							LODGEPOLE PINE						
COVER TYPES	S210	S210	S210	S210	S210	S210	S210	S212	S212	S212	S212	S212	S212	S212	S218	S218	S218	S218	S218	S218	S218
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Black-crowned Night-heron																					
Black-headed Grosbeak			1x	1x		1x		1x		1x			1x								
Black-throated Gray Warbler																					
Black-necked Stilt																					
Blue Grouse	2x	2x	2x	2x			2x	2x	2x	2x	2x			2x							
Blue-winged Teal																					
Bobolink																					
Bohemian Waxwing																					
Bonaparte's Gull																					
Boreal Owl	2x	2x		2x				2x	2x		2x				2x	2x		2x			
Brewer's Blackbird																					
Brewer's Sparrow																					
Broad-tailed hummingbird	2x	2x		2x				2x	2x												
Brown Creeper	2x	2x						2x	2x												
Brown-headed Cowbird																					
Bufflehead	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x
Burrowing Owl																					
California Gull																					
Calliope Hummingbird	1x					1x	1x	1x					1x	1x	1x					1x	1x
Canada Goose																					
Canvasback																					
Canyon Wren																					
Cassin's Finch	1x	1x	1x	1x				1x	1x	1x	1x				1x	1x	1x	1x			
Cassin's Vireo	1x	1x	1x	1x		1x		1x	1x	1x	1x		1x								
Cedar Waxwing							1x							1x							
Chestnut-backed Chickadee	2x	2x						2x	2x												
Chipping Sparrow	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x	1x	1x		1x		1x	1x
Chukar																					
Cinnamon Teal																					
Clark's Nutcracker	1x	1x	1x	1x				1x	1x	1x											
Cliff Swallow																					
Columbian sharp-tailed Grouse																					
Common Goldeneye	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x
Common Loon	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x
Common Merganser	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x
Common Nighthawk						1x	1x						1x	1x							

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY FOREST																				
	INTERIOR DOUGLAS FIR							WESTERN LARCH							LODGEPOLE PINE						
COVER TYPES	S210	S210	S210	S210	S210	S210	S210	S212	S212	S212	S212	S212	S212	S212	S218	S218	S218	S218	S218	S218	S218
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Common Poorwill																					
Common Raven	1x	1x						1x	1x												
Common Redpoll																					
Common Snipe	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x
Common Tern																					
Common Yellowthroat																					
Cooper's Hawk		1x	1x						1x	1x						1x	1x				
Dark-eyed Junco	1x	1x	1x	1x			1x	1x	1x	1x	1x			1x	1x	1x	1x	1x			1x
Double-crested Cormorant																					
Downy Woodpecker																					
Dusky Flycatcher		1x	1x	1x			1x		1x	1x	1x			1x		1x	1x	1x			1x
Eared Grebe																					
Eastern Kingbird			1x	1x		1x	1x														
European Starling																					
Evening Grosbeak	1x	1x	1x					1x	1x	1x					1x	1x	1x				
Ferruginous Hawk																					
Flammulated Owl	2x	2x	2x	2x				2x	2x		2x										
Forster's Tern															2x	2x	2x	2x		2x	2x
Fox Sparrow																					
Franklin's Gull																					
Gadwall																					
Golden-crowned Kinglet	2x	2x						2x	2x						2x	2x					
Golden-crowned Sparrow																					
Golden Eagle																					
Grasshopper Sparrow																					
Gray Catbird																					
Cray-crowned Rosy Finch																					
Gray Jay	1x	1x	1x	1x				1x	1x	1x	1x				1x	1x	1x	1x			
Gray Partridge																					
Great Egret																					
Great Blue Heron	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x
Great Gray Owl	2x	2x		2x			2x	2x	2x		2x			2x	2x	2x		2x			2x
Great Horned Owl	1x	1x						1x	1x												
Greater Sandhill Crane	2x	2x	2x				2x								2x	2x	2x			2x	2x
Greater Scaup																					
Greater Yellowlegs																					

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY FOREST																				
	INTERIOR DOUGLAS FIR							WESTERN LARCH							LODGEPOLE PINE						
COVER TYPES	S210	S210	S210	S210	S210	S210	S210	S212	S212	S212	S212	S212	S212	S212	S218	S218	S218	S218	S218	S218	S218
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Green-winged Teal																					
Gyrfalcon																					
Hairy Woodpecker	1x	1x	1x	1x				1x	1x	1x	1x										
Hammond's Flycatcher	2x	2x						2x	2x						2x	2x					
Harlequin Duck	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x
Harris' Sparrow																					
Hermit Thrush	1x	1x	1x	1x				1x	1x	1x	1x										
Hooded Merganser	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x
Horned Grebe																					
Horned Lark																					
House Finch																					
House Sparrow																					
House Wren	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Killdeer																					
Lark Sparrow																					
Lazuli bunting							2x							2x							2x
Least Sandpiper																					
Lesser Scaup	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x
Lesser Yellowlegs																					
Lewis' Woodpecker		2x							2x												
Lincoln's Sparrow			1x	1x		1x	1x			1x	1x		1x	1x							
Loggerhead Shrike																					
Long-billed Curlew																					
Long-billed Dowitcher																					
Long-eared Owl	2x	2x		2x			2x	2x	2x		2x			2x							
Macgillivray's Warbler	1x	1x	1x	1x			1x								1x	1x	1x	1x			1x
Mallard	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x
Marbled Godwit																					
Marsh Wren																					
Merlin																					
Mountain Bluebird							1x							1x							1x
Mountain Chickadee	1x	1x	1x	1x		1x		1x	1x	1x	1x		1x		1x	1x	1x	1x		1x	
Mountain Quail		2x	2x	2x			2x														
Mourning Dove																					
Nashville Warbler			1x	1x		1x															
Northern Flicker	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x							

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY FOREST																				
	INTERIOR DOUGLAS FIR							WESTERN LARCH							LODGEPOLE PINE						
COVER TYPES	S210	S210	S210	S210	S210	S210	S210	S212	S212	S212	S212	S212	S212	S212	S218	S218	S218	S218	S218	S218	S218
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Northern Goshawk	2x	2x		2x				2x	2x		2x				2x	2x		2x			
Northern Harrier																					
Northern Oriole																					
Northern Pintail																					
Northern Pygmy Owl		1x																			
Northern Rough-winged Swallow																					
Northern Saw-whet Owl	1x	1x																			
Northern Shoveler																					
Northern Shrike																					
Olive-sided Flycatcher	2x	2x																			
Orange-crowned Warbler	1x		1x			1x									1x		1x			1x	
Osprey	1x	1x	1x	1x				1x	1x	1x	1x				1x	1x	1x	1x			
Peregrine Falcon	1x	1x	1x	1x		1x	1x								1x	1x	1x	1x		1x	1x
Pied-billed Grebe																					
Pileated Woodpecker	2x	2x						2x	2x												
Pine Grosbeak	1x	1x	1x					1x	1x	1x					1x	1x	1x				
Pine Siskin	2x	2x	2x	2x				2x	2x	2x	2x				2x	2x	2x	2x			
Prairie Falcon	1x	1x																			
Purple Finch																					
Pygmy Nuthatch																					
Red Crossbill	1x	1x	1x					1x	1x	1x											
Red-breasted Nuthatch	1x	1x	1x					1x	1x	1x											
Red-breasted Sapsucker		1x	1x																		
Red-eyed Vireo																					
Red-naped Sapsucker	1x	1x						1x	1x												
Red-necked Grebe	2x	2x	2x	2x		2x		2x	2x	2x	2x		2x		2x	2x	2x	2x		2x	
Red-necked Phalarope																					
Red-tailed Hawk	1x	1x	1x	1x			1x	1x	1x	1x	1x			1x	1x	1x	1x	1x			1x
Red-winged blackbird																					
Redhead																					
Ring-billed Gull																					
Ring-necked Duck	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x
Ring-necked Pheasant																					
Rock Dove																					
Rock Wren																					
Ross' Goose																					

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY FOREST																				
	INTERIOR DOUGLAS FIR							WESTERN LARCH							LODGEPOLE PINE						
COVER TYPES	S210	S210	S210	S210	S210	S210	S210	S212	S212	S212	S212	S212	S212	S212	S218	S218	S218	S218	S218	S218	S218
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Rough-legged Hawk																					
Ruby-crowned Kinglet	1x	1x	1x	1x				1x	1x	1x	1x				1x						
Ruddy Duck																					
Ruffed Grouse		1x	1x	1x		1x			1x	1x	1x		1x			1x	1x	1x		1x	
Rufous Hummingbird	2x	2x		2x			2x		2x		2x			2x							
Sage Sparrow																					
Sage Thrasher																					
Savannah Sparrow																					
Say's Phoebe																					
Semipalmated Plover																					
Sharp-shinned Hawk			1x	1x		1x				1x	1x		1x				1x	1x		1x	
Short-eared Owl																					
Snow Bunting																					
Snow Goose																					
Snowy Owl																					
Solitary Sandpiper																					
Sora	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x
Spotted Sandpiper	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x
Spotted Towhee																					
Spruce Grouse	1x	1x		1x				1x	1x		1x				1x	1x	1x	1x			
Steller's Jay	1x	1x	1x	1x				1x	1x	1x	1x										
Swainson's Hawk																					
Swainson's Thrush	1x	1x	1x	1x				1x	1x	1x	1x										
Three-toed Woodpecker															2x	2x					
Townsend's Solitaire	1x	1x	1x				1x		1x	1x				1x	1x	1x	1x				1x
Townsend's Warbler																					
Tree Swallow							1x	1x						1x							1x
Trumpeter Swan	2x	2x	2x			2x	2x								2x	2x	2x	2x		2x	2x
Tundra Swan																					
Turkey Vulture	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Upland Sandpiper																					
Varied Thrush	2x	2x						2x	2x												
Vaux's Swift	2x	2x						2x	2x												
Veery																					
Vesper Sparrow																					
Violet-green Swallow	1x	1x	1x	1x		1x		1x	1x	1x	1x		1x		1x	1x	1x	1x		1x	

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY FOREST																				
	INTERIOR DOUGLAS FIR							WESTERN LARCH							LODGEPOLE PINE						
COVER TYPES	S210	S210	S210	S210	S210	S210	S210	S212	S212	S212	S212	S212	S212	S212	S218	S218	S218	S218	S218	S218	S218
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Virginia Rail																					
Warbling Vireo																					
Western Bluebird							2x							2x							
Western Grebe																					
Western Kingbird																					
Western Meadowlark																					
Western Screech Owl																					
Western Tanager	1x	1x						1x	1x						1x	1x					
Western Wood-Pewee	1x	1x	1x	1x				1x	1x	1x	1x				1x	1x	1x	1x			
White-breasted Nuthatch																					
White-crowned Sparrow				1x			1x											1x			1x
White-faced Ibis																					
White-headed Woodpecker																					
White-throated Sparrow																					
White-throated Swift																					
White-winged Crossbill								2x	2x		2x				2x	2x		2x			
Wild Turkey	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x							
Willet																					
Williamson's Sapsucker	2x	2x						2x	2x												
Willow Flycatcher																					
Wilson's Phalarope																					
Wilson's Warbler																					
Winter Wren		2x							2x												
Wood Duck	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x
Yellow Warbler																					
Yellow-bellied Sapsucker																					
Yellow-billed Cuckoo																					
Yellow-breasted Chat																					
Yellow-headed Blackbird																					
Yellow-rumped Warbler	2x	2x	2x	2x		2x		2x	2x	2x	2x		2x		2x	2x	2x	2x		2x	
Mammal																					
American Badger																					
American Beaver				1x			1x				1x		1x	1x	1x	1x		1x		1x	1x
American Marten	2x	2x	2x					2x	2x	2x					2x	2x	2x				
American Pika																					

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY FOREST																				
	INTERIOR DOUGLAS FIR							WESTERN LARCH							LODGEPOLE PINE						
COVER TYPES	S210	S210	S210	S210	S210	S210	S210	S212	S212	S212	S212	S212	S212	S212	S218	S218	S218	S218	S218	S218	S218
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Belding's Ground Squirrel																					
Big Brown Bat	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Black Bear	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Bobcat	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
California Myotis	1x	1x	1x	1x		1x	1x														
Columbian Ground Squirrel							1x														1x
Common Muskrat	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Common Porcupine	1x		1x	1x		1x	1x	1x		1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Common Raccoon	1x	1x	1x	1x		1x	1x								1x	1x	1x	1x		1x	1x
Coyote	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Deer Mouse	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Dusky Shrew																					
Eastern Fox Squirrel																					
Ermine	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Fisher	2x	2x	2x					2x	2x	2x					2x		2x				
Fringed Myotis	2x	2x		2x																	
Gapper Red-backed Vole																					
Great Basin Pocket Mouse																					
Golden-mantled Ground Squirrel	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Heather Vole																					
Hoary Bat	2x	2x					2x	2x	2x						2x	2x					2x
House Cat(feral)																					
House Mouse																					
Little Brown Myotis	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x							
Long-eared Myotis	2x	2x	2x	2x		2x	2x	2x	2x		2x		2x	2x	2x	2x	2x	2x		2x	2x
Long-legged Myotis	2x	2x	2x	2x		2x		2x	2x		2x		2x							2x	
Long-tailed Myotis																					
Long-tailed Vole	1x	1x	1x				1x	1x	1x	1x				1x	1x	1x	1x				
Long-tailed Weasel	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Lynx		1x	1x	1x		1x	1x		1x	1x	1x			1x		1x	1x	1x			1x
Merriam's Shrew																					
Mink	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Mountain vole	1x							1x													
Moose	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x	1x						1x
Mountain Cottontail																					
Mountain Goat	2x	2x	2x	2x			2x								2x	2x	2x	2x			2x

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY FOREST																				
	INTERIOR DOUGLAS FIR							WESTERN LARCH							LODGEPOLE PINE						
COVER TYPES	S210	S210	S210	S210	S210	S210	S210	S212	S212	S212	S212	S212	S212	S212	S218	S218	S218	S218	S218	S218	S218
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Mountain Lion	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Mule Deer	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Northern Flying Squirrel	2x	2x	2x	2x				2x	2x	2x	2x				2x	2x	2x	2x			
Northern Pocket Gopher	1x	1x						1x	1x						1x	1x					
Northern River Otter	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x							
Pale Western Big-eared Bat	2x	2x	2x																		
Pallid Bat																					
Preble's Shrew																					
Red Fox(native)	1x						1x	1x						1x	1x						1x
Red Squirrel	1x	1x	1x					1x	1x	1x					1x	1x	1x				
Rocky Mountain(Bighorn)Sheep							2x							2x							2x
Sagebrush Vole																					
Silver-haired Bat	2x	2x						2x	2x						2x	2x					
Snowshoe Hare				1x		1x	1x											1x		1x	1x
Spotted Bat	2x	2x	2x																		
Striped Skunk																					
Townsend's Big-eared Bat																					
Townsend's Ground Squirrel																					
Vagrant Shrew	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x							
Wapiti(elk)	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
Water Shrew	2x	2x	2x	2x		2x		2x	2x	2x	2x		2x		2x	2x	2x	2x		2x	
Water Vole	2x	2x																			
Western Harvest Mouse																					
Western Jumping Mouse	1x					1x	1x	1x					1x	1x							
Western Pipistrelle																					
Western Small-footed Myotis	2x	2x	2x	2x											2x	2x	2x	2x		2x	2x
Western Spotted Skunk	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
White-tailed Deer	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x
White-tailed Jackrabbit																					
Wolf	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x			1x	1x	1x	1x	1x			1x
Wolverine	2x	2x	2x	2x			2x	2x	2x	2x	2x			2x	2x	2x	2x	2x		2x	2x
Yellow-bellied Marmot																					
Yellow-pine Chipmunk	1x	1x	1x	1x			1x	1x	1x	1x	1x			1x	1x	1x	1x	1x			1x
Yuma Myotis	2x	2x	2x	2x						2x					2x	2x	2x				
Reptiles																					

