

Table. Range of variation in landscape structure for Ponderosa Pine-Oak-Aspen Forest under the simulated HRV disturbance scenario on the Columbine District, San Juan National Forest, Colorado, and the degree of departure of the current landscape from the simulated range of variation (see text for details).

Landscape Metric	Condition Class (seral stage)	Current Landscape ¹		Percentiles of Simulated Distribution						HRV Departure		
		Metric Value	Percentile of HRV	0	5	25	50	75	95	100	CV ²	Index ³
<i>Seral Stage Composition</i> ⁴												
PLAND	Stand Initiation	0.114	88	0.008	0.023	0.046	0.068	0.091	0.148	0.216	183	70
	Stem Exclusion	0.155	34	0.085	0.113	0.145	0.170	0.207	0.270	0.337	92	
	Understory Reinitiation	2.097	100	0.142	0.175	0.217	0.247	0.288	0.342	0.410	68	
	Shifting Mosaic	0.000	0	0.056	0.159	0.335	0.499	0.660	0.917	1.122	152	
	Fire Maintained Open Canopy	0.000	0	0.620	0.869	1.158	1.344	1.534	1.773	1.930	67	
<i>Class Configuration</i> ⁵												
PD	Stand Initiation	0.038	1	0.029	0.060	0.123	0.177	0.230	0.353	0.482	165	99
	Stem Exclusion	0.007	0	0.218	0.298	0.351	0.411	0.465	0.565	0.623	65	
	Understory Reinitiation	0.132	0	0.127	0.207	0.463	0.547	0.605	0.658	0.729	82	
	Shifting Mosaic	0.000	0	0.058	0.120	0.193	0.266	0.324	0.411	0.504	110	
	Fire Maintained Open Canopy	0.000	0	0.181	0.229	0.255	0.281	0.308	0.342	0.363	40	
ED	Stand Initiation	0.321	23	0.068	0.173	0.340	0.515	0.691	1.101	1.550	180	82
	Stem Exclusion	0.205	0	0.642	0.866	1.055	1.256	1.506	1.933	2.308	85	
	Understory Reinitiation	3.333	100	0.757	0.984	1.414	1.740	2.026	2.338	2.707	78	
	Shifting Mosaic	0.000	0	0.256	0.604	1.274	1.893	2.420	3.324	3.992	144	
	Fire Maintained Open Canopy	0.000	0	2.183	2.786	3.363	3.736	4.164	4.633	4.863	49	
AREA_MN	Stand Initiation	2.995	100	0.195	0.294	0.348	0.388	0.428	0.476	0.689	47	100
	Stem Exclusion	21.719	100	0.313	0.354	0.397	0.425	0.460	0.502	0.558	35	
	Understory Reinitiation	15.875	100	0.354	0.390	0.436	0.471	0.516	1.074	2.054	145	
	Shifting Mosaic	0.000	0	0.479	1.165	1.591	1.880	2.214	2.778	3.293	86	
	Fire Maintained Open Canopy	0.000	0	2.450	3.235	3.953	4.754	5.492	6.871	10.660	76	
AREA_AM	Stand Initiation	31.721	100	0.695	1.390	2.114	2.694	3.416	4.644	11.572	121	100
	Stem Exclusion	109.300	100	1.540	2.075	2.756	3.232	3.770	4.815	8.279	85	
	Understory Reinitiation	71.665	100	1.733	2.462	3.158	3.801	4.704	18.130	48.573	412	
	Shifting Mosaic	0.000	0	6.052	11.717	16.976	20.670	25.422	33.717	60.914	106	
	Fire Maintained Open Canopy	0.000	0	18.169	25.967	34.560	42.296	47.983	57.915	67.219	76	
GYRATE_A	Stand Initiation	235.711	100	35.248	49.327	60.238	69.234	76.527	89.993	183.270	59	100

