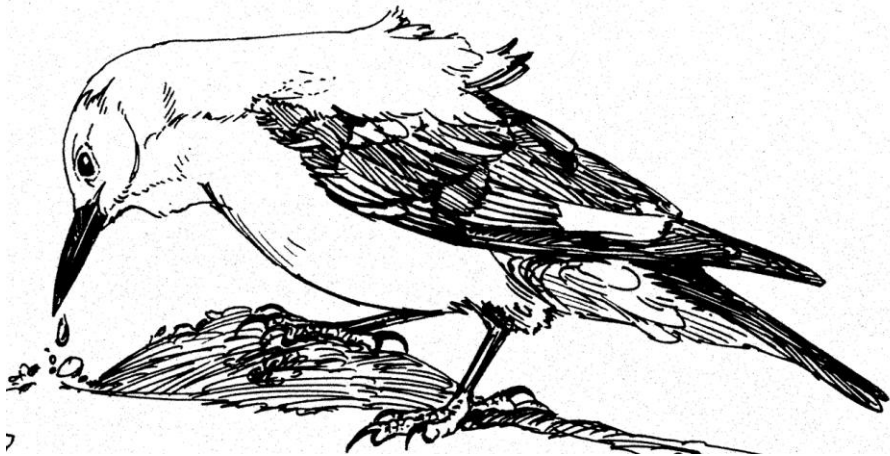


Summary of Bird Monitoring at Craters of the Moon National
Monument and Preserve 2007



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Executive Summary

Bird surveys were run on 10 point count transects during June of 2007. The surveys were performed on ten routes in both the Monument and the Preserve. There were a total of 1775 individuals of 73 species observed on 167 point counts. The most numerous birds were Brewer's Sparrow, Rock Wren, Spotted Towhee, Mourning Dove, Western Meadowlark, American Coot, Blue-gray Gnatcatcher, Chipping Sparrow, Sage Thrasher, and Brewer's Blackbird. The Mourning Dove, Rock Wren, Brewer's Sparrow, Spotted Towhee, Common Raven, Violet-green Swallow, Mountain Bluebird, Chipping Sparrow, and Northern Flicker and were all recorded on six or more of the transects.

A total of 145 species were recorded at CRMO during 2007. Three of these (Trumpeter Swan, Western Sandpiper, and Lesser Yellowlegs) had not been previously documented at CRMO. All were recorded during migrant surveys in the vicinity of Lava Lake. Forty-nine percent (71 of 145) of the species recorded are listed as sensitive by the state of Idaho, the BLM, or are a Partners in Flight priority species (Table 5).

Sage-grouse lek counts were continued in 2007 and a total high count of 196 birds were observed on seven leks that were visited. Most of these were part of the Golden Chariot lek complex in the northwest portion of the preserve. The other lek visited was on the Grassy Flow near Little Park. As of 2005 this was the only other active lek documented in the Preserve.

The Christmas Bird Count was restarted at Craters of the Moon in 2005. The 2007 count was done on December 21. Eight volunteers and one member of the park staff participated in the count. Over the day 203 birds of 26 species were recorded.

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Craters of the Moon National Monument and Preserve Bird Monitoring 2007

BREEDING BIRD MONITORING

Introduction and Methods

Ten bird survey routes were surveyed during June of 2007. Methods were based on the North American Breeding Bird Survey and modified to be usable as trail based survey instead of a road based one. The methods used are described in the document Standard Operating Procedures for Breeding Season Bird Surveys at Craters of the Moon National Monument and Preserve. The Standard Operating Procedures also contains descriptions and maps of the individual survey routes.

Results

In 2007 an annual total of 69,370 meters were surveyed, consisting of 167 survey points, as listed in Table 1. The total number of individuals was 1775. The greatest number (365) on Goodale's Cutoff 2 and the least (30) on the Caves Trails (Table 1). The mean number of birds per point ranged from 5.7 to 14.6. The number of species recorded per transect ranged from 8 on the Sunset Flow to 36 on Goodale's Cutoff. The total number of species observed on all transects was 73. The mean number of species per point ranged from 2.6 to 7.3 with an average for all sites of 4.9.

The Brewer's Sparrow had the greatest number with 549 individuals recorded in 2006. They accounted for 31% of all individuals recorded. Other species with total counts of 25 or more included Rock Wren (n = 160, percent of total = 9.1), Spotted Towhee (n = 99, % = 5.6), Mourning Dove (n = 95, % = 5.3), Western Meadowlark (n = 92, % = 5.2), American Coot (n = 65, % = 3.7), Blue-gray Gnatcatcher (n = 53, % = 3.0), Chipping Sparrow (n = 51, % = 2.9), Sage Thrasher (n = 47, % = 2.6), Brewer's Blackbird (n = 47, % = 2.6), Western Tanager (n = 39, % = 2.2), Lark Sparrow (n = 36, % = 2.0), Violet-green Swallow (n = 32, % = 1.8), Brown-headed Cowbird (n = 26, % = 1.5), Mountain Bluebird (n = 25, % = 1.4).

Rock Wrens were recorded on all ten transects. Brewer's Sparrow and Mourning Doves were recorded on nine transects. Common Ravens, Chipping Sparrows, and Spotted Towhees were recorded on seven transects. Violet-green Swallows, Mountain Bluebirds, and Northern Flickers were recorded on six transects.

Nine species were recorded on 25 or more points. These were Brewer's Sparrow at 111 points (67% of total), Rock Wren at 98 points (59% of total), Mourning Dove at 71 points (43% of total), Spotted Towhee at 60 points (36% of total), Western Meadowlark at 40 points (24% of total), Sage Thrasher at 38 points (23% of total), Blue-gray Gnatcatcher at 28 points (17% of the total), Western Tanager at 26 points (16% of total), Lark Sparrow at 26 (16% of total), and the Chipping Sparrow at 26 (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.

Table 1. Craters of the Moon National Monument's 2006 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							
Carey Kipuka	2250	10	2, 8, 9, 11, 31	57	5.7	10	3.5
Caves Trail	1000	5	2, 21	30	6	9	2.8
Little Cottonwood	3000	13	4, 5, 7, 18, 20, 2 4, 25, 26, 29	119	9.2	31	5.9
Sunset Flow	5750	24	4, 29, 34	277	11.5	8	2.6
Tree Molds	2250	10	2, 16, 22	110	11	15	7.3
Wood Road	3500	15	2, 34, 36, 41	119	7.9	11	4.8
Wilderness Trail	6000	25	1, 2, 6, 7, 16, 21, 22	222	8.9	24	4.9
Driving Route							
Goodale's Cutoff	19310	25	3, 4, 5, 20, 25, 2 6, 33, 34, 35, 36	305	12.2	36	5.6
Goodale's Cutoff 2	19310	25	2, 3, 25, 29, 33, 34, 36, 37	365	14.6	28	6.0
Loop Drive	7000	15	1, 2, 4, 16, 21, 2 2, 27	162	10.8	23	5.8
TOTALS	69370	167		1775	10.6	73	4.9

Habitat Codes:

- | | |
|---|--|
| 1 = Cinder Gardens | 22 = Limber Pine/Bitterbrush
(high total cover) |
| 2 = Low Vegetation Density Lava Flows | 23 = Limber Pine/Bitterbrush (high
density Limber Pine) |
| 3 = Medium Vegetation Density Lava Flows | 24 = Douglas-fir/Mountain Snowberry |
| 4 = Mountain Big Sagebrush/Bluebunch Wheatgrass | 25 = Upland Quaking Aspen |
| 5 = Mountain Big Sagebrush/Sandberg Bluegrass | 26 = Riparian |
| 6 = Mountain Big Sagebrush/Needlegrass | 27 = Developed Areas |
| 7 = Mountain Big Sagebrush/
Needle-and-thread/Cheatgrass | 29 = Rock outcrops |
| 8 = Mountain Big Sagebrush/Idaho Fescue | 31 = Isolated trees |
| 9 = Big Sagebrush/Cheatgrass | 33 = Misc. Wetlands |
| 11 = Three-tip Sagebrush/Idaho Fescue | 34 = Misc. Big Sagebrush |
| 18 = Bluebunch Wheatgrass/Idaho Fescue | 41 = Misc. juniper woodland |
| 20 = Great Basin Wildrye | |
| 21 = Limber Pine/Bitterbrush (low total cover) | |

