

**THREATENED, ENDANGERED, AND NONGAME
BIRD AND MAMMAL INVESTIGATIONS**

**Wyoming Game and Fish Department
Nongame Program
Biological Services Section**

Annual Completion Report

**Period Covered:
15 April 2005 to 14 April 2006**

Edited by: Andrea Orabona Cerovski

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TABLE OF CONTENTS

	PAGE
INTRODUCTION	1
THREATENED AND ENDANGERED SPECIES	2
Bald Eagle	3
Black-footed Ferret Releases in the Shirley Basin/Medicine Bow Management Area, Wyoming.....	5
Spotlighting for Free-ranging Black-footed Ferrets in the Shirley Basin/Medicine Bow Management Area, Wyoming	17
Canada Lynx Trapping on the Shoshone and Bridger-Teton National Forests, Wyoming.....	46
SPECIES OF SPECIAL CONCERN	55
Peregrine Falcon Nest Surveys	56
Common Loon Surveys in Wyoming.....	58
Colonial Waterbird Surveys	63
Secretive Marshbird Surveys for American Bitterns at Selected Sites in Wyoming	71
Rocky Mountain Population of Trumpeter Swans – Wyoming Flock.....	73
Long-Billed Curlew Surveys in Western Wyoming	91
Boreal Owl Surveys in the Bridger-Teton National Forest.....	97
Raptor Nest Survey Cost-share Agreement	100
RAPTORS TAKEN FOR FALCONRY	104
Falconry.....	105
OTHER NONGAME	108
Breeding Bird Survey.....	109
Monitoring Avian Productivity and Survivorship Bird Banding.....	134
Nongame Bird Distribution and Abundance Surveys.....	142
Wyoming Avian Atlas	142
Riparian Transects	143
Species Checklists.....	143
Wyoming Bird Records Committee.....	144
Wyoming Partners In Flight.....	153
Nongame Inventories on the Rim Fire Ranch.....	156
APPENDICES	163
Appendix I – The Official State List of the Common and Scientific Names of the Birds, Mammals, Amphibians, and Reptiles in Wyoming	164
Birds	164
Mammals	177
Amphibians.....	181
Reptiles.....	182
Appendix II – Latilongs (Degree Blocks) in Wyoming.....	184
Appendix III – Native Species Status Matrix and Species of Special Concern	185
Native Species Status Matrix.....	185
Avian Species of Special Concern in Wyoming	186
Mammalian Species of Special Concern in Wyoming.....	190

INTRODUCTION

The Nongame Program of the Wyoming Game and Fish Department (Department) was initiated in July 1977. This report summarizes data collected from 15 April 2004 to 14 April 2005 on various nongame bird and mammal surveys and projects conducted by Department personnel, other government agencies, and individuals in cooperation with the Department. Cooperating agencies and individuals are listed in the individual completion reports, but we recognize that the listing does not completely credit the valuable contributions of the many cooperators, including Wyoming Game and Fish Department District Wildlife Biologists and members of the public.

In October of 1987, a Nongame Strategic Plan was distributed; this Plan was updated and renamed in May of 1996. The 1996 Nongame Bird and Mammal Plan presents objectives and strategies for the management and study of nongame birds and mammals in Wyoming. This completion report presents information in four major sections similar to the Nongame Bird and Mammal Plan: threatened and endangered species, species of special concern, raptors taken for falconry, and other nongame surveys.

This report serves several purposes. First, it provides summaries of nongame surveys for the benefit of other agencies and individuals that need this information for management purposes. Second, it provides a permanent record of summarized data for future use. Although some of this information is in lengthy tables, it was felt that these data should be published rather than kept in the files of the Nongame Program staff. Some information, such as Bald Eagle and Merlin nest sites and bat roost locations, is sensitive and is not provided in this document. Those needing this information for purposes that will lead to better management of these species can request the data from the Nongame Program staff.

Common bird names used in this report follow the most recent American Ornithologists' Union guidelines and supplements cited in Appendix I. Mammal names follow the "Revised checklist of North American mammals north of Mexico, 1997" cited in Appendix I. Scientific names for birds and mammals are presented in Appendix I.

THREATENED AND ENDANGERED SPECIES

BALD EAGLE COMPLETION REPORT

STATE OF WYOMING

NONGAME BIRDS – Threatened Species
Bald Eagle

PERIOD COVERED: 15 April 2005 – 14 April 2006

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INTRODUCTION

The Bald Eagle is currently classified as a threatened species. The Wyoming Game and Fish Department (Department) initiated statewide surveys in 1978. Significant numbers of nesting and wintering eagles were located, crucial habitat was delineated, and appropriate management recommendations were provided.

POPULATION TRENDS – NESTING

The distribution of nesting Bald Eagles in Wyoming was presented in previous Annual Completion Reports. Bald Eagles nesting in northwestern Wyoming are part of a significant nesting population in the Rocky Mountain West. The population extends into Idaho and Montana. A Bald Eagle Working Team for the Greater Yellowstone Ecosystem (GYE) was formed to aid in coordinating management and data collection.

Statewide results are presented in Table 1. Objectives have been exceeded since 1987 and the population has continued to increase. Surveys in 2005 attained adequate production data for 112 nesting territories, with 103 pairs producing 106 young. However, we have now recorded over 140 locations where Bald Eagles have nested in the State since 1978, when nesting Bald Eagles could be located in only 20 locations statewide.

LITERATURE CITED

McEneaney, T. 2006. Yellowstone Bird Report, 2005. National Park Service, Yellowstone Center for Resources, Yellowstone National Park, Wyoming. YCR-NR-2006-2.

Table 1. Production of Bald Eagles in Wyoming, 2005.

	Wyoming Portion of GYE ^a	North Platte ^b (S of I-80)	Other Areas ^c	Statewide Total
Population Index				
Territories Checked	76	--	36	112
Number Occupied	75	--	28	103
Percent Occupied	97	--	78	92
Number of Young Fledged	67	--	39	106
Young Fledged/Occupied Territory	0.9	--	1.4	1.0

^a Includes 34 pairs that fledged 26 young in Yellowstone National Park (McEneaney 2006).

^b Occupancy and production surveys were not conducted on the North Platte. Results are not included in statewide totals.

^c Includes Green River, Wind River, Popo Agie River, Big Horn Basin, Casper, Sheridan, Cody, and Lusk areas.

**BLACK-FOOTED FERRET RELEASES IN THE SHIRLEY BASIN/
MEDICINE BOW MANAGEMENT AREA, WYOMING
COMPLETION REPORT**

STATE OF WYOMING

NONGAME MAMMALS – Species of Special Concern
Black-footed Ferret

PERIOD COVERED: 15 April 2005 – 14 April 2006

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INTRODUCTION

From 1991 to 1994, 228 black-footed ferrets were released in Shirley Basin, Wyoming. Black-footed ferret releases were terminated in 1994 as a result of a sylvatic plague epizootic and a declining white-tailed prairie dog population in Primary Management Zone 1 (PMZ 1). Survey efforts outside of PMZ 1 in recent years have documented an increasing prairie dog population within the Shirley Basin/Medicine Bow prairie dog complex (Grenier et al. 2006).

During the fall and winter of 2005/2006, we released black-footed ferrets into two new areas within the Shirley Basin/Medicine Bow Black-footed Ferret Management Area (Management Area). These two areas were the Shirley Rim and Arlington areas (Figure 1). The Shirley Rim site is approximately 15 mi (24 km) northwest of the established population at the Shirley Basin site. The Arlington site is approximately 20 mi (32 km) south of the Shirley Basin site. All ferrets were captive born animals, except 13 that were wild born and translocated from Conata Basin, South Dakota.

The goal of these new releases is to establish a meta-population of black-footed ferrets in the Management Area. The establishment of a meta-population should provide the ferrets with protection against stochastic events (e.g. sylvatic plague, canine distemper) and introduce additional genetic stock into the Management Area.

METHODS

All landowners were contacted prior to the initiation of releases in their area for support and permission. Black-footed ferrets were hard released onto known prairie dog

colonies. Burrows were located during the twilight hours prior to the releases on most occasions. During late November and throughout the winter, burrows were located the morning of the release and flagged to facilitate identification after dark.

All black-footed ferrets were preconditioned by the Ferret Conservation Center or Turner Endangered Species Fund prior to being released, except for 13 wild born ferrets that were translocated from Conata Basin, South Dakota.

Ferrets were released into the burrows from pet kennels, which were used to transport the captive ferrets to the release site. Burrow location was recorded using a handheld GPS unit (Garmin 12x1). Any prairie dog remains still in the pet kennel after the ferret had been release were tossed into the prairie dog burrow into which the ferret had been released. Releases were planned for the twilight hours of the day and often carried on after dark.

RESULTS

Between 6 September 2005 and 7 January 2006, 140 black-footed ferrets were released into the Management Area (Table 1). Thirteen of the 140 ferrets released were wild born kits from the Conata Basin ferret population in South Dakota. The remaining 127 were all captive born. Approximately half of the ferrets went to each of the two new locations (Figures 2 and 3, Table 1).

Black-footed ferrets were released almost entirely on private lands, except for approximately 36 ferrets that were released on the Wyoming Game and Fish Department's Wick/Bume Wildlife Habitat Management Area.

Nearly all ferrets released at the Shirley Rim site were kits, while a large proportion of the ferrets released at the Arlington site were adults. Black-footed ferrets released at each location are summarized by sex and age in Table 2. The Arlington release site also had a slight male bias (58%) in the release.

DISCUSSION

These releases marked the first black-footed ferrets released in Wyoming in nearly 11 years. Growing competition between new black-footed ferret sites and the reduced availability of captive born ferrets restricted Wyoming accessibility to ferrets for releases in Shirley Basin prior to 2005.

All contingency plans that were developed for the original Shirley Basin population will be followed (Luce and Oakleaf 1994a and b) in the event that canine distemper and sylvatic plague are document in areas where ferrets were released.

After release, ferrets appeared to behave normally. Several were observed hunting, exploring, and a few did not surface again during the brief period observers were present. No effort was made to do 30-day post release surveys in 2005.

This approach is designed to evaluate the feasibility of a low-cost, hands-off approach to black-footed ferret reintroduction. Plans are in place to release ferrets for a minimum of two years, pending availability of ferrets from the Ferret Conservation Center, prior to initiating extensive post release follow up surveys. If this approach is successful, it would greatly increase the ability to reduce costs associated with this reintroduction program. This approach is consistent with objectives and guidelines set forth in the Shirley Basin/Medicine Bow Management Plan (SBWG 1991).

ACKNOWLEDGEMENTS

The Department extends special thanks to the Bates Creek Cattle Company, George Ranch, Medicine Bow River Ranch, and the Q Creek Land and Cattle Company, who generously allowed access to their property for the release of black-footed ferrets during the fall of 2005. Thanks are also extended to the Turner Endangered Species Fund for their assistance with preconditioning of captive born kits for Wyoming, and to the U.S. Forest Service and T. Livieri of Prairie Wildlife Research, for their assistance during translocation of wild born kits from Conata Basin, South Dakota. Lastly, the Department would like to recognize and thank the Barrett Oil Company and Biodiversity Conservation Alliance for providing financial support for the project.

LITERATURE CITED

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- Luce, B., and B. Oakleaf. 1994a. Shirley Basin/Medicine Bow black-footed ferret management area sylvatic plague contingency plan. Pages 97-100 in B. Luce, B. Oakleaf, E.T. Thorne, and E.S. Williams, editors. Black-footed ferret reintroduction in Shirley Basin, Wyoming 1993 Annual Completion Report. Wyoming Game and Fish Department, Cheyenne. 114pp.
- Luce, B., and B. Oakleaf. 1994b. Shirley Basin/Medicine Bow black-footed ferret management area canine distemper contingency plan. Pages 101-105 in B. Luce, B. Oakleaf, E.T. Thorne, and E.S. Williams, editors. Black-footed ferret reintroduction in Shirley Basin, Wyoming 1993 Annual Completion Report. Wyoming Game and Fish Department, Cheyenne. 114pp.

(SBWG) Shirley Basin/Medicine Bow Black-footed Ferret Working Group. 1991. A cooperative management plan for black-footed ferrets in Shirley Basin/Medicine Bow, Wyoming. Wyoming Game and Fish Department, Cheyenne.

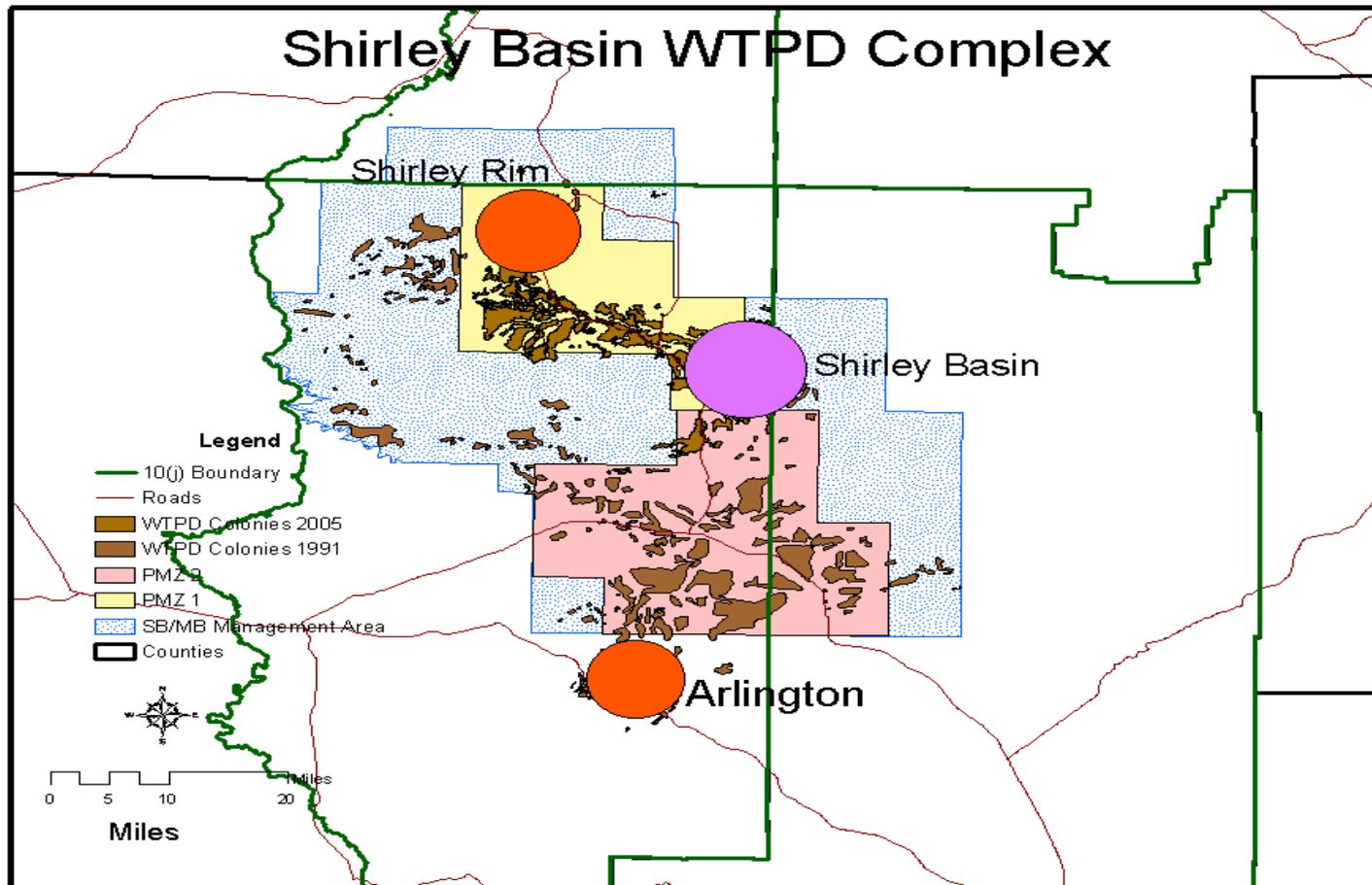


Figure 1. Location of the Shirley Basin, Shirley Rim, and Arlington black-footed ferret release sites within the Shirley Basin/ Medicine Bow Black-footed Ferret Management Area, Wyoming, 2005.

2005 Shirley Rim Ferret Releases

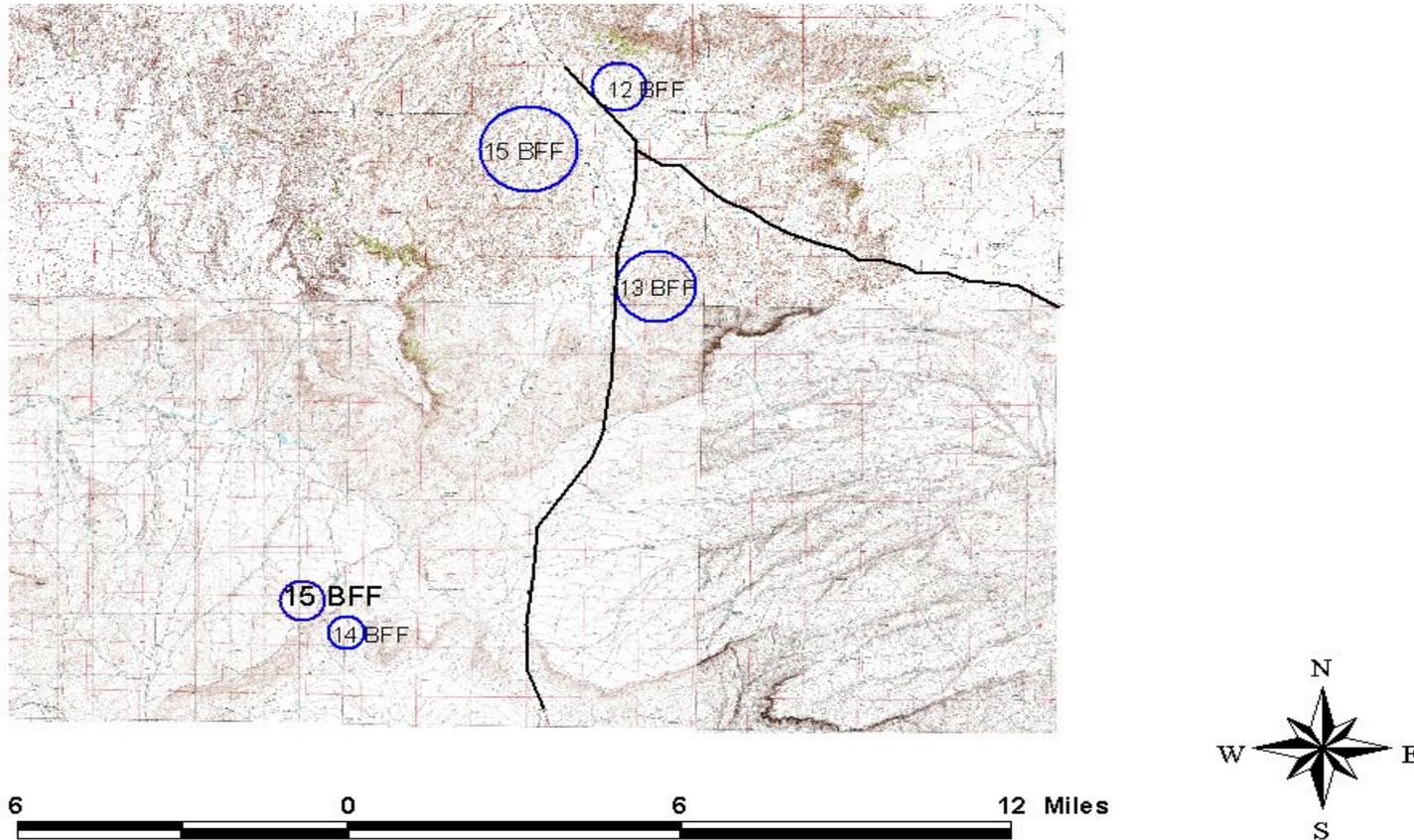


Figure 2. Approximate locations and numbers of black-footed ferrets released at the Shirley Rim site, Wyoming, 2005.

2005 Arlington Releases

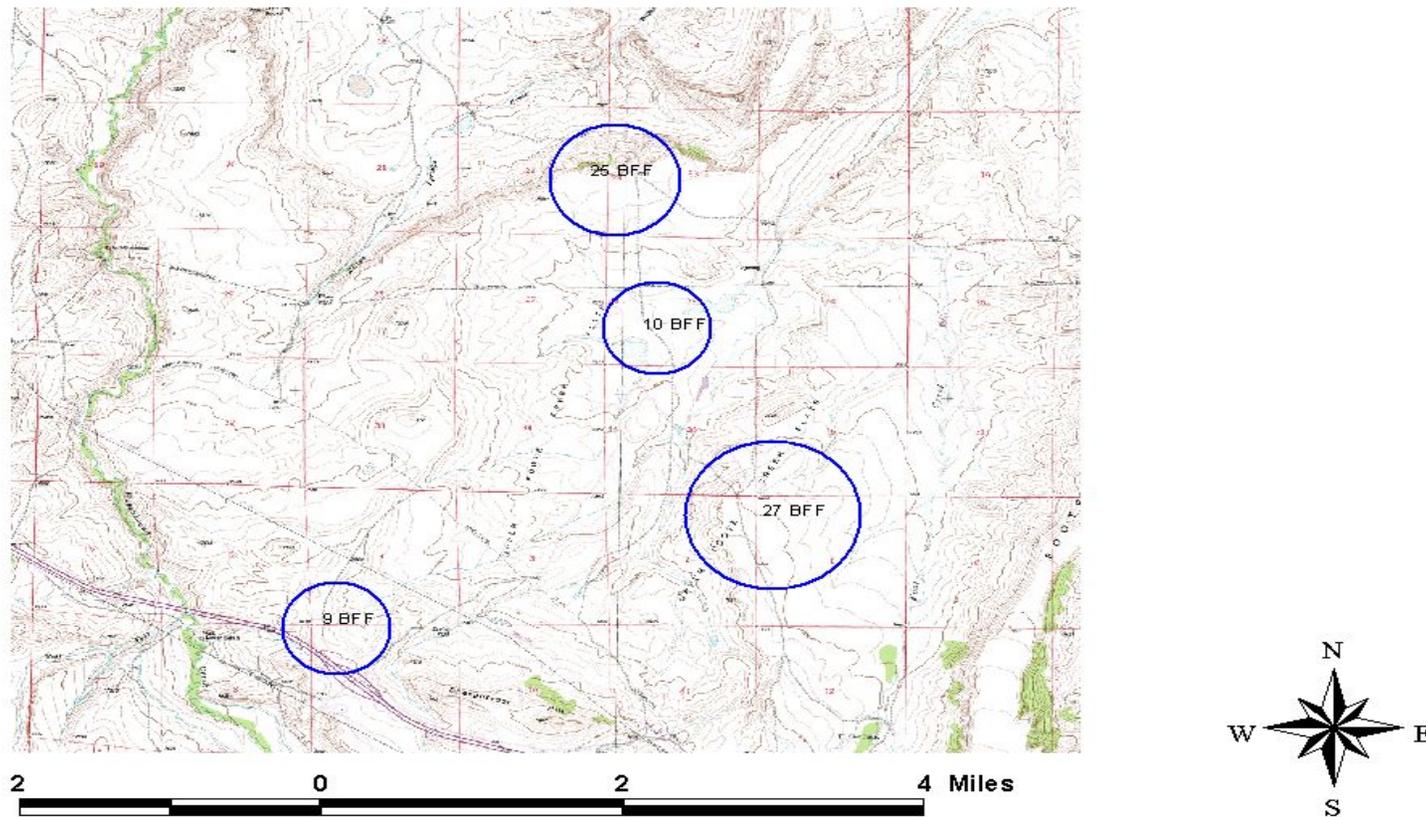


Figure 3. Approximate locations and numbers of black-footed ferrets released at the Arlington site, Wyoming, 2005.

Table 1. Black-footed ferrets released in the Shirley Basin/Medicine Bow Black-footed Ferret Management Area, Wyoming during the fall of 2005.

Date	Release Site	Place of Origin ¹	BFF #	Age/ Sex	Transponder # Head	Transponder # Rear
9/6/05	Shirley Rim	FCC	4772	JM		077-027-844
9/6/05	Shirley Rim	FCC	3886	AM		
9/6/05	Shirley Rim	FCC	3808	AM	049-075-689	
9/6/05	Shirley Rim	FCC	3968	AF	042-772-862	
9/6/05	Shirley Rim	FCC	4768	JM		077-2677820
9/21/05	Shirley Rim	FCC	4769	JM		077-053-320
9/21/05	Shirley Rim	FCC	4770	JF		076-633-091
9/21/05	Shirley Rim	FCC	4771	JF		076-884-066
9/21/05	Shirley Rim	FCC	4773	JM		076-790-515
9/21/05	Shirley Rim	FCC	4774	JM		076-841-338
9/21/05	Shirley Rim	FCC	4777	JM		077-274-022
9/29/05	Shirley Rim	CB	05-066	JM		
9/29/05	Shirley Rim	CB	05-080	JF		
9/29/05	Shirley Rim	CB	05-087	JF		
9/29/05	Shirley Rim	CB	05-094	JF		
9/29/05	Shirley Rim	CB	05-111	JM		
9/29/05	Shirley Rim	CB	05-112	JM		
9/29/05	Shirley Rim	CB	05-114	JF		
9/29/05	Shirley Rim	CB	05-115	JM		
9/29/05	Shirley Rim	CB	05-018	JF		
9/29/05	Shirley Rim	CB	05-021	JM		
9/29/05	Shirley Rim	CB	05-074	JF		
9/29/05	Shirley Rim	CB	05-116	JF		
9/29/05	Shirley Rim	CB	05-117	JF		
9/30/05	Shirley Rim	TESF	3912	AF	048-528-055	107-602-261
9/30/05	Shirley Rim	TESF	4916	JF	068-818-365	077-124-076
9/30/05	Shirley Rim	TESF	4927	JM	032-621-282	
9/30/05	Shirley Rim	TESF	4929	JF	032-619-853	068-065-834
9/30/05	Shirley Rim	TESF	4971	JF	067-769-263	076-823-579
9/30/05	Shirley Rim	TESF	4972	JF	107-622-614	076-787-080
9/30/05	Shirley Rim	TESF	3901	AF	048-615-312	068-063-021
9/30/05	Shirley Rim	TESF	4925	JM	032-623-023	067-893-835
9/30/05	Shirley Rim	TESF	4930	JF	032-626-891	068-036-127
						076-817-260/
9/30/05	Shirley Rim	TESF	4969	JM	068-011-544	068-018-840
9/30/05	Shirley Rim	TESF	P419	JF	067-846-075	067-852-852
10/10/05	Shirley Rim	FCC	3484	AM	107-273-549	076-793-591
10/10/05	Shirley Rim	FCC	3688	AM	048-536-257	
10/10/05	Shirley Rim	FCC	3802	AF		
10/10/05	Shirley Rim	FCC	3854	AF	057-066-292	
10/10/05	Shirley Rim	FCC	3859	AF	057-374-351	
10/10/05	Shirley Rim	FCC	4765	JF		077-065-360
10/10/05	Shirley Rim	FCC	4782	JF	107-267-339	
10/10/05	Shirley Rim	FCC	2/4/13	JM	107-120-355	

Table 1. Continued.

