

Summary of Spring Bird monitoring at Craters of the Moon
National Monument and Preserve 2005



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Executive Summary

Bird surveys were run on 10 point count transects during June of 2005. The surveys were performed on six routes that were established and first surveyed in 1997, with four additional routes in the Preserve added in 2001 and 2002. There were a total of 1786 individuals of 73 species observed on 167 point counts in 2005. The most numerous birds were Brewer's Sparrow, Rock Wren, Spotted Towhee, Western Meadowlark, Sage Thrasher, Violet-green Swallow, Mourning Dove, Brewer's Blackbird, Brown-headed Cowbird, and Lark Sparrow. The Mourning Dove, Rock Wren, Brewer's Sparrow, Spotted Towhee, Common Raven, Northern Flicker, Brewer's Blackbirds, Mountain Bluebird, Violet-green Swallow, Sage Thrasher, Western Tanager, Green-tailed Towhee and Lark Sparrow were all recorded on six or more of the transects.

A total of 99 species were recorded at CRMO during the spring monitoring period. Two of these had not been previously documented at CRMO. Those are the Western Grebe and the Common Yellowthroat. These are both wetland species that were recorded during the spring migrant counts. Forty-eight percent (47 of 99) of the species recorded are listed as sensitive by the state of Idaho, the BLM, the US Fish and Wildlife Service, or are a Partners in Flight priority species (Table 5).

Sage-grouse lek count were continued in 2005 and a total high count of 144 birds were observed on six leks that were visited. Three of these leks had no birds at all while the other three had high counts of 51, 37 and 84. The three leks with birds were within a few miles of each other and the high counts do not coincide, suggesting birds may be moving between these 3 sites.

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Craters of the Moon National Monument and Preserve Bird Monitoring 2005

INTRODUCTION AND METHODS

Ten bird survey routes were surveyed during June of 2005. Methods were based on the North American Breeding Bird Survey. Methods and routes used are described in the document Standard Operating Procedures for Breeding Season Bird Surveys at Craters of the Moon National Monument and Preserve.

Additional Monitoring

Starting in 2002 migrant and spot surveys were also performed in habitats of interest. During 2005 these were Lava Lake and the adjacent lava flow, including the Preserve and all of Lava Lake; the hot springs cluster and the associated wetland, the survey included that portion of the marsh inside the livestock exclusion fence; and the Broken Top Loop Trail. Broken Top and the hot springs marsh were done as a walking transect or combination of the two. Lava Lake was performed as a long point count. Counts were generally performed until the observer felt all birds in the area were recorded. Counts were performed at various times during the day and revisit intervals varied from 6 to 14 days. The number of visits was opportunistic and varied between locations. In the spring of 2005 the number of visits was: 1 visit to the Broken Top Loop, 2 to the hot springs, 4 to Lava Lake.

In April of 2004 monument staff initiated monitoring of Greater Sage-grouse leks on NPS lands. Lek surveys were performed using the established SOPs in use by the ID Department of Fish and Game (IDFG) and the BLM. These surveys consisted of three or four visits to designated leks within the Preserve during the month of April. Counting started as soon as light conditions allowed in the morning. Due to access conditions counts were done on foot and from an observation point near but outside the leks. When close enough together multiple leks were counted in a single morning but all counts were completed within 1.5 hours of sunrise. The standard lek forms in use by IDFG were used and copies were sent to IDFG for inclusion in the statewide database. Approximately $\frac{1}{4}$ of known and mapped historic leks were visited. It is expected that specific leks will be visited on a 4 year rotation. As additional leks are located additional surveys may be needed to maintain the four year return schedule. During the 2005 season six leks were visited. These were Golden Chariot, MP 237, Lower Big Lost, Huff Corral, Dry Lake, and Rocky 5

RESULTS

Breeding season surveys

In 2005 an annual total of 69,680 meters were surveyed, consisting of 167 survey points, as listed in Table 1. The total number of individuals was 1786. The greatest number (371) on Goodale's Cutoff 2 and the least (42) on the Caves Trails (Table 1). The mean number of birds per point ranged from 7.5 to 14.8. The number of species recorded per transect ranged from 9 at Carey Kipuka to 34 on Goodale's Cutoff. The total number of species observed on all transects was 73. The mean number of species per point ranged from 3.0 to 7.3 with an average for all sites of 4.

The Brewer's Sparrow had the greatest number with 492 individuals recorded in 2005. They accounted for 28% of all individuals recorded. Other species with total counts of 25 or more included Rock Wren (n = 178, percent of total = 10.0), Spotted Towhee (n = 114, % = 6.4), Western Meadowlark (n = 113, % = 6.3), Sage Thrasher (n = 67, % = 3.8), Violet-green Swallow (n = 65, % = 3.6), Mourning Dove (n = 65, % = 3.6), Brewer's Blackbird (n = 56, % = 3.1), Lark Sparrow (n = 50, % = 2.8), Brown-headed Cowbird (n = 50, % = 2.8), Western Tanager (n = 48, % = 2.7), American Coot (n = 41, % = 2.3), Mountain Bluebird (n = 41, % = 2.3), Blue-gray Gnatcatcher (n = 30, % = 1.7), Chipping Sparrow (n = 28, % = 1.6), and Lazuli Bunting (n = 26, % = 1.5).

Brewer's Sparrow, Mourning Dove and Rock Wren were recorded on all ten transects. Common Ravens and Spotted Towhees were seen on eight transects. Northern Flickers, Violet-green Swallows, Mountain Bluebirds, Sage Thrasher, Western Tanager, Green-tailed Towhee, Lark Sparrows, and Brewer's Blackbirds were seen on six transects. Vesper Sparrow and Brown-headed Cowbirds were recorded on five transects.

Eight species were recorded on 25 or more points. These were Brewer's Sparrow at 109 points (65% of total), Rock Wren at 106 points (63% of total), Spotted Towhee at 70 points (42% of total), Mourning Dove at 52 points (31% of total), Sage Thrasher at 49 points (29% of total), Western Meadowlark at 45 points (27% of total), Western Tanager at 36 points (22% of total), and Mountain Bluebird at 26 points (16% of total).

The aspen groves and riparian areas around Little Cottonwood Creek and Goodale's Cutoff not only had the highest number of species but also had several species that were not found elsewhere in the monument. These include Dusky Flycatcher, House Wrens, Song Sparrow, Fox Sparrow, Warbling Vireo, and several warblers.

Spring Migrant Surveys

The total number of species detected was 99 (table 4). Of these, 73 were seen during the regular breeding season surveys and 64 were seen on the migrant surveys at Broken Top, Lava Lake, and the Hot Springs area (table 3). Two previously undocumented species were documented on the migrant surveys. For the spring migrant surveys 15 species were seen on the Broken Top Loop, 23 species at the hot springs area, and 40 species at Lava Lake.