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY FOREST																				
	INTERIOR DOUGLAS FIR							WESTERN LARCH							LODGEPOLE PINE						
COVER TYPES	S210	S210	S210	S210	S210	S210	S210	S212	S212	S212	S212	S212	S212	S212	S218	S218	S218	S218	S218	S218	S218
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Common Garter Snake	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x
Gopher Snake	1x			1x			1x														
Painted Turtle																					
Racer	1x	1x	1x	1x		1x	1x														
Rubber Boa	2x			2x		2x	2x														
Western Fence Lizard	1x			1x			1x														
Western Rattlesnake				1x			1x														
Western Skink																					
Western Terrestrial Garter Snake	1x			1x			1x	1x			1x			1x	1x			1x			1x
Fish																					
Black Bullhead																					
Black Crappie																					
Bluegill																					
Bridgelip Sucker																					
Brook Trout																					
Brown Bullhead																					
Bulltrout																					
Channel Catfish																					
Chinook Salmon																					
Chiselmouth																					
Common Carp																					
Cutthroat Trout																					
Flathead Catfish																					
Golden Trout																					
Goldfish																					
Largemouth Bass																					
Lake Trout																					
Largescale Sucker																					
Longnose Dace																					
Mountain Sucker																					
Mountain Whitefish																					
Northern Squawfish																					
Pacific Lamprey																					
Paiute Sculpin																					
Peamouth																					

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY FOREST																				
	INTERIOR DOUGLAS FIR							WESTERN LARCH							LODGEPOLE PINE						
COVER TYPES	S210	S210	S210	S210	S210	S210	S210	S212	S212	S212	S212	S212	S212	S212	S218	S218	S218	S218	S218	S218	S218
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Pumpkinseed																					
Redband Trout																					
Rainbow Trout																					
Redside Shiner																					
American Shad																					
Shorthead Sculpin																					
Smallmouth Bass																					
Sockeye(incl. Kokanee)Salmon																					
Speckled Dace																					
Steelhead Trout																					
Tadpole Madtom																					
Torrent Sculpin																					
White Crappie																					
White Sturgeon																					
Yellow Bullhead																					
Yellow Perch																					

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY FOREST																				
	ASPEN							INTERIOR PONDEROSA PINE							COTTONWOOD/WILLOW						
COVER TYPES	S217	S217	S217	S217	S217	S217	S217	S237	S237	S237	S237	S237	S237	S237	S235	S235	S235	S235	S235	S235	S235
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Amphibian																					
Bullfrog		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x		1x	1x			1x	1x
Columbia Spotted Frog		2x	2x	2x		2x	2x	2x	2x	2x	2x	2x	2x	2x		2x	2x	2x		2x	2x
Long-toed Salamander		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x		1x	1x			1x	1x
Pacific Treefrog																1x	1x	1x		1x	1x
Tailed Frog		2x	2x	2x		2x	2x	2x	2x	2x	2x	2x	2x	2x		2x	2x	2x		2x	2x
Western Toad		2x	2x	2x		2x	2x	2x	2x	2x	2x	2x	2x	2x							
Leopard Frog																					
Bird																					
American Avocet																					
American Bittern																					
American Coot																					
American Crow		1x					1x			1x	1x			1x		1x	1x			1x	1x
American Dipper		1x	1x					1x	1x	1x						1x					
American Goldfinch				1x			1x				1x			1x				1x			1x
American Kestrel							1x							1x							1x
American Redstart								2x	2x												
American Robin		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x		1x	1x			1x	1x
American Tree Sparrow																					
American White Pelican																					2x
American Widgeon																					
Ash-throated Flycatcher																2x					
Baird's Sandpiper																					
Bald Eagle								2x	2x												
Bank Swallow																1x	1x	1x		1x	1x
Barn Owl																	1x			1x	1x
Barrows Goldeneye		2x	2x	2x		2x	2x	2x	2x	2x	2x	2x	2x	2x		2x	2x	2x		2x	2x
Belted Kingfisher		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x		1x	1x			1x	1x
Black Rosy Finch																					
Black Tern		2x	2x	2x		2x	2x	2x	2x	2x	2x	2x	2x	2x		2x	2x	2x		2x	2x
Black Swift		1x	1x	1x		1x	1x									1x	1x	1x		1x	1x
Black-backed Woodpecker		2x						2x	2x												
Black-billed Magpie														1x		1x	1x			1x	1x
Black-cappedChickadee			1x	1x		1x	1x	1x								1x	1x			1x	1x
Black-chinned Hummingbird		2x						2x	2x	2x		2x		2x		2x	2x				2x

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY FOREST																				
	ASPEN							INTERIOR PONDEROSA PINE							COTTONWOOD/WILLOW						
COVER TYPES	S217	S217	S217	S217	S217	S217	S217	S237	S237	S237	S237	S237	S237	S237	S235	S235	S235	S235	S235	S235	S235
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Black-crowned Night-heron																2x	2x	2x		2x	
Black-headed Grosbeak			1x	1x		1x		1x		1x	1x		1x				1x			1x	
Black-throated Gray Warbler																1x	1x	1x		1x	1x
Black-necked Stilt																					
Blue Grouse		2x	2x	2x		2x	2x	2x	2x		2x			2x							
Blue-winged Teal																					
Bobolink																					
Bohemian Waxwing																					
Bonaparte's Gull																					
Boreal Owl		2x		2x																	
Brewer's Blackbird																2x	2x	2x			2x
Brewer's Sparrow																					
Broad-tailed hummingbird		2x		2x			2x	2x	2x		2x			2x							
Brown Creeper								2x	2x												
Brown-headed Cowbird																					
Bufflehead		2x	2x	2x		2x	2x	2x	2x	2x	2x	2x	2x	2x		2x	2x	2x		2x	2x
Burrowing Owl																					
California Gull																					
Calliope Hummingbird						1x	1x	1x					1x	1x		1x	1x			1x	1x
Canada Goose																1x					
Canvasback																					
Canyon Wren																					
Cassin's Finch		1x	1x	1x				1x	1x	1x	1x					1x	1x				
Cassin's Vireo		1x	1x	1x		1x		1x	1x	1x	1x		1x			1x	1x			1x	
Cedar Waxwing						1x	1x							1x			1x			1x	1x
Chestnut-backed Chickadee		2x																			
Chipping Sparrow		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x		1x	1x	1x		1x	1x
Chukar																					
Cinnamon Teal																					
Clark's Nutcracker																					
Cliff Swallow																1x	1x				
Columbian sharp-tailed Grouse																					
Common Goldeneye		2x	2x	2x		2x	2x	2x	2x	2x	2x	2x	2x	2x		2x	2x	2x		2x	2x
Common Loon		2x	2x	2x		2x	2x	2x	2x	2x	2x	2x	2x	2x		2x	2x	2x		2x	2x
Common Merganser		2x	2x	2x		2x	2x	2x	2x	2x	2x	2x	2x	2x		2x	2x	2x		2x	2x
Common Nighthawk						1x	1x						1x	1x		1x	1x	1x		1x	1x

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY FOREST																				
	ASPEN							INTERIOR PONDEROSA PINE							COTTONWOOD/WILLOW						
COVER TYPES	S217	S217	S217	S217	S217	S217	S217	S237	S237	S237	S237	S237	S237	S237	S235	S235	S235	S235	S235	S235	S235
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Common Poorwill																					
Common Raven		1x						1x	1x							1x					
Common Redpoll																					
Common Snipe		2x	2x	2x		2x	2x	2x	2x	2x	2x	2x	2x	2x		2x	2x	2x		2x	2x
Common Tern																					
Common Yellowthroat																				1x	1x
Cooper's Hawk		1x	1x						1x	1x						1x	1x				
Dark-eyed Junco		1x	1x	1x			1x	1x	1x	1x	1x			1x		1x	1x	1x			1x
Double-crested Cormorant																1x					1x
Downy Woodpecker		1x	1x	1x		1x										1x	1x	1x		1x	
Dusky Flycatcher		1x	1x	1x			1x		1x	1x	1x			1x		1x	1x				1x
Eared Grebe																					
Eastern Kingbird										1x	1x		1x	1x			1x			1x	1x
European Starling																					
Evening Grosbeak		1x	1x					1x	1x	1x						1x	1x				
Ferruginous Hawk																					
Flammulated Owl		2x		2x				2x	2x		2x										
Forster's Tern		2x	2x	2x		2x	2x	2x	2x	2x	2x	2x	2x	2x		2x	2x	2x		2x	2x
Fox Sparrow						2x	2x									2x	2x	2x		2x	2x
Franklin's Gull																					
Gadwall																					
Golden-crowned Kinglet																					
Golden-crowned Sparrow																					
Golden Eagle																					
Grasshopper Sparrow																					
Gray Catbird		1x	1x	1x		1x	1x									1x	1x			1x	1x
Cray-crowned Rosy Finch																					
Gray Jay								1x	1x	1x											
Gray Partridge																					
Great Egret																2x	2x	2x		2x	
Great Blue Heron		2x	2x	2x		2x	2x	2x	2x	2x	2x	2x	2x	2x		2x	2x	2x		2x	2x
Great Gray Owl		2x		2x			2x														
Great Horned Owl		1x						1x	1x							1x					
Greater Sandhill Crane		2x	2x			2x	2x		2x	2x			2x	2x		2x	2x	2x		2x	2x
Greater Scaup																					
Greater Yellowlegs																					

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY FOREST																				
	ASPEN							INTERIOR PONDEROSA PINE							COTTONWOOD/WILLOW						
COVER TYPES	S217	S217	S217	S217	S217	S217	S217	S237	S237	S237	S237	S237	S237	S237	S235	S235	S235	S235	S235	S235	S235
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Green-winged Teal																					
Gyrfalcon																					
Hairy Woodpecker		1x	1x	1x				1x	1x	1x	1x					1x	1x				
Hammond's Flycatcher		2x						2x	2x												
Harlequin Duck		2x	2x	2x		2x	2x	2x	2x	2x	2x		2x	2x							
Harris' Sparrow																	1x			1x	1x
Hermit Thrush		1x	1x	1x				1x	1x	1x	1x										
Hooded Merganser		2x	2x	2x		2x	2x	2x	2x	2x	2x	2x	2x	2x		2x	2x	2x		2x	2x
Horned Grebe																					
Horned Lark																					
House Finch																					
House Sparrow																					
House Wren		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x		1x	1x			1x	1x
Killdeer																					
Lark Sparrow																					
Lazuli bunting				2x			2x				2x			2x		2x	2x	2x			2x
Least Sandpiper																					
Lesser Scaup		2x	2x	2x		2x	2x	2x	2x	2x	2x	2x	2x	2x		2x	2x	2x		2x	2x
Lesser Yellowlegs																					
Lewis' Woodpecker								2x								2x					
Lincoln's Sparrow			1x	1x		1x	1x										1x	1x		1x	1x
Loggerhead Shrike																					
Long-billed Curlew													2x	2x							
Long-billed Dowitcher																					
Long-eared Owl		2x		2x			2x									2x	2x	2x			2x
Macgillivray's Warbler		1x	1x	1x			1x									1x	1x	1x			1x
Mallard		2x	2x	2x		2x	2x	2x	2x	2x	2x	2x	2x	2x		2x	2x	2x		2x	2x
Marbled Godwit																					
Marsh Wren																					
Merlin			1x	1x				1x	1x	1x							1x	1x			
Mountain Bluebird							1x							1x							
Mountain Chickadee		1x	1x					1x	1x	1x	1x		1x								
Mountain Quail																					
Mourning Dove																1x	1x	1x		1x	1x
Nashville Warbler			1x	1x		1x	1x			1x	1x		1x	1x							
Northern Flicker		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x		1x	1x			1x	1x

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY FOREST																				
	ASPEN							INTERIOR PONDEROSA PINE							COTTONWOOD/WILLOW						
COVER TYPES	S217	S217	S217	S217	S217	S217	S217	S237	S237	S237	S237	S237	S237	S237	S235	S235	S235	S235	S235	S235	S235
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Northern Goshawk		2x		2x				2x	2x	2x	2x	2x	2x	2x		2x		2x			
Northern Harrier																					
Northern Oriole		1x		1x			1x									1x	1x			1x	1x
Northern Pintail																					
Northern Pygmy Owl		1x						1x	1x	1x											
Northern Rough-winged Swallow																1x	1x	1x		1x	1x
Northern Saw-whet Owl								1x	1x							1x					
Northern Shoveler																					
Northern Shrike																					
Olive-sided Flycatcher																					
Orange-crowned Warbler			1x			1x		1x		1x			1x				1x			1x	
Osprey								1x	1x	1x	1x					1x	1x	1x			
Peregrine Falcon		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x		1x	1x			1x	1x
Pied-billed Grebe																					
Pileated Woodpecker																					
Pine Grosbeak		1x	1x					1x	1x	1x						1x	1x				
Pine Siskin								2x	2x	2x	2x					2x	2x	2x			
Prairie Falcon								1x	1x												
Purple Finch																					
Pygmy Nuthatch								2x	2x												
Red Crossbill																					
Red-breasted Nuthatch		1x	1x	1x				1x	1x	1x						1x	1x				
Red-breasted Sapsucker		1x	1x	1x					1x	1x						1x	1x	1x			
Red-eyed Vireo		2x														2x					
Red-naped Sapsucker		1x	1x	1x		1x										1x	1x	1x		1x	
Red-necked Grebe		2x	2x	2x		2x		2x	2x	2x	2x	2x	2x	2x		2x	2x	2x		2x	2x
Red-necked Phalarope																					
Red-tailed Hawk		1x	1x	1x			1x	1x	1x	1x	1x			1x		1x	1x	1x			1x
Red-winged blackbird			1x				1x									1x	1x			1x	1x
Redhead																					
Ring-billed Gull																					
Ring-necked Duck		2x	2x	2x		2x	2x	2x	2x	2x	2x	2x	2x	2x		2x	2x	2x		2x	2x
Ring-necked Pheasant																					
Rock Dove																					
Rock Wren																					
Ross' Goose																					