Date	Release Site	Place of Origin ¹	BFF #	Age/ Sex	Transponder # Head	Transponder # Rear
10/10/05	Shirley Rim	FCC	2/7/13	JF	107-308-593	
10/10/05	Shirley Rim	FCC	3/6/13	JM	107-261-563	
10/10/05	Shirley Rim	FCC	3/7/13	JM	107-285-069	
10/10/05	Shirley Rim	FCC	3/13/13	JM	107-113-367	
10/14/05	Shirley Rim	FCC	10/7/10	AF	048-573-563	
10/14/05	Shirley Rim	FCC	2/5/13	JM	107-264-636	
10/14/05	Shirley Rim	FCC	2/16/13	JM	107-299-081	
10/14/05	Shirley Rim	FCC	2/22/13	JF	107-263-854	
10/14/05	Shirley Rim	FCC	3/12/13	JM	107-305-039	
10/14/05	Shirley Rim	FCC	3/14/13	JF	107-124-866	
10/14/05	Shirley Rim	FCC	3/18/13	JM	107-117-805	
10/14/05	Shirley Rim	FCC	3/19/13	JM	107-123-889	
10/14/05	Shirley Rim	FCC	3/15/13	JF	107-264-351	
10/14/05	Shirley Rim	FCC	3/11/13	JF	107-300-087	
10/17/05	Shirley Rim	FCC	1/30/13	JM	107-285-004	
10/17/05	Shirley Rim	FCC	2/3/13	JF	107-266-286	
10/17/05	Shirley Rim	FCC	2/17/13	JF	107-267-029	
10/17/05	Shirley Rim	FCC	3/5/13	JM	107-127-068	
10/17/05	Shirley Rim	FCC	3/10/13	JM	107-263-330	
10/17/05	Shirley Rim	FCC	1/31/13	JM	107-265-337	
10/17/05	Shirley Rim	FCC	2/21/13	JM	107-107-872	
10/17/05	Shirley Rim	FCC	2/23/13	JF	107-268-070	
10/17/05	Shirley Rim	FCC	2/24/13	JF	107-264-531	
10/17/05	Shirley Rim	FCC	3/29/13	JF		076-880-304
10/24/05	Shirley Rim	FCC	3/20/10	AF	048-804-850	
10/24/05	Shirley Rim	FCC	7/21/10	AF	049-052-256	
10/24/05	Shirley Rim	FCC	10/12/10	AF	057-551-549	
10/24/05	Shirley Rim	FCC	10/19/10	AM	048-617-007	
10/24/05	Arlington	FCC	3950	AM	048-517-382	
10/24/05	Arlington	FCC	3970	AF	043-316-605	
10/24/05	Arlington	FCC	4030	AF	056-862-080	
10/24/05	Arlington	FCC	4165	AF	056-863-019	
10/24/05	Arlington	FCC	4763	JM		077-213-832
10/28/05	Arlington	FCC	4831	JM		107-290-633
10/28/05	Arlington	FCC	4876	JM		107-258-378
10/28/05	Arlington	TESF	4926	JM	032-628-351	107-627-519
10/28/05	Arlington	TESF	P418	JF	107-601-594	067-853-337
11/10/05	Arlington	FCC	3699	AM	032-628-039	
11/10/05	Arlington	FCC	3817	AM	048-563-582	
11/10/05	Arlington	FCC	3897	AF		
10/24/05	Arlington	FCC	4763	JM		077-213-832
11/10/05	Arlington	FCC	3932	AF	048-636-011	
11/10/05	Arlington	FCC	4005	AF	057-059-789	
11/10/05	Arlington	FCC	4806	JM		107-309-589
11/10/05	Arlington	FCC	4807	JM	107-113-630	

Table 1. Continued.

Date	Release Site	Place of Origin ¹	BFF #	Age/ Sex	Transponder # Head	Transponder # Rear
11/10/05	Arlington	FCC	4812	JM	048-577-037	
11/10/05	Arlington	FCC	5035	JM	077-124-326	
11/10/05	Arlington	FCC	5050	JM	077-085-855	
11/18/05	Arlington	FCC	3931	AF	048-786-809	
11/18/05	Arlington	FCC	3941	AM		107-281-540
11/18/05	Arlington	FCC	3947	AF	032-619-572	
11/18/05	Arlington	FCC	4871	JM		107-292-089
11/18/05	Arlington	FCC	4896	AM		107-122-110
11/18/05	Arlington	FCC	4907	JM	076-776-518	
11/18/05	Arlington	FCC	4908	JM	076-781-354	
11/18/05	Arlington	FCC	4910	JM		107-111-074
11/18/05	Arlington	FCC	4913	JM		107-113-091
11/18/05	Arlington	FCC	5049	JM	076-775-349	
11/18/05	Arlington	FCC	5075	JM	107-126-069	
11/10/05	Arlington	FCC	3932	AF	048-636-011	
11/10/05	Arlington	FCC	4005	AF	057-059-789	
11/10/05	Arlington	FCC	4806	JM		107-309-589
11/10/05	Arlington	FCC	4807	JM	107-113-630	
11/10/05	Arlington	FCC	4812	JM	048-577-037	
11/10/05	Arlington	FCC	5035	JM	077-124-326	
11/10/05	Arlington	FCC	5050	JM	077-085-855	
11/16/05	Arlington	FCC	3627	AF	039-114-820	039-118-332
11/16/05	Arlington	FCC	3751	AF	048-809-298	
11/16/05	Arlington	FCC	4130	AF	056-849-555	
11/16/05	Arlington	FCC	4788	JM	076-778-812	
11/16/05	Arlington	FCC	4864	JM	077-058-609	
11/16/05	Arlington	FCC	4870	JM		107-120-580
11/16/05	Arlington	FCC	4892	JM		107-109-026
11/16/05	Arlington	FCC	4897	JM		107-127-615
11/16/05	Arlington	FCC	5048	JM	077-121-104	
11/16/05	Arlington	FCC	5049	JF	077-077-383	
11/23/05	Arlington	FCC	3533	AF	049-010-560	
11/23/05	Arlington	FCC	3756	AF	048-596-870	
11/23/05	Arlington	FCC	3944	AF		
11/23/05	Arlington	FCC	3948	AF	042-850-006	
11/23/05	Arlington	FCC	4839	JM	048-550-885	
11/23/05	Arlington	FCC	4862	JM	048-573-082	
11/23/05	Arlington	FCC	4872	JM		107-271-631
11/23/05	Arlington	FCC	4906	JM	048-769-372	
11/23/05	Arlington	FCC	4905	JM	048-585-259	
11/23/05	Arlington	FCC	5006	JM	107-124-566	
11/23/05	Arlington	FCC	5051	JM	076-820-630	
11/23/05	Arlington	FCC	5072	JM		107-258-617
11/23/05	Arlington	FCC	5077	JM	107-302-265	
12/7/05	Arlington	FCC	3434	AM	057-005-894	

Table 1. Continued.

Date	Release Site	Place of Origin ¹	BFF #	Age/ Sex	Transponder # Head	Transponder # Rear
12/7/05	Arlington	FCC	3723	AF	048-782-370	
12/7/05	Arlington	FCC	3744	AF	048-794-360	
12/7/05	Arlington	FCC	3748	AM	048-629-094	
12/7/05	Arlington	FCC	3864	JF	048-797-276	
12/7/05	Arlington	FCC	3937	AF	048-787-886	
12/7/05	Arlington	FCC	3959	AF	042-844-769	
12/7/05	Arlington	FCC	4947	JF	107-284-307	107-117-376
12/7/05	Arlington	FCC	4978	JM	107-299-030	107-276-103
12/7/05	Arlington	FCC	5094	JM	077-054-811	
12/7/05	Arlington	FCC	5109	JM		107-303-568
12/7/05	Arlington	FCC	5110	JM		107-259-119
12/7/05	Arlington	FCC	5113	JF		107-121-828
12/7/05	Arlington	FCC	GRANT	AM	043-123-305	
1/7/06	Arlington	FCC	4029	AF	056-841-115	
1/7/06	Arlington	FCC	3445	AF	042-800-843	
11/23/05	Arlington	FCC	5006	JM	107-124-566	
11/23/05	Arlington	FCC	5051	JM	076-820-630	
11/23/05	Arlington	FCC	5072	JM		107-258-617
11/23/05	Arlington	FCC	5077	JM	107-302-265	
12/7/05	Arlington	FCC	3434	AM	057-005-894	
12/7/05	Arlington	FCC	3723	AF	048-782-370	
12/7/05	Arlington	FCC	3744	AF	048-794-360	
12/7/05	Arlington	FCC	3748	AM	048-629-094	
12/7/05	Arlington	FCC	3864	JF	048-797-276	
12/7/05	Arlington	FCC	3937	AF	048-787-886	
12/7/05	Arlington	FCC	3959	AF	042-844-769	
12/7/05	Arlington	FCC	4947	JF	107-284-307	107-117-376
12/7/05	Arlington	FCC	4978	JM	107-299-030	107-276-103
12/7/05	Arlington	FCC	5094	JM	077-054-811	
12/7/05	Arlington	FCC	5109	JM		107-303-568
12/7/05	Arlington	FCC	5110	JM		107-259-119
12/7/05	Arlington	FCC	5113	JF		107-121-828
12/7/05	Arlington	FCC	GRANT	AM	043-123-305	
1/7/06	Arlington	FCC	4029	AF	056-841-115	
1/7/06	Arlington	FCC	3445	AF	042-800-843	

¹ FCC = U.S. Fish and Wildlife Service Ferret Conservation Center.
 CB = Conata Basin, South Dakota.
 TESF = Turner Endangered Species Fund, New Mexico.

Table 2. Black-footed ferrets released at the Shirley Rim and Arlington sites in the Shirley Basin/Medicine Bow Black-footed Ferret Management Area, Wyoming, 2005.

Location	Adult Female	Adult Male	Juvenile Female	Juvenile Male	Total
Shirley Rim	24	9	5	33	71
Arlington	9	4	28	28	69
Total	33	13	33	61	140

colonies. Burrows were located during the twilight hours prior to the releases on most occasions. During late November and throughout the winter, burrows were located the morning of the release and flagged to facilitate identification after dark.

All black-footed ferrets were preconditioned by the Ferret Conservation Center or Turner Endangered Species Fund prior to being released, except for 13 wild born ferrets that were translocated from Conata Basin, South Dakota.

Ferrets were released into the burrows from pet kennels, which were used to transport the captive ferrets to the release site. Burrow location was recorded using a handheld GPS unit (Garmin 12x1). Any prairie dog remains still in the pet kennel after the ferret had been release were tossed into the prairie dog burrow into which the ferret had been released. Releases were planned for the twilight hours of the day and often carried on after dark.

RESULTS

Between 6 September 2005 and 7 January 2006, 140 black-footed ferrets were released into the Management Area (Table 1). Thirteen of the 140 ferrets released were wild born kits from the Conata Basin ferret population in South Dakota. The remaining 127 were all captive born. Approximately half of the ferrets went to each of the two new locations (Figures 2 and 3, Table 1).

Black-footed ferrets were released almost entirely on private lands, except for approximately 36 ferrets that were released on the Wyoming Game and Fish Department's Wick/Bume Wildlife Habitat Management Area.

Nearly all ferrets released at the Shirley Rim site were kits, while a large proportion of the ferrets released at the Arlington site were adults. Black-footed ferrets released at each location are summarized by sex and age in Table 2. The Arlington release site also had a slight male bias (58%) in the release.

DISCUSSION

These releases marked the first black-footed ferrets released in Wyoming in nearly 11 years. Growing competition between new black-footed ferret sites and the reduced availability of captive born ferrets restricted Wyoming accessibility to ferrets for releases in Shirley Basin prior to 2005.

All contingency plans that were developed for the original Shirley Basin population will be followed (Luce and Oakleaf 1994a and b) in the event that canine distemper and sylvatic plague are document in areas where ferrets were released.

After release, ferrets appeared to behave normally. Several were observed hunting, exploring, and a few did not surface again during the brief period observers were present. No effort was made to do 30-day post release surveys in 2005.

This approach is designed to evaluate the feasibility of a low-cost, hands-off approach to black-footed ferret reintroduction. Plans are in place to release ferrets for a minimum of two years, pending availability of ferrets from the Ferret Conservation Center, prior to initiating extensive post release follow up surveys. If this approach is successful, it would greatly increase the ability to reduce costs associated with this reintroduction program. This approach is consistent with objectives and guidelines set forth in the Shirley Basin/Medicine Bow Management Plan (SBWG 1991).

ACKNOWLEDGEMENTS

The Department extends special thanks to the Bates Creek Cattle Company, George Ranch, Medicine Bow River Ranch, and the Q Creek Land and Cattle Company, who generously allowed access to their property for the release of black-footed ferrets during the fall of 2005. Thanks are also extended to the Turner Endangered Species Fund for their assistance with preconditioning of captive born kits for Wyoming, and to the U.S. Forest Service and T. Livieri of Prairie Wildlife Research, for their assistance during translocation of wild born kits from Conata Basin, South Dakota. Lastly, the Department would like to recognize and thank the Barrett Oil Company and Biodiversity Conservation Alliance for providing financial support for the project.

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(SBWG) Shirley Basin/Medicine Bow Black-footed Ferret Working Group. 1991. A cooperative management plan for black-footed ferrets in Shirley Basin/Medicine Bow, Wyoming. Wyoming Game and Fish Department, Cheyenne.

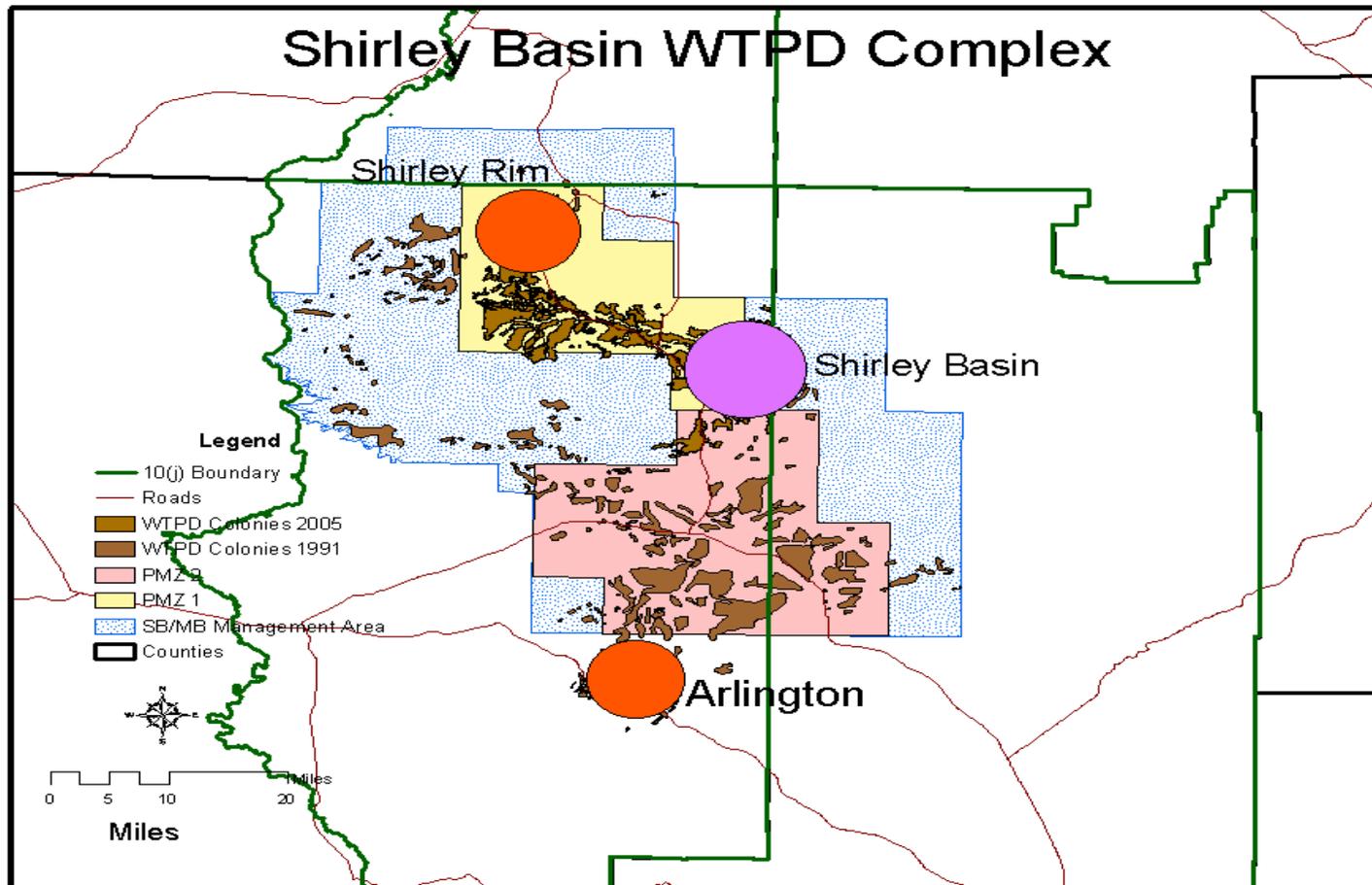


Figure 1. Location of the Shirley Basin, Shirley Rim, and Arlington black-footed ferret release sites within the Shirley Basin/ Medicine Bow Black-footed Ferret Management Area, Wyoming, 2005.

2005 Shirley Rim Ferret Releases

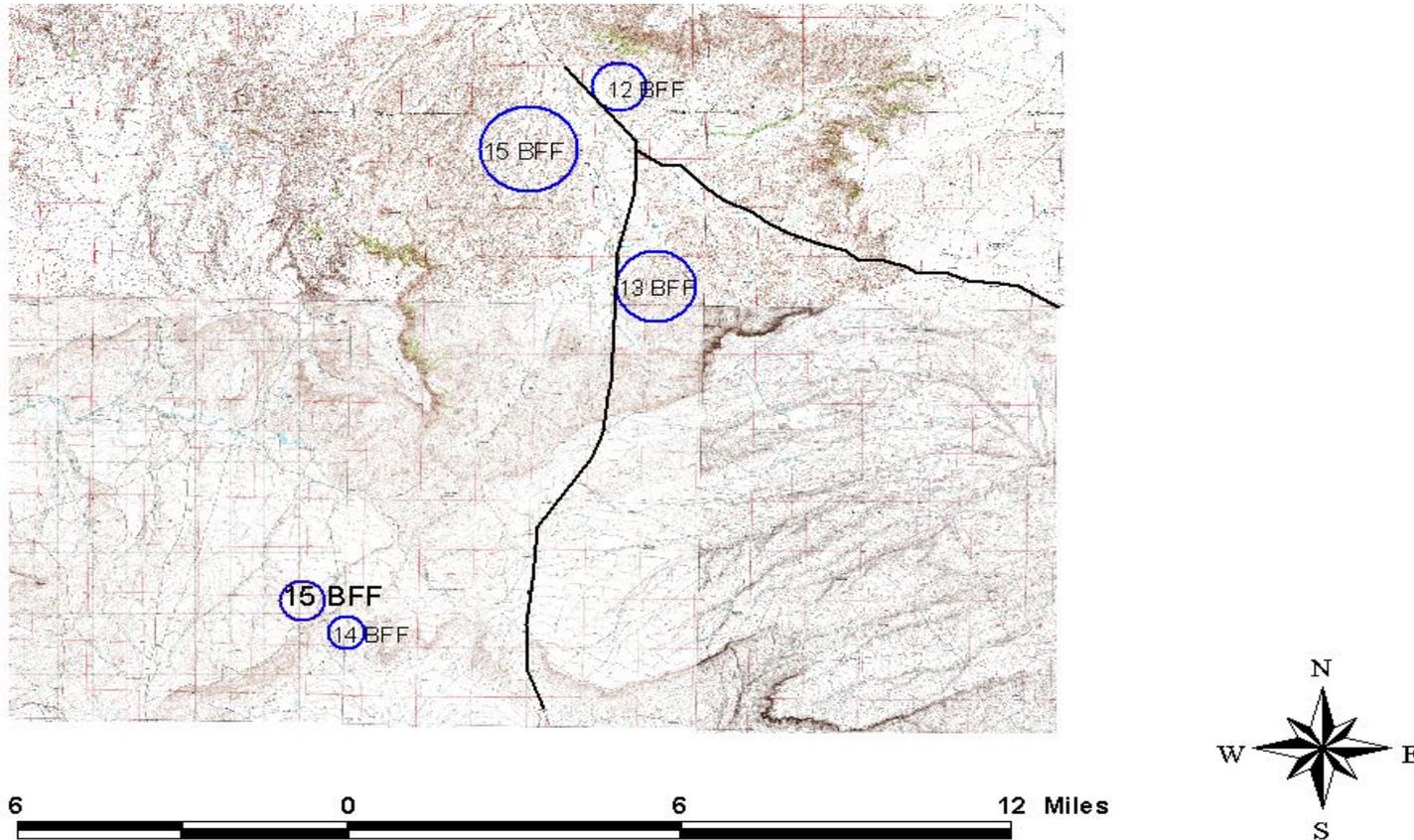


Figure 2. Approximate locations and numbers of black-footed ferrets released at the Shirley Rim site, Wyoming, 2005.

2005 Arlington Releases

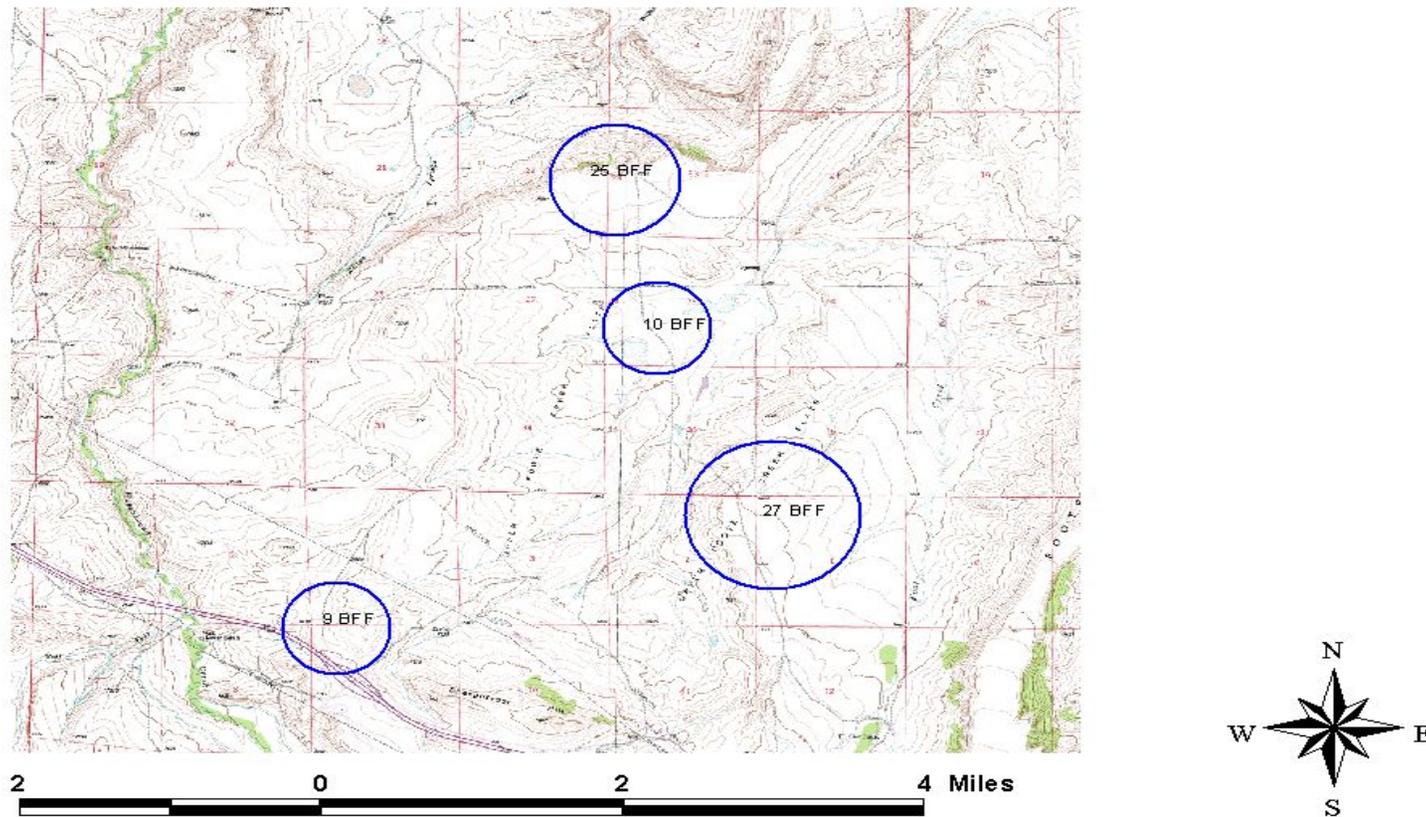


Figure 3. Approximate locations and numbers of black-footed ferrets released at the Arlington site, Wyoming, 2005.

Table 1. Black-footed ferrets released in the Shirley Basin/Medicine Bow Black-footed Ferret Management Area, Wyoming during the fall of 2005.