Sage-grouse Lek Survey

Six lek sites were visited and counted four times each during the month of April. Three of these had no grouse observed on any visit. Those leks were Rocky 5, Dry Lake, and Huff Corral. The Lower Big Lost lek had 51 birds observed on the first visit and none on the second visit and only one on the third. The MP 237 lek had 37 birds on the first visit, five on the third visit and only 3 on the third visit. The Golden Chariot lek had four visits with counts ranging from 50 to 84.

Table 1. Craters of the Moon National Monument's 2005 Breeding Season Survey route summary

ROUTE	LENGTH (m)	# of stops	habitat types	# of indv. (N)	avg. birds per point	# of species on transect	avg. species per point
Walking Routes							
Caves Trail	1000	5	2,21	42	8.4	9	3.0
Carey Kipuka	2250	10	2,8,9,11	93	9.3	15	4.7
Little Cottonwood	3000	13	4,5,7,18, 20,24,25, 26,29	114	8.8	28	5.3
Sunset Flow	5750	24	29,34	231	9.6	11	2.8
Tree Molds	2250	10	2,16,22	84	8.4	13	5.1
Wood Road	3500	15	2,36,41	112	7.5	19	4.1
Wilderness Trail	6000	25	1,2,6,7, 16,21,22	240	9.6	22	5.1
Driving Route							
Goodale's Cutoff	19715	25	3,4,5,20, 25,26,33, 34	324	13.0	34	5.9
Goodale's Cutoff 2	19715	25	2,3,25,29, 33,34	371	14.8	31	5.6
Loop Drive	7000	15	1,2,4,16, 21,22,27	175	11.7	23	7.3
TOTALS	70680	167		1786	10.7	73	4.9

Habitat Codes:

1 = Cinder Gardens
 2 = Low Vegetation Density Lava Flows
 3 = Medium Vegetation Density Lava Flows
 4 = Mountain Big Sagebrush/Bluebunch Wheatgrass
 5 = Mountain Big Sagebrush/Sandberg Bluegrass
 6 = Mountain Big Sagebrush/Needlegrass
 7 = Mountain Big Sagebrush/
 Needle-and-thread/Cheatgrass
 8 = Mountain Big Sagebrush/Idaho Fescue
 9 = Big Sagebrush/Cheatgrass
 11 = Three-tip Sagebrush/Idaho Fescue
 18 = Bluebunch Wheatgrass/Idaho Fescue
 20 = Great Basin Wildrye
 21 = Limber Pine/Bitterbrush (low total cover)

22 = Limber Pine/Bitterbrush
 (high total cover)
 23 = Limber Pine/Bitterbrush (high
 density Limber Pine)
 24 = Douglas-fir/Mountain Snowberry
 25 = Upland Quaking Aspen
 26 = Riparian
 27 = Developed Areas
 29 = Rock outcrops
 33 = Misc. Wetlands
 34 = Misc. Big Sagebrush

Table 2. Species recorded during 2005 Breeding Season Surveys

Species	No. of birds	% of total	Rts. detected on	# of stops	% of stops
American Coot	41	2.3	GC2	1	0.6
Canada Goose	1	<0.1	GC2	1	0.6
Gadwall	19	<0.1	GC2	1	0.6
Mallard	1	<0.1	GC2	1	0.6
Green-winged Teal	1	0.1	GC2	1	0.6
Double-crested Cormorant	3	<0.1	GC2	1	0.6
Turkey Vulture	11	<0.1	LP	1	0.6
Northern Harrier	1	<0.1	LC	1	0.6
Sharp-shinned Hawk	1	<0.1	LC	1	0.6
Golden Eagle	3	<0.1	GC,GC2	3	1.8
American Kestrel	4	<0.1	GC,WR	1	0.6
Prairie Falcon	1	<0.1	SF	1	0.6
Killdeer	5	<0.1	GC2	1	0.6
Spotted Sandpiper	1	<0.1	GC2	1	0.6
Wilson's Snipe	1	<0.1	GC2	1	0.6
Chukar	6	<0.1	GC,GC2	5	3.0
Greater Sage-grouse	7	<0.1	GC2,SF	2	1.2
Rock Pigeon	5	<0.1	CA	1	0.6
Mourning Dove	65	3.7	CA,CK,GC,GC2,LC,LP,TM,WT,SF,WR	52	3.2
Common Nighthawk	4	0.1	GC,GC2,LP	7	4.2
Calliope Hummingbird	1	<0.1	WT	1	0.6
Broad-tailed Hummingbird	2	<0.1	LC,WT	2	1.2
Lewis' Woodpecker	1	<0.1	GC	1	0.6
Northern Flicker	12	0.1	CK,GC,LC,LP,GC2,WR	11	6.6
Says Phoebe	1	0.1	WT	1	0.6
Western Wood-Pewee	1	<0.1	WT	1	0.6
Hammond's Flycatcher	1	<0.1	LC	1	0.6
Dusky Flycatcher	4	<0.1	GC,LC	3	1.8
Western Kingbird	7	<0.1	GC2,WR	1	0.6
Loggerhead Shrike	4	<0.1	CK,SF	4	2.4
Warbling Vireo	13	<0.1	GC,GC2,LC	9	5.4
Plumbeous Vireo	1	<0.1	WT	1	0.6

Route codes: CA = Caves Trail, CK = Carey Kipuka, GC = Goodale's Cutoff, GC2 = Goodale's Cutoff 2, LC = Little Cottonwood Road, LP = Loop Road, SF = Sunset Flow, TM = Tree Molds Trail, WT = Wilderness Trail, WR = Wood Road Trail

Table 2 (cont.) Species recorded during 2005 Breeding Season Surveys

Species	No. of birds	% of total	Rts. detected on	# of stops	% of stops
Clark's Nutcracker	19	1.1	CA,LP,TM,WT	12	7.2
Black-billed Magpie	3	<0.1	GC,GC2	3	1.8
American Crow	1	<0.1	GC	1	0.6
Common Raven	22	1.2	CA,CK,GC,GC2,LC,LP,SF,WR	22	13.2
Horned Lark	2	<0.1	CK,GC2	2	1.2
Tree Swallow	1	<0.1	GC	1	0.6
Violet-green Swallow	65	3.6	CA,GC2,LC,LP,TM,WT	19	11.4
Black-capped Chickadee	4	<0.1	LC	1	0.6
Mountain Chickadee	3	<0.1	LP,WT	2	1.2
Rock Wren	178	10.0	CA,CK,GC,GC2,LP,SF,TM,WT,WR	106	63.5
House Wren	23	1.3	LC,GC	8	4.8
Ruby-crowned Kinglet	1	0.1	LP	1	0.6
Blue-gray Gnatcatcher	30	1.0	LP,TM,WT,WR	19	11.4
Mountain Bluebird	41	2.3	CA,CK,LP,TM,WR,WT	26	15.6
American Robin	6	<0.1	GC,LP,WT	3	1.8
Gray Catbird	1	<0.1	LC	1	0.6
Sage Thrasher	67	3.8	CK,LC,SF,GC,GC2,WT	49	29.3
Orange-crowned Warbler	2	<0.1	LC	2	1.2
Yellow Warbler	3	<0.1	GC,WR	3	1.8
Yellow-rumped Warbler	1	<0.1	LP	1	0.6
MacGillivray's Warbler	1	<0.1	WT	1	0.6
Wilson's Warbler	11	<0.1	GC,LC	9	5.4
Western Tanager	48	2.7	CK,GC,LC,LP,TM,WT	36	21.6
Green-tailed Towhee	9	<0.1	GC,LC,LP,TM,WT,WR	9	5.4
Spotted Towhee	114	6.4	CA,CK,GC,GC2,LC,LP,TM,WT	70	42.4
Chipping Sparrow	28	1.6	LC,LP,TM,WT	17	10.2
Brewer's Sparrow	492	27.5	CA,CK,GC,GC2,LC,LP,TM,WT,SF,WR	109	65.3
Vesper Sparrow	22	1.2	CK,GC,GC2,SF,WR	15	9.0
Lark Sparrow	50	2.8	CK,GC,GC2,SF,WT,WR	21	12.7
Sage Sparrow	1	<0.1	GC2	1	0.6
Fox Sparrow	1	<0.1	LC	1	0.6