Table 2. Species recorded during 2007 Breeding Season Surveys

Species	No. of birds	% of total	Rts. detected on	# of stops	% of stops
American Coot	65	3.7	GC2	1	0.6
Gadwall	6	0.3	GC2	1	0.6
Cinnamon Teal	12	0.1	GC2	1	0.6
Mallard	11	0.1	GC,GC2	2	1.2
Chukar	9	<0.1	GC,GC2	6	3.6
Pied-billed Grebe	1	<0.1	GC2	1	0.6
Turkey Vulture	11	0.6	LP	1	0.6
American Kestrel	3	0.2	WT,WR	3	1.8
Killdeer	3	0.2	GC2,LP	2	1.2
Rock Pigeon	13	0.7	CA,	2	1.2
Mourning Dove	95	5.4	CK,GC,GC2,LC,LP,TM,WT,SF,WR	71	42.5
Great Horned Owl	1	<0.1	LP	1	0.6
Common Nighthawk	8	<0.1	CK,GC,GC2,SF	8	4.7
Black-chinned Hummingbird	2	<0.1	LC	2	1.2
Lewis' Woodpecker	3	0.2	GC,WT	3	1.8
Red-naped Sapsucker	2	0.1	LC	1	0.6
Northern Flicker	19	1.1	CK,GC,LP,TM,WT,WR	18	10.8
Western Wood-Pewee	4	0.2	GC,LC,WT	4	2.4
Hammond's Flycatcher	2	0.1	WT	2	1.2
Gray Flycatcher	4	0.2	GC2,LP	4	2.4
Dusky Flycatcher	6	0.3	GC,GC2,LC,TM	6	3.6
Cordilleran Flycatcher	1	<0.1	LC	1	0.6
<i>Empidonax</i> sp.	1	<0.1	GC	1	0.6
Western Kingbird	6	0.3	GC,WR	3	1.8
Loggerhead Shrike	4	0.2	CK,GC2,WT,WR	3	1.8
Solitary Vireo	1	<0.1	LC	1	0.6
Warbling Vireo	9	0.5	GC,LC	8	4.8
Clark's Nutcracker	12	<0.1	CA,LP,WT	7	4.2
Black-billed Magpie	1	<0.1	GC2	1	0.6
American Crow	2	0.1	GC	2	1.2
Common Raven	13	<0.1	CA,CK,GC,GC2,LP,SF,TM	12	7.2
Horned Lark	2	0.1	GC2,	1	0.6
Northern Rough-winged Swallow	3	0.2	GC,GC2	2	1.2

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 2006 Breeding Season Surveys

Species	No. of birds	% of total	Rts. detected on	# of stops	% of stops
Barn Swallow	2	0.1	GC	2	1.2
Violet-green Swallow	32	1.8	CA,GC,LC,LP,TM,WT	18	9.0
Black-capped Chickadee	2	0.1	LC	2	1.2
Mountain Chickadee	10	<0.1	LC,LP	4	2.4
Red-breasted Nuthatch	1	<0.1	LC	1	0.6
Rock Wren	160	9.0	CA,CK,GC,GC2,LC,LP,SF,TM,WT,WR	98	58.7
House Wren	9	0.5	LC,GC	6	3.6
Blue-gray Gnatcatcher	53	3.0	LP,TM,WT,WR	28	16.8
Mountain Bluebird	25	1.4	CA,CK,GC,LP,TM,WT	21	12.6
American Robin	8	0.5	GC,LC,LP,	6	3.6
Sage Thrasher	47	2.7	CK, GC,GC2,SF,WT	38	22.8
Orange-crowned Warbler	3	0.2	LC	3	1.8
Yellow Warbler	6	0.3	GC,LC	5	3.0
Yellow-rumped Warbler	2	0.1	WT	2	1.2
MacGillivray's Warbler	4	0.2	LC	4	2.4
Wilson's Warbler	1	<0.1	GC2	1	0.6
Western Tanager	39	2.2	GC2,LC,LP,TM,WT	26	15.6
Green-tailed Towhee	7	<0.1	GC,LC,LP,TM,WT	7	4.2
Spotted Towhee	99	5.6	CA,GC,GC2,LC,LP,TM,WT	60	36.0
Dark-eyed Junco	2	0.1	GC,LC	2	1.2
Chipping Sparrow	51	2.9	CA,GC,LC,LP,TM,WT,WR	26	15.4
Brewer's Sparrow	549	31.0	CA,CK,GC,GC2,LC,LP,TM,WT, SF	111	66.5
Vesper Sparrow	20	1.1	GC,GC2,LC,SF,WT	18	10.8
Lark Sparrow	36	2.0	GC,GC2TM,WT,WR	26	15.4
Fox Sparrow	2	0.1	LC	2	1.2
White-crowned Sparrow	1	<0.1	LC	1	0.6
Song Sparrow	8	0.4	GC,LC	5	3.0
Black-headed Grosbeak	2	0.1	GC2,LP	2	1.2
Lazuli Bunting	20	1.7	GC,GC2,LC	12	7.2
Bullock's Oriole	21	1.8	GC,LC,WR	10	6.0
Red-winged Blackbird	13	0.7	GC	2	1.2
Western Meadowlark	92	5.2	CK,GC,GC2,SF,WR	40	24.0
Yellow-headed Blackbird	20	1.1	GC2	3	1.8
Brewer's Blackbird	47	2.7	GC,GC2, LP,WT	17	10.2

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

Brown-headed Cowbird	26	2.8	GC,GC2, LP,WT,WR	16	9.6
Cassin's Finch	10	6.0	LP,TM,WT	10	6.0
Red Crossbill	20	1.1	WT	4	2.4
Pine Siskin	1	<0.1	LC	1	0.6
American Goldfinch	1	<0.1	GC	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

CONCLUSION

The total number of birds observed was 1775. This was a 2% decrease over 2005 ($n = 1815$) (fig 1). It was also a 31% increase over 2002 ($n = 1357$) which was the first year the full compliment of surveys was done (fig 1). In November 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 ten 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 near average rainfall in the period from March thru June of 2005 and 2006 overall numbers again increased with the highest number of birds yet counted recorded in 2006 and only a modest drop in 2007.

The number of species recorded showed a somewhat different trend with numbers increasing until 2004 with numbers stable since then (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).

The breeding surveys show that CRMO still provides habitat for many sensitive species. This includes the most numerous species on the monument, the Brewer's Sparrow, which is on both the BLM and IDFG sensitive lists (Table 5). 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 stable or increasing at CRMO over the last nine years. The major changes in figure 5 coincide with increases in the monitoring effort in the Preserve in 2001 and 2002. The continued increases in numbers since 2004 coincide with a return to average or higher precipitation in the April to June period which has likely resulted in improved forage and cover. Patterns can also be seen in some other sagebrush associated species. The Loggerhead Shrike like the Brewer's Sparrow appears to have been quite stable in the period 2001 to 2007(fig 6). Shrikes however are found in much lower numbers and to determine accurate trends for this species would require additional effort through targeted surveys and collection of 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.

One species for which a trend can be seen after 10 years of surveys is the Blue-gray Gnatcatcher. They were not detected in 1997 or 1998. Three birds were then observed in 1999 with numbers steadily increasing since that time. This species was considered quite rare in the monument prior to this period (NPS 1997). In the west it is generally associated with pinyon/juniper woodlands (Cornell 2004). The use of other pines is not well documented in this species. The limber pine stands where gnatcatchers occur at Craters of the Moon are unique and in many ways resemble pinyon stands in their structure and function. Other pinyon/juniper woodlands species also occur in these stands including Bushtit and Pinyon Jays. The colonization of the northern portions of Craters of the Moon by gnatcatchers may also be further indications of their continued northward expansion over the 20th century (Cornell 2004, Ellison 1992). This range expansion is thought to have been influenced by both fire suppression during the 1900s and climate change (Ellison 1992).