Date	Release Site	Place of Origin ¹	BFF #	Age/ Sex	Transponder # Head	Transponder # Rear
9/6/05	Shirley Rim	FCC	4772	JM		077-027-844
9/6/05	Shirley Rim	FCC	3886	AM		
9/6/05	Shirley Rim	FCC	3808	AM	049-075-689	
9/6/05	Shirley Rim	FCC	3968	AF	042-772-862	
9/6/05	Shirley Rim	FCC	4768	JM		077-2677820
9/21/05	Shirley Rim	FCC	4769	JM		077-053-320
9/21/05	Shirley Rim	FCC	4770	JF		076-633-091
9/21/05	Shirley Rim	FCC	4771	JF		076-884-066
9/21/05	Shirley Rim	FCC	4773	JM		076-790-515
9/21/05	Shirley Rim	FCC	4774	JM		076-841-338
9/21/05	Shirley Rim	FCC	4777	JM		077-274-022
9/29/05	Shirley Rim	CB	05-066	JM		
9/29/05	Shirley Rim	CB	05-080	JF		
9/29/05	Shirley Rim	CB	05-087	JF		
9/29/05	Shirley Rim	CB	05-094	JF		
9/29/05	Shirley Rim	CB	05-111	JM		
9/29/05	Shirley Rim	CB	05-112	JM		
9/29/05	Shirley Rim	CB	05-114	JF		
9/29/05	Shirley Rim	CB	05-115	JM		
9/29/05	Shirley Rim	CB	05-018	JF		
9/29/05	Shirley Rim	CB	05-021	JM		
9/29/05	Shirley Rim	CB	05-074	JF		
9/29/05	Shirley Rim	CB	05-116	JF		
9/29/05	Shirley Rim	CB	05-117	JF		
9/30/05	Shirley Rim	TESF	3912	AF	048-528-055	107-602-261
9/30/05	Shirley Rim	TESF	4916	JF	068-818-365	077-124-076
9/30/05	Shirley Rim	TESF	4927	JM	032-621-282	
9/30/05	Shirley Rim	TESF	4929	JF	032-619-853	068-065-834
9/30/05	Shirley Rim	TESF	4971	JF	067-769-263	076-823-579
9/30/05	Shirley Rim	TESF	4972	JF	107-622-614	076-787-080
9/30/05	Shirley Rim	TESF	3901	AF	048-615-312	068-063-021
9/30/05	Shirley Rim	TESF	4925	JM	032-623-023	067-893-835
9/30/05	Shirley Rim	TESF	4930	JF	032-626-891	068-036-127
						076-817-260/
9/30/05	Shirley Rim	TESF	4969	JM	068-011-544	068-018-840
9/30/05	Shirley Rim	TESF	P419	JF	067-846-075	067-852-852
10/10/05	Shirley Rim	FCC	3484	AM	107-273-549	076-793-591
10/10/05	Shirley Rim	FCC	3688	AM	048-536-257	
10/10/05	Shirley Rim	FCC	3802	AF		
10/10/05	Shirley Rim	FCC	3854	AF	057-066-292	
10/10/05	Shirley Rim	FCC	3859	AF	057-374-351	
10/10/05	Shirley Rim	FCC	4765	JF		077-065-360
10/10/05	Shirley Rim	FCC	4782	JF	107-267-339	
10/10/05	Shirley Rim	FCC	2/4/13	JM	107-120-355	

Table 1. Continued.

Date	Release Site	Place of Origin ¹	BFF #	Age/ Sex	Transponder # Head	Transponder # Rear
10/10/05	Shirley Rim	FCC	2/7/13	JF	107-308-593	
10/10/05	Shirley Rim	FCC	3/6/13	JM	107-261-563	
10/10/05	Shirley Rim	FCC	3/7/13	JM	107-285-069	
10/10/05	Shirley Rim	FCC	3/13/13	JM	107-113-367	
10/14/05	Shirley Rim	FCC	10/7/10	AF	048-573-563	
10/14/05	Shirley Rim	FCC	2/5/13	JM	107-264-636	
10/14/05	Shirley Rim	FCC	2/16/13	JM	107-299-081	
10/14/05	Shirley Rim	FCC	2/22/13	JF	107-263-854	
10/14/05	Shirley Rim	FCC	3/12/13	JM	107-305-039	
10/14/05	Shirley Rim	FCC	3/14/13	JF	107-124-866	
10/14/05	Shirley Rim	FCC	3/18/13	JM	107-117-805	
10/14/05	Shirley Rim	FCC	3/19/13	JM	107-123-889	
10/14/05	Shirley Rim	FCC	3/15/13	JF	107-264-351	
10/14/05	Shirley Rim	FCC	3/11/13	JF	107-300-087	
10/17/05	Shirley Rim	FCC	1/30/13	JM	107-285-004	
10/17/05	Shirley Rim	FCC	2/3/13	JF	107-266-286	
10/17/05	Shirley Rim	FCC	2/17/13	JF	107-267-029	
10/17/05	Shirley Rim	FCC	3/5/13	JM	107-127-068	
10/17/05	Shirley Rim	FCC	3/10/13	JM	107-263-330	
10/17/05	Shirley Rim	FCC	1/31/13	JM	107-265-337	
10/17/05	Shirley Rim	FCC	2/21/13	JM	107-107-872	
10/17/05	Shirley Rim	FCC	2/23/13	JF	107-268-070	
10/17/05	Shirley Rim	FCC	2/24/13	JF	107-264-531	
10/17/05	Shirley Rim	FCC	3/29/13	JF		076-880-304
10/24/05	Shirley Rim	FCC	3/20/10	AF	048-804-850	
10/24/05	Shirley Rim	FCC	7/21/10	AF	049-052-256	
10/24/05	Shirley Rim	FCC	10/12/10	AF	057-551-549	
10/24/05	Shirley Rim	FCC	10/19/10	AM	048-617-007	
10/24/05	Arlington	FCC	3950	AM	048-517-382	
10/24/05	Arlington	FCC	3970	AF	043-316-605	
10/24/05	Arlington	FCC	4030	AF	056-862-080	
10/24/05	Arlington	FCC	4165	AF	056-863-019	
10/24/05	Arlington	FCC	4763	JM		077-213-832
10/28/05	Arlington	FCC	4831	JM		107-290-633
10/28/05	Arlington	FCC	4876	JM		107-258-378
10/28/05	Arlington	TESF	4926	JM	032-628-351	107-627-519
10/28/05	Arlington	TESF	P418	JF	107-601-594	067-853-337
11/10/05	Arlington	FCC	3699	AM	032-628-039	
11/10/05	Arlington	FCC	3817	AM	048-563-582	
11/10/05	Arlington	FCC	3897	AF		
10/24/05	Arlington	FCC	4763	JM		077-213-832
11/10/05	Arlington	FCC	3932	AF	048-636-011	
11/10/05	Arlington	FCC	4005	AF	057-059-789	
11/10/05	Arlington	FCC	4806	JM		107-309-589
11/10/05	Arlington	FCC	4807	JM	107-113-630	

Table 1. Continued.

Date	Release Site	Place of Origin ¹	BFF #	Age/ Sex	Transponder # Head	Transponder # Rear
11/10/05	Arlington	FCC	4812	JM	048-577-037	
11/10/05	Arlington	FCC	5035	JM	077-124-326	
11/10/05	Arlington	FCC	5050	JM	077-085-855	
11/18/05	Arlington	FCC	3931	AF	048-786-809	
11/18/05	Arlington	FCC	3941	AM		107-281-540
11/18/05	Arlington	FCC	3947	AF	032-619-572	
11/18/05	Arlington	FCC	4871	JM		107-292-089
11/18/05	Arlington	FCC	4896	AM		107-122-110
11/18/05	Arlington	FCC	4907	JM	076-776-518	
11/18/05	Arlington	FCC	4908	JM	076-781-354	
11/18/05	Arlington	FCC	4910	JM		107-111-074
11/18/05	Arlington	FCC	4913	JM		107-113-091
11/18/05	Arlington	FCC	5049	JM	076-775-349	
11/18/05	Arlington	FCC	5075	JM	107-126-069	
11/10/05	Arlington	FCC	3932	AF	048-636-011	
11/10/05	Arlington	FCC	4005	AF	057-059-789	
11/10/05	Arlington	FCC	4806	JM		107-309-589
11/10/05	Arlington	FCC	4807	JM	107-113-630	
11/10/05	Arlington	FCC	4812	JM	048-577-037	
11/10/05	Arlington	FCC	5035	JM	077-124-326	
11/10/05	Arlington	FCC	5050	JM	077-085-855	
11/16/05	Arlington	FCC	3627	AF	039-114-820	039-118-332
11/16/05	Arlington	FCC	3751	AF	048-809-298	
11/16/05	Arlington	FCC	4130	AF	056-849-555	
11/16/05	Arlington	FCC	4788	JM	076-778-812	
11/16/05	Arlington	FCC	4864	JM	077-058-609	
11/16/05	Arlington	FCC	4870	JM		107-120-580
11/16/05	Arlington	FCC	4892	JM		107-109-026
11/16/05	Arlington	FCC	4897	JM		107-127-615
11/16/05	Arlington	FCC	5048	JM	077-121-104	
11/16/05	Arlington	FCC	5049	JF	077-077-383	
11/23/05	Arlington	FCC	3533	AF	049-010-560	
11/23/05	Arlington	FCC	3756	AF	048-596-870	
11/23/05	Arlington	FCC	3944	AF		
11/23/05	Arlington	FCC	3948	AF	042-850-006	
11/23/05	Arlington	FCC	4839	JM	048-550-885	
11/23/05	Arlington	FCC	4862	JM	048-573-082	
11/23/05	Arlington	FCC	4872	JM		107-271-631
11/23/05	Arlington	FCC	4906	JM	048-769-372	
11/23/05	Arlington	FCC	4905	JM	048-585-259	
11/23/05	Arlington	FCC	5006	JM	107-124-566	
11/23/05	Arlington	FCC	5051	JM	076-820-630	
11/23/05	Arlington	FCC	5072	JM		107-258-617
11/23/05	Arlington	FCC	5077	JM	107-302-265	
12/7/05	Arlington	FCC	3434	AM	057-005-894	

Table 1. Continued.

Date	Release Site	Place of Origin ¹	BFF #	Age/ Sex	Transponder # Head	Transponder # Rear
12/7/05	Arlington	FCC	3723	AF	048-782-370	
12/7/05	Arlington	FCC	3744	AF	048-794-360	
12/7/05	Arlington	FCC	3748	AM	048-629-094	
12/7/05	Arlington	FCC	3864	JF	048-797-276	
12/7/05	Arlington	FCC	3937	AF	048-787-886	
12/7/05	Arlington	FCC	3959	AF	042-844-769	
12/7/05	Arlington	FCC	4947	JF	107-284-307	107-117-376
12/7/05	Arlington	FCC	4978	JM	107-299-030	107-276-103
12/7/05	Arlington	FCC	5094	JM	077-054-811	
12/7/05	Arlington	FCC	5109	JM		107-303-568
12/7/05	Arlington	FCC	5110	JM		107-259-119
12/7/05	Arlington	FCC	5113	JF		107-121-828
12/7/05	Arlington	FCC	GRANT	AM	043-123-305	
1/7/06	Arlington	FCC	4029	AF	056-841-115	
1/7/06	Arlington	FCC	3445	AF	042-800-843	
11/23/05	Arlington	FCC	5006	JM	107-124-566	
11/23/05	Arlington	FCC	5051	JM	076-820-630	
11/23/05	Arlington	FCC	5072	JM		107-258-617
11/23/05	Arlington	FCC	5077	JM	107-302-265	
12/7/05	Arlington	FCC	3434	AM	057-005-894	
12/7/05	Arlington	FCC	3723	AF	048-782-370	
12/7/05	Arlington	FCC	3744	AF	048-794-360	
12/7/05	Arlington	FCC	3748	AM	048-629-094	
12/7/05	Arlington	FCC	3864	JF	048-797-276	
12/7/05	Arlington	FCC	3937	AF	048-787-886	
12/7/05	Arlington	FCC	3959	AF	042-844-769	
12/7/05	Arlington	FCC	4947	JF	107-284-307	107-117-376
12/7/05	Arlington	FCC	4978	JM	107-299-030	107-276-103
12/7/05	Arlington	FCC	5094	JM	077-054-811	
12/7/05	Arlington	FCC	5109	JM		107-303-568
12/7/05	Arlington	FCC	5110	JM		107-259-119
12/7/05	Arlington	FCC	5113	JF		107-121-828
12/7/05	Arlington	FCC	GRANT	AM	043-123-305	
1/7/06	Arlington	FCC	4029	AF	056-841-115	
1/7/06	Arlington	FCC	3445	AF	042-800-843	

¹ FCC = U.S. Fish and Wildlife Service Ferret Conservation Center.
 CB = Conata Basin, South Dakota.
 TESF = Turner Endangered Species Fund, New Mexico.

Table 2. Black-footed ferrets released at the Shirley Rim and Arlington sites in the Shirley Basin/Medicine Bow Black-footed Ferret Management Area, Wyoming, 2005.

Location	Adult Female	Adult Male	Juvenile Female	Juvenile Male	Total
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Arlington	9	4	28	28	69
Total	33	13	33	61	140

**SPOTLIGHTING FOR FREE RANGING BLACK-FOOTED FERRETS IN THE
SHIRLEY BASIN/MEDICINE BOW MANAGEMENT AREA, WYOMING
COMPLETION REPORT**

STATE OF WYOMING

NONGAME MAMMALS – Species of Special Concern
Black-Footed Ferret

PERIOD COVERED: 15 April 2005 – 14 April 2006

PREPARED BY: Martin Grenier, Nongame Mammal Biologist
Laurie Van Fleet, Nongame Biologist
Bob Oakleaf, Nongame Coordinator
Todd Filipi, Nongame Seasonal Biologist
Jeremi Artery, Nongame Seasonal Biologist

INTRODUCTION

From 1991 to 1994, 228 black-footed ferrets were released in Shirley Basin, Wyoming. Black-footed ferret releases were terminated in 1994 as a result of a sylvatic plague epizootic and a declining prairie dog population. Spotlight surveys for black-footed ferrets were conducted in 1991-1997, 2000-2001, and 2003-2005. No black-footed ferret surveys were conducted in 1998, 1999, and 2002.

Spotlight surveys were conducted during mid-August to early September in an effort to locate black-footed ferrets and their kits. Attempts were made to capture and mark all ferrets located during the 2003, 2004, and 2005 surveys.

METHODS

Spotlight survey areas were established prior to the start of surveying based on available time and personnel, and the interspersions of two-track and other roads within Shirley Basin. Surveyors were assigned survey area based on accessibility. Areas accessible only by foot were approximately 300 acres (121 ha) in size. Survey areas accessible entirely or partially by vehicle were approximately 600 acres (242 ha) in size. Actual survey areas varied by prairie dog colony and were highlighted on photocopies of 7.5-minute quadrangle maps.

Spotlighting surveys on individual survey areas were conducted for three consecutive nights (Clarke et al. 1984, Campbell et al. 1985, USFWS 1989). Vehicles equipped with roof mounted Lightforce 1,000,000 candle power spotlights, and/or hand held 200,000 to 400,000 candle power Q Beam spotlights, were repeatedly driven along

two-track roads in prairie dog colonies, along county roads, and State Highways 77 and 487 where they traversed prairie dog colonies. Sections of prairie dog colonies not surveyable from a vehicle were traversed by personnel wearing a backpack unit. Backpack units were equipped with a 12-volt gel-cell battery (Dynasty # U1-31) and a 200,000-candle power Q Beam spotlight or a Lightforce Walkabout portable spotlight kit with a 30-watt spotlight. Batteries were recharged as necessary.

RESULTS

Surveys were planned for a total of 27 days during August and September 2005. Rain resulted in the early termination of surveys on two occasions. During the 27 nights of surveys, personnel spent a total 1,347 hrs spotlighting. A total of 576.8 hrs were spent spotlighting from vehicles and an additional 770.2 hrs were spent spotlighting on foot. Survey hours were approximately 2000 to 0100 and 0200 to 0600 (MST) each night. In 2005, 18 prairie dog colonies were surveyed in their entirety encompassing approximately 20,682 acres (8,370 ha) (Figure 1). Colonies ≤ 150 acres (61 ha) were not surveyed. We estimate that only about 15% of the potential prairie dog acreage in Shirley Basin was surveyed during the summer of 2005. Over 350 observations of ferrets were made during the survey. A minimum of 147 discreet black-footed ferrets and 33 litters were observed (Table 1). Of the 147 ferrets observed, a minimum of 43 were adults and 104 were kits. A minimum of 207 non-discreet black-footed ferret were observed (Table 2). Approximate ferret litter and adult male locations are presented in Figure 2.

Concurrent with spotlight surveys, 85 ferrets were captured (Table 2). Captured ferrets were immobilized using isoflurane (Kreeger et al. 1998), injected with AVID® passive integrated transponder implants (PIT-tags), and uniquely marked with hair dye. Ferrets were assigned to juvenile or adult age classes by palpation of the sagittal crest, examination of dentition and tooth wear, and reproductive status (Thorne et al. 1985). Following a brief recovery period, ferrets were returned to the burrow from which they were captured. No blood samples were collected from any of the ferrets in 2005. All ferrets captured were in good physical condition and one juvenile male was observed with a short-kinked tail.

Sightings of species other than black-footed ferrets during summer surveys totaled 228. Observation times are presented in Table 3. Swift fox, badger, and coyote were the most commonly observed species (Figure 3). Swift foxes, badgers, and coyotes required only 4.8, 18.5, and 30.6 hours per observation, respectively (Figure 4). No attempt was made to eliminate repeat sightings of non-target species. One ferret was observed approximately every 3.8 hours and a discreet black-footed ferret was observed only once per 9.2 survey hours (Figure 4).

DISCUSSION

Spotlighting has been an effective technique for locating black-footed ferrets during previous studies (Campbell et al. 1985, Hnilicka and Luce 1992). However, this technique was not developed to monitor population trends. As such, the current minimum number known alive reported lacks a variance estimate necessary to track changes in population size. Given this drawback, and that survey results are confounded by changes in timing, intensity, and effort, the reported minimum number known alive (Krebs 1966, MNKA) in recent years appears to indicate an increasing black-footed ferret population in Shirley Basin.

Past completion reports have expressed concern about ferrets exhibiting avoidance behavior with respect to spotlights and possibly human or vehicle presence (Hnilicka and Luce 1992). It is assumed that an unknown proportion of the black-footed ferret population remains uncounted during the surveys, but no correction estimator has been developed to date. Data reported on discreet black-footed ferret observations are considered MNKA.

Surveys results since 2000 indicate that the black-footed ferret population in the Shirley Basin/Medicine Bow Management Area appears to be rebounding from the stochastic events (e.g., sylvatic plague, canine distemper, flooding) encountered during 1991-1995. Although this is the first time this area has been surveyed in its entirety, we suspect, given the relatively small survey effort, that ferrets may be more abundant and widespread than these results indicate. Ferrets were observed again for the second year west of the highway 487/77 junction. Ferrets were also observed for the first time just north of Sheep Creek.

Fifteen of 52 (29%) ferrets marked in 2003 or 2004 have been recaptured to date. In 2005, 15% (13 of 85) ferrets were recaptures from previous years. All demographic sexes and cohort groups are represented in the recaptures. At least three individuals were recaptured in 2005 >3 miles (4.8 km) from their original capture site.

The combined results indicate that Shirley Basin ferrets are in very good physical and reproductive condition. Moreover, recent preliminary ferret demographic analysis indicates that, due to short generation times, reduced genetic variability may not be as significant as with other longer lives species (D. Mc Donald, University of Wyoming, personal communication). As such, future management of this population must be well planned and warrant a conservative approach. In cooperation with the University of Wyoming and private landowners, the Wyoming Game and Fish Department (Department) will be increasing survey effort in 2006 to gather additional demographic data needed to guide future management of the species.

The increase in detections of black-footed ferrets in the last two survey years is believed to be a direct result of a change in timing of the surveys and increased survey effort. Summer spotlight surveys prior to 2003 were usually initiated in late July or during the first week of August and completed by the second week of August. Detections

often peaked during the last week of the survey effort (e.g., second week of August). In 2003, other priorities precluded initiation of spotlight surveys during the normal survey period; therefore, surveys were not initiated until the second week of August. We suspect that as a result of the serendipitous change in timing of the surveys, that the juvenile ferrets were more detectable than in early August. Moreover, survey intensity, for example person-hours per acre, has increased during the last two years and is nearly double the intensity of previous years.

Although some litters appeared to have already dispersed, capturing and marking individuals in 2003, 2004, and 2005 enabled better identification of litter production. Likewise, PIT-tagging of captured ferrets improved counts of individual ferrets. We suspect that litter production may have been underestimated prior to 2003 because inexperienced surveyors may have easily confused these single ferrets as non-reproductive adults in previous years. Since trapping was initiated in 2003, we have yet to capture an adult female that did not produce a litter.

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2005 Ferret Surveys

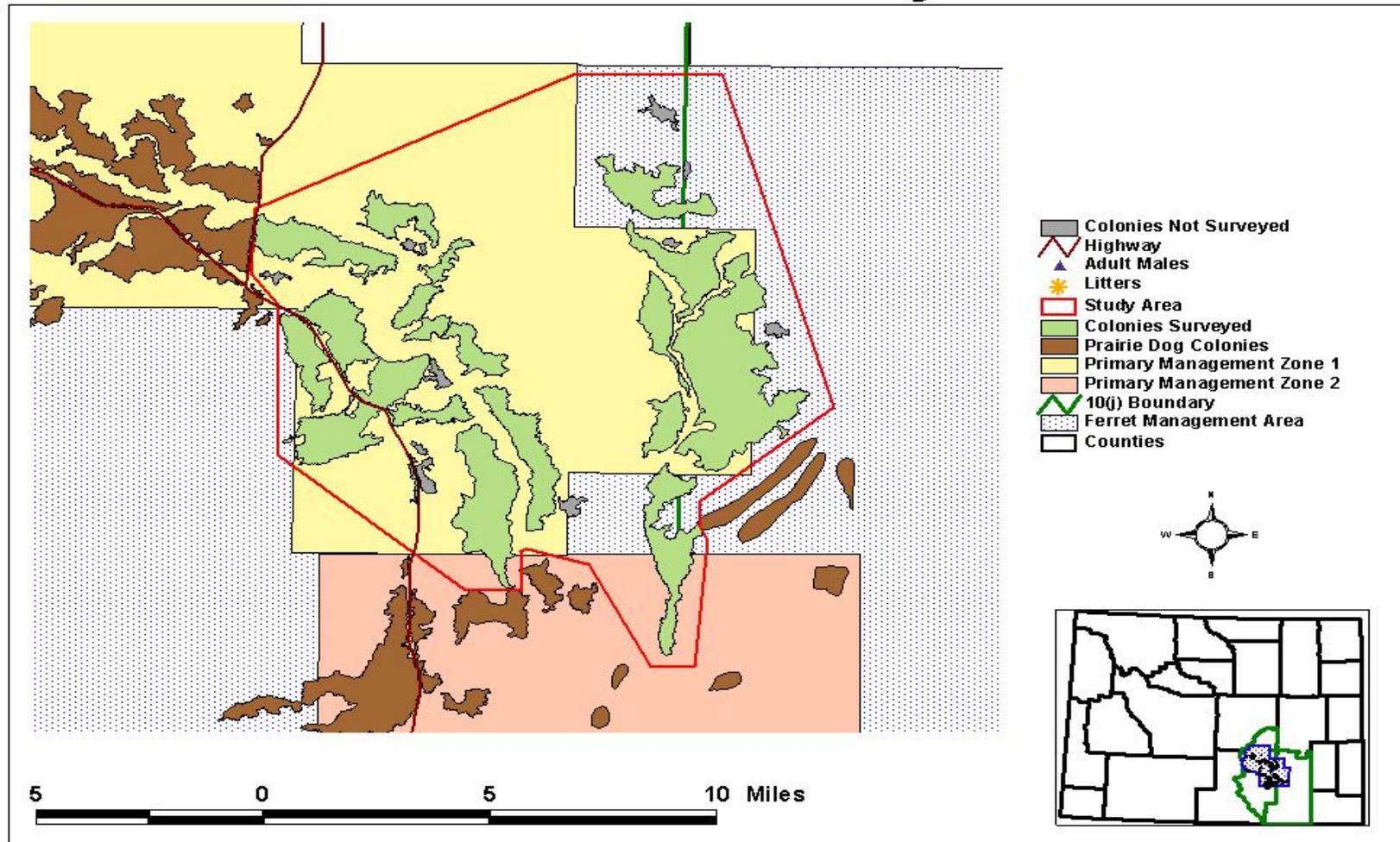


Figure 1. White-tailed prairie dog colonies surveyed in Shirley Basin, Wyoming, 2005.