Route codes: CA = Caves Trail, CK = Carey Kipuka, GC = Goodale's Cutoff, GC2 = Goodale's Cutoff 2, LC = Little Cottonwood Road, LP = Loop Road, SF = Sunset Flow, TM = Tree Molds Trail, WT = Wilderness Trail, WR = Wood Road Trail

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Song Sparrow	4	<0.1	GC2,LC	2	1.2
White-crowned Sparrow	1	<0.1	LC	1	0.6
Lazuli Bunting	26	1.5	GC,GC2,LC,WT	22	13.2
Red-winged Blackbird	10	<0.1	GC,GC2	5	3.0
Western Meadowlark	113	6.3	CK,GC,GC2,WR	45	27.3
Yellow-headed Blackbird	18	1.0	GC2	1	0.6
Brewer's Blackbird	56	3.1	CK,LP,LC,GC,GC2,WR	17	10.2
Brown-headed Cowbird	50	2.8	LP,WT,GC,GC2,WR	15	9.0
Pine Siskin	8	<0.1	LP,WT	4	2.4
Cassin's Finch	9	<0.1	LC,LP,TM	9	5.4

Route codes: CA = Caves Trail, CK = Carey Kipuka, GC = Goodale's Cutoff, GC2 = Goodale's Cutoff 2, LC = Little Cottonwood Road, LP = Loop Road, SF = Sunset Flow, TM = Tree Molds Trail, WT = Wilderness Trail, WR = Wood Road Trail

Table 3. Species observed during migrant surveys during spring 2005

Species	Survey area			Species	Survey area		
	BT	CHS	LL		BT	CHS	LL
Canada Goose			X	Clark's Nutcracker	X		
Gadwall			X	Black-billed Magpie		X	X
American Wigeon			X	Common Raven	X		X
Mallard		X	X	Violet-green swallow			X
Northern Shoveler			X	Tree Swallow			X
Cinnamon Teal			X	N. Rough-winged Swallow			X
Blue-winged Teal			X	Barn Swallow			X
Green-winged Teal			X	Mountain Chickadee	X		
Redhead			X	White-breasted Nuthatch	X		
Ring-necked Duck			X	Rock Wren	X	X	X
Lesser Scaup			X	Marsh Wren		X	
Bufflehead			X	Ruby-crowned Kinglet	X		
Common Goldeneye			X	Hermit Thrush	X		
Ruddy Duck			X	Mountain Bluebird	X	X	
Pied-billed Grebe			X	American Robin	X		
Western Grebe			X	Orange-crowned Warbler		X	
Great Blue Heron			X	Yellow-rumped Warbler		X	X
Turkey Vulture			X	MacGillivray's Warbler			X
Northern Harrier		X		Common Yellowthroat		X	
Red-tailed Hawk		X		Wilson's Warbler		X	X
American Coot			X	Spotted Towhee	X		
Virginia Rail		X		Chipping Sparrow	X		
Killdeer		X	X	Brewer's Sparrow	X		
Spotted Sandpiper			X	Lark Sparrow			X
Wilson's Phalarope			X	Song Sparrow		X	X
Mourning Dove		X	X	Lazuli Bunting		X	
Common Nighthawk			X	Red-winged Blackbird			X
Black-chinned Hummingbird		X		Western Meadowlark		X	X
Red-naped Sapsucker	X			Yellow-headed Blackbird			X
Unidentified <u>Empidonax</u> sp.	X			Brewer's Blackbird		X	X
Willow Flycatcher		X		Pine Siskin		X	
Dusky Flycatcher	X			American Goldfinch		X	

Area codes: BT = Broken Top Loop Trail, CHS = The marsh and area adjacent to the hot springs near Carey Hot Springs, LL = Lava Lake

Table 4. List of bird species identified at Craters of the Moon during spring 2005.

Species	Survey detected on	
	Breed	Migrant
Canada Goose		X
Gadwall	X	X
American Wigeon		X
Mallard	X	X
Northern Shoveler	X	X
Cinnamon Teal	X	X
Blue-winged Teal	X	X
Green-winged Teal	X	X
Redhead		X
Ring-necked Duck		X
Lesser Scaup		X
Bufflehead		X
Common Goldeneye		X
Ruddy Duck	X	X
Chukar	X	
Greater Sage-grouse	X	
Pied-billed Grebe		X
Western Grebe		X
Double Crested Cormorant	X	X
Great Blue Heron		X
Turkey Vulture	X	X
Northern Harrier	X	X
Sharp-shinned Hawk	X	
Red-tailed Hawk		X
Golden Eagle	X	
American Kestrel	X	
Prairie Falcon	X	
American Coot	X	X
Virginia Rail		X
Killdeer	X	X
Spotted Sandpiper	X	X
Wilson's Snipe	X	
Wilson's Phalarope		X
Rock Pigeon	X	
Mourning Dove	X	X

Common Nighthawk	X	X
Black-chinned Hummingbird		X
Calliope Hummingbird	X	
Broad-tailed Hummingbird	X	
Lewis' Woodpecker	X	
Red-naped Sapsucker		X
Northern Flicker	X	X
Western Wood-pewee	X	
Unidentified <u>Empidonax</u> sp.		X
Willow Flycatcher		X
Hammond's Flycatcher	X	
Dusky Flycatcher	X	
Say's Phoebe	X	
Western Kingbird	X	
Loggerhead Shrike	X	
Warbling Vireo	X	
Plumbeous Vireo	X	
Clark's Nutcracker	X	X
Black-billed Magpie	X	X
American Crow	X	X
Common Raven	X	X
Horned Lark	X	
Tree Swallow	X	X
Violet-green swallow	X	X
N. Rough-winged Swallow		X
Barn Swallow		X
Black-caped Chickadee	X	
Mountain Chickadee	X	
White-breasted Nuthatch		X
Rock Wren	X	X
House Wren	X	
Marsh Wren		X
Ruby-crowned Kinglet	X	X
Blue-gray Gnatcatcher	X	
Mountain Bluebird	X	
American Robin	X	
Hermit Thrush		X
Gray Catbird	X	
Sage Thrasher	X	
Orange-crowned Warbler	X	X
Yellow Warbler	X	