	Stem Exclusion	475.548	100	52.254	60.046	69.576	74.799	81.740	91.567	120.542	42	
	Understory Reinitiation	389.360	100	55.514	67.314	74.561	81.925	92.059	174.346	279.863	131	
	Shifting Mosaic	0.000	0	108.385	155.584	189.902	209.829	229.024	264.144	317.474	52	
	Fire Maintained Open Canopy	0.000	0	186.691	229.506	267.513	292.975	309.906	336.699	367.613	37	
SHAPE_MN	Stand Initiation	1.386	100	1.130	1.162	1.183	1.198	1.215	1.236	1.267	6	100
	Stem Exclusion	1.643	100	1.165	1.185	1.203	1.215	1.228	1.251	1.272	5	
	Understory Reinitiation	1.711	100	1.177	1.194	1.219	1.230	1.242	1.266	1.282	6	
	Shifting Mosaic			1.125	1.236	1.327	1.361	1.390	1.427	1.453	14	
	Fire Maintained Open Canopy			1.431	1.480	1.526	1.562	1.594	1.647	1.696	11	
SHAPE_AM	Stand Initiation	2.513	100	1.421	1.588	1.740	1.834	1.954	2.109	2.829	28	90
	Stem Exclusion	2.396	100	1.633	1.726	1.847	1.925	2.010	2.179	2.371	24	
	Understory Reinitiation	2.334	93	1.711	1.795	1.927	2.004	2.130	2.388	2.748	30	
	Shifting Mosaic			1.898	2.361	2.653	2.816	2.949	3.161	3.545	28	
	Fire Maintained Open Canopy			2.395	2.662	2.904	3.057	3.192	3.401	3.568	24	
CPLAND	Stand Initiation	0.061	100	0.000	0.001	0.002	0.004	0.006	0.009	0.014	204	100
	Stem Exclusion	0.120	100	0.012	0.018	0.027	0.032	0.040	0.054	0.068	110	
	Understory Reinitiation	1.564	100	0.081	0.104	0.128	0.151	0.179	0.216	0.255	74	
	Shifting Mosaic	0.000	0	0.032	0.080	0.203	0.297	0.395	0.561	0.769	162	
	Fire Maintained Open Canopy	0.000	0	0.376	0.552	0.721	0.844	0.971	1.097	1.305	65	
CORE_MN	Stand Initiation	1.617	100	0.001	0.009	0.016	0.022	0.029	0.046	0.098	174	100
	Stem Exclusion	16.906	100	0.041	0.054	0.073	0.081	0.092	0.108	0.138	66	
	Understory Reinitiation	11.839	100	0.184	0.217	0.255	0.285	0.323	0.769	1.430	194	
	Shifting Mosaic	0.000	0	0.273	0.599	0.923	1.147	1.336	1.749	2.152	100	
	Fire Maintained Open Canopy	0.000	0	1.440	1.963	2.447	2.964	3.459	4.319	7.210	80	
CORE_AM	Stand Initiation	20.079	100	0.005	0.080	0.195	0.334	0.519	1.011	3.625	278	100
	Stem Exclusion	95.261	100	0.384	0.617	0.943	1.139	1.426	1.959	3.719	118	
	Understory Reinitiation	56.540	100	1.120	1.638	2.204	2.687	3.432	14.662	34.716	485	
	Shifting Mosaic	0.000	0	3.602	7.385	11.155	14.293	17.324	24.240	44.256	118	
	Fire Maintained Open Canopy	0.000	0	12.180	16.956	23.852	29.338	32.581	39.628	47.525	77	
CAI_MN	Stand Initiation	12.710	100	0.304	0.479	0.785	1.007	1.332	1.940	2.924	145	80
	Stem Exclusion	57.504	100	2.021	2.619	2.955	3.257	3.536	4.195	5.015	48	
	Understory Reinitiation	49.185	65	35.853	40.740	45.301	47.952	50.397	53.771	55.818	27	
	Shifting Mosaic	0.000	0	25.870	29.644	34.513	37.722	41.208	46.634	53.013	45	
	Fire Maintained Open Canopy	0.000	0	25.373	30.211	35.745	38.837	42.196	47.830	52.413	45	