2005 Ferret Surveys

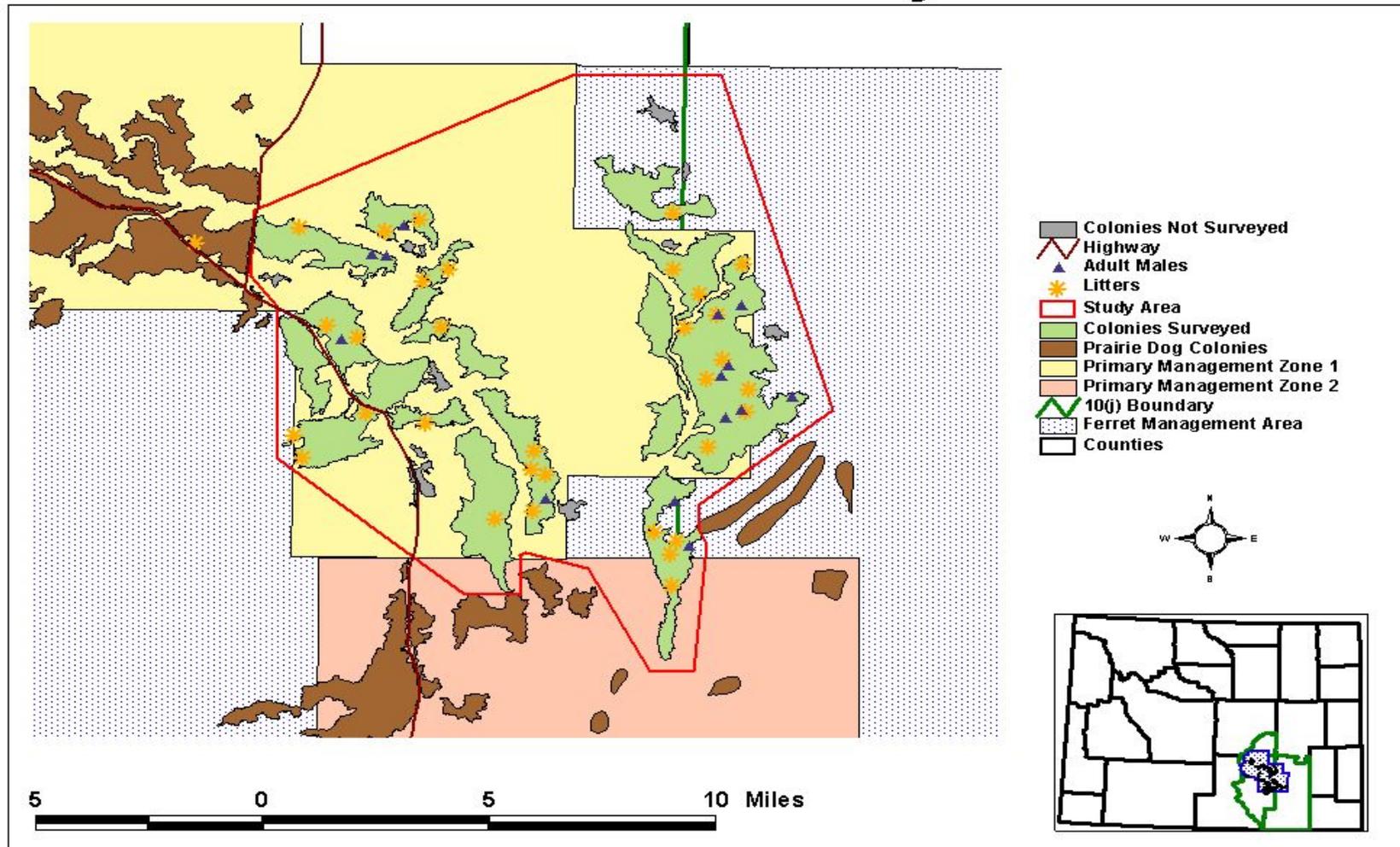
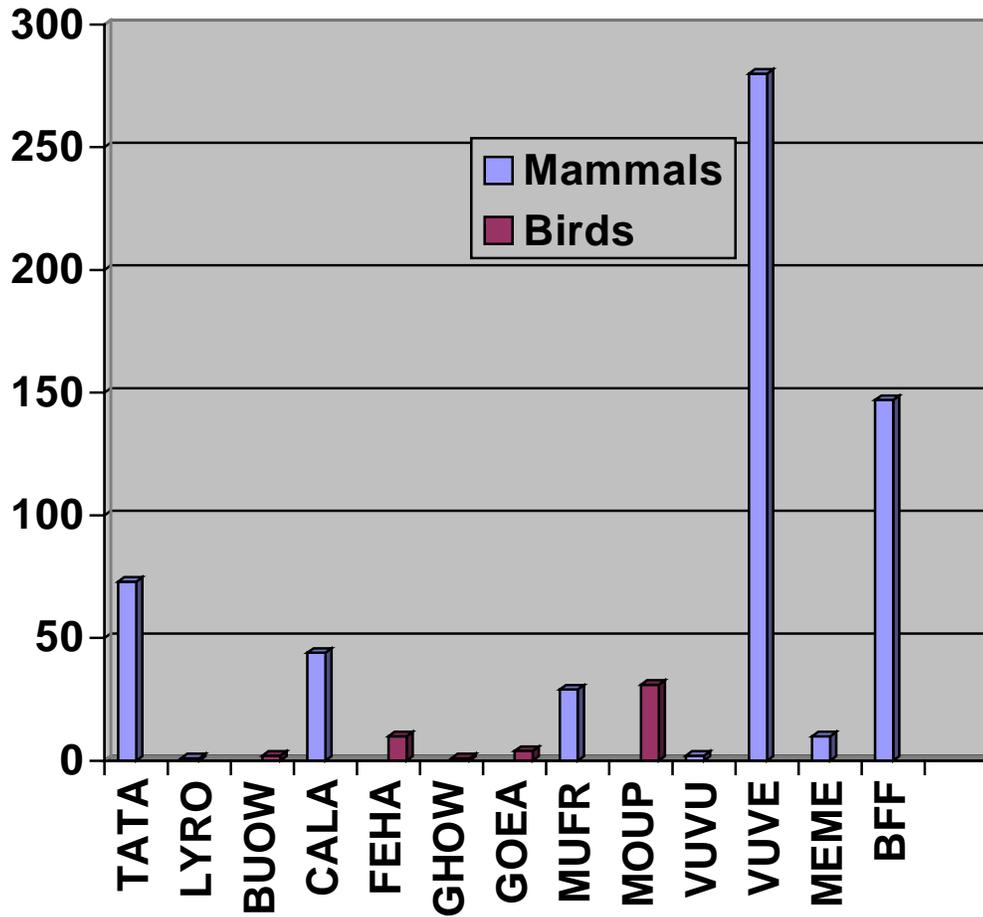


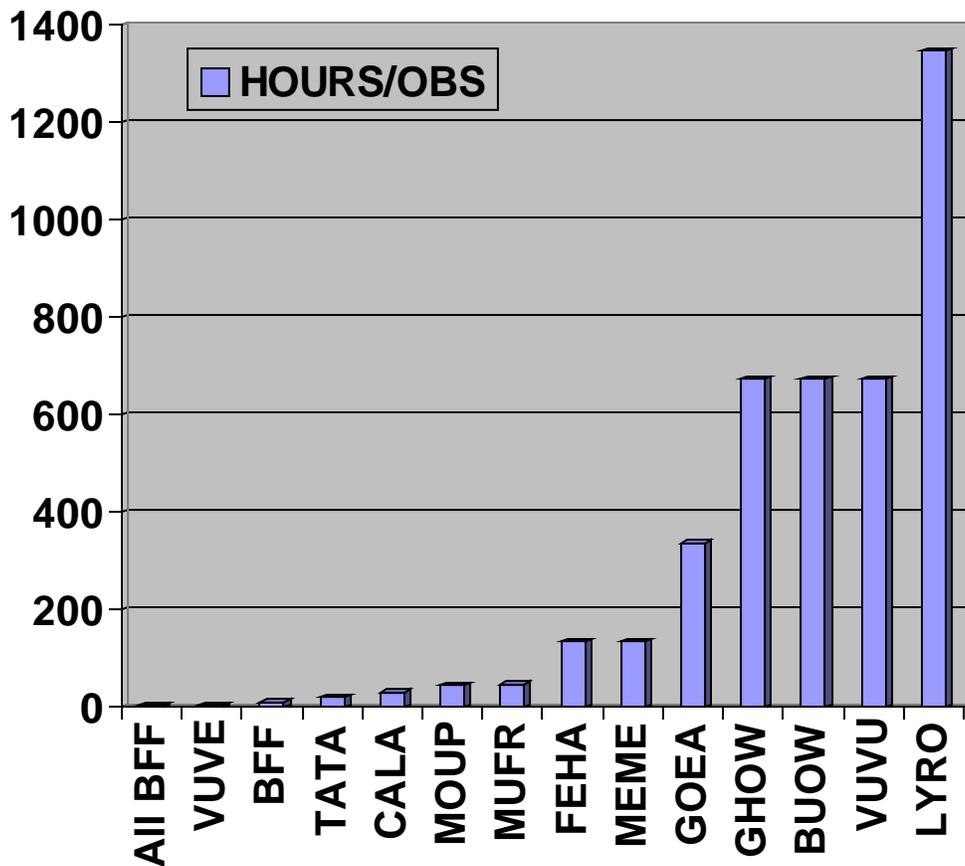
Figure 2. Locations of black-footed ferret litters and adult males in Shirley Basin, Wyoming, 2005.



Legend:

- TATA = Badger
- LYRO = Bobcat
- BUOW = Burrowing Owl
- CALA = Coyote
- FEHA = Ferruginous Hawk
- GHOW = Great Horned Owl
- GOEA = Golden Eagle
- MUFR = Long-tailed Weasel
- MOUP = Mountain Plover
- VUVU = Red Fox
- VUVE = Swift fox
- MEME = Striped Skunk
- BFF = Black-footed Ferret

Figure 3. Number of sightings of all species observed during spotlight surveys in Shirley Basin, Wyoming 2005.



Legend:

- BFF = Black-footed Ferret
- VUVU = Red Fox
- TATA = Badger
- CALA = Coyote
- MOUP = Mountain Plover
- MUFR = Long-tailed Weasel
- FEHA = Ferruginous Hawk
- MEME = Striped Skunk
- GOEA = Golden Eagle
- GHOW = Great Horned Owl
- BUOW = Burrowing Owl
- VUVU = Red Fox
- LYRO = Bobcat

Figure 4. Number of hours surveyed per observation for each of the 10 most commonly observed species during 644 hours of spotlight surveys in Shirley Basin, Wyoming, August 2005.

Table 1. Black-footed ferret observations during spotlight surveys conducted in August and September in Shirley Basin, Wyoming, 2005.

Discrete Sightings

Obs. #	Date	Time	Colony #	Observer	Sex	Age	Litter #	Comments
1	8/14/05	20:45	554	T. Livieri	A	F	2 of 5a	
2	8/14/05	21:10	554	T. Livieri	A	F	1 of 4b	lactating
3	8/14/05	21:10	554	T. Livieri	J	M	2 of 4b	
4	8/14/05	21:10	554	T. Livieri	J	F	3 of 4b	
5	8/14/05	21:10	554	T. Livieri	J	U	4 of 4b	
6	8/14/05	23:50	551	J. Artery	A	F	1 of 4c	lactating
7	8/14/05	23:50	551	J. Artery	J	F	2 of 4c	incomplete
8	8/14/05	2:00	551	J. Artery	J	M	4 of 4c	
9	8/14/05	2:15	554	T. Livieri	M	A	1 of 1	
10	8/14/05	5:15	554	C. Palmer	J	U	1 of 5a	
11	8/14/05	5:46	551	J. Artery	J	U	3 of 4c	
12	8/16/05	22:10	556	T. Filipi	A	F	1 of 4d	incomplete
13	8/16/05	22:10	556	T. Filipi	J	U	2 of 4d	
14	8/16/05	22:10	556	T. Filipi	J	U	3 of 4d	
15	8/16/05	23:30	556	L. Van Fleet	A	M	1 of 1	
16	8/16/05	23:45	556	T. Livieri	A	F	1 of 2j	
17	8/16/05	2:15	556	T. Livieri	J	M	2 of 4h	incomplete
18	8/16/05	2:30	556	N. Maxon	A	F	1 of 4h	
19	8/16/05	2:45	556	T. Filipi	J	U	4 of 4d	
20	8/16/05	2:50	556	L. Van Fleet	A	F	1 of 4f	lactating
21	8/16/05	4:15	556	T. Filipi	A	M	1 of 1	
22	8/16/05	5:30	556	T. Livieri	A	F	1 of 4i	
23	8/16/05	5:50	556	L. Van Fleet	A	M	1 of 1	
24	8/17/05	20:45	556	M. Grenier	J	M	2 of 4i	
25	8/17/05	20:45	556	M. Grenier	J	F	3 of 4i	
26	8/17/05	20:45	556	M. Grenier	J	F	4 of 4i	
27	8/17/05	21:45	556	M. Grenier	A	M	1 of 1	
28	8/17/05	21:45	556	M. Grenier	J	U	2 of 2j	
29	8/17/05	22:05	556	M. Grenier	A	F	1 of 4k	
30	8/17/05	22:05	556	M. Grenier	J	M	2 of 4k	
31	8/17/05	22:45	556	S. Gray	J	U	1 of 4l	
32	8/17/05	0:55	556	N. Maxon	A	M	1 of 1	
33	8/17/05	2:00	556	L. Van Fleet	J	U	2 of 4f	
34	8/17/05	2:30	556	S. Gray	J	F	2 of 4l	
35	8/17/05	2:45	556	M. Grenier	J	U	3 of 4k	

Table 1. Continued.

Discrete Sightings

Obs. #	Date	Time	Colony #	Observer	Sex	Age	Litter #	Comments
36	8/17/05	3:20	556	L. Van Fleet	J	U	3 of 4f	
37	8/18/05	20:25	556	N. Maxon	J	U	3 of 4h	
38	8/18/05	21:20	556	S. Gray	A	F	1 of 4l	
39	8/18/05	22:10	556	G. Wardle	A	M	1 of 1	
40	8/18/05	0:40	556	L. Van Fleet	J	M	4 of 4f	
41	8/18/05	0:42	556	S. Korte	J	U	2 of 4g	
42	8/18/05	2:45	556	S. Gray	J	M	4 of 4l	
43	8/18/05	3:00	556	B. Jensen	A	M	1 of 1	
44	8/18/05	3:45	556	M. Grenier	J	U	4 of 4k	
45	8/18/05	4:04	556	S. Korte	J	U	3 of 4g	
46	8/18/05	4:38	556	S. Korte	J	U	4 of 4g	
47	8/19/05	20:25	556	N. Maxon	J	U	4 of 4h	
48	8/21/05	23:00	559	C. Cotton	A	M	1 of 1	
49	8/20/05	0:30	559	S. Carleton	A	F	1 of 3n	lactating
50	8/20/05	0:30	559	S. Carleton	J	U	2 of 3n	
51	8/20/05	0:45	559	S. Carleton	J	F	3 of 3n	
52	8/20/05	4:15	559	C. Cotton	J	U	2 of 2o	
53	8/21/05	1:45	559	C. Cotton	A	F	1 of 5m	lactating
54	8/21/05	1:45	559	C. Cotton	J	F	2 of 5m	
55	8/21/05	1:45	559	C. Cotton	J	F	3 of 5m	
56	8/21/05	1:45	559	C. Cotton	J	U	4 of 5m	
57	8/21/05	1:45	559	C. Cotton	J	U	5 of 5m	
58	8/21/05	2:35	554	L. Lutz	J	M	3 of 5a	
59	8/21/05	2:35	554	L. Lutz	J	F	4 of 5a	
60	8/21/05	2:35	554	L. Lutz	J	F	5 of 5a	
61	8/21/05	3:45	559	J. Artery	A	M	1 of 1	
62	8/21/05	4:05	559	P. Dailey	A	F	1 of 5e	lactating
63	8/21/05	4:05	559	P. Dailey	J	U	2 of 5e	
64	8/21/05	4:05	559	P. Dailey	J	U	3 of 5e	
65	8/21/05	4:05	559	P. Dailey	J	U	4 of 5e	
66	8/21/05	4:05	559	P. Dailey	J	U	5 of 5e	
67	8/22/05	3:45	559	J. Artery	J	U	4 of 5n	
68	8/22/05	3:45	559	J. Artery	J	U	5 of 5n	
69	8/22/05	5:00	559	S. Van Grinsven	A	F	1 of 2o	lactating
70	8/23/05	23:56	517	S. Korte	J	M	1 of >>	

Table 1. Continued.

Discrete Sightings

Obs. #	Date	Time	Colony #	Observer	Sex	Age	Litter #	Comments
71	8/23/05	0:28	556	C. Dobey	A	F	1 of 4g	lactating
72	8/23/05	3:30	519	N. Maxon	J	F	2 of 2p	
73	8/24/05	0:45	519	S. Gray	U	U	1 of 2p	
74	8/24/05	4:15	519	N. Maxon	A	M	1 of 1	
75	8/25/05	20:35	519	S. Gray	J	U	5 of 5q	
76	8/25/05	4:30	519	S. Gray	A	F	1 of 5q	
77	8/25/05	4:30	519	S. Gray	J	M	2 of 5q	
78	8/25/05	4:30	519	S. Gray	J	U	3 of 5q	
79	8/25/05	4:30	519	S. Gray	J	U	4 of 5q	
80	8/27/05	2:34	509	M. Grenier	A	F	1 of 4s	
81	8/27/05	2:36	509	M. Grenier	J	F	2 of 4s	
82	8/27/05	2:36	509	M. Grenier	J	U	3 of 4s	
83	8/27/05	2:36	509	M. Grenier	J	U	4 of 4s	
84	8/27/05	4:20	510	P. Dailey	A	F	1 of 6t	
85	8/27/05	4:20	510	P. Dailey	J	F	2 of 6t	
86	8/27/05	4:20	510	P. Dailey	J	F	3 of 6t	
87	8/27/05	4:20	510	P. Dailey	J	F	4 of 6t	
88	8/27/05	4:20	510	P. Dailey	J	U	5 of 6t	
89	8/27/05	4:20	510	P. Dailey	J	U	6 of 6t	
90	8/28/05	4:00	509	M. Grenier	A	M	1 of 1	
91	8/28/05	4:15	509	C. Palmer	J	U	3 of 3r	
92	8/28/05	4:45	509	C. Palmer	J	M	3 of 4HH	
93	8/28/05	21:05	509	C. Palmer	J	U	2 of 3r	
94	8/28/05	21:05	509	C. Palmer	A	F	1of 3r	
95	8/30/05	21:45	518	E. Norelius	J	M	1of u	
96	8/30/05	4:10	515	L. Van Fleet	A	F	1 of 6w	
97	8/30/05	4:15	520	B. Miller	A	M	1 of 1	
98	8/30/05	4:40	515	L. Van Fleet	J	M	2 of 6w	
99	8/30/05	4:40	515	L. Van Fleet	J	M	3 of 6w	
100	8/31/05	20:15	520	C. Leonard	J	U	2 of 4x	
101	8/31/05	20:15	520	C. Leonard	J	U	3 of 4x	
102	8/31/05	20:30	520	B. Miller	A	F	1 of 6y	
103	8/31/05	20:30	520	B. Miller	J	F	2 of 6y	
104	8/31/05	20:45	515	L. Van Fleet	J	M	4 of 6w	
105	8/31/05	20:55	515	L. Van Fleet	J	F	5 of 6w	

Table 1. Continued.

Discrete Sightings

Obs. #	Date	Time	Colony #	Observer	Sex	Age	Litter #	Comments
106	8/31/05	21:30	520	B. Miller	J	U	3 of 6y	
107	8/31/05	0:45	515	L. Van Fleet	J	F	6 of 6w	
108	8/31/05	2:45	520	C. Leonard	A	F	1 of 4x	
109	8/31/05	2:45	520	C. Leonard	J	U	4 of 4x	
110	9/1/05	3:00	509	E. Norelius	A	F	1 of 6v	
111	9/1/05	3:00	520	B. Miller	J	U	4 of 6y	
112	9/1/05	3:00	520	B. Miller	J	F	5 of 6y	
113	9/1/05	3:00	520	B. Miller	J	U	6 of 6y	
114	9/3/05	21:15	509	J. Artery	J	U	2 of 4GG	
115	9/3/05	21:15	509	J. Artery	J	U	4 of 4GG	
116	9/3/05	21:20	509	J. Artery	J	U	3 of 4GG	
117	9/3/05	4:45	521	C. Palmer	J	U	2 of 4z	
118	9/4/05	20:40	509	J. Artery	A	F	1 of 4GG	
119	9/5/05	20:05	521	M. Grenier	J	F	3 of 4z	
120	9/5/05	20:05	521	M. Grenier	J	M	4 of 4z	
121	9/5/05	21:15	521	P. Dailey	J	U	1 of BB?	
122	9/5/05	21:52	521	J. Artery	U	U	1 of AA?	
123	9/5/05	22:45	521	M. Grenier	A	F	1 of 4z	
124	9/6/05	2:30	529	B. Oakleaf	A	F	1 of 3FF	
125	9/6/05	3:30	527	N. Whitford	J	F	4 of 6DD	
126	9/6/05	3:50	533	N. Maxon	U	U	1 of 2CC	
127	9/6/05	4:00	527	L. Van Fleet	A	M	1 of 1	
128	9/6/05	4:30	527	N. Whitford	J	M	2 of 6DD	
129	9/7/05	4:30	529	B. Oakleaf	A	M	1 of 1	
130	9/7/05	20:10	527	L. Van Fleet	J	M	4 of 4EE	
131	9/7/05	20:30	533	N. Maxon	U	U	2 of	
132	9/8/05	20:25	533	N. Maxon	U	U	1 of 1	
133	9/8/05	23:41	509	C. Reynolds	J	M	2 of 6v	
134	9/13/05	20:04	527	L. Van Fleet	J	M	3 of 6DD	
135	9/13/05	20:15	527	L. Van Fleet	A	F	1 of 6DD	
136	9/13/05	20:37	527	L. Van Fleet	A	M	1 of 1	
137	9/13/05	23:00	527	L. Van Fleet	J	M	5 of 6DD	
138	9/13/05	0:00	529	B. Oakleaf	J	M	2 of 4EE	
139	9/13/05	0:00	529	B. Oakleaf	J	M	3 of 4EE	
140	9/13/05	0:00	529	B. Oakleaf	A	F	1 of 4EE	

Table 1. Continued.

Discrete Sightings

Obs. #	Date	Time	Colony #	Observer	Sex	Age	Litter #	Comments
141	9/14/05	0:10	529	B. Oakleaf	J	U	2 of 3FF	
142	9/14/05	0:10	529	B. Oakleaf	J	U	3 of 3FF	
143	9/14/05	20:30	527	M. Grenier	J	M	6 of 6DD	
144	9/15/05	5:00	509	T. Filipi	J	U	6 of 6v	
145	9/15/05	20:12	509	T. Filipi	J	U	5 of 6v	
146	9/15/05	21:07	509	T. Filipi	J	M	3 of 6v	
147	9/15/05	23:28	509	T. Filipi	J	F	4 of 6v	

Table 1. Continued.

Non-Discrete Sightings

Obs. #	Date	Time	Colony #	Observer	Sex	Age	Litter #	Comments
1	8/15/05	3:05	551	J. Artery	J	F	2 of 4c	
2	8/15/05	21:30	554	T. Livieri	F	A	1 of 4b	lactating
3	8/15/05	21:45	554	T. Livieri	J	U	2 of 4b	
4	8/15/05	23:05	551	J. Artery	J	M	4 of 4c	
5	8/16/05	2:45	556	T. Filipi	J	U	4 of 4d	
6	8/17/05	0:30	556	M. Grenier	A	M	1 of 1	
7	8/17/05	0:30	556	B. Jensen	U	U	1 of j	
8	8/17/05	3:50	556	S. Korte	A	F?	2 of 4d	
9	8/17/05	4:50	556	M. Grenier	A	M	1 of 1	
10	8/17/05	5:45	556	S. Korte	A	M?	1 of 1	
11	8/17/05	20:30	556	L. Van Fleet	A	F	1 of f	
12	8/17/05	20:45	556	M. Grenier	A	F	1 of 4i	
13	8/17/05	20:51	556	L. Van Fleet	A	F	1 of f	
14	8/17/05	21:00	556	L. Van Fleet	A	M	1 of 1	
15	8/17/05	21:30	556	S. Korte	J	U	1 of 4d	
16	8/18/05	0:40	556	L. Van Fleet	A	F	1 of 4f	
17	8/18/05	0:45	556	B. Jensen	A	M	1 of 1	
18	8/18/05	2:40	556	G. Wardle	A	M	1 of 1	
19	8/18/05	2:40	556	M. Grenier	A	M	1 of 1	
20	8/18/05	2:52	556	M. Grenier	J	U	2 of k	
21	8/18/05	2:52	556	M. Grenier	A	F	3 of k	
22	8/18/05	3:20	556	C. Smith	A	F?	1 of 4f	
23	8/18/05	4:00	556	L. Van Fleet	A	F	1 of 4f	
24	8/18/05	20:25	556	N. Maxon	A	F	2 of 4h	
25	8/18/05	20:32	556	N. Maxon	A	M	1 of 1	
26	8/18/05	21:00	556	B. Jensen	U	U	1 of j	
27	8/18/05	21:10	556	C. Smith	A	F?	1 of 4d	
28	8/18/05	21:10	556	C. Smith	J	U	2 of 4d	
29	8/18/05	21:12	556	M. Grenier	J	U	2 of 4i	
30	8/18/05	21:12	556	M. Grenier	J	U	3 of 4i	
31	8/18/05	21:35	556	M. Grenier	A	M	1 of 1	
32	8/18/05	21:35	556	G. Wardle	J	U	3 of 4d	
33	8/18/05	21:35	556	G. Wardle	J	U	4 of 4d	
34	8/18/05	21:52	556	N. Maxon	A	M	1 of 1	
35	8/18/05	21:52	556	N. Maxon	J	U	3 of 4h	

Table 1. Continued.

Non-Discrete Sightings

Obs. #	Date	Time	Colony #	Observer	Sex	Age	Litter #	Comments
36	8/18/05	22:10	556	G. Wardle	A	M	1 of 1	
37	8/18/05	22:45	556	M. Grenier	A	M	1 of 1	
38	8/20/05	1:17	554	S. Van Grinsven	J	M	2 of 4b	
39	8/20/05	1:20	554	S. Van Grinsven	J	F	3 of 4b	
40	8/21/05	2:35	554	L. Lutz	A	F	1 of 5a	
41	8/21/05	2:35	554	L. Lutz	J	F	2 of 5a	
42	8/21/05	2:37	554	S. Van Grinsven	A	F	1 of 4b	
43	8/21/05	3:26	554	S. Van Grinsven	J	F	1 of 4b	
44	8/21/05	5:10	554	S. Van Grinsven	A	F	1 of 4b	
45	8/21/05	20:35	554	S. Van Grinsven	J	M	2 of 4b	
46	8/21/05	20:40	554	S. Van Grinsven	J	F	3 of 4b	
47	8/21/05	23:45	559	C. Cotton	A	M	1 of 1	
48	8/22/05	0:15	559	J. Artery	A	F	1 of 5n	
49	8/22/05	1:15	559	S. Van Grinsven	J	F		
50	8/22/05	1:30	554	C. Palmer	J	U	1 of 5a	
51	8/22/05	1:30	554	T. Livieri	A	F	2 of 5a	
52	8/22/05	1:30	554	L. Lutz	J	M	3 of 5a	
53	8/22/05	1:30	554	L. Lutz	J	F	4 of 5a	
54	8/22/05	1:30	554	L. Lutz	J	F	5 of 5a	
55	8/22/05	1:38	559	S. Van Grinsven	J	F	2 of 5m	
56	8/22/05	1:38	559	S. Van Grinsven	A	F	1 of 5m	
57	8/22/05	3:45	559	J. Artery	A	F	1 of 5n	
58	8/22/05	3:45	559	J. Artery	J	U	2 of 5n	
59	8/22/05	3:45	559	J. Artery	J	U	4 of 5n	
60	8/22/05	5:00	559	J. Artery	J	U	2 of 5n	
61	8/22/05	5:00	559	J. Artery	J	U	3 of 5n	
62	8/22/05	5:00	559	J. Artery	A	F	1 of 5n	
63	8/22/05	22:30	559	P. Dailey	J	U	1 of 5e	
64	8/22/05	22:30	559	P. Dailey	J	U	2 of 5e	
65	8/22/05	22:30	559	P. Dailey	J	U	3 of 5e	
66	8/23/05	3:11	556	K. Bergrud	J	U	1 of 4l	
67	8/23/05	3:27	556	K. Bergrud	J	F	2 of 4l	
68	8/23/05	3:30	517	S. Korte	J	M	1 of >>	
69	8/23/05	3:50	556	L. Van Fleet	J	U	3 of 4k	
70	8/23/05	3:50	556	L. Van Fleet	J	U	4 of 4k	

Table 1. Continued.

