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<b>Recommended Age Class Distribution by Vegetation Response Unit</b>									
<b>Age Class</b>	<b>VRU 1</b>	<b>VRU 2</b>	<b>VRU 3</b>	<b>VRU 4</b>	<b>VRU 5</b>	<b>VRU 6 VRU 8</b>	<b>VRU 7</b>	<b>VRU 9</b>	<b>VRU 10 VRU 11</b>
0-40	10-20%	15-25%	15-25%	15-25%	10-20%	10-20%	15-25%	20-40%	10-20%
41-100	10-30%	15-35%	20-40%	20-40%	15-35%	10-30%	20-40%	40-60%	10-30%
101-150	5-25%	10-30%	15-35%	15-35%	10-30%	10-30%	15-30%	15-20%	10-20%
150+	40-70%	20-50%	15-40%	10-40%	25-55%	35-65%	15-45%	5-10%	40-60%

This table summarizes information expressed within the individual VRU characterization sections. This data is intended as a reference for use in landscape-level analysis. Since age is an index of the successional stage of an area, it is a useful attribute in setting objectives for desired conditions and designing vegetative treatments to maintain a given age class distribution. An unestimated amount of openings, nonstocked with conifers, is assumed to occur across most landscapes and to varying levels.

The percentages are estimates based on a synthesis of information from research of historic vegetation (Lesica 1995, Losensky 1994), ICBEMP scientific findings (USDA, USDI 1997), and the inherent fire regime for each VRU. Fire intensity and frequency were important consideration in estimating the time interval for stand replacement (average stand recycle age). Critical review and technical assistance provided by Jack Triepke, Botanist/Ecologist for the Fortine Ranger District.

# A P P E N D I X D



## VEGETATION RESPONSE TO DISTURBANCE

Species	Tolerance	Regeneration Processes/ Post Fire Strategy	Response To Fire Spring/ Fall	Response to Scarification	Disturbance Recovery Period (years)	Wildlife Use/ Forage Value	Site Conditions Indicator	Successional Stage
<b>Shrubs</b>								
Rocky Mountain maple ( <i>Acer glabrum</i> )	T/FS	seeds/ sprouting from root crown	NE/ME	HE	0.5-1.0	WB/BG, GB/BG; S,B,F/B SM; HC, TC/BG	warm to cool; moist	long-lived seral to climax; shade tolerant
Sitka alder ( <i>Alnus sinuata</i> )	T/S	seeds; root collar or stump sprouts/ sprouting; seeds	NE/ME	HE	2-10	TC, HC/BG, SM, B; GF/BG, SM, B; poor palatability	cool moist; high water table	pioneer early seral mod. shade tolerant; nitrogen fixer
Western serviceberry ( <i>Amelanchier alnifolia</i> )	T/S	sprouting from rhizomes and root crown/ sprouting from rhizomes	ME/-	--	7	WB/BG; GF/B, SM; HC/BG, SM, B; fair protein	dry to moist	seral; long lived
Bearberry ( <i>Arctostaphylos uva ursi</i> )	T/S	vegetative; stems produce adventitious roots/ basal sprouting	SE/ME	SE	2-15	GB, WB, SPF/BG; GF/B, SM; low protein	dry	seral; shade tolerant
Redstem ceanothus ( <i>Ceanothus sanguineus</i> )	T/S	seed (banking); some sprouting/ seeds and sprouting	ME/NE	SE	1-3	WB, GB/BG; GF/B, SM; HC/B, SM; good palatability (varies with the season)	dry to moist	early or mid-seral; shade tolerant; N-fixer
Shiny-leaf ceanothus ( <i>Ceanothus velutinus</i> )	T/S	seed (banking) resprouting/ seeds and resprouting	SE/ME	ME	1-2	GB/BG; GF/SM, B; HC/SM, B; poor protein and energy value	dry to moist	early seral shade- tolerant; N-fixer
Ocean-Spray ( <i>Holididcus discolor</i> )	T/S	seed/ basal crown sprouting	NE/NE	--	1	variable; minor big game browse; low palatability	dry to moist; generally drier	climax
Creeping Oregongrape ( <i>Mahonia repens</i> )	T/S	seed or vegetative dormant buds on rhizomes/ rhizomes	variable from SE to HE	SE	1-9	WB, SF/BG; GF/B, SM; HC/B, SM; fair food value	moist	climax dominant shade-tolerant
Fool's huckleberry ( <i>Menziesia ferruginea</i> )	T/FS	seeds and sprouting from root crown/ sprouting	SE/ME	ME	16-25	GF/BG, SM, B; HC/SM, B; poor palatability; nutrient value poor to medium	moist	seral to climax shade tolerant
Pachistima ( <i>Pachistima myrsinites</i> )	T/S	layering, rooting & seeds/ sprouting from taproot buds or root crown	NE/ME	HE	1-2	GF/BG, B poor nutritional value	dry to moist	climax; tolerates sun and shade
Lewis mockorange ( <i>Philadelphus lewisii</i> )	T/S	resprouting from root crown; seed/ resprouting	SE/NE	--	1	SF/BG; GF/B, SM; HC/SM; fair palatability	dry to moist	early seral to climax