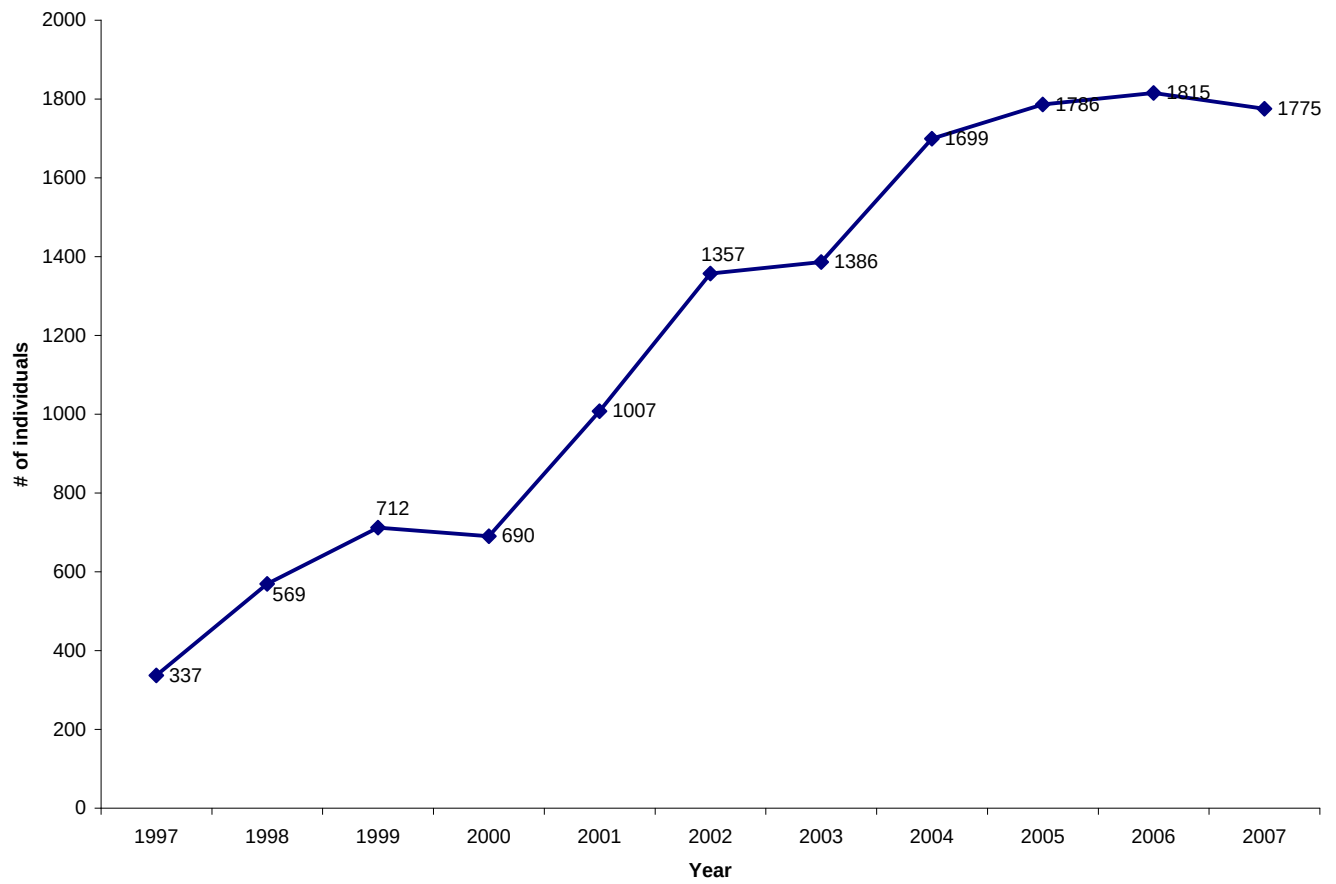


Figure 1. Total numbers of birds recorded during breeding season surveys 1997-2007

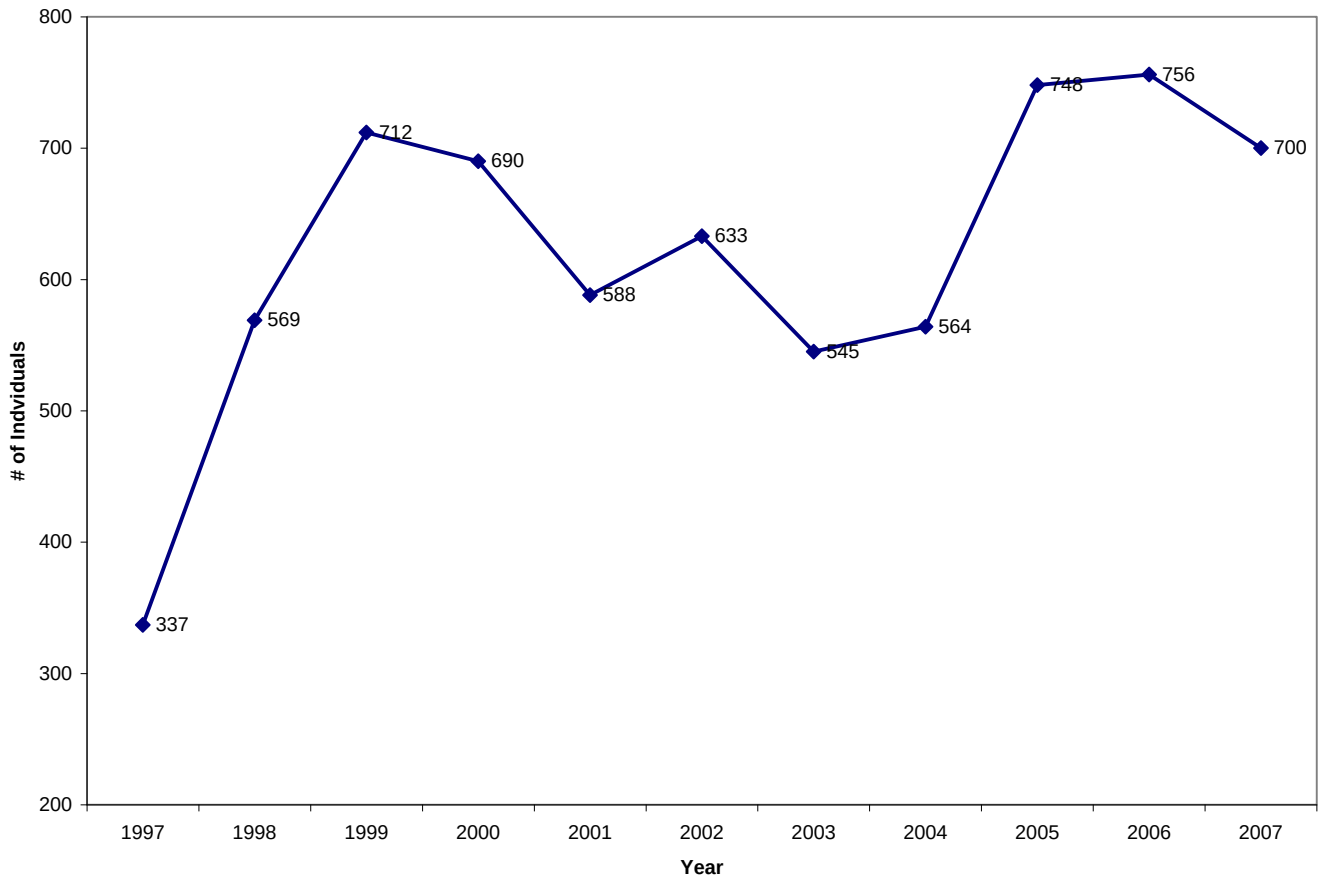


Figure 2. Numbers of birds recorded during breeding season surveys on the six routes surveyed during the years 1997-2007