Non-Discrete Sightings

Obs. #	Date	Time	Colony #	Observer	Sex	Age	Litter #	Comments
71	8/23/05	4:13	556	A. Schlager	A	M	1 of 1	
72	8/23/05	4:15	556	K. Schlager	A	M	1 of 1	
73	8/23/05	4:19	556	K. Bergrud	A	F	3 of 4l	
74	8/24/05	3:00	556	P. Sobey	J	U	2 of 4g	
75	8/24/05	3:00	556	P. Sobey	J	U	3 of 4g	
76	8/24/05	3:00	556	P. Sobey	J	U	4 of 4g	
77	8/24/05	3:00	556	L. Van Fleet	J	U	3 of 4k	
78	8/24/05	3:00	556	L. Van Fleet	J	U	4 of 4k	
79	8/24/05	3:15	556	T. Barrier	A	F	3 of 4l	
80	8/24/05	3:30	554	M. Grenier	J	U	1 of 5a	
81	8/24/05	3:40	554	M. Grenier	A	F	2 of 5a	
82	8/24/05	3:45	554	M. Grenier	J	M	3 of 5a	
83	8/24/05	3:50	554	M. Grenier	J	F	4 of 5a	
84	8/24/05	4:15	554	M. Grenier	A	M	1 of 1	
85	8/24/05	4:15	556	C. Dobey	A	M	1 of 1	
86	8/24/05	4:39	554	M. Grenier	A	M	1 of 1	
87	8/24/05	20:30	556	K. Schlager	A	M	1 of 1	
88	8/24/05	20:35	556	T. Barrier	J	U	2 of 4l	
89	8/25/05	0:21	517	S. Korte	J	M	1 of >>	
90	8/25/05	0:45	556	T. Barrier	J	U	4 of 4l	
91	8/25/05	1:05	556	L. Van Fleet	A	M	1 of 1	
92	8/25/05	1:09	556	K. Schlager	J	U	2 of 4h	
93	8/25/05	1:10	556	K. Schlager	J	U	3 of 4h	
94	8/25/05	2:48	556	C. Dobey	A	M	1 of 1	
95	8/25/05	3:24	554	K. Bergrud	J	F	4 of 5a	
96	8/25/05	3:24	554	K. Bergrud	A	F	2 of 5a	
97	8/25/05	3:24	554	K. Bergrud	J	M	3 of 5a	
98	8/25/05	3:36	556	L. Van Fleet	J	U	3 of 4f	
99	8/25/05	4:32	554	T. Barrier	J	U	1 of 5a	
100	8/25/05	5:00	556	L. Van Fleet	J	M	2 of 4f	
101	8/25/05	20:45	556	T. Barrier	J	U	2 of 4l	
102	8/25/05	20:50	556	K. Schlager	A	M	1 of 1	
103	8/25/05	21:20	556	T. Barrier	A	F	3 of 4l	
104	8/25/05	23:19	556	K. Bergrud	J	U	1 of 4l	
105	8/25/05	23:45	556	P. Sobey	J	U	3 of 4g	

Table 1. Continued.

Non-Discrete Sightings

Obs. #	Date	Time	Colony #	Observer	Sex	Age	Litter #	Comments
106	8/25/05	23:45	556	P. Sobey	J	U	4 of 4g	
107	8/27/05	5:20	510	P. Dailey	A	F	1 of 6t	
108	8/27/05	5:20	510	P. Dailey	J	F	2 of 6t	
109	8/28/05	3:05	510	P. Dailey	J	F	3 of 6t	
110	8/28/05	3:05	510	P. Dailey	J	F	4 of 6t	
111	8/28/05	4:40	510	P. Dailey	J	U	5 of 6t	
112	8/28/05	21:03	509	M. Grenier	J	F	2 of 4s	
113	8/28/05	21:03	509	M. Grenier	J	U	3 of 4s	
114	8/28/05	21:03	509	M. Grenier	J	U	4 of 4s	
115	8/29/05	2:27	509	M. Grenier	A	F	1 of 4s	
116	8/29/05	20:22	509	M. Grenier	A	F	1 of 4s	
117	8/30/05	5:40	515	L. Van Fleet	A	F	1 of 6w	
118	8/31/05	0:30	515	L. Van Fleet	A	F	1 of 6w	
119	8/31/05	1:00	515	L. Van Fleet	J	M	3 of 6w	
120	8/31/05	3:05	515	L. Van Fleet	J	M	4 of 6w	
121	8/31/05	3:15	520	B. Miller	A	M	1 of 1	
122	8/31/05	3:18	510	C. Reynolds	J	U	5 of 6t	
123	8/31/05	3:18	510	C. Reynolds	J	F	4 of 6t	
124	8/31/05	3:18	510	C. Reynolds	J	F	3 of 6t	
125	8/31/05	3:18	510	C. Reynolds	J	F	2 of 6t	
126	8/31/05	3:20	509	N. Maxon	J	U	1 of 6v	
127	8/31/05	3:50	515	L. Van Fleet	J	M	3 of 6w	
128	8/31/05	4:25	515	L. Van Fleet	J	F	6 of 6w	
129	8/31/05	4:30	515	L. Van Fleet	J	F	5 of 6w	
130	8/31/05	5:20	515	L. Van Fleet	J	M	4 of 6w	
131	8/31/05	5:23	515	L. Van Fleet	J	F	6 of 6w	
132	8/31/05	6:00	515	L. Van Fleet	A	F	1 of 6w	
133	8/31/05	6:00	515	L. Van Fleet	J	M	2 of 6w	
134	8/31/05	21:42	515	L. Van Fleet	J	F	5 of 6t	
135	8/31/05	21:42	515	L. Van Fleet	J	M	2of 6w	
136	8/31/05	22:47	510	C. Reynolds	A	F	1 of 6t	
137	9/1/05	2:30	515	L. Van Fleet	J	F	6 of 6w	
138	9/1/05	2:50	510	C. Reynolds	J	F	2 of 6t	
139	9/1/05	2:50	510	C. Reynolds	J	F	3 of 6t	
140	9/1/05	2:50	510	C. Reynolds	J	F	4 of 6t	

Table 1. Continued.

Non-Discrete Sightings

Obs. #	Date	Time	Colony #	Observer	Sex	Age	Litter #	Comments
141	9/1/05	2:50	510	C. Reynolds	J	U	5 of 6t	
142	9/1/05	3:00	520	B. Miller	A	F	1 of 6y	
143	9/1/05	3:00	520	B. Miller	J	U	3 of 6y	
144	9/1/05	3:00	520	B. Miller	A	F	1 of 5y	
145	9/1/05	4:15	520	B. Miller	J	U	2 of 6y	
146	9/1/05	4:20	520	C. Leonard	J	U	2 of 4x	
147	9/1/05	4:20	520	C. Leonard	J	U	3 of 4x	
148	9/1/05	4:20	520	S. Baker	A	F	1 of 4x	
149	9/1/05	4:20	520	S. Baker	J	U	4 of 4x	
150	9/1/05	4:21	515	L. Van Fleet	J	F	5 of 6w	
151	9/1/05	4:33	515	L. Van Fleet	J	F	6 of 6w	
152	9/1/05	4:35	515	L. Van Fleet	J	M	3 of 6w	
153	9/1/05	5:00	515	L. Van Fleet	A	F	1 of 6w	
154	9/1/05	5:35	515	L. Van Fleet	J	M	4 of 6w	
155	9/1/05	5:35	515	L. Van Fleet	J	M	2 of 6w	
156	9/1/05	20:30	519	N. Maxon	J	U	2 of 5q	
157	9/1/05	20:35	515	L. Van Fleet	J	M	2 of 6w	
158	9/1/05	20:35	515	L. Van Fleet	J	M	3 of 6w	
159	9/1/05	21:00	520	B. Miller	A	M	1 of 1	
160	9/1/05	21:30	519	N. Maxon	J	U	3 of 5q	
161	9/1/05	21:30	515	L. Van Fleet	A	F	1 of 6w	
162	9/1/05	21:30	515	L. Van Fleet	J	M	5 of 6w	
163	9/1/05	21:30	520	C. Leonard	A	F	1 of 4x	
164	9/1/05	22:50	519	N. Maxon	U	U	1 of 2p	
165	9/1/05	23:57	510	C. Reynolds	A	F	1 of 6t	
166	9/3/05	0:30	520	C. Lockman	A	F	1 of 4x	
167	9/3/05	3:15	509	J. Artery	J	U	2 of 3r	
168	9/3/05	22:57	520	M. Grenier	J	F	2 of 6y	
169	9/3/05	23:50	520	C. Lockman	J	U	2 of 4x	
170	9/4/05	20:40	509	J. Artery	J	U	3 of 3r	
171	9/4/05	23:05	520	M. Grenier	J	U	2 of 4x	
172	9/7/05	2:05	527	L. Van Fleet	A	M	1 of 1	
173	9/7/05	2:20	533	N. Maxon	U	U	1 of 2CC	
174	9/7/05	20:00	527	N. Whitford	J	M	2 of 6DD	
175	9/8/05	20:30	527	L. Van Fleet	J	M	4 of 4EE	

Table 1. Continued.

Non-Discrete Sightings

Obs. #	Date	Time	Colony #	Observer	Sex	Age	Litter #	Comments
176	9/8/05	20:50	527	L. Van Fleet	J	M	4 of 4EE	
177	9/8/05	21:28	509	T. Filipi	J	U	2 of 4HH	
178	9/13/05	0:00	527	L. Van Fleet	A	F	1 of 6DD	
179	9/13/05	0:04	520	M. Grenier	J	U	3 of 6y	
180	9/13/05	1:35	527	L. Van Fleet	J	F	4 of 6DD	
181	9/13/05	2:42	520	M. Grenier	J	M	4 of 4EE	
182	9/13/05	3:00	529	B. Oakleaf	A	F	1 of 4EE	
183	9/13/05	3:00	529	B. Oakleaf	J	M	2 of 4EE	
184	9/13/05	3:00	529	B. Oakleaf	J	U	3 of 4EE	
185	9/13/05	3:00	529	B. Oakleaf	J	U	4 of 4EE	
186	9/13/05	3:48	527	L. Van Fleet	A	M	1 of 1	
187	9/13/05	3:50	527	L. Van Fleet	J	M	5 of 6DD	
188	9/13/05	20:55	529	B. Oakleaf	A	F	1 of 4EE	
189	9/13/05	22:27	520	M. Grenier	J	M	4 of 4EE	
190	9/13/05	22:45	520	M. Grenier	J	M	3 of 6y	
191	9/13/05	22:47	520	M. Grenier	J	U	4 of 6y	
192	9/13/05	22:49	520	M. Grenier	J	F	5 of 6y	
193	9/13/05	23:53	520	M. Grenier	J	M	4 of 4EE	
194	9/14/05	0:10	529	B. Oakleaf	A	F	1 of 3FF	
195	9/14/05	0:12	520	T. Filipi	J	M	3 of 6y	
196	9/14/05	0:12	520	T. Filipi	J	F	5 of 6y	
197	9/14/05	2:46	527	M. Grenier	J	M	3 of 6DD	
198	9/14/05	2:47	527	M. Grenier	J	M	5 of 6DD	
199	9/14/05	4:53	527	M. Grenier	J	M	3 of 6DD	
200	9/14/05	5:38	520	T. Filipi	J	F	4 of 7DD	
201	9/14/05	6:30	529	B. Oakleaf	A	M	1 of 1	
202	9/14/05	21:15	529	B. Oakleaf	A	F	1 of 4EE	
203	9/14/05	21:35	520	T. Filipi	J	M	4 of 4EE	
204	9/14/05	21:51	520	T. Filipi	J	U	6 of 6y	
205	9/15/05	0:55	509	N. Maxon	J	U	2 of 3r	
206	9/15/05	2:00	529	L. Van Fleet	J	M	3 of 4EE	
207	9/15/05	23:05	519	C. Reynolds	J	M	2 of 5q	

Table 2. Black-footed ferret captures in Shirley Basin, Wyoming, summer 2005.

Capture #	Transponder Anterior	Transponder Posterior	Date	Colony #	Observer	Shirley Basin #	Age	Sex
1	072-085-887	072-053-311	8/14/2005	553	T. Livieri	SB0408	A	M
2	071-894-849	071-574-365	8/14/2005	551	J. Artery	SB0417	A	F
3	072-099-542	071-619-025	8/15/2005	554	T. Livieri	SB0418	A	F
4	072-108-262	072-262-558	8/15/2005	551	J. Artery	SB0501	J	F
5	107-324-557	none	8/15/2005	551	J. Artery	SB0502	J	M
6	071-544-816	071-819-289	8/16/2005	556	L. Van Fleet	SB0326	A	F
7	107-572-565	none	8/16/2005	556	T. Livieri	SB0503	J	M
8	071-820-782	072-085-094	8/16/2005	556	N. Maxon	SB0325	A	F
9	107-368-846	none	8/16/2005	556	T. Filipi	SB0420	A	M
10	107-323-340	107-519-785	8/17/2005	556	B. Jensen	SB0419	A	M
11	107-571-557	107-351-852	8/17/2005	556	M. Grenier	SB0421	A	F
12	056-889-114	057-039-555	8/17/2005	556	M. Grenier	SB0305	A	M
13	107-579-000	none	8/17/2005	556	N. Maxon	SB0422	A	M
14	107-574-518	none	8/17/2005	556	M. Grenier	SB0504	J	M
15	107-354-275	none	8/17/2005	556	S. Gray	SB0505	J	M
16	107-583-861	107-514-062	8/17/2005	556	M. Grenier	SB0506	J	F
17	107-365-601	107-349-808	8/17/2005	556	M. Grenier	SB0507	J	F
18	107-330-311	107-323-120	8/17/2005	556	S. Gray	SB0423	A	F
19	107-356-303	107-570-533	8/17/2005	556	M. Grenier	SB0424	A	F
20	107-333-586	none	8/17/2005	556	M. Grenier	SB0508	J	M
21	107-578-085	none	8/18/2005	556	L. Van Fleet	SB0509	J	M
22	072-280-328	071-768-050	8/18/2005	556	B. Jensen	SB0407	A	M
23	107-518-277	none	8/20/2005	554	S. Van Grinsven	SB0510	J	M
24	107-376-349	107-374-890	8/21/2005	554	S. Van Grinsven	SB0511	J	F
25	107-344-333	none	8/21/2005	559	C. Cotton	SB0426	A	M
26	072-006-843	107-349-097	8/21/2005	559	S. Carleton	SB0425	A	F
27	107-323-578	107-363-126	8/21/2005	559	S. Carleton	SB0512	J	F
28	107-346-117	107-359-370	8/21/2005	559	S. Carleton	SB0427	A	F
29	107-334-870	107-329-049	8/21/2005	559	S. Carleton	SB0513	J	F
30	107-581-109	none	8/21/2005	559	L. Lutz	SB0514	J	M

Table 2. Continued.

Capture #	Transponder Anterior	Transponder Posterior	Date	Colony #	Observer	Shirley Basin #	Age	Sex
31	107-582-840	107-317-522	8/22/2005	554	S. Carleton	SB0428	A	F
32	071-811-610	071-544-802	8/22/2005	559	P. Dailey	SB0319	A	F
33	107-339-062	107-573-638	8/22/2005	554	C. Cotton	SB0515	J	F
34	107-329-573	107-575-056	8/22/2005	559	S. Van Grinsven	SB0429	A	F
35	107-581-075	066-078-122	8/22/2005	559	J. Artery	SB0516	J	F
36	066-005-534	070-021-629	8/23/2005	556	C. Dobey	SB0430	A	F
37	065-891-023	066-308-361	8/23/2005	556	K. Bergrud	SB0517	J	F
38	065-890-356	065-377-296	8/23/2005	519	N. Maxon	SB0518	J	F
39	065-553-364	none	8/23/2005	517	S. Korte	SB0519	J	M
40	070-264-289	none	8/25/2005	556	k. Schlager	SB0520	J	M
41	070-090-362	066-119-546	8/25/2005	519	S. Gray	SB0431	A	F
42	066-290-587	none	8/25/2005	519	N. Maxon	SB0432	A	M
43	066-119-580	066-067-370	8/25/2005	554	M. Grenier	SB0521	J	F
44	066-356-813	070-087-311	8/27/2005	509	M. Grenier	SB0433	A	F
45	070-060-841	070-091-565	8/27/2005	510	P. Dailey	SB0434	A	F
46	071-573-592	072-049-590	8/28/2005	509	C. Palmer	SB0409	A	F
47	070-278-609	none	8/28/2005	509	C. Palmer	SB0522	J	M
48	070-295-858	none	8/28/2005	509	M. Grenier	SB0435	A	M
49	065-801-537	065-814-371	8/29/2005	509	M. Grenier	SB0523	J	F
50	065-853-065	none	8/29/2005	510	P. Dailey	SB0524	J	M
51	066-006-103	none	8/30/2005	516	E. Norelius	SB0525	J	M
52	066-017-639	none	8/30/2005	520	B. Miller	SB0436	A	M
53	066-311-531	066-017-003	8/31/2005	515	L. Van Fleet	SB0526	J	F
54	071-781-032	071-808-513	8/31/2005	515	L. Van Fleet	SB0302	A	F
55	065-378-544	065-291-628	8/31/2005	515	L. Van Fleet	SB0527	J	F
56	065-631-276	066-079-013	8/31/2005	520	C. Leonard	SB0316	A	F
57	066-057-348	none	8/31/2005	515	L. Van Fleet	SB0528	J	M
58	066-368-836	070-019-518	8/31/2005	510	C. Reynolds	SB0529	J	F
59	070-262-285	069-616-052	8/31/2005	510	C. Reynolds	SB0530	J	F

Table 2. Continued.

Capture #	Transponder Anterior	Transponder Posterior	Date	Colony #	Observer	Shirley Basin #	Age	Sex
60	072-282-586	071-895-319	9/1/2005	520	N. Roberts	SB0402	A	F
61	065-770-803	066-059-556	9/1/2005	509	E. Norelius	SB0437	A	F
62	070-034-275	none	9/1/2005	515	L. Van Fleet	SB0531	J	M
63	065-347-831	none	9/1/2005	515	L. Van Fleet	SB0532	J	M
64	070-028-028	070-088-258	9/3/2005	520	M. Grenier	SB0533	J	F
65	057-279-874	057-556-853	9/4/2005	509	J. Artery	SB0203	A	F
66	066-313-563	070-063-813	9/5/2005	522	M. Grenier	SB0534	J	F
67	066-106-357	none	9/5/2005	522	M. Grenier	SB0535	J	M
68	066-011-634	069-875-845	9/6/2005	527	N. Whitford	SB0536	J	F
69	066-058-296	none	9/7/2005	527	L. Van Fleet	SB0537	J	M
70	066-045-826	none	9/7/2005	527	N. Whitford	SB0538	J	M
71	070-109-578	070-010-622	9/7/2005	527	L. Van Fleet	SB0313	A	M
72	066-050-809	none	9/7/2005	529	B. Oakleaf	SB0438	A	M
73	066-324-298	065-294-268	9/8/2005	509	C. Reynolds	SB0539	J	F
74	065-847-102	none	9/13/2005	527	L. Van Fleet	SB0540	J	M
75	065-550-075	none	9/13/2005	527	L. Van Fleet	SB0541	J	M
76	071-782-587	072-042-054	9/13/2005	527	L. Van Fleet	SB0403	A	F
77	065-885-600	069-863-058	9/13/2005	520	M. Grenier	SB0542	J	F
78	070-265-334	none	9/13/2005	529	B. Oakleaf	SB0543	J	M
79	069-616-123	065-612-786	9/13/2005	529	B. Oakleaf	SB0439	A	F
80	066-117-058	none	9/14/2005	520	T. Filipi	SB0544	J	M
81	066-114-522	none	9/14/2005	527	M. Grenier	SB0545	J	M
82	066-360-844	none	9/15/2005	509	T. Filipi	SB0546	J	M
83	066-043-351	070-074-620	9/15/2005	509	T. Filipi	SB0547	J	F
84	070-086-376	none	9/15/2005	519	C. Reynolds	SB0548	J	M
85	070-122-014	none	9/15/2005	529	L. Van Fleet	SB0549	J	M

Table 3. Nontarget species observations during spotlight surveys in Shirley Basin, Wyoming, 2005.

TATA	LYRO	BUOW	CALA	FEHA	GHOW	GOEA	MUFR	MOUP	VUVU	VUVE	MEME
0:00	22:30	0:30	0:18	0:30	0:24	21:35	0:15	0:00	0:00	0:00	0:00
0:00		23:51	0:50	3:45		21:50	0:37	0:09	21:51	0:00	1:00
0:02			0:57	4:13		22:16	0:45	2:26		0:00	2:15
0:15			1:15	5:45		22:58	1:00	2:35		0:02	2:45
0:18			1:27	19:50			2:30	2:45		0:03	5:02
0:23			1:30	19:51			2:40	3:15		0:05	5:12
1:00			2:45	20:50			2:47	3:45		0:06	21:30
1:13			3:15	21:35			3:25	3:51		0:10	22:44
2:37			3:15	21:40			4:05	4:20		0:12	23:30
3:00			3:43	21:45			4:15	4:52		0:12	23:44
3:30			4:15				4:20	5:10		0:13	
3:33			5:20				5:00	5:26		0:13	
3:45			20:00				5:15	5:30		0:14	
3:58			20:15				5:55	5:49		0:15	
4:00			20:30				6:00	20:43		0:15	
4:00			20:30				20:27	20:45		0:16	
4:00			20:30				20:30	20:52		0:20	
4:00			20:53				20:33	21:00		0:24	
4:06			20:55				20:35	21:00		0:25	
4:06			21:00				21:00	21:30		0:27	
4:15			21:15				21:00	21:36		0:30	
4:30			21:15				21:05	21:45		0:30	
4:37			21:17				21:20	21:50		0:40	
4:55			21:21				21:50	22:05		0:42	
5:00			21:29				21:55	22:15		0:49	
5:03			21:41				22:00	22:15		0:50	
5:05			21:47				22:50	22:20		0:50	
5:30			21:49				23:00	22:24		0:51	
5:35			21:55				23:00	23:13		0:55	
5:43			22:00					23:27		2:01	
20:04			22:10					23:45		2:08	
20:08			22:13							2:20	
20:17			22:15							2:20	
20:30			22:20							2:20	
20:39			22:20							2:20	
20:40			22:25							2:20	
20:40			22:30							2:20	
20:45			22:30							2:30	
20:45			22:37							2:30	
20:50			22:41							2:30	
20:51			22:46							2:30	
20:56			23:25							2:35	
21:05			23:30							2:40	
21:08			23:50							2:40	
21:09										2:45	
21:10										2:45	
21:10										2:47	

Table 3. Continued.

TATA	LYRO	BUOW	CALA	FEHA	GHOW	GOEA	MUFR	MOUP	VUVU	VUVE	MEME
21:20										2:50	
21:27										2:53	
21:29										2:55	
21:30										3:00	
21:45										3:01	
21:45										3:04	
21:46										3:06	
21:50										3:08	
21:57										3:09	
21:58										3:09	
22:00										3:10	
22:00										3:10	
22:08										3:10	
22:13										3:10	
22:14										3:13	
22:18										3:15	
22:20										3:15	
22:20										3:18	
22:30										3:20	
22:45										3:20	
22:46										3:20	
22:55										3:20	
23:00										3:24	
23:15										3:25	
23:21										3:26	
23:25										3:30	
										3:40	
										3:45	
										3:50	
										3:55	
										3:57	
										3:57	
										4:00	
										4:13	
										4:15	
										4:15	
										4:15	
										4:21	
										4:22	
										4:25	
										4:28	
										4:30	
										4:30	
										4:30	
										4:30	
										4:37	
										4:40	
										4:44	
										4:45	

Table 3. Continued.

TATA	LYRO	BUOW	CALA	FEHA	GHOW	GOEA	MUFR	MOUP	VUVU	VUVE	MEME
										4:50	
										4:58	
										5:15	
										5:18	
										5:25	
										5:25	
										5:30	
										5:30	
										5:30	
										5:32	
										5:33	
										5:46	
										5:48	
										19:45	
										20:00	
										20:00	
										20:00	
										20:05	
										20:09	
										20:20	
										20:20	
										20:25	
										20:28	
										20:30	
										20:35	
										20:39	
										20:40	
										20:45	
										20:47	
										20:49	
										20:50	
										20:50	
										20:52	
										20:53	
										20:57	
										20:57	
										Legend:	
										TATA = Badger	
										LYRO = Bobcat	
										BUOW = Burrowing Owl	
										CALA = Coyote	
										FEHA = Ferruginous Hawk	
										GHOW = Great-horned Owl	
										GOEA = Golden Eagle	
										MUFR = Long-tailed Weasel	
										MOUP = Mountain Plover	
										VUVU = Red Fox	
										VUVE = Swift Fox	
										MEME = Striped Skunk	
											21:10

Table 3. Continued.

TATA	LYRO	BUOW	CALA	FEHA	GHOW	GOEA	MUFR	MOUP	VUVU	VUVE	MEME
										21:10	
										21:10	
										21:15	
										21:15	
										21:15	
										21:15	
										21:16	
										21:19	
										21:20	
										21:21	
										21:26	
										21:26	
										21:30	
										21:30	
										21:30	
										21:30	
										21:30	
										21:30	
										21:35	
										21:40	
										21:40	
										21:40	
										21:42	
										21:44	
										21:44	
										21:44	
										21:45	
										21:45	
										21:45	
										21:45	
										21:45	
										21:45	
										21:45	
										21:45	
										21:45	
										21:49	
										21:50	
										Legend:	21:51
										TATA = Badger	21:53
										LYRO = Bobcat	21:55
										BUOW = Burrowing Owl	21:55
										CALA = Coyote	21:55
										FEHA = Ferruginous Hawk	21:56
										GHOW = Great-horned Owl	21:56
										GOEA = Golden Eagle	22:00
										MUFR = Long-tailed Weasel	22:00
										MOUP = Mountain Plover	22:00
										VUVU = Red Fox	22:00
										VUVE = Swift Fox	22:01
										MEME = Striped Skunk	22:05
											22:07

**CANADA LYNX TRAPPING ON THE SHOSHONE AND BRIDGER-TETON
NATIONAL FORESTS, WYOMING
COMPLETION REPORT**

STATE OF WYOMING NONGAME MAMMALS – Species of Special Concern
Canada Lynx

PERIOD COVERED: 15 April 2005 – 14 April 2006

PREPARED BY: Laurie Van Fleet, Nongame Biologist
Matt Wells, Nongame Biologist
Martin Grenier, Nongame Mammal Biologist
Bob Oakleaf, Nongame Coordinator

INTRODUCTION

Canada lynx have been present in Wyoming prehistorically (Kurten and Anderson 1980) and historically (Reeve et al. 1986). Wyoming State Statue protected lynx in 1973. The Wyoming Game and Fish Department (Department) Nongame Program lists the lynx as a Species of Greatest Conservation Need (SGCN) in the Comprehensive Wildlife Conservation Strategy (Wyoming Game and Fish Department 2005), primarily due to the declining abundance of the species and its habitat (Laurion and Oakleaf 2000, Squires et al. 2003). The U.S. Forest Service (USFS) Region 2 lists the lynx as a Sensitive Species, and it is a Convention on International Trade of Endangered Species Appendix II species. In 2000, the U.S. Fish and Wildlife Service listed the Canada lynx as Threatened under the federal Endangered Species Act of 1973.