Species	Tolerance	Regeneration Processes/ Post Fire Strategy	Response To Fire Spring/ Fall	Response to Scarification	Disturbance Recovery Period (years)	Wildlife Use/ Forage Value	Site Conditions Indicator	Successional Stage
Mallow ninebark ( <i>Physocarpus malvaceus</i> )	T/FR	seeds; sprouting from rhizomes/ sprouting	NE/SE	ME	2	minimal GB/BG; HC/BG, SM, B; fair energy and protein value	dry to moist	early seral to climax
Chokecherry ( <i>Prunus virginiana</i> )	T/S	seeds; rhizomes/ rhizomes (seed banks)	NE/ME	--	up to 18	GB, WB/BG; SF/B, SM; HC/SM, B; relatively high nutritional value	cool moist	seral
Prickly currant ( <i>Ribes lacustre</i> )	T/S	seed (banks), rhizomes, layering/ root crown sprouting and rhizomes	NE/NE	--	2-5	SF/B, SM	wet	early seral shade tolerant
Pearhip rose ( <i>Rosa woodsii</i> )	T/S	seeds, rhizomes, root crown rhizome sprouting	SE/ME	--	1-2	SPF/BG, SM; SF/BG, SM, B; HC/SM, B; low protein; hips high source of digestible energy	moist	seral to climax mod. shade tolerant
Western thimbleberry ( <i>Rubus parviflorus</i> )	T/FR	seeds, rhizomes/ root crown sprouts/rhizome sprouting and seed banking	NE/ME	ME	1-3	SF/B, SM, BG; HC, TC/B, SM, BG; poor energy and protein value	dry to moist	early seral-seral mod. shade tolerant
Scouler willow ( <i>Salix scouleriana</i> )	T/S	seed/ seed; some sprouting from root crowns	NE/SE	ME	1	GB/B; GF/SM, B; HC/BG, B, SM; highly palatable; high protein	mod. dry to wet	long-lived seral species; shade tolerant
Blue elderberry ( <i>Sambucus cerula</i> )	T/S	seeds/ seeds and root crown sprouting	SE/SE	NE	1	GB/BG; GF/B, SM; HC/B, SM; fair energy value; poor protein	moist	early seral; shade intolerant
Elderberry ( <i>Sambucus racemosa</i> )	T/S	seeds, sprouts, rhizomes & layering/ resprouts from rhizomes and root crowns; seed bank	SE/SE	SE	1	GF/BG, B, SM; HC/B, SM; highly palatable; low protein	moist cool	early to mid-seral; partially shade tolerant to shade tolerant
Russet buffalo-berry ( <i>Shepherdia canadensis</i> )	T/FR	seeds; sprouting from root crowns and rhizomes/ sprouting from root crowns; seed	SE/ME	--	4-5	SF/BG, B, SM; browse has low palatability but high protein; berries are highly palatable	dry to moist	early seral-seral N-fixing shrub
Mountain ash ( <i>Sorbus americana</i> )	--/FS	seeds/ sprouting	--	--	--	GF/BG, SM, B	moist	seral; shade tolerant
Spiraea ( <i>Spiraea betulifolia</i> )	T/S	rhizomes/ rhizomes	NE/NE	NE	1	poor palatability	dry to moist	early seral-seral; mod. shade tolerant
Common snowberry ( <i>Symphoricarpos albus</i> )	T/S	rhizomes; seeds/ rhizomes	NE/SE		1	SF/B, SM, BG; HC/B, SM; good palatability; fair crude protein	dry to moist	climax; shade tolerant
Dwarf huckleberry ( <i>Vaccinium caespitosum</i> )	T/S	rhizomes/ rhizomes	NE/ME	ME	1	SF/SM, B, BG; WB/BG; HC/SM, B; browse high energy content, fair protein, low palatability; berries highly palatable	moist	seral to climax; mod. shade tolerant

