

Environmental Education

The Little Spearfish Conservation & Historic Preservation Association was established to accomplish three primary objectives: 1) Conservation, 2) Historic Preservation, and 3) Environmental Education. What better place for kids, students, scouts, and adults to learn principles of geology, carbonate geochemistry, aquatic systems, fisheries management, biology and ecosystem function. The Little Spearfish Headwaters is an ideal field laboratory for experiments and outdoor experiences. The Little Spearfish Association has partnered with educational institutions for field camps, lectures and projects.



Photo 1—Dr. Arden Davis’ Geochemistry class from the South Dakota School of Mines and Technology sample water on May 5th, 2007. Josh Valder, one of the students in the class, is measuring the temperature and pH of the carbonate spring waters. The out-gassing of dissolved CO₂ changes the solubility of calcium carbonate (limestone) with distance from the springs creating travertine deposits and waterfalls.



Photo 2— Boy Scouts of Troop 252 of Belle Fourche, SD work on cleaning up the creek to fulfill requirements for rank advancement and the environmental management merit badge.

Breeding Birds

Here below is the published inventory (Panjabi, 2001) of Breeding Birds found on the Homestead. Table 6 are those species in the Ponderosa Pine forest ecosystem; Table 8 are birds found in riparian areas; and Table 10 are those present in the White Spruce dominated ecosystems. All these habitats are present on the Homestead or the hillslopes nearby.

Table 6. Estimated densities of breeding birds in Ponderosa Pine (northern hills) on Black Hills National Forest, 2001.

Species	<i>D</i>	LCL	UCL	CV(%)	<i>n</i>
Pine Siskin	42.5	21.6	83.6	35	130
Yellow-rumped Warbler	34.8	26.3	46.1	14	360
Warbling Vireo	34.3	29.7	39.6	7	425
Chipping Sparrow	28.6	21.5	38.1	15	156
Red Crossbill	27.6	20.5	37.3	15	213
Dark-eyed Junco	26.6	22.7	31.2	8	284
American Robin	23.7	19.5	28.9	10	247
Dusky Flycatcher	20.9	16.6	26.4	12	169
Ovenbird	16.8	14.0	20.2	9	307
Red-breasted Nuthatch	14.2	11.9	17.0	9	258
Brown-headed Cowbird	14.0	10.4	18.9	15	95
American Redstart	9.3	5.4	16.1	28	42
Red-eyed Vireo	7.9	4.4	14.3	30	32
Black-capped Chickadee	7.3	5.5	9.7	15	114
Red-naped Sapsucker	7.2	4.9	10.5	20	54
Townsend's Solitaire	6.6	5.0	8.5	13	116
MacGillivray's Warbler	6.6	4.4	9.9	21	41
Western Tanager	6.4	4.7	8.6	15	113
Hairy Woodpecker	6.3	2.5	16.1	49	33
Gray Jay	5.8	3.3	10.1	29	41
Cordilleran Flycatcher	3.8	2.0	7.0	32	23

Plumbeous Vireo	3.6	2.2	6.1	27	34
Ruby-crowned Kinglet	3.1	2.3	4.1	14	58
Black-headed Grosbeak	2.4	1.5	3.7	23	40
Swainson's Thrush	2.3	1.5	3.6	23	45
Western Wood-Pewee	2.1	1.4	3.3	23	41
White-breasted Nuthatch	1.8	1.0	3.1	28	23
American Crow	0.5	0.3	0.8	24	38

D = density estimate in birds/km²; **LCL** and **UCL** = lower and upper 95% confidence limits on *D*; **CV** = coefficient of variation of *D*; *n* = number of observations used to estimate *D*

Table 8. Estimated densities of breeding birds in Riparian habitat on Black Hills National Forest, 2001.