Yellow-rumped Warbler	X	X
MacGillivray's Warbler	X	X
Common Yellowthroat		X
Wilson's Warbler	X	
Western Tanager	X	
Green-tailed Towhee	X	
Spotted Towhee	X	X
Chipping Sparrow	X	X
Brewer's Sparrow	X	X
Vesper Sparrow	X	
Lark Sparrow	X	X
Sage Sparrow	X	
Fox Sparrow	X	
Song Sparrow	X	X
White-crowned Sparrow	X	
Lazuli Bunting	X	X
Red-winged Blackbird	X	X
Western Meadowlark	X	X
Yellow-headed Blackbird	X	X
Brewer's Blackbird	X	X
Brown-headed Cowbird	X	
Cassin's Finch	X	
Pine Siskin	X	X
American Goldfinch		X

Breed are species detected during the breeding season survey.

Migrant are species detected during the migrant survey.

Species in Bold are species not previously recorded at CRMO

Table 5. List of special status species recorded during spring surveys.

Species	USFWS	BLM	Idaho	PIF
Gadwall				P
Cinnamon Teal				P
Greater Sage-grouse	C	S		P
Northern Harrier				P
Sharp-shinned Hawk				P
Golden Eagle				P
American Kestrel				P
Prairie Falcon		S		P
Killdeer				P
Wilson's Snipe				P
Wilson's Phalarope		S		
Calliope Hummingbird		S		
Black-chinned Hummingbird				P
Broad-tailed Hummingbird				P
Lewis' Woodpecker		S		P
Red-naped Sapsucker		S		P
Western Wood-pewee		S		P
Hammond's Flycatcher		S		P
Dusky Flycatcher				P
Willow Flycatcher		S		P
Say's Phoebe				P
Western Kingbird				P
Loggerhead Shrike	C	S	C	P
Warbling Vireo				P
Clark's Nutcracker				P
Black-billed Magpie				P
N. Rough-winged Swallow				P
Mountain Chickadee				P
Rock Wren				P
Marsh Wren				P
Ruby-crowned Kinglet				P
Blue-gray Gnatcatcher				P
Mountain Bluebird				P
Sage Thrasher		S		P
MacGillivray's Warbler				P
Wilson's Warbler				P
Western Tanager				P
Green-tailed Towhee		S		P
Chipping Sparrow				P
Brewer's Sparrow		S		P
Lark Sparrow				P
Sage Sparrow		S		P
Lazuli Bunting				P
Yellow-headed Blackbird				P
Brewer's Blackbird		S		
Cassin's Finch		S		P

USFWS species listed as a species of Concern "C" or as threatened "T" by the US Fish and Wildlife Service

BLM species are listed as sensitive "S"

Idaho species are listed as a species of Special Concern "C" or as endangered "E" by the state of Idaho

PIF species are species listed as Priority species by Partners in Flight "P"

CONCLUSION

Breeding Season Survey

The total number of birds observed was 1786. This was a 5% increase over 2004 (n = 1699) (fig 1). It was also a 10% increase over 2002 (n = 1357) which was the first year the full compliment of surveys was done (fig 1). The 2005 numbers showed a 159% increase over 2000. In late 2000 the lands of the Preserve came under NPS management. In 2001 and 2002 four additional survey routes were added in the Preserve. This resulted in an increase in the number of points surveyed by 235%. When only those routes that have been monitored for the entire nine years of the program are examined a declining pattern is seen starting in 2000 (fig 2). For example the total count in 2004 was 564 this is a 21% drop from 1999 (n = 712). This pair of years was used because 1999 was the last year that the precipitation from January thru June was at or above average. With the return to average and above average rainfall in the period from March thru June of 2005 overall numbers again increased with the highest number of birds yet counted recorded this year.

The number of species recorded showed a somewhat different trend with numbers continuing to increase until 2004 with numbers about the same in 2005 (fig 3). For only those six routes surveyed the entire six years the trend has been essentially level since 2001 except for a one year spike in 2004(fig 4).

Forty-five species (44%) have been listed as a priority species by Idaho Partner's in Flight (IDPIF 2002), are listed by the Idaho Department of Fish and Game (IDFG 2003) as species of special concern, as species of concern by the US Fish and Wildlife Service (USFWS 2000), or as sensitive by the Bureau of Land Management (USBLM 2003) (Table 7).

This includes the most numerous species on the monument, the Brewer's Sparrow, which is on two of these sensitive lists. Most of these species have experienced substantial declines in either part or all of their range including the Snake River Plain. The Brewer's Sparrow appears to have been quite stable over the last nine years. The major changes in figure 5 coincide with increases in the monitoring effort in the Preserve. One species is on all four lists. The Loggerhead Shrike like the Brewer's Sparrow appears to have been quite stable in the period 1997 to 2005(fig 6). Shrikes however are found in much lower numbers and to determine accurate trends for this species would require targeted surveys and productivity data. Sage Thrashers which are also a sagebrush obligate are shown in figure 7. They show similar pattern to the Brewer's Sparrow but with a significant dip in 2004. Thrasher are insectivorous and are more likely to respond to short term conditions than are the sparrows which will feed on seeds as well as insects.

