Appendix 14A: Habitat Fragmentation Analysis

Table 14A-1 below lists the results for all of the fragmentation parameters run for the fragmentation analysis using the FRAGSTATS analysis computer program (McGarigal and others 2012). These results are listed by wildlife habitat for each alternative. The “overall” habitat is actually the results from the landscape-level parameters for those parameters that are applicable. The landscape-level analysis involved all habitats except for urban. The other habitat results are class-level parameters; so some are not applicable (such as CONTAG and MESH). A description of each parameter follows the table.

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Table 14A-1. Results of All Fragmentation Calculations for All Parameters in FRAGSTATS

Alternative	Habitat	Num. of Patches	Patch Density	Mean Patch Area	Area CV	Perimeter to Area Ratio	P-A Ratio CV	Mean Shape	Shape CV	Mean Nearest-Neighbor	N-N CV	CONTAG	MESH
No-Action	Overall	665	2.44	490.41	495.68	116.43	269.23	2.73	41.80	109.68	319.68	62.96	229.12
	Marsh	28	0.10	1,408.38	319.78	51.04	77.42	3.79	40.36	25.38	0.01	N/A	N/A
	Pasture	198	0.73	242.06	333.26	124.04	302.81	2.69	35.87	92.89	0.07	N/A	N/A
	Riparian	34	0.12	10.64	143.14	592.05	50.79	3.57	32.51	278.21	0.01	N/A	N/A
	Waters	36	0.13	11.11	138.44	331.28	97.43	1.87	46.01	708.14	0.01	N/A	N/A
A1	Overall	795	2.91	481.58	544.59	123.22	234.43	2.66	42.78	101.39	357.03	62.92	220.28
	Marsh	30	0.11	1,407.96	332.11	51.00	74.24	3.77	40.18	25.41	0.01	N/A	N/A
	Pasture	258	0.95	198.23	352.33	137.14	219.68	2.47	37.87	79.36	0.17	N/A	N/A
	Riparian	38	0.14	10.58	155.09	595.42	93.10	3.53	32.84	278.39	0.04	N/A	N/A
	Waters	41	0.15	11.08	153.05	331.21	101.90	1.83	43.16	616.50	0.01	N/A	N/A
A2	Overall	809	2.96	482.48	550.62	123.92	232.63	2.66	42.56	100.88	358.08	62.94	220.26
	Marsh	30	0.11	1,407.96	332.11	51.00	74.24	3.77	40.18	25.41	0.01	N/A	N/A
	Pasture	259	0.95	200.67	355.22	136.71	218.28	2.50	37.96	78.06	0.18	N/A	N/A
	Riparian	40	0.15	8.92	143.56	603.10	94.00	3.32	32.20	286.85	0.04	N/A	N/A
	Waters	39	0.14	11.04	146.82	329.52	91.72	1.83	43.69	633.37	0.01	N/A	N/A
B1	Overall	773	2.83	483.36	537.93	122.56	236.07	2.68	42.94	102.75	350.44	62.89	220.97
	Marsh	31	0.11	1,410.76	338.75	51.55	100.40	3.79	43.24	21.54	0.02	N/A	N/A
	Pasture	258	0.95	197.83	353.40	138.25	217.38	2.46	37.37	84.27	0.16	N/A	N/A
	Riparian	40	0.15	10.59	160.94	596.68	116.66	3.54	35.95	278.13	0.05	N/A	N/A
	Waters	41	0.15	11.08	153.05	331.21	101.90	1.83	43.16	616.50	0.01	N/A	N/A
B2	Overall	776	2.84	484.00	539.39	122.66	236.66	2.68	42.85	102.74	348.75	62.89	221.25
	Marsh	31	0.11	1,410.76	338.75	51.55	100.40	3.79	43.24	21.54	0.02	N/A	N/A
	Pasture	259	0.95	200.07	356.01	137.64	215.62	2.48	37.47	83.36	0.17	N/A	N/A
	Riparian	41	0.15	9.35	150.34	599.47	152.08	3.38	35.35	283.46	0.07	N/A	N/A
	Waters	39	0.14	11.04	146.82	329.52	91.72	1.83	43.69	633.37	0.01	N/A	N/A

Description of Fragmentation Analysis Parameters

Number of Patches. The number of discreet patches or parcels of lands classified as wildlife habitats. Other non-wildlife lands were classified as background.

Patch Density. The number of patches per unit area, which is 100 hectares.

Mean Patch Area. A simple area-weighted mean of patch area in hectares.

Area CV. The coefficient of variation as a measure of the variability in the mean area.

Perimeter to Area Ratio. A measure of shape using the ratio between the patch perimeter length (m) and the patch area (m^2).

P-A Ratio CV. The coefficient of variation as a measure of the variability in the mean ratio.

Mean Shape. The area-weighted mean of the parameter Shape, which is similar to perimeter-area ratio but can be a more accurate measure of shape complexity because this measure does not vary as patch size changes. Shape = 1 when the patch is square, and becomes more irregular the greater from 1.

Shape CV. The coefficient of variation as a measure of the variability in the mean of the parameter Shape.

Mean Nearest-Neighbor. The mean of the shortest straight-line distance between the focal patch and its nearest neighbor of the same class, using the cell centers of the two closest cells from the respective patches.

Nearest-Neighbor CV. The coefficient of variation as a measure of the variability in the mean nearest-neighbor distance.

CONTAG. This parameter is the probability, in percent, of the degree of aggregation and interspersion. At 0%, all patches are completely disaggregated and interspersed, but at 100% all patches are fully aggregated into one single patch.

MESH. This parameter is similar to the area-weighted mean patch area, which is also given in hectares. However, MESH, or effective mesh size, calculates mean patch area using the entire landscape area instead of just the class area as the standard area-weight mean does. MESH therefore provides a relative measure of patch structure, whereas mean patch area provides an absolute measure.

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