

Table 5. Simple linear regression and measures of precision (root mean square error [RMSE]) and variability (coefficient of variation [CV]) for selected ground cover class characteristics using VLSA imagery analysis to predict ground-based monitoring methods results on the Grand River National Grasslands in 2007.

Ground Cover Class ¹	r^2	Model ²	SE ³	RMSE ⁴	CV ⁵
<i>Percent frequency</i>					
Crested wheatgrass	0.84**	Frequency = 0.05 + 1.218 VLSA	0.083	0.16	45.56
Blue grama	0.21**	Frequency = 0.38 + 1.722** VLSA	0.532	0.22	41.52
Brome species	0.002 ^{n/s}	Frequency = 0.042 + 0.2** VLSA	0.702	0.09	213.70
Needle and thread	0.23**	Frequency = 0.191 + 1.168** VLSA	0.338	0.23	61.59
Western wheatgrass	0.17**	Frequency = 0.421 + 4.915** VLSA	1.69	0.24	47.47
Bluegrass species	0.007 ^{n/s}	Frequency = 0.321 + 12.646** VLSA	24.424	0.31	91.05
Sedge species	0.53**	Frequency = 0.092 + 1.633** VLSA	0.244	0.26	47.00
Other native cool season grasses	0.009 ^{n/s}	Frequency = 0.182 + 1.366** VLSA	2.237	0.18	87.90
Other native warm season grasses	0.04 ^{n/s}	Frequency = 0.218 + 2.852** VLSA	2.212	0.26	103.13
<i>Density</i>					
Annual forbs	0.006 ^{n/s}	Density = 6.308 – 38.161** VLSA	79.849	8.27	137.76
Perennial forbs	0.001 ^{n/s}	Density = 6.696 + 11.099** VLSA	48.982	7.35	106.08
Sage forbs and half-shrubs	0.09*	Density = 0.547 + 58.808 VLSA	29.041	1.54	178.96
Shrub species	0.001 ^{n/s}	Density = 0.018 + 1.367** VLSA	6.563	0.04	245.56
<i>Basal cover</i>					
Bare ground	0.11*	Basal = 0.285 + 3.718** VLSA	1.634	0.10	33.34
Litter	0.10*	Basal = 0.61 – 0.712** VLSA	0.338	0.12	24.29
Crested wheatgrass	0.57**	Basal = 0.007 + 0.065 VLSA	0.009	0.02	76.13
Blue grama	0.24**	Basal = 0.023 + 0.203** VLSA	0.057	0.02	57.75
Needle and thread	0.36**	Basal = 0.000 + 0.097 VLSA	0.205	0.01	89.52
Western wheatgrass	0.12*	Basal = 0.006 + 0.147** VLSA	0.063	0.01	104.11
Sedge species	0.51**	Basal = -0.001 + 0.197 VLSA	0.03	0.03	59.13

*Significant at $\alpha = 0.5$, **Significant at $\alpha = 0.01$, ^{n/s} Not significant. r^2 is the coefficient of determination (how well VLSA imagery analysis predicted the results obtained by ground-based monitoring methods). ¹See Table 1 for scientific names and taxonomic authorities. ² Model is the intercept and slope of the line, Y is the ground-based method, and X the analysis from VLSA imagery. ³SE is the standard error. ⁴RMSE is the root mean square error, differences between values predicted the model and those actually observed. ⁵CV is the coefficient of variation, a relative measure of the variability present within this data set.