CAI_AM	Stand Initiation	53.996	100	0.551	2.592	4.328	5.616	6.908	10.524	16.241	141	100
	Stem Exclusion	77.842	100	12.185	15.195	17.812	19.115	20.232	22.509	25.045	38	
	Understory Reinitiation	74.577	100	46.950	53.535	57.974	60.691	63.366	69.247	75.061	26	
	Shifting Mosaic	0.000	0	44.884	50.047	57.060	60.471	63.468	67.521	71.458	29	
	Fire Maintained Open Canopy	0.000	0	52.797	57.024	60.562	62.726	64.351	67.191	69.625	16	
PROX_MN	Stand Initiation	15.614	100	0.100	0.330	0.636	0.949	1.270	1.856	2.451	161	80
	Stem Exclusion	1.604	49	0.752	0.949	1.296	1.624	1.979	2.539	3.159	98	
	Understory Reinitiation	19.720	100	1.138	1.446	1.958	2.446	2.976	5.900	16.489	182	
	Shifting Mosaic	0.000	0	2.030	8.813	14.445	17.477	21.120	26.383	37.585	101	
	Fire Maintained Open Canopy	0.000	0	12.714	21.738	32.737	39.514	46.220	57.222	70.489	90	
PROX_AM	Stand Initiation	3.522	98	0.061	0.298	0.644	1.075	1.634	3.065	5.441	257	78
	Stem Exclusion	1.983	45	0.755	0.992	1.467	2.096	2.696	3.771	9.792	133	
	Understory Reinitiation	33.200	100	1.250	1.795	2.538	3.110	3.992	6.876	14.734	163	
	Shifting Mosaic	0.000	0	3.470	6.797	11.878	16.887	22.809	34.811	59.652	166	
	Fire Maintained Open Canopy	0.000	0	10.016	14.978	22.264	27.900	35.852	45.823	63.540	111	
CWED	Stand Initiation	0.098	10	0.029	0.077	0.153	0.233	0.310	0.494	0.702	179	92
	Stem Exclusion	0.063	0	0.192	0.261	0.317	0.379	0.452	0.584	0.699	85	
	Understory Reinitiation	0.958	100	0.104	0.118	0.145	0.177	0.206	0.242	0.295	70	
	Shifting Mosaic	0.000	0	0.046	0.114	0.231	0.364	0.487	0.657	0.830	149	
	Fire Maintained Open Canopy	0.000	0	0.389	0.539	0.724	0.834	0.984	1.152	1.291	74	
TECI	Stand Initiation	30.489	0	42.043	43.379	44.168	44.654	45.061	45.721	46.467	5	99
	Stem Exclusion	30.695	100	29.401	29.656	29.940	30.085	30.208	30.339	30.711	2	
	Understory Reinitiation	28.520	100	7.890	8.806	9.581	10.222	11.095	13.112	17.845	42	
	Shifting Mosaic			13.357	15.646	17.617	18.961	20.653	24.167	28.068	45	
	Fire Maintained Open Canopy			16.231	18.411	20.658	22.302	23.938	26.872	29.900	38	
CLUMPY	Stand Initiation	0.834	100	0.373	0.472	0.512	0.538	0.556	0.586	0.654	21	100
	Stem Exclusion	0.928	100	0.484	0.509	0.536	0.549	0.561	0.580	0.610	13	
	Understory Reinitiation	0.901	100	0.500	0.533	0.549	0.565	0.580	0.749	0.812	38	
	Shifting Mosaic			0.644	0.730	0.751	0.768	0.784	0.807	0.835	10	
	Fire Maintained Open Canopy			0.780	0.799	0.812	0.826	0.834	0.854	0.881	7	
IJI	Stand Initiation	41.855	5	37.545	42.143	46.500	48.715	50.384	51.944	53.458	20	94
	Stem Exclusion	63.722	100	39.038	42.710	45.526	48.043	49.442	50.961	52.370	17	
	Understory Reinitiation	74.244	100	40.227	44.722	48.679	50.188	51.577	62.009	72.444	34	

Shifting Mosaic	62.443	64.237	66.361	67.937	69.610	72.366	76.209	12
Fire Maintained Open Canopy	61.604	66.116	68.339	69.913	71.346	74.212	76.677	12
Summary Indices⁶:								
<i>Seral-Stage Departure Index</i>								70
<i>Class Configuration Departure Index</i>								94
<i>Cover Type Departure Index</i>								82

¹Some stand conditions are not represented in the current landscape. Certain metrics are logically zero if the class is absent, while others are undefined (indicated by missing data). HRV departure index is undefined if the current landscape condition is undefined.

²CV = coefficient of variation in the simulated distribution, computed as the difference between the 5 and 95th percentiles divided by the median and multiplied by 100 to convert to a percentage. n/d = not defined (division by zero).

³HRV departure index represents the degree of departure of the current landscape condition from the historic range of variability and is given here specifically as the degree of departure from the 25-75th percentile range of variation, where a 0 represents no departure (i.e., within the 25-75th percentiles of variation) and 100 represents complete departure (i.e., outside the 0-100th percentiles of variation).

⁴Landscape composition here represents the distribution of area among seral stages for the corresponding cover type. PLAND = the percent of the landscape encompassed by the corresponding seral stage. Note, PLAND = the percentage of the entire landscape, not as a percent of the corresponding cover type.

⁵Landscape configuration here represents the spatial character, distribution, and arrangement of the corresponding cover type. The landscape metrics listed here are described in detail in the FRAGSTATS methods section. PD = patch density; ED = edge density; AREA_MN = mean patch size; AREA_AM = area-weighted mean patch size; GYRATE_AM = area-weighted mean patch radius of gyration (correlation length); SHAPE_MN = mean patch shape index; SHAPE_AM = area-weighted mean patch shape index; CPLAND = core area percent of landscape; CORE_MN = mean patch core area; CORE_AM = area-weighted mean patch core area; CAI_MN = mean patch core area index; CAI_AM = area-weighted mean patch core area index; PROX_MN = mean proximity index; PROX_AM = area-weighted mean proximity index; CWED = contrast-weighted edge density; TECI = total edge contrast index; CLUMPY = clumpiness index; IJI = interspersion and juxtaposition index.

⁶Seral-stage departure index is based on the distribution of area (percentage of landscape) among seral stages and is computed as the mean departure across seral stages. Class configuration departure index is based on several landscape metrics that quantify different aspects of the spatial distribution of the cover type and is computed as the mean departure across metrics. Cover type departure index is computed as the mean of the seral-stage and class configuration departure indices.