

## Desired Conditions - General Terrestrial Ecosystems

- 6.1 The planning area sustains a full complement of native biological diversity at the ecosystem level while, at the same time, allowing for natural evolutionary and biogeographical processes (biogeography is the study of the geographic distribution of organisms).
- 6.2 Natural ecological processes (including succession, fire, insects, disease, wind events, and flooding) contribute to the maintenance of sustainable ecosystems; they shape the composition and structure of the vegetation communities and the landscape pattern found throughout most of the planning area.
- 6.3 The major vegetation types found within the planning area are sustainable, resistant to change, resilient, and dominated by desirable native plant species.
- 6.4 All development stages of all of the major vegetation types within the planning area are represented and distributed across the SJPL.
- 6.5 Old-growth ponderosa pine and warm-dry mixed-conifer forests are more abundant, larger, and better distributed than they are currently within the planning area.
- 6.6 Aspen and aspen-conifer forests display larger patches of the young-development stage.
- 6.7 Snags, large and small wood on the forest floor, and litter are present in all forest vegetation types; they serve to maintain soil productivity, protect the soil surface, and provide wildlife habitat.
- 6.8 Ecosystems that provide goods and services remain productive and able to provide these goods and services over the long-term.
- 6.9 The many, large unroaded lands that represent much of the ecological diversity found within the planning area (including Wilderness Areas, WSAs, Research Natural Areas (RNAs), and some Inventoried Roadless Areas (IRAs) remain unroaded, contain relatively intact ecosystems where natural processes dominate, provide habitat and corridors for native biota, and constitute part of a reserve system that helps to preserve the native biological diversity on the SJPL.
- 6.10 Landscape linkage areas provide habitat for, and facilitate the movement of, wide-ranging species, including forest carnivores.
- 6.11 Special biological diversity features within the planning area (old-growth forests, fens, Arizona fescue mountain grasslands, hanging gardens, unroaded lands, critically imperiled plant species and communities, etc.) are sustained.
- 6.12 The riparian areas and wetland ecosystems, fens, springs, and potentially rare flora and fauna associated with the 6th level glaciated watersheds of the landscape-scale clusters 7w and 9w (as identified in Aquatic Riparian Wetland Assessment, or ARWA) are protected and sustainable.
- 6.13 Lands in the WUI display stand structures and fuel conditions that reduce the rate of wildfire spread and make wildfire intensity less severe. This may result in ecological conditions unlike those that occurred during the reference period (HRV conditions).
- 6.14 Where practical, lands in the WUI display stand structures and ecological conditions similar to those that occurred during the reference period (HRV conditions).
- 6.15 The major vegetative types display a Fire Regime Condition Class of 1 (see Glossary, Volume 1, Chapter 5).
- 6.16 All rangelands display satisfactory rangeland conditions (see Glossary, Volume 3).

## Desired Conditions - Disturbance Processes

- 6.17 Wildfire behavior in the WUI (in and around developed areas and communities) is relatively easy to control with conventional suppression methods and does not result in major destruction.
- 6.18 Fire frequencies and severities associated with the natural fire regimes of the major vegetative types found within the planning area are maintained or restored (except for some lands in the WUI).
- 6.19 Insect and disease processes and cycles are similar to those that occurred during HRV conditions. Epidemic outbreaks are rare.
- 6.20 Human-initiated disturbances (including tree harvesting, fuels treatments, prescribed burns, recreation, restoration sites, etc.) mimic natural disturbances on most of the SJPL.