Species	<i>D</i>	LCL	UCL	CV (%)	<i>n</i>
MacGillivray's Warbler	66.3	49.1	89.6	15	135
American Redstart	51.1	40.1	65.2	12	212
American Robin	40.0	29.0	55.1	16	300
Dusky Flycatcher	38.5	32.1	46.1	9	224
Warbling Vireo	33.4	28.4	39.2	8	296
Chipping Sparrow	33.0	20.7	52.4	24	87
Song Sparrow	32.5	24.0	43.9	15	118
Pine Siskin	29.4	16.7	51.7	29	49
Black-headed Grosbeak	23.3	17.0	31.9	16	103
Common Yellowthroat	22.0	16.7	29.0	14	113
Brown-headed Cowbird	21.8	14.9	31.9	20	98
Ovenbird	19.9	16.6	23.7	9	294
Cedar Waxwing	14.9	6.7	33.0	42	38
Spotted Towhee	14.7	10.7	20.2	16	106
Dark-eyed Junco	14.4	9.9	21.2	20	85
Yellow-rumped Warbler	13.6	10.3	18.0	14	90
Cordilleran Flycatcher	12.1	8.6	17.0	18	63
Red-eyed Vireo	11.6	8.8	15.2	14	80
Red-winged Blackbird	11.2	7.5	16.7	21	112
Dark-eyed Junco	9.5	7.0	12.9	16	87
Black-capped Chickadee	8.2	6.1	11.1	15	61
Red-naped Sapsucker	7.8	2.9	20.8	51	23
American Goldfinch	7.5	4.4	12.7	28	44
Violet-green Swallow	7.4	4.1	13.6	31	113
Western Tanager	5.8	4.4	7.7	15	74
Red Crossbill	5.7	3.7	9.0	23	61
Veery	5.3	2.7	10.4	35	36
Eastern Kingbird	5.0	2.8	9.1	31	35
Orchard Oriole	4.3	2.2	8.4	35	25
Ruby-crowned Kinglet	3.4	2.2	5.3	23	43
Western Wood-Pewee	2.7	1.6	4.4	25	38
Mourning Dove	2.4	1.5	3.8	24	55
Townsend's Solitaire	2.0	1.2	3.3	25	34
Blue Jay	1.8	1.1	3.1	27	38
Swainson's Thrush	1.3	0.9	2.0	22	32

American Crow	0.4	0.3	0.7	25	40
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D = density estimate in birds/km²; **LCL** and **UCL** = lower and upper 95% confidence limits on *D*; **CV** = coefficient of variation of *D*; *n* = number of observations used to estimate *D*

Table 10. Estimated densities of breeding birds in White Spruce forests on Black Hills National Forest, 2001.

Species	<i>D</i>	LCL	UCL	CV(%)	<i>n</i>
Chipping Sparrow	68.9	45.4	104.7	21	151
Red Crossbill	56.2	44.0	71.9	13	468
American Robin	52.3	43.4	62.9	9	295
Ruby-crowned Kinglet	47.0	39.8	55.5	8	303
Gray Jay	44.3	24.2	81.2	31	86
Pine Siskin	38.0	29.5	48.9	13	192
Yellow-rumped Warbler	30.9	25.8	37.1	9	227
Golden-crowned Kinglet	24.6	16.3	37.1	21	66
Dark-eyed Junco	21.3	16.1	28.1	14	192
Red-breasted Nuthatch	19.1	15.9	22.9	9	253
Black-capped Chickadee	14.7	10.9	19.7	15	126
Swainson's Thrush	11.9	9.0	15.9	15	187
Cordilleran Flycatcher	8.7	4.8	15.7	30	44
Brown Creeper	8.6	5.2	14.3	26	26
Red-naped Sapsucker	7.2	3.4	15.0	38	23
Warbling Vireo	6.0	3.9	9.4	23	50
Northern Flicker	5.9	3.7	9.4	24	47
Hairy Woodpecker	5.1	2.3	11.3	42	36
Townsend's Solitaire	2.9	1.9	4.3	21	58

D = density estimate in birds/km²; **LCL** and **UCL** = lower and upper 95% confidence limits on *D*; **CV** = coefficient of variation of *D*; *n* = number of observations used to estimate *D*

From: Panjabi, Arvind (2001), Monitoring the Birds of the Black Hills: Final Report, Rocky Mountain Bird Observatory, December 2001, 96 pp.

https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5114235.pdf