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY FOREST																				
	ASPEN							INTERIOR PONDEROSA PINE							COTTONWOOD/WILLOW						
COVER TYPES	S217	S217	S217	S217	S217	S217	S217	S237	S237	S237	S237	S237	S237	S237	S235	S235	S235	S235	S235	S235	S235
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Rough-legged Hawk																					
Ruby-crowned Kinglet		1x						1x	1x	1x	1x					1x	1x				
Ruddy Duck																					
Ruffed Grouse		1x	1x	1x		1x										1x	1x	1x		1x	
Rufous Hummingbird		2x		2x			2x	2x	2x		2x			2x		2x	2x	2x			2x
Sage Sparrow																					
Sage Thrasher																					
Savannah Sparrow																					
Say's Phoebe																					
Semipalmated Plover																					
Sharp-shinned Hawk			1x	1x		1x				1x	1x		1x				1x	1x		1x	
Short-eared Owl																					
Snow Bunting																					
Snow Goose																					
Snowy Owl																					
Solitary Sandpiper																					
Sora		2x	2x	2x		2x	2x	2x	2x	2x	2x	2x	2x	2x		2x	2x	2x		2x	2x
Spotted Sandpiper		2x	2x	2x		2x	2x	2x	2x	2x	2x	2x	2x	2x		2x	2x	2x		2x	2x
Spotted Towhee																					
Spruce Grouse																					
Steller's Jay		1x		1x				1x	1x	1x	1x					1x	1x	1x			
Swainson's Hawk																					
Swainson's Thrush		1x	1x	1x				1x	1x	1x	1x					1x	1x	1x			
Three-toed Woodpecker																					
Townsend's Solitaire		1x	1x				1x	1x	1x	1x				1x							
Townsend's Warbler																					
Tree Swallow							1x							1x							1x
Trumpeter Swan		2x	2x	2x		2x	2x	2x	2x	2x	2x	2x	2x	2x		2x	2x	2x		2x	2x
Tundra Swan																					
Turkey Vulture		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x		1x	1x	1x		1x	1x
Upland Sandpiper													2x	2x							
Varied Thrush																					
Vaux's Swift																					
Veery																2x	2x	2x			
Vesper Sparrow																					
Violet-green Swallow		1x	1x	1x		1x		1x	1x		1x		1x			1x	1x	1x		1x	

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY FOREST																				
	ASPEN							INTERIOR PONDEROSA PINE							COTTONWOOD/WILLOW						
COVER TYPES	S217	S217	S217	S217	S217	S217	S217	S237	S237	S237	S237	S237	S237	S237	S235	S235	S235	S235	S235	S235	S235
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Virginia Rail																2x	2x	2x		2x	2x
Warbling Vireo		1x	1x	1x		1x										1x	1x			1x	
Western Bluebird		2x					2x	2x						2x							
Western Grebe																					
Western Kingbird																					
Western Meadowlark																					
Western Screech Owl		1x	1x	1x												1x	1x	1x			
Western Tanager		1x						1x	1x		1x		1x			1x					
Western Wood-Pewee		1x	1x	1x				1x	1x	1x	1x					1x	1x				
White-breasted Nuthatch		2x						2x	2x	2x						2x	2x				
White-crowned Sparrow		1x	1x	1x		1x	1x									1x	1x	1x		1x	1x
White-faced Ibis																					
White-headed Woodpecker								2x	2x												
White-throated Sparrow																					
White-throated Swift		1x	1x	1x		1x	1x									1x	1x	1x		1x	1x
White-winged Crossbill																					
Wild Turkey		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x		1x	1x	1x		1x	1x
Willet																					
Williamson's Sapsucker		2x						2x	2x							2x					
Willow Flycatcher																	2x				2x
Wilson's Phalarope																					
Wilson's Warbler																					
Winter Wren																					
Wood Duck		2x	2x	2x		2x	2x	2x	2x	2x	2x	2x	2x	2x		2x	2x	2x		2x	2x
Yellow Warbler																1x	1x	1x			1x
Yellow-bellied Sapsucker		1x	1x													1x	1x				
Yellow-billed Cuckoo																2x	2x	2x			
Yellow-breasted Chat																2x	2x				2x
Yellow-headed Blackbird																					
Yellow-rumped Warbler								2x	2x	2x	2x		2x			2x	2x			2x	
Mammal																					
American Badger																					
American Beaver		1x	1x	1x		1x	1x				1x		1x	1x		1x	1x			1x	1x
American Marten		2x	2x																		
American Pika																					

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY FOREST																				
	ASPEN							INTERIOR PONDEROSA PINE							COTTONWOOD/WILLOW						
COVER TYPES	S217	S217	S217	S217	S217	S217	S217	S237	S237	S237	S237	S237	S237	S237	S235	S235	S235	S235	S235	S235	S235
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Belding's Ground Squirrel																					
Big Brown Bat		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x		1x	1x			1x	1x
Black Bear		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x		1x	1x			1x	1x
Bobcat		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x		1x	1x			1x	1x
California Myotis								1x	1x	1x	1x		1x	1x							
Columbian Ground Squirrel							1x							1x							
Common Muskrat		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x		1x	1x			1x	1x
Common Porcupine		1x	1x	1x		1x	1x		1x	1x	1x		1x	1x		1x	1x			1x	1x
Common Raccoon		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x		1x	1x			1x	1x
Coyote			1x	1x		1x	1x	1x	1x	1x	1x		1x	1x		1x	1x			1x	1x
Deer Mouse		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x		1x	1x			1x	1x
Dusky Shrew																					
Eastern Fox Squirrel																1x	1x	1x		1x	1x
Ermine								1x	1x	1x	1x		1x	1x							
Fisher																2x	2x				
Fringed Myotis								2x	2x	2x	2x										
Gapper Red-backed Vole																					
Great Basin Pocket Mouse																					
Golden-mantled Ground Squirrel								1x	1x	1x	1x		1x	1x							
Heather Vole																					
Hoary Bat							2x	2x	2x			2x		2x		2x					2x
House Cat(feral)																					
House Mouse																					
Little Brown Myotis								1x	1x	1x	1x		1x	1x							
Long-eared Myotis		2x				2x	2x	2x	2x	2x	2x	2x	2x	2x		2x				2x	2x
Long-legged Myotis		2x		2x		2x		2x	2x	2x	2x		2x			2x	2x			2x	
Long-tailed Myotis																					
Long-tailed Vole		1x	1x				1x	1x	1x	1x				1x		1x	1x				1x
Long-tailed Weasel		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x		1x	1x			1x	1x
Lynx		1x	1x	1x			1x									1x		1x			1x
Merriam's Shrew																					
Mink		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x		1x	1x			1x	1x
Mountain vole																					
Moose		1x	1x	1x		1x	1x									1x	1x			1x	1x
Mountain Cottontail																					
Mountain Goat								2x	2x	2x	2x	2x		2x							

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY FOREST																				
	ASPEN							INTERIOR PONDEROSA PINE							COTTONWOOD/WILLOW						
COVER TYPES	S217	S217	S217	S217	S217	S217	S217	S237	S237	S237	S237	S237	S237	S237	S235	S235	S235	S235	S235	S235	S235
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Mountain Lion		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x		1x	1x			1x	1x
Mule Deer		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x		1x	1x			1x	1x
Northern Flying Squirrel		2x	2x	2x				2x	2x	2x						2x					
Northern Pocket Gopher		1x						1x								1x					
Northern River Otter		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x		1x	1x			1x	1x
Pale Western Big-eared Bat								2x	2x		2x					2x					
Pallid Bat								2x	2x												
Preble's Shrew																					
Red Fox(native)							1x	1x						1x							1x
Red Squirrel								1x	1x	1x											
Rocky Mountain(Bighorn)Sheep							2x							2x							
Sagebrush Vole																					
Silver-haired Bat		2x						2x	2x			2x				2x					
Snowshoe Hare				1x		1x	1x														
Spotted Bat								2x	2x		2x			2x							
Striped Skunk																1x	1x			1x	1x
Townsend's Big-eared Bat																					
Townsend's Ground Squirrel																					
Vagrant Shrew		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x		1x	1x			1x	1x
Wapiti(elk)		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x		1x	1x			1x	1x
Water Shrew		2x	2x	2x		2x		2x								2x	2x			2x	
Water Vole																					
Western Harvest Mouse								1x						1x		1x					1x
Western Jumping Mouse			1x	1x		1x	1x	1x						1x							1x
Western Pipistrelle																					
Western Small-footed Myotis								2x	2x	2x	2x					2x	2x				
Western Spotted Skunk		1x	1x	1x		1x	1x	1x	1x	1x	1x		1x	1x		1x	1x			1x	1x
White-tailed Deer								1x	1x	1x	1x		1x	1x		1x	1x			1x	1x
White-tailed Jackrabbit																					
Wolf		1x	1x	1x		1x	1x	1x	1x	1x	1x			1x		1x	1x	1x		1x	1x
Wolverine							2x														
Yellow-bellied Marmot																					
Yellow-pine Chipmunk								1x	1x	1x	1x			1x							
Yuma Myotis			2x					2x	2x	2x	2x	2x					2x				
Reptiles																					

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY FOREST																				
	ASPEN							INTERIOR PONDEROSA PINE							COTTONWOOD/WILLOW						
COVER TYPES	S217	S217	S217	S217	S217	S217	S217	S237	S237	S237	S237	S237	S237	S237	S235	S235	S235	S235	S235	S235	S235
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Common Garter Snake		2x	2x	2x		2x	2x	2x	2x	2x	2x	2x	2x	2x		2x	2x	2x		2x	2x
Gopher Snake											1x			1x							1x
Painted Turtle		2x	2x	2x		2x	2x	2x	2x	2x	2x	2x	2x	2x		2x	2x	2x		2x	2x
Racer								1x	1x	1x	1x		1x	1x							
Rubber Boa								2x			2x		2x	2x							
Western Fence Lizard								1x			1x			1x							1x
Western Rattlesnake				1x			1x	1x			1x			1x				1x			1x
Western Skink														1x							
Western Terrestrial Garter Snake				1x			1x	1x			1x			1x							1x
Fish																					
Black Bullhead																					
Black Crappie																					
Bluegill																					
Bridgelip Sucker																					
Brook Trout																					
Brown Bullhead																					
Bulltrout																					
Channel Catfish																					
Chinook Salmon																					
Chiselmouth																					
Common Carp																					
Cutthroat Trout																					
Flathead Catfish																					
Golden Trout																					
Goldfish																					
Largemouth Bass																					
Lake Trout																					
Largescale Sucker																					
Longnose Dace																					
Mountain Sucker																					
Mountain Whitefish																					
Northern Squawfish																					
Pacific Lamprey																					
Paiute Sculpin																					
Peamouth																					

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY FOREST																				
	ASPEN							INTERIOR PONDEROSA PINE							COTTONWOOD/WILLOW						
COVER TYPES	S217	S217	S217	S217	S217	S217	S217	S237	S237	S237	S237	S237	S237	S237	S235	S235	S235	S235	S235	S235	S235
STAND STRUCTURE	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ofs	Ofm	Yf	Ur	Seo	Sec	Si
SPECIES / RESIDENCE * ASSESS																					
Pumpkinseed																					
Redband Trout																					
Rainbow Trout																					
Redside Shiner																					
American Shad																					
Shorthead Sculpin																					
Smallmouth Bass																					
Sockeye(incl. Kokanee)Salmon																					
Speckled Dace																					
Steelhead Trout																					
Tadpole Madtom																					
Torrent Sculpin																					
White Crappie																					
White Sturgeon																					
Yellow Bullhead																					
Yellow Perch																					

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

			MOIST FOREST							COOL SHRUB											DRY
	JUNIP	MCW	GRAND FIR							SHRB HERB/TREE REGEN				MT. MAHOG.		BIG SAGE		CHOK/SERV/ROS			SHR
COVER TYPES	CS01	CS02	CS09	CS09	CS09	CS09	CS09	CS09	CS09	C003	C003	C003	C003	R322	R322	R402	R402	R421	R421	R421	R104
STAND STRUCTURE	Wdl	Wdl	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ots	Olms	Clms	Ch	Olms	Clms	Olms	Clms	Ots	Olms	Clms	Clms
SPECIES / RESIDENCE * ASSESS																					
Amphibian																					
Bullfrog			1x	1x	1x	1x		1x	1x												
Columbia Spotted Frog	2x	2x	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x
Long-toed Salamander	1x	1x	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x
Pacific Treefrog		1x								1x	1x	1x	1x	1x	1x						1x
Tailed Frog	2x	2x	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x
Western Toad			2x	2x	2x	2x		2x	2x												
Leopard Frog																					
Bird																					
American Avocet														2x		2x					
American Bittern																2x	2x				
American Coot																					
American Crow	1x	1x																			
American Dipper			1x	1x	1x																
American Goldfinch	1x	1x								1x	1x	1x	1x								
American Kestrel	1x	1x			3s				3s	1x	1x		1x	1x		1x		1x	1x		
American Redstart			2x	2x																	
American Robin	1x	1x	1x	3s	3s	3s		3s	3s	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x
American Tree Sparrow																					
American White Pelican																					
American Widgeon																2x	2x				2x
Ash-throated Flycatcher	2x	2x												2x	2x						
Baird's Sandpiper																					
Bald Eagle	2x	2x	2x	2x										2x	2x	2x	2x				2x
Bank Swallow														1x	1x	1x	1x				1x
Barn Owl																1x					
Barrows Goldeneye	2x	2x	2x	2x	2x	2x		2x	2x							2x	2x				2x
Belted Kingfisher	1x	1x	1x	1x	1x	1x		1x	1x									1x	1x	1x	
Black Rosy Finch																					
Black Tern	2x	2x	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x			2x	2x	2x	2x	2x	2x
Black Swift						1x															
Black-backed Woodpecker			2x	2x	3s			3s													
Black-billed Magpie	1x	1x								1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	
Black-cappedChickadee				3s	3s																
Black-chinned Hummingbird	2x	2x												2x	2x			2x	2x	2x	

