

Table. Range of variation in landscape structure under the simulated HRV disturbance scenario on the Pagosa 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	Current Landscape		Percentiles of Simulated Distribution							HRV Departure	
	Metric Value	Percentile of HRV	0	5	25	50	75	95	100	CV ¹	Index ²
<i>Landscape Composition</i> ³											
PJ: Herb Dominated	0.046	51	0.000	0.000	0.010	0.043	0.115	0.346	0.648	796	0
PJ: Herbs - Shrubs	0.488	84	0.025	0.076	0.170	0.274	0.418	0.661	0.778	214	34
PJ: Shrubs - Trees	0.044	0	0.069	0.146	0.264	0.414	0.536	0.695	0.800	132	100
PJ: Tree Dominated	0.332	98	0.004	0.014	0.047	0.095	0.161	0.257	0.398	256	92
PJS: Herb Dominated	0.020	28	0.000	0.000	0.016	0.068	0.216	0.909	1.892	1338	0
PJS: Herbs - Shrubs	0.306	21	0.028	0.116	0.355	0.658	1.147	1.740	2.163	247	16
PJS: Shrubs - Trees	0.118	0	0.088	0.368	0.809	1.146	1.625	2.088	2.392	150	99
PJS: Tree Dominated	2.141	100	0.003	0.030	0.124	0.312	0.600	0.984	1.311	306	100
PJOS: Herb Dominated	0.011	53	0.000	0.000	0.002	0.009	0.036	0.134	0.250	1493	0
PJOS: Herbs - Shrubs	0.103	50	0.003	0.016	0.047	0.103	0.160	0.244	0.286	221	0
PJOS: Shrubs - Trees	0.027	1	0.020	0.040	0.093	0.147	0.201	0.263	0.293	152	97
PJOS: Tree Dominated	0.181	100	0.000	0.003	0.010	0.022	0.045	0.100	0.194	440	100
MTS: Herbs - Shrubs	7.482	96	0.224	0.782	2.030	2.983	4.422	7.347	9.886	220	83
MTS: Early Shrub Dominated	4.856	72	0.366	1.201	2.650	3.749	5.060	7.056	10.233	156	0
MTS: Late Shrub Dominated	1.836	0	2.055	3.729	5.539	6.910	8.061	9.659	11.207	86	100
PPO: Stand Initiation	0.463	31	0.281	0.374	0.451	0.512	0.611	0.822	0.990	88	0
PPO: Stem Exclusion	4.048	100	0.441	0.518	0.592	0.659	0.745	0.922	1.023	61	100
PPO: Understory Reinitiation	2.435	100	0.260	0.360	0.475	0.532	0.617	0.686	0.869	61	100
PPO: Shifting Mosaic	0.107	0	0.067	0.276	0.769	1.193	1.673	2.391	2.961	177	98
PPO: Fire Maintained Open Canopy	0.000	0	2.243	2.771	3.497	4.073	4.596	5.167	5.573	59	100
PPOA: Stand Initiation	0.010	0	0.020	0.036	0.061	0.091	0.127	0.208	0.300	190	100
PPOA: Stem Exclusion	0.308	80	0.126	0.160	0.202	0.240	0.282	0.381	0.422	92	21
PPOA: Understory Reinitiation	2.948	100	0.158	0.226	0.312	0.366	0.414	0.490	0.717	72	100
PPOA: Shifting Mosaic	0.022	0	0.104	0.290	0.539	0.751	0.949	1.243	1.578	127	100
PPOA: Fire Maintained Open Canopy	0.000	0	0.948	1.265	1.604	1.797	2.044	2.380	2.738	62	100
WMC: Stand Initiation	0.023	0	0.072	0.165	0.283	0.373	0.469	0.659	0.862	132	100
WMC: Stem Exclusion	2.038	100	0.398	0.690	0.802	0.910	1.022	1.135	1.364	49	100
WMC: Understory Reinitiation	6.464	100	0.552	0.840	1.162	1.267	1.391	1.508	1.621	53	100
WMC: Shifting Mosaic	0.212	0	0.505	0.936	1.576	2.086	2.688	3.325	4.403	115	100
WMC: Fire Maintained Open Canopy	0.000	0	1.884	2.792	3.524	4.060	4.617	5.252	6.208	61	100
WMCA: Stand Initiation	0.013	0	0.059	0.120	0.223	0.282	0.375	0.532	0.753	146	100
WMCA: Stem Exclusion	0.236	0	0.238	0.362	0.459	0.540	0.633	0.763	0.915	74	100
WMCA: Understory Reinitiation	5.590	100	0.523	0.682	0.829	0.915	1.028	1.176	1.713	54	100