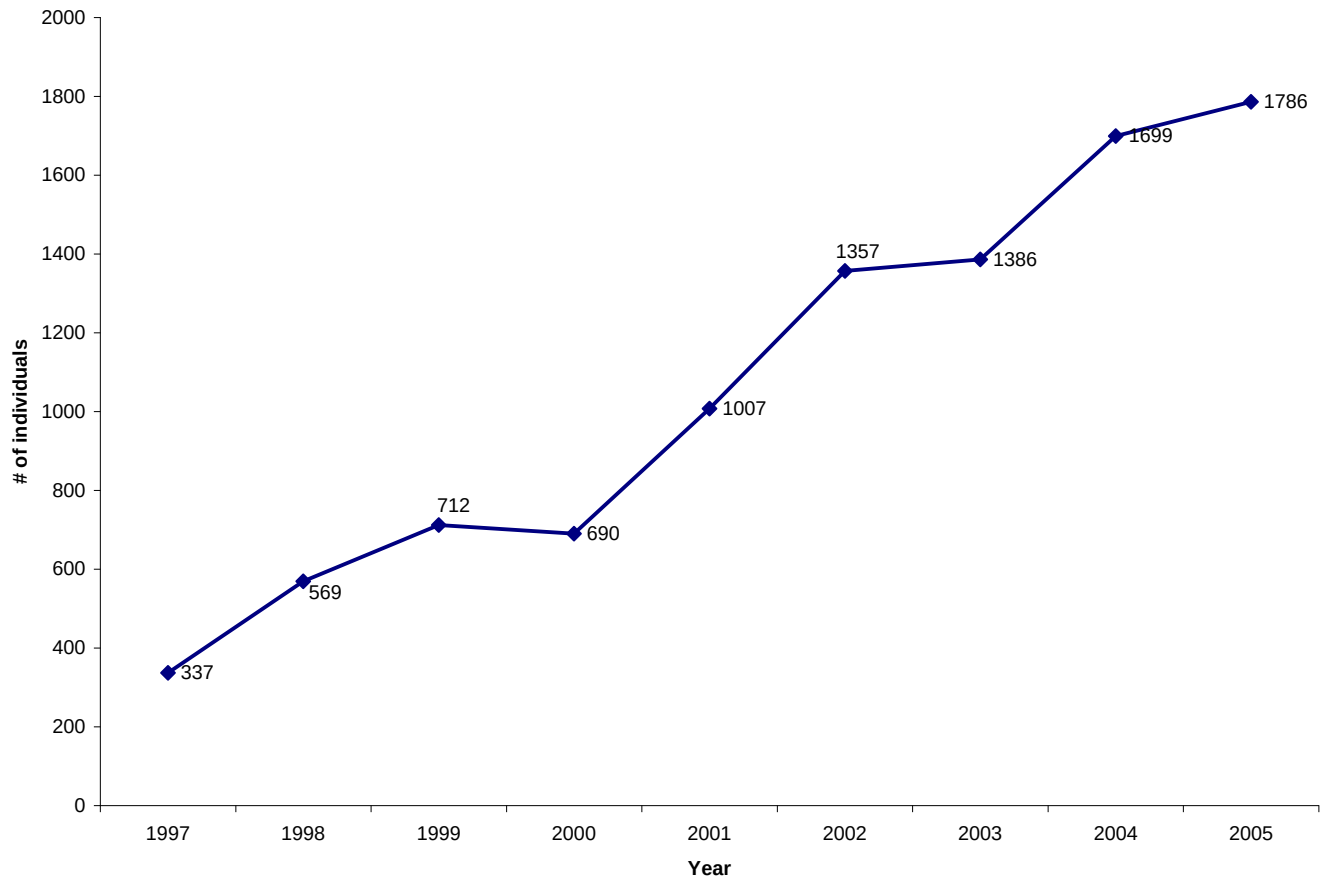


Figure 1. Total numbers of birds recorded during breeding season surveys 1997-2005

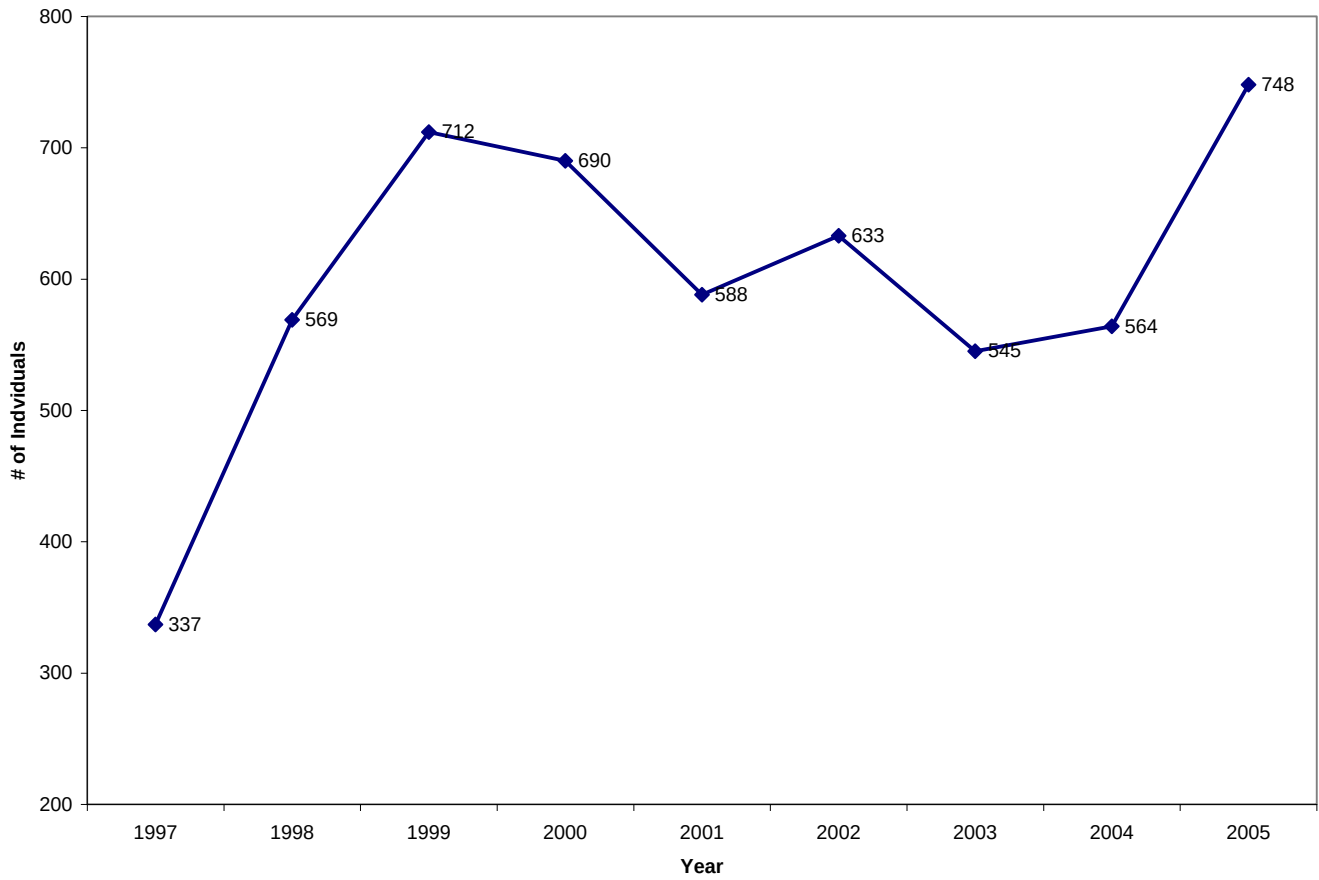


Figure 2. Numbers of birds recorded during breeding season surveys on the six routes surveyed during the years 1997-2005