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

			MOIST FOREST							COOL SHRUB											DRY
	JUNIP	MCW	GRAND FIR							SHRB HERB/TREE REGEN				MT. MAHOG.		BIG SAGE		CHOK/SERV/ROS			SHR
COVER TYPES	CS01	CS02	CS09	CS09	CS09	CS09	CS09	CS09	CS09	C003	C003	C003	C003	R322	R322	R402	R402	R421	R421	R421	R104
STAND STRUCTURE	Wdl	Wdl	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ots	Olms	Clms	Ch	Olms	Clms	Olms	Clms	Ots	Olms	Clms	Clms
SPECIES / RESIDENCE * ASSESS																					
Black-crowned Night-heron											2x	2x	2x			2x	2x	2x	2x	2x	2x
Black-headed Grosbeak				3s	3s	1x		3s						1x	1x			1x	1x	1x	
Black-throated Gray Warbler																					
Black-necked Stilt														2x							
Blue Grouse		2x														2x	2x	2x	2x	2x	2x
Blue-winged Teal																2x	2x				2x
Bobolink																					
Bohemian Waxwing																					
Bonaparte's Gull																					
Boreal Owl			2x																		
Brewer's Blackbird														2x	2x	2x	2x		2x	2x	2x
Brewer's Sparrow														2x	2x	2x	2x				2x
Broad-tailed hummingbird		2x	2x	2x		2x			2x												
Brown Creeper			2x	2x	3s	3s		3s													
Brown-headed Cowbird				3s	3s	3s		3s	3s												
Bufflehead	2x	2x	2x	2x	2x	2x		2x	2x							2x	2x				2x
Burrowing Owl																2x	2x				
California Gull																					
Calliope Hummingbird			1x					1x	1x	1x	1x	1x	1x					1x	1x	1x	
Canada Goose																					
Canvasback																2x	2x				2x
Canyon Wren	1x	1x																			
Cassin's Finch	1x	1x	1x	3s	3s	3s		3s	3s												
Cassin's Vireo				3s	3s	3s		3s	3s												
Cedar Waxwing	1x	1x							3s					1x	1x			1x	1x	1x	
Chestnut-backed Chickadee			2x	3s	3s	3s															
Chipping Sparrow	1x	1x	1x	3s	3s	3s		3s	3s												
Chukar	1x	1x												1x	1x	1x			1x		1x
Cinnamon Teal																2x	2x				2x
Clark's Nutcracker					3s																
Cliff Swallow														1x	1x	1x	1x				1x
Columbian sharp-tailed Grouse														2x	2x			2x	2x	2x	2x
Common Goldeneye	2x	2x	2x	2x	2x	2x		2x	2x							2x	2x				2x
Common Loon			2x	2x	2x	2x		2x	2x												
Common Merganser	2x	2x	2x	2x	2x	2x		2x	2x							2x	2x				2x
Common Nighthawk	1x	1x						1x	1x					1x	1x	1x	1x				1x

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

			MOIST FOREST							COOL SHRUB											DRY
	JUNIP	MCW	GRAND FIR							SHRB HERB/TREE REGEN				MT. MAHOG.		BIG SAGE		CHOK/SERV/ROS			SHR
COVER TYPES	CS01	CS02	CS09	CS09	CS09	CS09	CS09	CS09	CS09	C003	C003	C003	C003	R322	R322	R402	R402	R421	R421	R421	R104
STAND STRUCTURE	Wdl	Wdl	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ots	Olms	Clms	Ch	Olms	Clms	Olms	Clms	Ots	Olms	Clms	Clms
SPECIES / RESIDENCE * ASSESS																					
Common Poorwill																					
Common Raven	1x	1x	1x	3s	3s			3s	3s												
Common Redpoll																					
Common Snipe	2x	2x	2x	2x	3s	2x		2x	3s	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x
Common Tern																					
Common Yellowthroat																					
Cooper's Hawk	1x	1x		1x	3s			3s													
Dark-eyed Junco	1x	1x	1x	3s	3s	3s		3s	3s	1x	1x	1x	1x	1x	1x	1x	1x		1x		1x
Double-crested Cormorant																					
Downy Woodpecker					3s				3s												
Dusky Flycatcher				3s	3s	3s		3s	3s	1x	1x	1x	1x					1x	1x	1x	
Eared Grebe																					
Eastern Kingbird	1x	1x												1x	1x		1x	1x	1x	1x	1x
European Starling																					
Evening Grosbeak	1x	1x	1x	3s	3s	3s		3s													
Ferruginous Hawk	2x																2x				
Flammulated Owl		2x	2x	2x		2x															
Forster's Tern	2x	2x	2x	2x	2x	2x		2x	2x							2x	2x				2x
Fox Sparrow				3s		3s			3s					2x	2x			2x	2x	2x	
Franklin's Gull																					
Gadwall																2x	2x				2x
Golden-crowned Kinglet			2x	3s	3s	3s		3s													
Golden-crowned Sparrow																					
Golden Eagle	1x	1x								1x	1x	1x	1x	1x	1x	1x		1x	1x		1x
Grasshopper Sparrow																2x					
Gray Catbird																					
Cray-crowned Rosy Finch																					
Gray Jay			1x	3s	3s	3s		3s	3s												
Gray Partridge	1x	1x												1x	1x				1x	1x	1x
Great Egret										2x	2x	2x	2x				2x		2x		2x
Great Blue Heron	2x	2x	2x	2x	2x	2x		2x	2x							2x	2x				2x
Great Gray Owl			2x	2x		2x			2x		2x	2x	2x								
Great Horned Owl	1x	1x	1x	1x																	
Greater Sandhill Crane	2x	2x														2x	2x				2x
Greater Scaup																					
Greater Yellowlegs																					

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

			MOIST FOREST							COOL SHRUB											DRY
	JUNIP	MCW	GRAND FIR							SHRB HERB/TREE REGEN				MT. MAHOG.		BIG SAGE		CHOK/SERV/ROS			SHR
COVER TYPES	CS01	CS02	CS09	CS09	CS09	CS09	CS09	CS09	CS09	C003	C003	C003	C003	R322	R322	R402	R402	R421	R421	R421	R104
STAND STRUCTURE	Wdl	Wdl	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ots	Olms	Clms	Ch	Olms	Clms	Olms	Clms	Ots	Olms	Clms	Clms
SPECIES / RESIDENCE * ASSESS																					
Green-winged Teal																2x	2x				2x
Gyrfalcon																					
Hairy Woodpecker			1x	3s	3s	3s		3s	3s												
Hammond's Flycatcher			2x	3s	3s	3s		3s	3s												
Harlequin Duck			2x	2x	2x	2x		2x	2x												
Harris' Sparrow	1x	1x												1x	1x	1x	1x	1x	1x	1x	
Hermit Thrush				3s	3s	3s		3s	3s												
Hooded Merganser	2x	2x	2x	2x	2x	2x		2x	2x							2x	2x				2x
Horned Grebe																					
Horned Lark																1x	1x				
House Finch																					
House Sparrow																					
House Wren	1x	1x			3s	3s			3s	1x	1x	1x	1x								
Killdeer																					
Lark Sparrow																					2x
Lazuli bunting				3s					3s									2x	2x	2x	
Least Sandpiper																					
Lesser Scaup	2x	2x	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x			2x	2x	2x			2x
Lesser Yellowlegs																					
Lewis' Woodpecker																					
Lincoln's Sparrow					3s	1x		1x	1x												
Loggerhead Shrike	2x	2x												2x				2x	2x	2x	2x
Long-billed Curlew	2x	2x														2x	2x				2x
Long-billed Dowitcher																					
Long-eared Owl	2x	2x	2x	2x		2x			2x	2x	2x	2x	2x			2x	2x	2x	2x	2x	
Macgillivray's Warbler			1x	3s	3s	3s		3s	3s					1x	1x			1x	1x	1x	
Mallard	2x	2x	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x
Marbled Godwit														1x	1x						1x
Marsh Wren														1x	1x	1x	1x				1x
Merlin		1x								1x						1x	1x		1x	1x	
Mountain Bluebird	1x	1x							3s	1x	1x	1x	1x	1x	1x	1x	1x				1x
Mountain Chickadee	1x	1x	1x	3s	3s	3s		3s	3s												
Mountain Quail																		2x	2x	2x	
Mourning Dove	1x	1x			3s					1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x
Nashville Warbler	1x	1x		3s	3s	3s		1x		1x	1x	1x	1x								
Northern Flicker	1x	1x	1x	3s	3s	3s		3s	3s	1x	1x	1x	1x								

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

			MOIST FOREST							COOL SHRUB											DRY
	JUNIP	MCW	GRAND FIR							SHRB HERB/TREE REGEN				MT. MAHOG.		BIG SAGE		CHOK/SERV/ROS			SHR
COVER TYPES	CS01	CS02	CS09	CS09	CS09	CS09	CS09	CS09	CS09	C003	C003	C003	C003	R322	R322	R402	R402	R421	R421	R421	R104
STAND STRUCTURE	Wdl	Wdl	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ots	Olms	Clms	Ch	Olms	Clms	Olms	Clms	Ots	Olms	Clms	Clms
SPECIES / RESIDENCE * ASSESS																					
Northern Goshawk	2x	2x	2x	3s		2x												2x	2x	2x	
Northern Harrier																1x	1x				
Northern Oriole	1x													1x	1x	1x	1x				1x
Northern Pintail																2x	2x				2x
Northern Pygmy Owl				1x	3s																
Northern Rough-winged Swallow														1x	1x	1x	1x				1x
Northern Saw-whet Owl			1x	3s																	
Northern Shoveler																2x	2x				2x
Northern Shrike	1x	1x														1x	1x	1x	1x	1x	
Olive-sided Flycatcher			2x	3s	3s				3s												
Orange-crowned Warbler	1x	1x	1x	3s	3s	3s		3s	3s									1x	1x	1x	
Osprey			1x	1x	1x	1x															
Peregrine Falcon	1x	1x	1x	1x	1x	1x		1x	1x					1x	1x	1x	1x				1x
Pied-billed Grebe																					
Pileated Woodpecker			2x	3s	3s	3s															
Pine Grosbeak	1x	1x	1x	1x	1x																
Pine Siskin	2x	2x	2x	3s	3s	3s		3s	3s												
Prairie Falcon	1x																				
Purple Finch																					
Pygmy Nuthatch																					
Red Crossbill			1x	3s	3s	3s															
Red-breasted Nuthatch			1x	3s	3s	3s		3s	3s												
Red-breasted Sapsucker																					
Red-eyed Vireo																					
Red-naped Sapsucker			1x	3s	3s	3s		3s	3s												
Red-necked Grebe			2x	2x	2x	2x		2x	2x												
Red-necked Phalarope																					
Red-tailed Hawk	1x	1x	1x	3s	3s	3s			3s	1x	1x	1x	1x	1x	1x	1x		1x	1x		1x
Red-winged blackbird														1x	1x	1x	1x		1x	1x	1x
Redhead																2x	2x				2x
Ring-billed Gull																					
Ring-necked Duck			2x	2x	2x	2x		2x	2x												
Ring-necked Pheasant																					
Rock Dove																					
Rock Wren	1x	1x												1x	1x						1x
Ross' Goose																					

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

			MOIST FOREST							COOL SHRUB											DRY
	JUNIP	MCW	GRAND FIR							SHRB HERB/TREE REGEN				MT. MAHOG.		BIG SAGE		CHOK/SERV/ROS			SHR
COVER TYPES	CS01	CS02	CS09	CS09	CS09	CS09	CS09	CS09	CS09	C003	C003	C003	C003	R322	R322	R402	R402	R421	R421	R421	R104
STAND STRUCTURE	Wdl	Wdl	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ots	Olms	Clms	Ch	Olms	Clms	Olms	Clms	Ots	Olms	Clms	Clms
SPECIES / RESIDENCE * ASSESS																					
Rough-legged Hawk	1x	1x												1x	1x	1x	1x				1x
Ruby-crowned Kinglet	1x	1x	1x	3s	3s	3s		3s	3s												
Ruddy Duck																2x	2x				2x
Ruffed Grouse				1x	3s	3s		1x		1x	1x	1x									
Rufous Hummingbird			2x	3s		2x			2x									2x	2x	2x	
Sage Sparrow																2x	2x				
Sage Thrasher																2x	2x				
Savannah Sparrow																					
Say's Phoebe																					
Semipalmated Plover																					
Sharp-shinned Hawk					3s	1x		1x													
Short-eared Owl																					
Snow Bunting																					
Snow Goose																					
Snowy Owl																					
Solitary Sandpiper																					
Sora	2x	2x	2x	2x	2x	2x		2x	2x							2x	2x				2x
Spotted Sandpiper	2x	2x	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x	2x	2x	2x	2x		2x		2x
Spotted Towhee				3s	3s													1x	1x	1x	
Spruce Grouse																					
Steller's Jay		1x	1x	3s	3s	3s		3s	3s												
Swainson's Hawk																1x	1x				
Swainson's Thrush			1x	3s	3s	3s		3s													
Three-toed Woodpecker			2x	2x																	
Townsend's Solitaire	1x	1x	1x	3s	3s			3s	1x	1x	1x	1x	1x								
Townsend's Warbler				3s	3s	3s		3s													
Tree Swallow		1x							1x												
Trumpeter Swan	2x	2x	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x			2x	2x	2x	2x	2x	2x
Tundra Swan																					
Turkey Vulture	1x	1x	1x	1x	1x	1x		1x	1x					1x	1x	1x	1x	1x	1x	1x	1x
Upland Sandpiper																					
Varied Thrush			2x	2x																	
Vaux's Swift			2x	2x	3s																
Veery																					
Vesper Sparrow	2x													2x		2x					
Violet-green Swallow	1x	1x	1x	1x	1x	1x		1x													

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

			MOIST FOREST							COOL SHRUB											DRY
	JUNIP	MCW	GRAND FIR							SHRB HERB/TREE REGEN				MT. MAHOG.		BIG SAGE		CHOK/SERV/ROS			SHR
COVER TYPES	CS01	CS02	CS09	CS09	CS09	CS09	CS09	CS09	CS09	C003	C003	C003	C003	R322	R322	R402	R402	R421	R421	R421	R104
STAND STRUCTURE	Wdl	Wdl	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ots	Olms	Clms	Ch	Olms	Clms	Olms	Clms	Ots	Olms	Clms	Clms
SPECIES / RESIDENCE * ASSESS																					
Virginia Rail	2x	2x														2x	2x				2x
Warbling Vireo				3s	3s	3s			3s												
Western Bluebird	2x	2x		3s	3s									2x		2x			2x		
Western Grebe																					
Western Kingbird														1x	1x	1x	1x				1x
Western Meadowlark																2x	2x				2x
Western Screech Owl	1x																				
Western Tanager	1x	1x	1x	3s	3s	3s		3s	3s												
Western Wood-Pewee			1x	3s	3s	3s		3s	3s												
White-breasted Nuthatch				3s	3s				3s												
White-crowned Sparrow						1x			1x												
White-faced Ibis																					
White-headed Woodpecker																					
White-throated Sparrow																					
White-throated Swift	1x	1x												1x	1x	1x	1x				
White-winged Crossbill			2x	2x		2x															
Wild Turkey	1x	1x			3s																
Willet	2x	2x														2x	2x				2x
Williamson's Sapsucker			2x	2x	3s				3s												
Willow Flycatcher					3s																
Wilson's Phalarope																2x	2x				2x
Wilson's Warbler				3s		3s		3s													
Winter Wren				3s	3s	3s		3s													
Wood Duck	2x	2x	2x	2x	2x	2x		2x	2x							2x	2x				
Yellow Warbler																					
Yellow-bellied Sapsucker																					
Yellow-billed Cuckoo																					
Yellow-breasted Chat																		2x		2x	
Yellow-headed Blackbird																					
Yellow-rumped Warbler			2x	3s	3s	3s		3s	3s												
Mammal																					
American Badger																					
American Beaver		1x				1x		1x	1x	1x	1x		1x								
American Marten			2x	2x	2x																
American Pika																					