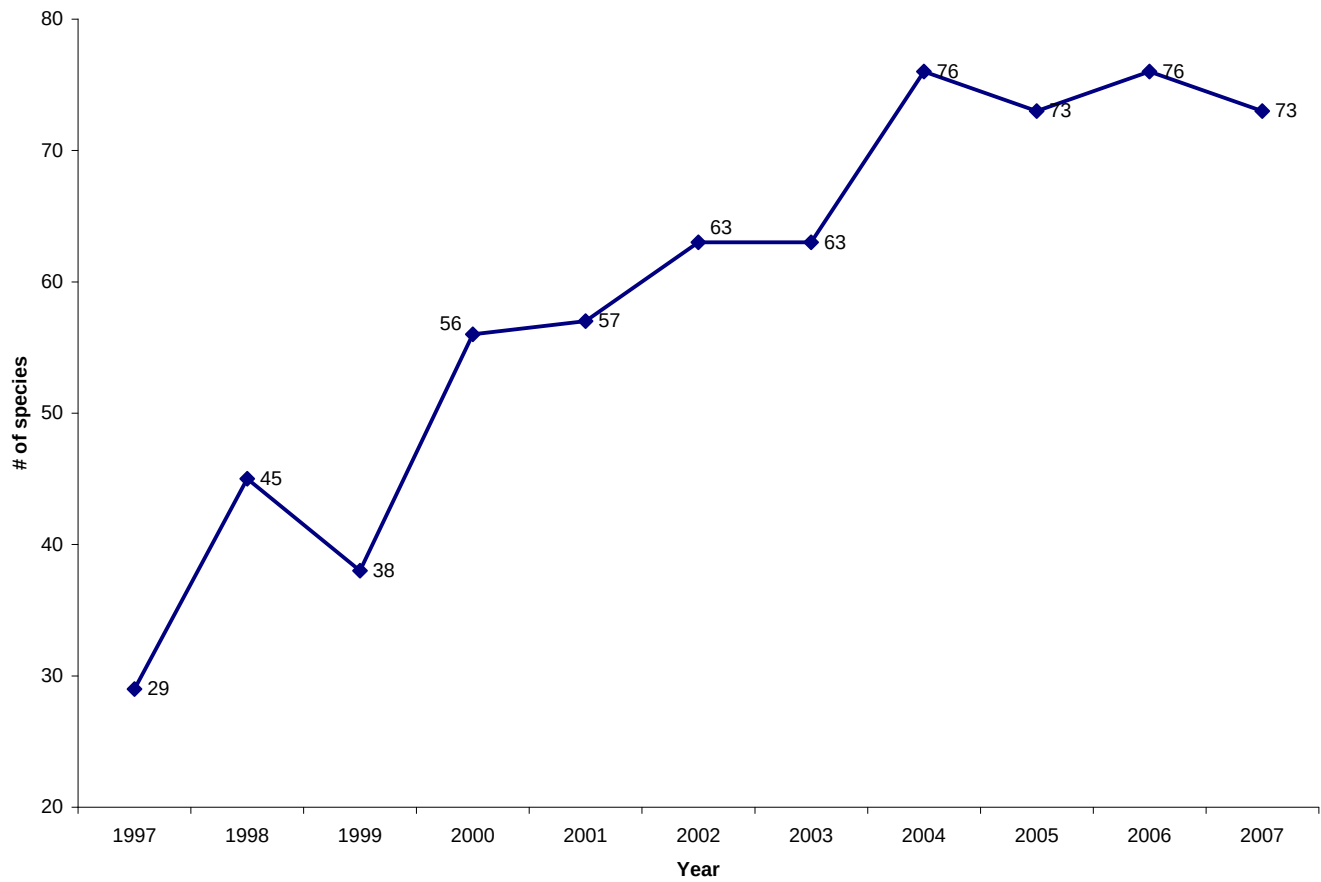


Figure 3. Number of species detected during breeding season surveys 1997-2007

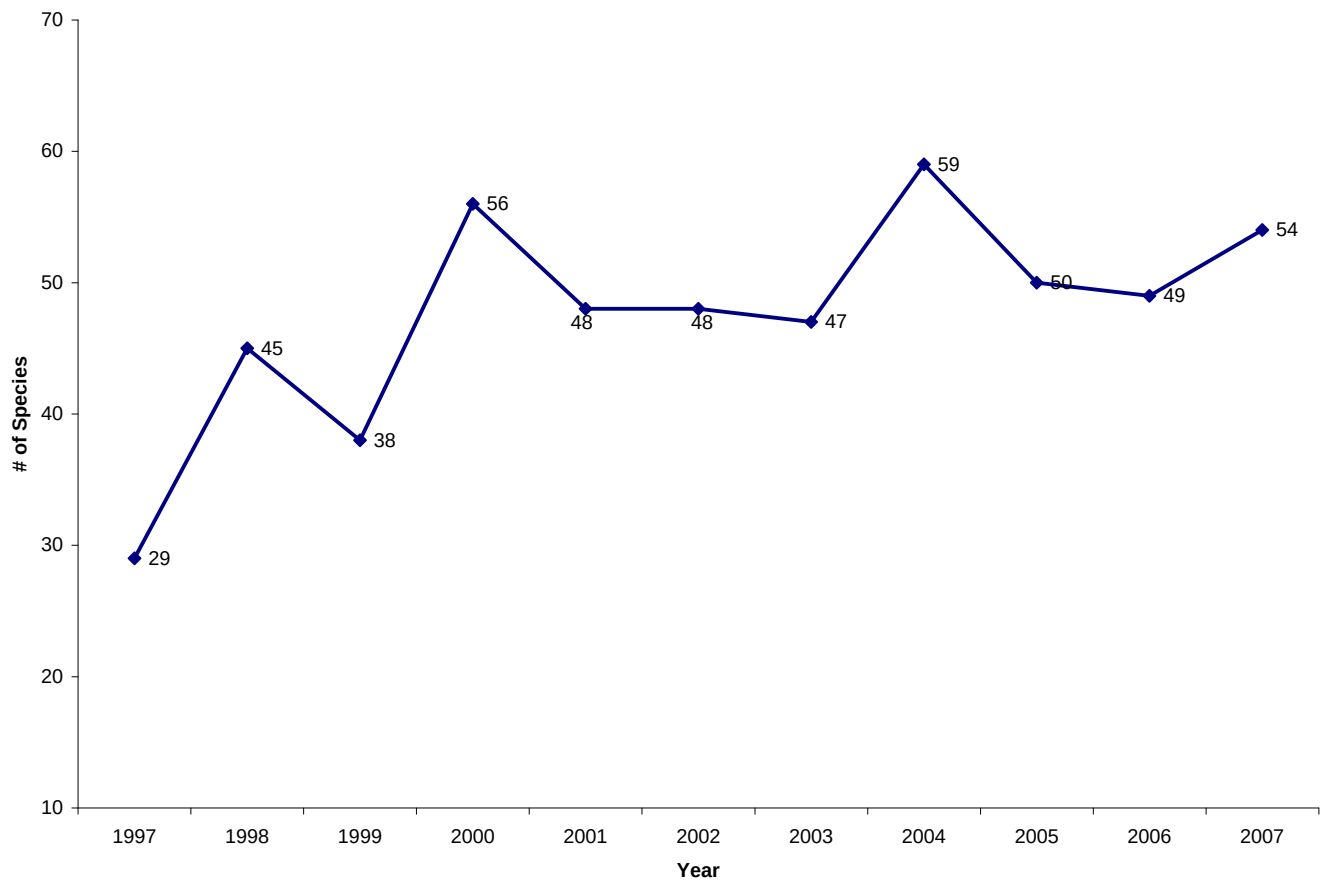


Figure 4. Number of species detected on the six routes surveyed during the years 1997-2007

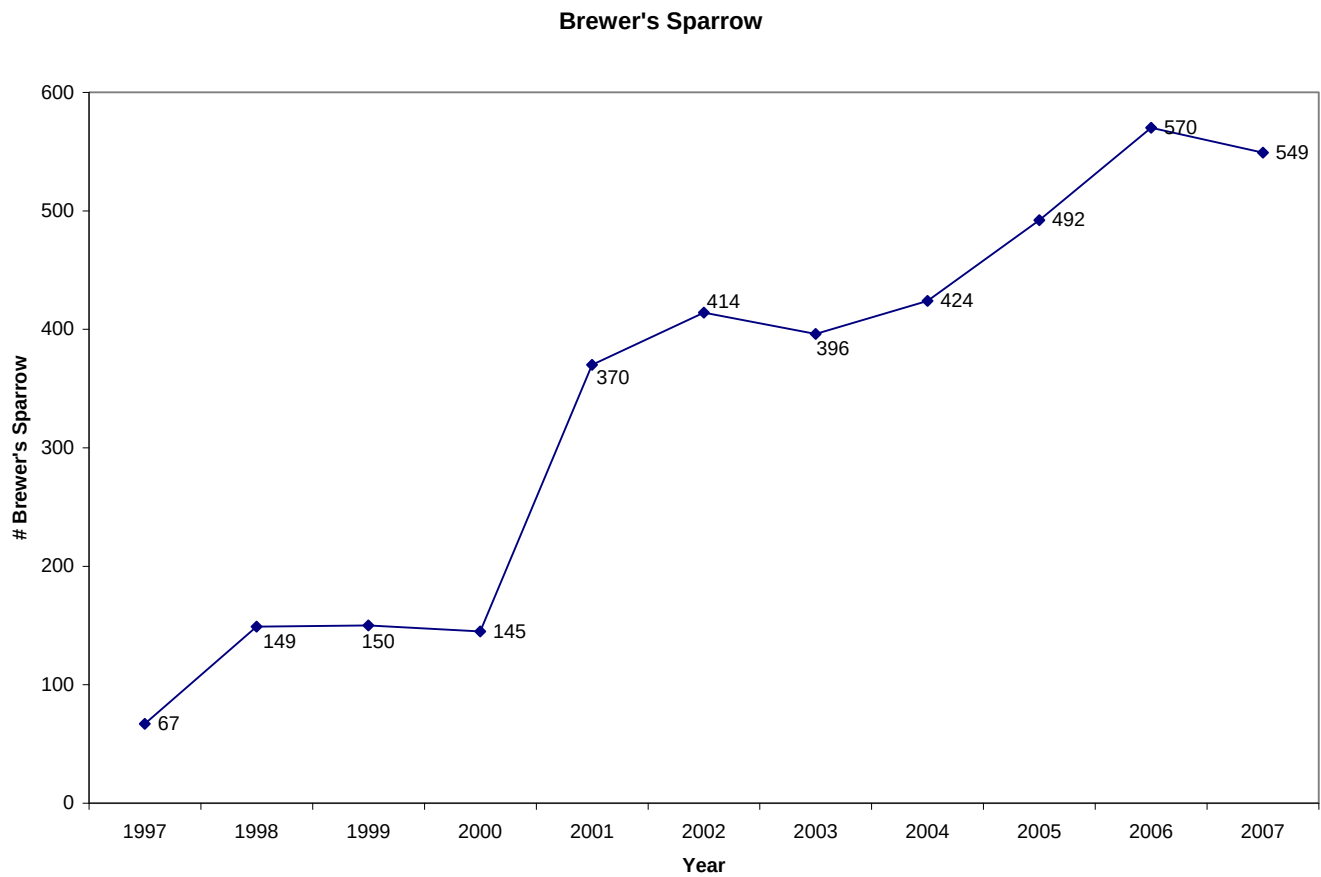


Figure 5. Numbers of Brewer's Sparrows observed in Breeding Season Surveys 1997-2007