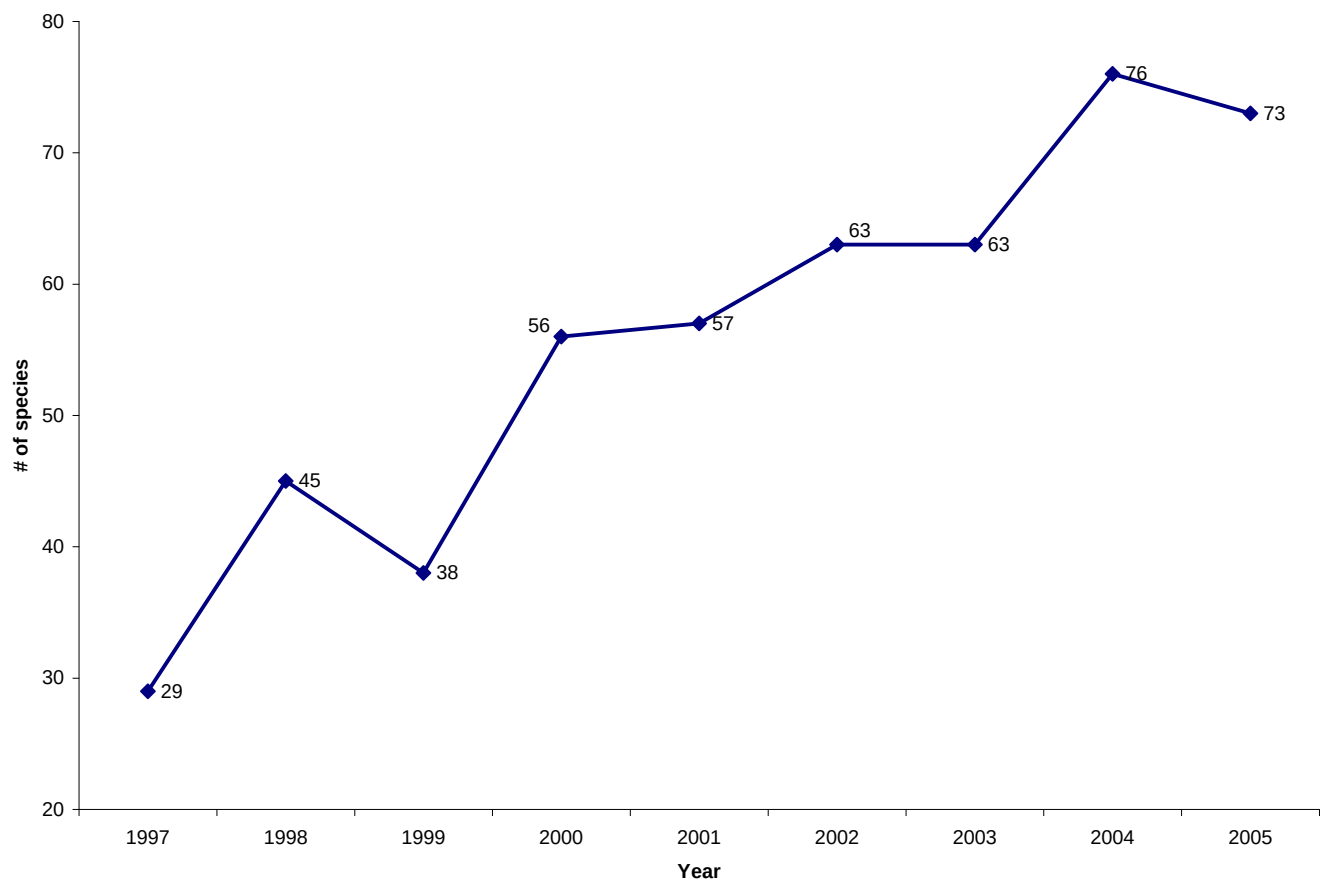


Figure 3. Number of species detected during breeding season surveys 1997-2005

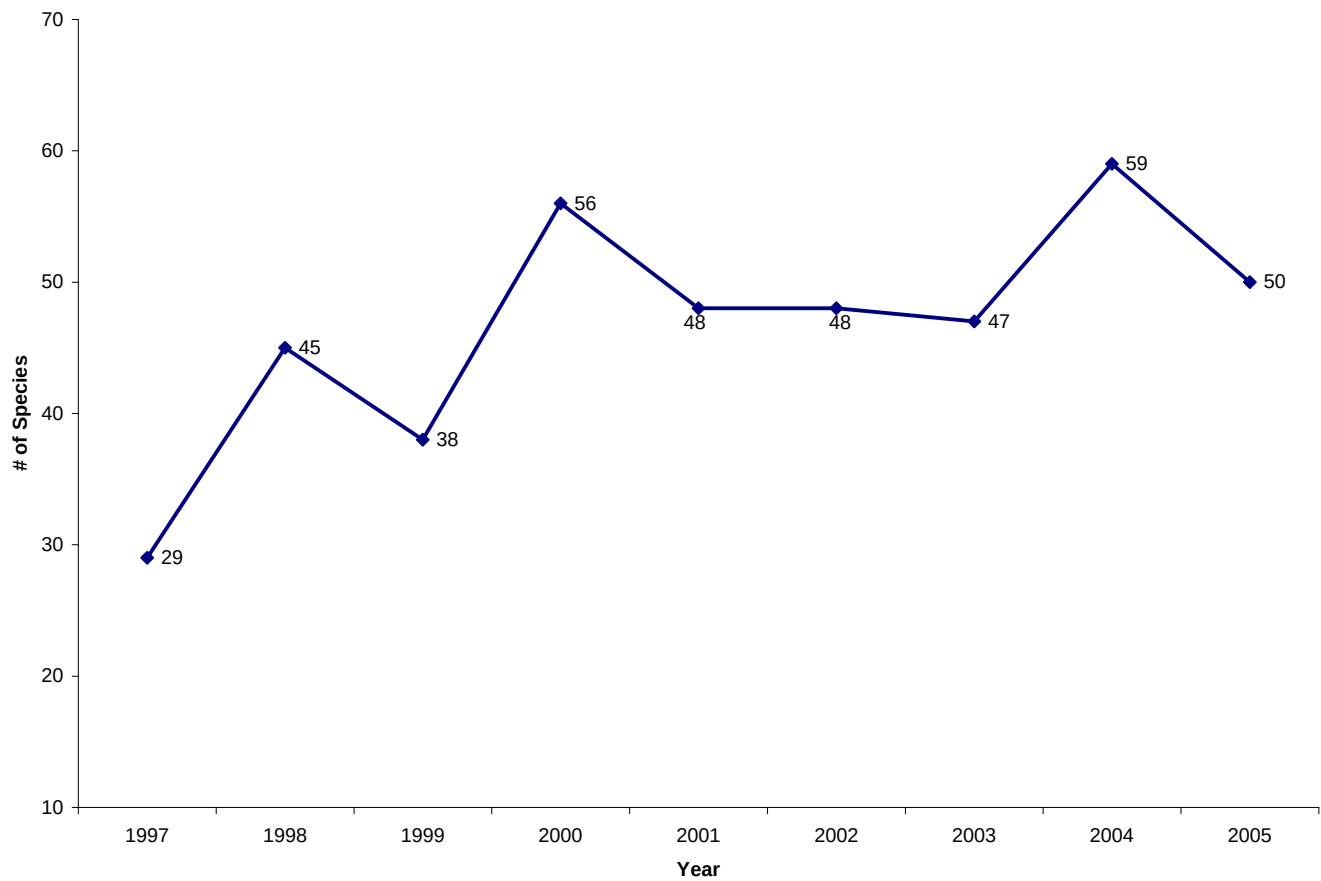


Figure 4. Number of species detected on the six routes surveyed during the years 1997-2005