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

			MOIST FOREST							COOL SHRUB											DRY
	JUNIP	MCW	GRAND FIR							SHRB HERB/TREE REGEN				MT. MAHOG.		BIG SAGE		CHOK/SERV/ROS			SHR
COVER TYPES	CS01	CS02	CS09	CS09	CS09	CS09	CS09	CS09	CS09	C003	C003	C003	C003	R322	R322	R402	R402	R421	R421	R421	R104
STAND STRUCTURE	Wdl	Wdl	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ots	Olms	Clms	Ch	Olms	Clms	Olms	Clms	Ots	Olms	Clms	Clms
SPECIES / RESIDENCE * ASSESS																					
Belding's Ground Squirrel	1x	1x										1x		1x	1x	1x	1x	1x	1x	1x	
Big Brown Bat	1x	1x	1x	1x	1x	1x		1x	1x												
Black Bear	1x	1x	1x	1x	1x			1x	1x	1x	1x	1x	1x	1x	1x			1x	1x	1x	
Bobcat	1x	1x	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x
California Myotis			1x	1x	1x	1x		1x	1x												
Columbian Ground Squirrel	1x	1x							1x	1x	1x	1x	1x	1x	1x	1x	1x				
Common Muskrat	1x	1x	1x	1x	1x	1x		1x	1x					1x	1x	1x					1x
Common Porcupine	1x	1x	1x		1x	1x		1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x
Common Raccoon			1x	1x	1x	1x		1x	1x												
Coyote	1x	1x	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x
Deer Mouse	1x	1x	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x
Dusky Shrew																					
Eastern Fox Squirrel																					
Ermine		1x	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x								
Fisher			2x	2x	2x																
Fringed Myotis																2x	2x				
Gapper Red-backed Vole																					
Great Basin Pocket Mouse	1x	1x														1x	1x				
Golden-mantled Ground Squirrel	1x	1x	1x	1x	1x	1x		1x	1x												
Heather Vole																					
Hoary Bat		2x	2x	2x					2x												
House Cat(feral)																					
House Mouse																					
Little Brown Myotis		1x	1x	1x	1x	1x		1x	1x												
Long-eared Myotis	2x	2x	2x	2x	2x	2x		2x	2x							2x	2x				
Long-legged Myotis	2x		2x	2x	2x	2x		2x													
Long-tailed Myotis																					
Long-tailed Vole			1x	1x	1x				1x	1x	1x	1x	1x								
Long-tailed Weasel	1x	1x	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x
Lynx				1x	1x	1x			1x	1x	1x	1x	1x								
Merriam's Shrew		1x												1x	1x	1x	1x				1x
Mink	1x	1x	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x
Mountain vole																					
Moose			1x	1x	1x	1x		1x	1x												
Mountain Cottontail	1x	1x												1x	1x	1x	1x				1x
Mountain Goat			2x		2x	2x			2x	2x	2x	2x	2x	2x		2x	2x				

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

			MOIST FOREST							COOL SHRUB											DRY
	JUNIP	MCW	GRAND FIR							SHRB HERB/TREE REGEN				MT. MAHOG.		BIG SAGE		CHOK/SERV/ROS			SHR
COVER TYPES	CS01	CS02	CS09	CS09	CS09	CS09	CS09	CS09	CS09	C003	C003	C003	C003	R322	R322	R402	R402	R421	R421	R421	R104
STAND STRUCTURE	Wdl	Wdl	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ots	Olms	Clms	Ch	Olms	Clms	Olms	Clms	Ots	Olms	Clms	Clms
SPECIES / RESIDENCE * ASSESS																					
Mountain Lion	1x	1x	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x
Mule Deer	1x	1x	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x
Northern Flying Squirrel			2x	2x	2x	2x															
Northern Pocket Gopher	1x	1x	1x	1x						1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x
Northern River Otter		1x	1x	1x	1x	1x		1x	1x							1x	1x				
Pale Western Big-eared Bat	2x	2x												2x		2x	2x				2x
Pallid Bat	2x																				2x
Preble's Shrew																2x	2x				
Red Fox(native)	1x	1x	1x						1x												
Red Squirrel			1x	1x	1x																
Rocky Mountain(Bighorn)Sheep									2x					2x	2x	2x					2x
Sagebrush Vole																2x	2x				
Silver-haired Bat	2x	2x	2x	2x												2x	2x				2x
Snowshoe Hare						1x		1x	1x	1x	1x	1x	1x								
Spotted Bat	2x	2x												2x		2x	2x				2x
Striped Skunk																					
Townsend's Big-eared Bat																					
Townsend's Ground Squirrel	1x	1x												1x	1x	1x	1x				1x
Vagrant Shrew	1x	1x	1x	1x	1x	1x		1x	1x					1x	1x	1x	1x				1x
Wapiti(elk)	1x	1x	1x	1x	1x	1x		1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x
Water Shrew			2x	2x	2x	2x		2x													
Water Vole			2x	2x																	
Western Harvest Mouse	1x	1x												1x	1x	1x	1x	1x	1x		1x
Western Jumping Mouse		1x	1x					1x	1x									1x	1x	1x	
Western Pipistrelle																1x	1x				
Western Small-footed Myotis	2x	2x	2x	2x		2x			2x							2x					
Western Spotted Skunk			1x	1x	1x	1x		1x	1x							1x	1x				
White-tailed Deer	1x	1x	1x	1x	1x	1x		1x	1x					1x	1x	1x	1x				1x
White-tailed Jackrabbit	1x													1x	1x	1x	1x				1x
Wolf	1x	1x	1x	1x	1x	1x		1x	1x		1x	1x	1x	1x	1x	1x	1x		1x	1x	1x
Wolverine			2x	2x	2x	2x			2x												
Yellow-bellied Marmot	1x	1x								1x	1x	1x	1x	1x	1x	1x		1x	1x		1x
Yellow-pine Chipmunk	1x	1x	1x	1x	1x	1x			1x												
Yuma Myotis	2x		2x	2x	2x	2x										2x	2x				
Reptiles																					

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

			MOIST FOREST							COOL SHRUB											DRY
	JUNIP	MCW	GRAND FIR							SHRB HERB/TREE REGEN				MT. MAHOG.		BIG SAGE		CHOK/SERV/ROS			SHR
COVER TYPES	CS01	CS02	CS09	CS09	CS09	CS09	CS09	CS09	CS09	C003	C003	C003	C003	R322	R322	R402	R402	R421	R421	R421	R104
STAND STRUCTURE	Wdl	Wdl	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ots	Olms	Clms	Ch	Olms	Clms	Olms	Clms	Ots	Olms	Clms	Clms
SPECIES / RESIDENCE * ASSESS																					
Common Garter Snake	2x	2x	2x	2x	2x	2x		2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x
Gopher Snake	1x	1x								1x	1x	1x		1x		1x					
Painted Turtle	2x	2x														2x	2x	2x	2x	2x	2x
Racer	1x	1x								1x	1x			1x		1x		1x	1x	1x	
Rubber Boa	2x	2x														2x	2x				
Western Fence Lizard	1x	1x														1x					
Western Rattlesnake	1x	1x												1x		1x		1x	1x		
Western Skink	1x	1x												1x		1x					
Western Terrestrial Garter Snake		1x	1x			1x			1x	1x	1x			1x		1x		1x	1x		
Fish																					
Black Bullhead																					
Black Crappie																					
Bluegill																					
Bridgelip Sucker																					
Brook Trout																					
Brown Bullhead																					
Bulltrout																					
Channel Catfish																					
Chinook Salmon																					
Chiselmouth																					
Common Carp																					
Cutthroat Trout																					
Flathead Catfish																					
Golden Trout																					
Goldfish																					
Largemouth Bass																					
Lake Trout																					
Largescale Sucker																					
Longnose Dace																					
Mountain Sucker																					
Mountain Whitefish																					
Northern Squawfish																					
Pacific Lamprey																					
Paiute Sculpin																					
Peamouth																					

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

			MOIST FOREST							COOL SHRUB											DRY
	JUNIP	MCW	GRAND FIR							SHRB HERB/TREE REGEN				MT. MAHOG.		BIG SAGE		CHOK/SERV/ROS			SHR
COVER TYPES	CS01	CS02	CS09	CS09	CS09	CS09	CS09	CS09	CS09	C003	C003	C003	C003	R322	R322	R402	R402	R421	R421	R421	R104
STAND STRUCTURE	Wdl	Wdl	Ofs	Ofm	Yf	Ur	Seo	Sec	Si	Ots	Olms	Clms	Ch	Olms	Clms	Olms	Clms	Ots	Olms	Clms	Clms
SPECIES / RESIDENCE * ASSESS																					
Pumpkinseed																					
Redband Trout																					
Rainbow Trout																					
Redside Shiner																					
American Shad																					
Shorthead Sculpin																					
Smallmouth Bass																					
Sockeye(incl. Kokanee)Salmon																					
Speckled Dace																					
Steelhead Trout																					
Tadpole Madtom																					
Torrent Sculpin																					
White Crappie																					
White Sturgeon																					
Yellow Bullhead																					
Yellow Perch																					

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY GRASS									OTHER									
	AG. BUNCH		FES-BUNCH		NAT. FORB		EXFRB/ANGR		CROP	ALPINE TUNDRA		SHRUB WETLAND			HERB WET		BARR.	URBN	WAT.
COVER TYPES	CS06	CS06	CS13	CS13	CS07	CS07	CS08	CS08	CS12	C005	C005	CS05	CS05	CS05	C007	C007	C006	CS19	CS20
STAND STRUCTURE	Ch	Oh	Ch	Oh	Ch	Oh	Ch	Oh	Ch	Olms	Clms	Cts	Olms	Clms	Ch	Oh	R	U	W
SPECIES / RESIDENCE * ASSESS																			
Amphibian																			
Bullfrog												1x	1x	1x					1x
Columbia Spotted Frog	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x		2x
Long-toed Salamander	1x	1x	1x	1x	1x	1x				1x	1x	1x	1x	1x	1x	1x	1x		1x
Pacific Treefrog												1x	1x	1x					
Tailed Frog										2x	2x	2x	2x	2x	2x	2x			2x
Western Toad	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x				2x	2x			2x
Leopard Frog																			
Bird																			
American Avocet	2x	2x	2x	2x	2x	2x	2x	2x	2x				2x		2x	2x	2x		2x
American Bittern	2x	2x	2x	2x	2x	2x	2x	2x	2x			2x	2x	2x	2x	2x			2x
American Coot																			1x
American Crow							1x	1x	1x			1x	1x	1x					
American Dipper																			1x
American Goldfinch			1x	1x	1x	1x	1x	1x	1x			1x	1x	1x	1x	1x			
American Kestrel		1x		1x		1x		1x					1x			1x			
American Redstart												2x							
American Robin	1x	1x	1x	1x	1x	1x	1x	1x	1x			1x	1x	1x	1x	1x		1x	
American Tree Sparrow																			
American White Pelican												2x	2x		2x	2x	2x		2x
American Widgeon	2x	2x	2x	2x	2x	2x	2x	2x	2x			2x	2x	2x	2x	2x			2x
Ash-throated Flycatcher																			
Baird's Sandpiper				1x	1x	1x	1x	1x	1x							1x	1x	1x	
Bald Eagle	2x	2x	2x	2x	2x	2x	2x	2x	2x			2x	2x	2x					2x
Bank Swallow	1x	1x	1x	1x	1x	1x	1x	1x	1x			1x	1x	1x	1x	1x			1x
Barn Owl	1x	1x			1x	1x	1x	1x	1x			1x	1x	1x					
Barrows Goldeneye	2x	2x	2x	2x	2x	2x	2x	2x	2x					2x	2x	2x			2x
Belted Kingfisher												1x	1x	1x					1x
Black Rosy Finch																	1x		
Black Tern	2x	2x	2x	2x	2x	2x	2x	2x	2x			2x	2x	2x	2x	2x			2x
Black Swift												1x	1x	1x					1x
Black-backed Woodpecker																			
Black-billed Magpie							1x	1x	1x			1x	1x	1x					
Black-cappedChickadee												1x	1x	1x				1x	
Black-chinned Hummingbird												2x	2x	2x					

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY GRASS									OTHER									
	AG. BUNCH		FES-BUNCH		NAT. FORB		EXFRB/ANGR		CROP	ALPINE TUNDRA		SHRUB WETLAND			HERB WET		BARR.	URBN	WAT.
COVER TYPES	CS06	CS06	CS13	CS13	CS07	CS07	CS08	CS08	CS12	C005	C005	CS05	CS05	CS05	C007	C007	C006	CS19	CS20
STAND STRUCTURE	Ch	Oh	Ch	Oh	Ch	Oh	Ch	Oh	Ch	Olms	Clms	Cts	Olms	Clms	Ch	Oh	R	U	W
SPECIES / RESIDENCE * ASSESS																			
Black-crowned Night-heron	2x	2x	2x	2x	2x	2x	2x	2x	2x			2x	2x	2x	2x	2x			2x
Black-headed Grosbeak												1x	1x	1x				1x	
Black-throated Gray Warbler																			
Black-necked Stilt	2x	2x	2x	2x	2x	2x	2x	2x	2x				2x		2x	2x			2x
Blue Grouse	2x	2x																	
Blue-winged Teal	2x	2x	2x	2x	2x	2x	2x	2x	2x			2x	2x	2x	2x	2x			2x
Bobolink															2x	2x			
Bohemian Waxwing																			
Bonaparte's Gull															1x	1x			1x
Boreal Owl																			
Brewer's Blackbird									2x			2x	2x	2x	2x	2x		2x	
Brewer's Sparrow																			
Broad-tailed hummingbird												2x	2x	2x					
Brown Creeper																			
Brown-headed Cowbird									2x										
Bufflehead	2x	2x	2x	2x	2x	2x	2x	2x	2x				2x	2x	2x	2x			2x
Burrowing Owl	2x	2x	2x	2x			2x	2x	2x										
California Gull				1x													1x	1x	
Calliope Hummingbird					1x	1x				1x	1x	1x	1x	1x	1x	1x			
Canada Goose									1x			1x	1x	1x	1x	1x			1x
Canvasback	2x	2x	2x	2x	2x	2x	2x	2x	2x				2x	2x	2x	2x			2x
Canyon Wren	1x	1x			1x	1x													
Cassin's Finch																			
Cassin's Vireo												1x	1x	1x					
Cedar Waxwing									1x									1x	
Chestnut-backed Chickadee																			
Chipping Sparrow										1x	1x							1x	
Chukar		1x		1x		1x	1x	1x											
Cinnamon Teal	2x	2x	2x	2x	2x	2x	2x	2x	2x			2x	2x	2x	2x	2x			2x
Clark's Nutcracker																			
Cliff Swallow	1x		1x		1x		1x	1x	1x	1x	1x	1x	1x	1x	1x	1x		1x	1x
Columbian sharp-tailed Grouse		2x	2x	2x											2x	2x			
Common Goldeneye	2x	2x	2x	2x	2x	2x	2x	2x	2x				2x	2x	2x	2x			2x
Common Loon																			2x
Common Merganser	2x	2x	2x	2x	2x	2x	2x	2x	2x			2x	2x	2x		2x			2x
Common Nighthawk	1x	1x	1x	1x	1x	1x	1x	1x	1x			1x	1x	1x	1x	1x			