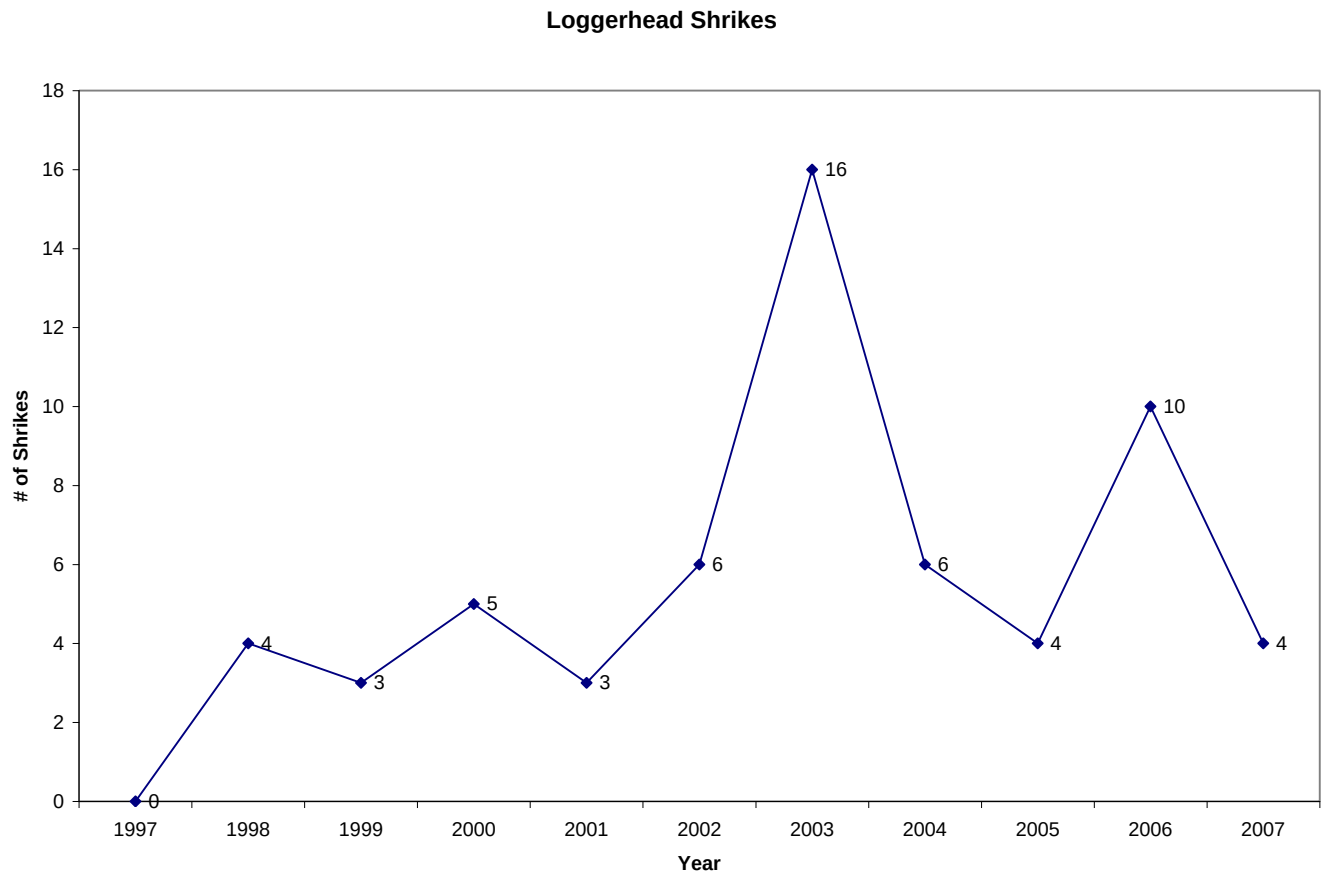


Figure 6. Numbers of Loggerhead Shrikes observed in Breeding Season Surveys 1997-2007

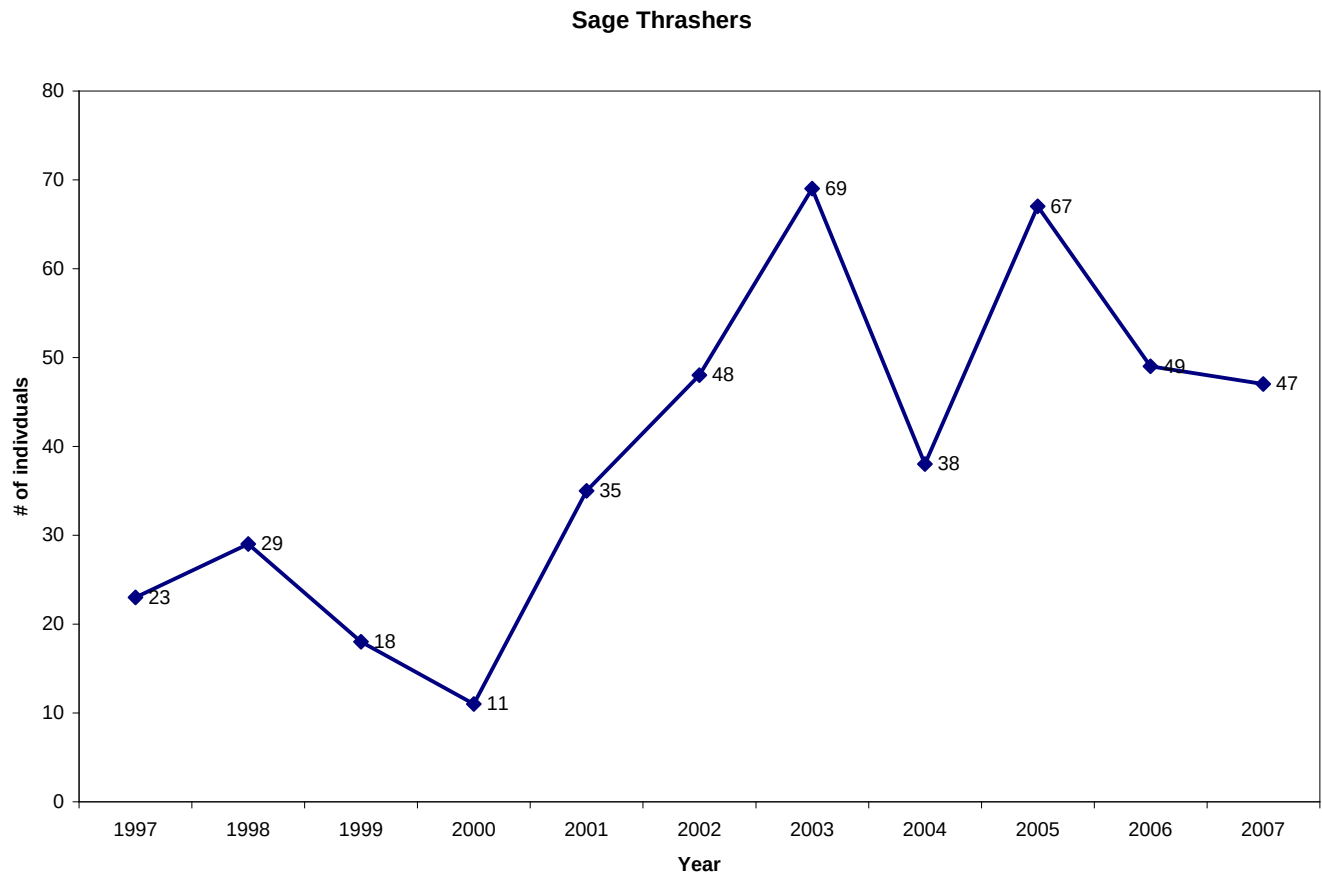


Figure 7. Numbers of Sage Thrashers observed in Breeding Season Surveys 1997-2007