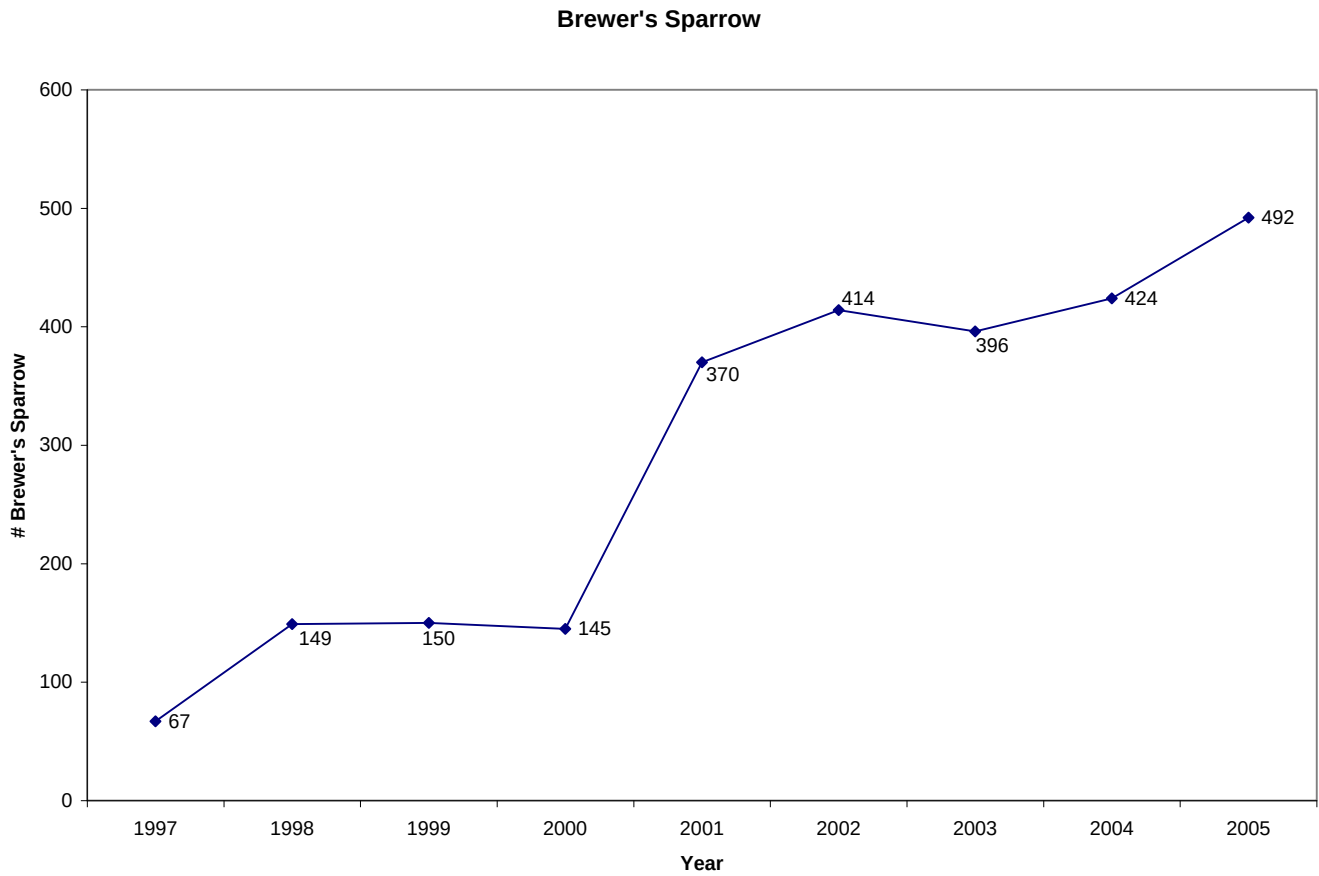


Figure 5. Numbers of Brewer's Sparrows observed in Breeding Season Surveys 1997-2005.

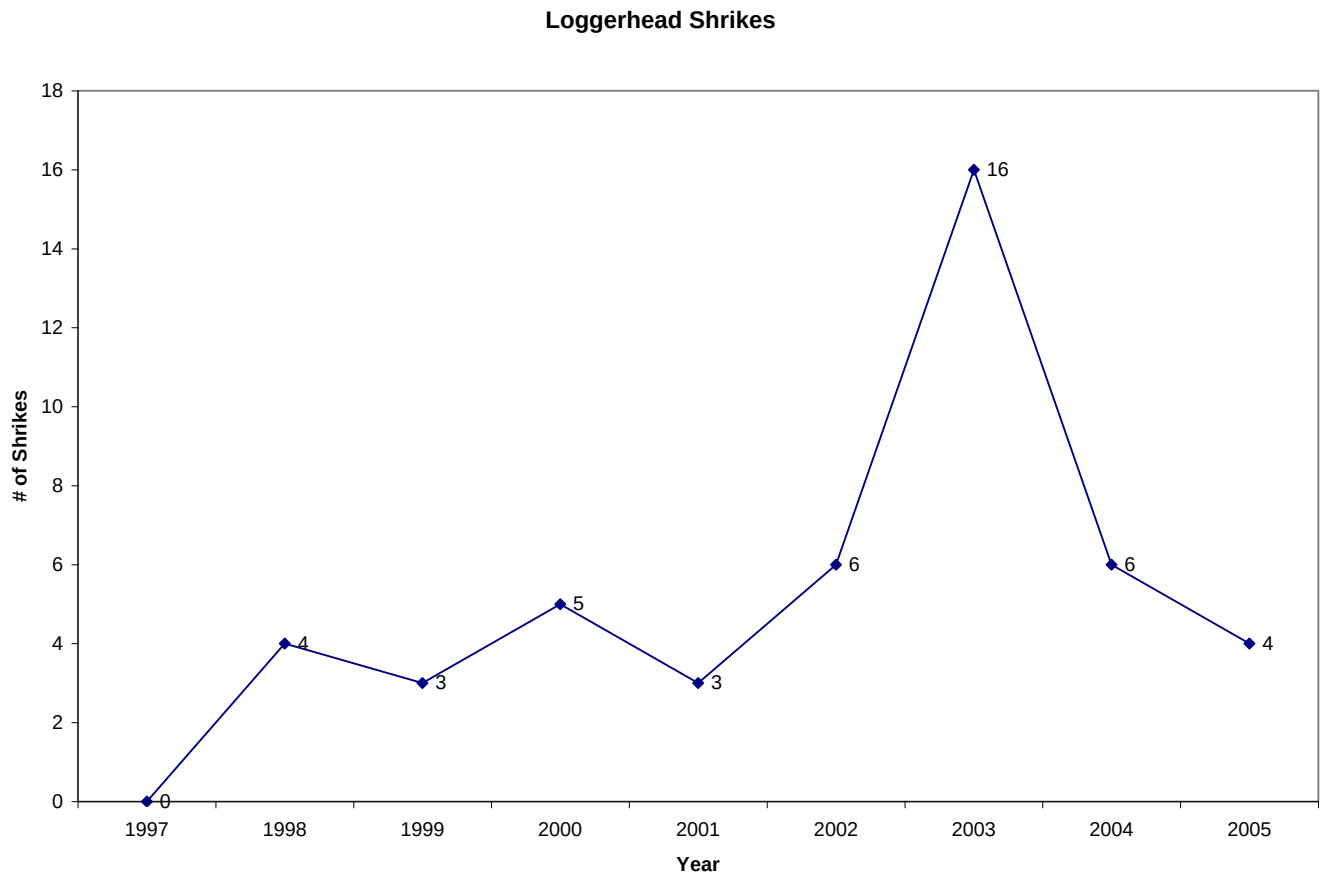


Figure 6. Numbers of Loggerhead Shrikes observed in Breeding Season Surveys 1997-2005.