During a five-year hiatus from lynx surveys (Laurion and Oakleaf, 2000), the Department received credible lynx track reports with growing frequency (Nate Berg, Endeavor Wildlife Research Foundation, personal communication). As such, the Department resumed surveys for lynx in the fall of 2005 and continued through the spring of 2006. The objectives of the resumed surveys were to: 1) document areas currently occupied by lynx, and 2) attempt to capture and collar at least two lynx.

METHODS

Snow Track Surveys

Department surveys were conducted by snowmachine in three areas near Togwotee Pass (the Flagstaff drainage, Long Creek, and Sheridan Creek) and in several drainages in the Wyoming Range. Lynx were previously recorded in all of these areas during Department surveys in 1994-2000 (Laurion and Oakleaf 2000). Efforts were coordinated

with the USFS, Bridger-Teton and Shoshone National Forests. Studies by other research groups with other objectives were likely to document the presence or absence of lynx during 2005-2006, and added to our results.

In addition, hair and scat samples associated with lynx tracks were submitted to the Wildlife Genetics Laboratory, Rocky Mountain Research Station, USFS in Missoula, MT for DNA analysis to verify species identification and, if possible, individual origin.

Lynx Trapping and Subsequent Radio Telemetry

To continue building on our knowledge of habitat use by lynx in Wyoming, the Department attempted to trap and radio collar lynx in the Long Creek and Flagstaff areas. Trap sets consisted of five traps and were set along routes where recent lynx tracks were observed. Box traps were used to capture lynx (Kolbe et al. 2003). These lightweight traps were constructed of PVC pipe and chicken wire and were easily transported by snowmachine for on-site set up. Traps were placed under the canopy of large conifers, the top and sides of each trap were covered with pine boughs, and traps were baited with road-killed deer and beaver castor. Visual attractants such as compact discs and grouse wings were hung nearby with monofilament fishing line. Traps were checked every 24-36 hours and were re-baited and/or re-set if necessary.

Captured lynx were to be darted with a plastic, pneumatically pressurized syringe/dart administered with a jab stick. Telazol®(Fort Dodge Labs, IA) at 5mg/kg (Poole et al. 1993) will be used to anesthetize the lynx. We were prepared to equip captured lynx with GPS collars and radio transmitters (Sirtrack Limited, Havelock, New Zealand) and collect blood, hair, and standard measurements from all processed lynx.

RESULTS

Snow Track Surveys

Approximately 1,046 miles (1,683 km) of snowmachine trails were searched by the Department in the Flagstaff drainage, Long Creek, Sheridan Creek, and several drainages in the Wyoming Range from November 2005 to April 2006 (Figure. 1, Table 1). Lynx tracks were observed on 14 occasions: twice on the Flagstaff Road and 12 times in the Long Creek area. One of the sets of tracks on the Flagstaff Road was confirmed as a male previously recorded by a study in Yellowstone National Park, while the other track was confirmed as a Wyoming lynx (Nate Berg, Endeavor Wildlife Research Foundation, personal communication). DNA analysis of hair collected during track surveys (Kim Johnson, USFS Jackson, personal communication), telemetry locations, and captures in the Long Creek area all confirmed Long Creek lynx were a pair of lynx from Quebec released in Colorado in an effort to establish a lynx population in that state. No lynx tracks or sightings were observed in Sheridan Creek or any of the Wyoming Range surveys, during winter 2005/2006. Marten tracks were seen in two areas and wolf tracks

were observed once at both the Long Creek and Flagstaff Road areas. Coyote tracks were common and observed on all routes.

The Absaroka Beartooth Wolverine Project surveyed a total of 557 miles (896 km); 520 miles (837 km) using snowmachines and 37 miles (60 km) on snowshoes (Figure 1, Table 2). Transects were located in Sunlight, Muddy, Gilbert, Pilot and Republic Creeks. No lynx tracks or sightings were observed during these surveys (Jason Wilmot, personal communication).

The Wildlife Conservation Society conducted wolverine trapping and track surveys in the Greater Yellowstone area including the Tetons, Togwotee Pass, Teton Wilderness, and the Gros Ventre and Snake River areas. A total of 1,376 miles (2,214 km) were conducted by snowmachine, 820 miles (1,320 km) on snowshoes or skis, and 214 miles (334 km) by combined skiing/snowmachining (Figure 1, Table 2). One lynx track was observed near Togwotee Pass during a trap check (Robert Inman, personal communication).

John P. Whiteman, University of Wyoming Department of Zoology and Physiology, conducted snowtrack surveys in the Medicine Bow National Forest and the southern Wind River Mountains from December 2005 through March 2006. A total of 7.98 miles (12.85 km) were surveyed along 20 routes by skis/snowshoes in the Medicine Bow Forest and 1.6 miles (2.5 km) in the Southern Wind River Mountains of the Shoshone National Forest with surveys conducted on snowshoes during three visits, totaling 1.6 miles (2.5 km) searched (Figure 1, Table 2). No lynx tracks or sightings were observed during these surveys (John Whiteman and Steven Buskirk, personal communication).

A combined effort of all four surveys between November 2005 and April 2006 resulted in a total of 3,977 miles (6,400 km) surveyed; 2,942 miles (4,735 km) using snowmachines, 858 miles (1,381 km) using skis/snowshoes, and 214 miles (344 km) using a snowmachine/ski combination. Only two lynx of Wyoming origin were located.

Lynx Trapping and Subsequent Radio Telemetry

A total of 203 trap nights were utilized between February 2006 and March 2006 (Table 1). Two marten were captured at the Togwotee Pass site along with trap doors found closed five times with no animals present. The Colorado male lynx was captured six times at the Long Creek site. On 26 February 2006, the male was anesthetized, bled, measured, weighed, and refitted with a satellite radio collar supplied by Tanya Shenk, Colorado Division of Wildlife. The female lynx approached traps several times but was never caught. Habitat use and movements of translocated lynx were not part of our objectives.

In April and May, the female was closely monitored to determine denning and potential reproduction, because behavior of the male and female indicated a breeding pair. The female did seem to localize during 9 May through 16 May 2006 and again on

22 May 2006. On 23 May, using techniques that successfully located three dens of radio collared lynx in the Wyoming Range (Laurion and Oakleaf 2000), observations indicated that she was not successful. Long distance dispersal of both the male and female followed within a few days.

DISCUSSION

Lynx habitat in Wyoming has historically been fragmented. Following extensive surveys in the mid and late 1990s, Laurion and Oakleaf (1998) concluded that the persistence of lynx in Wyoming was questionable given the continued alteration of habitat. The continued alteration of habitat, especially in the Wyoming Range, has significantly reduced the amount of available habitat and has complicated lynx conservation efforts in Wyoming. The little remaining lynx habitat in Wyoming is quite restrictive and disjunct with little to no potential existing in protected Wilderness Areas.

Detection of lynx tracks during the winter of 2004/2005 marked the first record of lynx in Wyoming since the death of the last known collared lynx in February of 2002. Follow up surveys of these recent detections were planned for the winter of 2005/2006. Consequently, efforts were made to capture and collar any native Wyoming lynx. At least four individuals were identified through track surveys prior to the start of the trapping season in February of 2006. Lab results from DNA analysis taken from hair and scat samples located during the backtracking of detected lynx has revealed that at least four individual lynx were present in northwestern Wyoming. However, only two of these were confirmed as native Wyoming lynx and both were detected in the Flagstaff area. Unfortunately, lynx in this area appeared to have dispersed out of the area prior to our trapping effort, as no lynx tracks were detected and no individuals were trapped. One of these lynx appears to have moved back to Yellowstone prior to the start of our trapping effort.

Several conservation implications exist as a result of these immigrated Colorado lynx, and the impacts to native Wyoming lynx populations are unknown but of concern. The Department has since learned that as many as six of these Colorado translocated lynx have been documented at different times and in different regions of Wyoming in the last year. Although these immigrants could serve to bolster native populations in the short-term by increasing the number of lynx in Wyoming, the long-term impacts are unknown and are of concern. The benefits of these immigrants could be offset if the native lynx population is genetically different, which could result in a diffusion of native lynx genetics, especially if immigration rates are higher than local recruitment. Efforts are underway to identify potential genetic differences between Wyoming lynx and these transplanted lynx that originated from Quebec, Canada.

Laurion and Oakleaf (1998) also concluded that Wyoming may only support transient individuals in the future due to the continuing alteration of habitat. Under current management paradigms, it is also likely that Wyoming may now be a sink for lynx and that long-term persistence of the species is questionable. Empirical data from

this past survey effort suggest that lynx detected during the fall of 2005 are transient and have been difficult to locate in the same area consistently. It is possible that the lynx detected in the Flagstaff area are dispersing individuals from Montana. Lynx have been documented making very large exploratory movements in the early summer and early fall (Squires et al. 2003). The timing of these exploratory movements has coincided with the detection of lynx in the Flagstaff area and may explain why no individuals were detected after January.

ACKNOWLEDGEMENTS

The Wyoming Range snowmobile survey could not have been possible without the assistance of Tom Laurion. Just as indispensable to the project was Dan Bjornlie (Department) for his assistance with the immobilization of the captured lynx.

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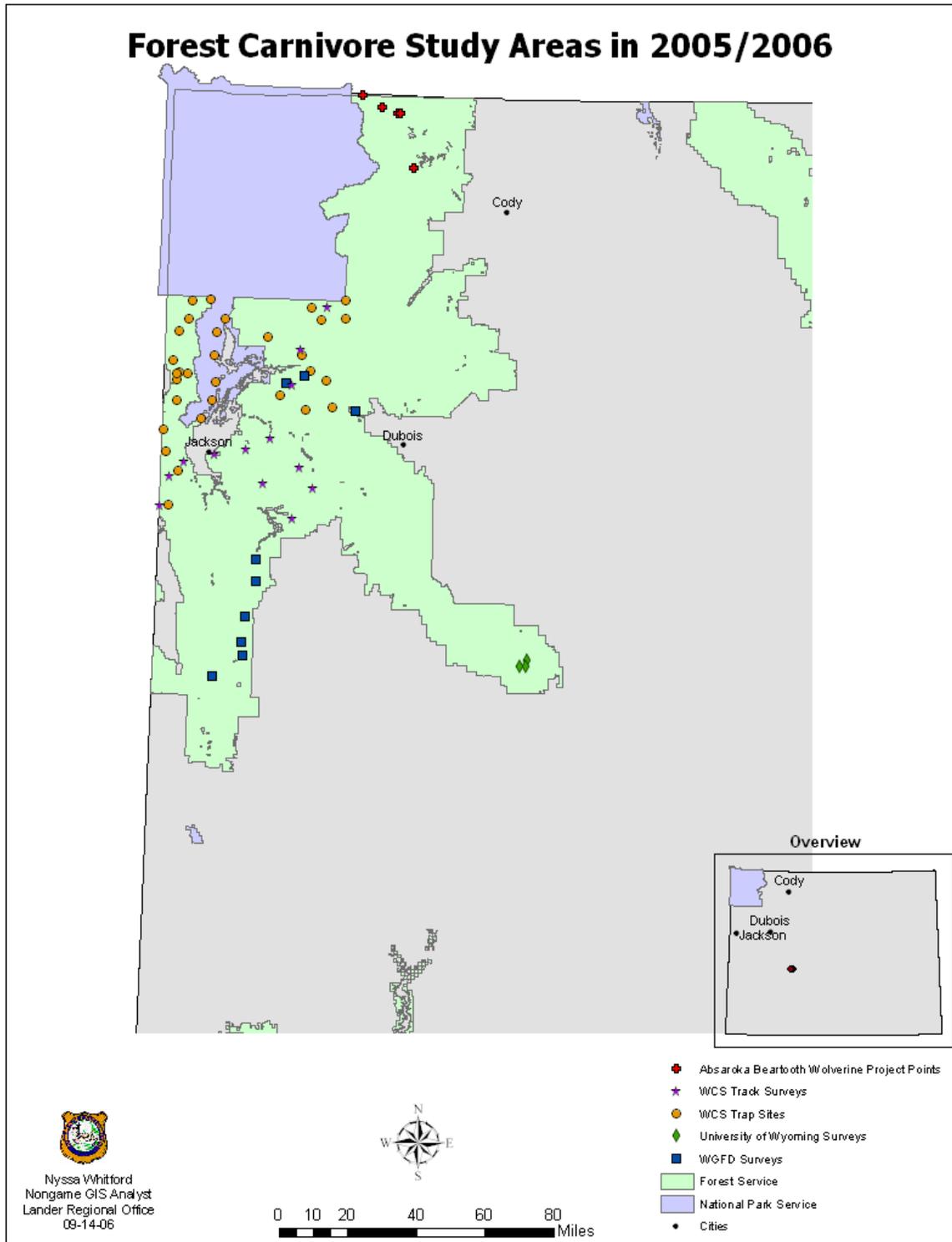


Figure 1. Forest carnivore study areas in 2005/2006.

Table 1. Wyoming Game and Fish Department snow track surveys for Canada lynx and other forest carnivores in western Wyoming during the winter of 2005/2006.

Survey Area	Survey Date	Distance (miles)	Snow Conditions ^a	Lynx Tracks Found	Other Carnivore Tracks ^b /Comments
Togwotee Pass	11/2/2005	2	+	N	C
	11/3/2005	8	+/-	Y	C
	11/4/2005	9	+/-	N	
	2/3/2006	9	+	N	C, M
	2/14/2006	12	+/-	N	C, M, W
	2/21/2006	12	-	N	C
	2/22/2006	12	+/-	N	C, M
	2/24/2006	13	-	N	M
	2/25/2006	13	+/-	N	M
	2/26/2006	15		N	C
	2/27/2006	12	-	N	C, M
	2/28/2006	12	-	N	
	3/1/2006	13	+/-	N	
	3/2/2006	16	+	N	C, M
	3/3/2006	13	+/-	N	C
	3/4/2006	13	-	N	M in trap #3
	3/5/2006	49	+/-	N	
	3/6/2006	12	-	N	
	3/7/2006	16	+/-	N	C, M
	3/8/2006	12	-/+	N	
3/9/2006	15	+/-	N	C, M	
Long Creek	2/8/2006	7	-	Y (2 sets)	W
	2/14/2006	7	+/-	N	
	2/16/2006	7	+/-	N	C
	2/17/2006	7	+	Y	
	2/21/2006	7	-	Y	C
	2/22/2006	7	-	Y	L male captured/released
	2/24/2006	8	-	N	
	2/25/2006	8	-/+	Y	L male captured in #5, female tracks at #4 & #5
	2/26/2006	8	-/+	Y	L male processed and released
	2/27/2006	7	-	Y	L tracks at #3
	2/28/2006	21	-/+	N	C, M
	3/1/2006	8	+/-	N	M
	3/2/2006	7	+	N	C
	3/3/2006	7	+	N	
	3/4/2006	53	-	Y	L male released from #3
	3/5/2006	8	+/-	N	
	3/6/2006	5	-	N	
	3/7/2006	7	+/-	Y	C, L male in #4
	3/8/2006	11	-	Y	C, L male in #4
	3/9/2006	6	-/+	N	C
3/10/2006	5	+/-	Y	C, L male in #4	
Sheridan Creek	2/16/2006	10	+/-	N	C
<i>Survey Summary = 43 surveys, 509 miles surveyed, 13 lynx detected</i>					

Table 1. Continued.

^a Snow conditions are summarized as follows:

- + excellent conditions to observe fresh and recognizable tracks
- +/- good conditions
- /+ fair conditions
- poor conditions

^b Other carnivore tracks observed:

- C coyote
- M marten
- W wolf

Table 2. Additional studies with high potential for locating lynx.

Agency	Survey Area	Snowmachine Distance (miles)	Ski/Snowshoe Distance (miles)	Combined Ski/Snomachine Distance (miles)	Number of Repetitions	Lynx Sign (tracks/visual)
Absaroka Beartooth Wolverine Project	Sunlight Creek	249.05	10.5		25	0
	Muddy Creek	90.7	6.9		21	0
	Gilbert Creek	66.96	4.8		15	0
	Pilot Creek		5.6		28	0
	Pilot Creek to State line	113.9	2.6		25	0
	Republic Creek		6.25		1	0
	<i>Total</i>		<i>519.9</i>	<i>36.65</i>		
Wildlife Conser- vation Society	Tetons	1,328	258	30.1	Unknown	0
	Togwotee Pass		13.5	16.8	Unknown	1 T
	Teton Wilderness		548.5		Unknown	0
	Teton Wilderness Access	48			Unknown	0
	Gros Ventre			111.2	Unknown	0
	Snakes			55.9	Unknown	0
	<i>Total</i>		<i>1,376</i>	<i>820</i>	<i>214</i>	
University of Wyoming	Laramie Ranger District, Medicine Bow NF		6.65		Unknown	0
	Platte River Wilderness, Medicine Bow NF		1		Unknown	0
	Savage Run Wilderness, Medicine Bow NF		0.31			
	<i>Total</i>		<i>7.96</i>			

SPECIES OF SPECIAL CONCERN

PEREGRINE FALCON NEST SURVEY COMPLETION REPORT

STATE OF WYOMING

NONGAME BIRDS – Species of Special Concern
Peregrine Falcon

PERIOD COVERED: 15 April 2005 – 14 April 2006

PREPARED BY: Bob Oakleaf, Nongame Coordinator
Terry McEneaney, Yellowstone National Park
Susan Patla, Nongame Biologist
Laurie Van Fleet, Nongame Biologist

INTRODUCTION

Plans to re-establish a nesting population of Peregrine Falcons were developed from analysis of historical distribution and evaluation of potential habitat during survey work (1978-1980). The goal of reintroduction was to establish and maintain a self-sustaining breeding nucleus in the wild. Objectives were to annually release approximately 15 peregrines and establish 30 breeding pairs in Wyoming by 1996. The program was coordinated with Idaho and Montana to ensure maximum results to reestablish this species. During 2005, peregrine surveys were conducted with funding assistance from a cooperative agreement with the U.S. Fish and Wildlife Service.

RESULTS AND DISCUSSION

Results of Peregrine Falcon reintroduction and monitoring efforts are detailed in previous Nongame Completion Reports and annual reports completed by The Peregrine Fund, Inc. In Wyoming, 384 Peregrine Falcons were released (1980-1995), with at least 325 (85%) surviving to dispersal (one month post-release). No peregrines have been released since 1995 because objectives were attained in 1994-1995.

Following extirpation and subsequent reintroductions of Peregrine Falcons, nesting was first documented in 1984. Between 1984 and 2005, 663 nesting attempts were observed at 75 sites in Wyoming. Over 1,076 young were produced with a minimum of 1.6 young fledged per nesting attempt. Survey results during 2005 recorded 64 sites fledging at least 99 young (1.7 young/pair). This statewide total includes results from 28 pairs in Yellowstone National Park that fledged 39 young in 2005 (McEneaney 2005). A summary of monitoring results during recent years is presented in Table 1.

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Table 1. Peregrine Falcon productivity in Wyoming, 1998 – 2005.

Year	Known	Number of Nest Sites			Young Fledged	Young per Occupied Site
		Checked	Occupied	Successful		
1998	47	44	44	35	84	1.9
1999	47	42	42	25	57	1.4
2000	52	46	46	40	83	1.8
2001	56	42	42	39	81	1.9
2002	63	60	59	49	97	1.6
2003	67	58	58	50	107	1.8
2004	72	66	65	56	130	2.0
2005	75	64	64	45	99	1.7

SURVEYS OF THE COMMON LOON IN WYOMING COMPLETION REPORT

STATE OF WYOMING

NONGAME BIRDS – Species of Special Concern
Common Loon

PERIOD COVERED: 15 April 2005 – 14 April 2006

PREPARED BY: Andrea Orabona Cerovski, Nongame Bird Biologist

INTRODUCTION

The Common Loon is classified as a Wyoming Game and Fish Department (Department) Species of Greatest Conservation Need because of its public appeal, vulnerability to human disturbance and environmental degradation, and its limited abundance and restricted distribution in Wyoming (Wyoming Game and Fish Department 2005). Loons can be observed statewide during spring and fall migration and nonbreeding loons can be found throughout the state during the summer. However, suitable breeding habitat is restricted to the northwest corner of Wyoming and is easily lost or degraded due to human disturbance and habitat changes. In 2005, known nesting areas were surveyed to document loon nesting, production, and recruitment.

METHODS

The timeline for Common Loon surveys is as follows: lake occupancy surveys are conducted in early to mid-June, production surveys are conducted in mid- to late July, and follow up surveys to determine initial young survival are conducted in mid-to late August. Surveys are scheduled to be compatible with aerial Common Loon surveys conducted in Yellowstone National Park (McEaney 2006), allowing statewide loon nesting data to be compiled.

Adult and young loons are best observed during early morning and early evening hours. Observers sit quietly in an area that provides a vantage point over the lake to be surveyed and search the lake and adjacent shoreline for loon activity. Each lake is surveyed for 45 minutes to one hour to ensure that loons that are not immediately visible are not overlooked. Observers record the number of adult and young loons detected, loon activity and behavior (e.g. diving, hunting, feeding self or young, calling, flying, loafing, agitated, defensive), and other species observed or heard. Additional comments, such as human activity; location of paved, dirt, and two-track roads; and shoreline habitat, are also recorded.

RESULTS AND DISCUSSION

Seven lakes outside of Yellowstone National Park with a past history of Common Loon breeding activity were surveyed for adult nesting pairs and production of young in 2005 (Table 1). During the June lake occupancy survey, six of the seven lakes were surveyed and adult loon pairs were observed on five of the six lakes. During the July productivity survey, six of the seven lakes were surveyed and a single adult loon or adult loon pairs were observed on four of the six lakes and a total of two loonlets were observed on one lake. During the August follow up survey, five of the seven lakes were surveyed. Adult loons were observed on two of the six lakes, and a total of two young loons were observed on one lake.

Anecdotal information and a cursory review of loon data over the past 19 years suggest that the nesting season has shifted slightly and is now occurring from several days to two weeks earlier than when loon surveys were initiated in 1987. Therefore, the 2006 schedule will shift accordingly to ensure that observers are conducting surveys at the most appropriate times.

Summary data for previous years are also presented in Table 1.

In Yellowstone National Park, 42 Common Loon adults were observed in 2005; 8 pairs attempted to nest, fledging 4 young on 3 lakes (McEneaney 2006) (Table 2).

Common Loon nesting and production data for Wyoming are presented in Table 2.

ACKNOWLEDGEMENTS

The Department would like to acknowledge the following individuals for their valuable contributions to the 2005 Common Loon monitoring effort: Susan Bradshaw (Grand Teton National Park), Cynthia Malleck (Grand Teton National Park), Ron Lockwood (Department), Susan Patla (Department), Terry McEneaney (Yellowstone National Park), and Megan Reuhmann (Grand Teton National Park).

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Table 1. Summary of Common Loon nesting (June), productivity (July), and recruitment (August) surveys from 1987 through 2005. Excludes Yellowstone National Park. Adult loons are depicted by the letter A and juvenile loons are depicted by the letter J.

Year	Arizona Lake		Bergman Reservoir		Fish Lake		Indian Lake		Junco Lake		Loon Lake		Moose Lake		Total Loons	
	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J
1987	1	2	2	1	0	0	2	2	1	1	2	1	2	2	10	9
1988	2	1	2	2	0	0	2	1	2	2	2	2	2	2	12	10
1989	2	- ^a	2	-	NS ^b	NS	4	1	2	1	2	2	2	-	14	4
1990	4	-	2	-	NS	NS	2	2	2	1	2	1	2	2	14	6
1991	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1992	2	-	2 ^c	-	2	-	2	1? ^d	2	-	2	? ^e	2	?	12	?
1993	2	-	2 ^c	?	1	?	3	-	2	-	2	1	2	?	12	?
1994	2	1	2	-	2	-	0	0	0	0	2	1	2	1	10	3
1995	2	1	2 ^c	-	0	0	2	-	0	0	1	2	0	0	5	3
1996	2	-	1 ^c	-	2 ^f	-	2	1	2	-	2	2	2	-	10	3
1997	2	1	0	0	1	-	2	2	0	0	2	2	2	1	9	6
1998	0	0	0	0	0	0	1	2	0	0	1	-	2	1	4	3
1999	2	2	0	0	2	-	2	2	0	0	2	-	2	-	10	4
2000	2	1	1 ^c	0	2 ^f	-	2	2	2	1	2	1	2	-	10	5
2001	0	0	0	0	2 ^f	-	2	1	2	-	2	1	2	1	8	3
2002	1	0	1 ^c	0	1 ^f	0	2	1	2	-	2	1	1	-	8	2
2003	2	1	1 ^c	0	1	0	2	1	1	-	2	0 ^g	2	2	10	4
2004	2	0	2 ^c	0	3 ^f	0	4	0	1	0	2	2	2	0	11	2
2005	2	0	1 ^c	0	2	0	2	2	0	0	2	0 ^g	2	0	10	2

^a A dash (-) indicates that loonlets were not observed during the survey; however, due to the secretive nature of loons, juveniles may have been present but hidden from view.

^b NS = not surveyed.

^c Most likely the adult(s) from the Indian Lake pair using this site for foraging; not included in total.

^d A nest with 1 egg was observed; it is unknown if the egg hatched and the juvenile loon survived.

^e A question mark (?) indicates that a June nesting status survey was conducted only; these lakes were not surveyed in July so productivity was unknown.

^f Most likely the same individual(s) that use several lakes in the vicinity of Fish Lake for foraging and/or nesting; not included in total.

^g Increased human activities that are incompatible with nesting may be responsible for this pair's failure to produce young this year.

Table 2. Common Loon nesting, productivity, and recruitment data for Wyoming, 1987-2005.