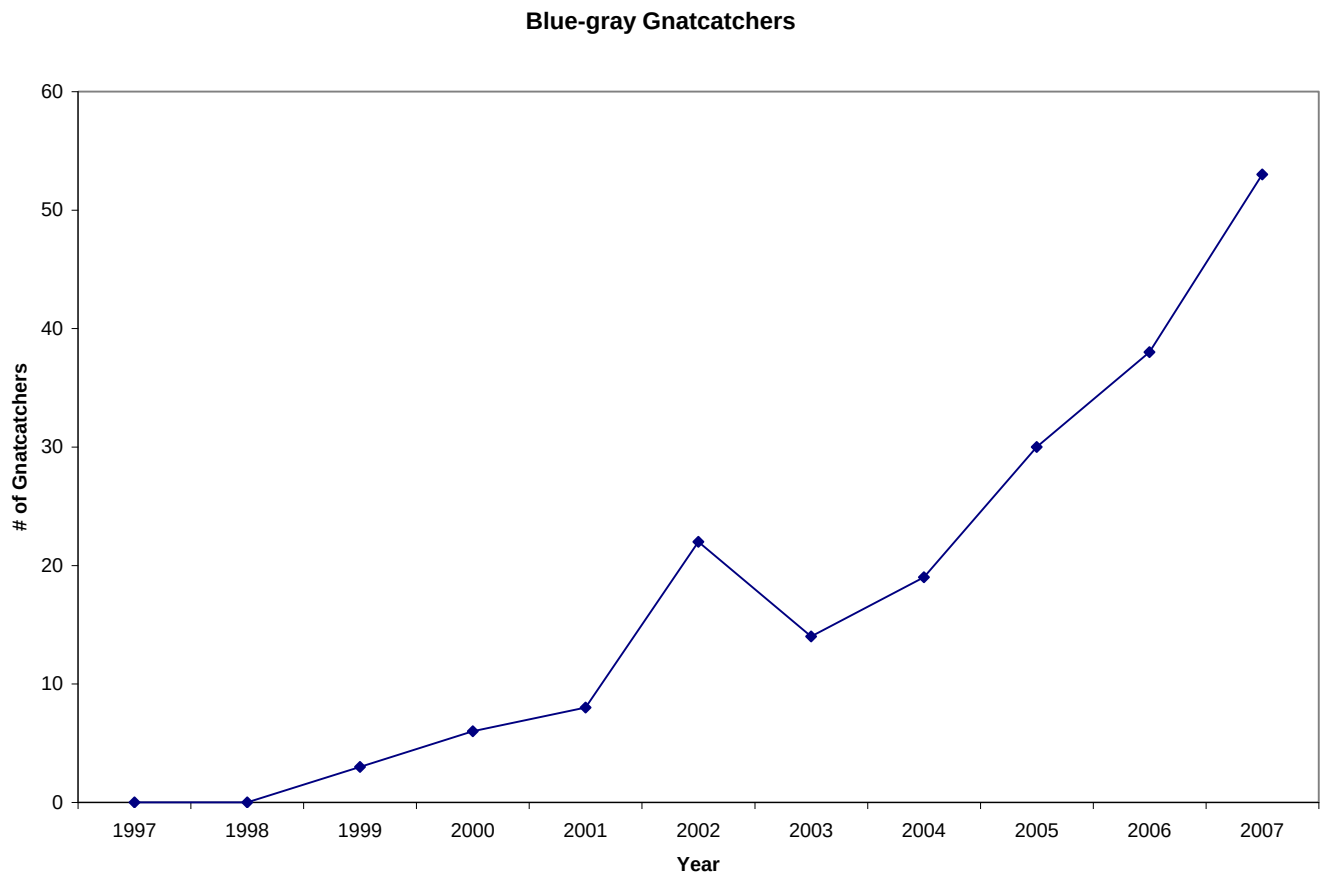


Figure 8. Numbers of Blue-gray Gnatcatchers observed in Breeding Season Surveys

GREATER SAGE-GROUSE MONITORING

Introduction and Methods

In April of 2004 monument staff initiated monitoring of Greater Sage-grouse leks on NPS managed lands. Lek surveys were performed using established methods used 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. Do 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. A compilation of NPS and IDFG datasets shows 21 leks have been identified on NPS managed lands. From those 21 IDFG has classified 16 as inactive. This criteria is based on at least 10 years of surveys with no detections. No leks with status unknown are found on NPS managed lands at CRMO. During the period from 2004 to 2006 half of inactive historic leks were visited and no sage-grouse were detected on any visit. The remaining eight were not accessible without extended backpacking or aircraft. With over ten years of no observations these sites were then dropped from routine monitoring. In 2007 all seven leks with recent activity were visited during the period from 16 March to 19 April. Each lek was visited three times during this period. The leks visited were New Lava #3 on the Grassy Flow near the edge of Little Park and the Golden Chariot complex associated with the Sunset Flow. Seven leks were visited. The Golden Chariot complex includes the Golden Chariot, MP 237, Lower Big Lost-Circular Water tank, Pressure Ridge, Blizzard Mountain Road, and Brodie Ranch leks.

Results

Seven lek sites were visited and counted two to three times each during the months of March and April. The MP 237, Blizzard Mountain Road, and Pressure Ridge leks was visited but had no grouse observed on any visit. Since each of these is within ½ mile of either the Golden Chariot or the Brodie Ranch lek is assumed that these birds may have moved to the higher quality sites as each of these was associated with a road and disturbance by vehicles was high. The Brodie Ranch lek was discovered in 2006 while moving between two other leks on the route. In 2007 this lek had a peak count of 44 birds on the first visit on 16 March. This lek had a peak 27 birds recorded in 2006. The Lower Big Lost-Circular Water Tank lek had a peak count of 77 grouse on the first visit. This lek is partially in the preserve and about 2/3 on private land. The Golden Chariot lek continued to be the largest count in the area. Counts ranged from a low of 34 on 16 March to a high of 107 on April 19. The peak count was on 19 April when the total 196 birds were seen on the three main leks of the Golden Chariot complex. The New Lava #3 lek had only a single bird recorded on one visit.

Conclusions

Once again the counts in 2007 showed a new high count for grouse in the Golden Chariot complex. The peak count in 2007 was 196 grouse on the leks. The previous high was 157 grouse in 2006 (figure 9). What may be most important for sage-grouse is that area declining in most of the state. Lek routes run by the Idaho Department of Fish and Game in the north half of the Magic Valley region showed a 65%

decline in numbers from 2006 to 2007. While only a one year snap shot, this also a 55% decline from the five year average. By contrast the lek surveys in the Preserve showed 242% increase during the last five year. The 2007 count was 25% increase over 2006 and 48% increase over the most recent five year average. With a five year average of 132 compared to a previous five year average of 50.

The importance of CRMO to sage-grouse can be seen in these surveys. Not only is the Golden Chariot the largest count in the region but few lek routes in Idaho and no other route in the region showed an increase. None showed percentage increases of this size.

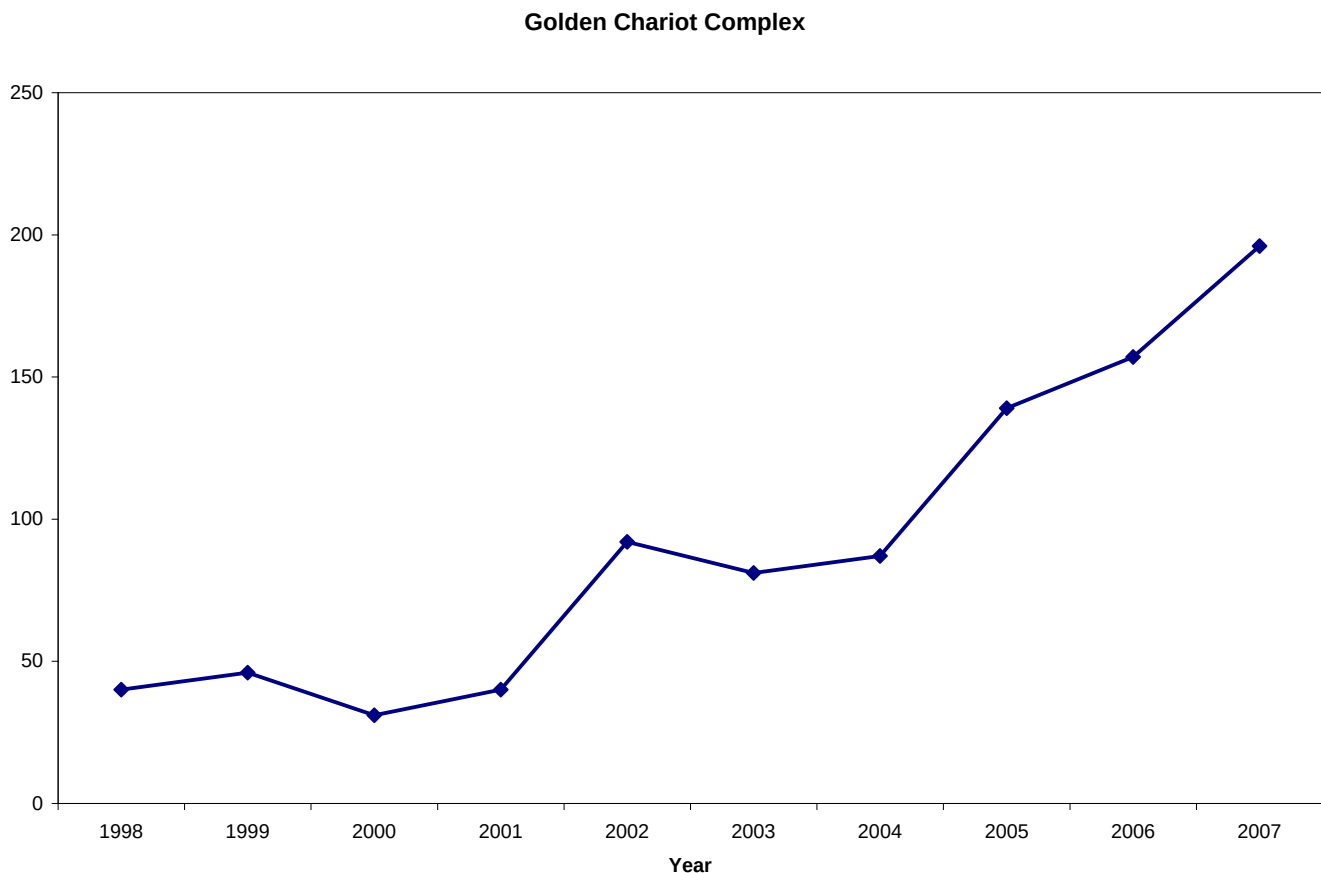


Figure 9. Numbers of Greater Sage-grouse on the Golden Chariot Lek Complex 2001-2007.

Migrant Surveys

Introduction and Methods

Starting in 2002 migrant and spot surveys were also performed in habitats of interest. During 2007 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. The hot springs marsh was conducted as a walking transect. 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 generally performed in the morning and the number of visits was opportunistic and varied between locations. During 2007 the number of visits was: 3 to the hot springs and 6 to Lava Lake.

Results and Conclusions

A total of 61 species were seen on the migrant surveys at Lava Lake and the Hot Springs area, (table 3). For the migrant surveys 22 species were recorded at the hot springs area and 43 species at Lava Lake.

As in previous years the migrant surveys focused on water resources adjacent to the highway. Three species that were recorded at Lava Lake were not previously documented at Craters. These were Trumpeter Swan, Western Sandpiper, and the Lesser Yellowlegs. During 2007 Trumpeter Swans were seen several times on The Nature Conservancy's Silver Creek Preserve during spring and summer. Silver Creek Preserve is approximately 20 miles southwest of Lava Lake and it is not unexpected that swans using that area would occasionally forage on Lava Lake. Trumpeter Swans were observed on Lava Lake in March and again in November which would be consistent with birds migrating to and from Silver Creek or other sites in the vicinity. The November observation included two adults and two juvenile birds suggesting they nested nearby. The two sandpipers are both arctic nesters which are well known to migrate through Idaho often in large numbers. So there occasional presence is not unexpected.