## Desired Conditions - By Major Vegetation Type

- 6.21 **Ponderosa Pine Forests:** Ponderosa pine forests display variable stand structures. Most have open canopies with widely spaced trees and multiple canopy layers. Some are dense with closed canopies; others have a clumped structure where trees occur in groups surrounded by shrub and/or herb-dominated openings. Ponderosa pine seedlings and saplings are present, and large old, yellow-barked ponderosa pine trees are present. The abundance and distribution of Gambel oak and other native shrubs in the understory of these forests is variable and includes small and large patches of all size classes. Native herbs (including bunchgrasses, Arizona fescue, muttongrass and mountain muhly) are present and well-distributed in most ponderosa pine forests. Forest litter is common and well-distributed. Invasive plant species are absent or rare. Snags and large wood (on the ground) are common in late successional stages, as well as in young stands, following disturbance. Low-intensity, surface fires occur in most ponderosa pine forests (with frequencies ranging from about 12 to 30 years). All development stages of these forests are well-represented, including the old-growth stage that is currently under-represented.
- 6.22 **Warm-Dry Mixed Conifer Forests:** Warm-dry mixed-conifer forests display variable stand structures and species composition. Most have open canopies with widely spaced trees and multiple canopy layers. Some are dense with closed canopies; others have a clumped structure where trees occur in groups surrounded by shrub and/or herb-dominated openings. Tree species composition includes an abundance of ponderosa pine and Douglas-fir trees (ranging from young to old). White fir trees are present, but are not dominant. The abundance and distribution of Gambel oak and other native shrubs in the understory of these forests is variable, and includes small and large patches of all size classes. Native herbs (including tall bunchgrasses) are common and well-distributed in most warm-dry mixed-conifer forests. Forest litter is common and well-distributed. Invasive plant species are absent or rare. Snags and large wood (on the ground) are common in late successional stages, as well as in young stands, following disturbance. Low-intensity, surface fires occur in most warm-dry mixed-conifer forests (with frequencies ranging from about 18 to 28 years). All development stages of these forests are well-represented, including the old-growth stage that is currently under-represented.
- 6.23 **Cool-Moist Mixed Conifer Forests:** Cool-moist mixed conifer forests display variable stand structures and species composition. Most are dense with closed canopies and multiple canopy layers. Tree species composition includes an abundance of Douglas-fir trees (ranging from young to old). Patches of cool-moist mixed-conifer forest, ranging from small to large, are distributed across the landscape. The canopy cover of shrubs in the understory of these forests is highly variable. Native herbs are

common and well-distributed in most cool-moist mixed-conifer forests. Forest litter is common and well-distributed. Invasive plant species are absent or rare. Snags and large wood (on the ground) are abundant in late successional stages. High-intensity, stand-replacement fires occur in most cool-moist mixed-conifer forests (with frequencies of about 144 years). All development stages of these forests are well-represented, including the young- and mid-stages that are currently under-represented.

- 6.24 **Spruce-Fir Forests:** Spruce-fir forests display variable stand structures and species composition. Most are dense with closed canopies and multiple canopy layers. Patches of spruce-fir forest, ranging from small to large, are distributed across the landscape. The canopy cover of shrubs in the understory of these forests is highly variable. Native herbs are common and well-distributed in most spruce-fir forests. Forest litter is common and well-distributed. Invasive plant species are absent or rare. Snags and large wood (on the ground) are abundant in late successional stages. High-intensity, stand-replacement fires occur in most spruce-fir forests (with frequencies longer than 200 years). All development stages of these forests are well-represented, including the young- and mid-stages that are currently under-represented.
- 6.25 **Aspen and Aspen-Conifer Forests:** Aspen and aspen-conifer forests display variable stand structures, with most having high stem densities and high canopy cover. Some stands are even-aged with one or two canopy layers; others are uneven-aged with multiple canopy layers. Patches of aspen and aspen-conifer forests, ranging from small to large, are distributed across the landscape. The canopy cover of shrubs in the understory of these forests is highly variable. Native herbs are abundant and well-distributed in most aspen and aspen-conifer forests. Forest litter is common and well-distributed. Invasive plant species are absent or rare. Snags and large wood (on the ground) are abundant in late successional stages. Fires occur in most aspen and aspen-conifer forests (with frequencies of about 140 years). All development stages of these forests are well-represented, including the young-stage that is currently under-represented.
- 6.26 **Pinyon-Juniper Woodlands:** Pinyon-juniper woodlands display variable stand structures. Some have open structures with widely spaced trees; others are dense with high canopy covers. Most stands are uneven-aged with multiple canopy layers. Tree species composition includes an abundance of pinyon-pine and juniper trees, ranging from young to old. The canopy cover and size of Gambel oak and other shrubs in the understory of these forests is variable. Native herbs are present and well-distributed. Biological soil crusts and forest litter are common and well-distributed on most sites. Invasive plant species are absent or rare. High-intensity, stand-replacement fires occur in most pinyon-juniper woodlands (with frequencies of 100-123 years).
- 6.27 **Mountain Shrublands:** Mountain shrublands display variable stand structures. Most are dense with multiple canopy layers; others are open with widely spaced shrubs. Gambel oak and other deciduous native shrubs (including mountain mahogany, serviceberry, chokecherry, fenderbush, and squawapple) are abundant and well-distributed. Native herbs are abundant and well-distributed. Invasive plant species are absent or rare. Forest litter is common and well-distributed.
- 6.28 **Sagebrush Shrublands:** Sagebrush shrublands display variable stand structures. Some are open with widely spaced shrubs; others are dense. Some large patches are present. Sagebrush and other native shrubs are abundant and well-distributed. Native perennial bunchgrasses (including Indian ricegrass, galleta, Western wheatgrass, and needle-and-thread – which are currently lacking on many sites) are abundant and well-distributed. Encroachment of pinyon and juniper trees is absent or rare. Invasive plant species are absent or rare. Biological soil crusts are common and well-distributed on many sites.