Year	Non-Yellowstone Nat'l Park			Yellowstone National Park			Wyoming Total		
	# Pairs	# w/ Young	# Lakes	# Pairs	# w/ Young	# Lakes	# Pairs	# w/ Young	# Lakes
1987	6	9	6	NA ^a	NA	NA	IN ^b	IN	IN
1988	6	10	6	NA	NA	NA	IN	IN	IN
1989	6	4	3	NA	NA	NA	IN	IN	IN
1990	6	6	4	11	9	9	17	15	13
1991	NS ^c	NS	NS	9	NA	NA	IN	IN	IN
1992	6	NS	NS	11	6	4	17	IN	IN
1993	5	NS	NS	12	6	4	17	IN	IN
1994	5	3	3	12	12	8	17	15	11
1995	3	3	2	13 ^d	8	12	16	11	14
1996	5	3	2	5	4	4	10	7	6
1997	4	6	4	5	6	5	9	12	9
1998	2	3	2	12	8	6	14	11	8
1999	4	4	2	14	2	2	18	6	4
2000	5	5	4	9	8	9	14	13	13
2001	4	3	3	9	7	9	13	10	12
2002	3	2	2	9	5	4	12	7	6
2003	4	4	4	8	1	1	12	4	5
2004	5	2	1	9	3	2	14	5	3
2005	5	2	1	8	4	3	13	6	4

- ^a NA = data are not available.
- ^b IN = state totals are incomplete.
- ^c NS = not surveyed.
- ^d Two pairs nested on the same lake.



Susan Patla

Common Loon breeding pair on Loon Lake.

COLONIAL WATERBIRD SURVEYS COMPLETION REPORT

STATE OF WYOMING

NONGAME BIRDS – Species of Special Concern
Colonial Waterbirds

PERIOD COVERED: 15 April 2005 – 14 April 2006

PREPARED BY: Andrea Orabona Cerovski, Nongame Bird Biologist

SUMMARY

In 2005, an intensive survey was conducted at previously occupied breeding sites considered to be the most important for colonial nesting waterbirds in the State. Data collected during the 2005 surveys are presented in Figures 1 and 2 and Table 1. Data from Yellowstone National Park (YNP) (McEneaney 2006) and the American White Pelican nesting colonies are included, but data on Great Blue Heron rookeries are excluded because they were not intensively surveyed during 2005. A summary of the most important breeding sites for colonial waterbird Species of Special Concern with a Native Species Status of 1-4 is presented in Table 2.

ACKNOWLEDGEMENTS

The Department would like to thank the landowners and land managers who graciously allow us to continue long-term monitoring of colonial nesting waterbirds on their property. Without their cooperation and interest in these species, data collection would not be possible. The Department would also like to acknowledge the following individuals for their valuable contributions to the 2005 colonial waterbird monitoring effort: Greg Anderson (Department), Quinn Cerovski (volunteer), Doug Damberg [Seedskadee National Wildlife Refuge (NWR)], Dru Haderlie (Seedskadee NWR), Evette Meyer (Department), Rachel Moseley (Seedskadee NWR), Larry Roberts (Department), Joseph Smith (Seedskadee NWR), and Laurie Van Fleet (Department).

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Figure 1. Aerial photograph of the Bamforth Lake American White Pelican nesting colony, 26 May 2005.



Figure 2. Aerial photograph of the Pathfinder Reservoir Bird Island American White Pelican nesting colony, 26 May 2005.

Table 1. Summary of colonial nesting waterbird surveys in Wyoming, 2005.

Location		Total		
Survey Date	Colonial Nesting Waterbird Species	Number	Nest	Number
Observer(s)		Adults	Estimate	Young
Survey Technique				
Water Level Condition				
<u>Ambler Spring</u> ^a				
12 July 2005	Forster's Tern	8	4	3
A. Cerovski	White-faced Ibis	4	2	
Canoe				
Good water level; high precipitation created nesting habitat elsewhere				
<u>Bamforth Lake</u>				
26 May 2005	American White Pelican	377	377	
A. Cerovski	Double-crested Cormorant ^b	active		
Aerial (photographs taken)				
Water level is very low; nesting island is a peninsula				
<u>Bucklin Reservoir</u>				
30 June 2005	Black-crowned Night-Heron	1	0	
E. Crane				
Canoe				
Water level is still low due to drought				
<u>Caldwell Lake</u>				
12 July 2005	American White Pelican	5	0	
A. Cerovski / A. Lyon	Black-crowned Night-Heron	1	0	
Canoe	Black Tern	11	6	
Water level is ideal for nesting	Forster's Tern	3	2	
<u>Cokeville Meadows NWR</u> ^c				
29 June 2005	American Bittern	11	11	
A. Cerovski / R. Lockwood				
Foot / Vehicle				
Water level is high; emergents aren't above water enough for nesting				
<u>Hutton NWR – Rush Lake</u>				
12 July 2005	Black-crowned Night-Heron	18	9	
A. Cerovski / A. Lyon	Black Tern	1	1	
Canoe	Forster's Tern	50	25	
Water level is ideal for nesting	Franklin's Gull	1	1	
	Snowy Egret	4	2	
	White-faced Ibis	70	35	

Table 1. Continued.

Location		Total		
Survey Date		Number	Nest	Number
Observer(s)	Colonial Nesting Waterbird	Adults	Estimate	Young
Survey Technique	Species			
Water Level Condition				
<u>Kay Ranch Lake</u>				
13 July 2005	No colonial waterbirds nesting			
Good water level; high precipitation	or present			
created nesting habitat elsewhere				
<u>Ocean Lake</u>				
19 July 2005	American White Pelican	40	0	
L. Van Fleet / D. Van Fleet	Clark's Grebe	50		15
Motorboat	Western Grebe	30		9
Water level is higher than last year				
<u>Old Eden Reservoir</u>				
10 June 2005	No colonial waterbirds nesting			
L. Van Fleet	or present			
Foot				
Water level is higher than in previous				
years, but bulrushes are nearly				
all dead				
<u>Pathfinder Reservoir, Bird Island</u>				
26 May 2005	American White Pelican	818	818	
A. Cerovski	Double-crested Cormorant ^b	active		
Aerial (photographs taken)				
Island is a peninsula due to drought-				
induced low water level				
<u>Pilger Lake</u>				
13 July 2005	American White Pelican	9	0	
A. Cerovski / A. Lyon	Black-crowned Night-Heron	3	2	
Canoe				
Emergents are very thin				
<u>Sand Mesa Ponds</u>				
14 July 2005	American White Pelican	1	0	
L. Van Fleet / N. Maxon	Caspian Tern	5	0	
Foot				
Lakes are very low, but water level is				
better than in previous years				

Table 1. Continued.

Location		Total		
Survey Date		Number	Nest	Number
Observer(s)	Colonial Nesting Waterbird	Adults	Estimate	Young
Survey Technique	Species			
Water Level Condition				
<u>Soda Lake (Yant's Puddle)</u>				
27 June 2005	Black-crowned Night-Heron	8	7	
L. Roberts / R. Schilowsky	Caspian Tern	10	4	1 ^d
Foot	Double-crested Cormorant ^b	20	18	
Rehabilitation of nesting islands is on-going but nearly complete; water level is still low				
<u>Webb Lake</u>				
13 July 2005	No colonial waterbirds nesting or present			
A. Cerovski / A. Lyon				
Canoe				
Change in vegetation due to low water; some bulrushes have been replaced by sedges; island is now a peninsula				
<u>Yellowstone Nat'l Park, Molly Islands</u>				
May, June, Aug., Sept. 2005	American White Pelican	534	219	234
T. McEaney	Caspian Tern	6	0	0
Motorboat and aerial	Double-crested Cormorant	152	69	86
Water level is normal; no flooding and snowmelt was gradual				

^a Formerly called Aurora Lake.

^b Formerly Bear River Marshes.

^c The Double-crested Cormorant is not a Species of Special Concern; however, it nests colonially with the American White Pelican so nests were counted from digital aerial photographs and are presented here.

^d In addition to 1 young, 5 eggs were also counted.

Table 2. Important nesting sites in Wyoming for colonial waterbird Species of Special Concern with a Native Species Status of 1 – 4.

County Nesting Site	Species Code ^a										
	AMBI	AWPE	BCNH	BLTE	CAEG	CATE	FOTE	FRGU	SNEG	WEGR/ CLGR	WFIB
<u>Albany County</u>											
Aurora Lake			X				X		X		X
Bamforth Lake		X	X			X			X		
Caldwell Lake	X		X	X			X				X
Carroll Lake			X				X				
Hutton Lake NWR	X		X	X	X		X		X		X
Kay Ranch Lake			X				X				
Pilger Lake			X				X				X
Webb Lake			X								
<u>Bighorn County</u>											
Lovell Lakes										X	
Renner Reservoir										X	
Wardell Reservoir										X	
<u>Carbon County</u>											
Beaver Creek Reservoir			X								
Bucklin Reservoir			X							X	
Lufkin Pond/Chastain Reservoir			X								
Pathfinder Reservoir Bird Island		X				X					
<u>Fremont County</u>											
Ocean Lake	X						X			X	
<u>Goshen County</u>											
Hawk Springs Reservoir			X								
<u>Lincoln County</u>											
Cokeville Meadows NWR	X		X	X			X	X			X
<u>Natrona County</u>											
Soda Lake Islands			X			X			X		
<u>Park County</u>											
Beck Lake										X	
<u>Sweetwater County</u>											
Old Eden Reservoir			X						X		X
<u>Teton County</u>											
Christian Pond	X										
Yellowstone Lake Molly Islands		X				X					
<u>Uinta County</u>											
Rollins Reservoir										X	

^a Species Code: AMBI = American Bittern, AWPE = American White Pelican, BCNH = Black-crowned Night-Heron, BLTE = Black Tern, CAEG = Cattle Egret, FOTE = Forster's Tern, FRGU = Franklin's Gull (added to Species of Special Concern list in 2004), SNEG = Snowy Egret, WEGR/CLGR = Western Grebe and Clark's Grebe, WFIB = White-faced Ibis. Great Blue Heron (Native Species Status 4) rookery sites are not included in this table.

**SECRETIVE MARSHBIRD SURVEYS FOR THE AMERICAN BITTERN
AT SELECTED SITES IN WYOMING
COMPLETION REPORT**

STATE OF WYOMING

NONGAME BIRDS – Species of Special Concern
American Bittern

PERIOD COVERED: 15 April 2005 – 14 April 2006

PREPARED BY: Andrea Orabona Cerovski, Nongame Bird Biologist

SUMMARY

Ten species of colonially nesting waterbirds are included on the Wyoming Game and Fish Department's list of Species of Greatest Conservation Need (SGCN) (Wyoming Game and Fish Department 2005). Annual surveys are conducted to determine the presence of these species at important breeding sites in Wyoming. However, the American Bittern, which also breeds at some of these sites and is on the SGCN list, is a secretive species that requires a different and more specialized survey technique to determine its presence.

In 2004, a passive survey to detect vocal American Bitterns was conducted in the marshland portions of the Cokeville Meadows National Wildlife Refuge. The purpose was to determine suitable bittern habitat boundaries so survey transects could be delineated. Three ideal transect locations were identified (Thornock Tract, Bartlett Tract, and 10b/11b Tract) and 10 American Bitterns were detected aurally.

In 2005, the secretive marshbird survey technique from the Proceedings of the Marsh Bird Monitoring Workshop was used (USFWS and USGS 1999). Passive/call broadcast stations were located every 984 ft (300 m) on each transect, and a total of 11 American Bitterns were detected aurally. However, the Thornock Tract survey had to be conducted from a nearby two-track road because the actual transect route was under water and inaccessible.

Future survey efforts will follow the updated, field-tested, and peer reviewed protocol in Conway and Nadeau (2006). Survey times will be slightly modified from the 2005 effort to better capture the peak of bittern activity (vocalizations), and transects will be modified so stops are spaced every 1,312 ft (400 m) to reduce the likelihood of overlap and double counting of individual bitterns.

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**ROCKY MOUNTAIN POPULATION OF TRUMPETER SWANS –
WYOMING FLOCK
COMPLETION REPORT**

STATE OF WYOMING

NONGAME BIRDS – Species of Special Concern
Trumpeter Swan

PERIOD COVERED: 15 April 2005 – 14 April 2006

PREPARED BY: Susan Patla, Nongame Biologist

INTRODUCTION

This report summarizes management activities and monitoring data for Trumpeter Swans in Wyoming for the 2005 nesting season and the 2005/2006-winter season. Trumpeter Swans in Wyoming are considered, for management purposes, a breeding segment of the Tri-State Area Flocks in the U.S. segment of the Rocky Mountain Population (RMP) of Trumpeter Swans [U.S. Fish and Wildlife Service (USFWS) 1998]. Monitoring swans in western Wyoming requires interagency coordination and effort; in the Acknowledgements section we provide a list of individuals who provided data for this effort.

This year's report contains updates of tables contained in previous annual reports but extensive text sections have been abbreviated or eliminated. For background and historical data, readers should refer to earlier annual completion reports. These are available from the Wyoming Game and Fish Department (Department) Nongame Program, Lander Regional Office or Jackson Regional Office.

ROCKY MOUNTAIN POPULATION WINTER SURVEY RESULTS 2005/2006

A coordinated winter aerial survey is conducted every February in the western United States to determine the total annual number of swans in the RMP. An annual report is produced by USFWS (Dubovsky 2006). The portion of the population that winters in the Tri-State Area in western Wyoming, southwestern Montana, and eastern Idaho consists of two breeding segments: the non-migratory RMP/Tri-State Area Flocks that summer in Wyoming, Idaho, and Montana, and the migratory interior RMP/Canadian Flocks. The Canadian Flocks nest in Alberta, British Columbia, Saskatchewan, Yukon, and the Northwest Territories, but share wintering habitat with U.S. swans in the Tri-state Area region. Terminology used in this report for the RMP is taken from the RMP Trumpeter Swan Implementation Plan (Pacific Flyway Study Committee, 2002).

Tri-State Area winter aerial surveys in 2006 were completed from 31 January to 11 February (Dubovsky 2006). S. Patla flew Wyoming's survey outside of Yellowstone National Park (YNP) on 6-7 February. In the Tri-State area, a total of 5,412 Trumpeter Swans were counted: 4,203 white birds (yearlings and older age classes) and 1,209 cygnets (Table 1). This represents the third consecutive record high count for the RMP, and a 2% increase compared to the previous year.

In Wyoming, we counted a record number of swans (n=901 including YNP, or n=766 outside of YNP) (Table 1). Of the total swans counted in Wyoming, 15% were in YNP (n=135), 52% along the Snake River in the vicinity of Jackson, Wyoming (n=471), 18% on the Salt River (n=161), and 12% total in the Green River drainage including Boulder and Daniel (n=28) and Seedskadee National Wildlife Refuge (NWR) (n=85). An additional 21 swans (2%) were counted at Dinwoody Lake west of Dubois. Cygnets comprised 14% of the total number of swans counted in Wyoming, compared to 22% the previous year (Table 1).

Patla also counted swans on 5 and 6 January 2006 for the Mid-Winter Waterfowl survey (n=515), with 312 along the Snake River drainage, 117 on the Salt River, 4 on the Hoback in Bondurant, and 82 on the Green River.

TRI-STATE FALL SURVEY RESULTS AND PRODUCTIVITY TRENDS – 2005

A cooperative inter-agency survey effort is conducted annually in September to obtain a total count of Trumpeter Swans in the U.S. Breeding Segment of the RMP using both aerial and ground surveys. Results are published by the USFWS (Dubovsky 2005). Aerial surveys in 2005 were conducted from 9-27 September. S. Patla flew the Wyoming portion outside of YNP on 15 September. A few additional observations were obtained from the USFWS Greater Sandhill Crane aerial survey flown 14-15 September in part of the survey area. Terry McEaney surveyed YNP on 14 September.

Total number of resident swans (adults plus cygnets) in the Tri-state Area Flocks in 2005 was the highest count since 1992 and represents an increase of 17% compared to the previous September (Table 2) (Dubovsky 2005). The 453 total swans counted within the Tri-State Area in 2005 were distributed as follows among the three states: 32% in Wyoming (n=143), 35% in Idaho (n=158), and 34% in Montana (n=152). In Wyoming, cygnets comprised 25% of flocks compared to 26% in Montana and 14% in Idaho (Table 2).

WYOMING FLOCK PRODUCTION OUTSIDE YELLOWSTONE NATIONAL PARK – 2005

A total of 89 white birds (adults/subadults) and 35 cygnets were counted in Wyoming outside of YNP in September 2005 (Table 2). Compared to the previous year, this represents an 11% increase in number of white birds, but the number of cygnets was similar. The

number of adult/subadults represents a record high for Wyoming and reflects increases in the Green River expansion flock that accounted for 52% of the total number of white birds observed.

In 2005, to document occupancy and productivity, S. Patla conducted aerial surveys on 23 May, 5 June, and 9 July in addition to conducting numerous ground surveys during the nesting season. Pairs occupied 27 sites, 15 pairs initiated incubation, 10 pairs hatched young, and 10 fledged at least one young (Table 3). All productivity parameters exceeded means measured between 1990-2004 (Table 3). Productivity of successful nests (those that hatched at least one egg) measured 4.0 young hatched/successful pair and 3.5 young fledged/successful pair.

Although the total number of young hatched (n=40) was 26% less than the record number produced in 2004 (n=54), productivity remained robust compared to the early 1990s. Increased productivity can be attributed to the Green River expansion flock that produced 63% of young fledged in 2005. Four pairs at Seedskaadee NWR accounted for 82% (n=18) of production in the expansion area. One pair at the refuge produced seven cygnets, the largest brood ever recorded for swans in Wyoming.

Table 4 presents occupancy and productivity data for individual nesting territories in Wyoming over the last decade, 1995-2005. Following are site-specific notes for some of the 2005 nesting territories:

Indian Lake, Caribou-Targhee National Forest (CTNF) – a pair nested on the west end of the traditional nest island visible from the road. The pair was off the nest on 27 June at the far north end of the lake, without cygnets.

Rock Lake, Caribou-Targhee National Forest (CTNF) – this was the first year a pair occupied and molted at this site since 1991. Open water was gone by September, as was the pair.

Upper Glade Creek Marsh, J.D. Rockefeller Parkway (GTNP) – this was a new nest site in 2005, but the pair failed to produce young. The site is located close to Camp Site #8 on the JDR Parkway (Ashton-Flagg Ranch Road or Reclamation Road). Management issues include possible human disturbance and water level fluctuations later in the season. The pair had deserted the site by early September.

Steamboat Mountain, Grand Teton National Park (GTNP) – this site, located on a beaver complex at the mouths of Nickel and Dime Creeks, was first discovered in 2002. The pair initiated nesting this year but failed to produce young. This is a remote site, far from possible human disturbance, and water level appeared good this year.

Glade Creek South, GTNP – a pair produced two young this year at the traditional nest site in a dense willow flat in a river slough north of Tusker Island. This nest site is prone to flooding in high water years.

Swan Lake, GTNP – no nest attempt was observed this year, although a pair occupied the slough on the north side of the lake.

Christian Pond, GTNP – no swans were observed again on this site throughout the season. Water depth appeared low compared to previous years. An assessment of hydrology and recreation use is needed.

Two Ocean Lake, GTNP – a pair occupied this site, but there was no evidence of nesting activity. This site may be prone to human disturbance early in the season.

Elk Ranch Reservoir, GTNP – a pair has not nested successfully at this site since 1998. A water management plan needs to be developed, with an emphasis on swans and waterfowl.

Hedrick Pond, GTNP – water remains low at this site and no swan use was observed throughout the season. A hydrology assessment of this wetland would be useful.

Highway Pond, National Elk Refuge (NER) – a pair initiated nesting this year but gave up the attempt very early in the incubation period for undetermined reasons.

Main Marsh Flat Creek, NER – two pairs occupied the main marsh area but only one pair produced young.

Pierre Pond, NER – a pair occupied the site early, but did not appear to build a nest and was not there consistently later in the season. This pair may have been moving between Romney and Pierre's Ponds.

Romney Ponds, NER – there appeared to be a pair of immature swans that used these ponds, and perhaps other wetlands on the refuge, during the season. It is not known if immature pairs are interacting with established older pairs early in the nesting season, possibly disrupting nest attempts.

Puzzleface Pond (formerly Skyline) – we observed only very occasional use by swans during the summer season. There needs to be an assessment of water level management and food resources at this site.

Kibby Pond, Alpine – a pair was on site early in the season, but there was a great deal of subdivision construction in the vicinity and the pair did not stay in the area. This was the only nest site on private land in the Salt River valley and, given the high level of human activity, it appears to be no longer suitable for swan nesting.

Lily Lake, BTNF – no swan use was observed this year. Lack of security, low water level, and poor vegetation diversity at this site reduce the chances for successful nesting by swans.

Enos Lake, BTNF – no swan use was observed this year.

Atlantic Creek, BTNF – no swan use was observed this year, although water levels appeared adequate.

Upper Slide Lake, BTNF – a pair was seen on the lake during an aerial flight on 1 April. Two young were produced this year at the traditional nest site on the south side of the lake.

Mosquito Lake, BTNF – the lake was still 80% frozen on 5 June. A pair was observed on a small sedge pothole north of the lake in July and on the lake in early September.

Mud Lake, BTNF – two young were hatched this year, but no swans were seen on the lake in early September. Cause of failure is not known, but adults may attempt to leave the lake before the young can fly due to poor food resources or disturbance. A wetland improvement project has been planned for this site and needs funding.

Carney Ranch, Green River – for the second year in a row, a pair produced young on this oxbow nesting area. Sale and potential development of this property may result in loss of this site in the future.

Kitchen Reservoir, CL Bar Ranch – a pair produced two young on the main (south) reservoir, and an immature pair molted on the reservoir pond to the north. One of the immature pair has a yellow leg band, which could not be read but is likely F05, a captive yearling released by the Department in 2003.

Kendall Wetland – a pair used this site inconsistently over the nesting season. Lack of quality forage may be limiting swan nesting here.

Barden (Oliver) Slough – a pair occupied this site but did not initiate nesting. Cold water temperatures appear to limit forage production at this site until later in the season. Another pair was seen early along the New Fork River south of the airport.

La Barge, Exxon Road Pond – no swan use; still muddy due to carp infestation. The Department's Habitat Trust Fund financed a habitat improvement project for \$5,000 in spring of 2005.

Seedskadee NWR – five pairs nested this year: four on the main Hawley Unit and one on the recently refilled Hamp Unit. For the first time in Wyoming, a pair (Pool 6 Hawley) produced and fledged seven young (first seen on 6 June). The Pool 1 pair produced leucistic cygnets for the third year in a row. Two hatched, but one was found dead on the nest post hatch; the other survived to fledge. Two out of three cygnets on Pool 3 were also leucistic this year. The Pool 2 nest had six eggs, but none hatched.

MORTALITIES

A record high number of mortalities (n=49) were documented for the 2005/2006 winter season (Table 5). A hard cold snap in mid-February resulted in an initial surge of mortalities followed by a low but steady stream of mortalities throughout April and into May (as the snow melt-off exposed additional carcasses). A total of 14 specimens were sent into the Department's lab for analysis; final reports are pending. Most of the intact carcasses found appeared to be emaciated, indicating lack of foraging resources in periods of sub-zero temperatures.

SIGHTINGS OF MARKED SWANS

Observations of marked Trumpeter Swans in Wyoming are presented in Table 6. The total number of observed neck-collared swans continues to decrease, likely as a result of loss of older collars and birds, and many of the reported observations were of swans seen in previous winters. One unusual report was of a collared swan on the Little Snake River area near Baggs, Wyoming that had been marked and released as a cygnet on the Henry's Fork in Idaho, December 2004. Two collared swans were also reported from Brown's Park Refuge in Colorado during the mid-February cold snap.

HABITAT IMPROVEMENT PROJECTS

We received funding from the Department's Habitat Trust Grant Program in 2005 to engineer and construct a water control structure and implement carp removal at a swan nest site on a private ranch in the LaBarge area. This was one of the high priority projects in the Upper Green River Trumpeter Swan Summer Habitat Improvement Project (Lockman 2005). With assistance from the regional Habitat and Access crew, water was diverted during the winter of 2005/2006 to drain the shallow wetland pond. Construction and installation of the water control structure began in April of 2006.

The National Elk Refuge, with support from Duck's Unlimited, repaired the water control structure and dike on Pierre's Pond #1 in November of 2004 and installed beaver deceivers on Romney #1 and #2 Ponds in August of 2005.

RANGE EXPANSION EFFORTS IN WYOMING – SALT RIVER

A record number of swans were observed in the Salt River drainage during the Mid-Winter Survey 2006: 124 adults and 37 cygnets. This compared to the previous year's count of 102 adults and 35 cygnets. The highest concentration in February of 2006 occurred along the river south of Grover Highway down to Swift Creek (n=79).

The only existing known nest site on private land appears to have been lost this year as a result of subdivision construction, placing homes around the edge of the wetland marsh

south of the town of Alpine. A pair was seen on site in May, but not later in the summer. The only summer swan use observed at the Alpine wetland complex was of one subadult in September of 2005.

The formation of the Star Valley Land Trust, affiliated with the Wyoming Stock Growers Agricultural Land Trust, may create funding opportunities in the future to develop wetland restoration projects for swan summer and winter habitat improvements.

RANGE EXPANSION EFFORTS IN WYOMING – GREEN RIVER

This year, production in the Green River basin swan range expansion area (n=22) exceeded that in the core Snake River/Jackson area (n=13). Ten sites were occupied by pairs in the Green River basin: five in the northern sections of the Green and New Fork Rivers in the Pinedale/Cora/Boulder area, and five south of the Fontenelle Dam at Seedskafee NWR. Seven pairs nested, seven hatched young (n=27), and six fledged young (n=22). Brood loss occurred again at Mud Lake, our highest priority site for wetland restoration/improvements.

On the fall 2005 survey, a total of 22 swans were observed on the Green River north of the Warren Bridge (18 adults, 4 cygnets), 6 on the New Fork River, and 40 south from Big Piney down to Big Island on the Green River (22 adults, 18 cygnets). The total fall swan count was 68 (46 adults, 22 cygnets).

On the Mid-Winter Survey, we observed a record number of swans (n=81; 61 adults, 20 cygnets). Five of the adults wintered along Forty Rod Creek near the Daniel Fish Hatchery, the most northern wintering habitat that stays open along the Green River corridor.