WMCA: Shifting Mosaic	0.140	0	0.362	0.742	1.302	1.688	2.051	2.574	3.286	109	100
WMCA: Fire Maintained Open Canopy	0.000	0	0.955	1.664	2.151	2.547	2.847	3.428	4.102	69	100
CMC: Stand Initiation	0.049	0	0.199	0.420	0.633	0.889	1.280	1.977	3.213	175	100
CMC: Stem Exclusion	1.630	16	0.887	1.315	1.753	2.042	2.500	3.050	3.825	85	36
CMC: Understory Reinitiation	5.102	100	0.537	0.770	1.552	1.992	2.345	2.929	3.699	108	100
CMC: Shifting Mosaic	0.176	0	0.864	1.133	1.436	1.809	2.212	3.123	3.474	110	100
CMCA: Stand Initiation	0.005	0	0.039	0.184	0.578	0.978	1.660	2.871	4.967	275	100
CMCA: Stem Exclusion	1.081	2	0.524	1.249	1.944	2.555	3.338	4.678	5.557	134	91
CMCA: Understory Reinitiation	10.060	100	2.778	3.265	4.305	4.980	5.429	6.251	8.348	60	100
CMCA: Shifting Mosaic	0.005	0	0.719	1.340	1.840	2.245	2.729	3.701	4.308	105	100
ASP: Stand Initiation	0.000	0	0.001	0.016	0.052	0.086	0.119	0.187	0.291	200	100
ASP: Stem Exclusion	0.120	75	0.010	0.028	0.060	0.091	0.120	0.178	0.292	165	0
ASP: Understory Reinitiation	0.240	100	0.022	0.041	0.066	0.090	0.120	0.174	0.244	147	99
ASP: Shifting Mosaic	0.108	1	0.087	0.125	0.154	0.186	0.219	0.262	0.298	74	95
SF: Stand Initiation	0.468	0	0.587	1.171	1.845	2.787	3.836	5.696	9.826	162	100
SF: Stem Exclusion	3.847	46	0.992	1.646	2.777	4.058	5.384	7.586	9.294	146	0
SF: Understory Reinitiation	13.165	100	0.767	1.251	3.104	4.383	6.078	8.730	10.443	171	100
SF: Shifting Mosaic	0.387	0	2.510	2.984	4.134	5.624	7.413	11.118	11.813	145	100
SFA: Stand Initiation	0.000	0	0.002	0.013	0.088	0.210	0.445	1.013	2.152	477	100
SFA: Stem Exclusion	0.461	14	0.070	0.295	0.590	0.810	1.168	1.763	2.430	181	44
SFA: Understory Reinitiation	3.642	100	0.748	1.153	1.580	1.886	2.145	2.667	2.976	80	100
SFA: Shifting Mosaic	0.071	0	0.384	0.564	0.818	1.073	1.276	1.613	2.108	98	100
MS: Herbs - Shrubs	0.780	76	0.201	0.363	0.514	0.648	0.771	0.934	0.993	88	5
MS: Shrubs - Herbs	0.263	24	0.049	0.109	0.272	0.395	0.529	0.680	0.842	145	6