Table 3. Species observed during migrant surveys during 2007

Species	Survey area			Species	Survey area		
	CHS	LL			CHS	LL	
Canada Goose		X		Mourning Dove	X	X	
Trumpeter Swan		X		Cordilleran Flycatcher	X		
Tundra Swan		X		Black-billed Magpie	X	X	
Gadwall		X		American Crow		X	
American Wigeon		X		Common Raven		X	
Mallard		X		Violet-green swallow		X	
Northern Shoveler		X		Bank Swallow		X	
Northern Pintail		X		Barn Swallow		X	
Blue-winged Teal		X		Rock Wren	X		
Cinnamon Teal		X		House Wren	X		
Green-winged Teal		X		Marsh Wren	X		
Redhead		X		Ruby-crowned Kinglet	X		
Ring-necked Duck		X		American Robin	X		
Bufflehead		X		Sage Thrasher		X	
Ruddy Duck		X		Yellow Warbler	X		
Pied-billed Grebe		X		Common Yellowthroat	X		
Turkey Vulture		X		Western Tanager	X		
Northern Harrier	X			Spotted Towhee	X	X	
Chukar	X			Song Sparrow	X		
American Coot		X		Dark-eyed Junco	X		
Sora		X		White-crowned Sparrow	X		
Virginia Rail		X		Lazuli Bunting	X		
Sandhill Crane	X			Red-winged Blackbird	X	X	
Killdeer		X		Western Meadowlark	X	X	
Spotted Sandpiper		X		Yellow-headed Blackbird		X	
Lesser Yellowlegs		X		Brewer's Blackbird		X	
Greater Yellowlegs		X		Gray-crowned Rosy-finch		X	
Western Sandpiper		X		American Goldfinch	X		
Least Sandpiper		X		Pine Siskin	X		
Wilson's Snipe		X		House Finch		X	
Wilson's Phalarope		X					

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

Species in bold were not previously recorded at CRMO

WINTER MONITORING

Introduction and Methods

In December of 2005 a Christmas Bird Count (CBC) was restarted in the area around the park headquarters. This count had not been done since 1969. The 2007 count was performed on December 21. The CBC is sponsored by the National Audubon Society. It is a volunteer count and in 2007 nine people including the public and park staff participated in the Craters of the Moon count. A map of the count circle is in appendix 2. Each group had at least one person experienced in bird identification. The count was conducted on 21 December 2006 from 0820 to 1600. The group was split into four parties. The number of party hours was 25. Number of participants was 9.

The other winter project is the Craters/Big Lost route of the Mid-winter Eagle Count. Although a US Fish and Wildlife Service (USFWS) administered program this route has been counted by NPS personnel since its inception. In 2007 this count was conducted on January 11 using standard procedures published by the USFWS. In addition to eagles other birds of prey and raven and shrikes are also recorded

Results and Conclusions

Christmas Bird Count

Number of species detected was 26 and number of individuals was 203. This annual survey has been conducted 4 times in the past. The 26 species recorded in 2007 exceeds the previous high of 21 that was tallied in 2006. For the complete list of birds counted see table 6. For a summary of the 4 years see Table 7. Eight of these species are either wintering birds or most common in winter so were not detected on other surveys at CRMO in 2007.

Mid-winter Eagle Count

The count was performed on January 11, 2007. No eagles were observed during the count. Several additional raptors were observed. These included one Prairie Falcon, two American Kestrel, 18 Rough-legged Hawk, six Northern Harrier, 22 Common Raven, and two Northern Shrike. This was the first time since 1995 that no eagles were observed. By contrast Northern Harriers were at the highest level yet counted. The six birds counted was twice the previous high count of 3 in 1996.

Table 4. Birds recorded on the Craters of the Moon Christmas Bird Count 2007

Species	Number counted
Mallard	2
Green-winged Teal	1
Greater Sage-grouse	44
Rough-legged Hawk	1
Golden Eagle, adult	3
Golden Eagle, unknown	1
Virginia Rail	4
Wilson's Snipe	2
Long-eared Owl	1
Downy Woodpecker	7
Hairy Woodpecker	1
Northern Flicker	2
Clark's Nutcracker	5
Black-billed Magpie	39
Common Raven	36
Horned Lark	5
Black-capped Chickadee	13
Mountain Chickadee	7
Red-breasted Nuthatch	4
White-breasted Nuthatch	4
Marsh Wren	3
European Starling	5
American Pipit	1
Bohemian Waxwing	2
Song Sparrow	7
White-crowned Sparrow	1
Western Meadowlark	CW
Common Redpoll	1

CW = species was recorded during the count week but not on the count day

Species in bold names are species not recorded on other surveys at CRMO

Table 5. Summary of Craters of the Moon Christmas Bird Count 1967-2007.

Year	Number of Species	Number of Individuals	Party Hours	Participants
1967	16	111	16	4
1969	9	49	10	1
2005	16	80	18	11
2006	20	258	15	8
2007	26	203	25	9

General Conclusion and Summary

In all a total of 145 species were detected in 2007 (table 4). Of these, 73 were seen during the regular breeding season surveys and 61 were seen on the migrant surveys at Lava Lake and the Hot Springs area, (table 3). Three previously undocumented species (the Trumpeter Swan, Western Sandpiper and the Lesser Yellowlegs) were documented in the Preserve during migrant surveys.

Two incidental observations of note include a covey of California Quail observed on the Carey Flow in May. The quail were observed flying from private land next to the highway into the Preserve. It is likely that the quail feed in private agricultural lands while seeking shelter in the shrubs in the Preserve. The quail are an exotic species that was previously undocumented at CRMO. Another species of note were Canyon Wrens. This species was previously only known from a single migration season record from the Carey Flow near the hot springs. In July two individual males were observed defending territory from each other in a crack system on the Carey Flow south east of the town of Carey. There were additional wrens in the area and it is likely that at least one pair nested in the vicinity.

Seventy-one species (49% of species detected in 2007) have been listed as a priority species by Idaho Partner's in Flight (IDPIF 2002), are identified by the Idaho Department of Fish and Game (IDFG 2005) as species of with the greatest conservation need, or as sensitive by the Bureau of Land Management (USBLM 2003) (Table 5).

Table 6. List of bird species identified at Craters of the Moon during 2007

Species	Survey detected on			
	Breed	CBC	Migrant	Incident
Canada Goose			X	X
Trumpeter Swan			X	
Tundra Swan			X	X
Gadwall	X		X	X
American Wigeon			X	
Mallard	X	X	X	X
Green-winged Teal		X		
Northern Shoveler			X	X
Northern Pintail			X	X
Cinnamon Teal			X	X
Redhead			X	X
Ring-necked Duck			X	X
Lesser Scaup				X
Bufflehead			X	X
Ruddy Duck			X	X
Turkey Vulture	X		X	X
Northern Harrier			X	X
Sharp-shinned Hawk				X
Cooper's Hawk				X
Northern Goshawk				X
Swainson's Hawk				X
Red-tailed Hawk			X	X
Ferruginous Hawk				X
Rough-legged Hawk		X		X
Unidentified Buteo sp.				
Bald Eagle				X
Golden Eagle		X		X
American Kestrel	X			X

Merlin				X
Peregrine Falcon				X
Prairie Falcon				X
Chukar	X		X	X
Gray Partridge	X			X
Ring-necked Pheasant	X			X
California Quail				X
Dusky Grouse	X			X
Greater Sage-grouse	X	X		X
Pied-billed Grebe	X		X	X
Eared Grebe				X
American Coot	X		X	X
Sora			X	
Virginia Rail		X	X	
Sandhill Crane			X	X
Killdeer	X		X	X
Spotted Sandpiper			X	
Lesser Yellowlegs			X	
Greater Yellowlegs			X	
Western Sandpiper			X	
Least Sandpiper			X	
Wilson's Snipe		X	X	X
Wilson's Phalarope			X	X
Rock Pigeon	X			X
Mourning Dove	X		X	X
Burrowing Owl				X
Great Horned Owl	X			X
Long-eared Owl		X		X
Short-eared Owl				X
Common Nighthawk	X			X
Common Poorwill				X
Black-chinned Hummingbird	X			X
Broad-tailed Hummingbird				X

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Rufous Hummingbird				X
Unidentified Hummingbird				X
Lewis' Woodpecker	X			X
Hairy Woodpecker		X		X
Downy Woodpecker		X		X
Red-naped Sapsucker	X			X
Northern Flicker	X	X		X
Western Wood-pewee	X			X
Unidentified <u>Empidonax</u> sp.	X			X
Hammond's Flycatcher	X			X
Gray Flycatcher	X			X
Dusky Flycatcher	X			X
Cordilleran Flycatcher	X		X	X
Say's Phoebe				X
Western Kingbird	X			X
Eastern Kingbird				X
Northern Shrike				X
Loggerhead Shrike	X			X
Warbling Vireo	X			X
Plumbeous Vireo				X
Cassin's Vireo	X			X
Steller's Jay				X
Clark's Nutcracker	X	X		X
Black-billed Magpie	X	X	X	X
American Crow	X		X	X
Common Raven	X	X	X	X
Horned Lark	X	X		X
Violet-green swallow	X		X	X
N. Rough-winged Swallow	X		X	X
Bank Swallow			X	
Barn Swallow	X		X	X
Black-caped Chickadee	X	X		X
Mountain Chickadee	X	X		X