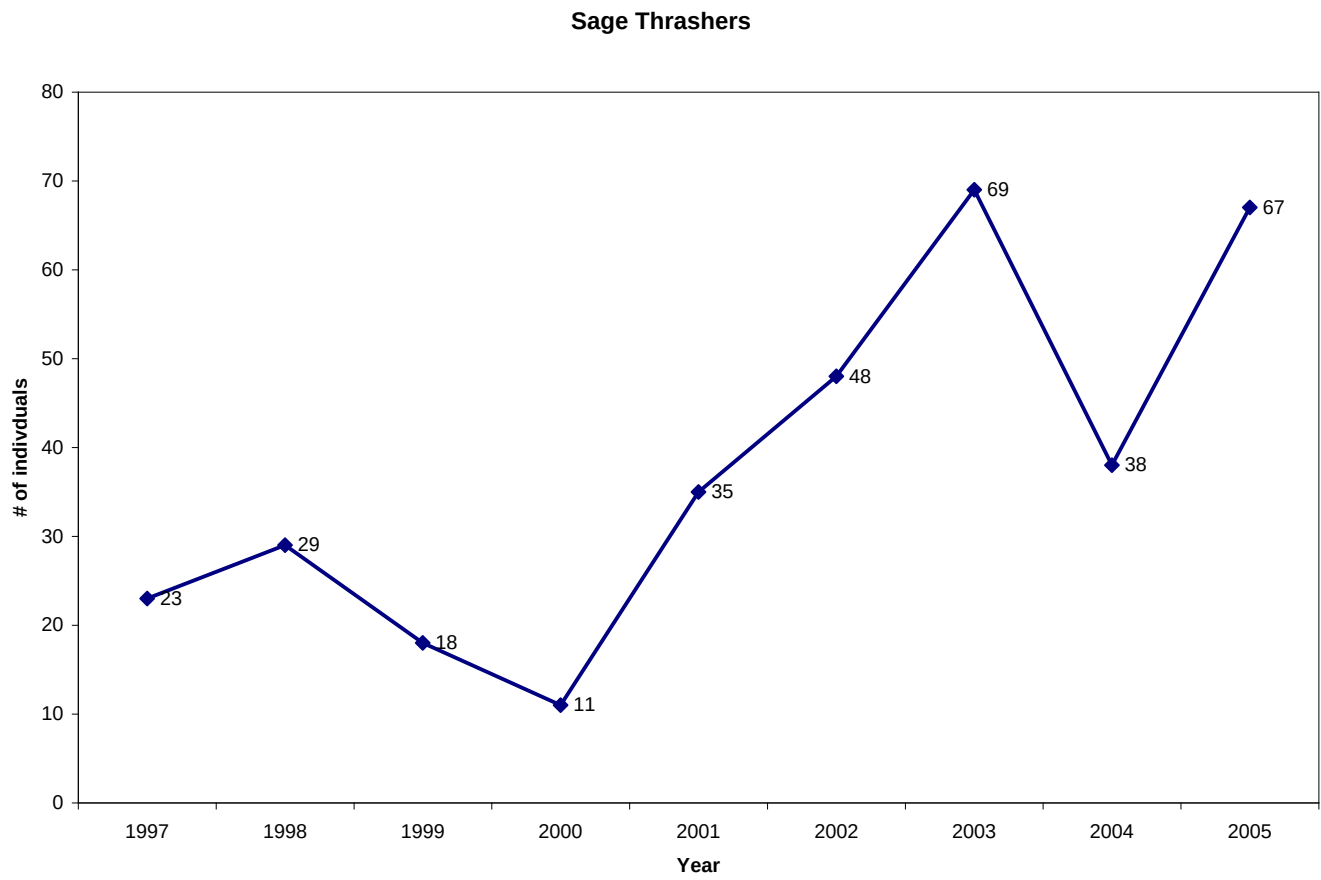


Figure 7. Numbers of Sage Thrashers observed in Breeding Season Surveys 1997-2005.

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Appendix 1.

Craters of the Moon National Monument
Vegetation Types

LAVAS

- 1 **Cinder Gardens**
- 2 **Low Vegetation Density Lava Flows**
- 3 **Medium Vegetation Density Lava Flows**

SAGEBRUSH COMMUNITIES

- 4 **Mountain Big Sagebrush/Bluebunch Wheatgrass**
- 5 **Mountain Big Sagebrush/Sandberg Bluegrass**
- 6 **Mountain Big Sagebrush/Needlegrass**
- 7 **Mountain Big Sagebrush/Needle-and-thread/Cheatgrass**
- 8 **Mountain Big Sagebrush/Idaho Fescue**
- 9 **Big Sagebrush/Cheatgrass**
- 10 Complex of 4 and 8
- 11 **Three-tip Sagebrush/Idaho Fescue**
- 12 Early Low Sagebrush/Idaho Fescue
- 13 Low Sagebrush/Sandberg Bluegrass
- 14 Low Sagebrush/Idaho Fescue
- 15 Complex of 13 and 14
- 34 **Misc. Big Sagebrush**

OTHER SHRUB COMMUNITIES

- 16 **Antelope Bitterbrush**
- 17 Antelope Bitterbrush/Great Basin Wildrye

GRASSLANDS

- 18 **Bluebunch Wheatgrass/Idaho Fescue**
- 19 Bluebunch Wheatgrass/Sandberg Bluegrass
- 20 **Great Basin Wildrye**

FOREST COMMUNITIES

- 21 **Limber Pine/Bitterbrush (low total cover)**
- 22 **Limber Pine/Bitterbrush (high total cover)**
- 23 **Limber Pine/Bitterbrush (high density Limber Pine)**
- 24 **Douglas-fir/Mountain Snowberry**
- 25 **Upland Quaking Aspen**
- 26 **Riparian**

OTHER AREAS

- 27 **Developed Areas**
- 29 **Rock outcrops**
- 33 **Misc. Wetlands**

Bold = Vegetation types present in the BBS routes