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY GRASS									OTHER									
	AG. BUNCH		FES-BUNCH		NAT. FORB		EXFRB/ANGR		CROP	ALPINE TUNDRA		SHRUB WETLAND			HERB WET		BARR.	URBN	WAT.
COVER TYPES	CS06	CS06	CS13	CS13	CS07	CS07	CS08	CS08	CS12	C005	C005	CS05	CS05	CS05	C007	C007	C006	CS19	CS20
STAND STRUCTURE	Ch	Oh	Ch	Oh	Ch	Oh	Ch	Oh	Ch	Olms	Clms	Cts	Olms	Clms	Ch	Oh	R	U	W
SPECIES / RESIDENCE * ASSESS																			
Common Poorwill																			
Common Raven																			
Common Redpoll																			
Common Snipe	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x			2x
Common Tern																			1x
Common Yellowthroat					1x	1x						1x	1x	1x	1x	1x			1x
Cooper's Hawk																			
Dark-eyed Junco	1x	1x	1x	1x	1x	1x	1x	1x		1x	1x	1x	1x	1x					
Double-crested Cormorant												1x	1x	1x			1x		1x
Downy Woodpecker																			
Dusky Flycatcher										1x	1x								
Eared Grebe																			1x
Eastern Kingbird	1x	1x	1x	1x	1x	1x	1x	1x	1x			1x	1x	1x					
European Starling																			
Evening Grosbeak																			
Ferruginous Hawk	2x	2x	2x	2x	2x	2x	2x	2x	2x										
Flammulated Owl																			
Forster's Tern	2x	2x	2x	2x	2x	2x	2x	2x	2x			2x	2x	2x	2x	2x			2x
Fox Sparrow												2x	2x	2x					
Franklin's Gull									1x						1x	1x			1x
Gadwall	2x	2x	2x	2x	2x	2x	2x	2x	2x			2x	2x	2x	2x	2x			2x
Golden-crowned Kinglet																			
Golden-crowned Sparrow																			
Golden Eagle	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x					
Grasshopper Sparrow			2x	2x															
Gray Catbird												1x	1x	1x					
Cray-crowned Rosy Finch										2x	2x						2x		
Gray Jay																			
Gray Partridge	1x	1x	1x	1x	1x	1x	1x	1x	1x										
Great Egret	2x	2x	2x	2x	2x	2x	2x	2x	2x			2x	2x	2x	2x	2x			2x
Great Blue Heron	2x	2x	2x	2x	2x	2x	2x	2x	2x			2x	2x	2x	2x	2x			2x
Great Gray Owl													2x	2x	2x	2x			
Great Horned Owl																			
Greater Sandhill Crane	2x	2x	2x	2x	2x	2x	2x	2x	2x				2x	2x	2x	2x			2x
Greater Scaup																			
Greater Yellowlegs	1x	1x	1x	1x	1x	1x						1x	1x	1x	1x	1x	1x		1x

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY GRASS									OTHER									
	AG. BUNCH		FES-BUNCH		NAT. FORB		EXFRB/ANGR		CROP	ALPINE TUNDRA		SHRUB WETLAND			HERB WET		BARR.	URBN	WAT.
COVER TYPES	CS06	CS06	CS13	CS13	CS07	CS07	CS08	CS08	CS12	C005	C005	CS05	CS05	CS05	C007	C007	C006	CS19	CS20
STAND STRUCTURE	Ch	Oh	Ch	Oh	Ch	Oh	Ch	Oh	Ch	Olms	Clms	Cts	Olms	Clms	Ch	Oh	R	U	W
SPECIES / RESIDENCE * ASSESS																			
Green-winged Teal	2x	2x	2x	2x	2x	2x	2x	2x	2x			2x	2x	2x	2x	2x			2x
Gyrfalcon							1x	1x	1x										1x
Hairy Woodpecker																			
Hammond's Flycatcher																			
Harlequin Duck																			2x
Harris' Sparrow												1x	1x	1x					
Hermit Thrush																			
Hooded Merganser	2x	2x	2x	2x	2x	2x	2x	2x	2x			2x	2x	2x		2x			2x
Horned Grebe																			1x
Horned Lark	1x	1x	1x	1x	1x	1x	1x	1x	1x										
House Finch																			
House Sparrow							1x	1x	1x									1x	
House Wren									1x									1x	
Killdeer	1x	1x	1x	1x	1x	1x	1x	1x	1x			1x	1x	1x	1x	1x			1x
Lark Sparrow		2x	2x	2x	2x	2x	2x	2x											
Lazuli bunting												2x	2x	2x					
Least Sandpiper	1x	1x	1x	1x	1x	1x						1x	1x	1x	1x	1x	1x		1x
Lesser Scaup	2x	2x	2x	2x	2x	2x	2x	2x	2x			2x	2x	2x	2x	2x			2x
Lesser Yellowlegs	1x	1x	1x	1x	1x	1x						1x	1x	1x	1x	1x	1x		1x
Lewis' Woodpecker																			
Lincoln's Sparrow																			1x
Loggerhead Shrike																			
Long-billed Curlew	2x	2x	2x	2x	2x	2x	2x	2x	2x					2x		2x			2x
Long-billed Dowitcher	1x	1x	1x	1x	1x	1x						1x	1x	1x	1x	1x	1x		1x
Long-eared Owl					2x	2x						2x	2x	2x					
Macgillivray's Warbler												1x	1x	1x					
Mallard	2x	2x	2x	2x	2x	2x	2x	2x	2x			2x	2x	2x	2x	2x		2x	2x
Marbled Godwit	1x	1x	1x	1x	1x	1x						1x	1x	1x	1x	1x			1x
Marsh Wren	1x	1x			1x	1x				1x	1x	1x	1x	1x	1x	1x			1x
Merlin	1x			1x	1x	1x	1x	1x	1x				1x	1x		1x	1x	1x	
Mountain Bluebird	1x	1x	1x	1x	1x	1x	1x	1x		1x	1x								
Mountain Chickadee																			1x
Mountain Quail																			
Mourning Dove	1x	1x	1x	1x	1x	1x	1x	1x	1x			1x	1x	1x				1x	
Nashville Warbler																			1x
Northern Flicker												1x	1x	1x	1x	1x		1x	

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY GRASS									OTHER									
	AG. BUNCH		FES-BUNCH		NAT. FORB		EXFRB/ANGR		CROP	ALPINE TUNDRA		SHRUB WETLAND			HERB WET		BARR.	URBN	WAT.
COVER TYPES	CS06	CS06	CS13	CS13	CS07	CS07	CS08	CS08	CS12	C005	C005	CS05	CS05	CS05	C007	C007	C006	CS19	CS20
STAND STRUCTURE	Ch	Oh	Ch	Oh	Ch	Oh	Ch	Oh	Ch	Olms	Clms	Cts	Olms	Clms	Ch	Oh	R	U	W
SPECIES / RESIDENCE * ASSESS																			
Northern Goshawk																			
Northern Harrier	1x	1x	1x	1x	1x	1x	1x	1x	1x			1x	1x	1x	1x	1x			
Northern Oriole												1x	1x	1x				1x	
Northern Pintail	2x	2x	2x	2x	2x	2x	2x	2x	2x			2x	2x	2x	2x	2x			2x
Northern Pygmy Owl																			
Northern Rough-winged Swallow	1x	1x			1x	1x	1x	1x				1x	1x	1x	1x	1x			1x
Northern Saw-whet Owl																			
Northern Shoveler	2x	2x	2x	2x	2x	2x	2x	2x	2x			2x	2x	2x	2x	2x			2x
Northern Shrike	1x	1x	1x	1x	1x	1x	1x	1x	1x										
Olive-sided Flycatcher																			
Orange-crowned Warbler												1x	1x	1x					
Osprey													1x	1x	1x	1x			1x
Peregrine Falcon	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x
Pied-billed Grebe																			1x
Pileated Woodpecker																			
Pine Grosbeak																			
Pine Siskin																			
Prairie Falcon	1x	1x	1x	1x	1x	1x							1x	1x			1x		1x
Purple Finch																			
Pygmy Nuthatch																			
Red Crossbill																			
Red-breasted Nuthatch																			
Red-breasted Sapsucker																			
Red-eyed Vireo																			
Red-naped Sapsucker																			
Red-necked Grebe															2x	2x			2x
Red-necked Phalarope	1x	1x			1x	1x						1x	1x	1x	1x	1x			1x
Red-tailed Hawk	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x		1x			1x	1x			
Red-winged blackbird	1x	1x	1x	1x	1x	1x	1x	1x	1x			1x	1x	1x	1x	1x		1x	1x
Redhead	2x	2x	2x	2x	2x	2x	2x	2x	2x				2x	2x	2x	2x			2x
Ring-billed Gull				1x													1x	1x	
Ring-necked Duck															2x	2x			2x
Ring-necked Pheasant									1x										
Rock Dove							1x	1x	1x									1x	
Rock Wren	1x	1x	1x	1x	1x	1x	1x	1x											
Ross' Goose									1x										1x

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY GRASS									OTHER									
	AG. BUNCH		FES-BUNCH		NAT. FORB		EXFRB/ANGR		CROP	ALPINE TUNDRA		SHRUB WETLAND			HERB WET		BARR.	URBN	WAT.
COVER TYPES	CS06	CS06	CS13	CS13	CS07	CS07	CS08	CS08	CS12	C005	C005	CS05	CS05	CS05	C007	C007	C006	CS19	CS20
STAND STRUCTURE	Ch	Oh	Ch	Oh	Ch	Oh	Ch	Oh	Ch	Olms	Clms	Cts	Olms	Clms	Ch	Oh	R	U	W
SPECIES / RESIDENCE * ASSESS																			
Rough-legged Hawk	1x	1x	1x	1x	1x	1x	1x	1x	1x										
Ruby-crowned Kinglet																			
Ruddy Duck	2x	2x	2x	2x	2x	2x	2x	2x	2x				2x	2x	2x	2x			2x
Ruffed Grouse																			
Rufous Hummingbird												2x	2x	2x					
Sage Sparrow																			
Sage Thrasher																			
Savannah Sparrow	1x	1x	1x	1x	1x	1x	1x	1x							1x	1x			
Say's Phoebe							1x	1x	1x										
Semipalmated Plover		1x		1x		1x			1x								1x		1x
Sharp-shinned Hawk																			
Short-eared Owl	2x	2x	2x	2x	2x	2x	2x	2x	2x						2x	2x			
Snow Bunting																			
Snow Goose									1x										1x
Snowy Owl					1x	1x	1x	1x	1x	1x	1x				1x	1x			1x
Solitary Sandpiper	1x	1x	1x	1x	1x	1x						1x	1x	1x	1x	1x	1x		1x
Sora	2x	2x	2x	2x	2x	2x	2x	2x	2x			2x	2x	2x	2x	2x			2x
Spotted Sandpiper	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x		2x	2x	2x	2x			2x
Spotted Towhee												1x	1x	1x	1x	1x			
Spruce Grouse																			
Steller's Jay																			
Swainson's Hawk	1x	1x	1x	1x	1x	1x	1x	1x	1x			1x	1x	1x					1x
Swainson's Thrush																			
Three-toed Woodpecker																			
Townsend's Solitaire																			
Townsend's Warbler																			
Tree Swallow	1x	1x											1x					1x	
Trumpeter Swan	2x	2x	2x	2x	2x	2x	2x	2x	2x			2x	2x	2x	2x	2x			2x
Tundra Swan									1x			1x	1x	1x	1x	1x			1x
Turkey Vulture	1x	1x	1x	1x	1x	1x	1x	1x	1x			1x	1x	1x					
Upland Sandpiper	2x	2x	2x	2x	2x	2x	2x									2x			2x
Varied Thrush																			
Vaux's Swift																			
Veery												2x		2x					
Vesper Sparrow			2x	2x	2x	2x													
Violet-green Swallow																		1x	1x

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY GRASS									OTHER									
	AG. BUNCH		FES-BUNCH		NAT. FORB		EXFRB/ANGR		CROP	ALPINE TUNDRA		SHRUB WETLAND			HERB WET		BARR.	URBN	WAT.
COVER TYPES	CS06	CS06	CS13	CS13	CS07	CS07	CS08	CS08	CS12	C005	C005	CS05	CS05	CS05	C007	C007	C006	CS19	CS20
STAND STRUCTURE	Ch	Oh	Ch	Oh	Ch	Oh	Ch	Oh	Ch	Olms	Clms	Cts	Olms	Clms	Ch	Oh	R	U	W
SPECIES / RESIDENCE * ASSESS																			
Virginia Rail	2x	2x	2x	2x	2x	2x	2x	2x	2x			2x	2x	2x	2x	2x			2x
Warbling Vireo												1x	1x	1x					
Western Bluebird	2x	2x	2x	2x	2x	2x			2x										
Western Grebe															2x	2x			2x
Western Kingbird	1x	1x	1x	1x			1x	1x	1x										
Western Meadowlark			2x	2x															
Western Screech Owl																		1x	
Western Tanager																			
Western Wood-Pewee									1x			1x	1x	1x				1x	
White-breasted Nuthatch																			
White-crowned Sparrow																			
White-faced Ibis																			
White-headed Woodpecker																			
White-throated Sparrow																			
White-throated Swift	1x	1x	1x	1x			1x	1x				1x	1x	1x					
White-winged Crossbill																			
Wild Turkey																			
Willet	2x	2x	2x	2x	2x	2x	2x	2x	2x				2x	2x	2x	2x			2x
Williamson's Sapsucker																			
Willow Flycatcher												2x	2x	2x					
Wilson's Phalarope	2x	2x	2x	2x	2x	2x	2x	2x	2x			2x	2x	2x	2x	2x	2x		2x
Wilson's Warbler												2x	2x	2x					
Winter Wren																			
Wood Duck												2x	2x	2x	2x	2x			2x
Yellow Warbler												1x	1x	1x					
Yellow-bellied Sapsucker																			
Yellow-billed Cuckoo												2x							
Yellow-breasted Chat												2x	2x	2x					
Yellow-headed Blackbird			1x	1x	1x	1x			1x			1x	1x	1x	1x	1x			1x
Yellow-rumped Warbler																			
Mammal																			
American Badger																			
American Beaver							1x	1x	1x			1x	1x	1x					1x
American Marten																			
American Pika					1x	1x				1x	1x						1x		