*Landscape Configuration*⁴

Patch density	2.778	0	21.892	27.679	35.216	37.671	39.411	41.873	44.221	38	100
Edge density	56.183	0	103.830	114.281	128.430	133.341	137.559	142.593	149.954	21	100
Mean patch size	35.994	100	2.261	2.388	2.537	2.655	2.840	3.613	4.568	46	100
Area-weighted mean patch size	997.041	100	337.582	358.198	402.630	451.139	502.706	562.052	651.084	45	100
Correlation length	1302.307	100	667.664	691.940	729.266	776.292	813.086	868.253	919.896	23	100
Mean shape index	1.863	100	1.299	1.313	1.319	1.325	1.330	1.349	1.393	3	100
Area-weighted mean shape index	4.373	10.1	4.154	4.339	4.455	4.583	4.723	4.933	5.394	13	59.6
Mean core area	28.726	100	1.547	1.697	1.797	1.896	2.054	2.593	3.348	47	100
Area-weighted mean core area	857.765	100	287.981	304.932	343.037	385.002	428.061	479.323	547.565	45	100
Mean core area index	48.684	70.8	36.318	40.580	44.670	47.133	49.100	52.832	55.224	26	0
Area-weighted mean core area index	79.808	100	67.199	68.929	70.565	71.508	72.493	73.500	74.189	6	100
Mean proximity index	145.383	100	45.220	49.558	56.480	61.031	67.120	78.180	132.830	47	100
Area-weighted mean proximity index	818.020	100	183.530	219.924	251.280	283.094	323.785	489.583	646.026	95	100
Contrast-weighted edge density	18.698	0	27.350	30.107	31.412	32.276	33.287	35.249	37.439	16	100
Total edge contrast index	32.330	100	21.730	22.307	23.423	24.109	25.072	26.657	29.265	18	100

Contagion	56.584	100	46.222	46.790	47.282	47.677	48.201	49.164	49.972	5	100
Interspersion & juxtaposition index	69.847	10	67.161	69.076	70.683	71.515	72.309	73.505	74.922	6	60
Simpson's diversity index	0.935	0	0.949	0.952	0.956	0.957	0.959	0.960	0.962	1	100
Simpson's evenness index	0.952	0	0.965	0.968	0.972	0.973	0.975	0.976	0.978	1	100
Summary Indices⁵:											
										<i>Landscape Composition Departure Index</i>	76
										<i>Landscape Configuration Departure Index</i>	91
										<i>Landscape Structure Departure Index</i>	83

¹CV = coefficient of variation in the simulated distribution, computed as the difference between the 5 and 95 percentiles divided by the median and multiplied by 100 to convert to a percentage. n/d = not defined (division by zero).

²HRV 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 25-75 percentile range of variation, where a 0 represents no departure (i.e., within the 25-75 percentiles of variation) and 1 represents complete departure (i.e., outside the 0-100 percentiles of variation).

³Landscape composition represents the distribution of area among patch types (in this case, unique combinations of cover type and seral stage). Only dynamic patch types (i.e., those that change in area over time in response to disturbance and succession) are included here; static patch types (i.e., those that we treated as constant over time, such as water, barren, etc.) are excluded since they cannot exhibit any "departure". PJ = pinyon-juniper woodland; PJS = pinyon-juniper sagebrush woodland; PJOS = pinyon-juniper oak-serviceberry woodland; MTS = mountain shrubland; PPO = ponderosa pine oak forest; PPOA = ponderosa pine oak-aspen forest; WMC = warm, dry mixed-conifer forest; WMCA = warm, dry mixed-conifer with aspen forest; CMC = cool, moist mixed-conifer forest; CMCA = cool, moist mixed conifer with aspen forest; ASP = pure aspen forest; SF = spruce-fir forest; SFA = spruce-fir with aspen forest; MS = mesic sagebrush.

⁴Landscape configuration represents the spatial character, distribution, and arrangement of patches (across all patch types). The landscape metrics listed here are described in detail in the FRAGSTATS methods section. Note, Simpson's diversity and evenness indices are actually landscape composition metrics but are included here for organizational purposes.

⁵Landscape composition departure index = mean departure index across cover types; landscape configuration departure index = mean departure index across landscape configuration metrics; landscape structure departure index = mean of the landscape composition and configuration indices.