Red-breasted Nuthatch	X	X		X
White-breasted Nuthatch		X		X
Brown Creeper				X
Canyon Wren				X
Rock Wren	X		X	X
House Wren	X		X	X
Marsh Wren		X	X	
Golden-crowned Kinglet				X
Ruby-crowned Kinglet		X	X	X
Blue-gray Gnatcatcher	X			X
Mountain Bluebird	X			X
Townsend's Solitaire				X
American Robin	X		X	X
Hermit Thrush				X
Swainson's Thrush				X
Northern Mockingbird				X
Sage Thrasher	X		X	X
European Starling		X	X	X
Cedar Waxwing				X
Bohemian Waxwing		X		X
Orange-crowned Warbler	X			X
Yellow Warbler	X		X	X
Yellow-rumped Warbler	X			X
MacGillivray's Warbler	X			X
Common Yellowthroat			X	
Wilson's Warbler	X			X
Western Tanager	X		X	X
Green-tailed Towhee	X			X
Spotted Towhee	X		X	X
Dark-eyed Junco	X		X	X
Chipping Sparrow	X			X
Brewer's Sparrow	X			X
Vesper Sparrow	X			X

Lark Sparrow	X			X
Sage Sparrow				X
Fox Sparrow	X			X
Song Sparrow	X	X		X
White-crowned Sparrow	X		X	X
Black-headed Grosbeak	X		X	X
Snow Bunting				X
Lazuli Bunting	X		X	X
Red-winged Blackbird	X		X	X
Western Meadowlark	X	X	X	X
Yellow-headed Blackbird	X		X	X
Brewer's Blackbird	X		X	X
Brown-headed Cowbird	X			X
Bullock's Oriole	X			X
Gray-crowned Rosy-finch			X	X
Black Rosy-finch				X
Cassin's Finch	X			X
House Finch			X	X
Red Crossbill	X			X
Common Redpoll		X		
American Goldfinch	X		X	X
Pine Siskin	X		X	X

Breed are species detected during the breeding season survey.

CBC are species detected during the Christmas Bird Count

Migrant are species detected during the migrant survey.

Incident are species from incidental observations during the year.

Species in Bold are species not previously recorded at CRMO

Table 7. List of special status species recorded during surveys.

Species	BLM	Idaho	PIF
Trumpeter Swan	S	C	P
Cinnamon Teal			P
Northern Pintail		C	
Redhead			P
Lesser Scaup		C	
Northern Harrier			P
Sharp-shinned Hawk			P
Northern Goshawk	S		P
Swainson's Hawk	W	C	P
Ferruginous Hawk	S	C	P
Bald Eagle	S	C	
Golden Eagle			P
Merlin		C	
Peregrine Falcon	S	C	P
Prairie Falcon	S		P
Dusky Grouse	W		P
Greater Sage-grouse	S	C	P
Sandhill Crane		C	P
Killdeer			P
Wilson's Phalarope	S	C	P
Burrowing Owl	S	C	P
Short-eared Owl	S	C	P
Black-chinned Hummingbird			P
Rufous Hummingbird			P
Lewis' Woodpecker	S	C	P
Red-naped Sapsucker	W		P
Hammond's Flycatcher	S		P
Gray Flycatcher			P
Dusky Flycatcher			P
Cordilleran Flycatcher	W		P
Olive-sided Flycatcher		C	P
Loggerhead Shrike	S		P
Plumbeous Vireo			P
Black-billed Magpie			P
Brown Creeper			P
Rock Wren			P
Sage Thrasher	W		P
MacGillivray's Warbler			P
Western Tanager			P
Green-tailed Towhee	W		P
Brewer's Sparrow	S	C	P
Lark Sparrow			P
Sage Sparrow	S		P
Grasshopper Sparrow	W	C	P
Lazuli Bunting			P
Tree Swallow			P
N. Rough-winged Swallow			P
Red-breasted Nuthatch			P
Mountain Chickadee			P
Marsh Wren			P
Ruby-crowned Kinglet			P
Blue-gray Gnatcatcher			P
Mountain Bluebird			P

Townsend's Solitaire			P
Say's Phoebe			P
Western Kingbird			P
Wilson's Warbler			P
Warbling Vireo			P
Clark's Nutcracker			P
Spotted Towhee			P
Chipping Sparrow			P
Black-throated Sparrow	S		P
Grasshopper Sparrow	S		P
Black-headed Grosbeak			P
Yellow-headed Blackbird			P
Bullock's Oriole			P
Western Meadowlark			P
Brewer's Blackbird	W		P
Black Rosy-finch			P
Cassin's Finch	S		P
Gray-crowned Rosy-finch			P

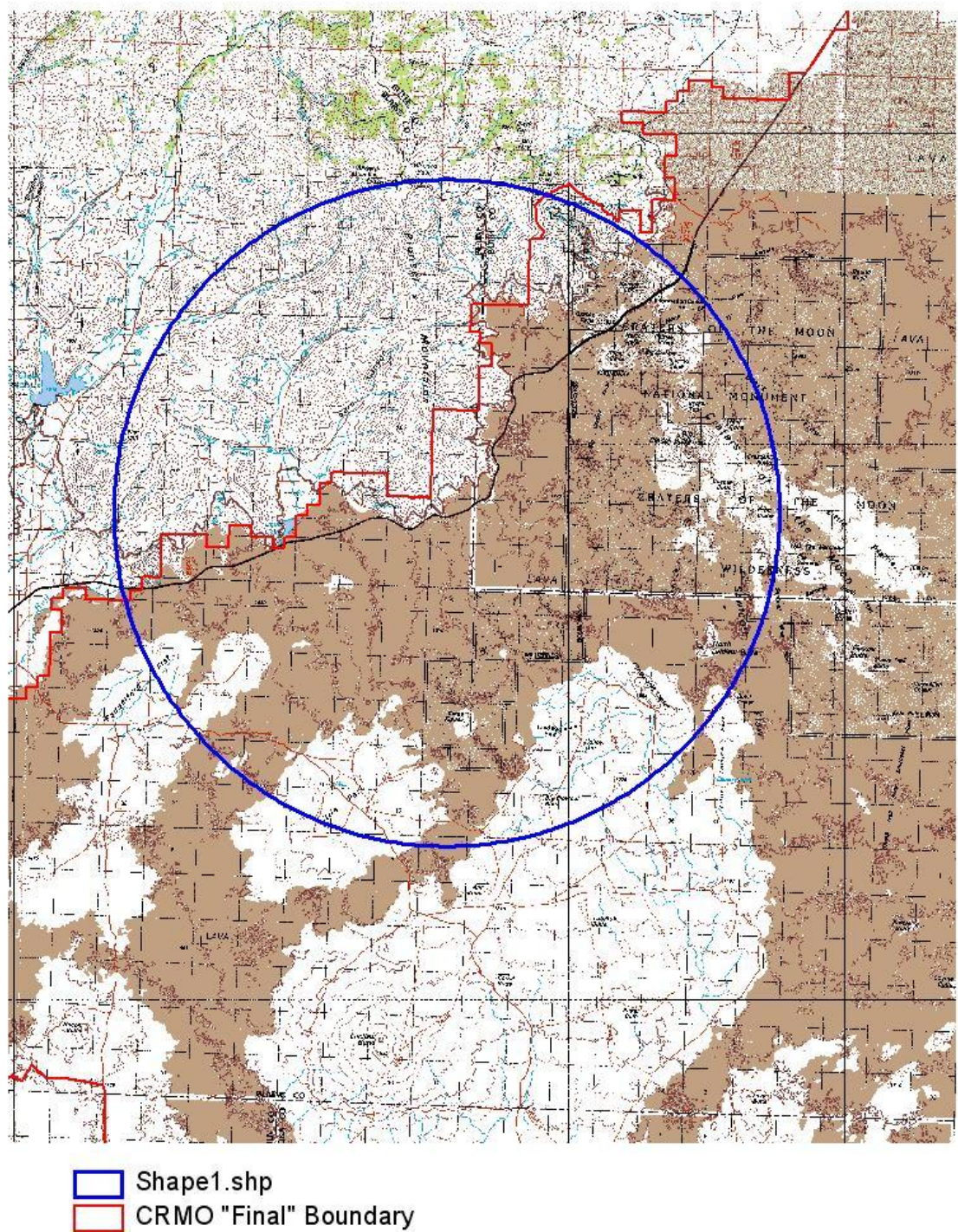
BLM species are listed as sensitive "S" or Watch "W"

Idaho species are listed as a species of Greatest Conservation Need "C" or as threatened "T" by the state of Idaho

PIF species are species listed as Priority species in the Idaho Partners in Flight Idaho Bird Conservation Plan "P"

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Appendix 1. Location of the Craters of the Moon Christmas Bird Count