Species	Tolerance	Regeneration Processes/ Post Fire Strategy	Response To Fire Spring/ Fall	Response to Scarification	Disturbance Recovery Period (years)	Wildlife Use/ Forage Value	Site Conditions Indicator	Successional Stage
Blue huckleberry ( <i>Vaccinium globulare</i> ) and ( <i>Vaccinium membranaceum</i> )	T/S	rhizomes/sprouting from rhizomes	NE/ME	HE	10-20	GB, GF/BG, SM; SF/BG, B, SM; HC/B, SM; browse high energy; berries high energy and highly palatable	moist	seral to climax; shade tolerant
Dwarf bilberry ( <i>Vaccinium myrtillus</i> )	T/S	rhizomes/sprouting from rhizomes	SE/ME	HE	10-14	SF/SM, B, BG; SB/SM; HC/SM, B; berries highly palatable	cool moist	climax dominant; mod. shade tolerant
Whortleberry ( <i>Vaccinium scoparium</i> )	T/FR	rhizomes/sprouts from rhizomes	ME/HE	HE	12	SF/SM, B, BG; HC/SM, B; fruit and forage has high energy value	cool to cold	seral to climax dominant
<b>Forbes</b>								
Mountain arnica ( <i>Arnica latifolia</i> )	IT/	rhizomes; seeds/rhizomes	SE/ME	ME	--	no info available	no info	no info
Queen's Cup beadlily ( <i>Clintonia uniflora</i> )	T/S	seeds; rhizomes/rhizomes	ME/HE	HE	1-2	SF/B, SM, BG; low palatability	moist	late seral to climax
Goldthread ( <i>Cotis groenlandica</i> )	T/S	rhizomes/rhizomes	ME/HE	HE		no info available	cool to moist	seral; shade tolerant
Rattlesnake-plantain ( <i>Goodyera repens</i> )	IT/FS	seeds; rhizomes/rhizomes	HE/HE	HE	up to 95	no info	cool moist	late seral to climax; shade tolerant
Bracken fern ( <i>Pteridium aquilinum</i> )	T/S	rhizomes/rhizome	SE/SE	SE	1-2	SPF/BG, SM; poor palatability	dry to moist	pioneer and early seral; shade tolerant
Starry Solomon-plume ( <i>Smilacina stellata</i> )	T/S	rhizomes; seed/rhizome sprouting	NE/ME	--	4	SF/BG, B; fair to poor palatability	generally moist	seral
Beargrass ( <i>Xerophyllum tenax</i> )	T/S	rhizomes/rhizomes	SE/ME	HE	10-23	SF/BG, SM; poor palatability	cool dry	early to mid seral; mod. shade tolerant
<b>Grasses</b>								
Columbia brome ( <i>Bromus vulgaris</i> )	T/S	seeds and tillers/seeds	SE/SE	--	1-2	GF, SF/BG; SF/B, SM; high protein	no info	no info
Pinegrass ( <i>Calamagrostis rubescens</i> )	T/S	rhizomes/rhizomes	NE/NE	NE	1-2	GF/BG; HC/B, SM; mod. quality forage	dry to moist	climax; mod. shade tolerant to very intolerant
Elk sedge ( <i>Carex geyeri</i> )	T/S	rhizomes/rhizomes	NE/NE	NE	1-10	SPF, SF/BG; HC/SM, B; mod. protein	dry to moist	dominant climax; shade tolerant
Ross sedge ( <i>Carex rossii</i> )	T/C,S	rhizomes; seeds/seeds; rhizomes	NE/NE	ME	2-10	SPF, SF/BG; GF/SM; food value poor to fair	dry	early seral and unstable situations

Species	Tolerance	Regeneration Processes/ Post Fire Strategy	Response To Fire Spring/ Fall	Response to Scarification	Disturbance Recovery Period (years)	Wildlife Use/ Forage Value	Site Conditions Indicator	Successional Stage
Orchard grass ( <i>Dactylis glomerata</i> )	T/C	seed; tillers/--	NE/SE	SE	--	GF/BG, B, SM; HC/B, SM; high palatability	moist	seral; shade tolerant
Idaho fescue ( <i>Festuca idahoensis</i> )	T/FS	seeds/root crown	SE/ME	--	1-30	GF/BG; high energy fair protein	dry	seral to climax
Smooth woodrush ( <i>Luzula hitchcockii</i> )	T/S	rhizomes; seeds/rhizomes	NE/SE	--	1	GF/BG	cold moist	--
Bluebunch wheatgrass ( <i>Pseudoroegneria spicatum</i> )	T/S	seeds (slow)/rhizomes	NE/NE	--	1-3	GF, WF/BG; low protein	dry	climax or late successional stages

*Codes for Column 2*

T = tolerant  
IT = intolerant  
FS = fire sensitive  
FR = fire resistant  
S = survivor  
C = colonizer  
e.g. T/S is a species that is tolerant to disturbance and  
has developed a survivor strategy to fire

*Codes for Column 7*

GB = general browse  
WB = winter browse  
GF = general forage  
SPF = spring forage  
SF = summer forage  
HC = hiding cover  
TC = thermal cover  
S = seeds

B = buds

F = flowers  
BG = big game  
SM = small mammals  
B = birds  
e.g. SF/SM, B; HC, TC/BG represents summer forage  
(SF) used by small mammals (SM) and birds (B) and  
hiding and thermal cover (HC, TC) for big game (BG).

*Codes for Columns 4 and 5*

NE = not effective in reducing the number of plants  
SE = slightly effective in reducing the number of plants  
ME = moderately effective in reducing the number of  
plants  
HE = highly effective in reducing the number of plants

The above information is a general summarization of current literature. When making vegetative response predictions, take into account plant density, form, age, and associated plant species. All of these factors vary from site to site and will lead to different responses depending upon timing and intensity of treatment. For further detail, consult the references listed below.

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This Appendix item was created by Bob Lambrecht. Silviculturist