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY GRASS									OTHER									
	AG. BUNCH		FES-BUNCH		NAT. FORB		EXFRB/ANGR		CROP	ALPINE TUNDRA		SHRUB WETLAND			HERB WET		BARR.	URBN	WAT.
COVER TYPES	CS06	CS06	CS13	CS13	CS07	CS07	CS08	CS08	CS12	C005	C005	CS05	CS05	CS05	C007	C007	C006	CS19	CS20
STAND STRUCTURE	Ch	Oh	Ch	Oh	Ch	Oh	Ch	Oh	Ch	Olms	Clms	Cts	Olms	Clms	Ch	Oh	R	U	W
SPECIES / RESIDENCE * ASSESS																			
Belding's Ground Squirrel	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x				1x	1x			
Big Brown Bat																			1x
Black Bear					1x	1x				1x	1x	1x	1x	1x	1x	1x			
Bobcat	1x	1x	1x	1x	1x	1x						1x	1x	1x	1x	1x	1x		
California Myotis																			
Columbian Ground Squirrel	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x				1x	1x			
Common Muskrat	1x	1x	1x	1x	1x	1x						1x	1x	1x	1x	1x			1x
Common Porcupine												1x	1x	1x					
Common Raccoon							1x	1x	1x			1x	1x	1x					1x
Coyote	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x		
Deer Mouse	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x			
Dusky Shrew																			
Eastern Fox Squirrel									1x									1x	
Ermine					1x	1x				1x	1x				1x	1x			
Fisher																			
Fringed Myotis																	2x		
Gapper Red-backed Vole																			
Great Basin Pocket Mouse	1x	1x			1x	1x	1x	1x									1x		
Golden-mantled Ground Squirrel										1x	1x								
Heather Vole					1x	1x				1x	1x				1x	1x			
Hoary Bat																		2x	2x
House Cat(feral)																			
House Mouse									1x										
Little Brown Myotis																			
Long-eared Myotis													2x					2x	2x
Long-legged Myotis																	2x	2x	2x
Long-tailed Myotis																			
Long-tailed Vole					1x	1x				1x	1x	1x	1x	1x	1x	1x			
Long-tailed Weasel	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x		
Lynx												1x	1x	1x					
Merriam's Shrew	1x	1x	1x	1x	1x	1x													
Mink	1x	1x	1x	1x	1x	1x	1x	1x	1x			1x	1x	1x	1x	1x			1x
Mountain vole																			
Moose												1x	1x	1x					
Mountain Cottontail	1x	1x	1x	1x	1x	1x													
Mountain Goat					2x	2x				2x	2x						2x		

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY GRASS									OTHER									
	AG. BUNCH		FES-BUNCH		NAT. FORB		EXFRB/ANGR		CROP	ALPINE TUNDRA		SHRUB WETLAND			HERB WET		BARR.	URBN	WAT.
COVER TYPES	CS06	CS06	CS13	CS13	CS07	CS07	CS08	CS08	CS12	C005	C005	CS05	CS05	CS05	C007	C007	C006	CS19	CS20
STAND STRUCTURE	Ch	Oh	Ch	Oh	Ch	Oh	Ch	Oh	Ch	Olms	Clms	Cts	Olms	Clms	Ch	Oh	R	U	W
SPECIES / RESIDENCE * ASSESS																			
Mountain Lion	1x	1x	1x	1x	1x	1x						1x	1x	1x	1x	1x			
Mule Deer	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x	1x			
Northern Flying Squirrel																			
Northern Pocket Gopher	1x	1x	1x	1x	1x	1x	1x	1x	1x			1x	1x	1x	1x	1x			
Northern River Otter												1x	1x	1x					1x
Pale Western Big-eared Bat													2x				2x		2x
Pallid Bat		2x	2x	2x	2x	2x	2x	2x	2x								2x		2x
Preble's Shrew	2x	2x	2x	2x	2x	2x													
Red Fox(native)					1x	1x	1x	1x	1x			1x	1x	1x	1x	1x			
Red Squirrel																			
Rocky Mountain(Bighorn)Sheep	2x	2x	2x	2x	2x					2x	2x						2x		
Sagebrush Vole																			
Silver-haired Bat														2x				2x	2x
Snowshoe Hare																			
Spotted Bat													2x	2x			2x	2x	2x
Striped Skunk									1x			1x	1x					1x	
Townsend's Big-eared Bat																			
Townsend's Ground Squirrel	1x	1x	1x	1x	1x	1x	1x	1x	1x								1x		
Vagrant Shrew	1x	1x	1x	1x	1x	1x						1x	1x	1x	1x	1x			
Wapiti(elk)	1x	1x	1x	1x	1x	1x	1x	1x	1x			1x	1x	1x	1x	1x			
Water Shrew												2x	2x	2x					2x
Water Vole										2x	2x				2x	2x			2x
Western Harvest Mouse							1x	1x	1x			1x	1x	1x					1x
Western Jumping Mouse					1x	1x	1x	1x				1x	1x	1x	1x	1x			
Western Pipistrelle																			1x
Western Small-footed Myotis	2x				2x							2x							
Western Spotted Skunk							1x	1x	1x			1x	1x	1x					
White-tailed Deer	1x	1x	1x	1x	1x	1x	1x	1x	1x			1x	1x	1x					
White-tailed Jackrabbit	1x	1x	1x	1x	1x	1x													
Wolf	1x	1x	1x	1x	1x	1x						1x	1x	1x	1x	1x			
Wolverine										2x	2x						2x		
Yellow-bellied Marmot	1x	1x	1x	1x	1x	1x	1x	1x	1x										
Yellow-pine Chipmunk																			
Yuma Myotis																		2x	2x
Reptiles																			

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY GRASS									OTHER									
	AG. BUNCH		FES-BUNCH		NAT. FORB		EXFRB/ANGR		CROP	ALPINE TUNDRA		SHRUB WETLAND			HERB WET		BARR.	URBN	WAT.
COVER TYPES	CS06	CS06	CS13	CS13	CS07	CS07	CS08	CS08	CS12	C005	C005	CS05	CS05	CS05	C007	C007	C006	CS19	CS20
STAND STRUCTURE	Ch	Oh	Ch	Oh	Ch	Oh	Ch	Oh	Ch	Olms	Clms	Cts	Olms	Clms	Ch	Oh	R	U	W
SPECIES / RESIDENCE * ASSESS																			
Common Garter Snake	2x	2x	2x	2x	2x	2x	2x	2x	2x			2x	2x	2x	2x	2x			2x
Gopher Snake		1x		1x		1x		1x					1x			1x	1x		
Painted Turtle	2x	2x	2x	2x	2x	2x	2x	2x	2x			2x	2x	2x	2x	2x		2x	2x
Racer		1x		1x		1x		1x											
Rubber Boa							2x	2x											
Western Fence Lizard		1x				1x	1x	1x	1x				1x						
Western Rattlesnake		1x		1x		1x							1x				1x		
Western Skink		1x		1x		1x													
Western Terrestrial Garter Snake		1x	1x	1x		1x		1x					1x			1x			
Fish																			
Black Bullhead																			3o
Black Crappie																			3o
Bluegill																			3o
Bridgelip Sucker																			3o
Brook Trout																			3o
Brown Bullhead																			3o
Bulltrout																			3o
Channel Catfish																			3o
Chinook Salmon																			3o
Chiselmouth																			3o
Common Carp																			3o
Cutthroat Trout																			3o
Flathead Catfish																			3o
Golden Trout																			3o
Goldfish																			3o
Largemouth Bass																			3o
Lake Trout																			3o
Largescale Sucker																			3o
Longnose Dace																			3o
Mountain Sucker																			3o
Mountain Whitefish																			3o
Northern Squawfish																			3o
Pacific Lamprey																			3o
Paiute Sculpin																			3o
Peamouth																			3o

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

	DRY GRASS									OTHER									
	AG. BUNCH		FES-BUNCH		NAT. FORB		EXFRB/ANGR		CROP	ALPINE TUNDRA		SHRUB WETLAND			HERB WET		BARR.	URBN	WAT.
COVER TYPES	CS06	CS06	CS13	CS13	CS07	CS07	CS08	CS08	CS12	C005	C005	CS05	CS05	CS05	C007	C007	C006	CS19	CS20
STAND STRUCTURE	Ch	Oh	Ch	Oh	Ch	Oh	Ch	Oh	Ch	Olms	Clms	Cts	Olms	Clms	Ch	Oh	R	U	W
SPECIES / RESIDENCE * ASSESS																			
Pumpkinseed																			3o
Redband Trout																			3o
Rainbow Trout																			3o
Redside Shiner																			3o
American Shad																			3o
Shorthead Sculpin																			3o
Smallmouth Bass																			3o
Sockeye(incl. Kokanee)Salmon																			3o
Speckled Dace																			3o
Steelhead Trout																			3o
Tadpole Madtom																			3o
Torrent Sculpin																			3o
White Crappie																			3o
White Sturgeon																			3o
Yellow Bullhead																			3o
Yellow Perch																			3o

1=no local data
2=regional data or local knowledge
3=replicable data and local agreement
X=ICBEMP
O=ODFW
S=Sallabanks

Highlight=species of concern

Structure Based Management

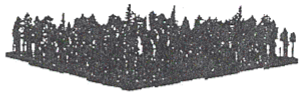
Structural Stage Definitions

Stand Initiation (SI)

Forest growing space is reoccupied by young trees following a stand-replacing disturbance (e.g., fire).

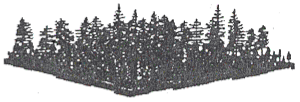
Stem Exclusion, Open Canopy (SEOC)

Occurrence of new trees is excluded (moisture-limited situation); the forest canopy is broken and tree crowns are open-growing.



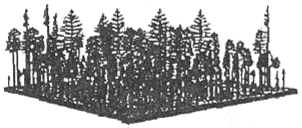
Stem Exclusion, Closed Canopy (SECC)

Occurrence of new trees is excluded (light-limited situation); the forest canopy is closed and tree crowns are abrading.



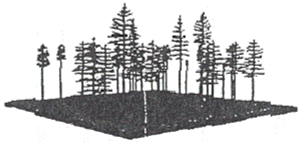
Understory Reinitiation (UR)

A new age group of trees establishes under the mortality-induced openings of the older overstory.



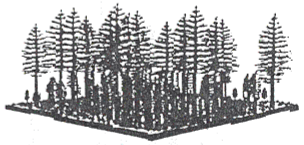
Young Forest, MultiStory (YFMS)

Several age groups are established; large trees are generally absent.



Old Forest, Single Story (OFSS)

Understory trees generally are absent; large trees are present and significant in the overstory.



Old Forest, MultiStory (OFMS)

Diverse horizontal and vertical distributions of tree sizes occur; with large trees also present and significant in the overstory.

Adapted from: Hessburg, Paul F., and Bradley G. Smith. 1995. *Assessing Change in Vegetation Structure and Composition at Midscale in the Interior Columbia River Basin Assessment: Analysis Plan.* USDA Forest Service. (Draft Report)

Ofs: Old forest single story.
Understory trees generally are absent; large trees are present and significant in the overstory. See footnotes 1 and 2.

Ofm: Old forest multistory.
Diverse horizontal and vertical distributions of tree sizes occur; with large trees also present and significant in the overstory. See footnotes 1 and 2.

Yf: Young forest multistory.
Several age groups are established; large trees are generally absent. See footnotes 1 and 3.

Ur: Understory reinitiation.
A new age group of trees establishes under the mortality-induced openings of the older overstory.

Seo: Stem exclusion open canopy.
Occurrence of new trees is excluded (moisture-limited situation); the forest canopy is broken and tree crowns are open-growing.

Sec: Stem exclusion closed canopy.
Occurrence of new trees is excluded (light-limited situation); the forest canopy is closed and tree crowns are abrading.

Si: Stand initiation.
Forest growing space is reoccupied by young trees following a stand-replacing disturbance (e.g. fire).

Wdl: Woodland.
Ots: Open canopy tall shrub. See notes 4, 6 and 7.
Cts: Closed canopy tall shrub. See notes 5, 6 and 7.
Olms: Open canopy low-medium shrub. See notes 4, 6 and 7.
Clms: Closed canopy low-medium shrub. See notes 5, 6 and 7.
Oh: Open herb. See notes 4 and 7.
Ch: Closed herb. See notes 5 and 7.
U: Urban.
W: Water.
R: Rock/barren.

<u>Footnotes</u>

1. Stand structure is based on size not age. Large diameter at breast height is not always equal to old age.
2. Diameter at breast height for “old” classification.
   - Whitebark pine = 12 inches.
   - Engelmann spruce/subalpine fir = 13 inches.
   - Mountain hemlock = 12 inches.
   - Interior Douglas fir = 21 inches.
   - Western larch = 21 inches.
   - Lodgepole pine = 12 inches.
   - Interior ponderosa pine = 21 inches.
   - Juniper = 21 inches.
   - Grand fir = 21 inches.
3. Trees with diameters at breast height smaller than stated in footnote #2 are considered young trees.
4. Open implies that the stands are not dense enough for crowns to intermingle.
5. Closed implies that crowns grow in high enough density for crowns to overlap.
6. Tall and low-medium describe stature.
7. Shrub and herb describe the vegetative type.

COVER TYPES

COLD FOREST

S208	Whitebark Pine
S206	Engelmann Spruce/Subalpine fir
S205	Mt. Hemlock

DRY FOREST

S210	Interior Douglas-fir
S212	Western Larch
S218	Lodgepole Pine
S217	Aspen
S237	Interior Ponderosa Pine
S235	Cottonwood/Willow
CS01	Juniper Woodlands
CS02	Mixed Conifer Woodlands

MOIST FOREST

CS09	Grand fir

COOL SHRUB

C003	Shrub or Herb/Tree Regen
R322	Mountain Mahogany
R402	Mountain Big Sagebrush
R421	Chokecherry/Serviceberry/Rose

DRY SHRUB

R104	Antelope Bitterbrush/Bluebunch Wheatgrass

DRY GRASS

CS06	Agropyon Bunchgrass
CS13	Fescue-Bunchgrass
CS07	Native Forb
CS08	Exotic Forbs/Annual Grass
CS12	Cropland/Hay/Pasture

OTHER

C005	Alpine Tundra
CS05	Shrub Wetlands
C007	Herbaceous Wetlands
C006	Barren
CS19	Urban
CS20	Water

APPENDIX N BIBLIOGRAPHY

CalPhotos Database. California Plants & Habitats Photos. Berkeley Digital Library Project. Http://elib.cs.berkeley.edu/calflora/faq.html. [Accessed 7th May 1999].

Chapman, Wilber M.. Report of a Field Trip to the Snake River Drainage in Idaho and Eastern Oregon (unpublished): 1940

Croft, Lisa K., Owen, Wayne R., and Shelley, J. Stephen. Interior Columbia Basin Ecosystem Management Project Analysis of Vascular Plants. USDA, Forest Service, 1997.

Crowe, Elizabeth A. and Clausnitzer, Roderick R.. Mid-Montane Wetland Plant Associations of the Malheur, Umatilla and Wallowa-Whitman National Forests. USDA, Forest Service, PNW region. Technical paper R6-NR-ECOL-TP-22-97, 1997.

Johnson, Charles Grier, Jr.. Common Plants of the Inland Pacific Northwest. USDA, Forest Service, PNW region. US Government printing office, 1993.

Johnson, Charles Grier, Jr., and Simon, Stephen A.. Plant Associations of the Wallowa-Snake Province. USDA, Forest Service, PNW region. Technical paper R6-TP-255A-86, 1987.

Mason, Georgia. Guide to the Plants of the Wallowa Mountains of Northeastern Oregon. Museum of Natural History, University of Oregon, Eugene, Oregon. 1975.

Roche, Ben. Range Plants: Their Identification, Usefulness and Management. Washington State University, Department of Forestry and Range Management. Student Book Corporation. 1983.

Survis, Paul. HRV Data. USDA United States Forest Service (unpublished)

Shiflet, Thomas N.. Rangeland Cover Types of the United States. Society for Range Management. Denver, Colorado: 1994.