- 6.29 **Semi-Desert Shrublands:** Semi-desert shrublands are dominated by native shrubs that could include shadscale saltbush, winterfat, fourwing saltbush, plains pricklypear, rubber rabbitbrush, spiny hopsage, greasewood, and/or basin big sagebrush. Stand structures display open or moderately dense shrubs with native perennial herbs in the openings between them. Native grasses (including Indian ricegrass, galleta, Western wheatgrass, and needle-and-thread -- which are currently lacking on many sites) are abundant and well-distributed. Invasive plant species and/or undesirable native plant species that are currently abundant on most sites are absent or rare. Biological soil crusts and forest litter are common on most sites.
- 6.30 **Semi-Desert Grasslands:** Semi-desert grasslands are dominated by native perennial bunchgrasses (including Indian ricegrass, galleta, and needle-and-thread -- which are currently lacking on many sites). Invasive plant species and/or undesirable native plant species that are currently abundant on most sites are absent or rare. Biological soil crusts and forest litter are common on most sites.
- 6.31 **Mountain Grasslands:** Mountain grasslands display moderate to high canopy cover of desirable native herbs (including Arizona fescue at mid-elevations and Thurber fescue at higher elevations). Invasive plant species and undesirable native plant species that are currently abundant on many sites are absent or rare. Forest litter is common and well-distributed.
- 6.32 **Alpine:** Alpine ecosystems sustain their ecosystem diversity. They maintain the ecological attributes and processes that allow them to provide watershed values, habitat for native biota, panoramic vistas, and/or for solitude. They display a diverse composition of desirable native plant species and vegetation communities (including fellfield, turf, wetland, and dwarf willow types). Invasive plant species are absent or rare.

**Table 3 - Desired Conditions for Development Stages of the Forest Vegetation Types**

Vegetation Type*	Development Stage*	Current Condition** (% of vegetation type)	Historic Range of Variation*** (% of vegetation type)	Desired Condition**** (% of vegetation type)
Spruce-Fir	young	1.5	0-45	10-20
	mid	6.5	5-47	20-30
	mature	70	#	30-40
	old growth	22	#	25-35
Cool-Moist Mixed-Conifer	young	0.5	1-36	10-20
	mid	10	8-49	20-30
	mature	79	#	30-40
	old growth	11	#	20-30
Aspen	young	1	1-55	15-25
	mid	31	4-55	25-35
	mature	68	35-86	50-60
Warm-Dry Mixed-Conifer	young	0.5	1-10	10-15
	mid	8.5	5-14	10-15
	mature-open	4.5	#	35-45
	mature-closed	77	#	15-25
	old growth	10	#	20-30
Ponderosa Pine	young	0.5	1-14	5-10
	mid-open	3.5	4-14	5-10
	mid-closed	4	4-14	5-10
	mature-open	35	#	40-60
	mature-closed	55	#	15-25
	old growth	2.5	#	10-15

\*Draft Environmental Impact Statement    \*\* SJPL R2VEG    \*\*\* RMLANDS    \*\*\*\* Interdisciplinary Team    # not available