Stout, Wendell H.., Stream Surveys and Fish Relocation Feasibility Studies, Mountain Sheep and Pleasant Valley Dams. Oregon State Game Commission, 1957

Stubbendieck, James, Hatch, Stephen L., and Butterfield, Charles H.. North American Range Plants. Fourth ed. Lincoln, Nebraska: University of Nebraska Press, 1992.

Thomas, Jack Ward. Wildlife Habitats in Managed Forests in the Blue Mountains of Oregon and Washington. USDA, Forest Service. Agriculture handbook No. 553. 1979.

U.S. Department of Agriculture, Forest Service, PNW region, Interior Columbia Basin Ecosystem Management Project. An Assessment of Ecosystem Components in the Interior Columbia Basin and Portions of the Klamath and Great Basins. Portland, Oregon. 1997.

Zwinger, Ann H. and Willard, Beatrice E.. Land Above the Trees: A Guide to North American Alpine Tundra. New York: Harper and Row, 1972.

.

GLOSSARY

Achene. A small, dry, one-celled, one-seeded indehiscent fruit, the seed attached to the pericarp at one place.

Alluvial. Pertaining to or composed of alluvium, or deposited by a stream or running water.

Bracts. A more or less modified leaf situated near a flower or inflorescense.

Catkin. A spike or spike-like, usually pendulous, inflorescence of unisexual flowers.

Clearcut * Any type of cutting in which all the merchantable timber is cut, and all the trees that cannot be utilized profitably are left – two acres and larger in size – evenage management.

Colluvial. A general term applied to loose or incoherent deposits, usually at the foot of a slope or cliff brought there by gravity. Talus and cliff and cliff debris are included in such deposits.

CRP. A USDA program designed to seed highly erodable land to native vegetation for a period of 10 years to reduce erosion.

Deciduous. Falling away, not persistent or evergreen.

Ecotone. A place where two successional stages or two different plant communities overlap each other; a place where two separate habitats meet and produce a third habitat with characteristics of both parent habitats.

Group Selection* ¼ to 2 acre group removal – groups of maximum size resemble small clearcuts – able to maintain some intolerant species (able to withstand sunlight) – unevenage management.

Historic range of variability. Historic range of variability is a way of expressing how much of each stand structure in each cover type existed under natural conditions in Wallowa County. HRV data was assembled by scientists from the Wallowa-Whitman, Umatilla, and Malheur national forests to be used for and specific to northeast Oregon forests.

Irregular Shelterwood* The maintenance of 2 to 4 evenage classes in the stand- intermediate position between evenage and unevenage management (manage easy of evenage with appearance of unevenage).

Mesic. Characterized by, relating to, or requiring a moderate amount of moisture.

Montane. Of, relating to or growing in the biogeographic zone of relatively cool moist upland slopes below timberline dominated by evergreen trees.

Needle ice. Needle shaped ice formations found in tundra soils.

Ovulate. Bearing an ovule. The ovule is the structure that turns into a seed.

Panicle. A compound inflorescence with the younger flowers at the apex or center.

Patterned ground. Features found in tundra environments resulting from frost heaving.

Pericarp. The wall of the ripened ovary and therefore the wall of the fruit.

Prickle. A small, usually slender outgrowth of the young bark, coming off with it.

Raceme. An inflorescence with pedicelled flowers borne along a more or less elongated axis with the younger flowers nearest the apex.

Reflexed. Abruptly bent or turned downward or backward.

Rhizomes. Any prostrate more or less elongated stem growing partly or completely beneath the ground.

Seed Cut of Shelterwood* To open up enough growing space in a single operation to allow the establishment of regeneration – the number of reserve trees depends on size and species (usually 15-30 trees per acre) – evenage management.

Seral. A series of ecological communities formed in ecological succession.

Shelterwood Removal Cut* Objective of gradually uncovering the new crop of trees and of making best use of the potentialities of the remnants of the old crop to increase in value – can be one or more entries for removal – evenage management.

Silviculture. A branch of forestry dealing with the development and care of forests.

Single-tree Selection* Removal of individual trees rather than groups of trees – species are tolerant (able to withstand shade) – unevenage management

Stamen. One of the pollen-bearing organs of a flower.

Staminate. Bearing stamens only.

Stolon. A trailing root above ground rooting at the nodes. Runner.

Stomatal. Constituting plant stomata. A small opening on the surface of a leaf through which gaseous exchange takes place.

Style. The stalk-like part of a pistil connecting the ovary to the stigma.

Terminal cymes. A flower cluster, often convex or flat-topped, in which the central or terminal flower blooms earliest.

Tiller. A stalk or sprout growing from the base of a plant.

* From The Practice of Silviculture by David Martyn Smith (1962)

APPENDIX N BIO

This addendum to the Wallowa County/Nez Perce Tribe Salmon Recovery Plan was funded with a grant from the Oregon State Lottery through the Regional Strategies fund administered by State of Oregon Economic Development Department. The grant was awarded by the Northeast Oregon Alliance made up of a board of volunteers who chose the project and were appointed by Union, Baker, and Wallowa Counties. The Wallowa County court with the NRAC (Natural Resources Advisory Committee) coordinated the effort, received the funding, and hired the contractor. Wallowa Resources wrote the grant.

NRAC full committee

Kate Barrett
Ben Boswell
Cassandra Botts
Don Bryson
Rod Childers
Kendall Clark
Chris Cunningham
Jim Dawson
Bruce Dunn
Ron Goebel
John Gorsline
Mike Hayward
Mack Huff
Howard Johnson
Saralyne Johnson
Bill Knox
Rick Lusk
Tom Macy
Mike Mahon
Dorothy Mason
Larry McCalden
Jack McClaren
Andrea Mitchell
Bob Morse
Claresse O'Connor
Jimmy Roberts
Dan Sherwin
Diane Shetler
Brad Smith
Thomas Smith
Jim Stonebrink
Howard Strobel
Randy Strohm
Larry Taylor
Cynthia Warnock
Silas Whitman
John Williams
James Yost

NRAC standing committee

Cassandra Botts (Boise Cascade)
Don Bryson (Nez Perce Tribe)
Rod Childers (Landowner)
Bruce Dunn (RY Timber)
Andrea Mitchell
Jimmy Roberts (U.S. Forest Service)
Cynthia Warnock (Wallowa SWCD)
John Williams (OSU Extension)

NRAC technical committee

Don Bryson (Nez Perce Tribe)
Bruce Dunn (RY Timber)
Tom Macy (GRMWP)
Kevin Martin (U.S. Forest Service)
Coby Menton (Wallowa SWCD)
Bill Oliver (Wallowa County Planning Department)
Jimmy Roberts (U.S. Forest Service)
Brad Smith (ODFW)
Thomas Smith (NRCS)
Howard Stroble (Oregon Department of Forestry)
Randy Strohm (Wallowa County Road Department)
Cynthia Warnock (Wallowa SWCD)
John Williams (OSU Extension)

Research technician/Technical writer/Primary author

R. Coby Menton

Primary Reviewers

Cassandra Botts (Boise Cascade)
Don Bryson (Nez Perce Tribe)
Bruce Dunn (RY Timber)
Arleigh Isley
Laura Mahrt (OSU)
Matt Mahrt (OSU)
Bob Riggs (Boise Cascade)
Howard Stroble (Oregon Department of Forestry)
Whit Weatherford (BMNRI)
John Williams (OSU Extension)

Appendix O

Matrix – Alternatives
for
Producing Various Stand Structures

Appendix O

Management Alternatives for Producing Various Stand Structures

To

From

		ofs	ofm	yf	ur	seo	sec	si	wdl	ots	cts	olms
Old Forest Single	**ofs**	2e	2d, 2e, 2f, 3, 10, 24, 30	1, 1a, 2a, 2b, 24	1, 1a, 2, 2b, 3	1, 1a, 2, 24	3,10	2b, 3	1, 1a, 2a	1, 1a, 12b	1, 1a, 12b	1, 1a, 12b
Old forest Multi	**ofm**	1, 1a, 2,24	2d, 2e, 2f	1, 2c, 2d	2a, 2b, 3	1, 1a, 24	1, 1a, 2	1, 1a, 2a, 2b, 3	1, 1a, 2a	1, 1a, 12b	1, 1a, 12b	1, 1a, 12b
Young Forest	**yf**	1, 1a, 2	2, 2d, 2e	2d	2	2	1, 1a	2	1, 1a, 2a	1, 1a, 12b	1, 1a, 12b	1, 1a, 12b
Understory Reinitiation	**ur**	2	2	2	X	--	--	--	2	1, 1a	1, 1a	1, 1a
Stem Exclusion Open Story	**seo**	1, 1a	3	3	1, 1a	X	--	1, 1a, 2a, 3	1, 1a, 2a, 3	1, 1a, 12b	1, 1a, 12b	1, 1a, 12b
Stem Exclusion Close Story	**sec**	--	2, 2a	2, 2a, 3	1, 1a, 2a, 2b	1, 1a, 2, 2a	X	1, 2b, 3	3	1, 2b	1, 2b	1, 2b
Stand Initiation	**si**	1a, 2	1a, 2	1a, 2	--	1, 1a, 2	--	X	1, 1a, 2	1, 1a	1, 1a	1, 1a
Woodland	**wdl**	1	3	2, 3	2a, 3	1	1, 3	2a, 3	x	2c	2c	2c
Open Canopy Tall Shrub	**ots**	1 ,2, 3	1 ,2, 3	1 ,2, 3	1 ,2, 3	1 ,2, 3	1 ,2, 3	1 ,2, 3	1 ,2, 3	x	6, 10, 20a, 28, 34, 49, 50, 108	10, 20a,59
Closed Canopy Tall Shrub	**cts**	1 ,2, 3	1 ,2, 3	1 ,2, 3	1 ,2, 3	1 ,2, 3	1 ,2, 3	1 ,2, 3	1 ,2, 3	10, 20a, 59	x	10, 20a,59
Open Canopy Low-Med Shrub	**olms**	1 ,2, 3	1 ,2, 3	1 ,2, 3	1 ,2, 3	1 ,2, 3	1 ,2, 3	1 ,2, 3	1 ,2, 3	10, 20a, 28, 34, 49, 50, 108	10, 20a, 28, 34, 49, 50, 108	x

		ofs	ofm	yf	ur	seo	sec	si	wdl	ots	cts	olms
Closed Canopy Low-med Shrub	**clms**	1 ,2, 3	1 ,2, 3	1 ,2, 3	1 ,2, 3	1 ,2, 3	1 ,2, 3	1 ,2, 3	1 ,2, 3	10, 20a, 28, 34, 49, 50, 108	10, 20a, 28, 34, 49, 50, 108	10, 20a,59
Open Herb	**oh**	1 ,2, 3	1 ,2, 3	1 ,2, 3	1 ,2, 3	1 ,2, 3	1 ,2, 3	1 ,2, 3	1 ,2, 3	6, 10, 20a, 28, 34, 49, 50, 108	6, 10, 20a, 28, 34, 49, 50, 108	6, 10, 20a, 28, 34, 49, 50, 108
Closed Herb	**ch**	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	0, 20a, 28, 34, 49, 50, 59, 10	10, 20a, 28, 34, 49, 50, 108	10, 20a, 28, 34, 49, 50, 108
Urban	u	X	X	X	X	X	X	X	x	6, 10, 20a	6, 10, 20a	6, 10, 20a, 50
Water	**W**	X	X	X	X	X	X	X	x	10, 20a	10, 20a	10, 20a
Rock/Barren	**r**	X	X	X	X	X	X	X	x	10, 20a	10, 20a	10, 20a

Footnote: Numbers in boxes are from “Appendix B – Problems/Solutions Summary.”

Appendix P

Studies Identified

Appendix P – Studies

The following are studies identified in the reach by reach portion that need to be done.

Areas Needing Studied	**Reach**
Temperature	Imnaha River – Wilderness Boundary to Private Lands (Imnaha 2)
	Big Sheep Creek – Lick Creek to Imnaha River (2)
	Prairie Creek – Elk Fence to Hays Fork
	Wallowa River – Wallowa Lake to Spring Creek
Septic	Imnaha River – Private Lands to Town of Imnaha (Imnaha 3)
	Imnaha River – Town of Imnaha to Snake River (Imnaha 4)
	Big Sheep Creek – Lick Creek to Imnaha River (2)
	Lostine River – Stratheran's Pond to Wallowa River (2)
	Bear Creek – Chamberlain Ditch Diversion to Wallowa River (2)
	Grande Ronde River - Wildcat Creek to State Line (3)
	Hurricane Creek – Upper Diversions to Third Bridge
	Hurricane Creek – Third Bridge to Wallowa River
	Prairie Creek – Elk Fence to Hays Fork
	Prairie Creek –Hays Fork to Wallowa River
	Wallowa River – Wallowa Lake to Spring Creek
	Wallowa River – Spring Creek to Head of Wallowa Canyon
Feedlots	Big Sheep Creek – Lick Creek to Imnaha River (2)
	Lostine River – Stratheran's Pond to Wallowa River (2)
Irrigation Withdrawals	Big Sheep Creek – Headwaters to Lick Creek (Big Sheep Creek 1)
Minimum Flow	Big Sheep Creek – Headwaters to Lick Creek (Big Sheep Creek 1)
Flushing Flow	Big Sheep Creek – Headwaters to Lick Creek (Big Sheep Creek 1)
Diversion Screening	Big Sheep Creek – Headwaters to Lick Creek (Big Sheep Creek 1)
	Grande Ronde River – Wildcat Creek to State Line
	Hurricane Creek – Upper Diversions to Third Bridge
	Prairie Creek – Elk Fence to Hays Fork
	Wallowa River – Wallowa Lake to Spring Creek
Cobble Embeddedness	Big Sheep Creek – Lick Creek to Imnaha River (2)
Predation & Competition	Lostine River – Headwaters to Strathearn's Pond
	Lostine River – Stratheran's Pond to Wallowa River (2)
	Wallowa River – Wallowa Lake to Spring Creek (Blue Heron)
	Wallowa River – Spring Creek to Head of Wallowa Canyon
Physical Barriers	Bear Creek – Chamberlain Ditch Diversion to Wallowa River
	Prairie Creek – Elk Fence to Hays Fork
	Wallowa River – Wallowa Lake to Spring Creek
	Wallowa River – Spring Creek to Head of Wallowa Canyon
Harassment	Bear Creek – Headwaters to Little Bear Creek

Excess Nutrient Loading	Grande Ronde River – Rondowa to Wildcat Creek Prairie Creek – Headwaters to Elk Fence
Future Demands	Hurricane Creek – Upper Diversions to Third Bridge Prairie Creek – Headwaters to Elk Fence Prairie Creek –Hays Fork to Wallowa River Wallowa River – Wallowa Lake to Spring Creek Wallowa River – Spring Creek to Head of Wallowa Canyon

The following are studies that have been done or are currently being done:

Flow measurement	Wallowa and Lostine River, Bear Creek	Available from USGS
Ditch Flow Measurement	Wallowa Lower Valley	Available from Ditch Companies
Water Samples	Various locations in Lower Valley	Available from SWCD
Temperature Data	Various locations in the County	Beginning the summer of 1999, all agencies doing water monitoring are coordinating to reduce duplication and cover a larger area. All data will be kept by the Wallowa County Water Quality Coordinator.