FUTURE MANAGEMENT OBJECTIVES

The Department's Nongame Program will focus on developing and funding wetland habitat improvement and restoration projects in the Green River (Lockman 2005), Salt River, and Snake River drainages. This will require forming multiple partnerships and seeking funding from a wide variety of sources. Given the growing summer and winter swan population in the state, and continuing drought conditions, it is urgent that the Department plays a lead role in swan habitat work. To obtain funding needed for costly habitat work, large-scale grants from the North American Wetlands Conservation Act and the recently developed Wildlife Natural Resource Trust Fund should be developed.

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Table 1. Mid-winter Trumpeter Swan survey for the Rocky Mountain Population in Wyoming and the Tri-State Area, 1988-2006.

Year	Age Group	Yellowstone National Park	Snake River	Other Wyoming	Wyoming Total	Tri-State Total
1988	Adult	67	107	8	182	1317
	Cygnet	18	25	3	46	413
	Total	85	132	11	228	1730
1989	Adult	96	182	15	293	1452
	Cygnet	21	32	7	60	291
	Total	117	214	22	353	1743
1990	Adult	78	154	15	247	1591
	Cygnet	32	42	4	78	416
	Total	110	196	19	325	2007
1991	Adult	61	187	38	286	1589
	Cygnet	14	34	13	61	342
	Total	75	221	51	347	1931
1992	Adult	108	63	141	312	1731
	Cygnet	4	17	13	34	472
	Total	112	80	154	346	2203
1993	Adult	178	222	71	471	1780
	Cygnet	39	55	9	103	455
	Total	217	277	80	574	2235
1994	Adult	137	198	55	390	1882
	Cygnet	24	60	14	98	644
	Total	161	258	69	488	2526
1995	Adult	141	256	71	468	2012
	Cygnet	41	61	30	132	668
	Total	182	317	101	600	2680
1996	Adult	130	255	89	474	2129
	Cygnet	24	72	12	108	580
	Total	154	327	101	582	2709
1997	Adult	74	224	59	420	2268
	Cygnet	3	62	16	105	431
	Total	77	286	75	525	2699

Table 1. Continued.

Year	Age Group	Yellowstone National Park	Snake River	Other Wyoming	Wyoming Total	Tri-State Total
1998	Adult	NS ^a	142	124	266	1756
	Cygnets	NS	26	13	39	307
	Total	NS	168	139	305	2063
1999	Adult	291	187	131	609	2698
	Cygnets	54	44	21	119	772
	Total	345	231	152	728	3470
2000	Adult	87	161	46	294	2694
	Cygnets	13	60	5	78	746
	Total	100	221	51	372	3440
2001	Adult	53	251	117	421	3198
	Cygnets	11	38	25	74	719
	Total	64	289	142	495	3917
2002	Adult	131	337	110	578	3814
	Cygnets	13	61	11	85	54
	Total	144	398	121	663	4360
2003	Adult	146	254	100	500	3365
	Cygnets	34	45	13	92	532
	Total	180	299	113	592	3897
2004	Adult	149	307	155	611	3785
	Cygnets	33	18	40	91	746
	Total	182	325	195	702	4531
2005	Adult	124	367	194	685	4147
	Cygnets	30	109	57	196	1143
	Total	154	476	246	881	5290
2006	Adult	121	413	242	776	4203
	Cygnets	14	58	53	125	1209
	Total	135	471	295	901	5412

^a NS = not surveyed.

Table 2. Fall Trumpeter Swan survey results for the Tri-State Area, 1988-2005. ^a

Year	Age Group	Montana	Idaho	Wyoming YNP	Wyoming Outside YNP	Tri-State Total
1988 ^b	Adult	268	87		109	464
	Cygnets	77	28		32	137
	Total	345	115		141	601
1989	Adult	294	101	25	85	505
	Cygnets	23	16	5	16	60
	Total	317	117	30	101	565
1990	Adult	245	92	25	70	432
	Cygnets	108	28	3	8	147
	Total	353	120	28	78	559
1991	Adult	176	138	30	70	414
	Cygnets	60	26	3	2	91
	Total	236	164	33	5	505
1992	Adult	156	109	26	99	390
	Cygnets	74	8	4	6	92
	Total	230	117	30	105	482
1993	Adult	60	94	26	68	248
	Cygnets	16	6	0	8	30
	Total	76	100	26	76	278
1994	Adult	70	79	30	60	239
	Cygnets	48	49	5	18	120
	Total	118	128	35	78	359
1995	Adult	84	118		105	307
	Cygnets	17	21		17	55
	Total	101	139		122	362
1996	Adult	95	127	20	74	316
	Cygnets	36	20	1	6	63
	Total	131	147	21	80	379
1997	Adult	90	112	18	92	312
	Cygnets	22	19	0	17	58
	Total	112	131	18	109	370
1998	Adult	105	110	20	69	304
	Cygnets	35	37	3	15	90
	Total	140	147	23	84	394

Table 2. Continued.

Year	Age Group	Montana	Idaho	Wyoming YNP	Wyoming Outside YNP	Tri-State Total
1999	Adult	120	103	20	69	312
	Cygnets	21	23	0	12	56
	Total	141	126	20	81	368
2000 ^c	Adult	127	102	20	69	318
	Cygnets	24	40	7	26	97
	Total	151	142	27	95	413
2001 ^d	Adult	140	124	17	81	362
	Cygnets	9	23	0	22	54
	Total	149	147	17	103	416
2002 ^e	Adult	76	103	22	72	273
	Cygnets	18	14	4	17	53
	Total	94	117	26	89	326
2003	Adult	89	100	16	86	291
	Cygnets	29	27	4	35	95
	Total	118	127	20	121	386
2004	Adult	89	112	16	74	291
	Cygnets	32	23	2	37	94
	Total	121	135	18	111	385
2005	Adult	112	136	18	89	355
	Cygnets	40	22	1	35	98
	Total	152	158	19	124	453

- ^a Data from Gomez 2000 and Department Annual Completion Reports.
- ^b Wyoming Outside YNP for these years includes data for entire state including YNP.
- ^c Wyoming Outside YNP results do not include 12 yearlings and 5 cygnets (grafted to Kitchen Reservoir pair when one day old) released in summer 2000 (Wyoming Wetland Society captive flock).
- ^d Wyoming Outside YNP results do not include three yearlings and five cygnets (grafted to Kitchen Reservoir pair when one day old) released in 2001 (Wyoming Wetland Society captive flock). Note: one cygnet was lost at Skyline Pond after fall survey flight.
- ^e Wyoming Outside YNP results do not include five yearlings released in 2002 (Wyoming Wetland Society captive flock).

Table 3. Occupancy and production of Trumpeter Swan nesting territories in Wyoming outside of Yellowstone National Park, 1990-2005. Mean and standard deviation are shown for the period 1990-2004.

Year	Sites Occupied	Nesting Pairs	Pairs with Hatchlings	Pairs with Fledglings	Number Hatched	Number Fledged
1990	19	13	4	3	11	8
1991	22	8	2	2	3	2
1992	29	10	5	3	17	9
1993	24	11	7	5	15	8
1994	20	13	8	5	29	18
1995	22	12	7	5	25	15
1996	21	13	5	4	12	4
1997	26	16	3	4	22	17
1998	25	18	10	7	26	15
1999	24	15	6	6	19	12
2000	26	16	10 ^a	9 ^a	35	26 ^a
2001	28	17	10 ^a	8 ^a	29	21 ^a
2002	24	10	9	8	23	17
2003	26	18	13	11	42	35
2004	22	17	14	11	54	37
<i>1990-2004</i>						
<i>Mean</i>	<i>23.9</i>	<i>13.8</i>	<i>6.9</i>	<i>5.0</i>	<i>24.1</i>	<i>16.3</i>
<i>SD</i>	<i>2.9</i>	<i>3.2</i>	<i>3.9</i>	<i>3.3</i>	<i>12.9</i>	<i>10.2</i>
2005	24	16	11	10	38	35

^a Does not include Kitchen pair, where eggs were collected and 5-day-old young were grafted to a pair successfully in 2000 (4 fledged) and 2001 (5 fledged).

Table 4. Trumpeter Swan territorial site occupancy and production status for Wyoming outside Yellowstone National Park, 1995-2005. ^a

Site	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Caribou-Targhee National Forest											
Ernest Lake	---	---	---	---	---	---	---	NB	NB	---	NB
Bergman Marsh					N51	N43	N00C	---	NB	---	---
Indian Lake	N00	N20	N10	N00	---	---	---	N33	N33	N55	N00
Widget Lake	---	---	---	---	---	---	---	---	F	---	---
Loon Lake						OL	---	---	F	---	---
Rock Lake	---	1A	1A	---	---	---	---	---	---	OL	OM
Junco Lake	---	---	OM	---	---	---	---	---	---	---	---
Fish Lake	---	---	---	---	---	---	---	---	---	---	---
Squirrel Meadows						OL	OL	NB	---	---	OL
Moose Lake								NB	---	---	---
Alpine Wetland	OM	---	N10	---	---	---	OL	1A	NB	NB	NB
Grand Teton National Park											
Upper Glade Marsh (new in 2006)											N00
Steamboat (new in 2002)								N43	OM	---	N00
Glade South	OM	OM	OM	OM	N11	O	N22	OM	N00	N10	N22
Glade North	---	---	---	---	---	---	---	---	---	---	---
Christian Pond	N43	N00	N44	N22	N42	N42	OM	1A	---	---	---
Arizona Lake	OM	1A	---	---	---	---	---	---	---	---	OM
Emma Matilda	---	---	---	---	---	---	OM	1A	NB	---	---
Two Ocean Lake	---	---	---	---	---	N42	N53	N32	N30	N00	OM
Swan Lake	N00	N00	N00	N00	N00	O	N00	O	N00	N33	NB
Hedrick Pond	N30	N00	N00	N00	N00	N20	N20C	O	O	---	NB
Elk Ranch	N00	N00	N55	N21	OM						
Cow Lake	OM	OM	OM	O	---	---	---	---	---	---	---
Spread Cr. Ponds	1A	1A	---	---	---	---	---	NB	---	---	---
Cygnets Lake	---	---	---	---	---	---	---	---	---	---	---
Polecat Slough	---	---	---	---	---	---	---	---	---	---	---
National Elk Refuge											
Hwy Pond	N00	N50	OM	N00	O	N44	N32	N11	N10	---	N00
NW Marsh	N55	N43	N00	N11	N00	N31	N00	N42	N33	N44	---
SE Marsh					N00	N32	OM	N00	N11	N43	O
Central Marsh							N33	N00	---	N22	N44
W. Pierre	OM	N11	N00	N40	---	N00	OM	N11	N33	OM	O
Romney Ponds										OM	OL
Jackson area – Private Land											
Skyline/Puzzleface	OM	OM	OM	OM	OM	OM	N30	OM	OM	O	NB
South Park Ponds	OM	1A	1A	---	---	---	---	---	---	---	1A
Pinto/Halfmoon	OM	N50	OM	OM	N00	N66	N44	N11	O	N31	N55
Fir Creek	---	---	---	---	---	---	---	---	---	---	---
KOA	---	---	---	---	---	---	---	---	---	---	---
Ford's	OM	---	---	---	---	---	---	---	---	---	---
Tracy Lake	---	---	---	---	---	---	---	---	---	---	---
Ferrin Pond	---	---	---	---	---	---	---	---	---	---	---
Salt River – Private Land											
Kibby Pond				N22	OM	N00	N00	N00	N00	N00	NB

Table 4. Continued.

Site	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Bridger-Teton National Forest North Zone											
Bridger Lake	1A	---	OM	---	OL	OL	OL	---	---	---	---
Atlantic Creek	OM	OM	N33	N22	N22	O	O	---	---	---	---
Enos North	N22	N00	N00	N00	---	N22	OM	OM	N44	---	---
Enos South	N43	N20	OM	---	N32	---	---	---	---	---	---
Lily Lake	OM	---	---	---	OL	OL	OM	N00	N20	---	---
Lower Slide Lake	---	---	---	---	---	---	---	---	---	---	---
Upper Slide Lake	N00	N10	N00	N66	N00C	N00C	N22	NB	OM	N11	N22
Grizzly Lake pothole	N40	N00	OM	---	OL	---	---	---	---	---	---
Burnt Fork	---	---	N11	---	---	---	---	---	---	---	---
Soda Lake	---	---	---	---	---	---	---	---	---	---	---
Bridger-Teton National Forest South Zone											
Wagon Cr. Lake	---	---	---	---	---	O	O	NB	O	O	---
Rock Crib	OUID	OM	OM	---	---	---	---	---	O	---	---
Mosquito Lake	---	---	OM	---	OL	O	N00	OM	1A	OL	---
Roaring Fork P.	OUID	OM	OM	---	---	OL	O	---	---	---	---
Mud Lake	N32	N20	N00	N20	N00	N00	---	N20	---	N50	N20
Green/New Fork Rivers – Private Land											
Carney oxbow										N55	N22
Kitchen Res. South					N00	C N54 grafted	C N55 grafted	N44	N54	N44	N22
Kitchen Res. North							NB	NB	NB	NB	OM
Kendall Wetland							OL	OM	N00	N00	NB
Oliver (Barden) Slough						N00	N00	---	N00	OM	OM
Big Sandy Reservoir	OM	OM	---	---	---	---	---	---	---	---	---
Swift Reservoir								OM	NB	NB	---
Shafer Slough							OM	---	NB	---	---
LaBarge Pond								---	---	---	---
Seedskaadee NWR											
Hawley Pool 6	---	---	N55	N42	N44	N44	N44	dry	N44	N65	N77
Hawley Pool 1	---	---	1A	OM	OM	---	N11	NB	N44	N60	N65
Hawley Pool 2									N44	N54	N00
Hawley Pool 3									N43	---	N33
Hamp Unit											N33
Other Wyoming											
Swamp Lake	OM	1A	1A	---	---	1A	1A	1A	1A	---	---
Colony Site	N20	N00	N00	OM	?	?	OUID	1A	NB	NB	NS

Table 4. Continued.

^a Key to Table 4 Codes:

O	Pair occupied territory through nest period, did not attempt to nest, and did not molt on site.
OM	Pair occupied territory through nest period, did not attempt to nest, but molted on site.
OL	Pair appeared late in season (new code added 2000 not counted as an occupied site for season).
OID	Pair occupied the site, status of pair unidentified or status of site as a territory unidentified.
N42	Pair nested, laid eggs, hatched four eggs, and fledged two cygnets.
---	No occupancy of site by a pair.
C	Eggs collected for captive rearing project (new code added 2000).
1A	Only one adult occupied the site throughout the nesting season.
?	Number or status of occupancy unknown.
NB	Non-breeding birds present during some portion of nesting season (new category added 2002).
F	Swans present fall survey flight only (category added 2003).
NS	Not surveyed.

Table 5. Summary of Trumpeter Swan annual mortalities in Wyoming showing age class and probable cause of death, 1991 through spring 2006.

Year ^a	Total # Died	# of Adults ^b	# of Yearlings	# of Cygnets	Collision	Predation	Shot	Infection	Unknown
1991-1995	38	21		17	12	4	10	1	11
1995/1996	11	9		2	5		2		4
1996/1997	8	3		5	4				4
1997/1998	5	No data							
1998/1999	10	8		2	2	1		1	6
1999/2000	10	7		3	6	2	1		1
2000/2001	34	18	4	12	6	5			23
2001/2002	14	8	3	3	3	2			9
2002/2003	12	6	2	4	1	1	2		8
2003/2004	38	21	7	10	3	5		5	25
2004/2005	9	3	2	4	0	6			3
2005/2006 ^c	49	27	?	11	1		1		47
<i>Total^d</i>	<i>176</i>	<i>98</i>	<i>18</i>	<i>49</i>	<i>22</i>	<i>22</i>	<i>4</i>	<i>6</i>	<i>126</i>
<i>Percent</i>		<i>59%</i>	<i>11%</i>	<i>30%</i>	<i>12.5%</i>	<i>12.5%</i>	<i>2%</i>	<i>3%</i>	<i>72%</i>

^a Mortality total for years 1991-1995 is not broken out by individual years; the following years' data are recorded for 15 April through 14 April for each period but also includes carcasses/remains found after snow melt in May.

^b Swans with all white plumage over one year of age; likely some yearlings are included in this group.

^c Age not determined for 11 reported mortalities. Necropsy reports not completed on 14 specimens submitted to lab.

^d Summary statistics are calculated only for the years 1998-2006.

Table 6. Summary of Trumpeter Swan neck collars and leg bands observed in Wyoming or eastern Idaho, 15 April 2005 through 14 April 2006. Codes for age: HY = hatch year (cygnet), AHY = after hatch year (yearling or older), SY = second year (yearling), ASY = after second year (adult older than yearling). HSP=Harriman State Park.

Neck Collar	Leg Band or Patagial Tag	Date	Location	Origin/Notes	Sex	Age
Y21 yellow	1939-01674	Sept. 2005	Snake River GTNP	Found dead/scavenged		
6H3 green?		11/01/05	Oxbow, Snake River, GTNP	Only last two digits read; but likely this swan		
42H green		11/23/05	Boyle's Hill Pond, Jackson	Adult Dec. 1993 RRL capture; released Summer Lake	M	ASY
9Y5 yellow		12/01/05	Little Snake River, 7-8 miles west of Baggs, WY	Called in; captured HSP Dec. 2004; released HSP		
	Yellow leg band F05?	12/18/06	Boroff Reservoir, Daniel FH	Number not read but F05 only remaining yellow leg band; WY yearling release Cora July 2002; summers at Kitchen Middle Reservoir		ASY
J38 green		12/18/05	Boroff Reservoir, Daniel FH	See below for data; green collar seen on bird in flight; likely this swan		
Y80 yellow		2/07/06	Evan's Pond, south of Jackson	Collared HSP 2003 cygnet; released on site		
31E green		2/07/06	Etna, Salt River slough CR 109	Cygnet capture release HSP Nov 2001, mate & 0 cyg	F	ASY
54E green		2/07/06	Etna, Salt River slough CR 109	Cygnet capture HSP Nov. 2001, released Bear River, mate and 4 cygnets	M	ASY
J38 green		2/09/06	Boroff Reservoir, Daniel Fish Hat	Captured ASY RRL 92; released Fort Hall	F	ASY
31E green		2/13/06	Etna, Salt River slough CR 109	See above		
54E green		2/13/06	Etna, Salt River slough CR 109	See above		
23R yellow		2/21/06	Brown's Park NWR Colorado	Found during hard cold snap on Green River; called in		
0Y8 yellow		2/21/06	Brown's Park NWR Colorado	Found during hard cold snap on Green River; called in		
42H green		2/26/06	Three Creeks Resort, Jackson	See above		
56R green		3/6/06	Teton Valley, Cache Rd. Idaho	Field feeding with 88 other swans, cow pasture		
Y80 yellow		3/25/06	Evan's Pond, south of Jackson	See above		
	1939-00688	March 2006	TSS Boyle's Hill Pond	Seen when trapping captive flock birds; banded Alberta July 20, 2004		

LONG-BILLED CURLEW SURVEYS IN WESTERN WYOMING COMPLETION REPORT

STATE OF WYOMING

NONGAME BIRDS – Species of Special Concern
Long-billed Curlew

PERIOD COVERED: 15 April 2005 – 14 April 2006

PREPARED BY: Andrea Orabona Cerovski, Nongame Bird Biologist

INTRODUCTION

The purpose of the Long-billed Curlew surveys in 2005 was to provide an indication of curlew population trends in portions of their breeding range in Wyoming. Surveys were conducted along the same routes as in previous years so long-term monitoring of Long-billed Curlew populations can be accomplished in the Pinedale/Merna, Cody, and Jackson areas. Additional routes will be added in eastern Wyoming.

METHODS

Cochrane (1983) conducted roadside curlew surveys from 8 May to 19 July 1982, modifying the Breeding Bird Survey (BBS) technique (Robbins and VanVelzen 1967) to sample the greatest number of birds over the greatest distance (Cochrane and Oakleaf 1982). Surveys began 20 minutes before sunrise, with visual counts made every 0.5-mile (0.8 km) along the survey route using nine power binoculars. Curlews that were heard calling but that could not be located during the five-minute stop were excluded from the count, whereas those observed while driving between stops were included. Flocks were defined as groups of five or more individuals observed together.

In 1987, Cochrane's survey routes and methods were replicated. Since 1991, however, Long-billed Curlew survey methodology was modified to include both the number of curlews seen and heard to better represent the total number of curlews present along each route.

The number of stops on each route conducted in 2005 depended on the amount of suitable curlew habitat available to survey. As in past years, the Horse Creek survey route contained 17 stops, the New Fork route contained 9 stops, and the Chapman Bench route contained 10 stops. The Grand Teton National Park (GTNP) Hayfields route contained 23 stops; however, in past years, this route contained 20 stops but was modified in 1997 due to a washout of the Mormon Row Road and the likelihood that the

Ditch Creek crossing may never be repaired. The three additional stops were added to ensure that the route ended in the same place. Curlew surveys on the National Elk Refuge were discontinued due to lack of curlews on the survey route. Locations of each survey route have been reported in previous Nongame Completion Reports and are maintained in the Nongame files at the Department's Lander Regional Office.

Typically, two Long-billed Curlew surveys are conducted along the same routes that Cochrane surveyed in 1981 and 1982. With the exception of the GTNP Hayfields route, which was not run in 2005, each survey was conducted twice: Horse Creek on 16 and 25 May, New Fork on 14 and 23 May, and Chapman Bench on 21 and 22 May. Surveys at the four sites were conducted in a manner similar to that of Cochrane (1983) and are scheduled to coincide with the peak in curlew concentrations noted by Cochrane (1983). Total number of curlews seen at each stop, those that were heard but could not be seen, and those that were both seen and heard was all recorded. For each survey, results were converted to number of curlews seen per mile (per km) of road surveyed so data could be compared between-years for each route.

RESULTS

All Long-billed Curlew survey data (number of curlews seen and heard, and comments made during each survey) are located in the Nongame files at the Department's Lander Regional Office. Total number of individual Long-billed Curlews detected on each survey route is as follows: 26 and 38 on Horse Creek, 10 and 8 on New Fork, and 5 and 4 on Chapman Bench. The average number of curlews recorded per mile (per km) on each route is presented in Table 1. This includes curlews that were observed, those that were heard but not seen, and those that were both observed and heard, but does not include duplicate detections that may have occurred.

Twenty-two Breeding Bird Survey (BBS) routes have recorded curlews since 1968 when BBS routes were initiated in Wyoming; 10 of these routes were conducted in 2005 with a total of 4 curlews observed on 1 of the 10 routes (Table 2). Counts in previous years have fluctuated from a low of 1 curlew recorded on 1 of 15 routes completed in 1998, to a high of 19 curlews recorded on 8 of the 16 routes conducted in 1999.

DISCUSSION

Several factors must be considered when comparing survey results between years. Curlew counts vary from one survey to the next due to weather conditions affecting visibility, fluctuations in noise levels, and actual fluctuations in curlew numbers. Therefore, it is beneficial to conduct a minimum of two surveys along each route per year for a better indication of the presence of curlews. Also, starting in 1991, the number of curlews that were seen only, heard only, and those that were both seen and heard have been recorded on each route. When taking audio identification data into consideration, the number of curlews per mile (per km) is higher than if visual identification alone is

used. Therefore, recording both audio and visual curlew observations better represents the actual number of curlews present along each route than either observation alone.

The number of curlews detected on BBS routes in Wyoming has also fluctuated, making it difficult to determine trends using this methodology. In past years, significant declines in Long-billed Curlew populations have been reported. Some speculation may offer possibilities for this apparent decline. On some routes, changes in observers may have led to fewer or no curlews being heard, depending on the expertise of each observer. To help minimize observer bias, one of the goals of the BBS program is to retain the same observer on each BBS route. Uncontrollable factors that occur while running BBS routes, such as reduced visibility and birds not calling or calling outside of hearing range, may also affect the number of curlews recorded.

ACKNOWLEDGEMENTS

The Nongame Program would like to acknowledge the following Department biologists for their valuable contributions to the 2005 Long-billed Curlew monitoring effort: Dean Clause, Doug McWhirter, and Scott Smith.

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Table 1. Long-billed Curlew survey route results, 1987 and 1991-2005.^a

Year	Horse Creek Route		New Fork Route		Chapman Bench Route		Grand Teton NP Hayfields Route	
	Number of Curlews Recorded	Curlews / mile (km)	Number of Curlews Recorded	Curlews / mile (km)	Number of Curlews Recorded	Curlews / mile (km)	Number of Curlews Recorded	Curlews / mile (km)
1987	11 ^b	1.4 (0.9)	13 ^b	3.3 (2.0)	----	----	----	----
1991	75 ^b	9.4 (5.8)	25 ^b	6.3 (3.9)	----	----	----	----
1992	53	6.6 (4.1)	7	1.8 (1.1)	26 ^b	3.7 (2.3)	----	----
1993	65	8.1 (5.1)	5	1.3 (0.8)	14 ^b	2.0 (1.2)	10 ^b	0.9 (0.6)
1994	45	5.6 (3.5)	11	2.8 (1.7)	7 ^b	1.0 (0.6)	----	----
1995	53 ^b	6.6 (4.1)	12 ^b	3.0 (1.9)	0 ^b	0.0 (0.0)	19 ^b	2.0 (1.2)
1996	113	14.1 (8.8)	17	4.3 (2.6)	7	1.0 (0.6)	3	0.3 (0.2)
1997	40	5.0 (3.1)	42	10.5 (6.5)	0 ^b	0.0 (0.0)	7	0.6 (0.4)
1998	43	5.4 (3.3)	10	2.5 (1.6)	5	0.7 (0.4)	14	1.3 (0.8)
1999	39	4.9 (3.0)	10	2.5 (1.6)	3	0.4 (0.3)	13	1.2 (0.7)
2000	42	5.3 (3.3)	5	1.3 (0.8)	8	1.1 (0.7)	----	----
2001	32	4.0 (2.5)	8	2.0 (1.2)	0	0.0 (0.0)	12	1.1 (0.7)
2002	31	3.9 (2.4)	6	1.5 (0.9)	6	0.9 (0.5)	10	0.9 (0.6)
2003	33	4.1 (2.6)	9	2.3 (1.4)	7	1.0 (0.6)	5	0.5 (0.3)
2004	31	3.9 (2.4)	9	2.3 (1.4)	6	0.9 (0.5)	8	0.7 (0.5)
2004 ^c	81	10.1 (6.3)	2	0.5 (0.3)	----	----	----	----
2005	32	4.0 (2.5)	9	2.3 (1.4)	5	0.7 (0.4)	----	----

^a If more than one survey was conducted, the average number of curlews recorded was used.

^b Only one survey was conducted.

^c Results from the 12 May survey using USFWS protocol.

Table 2. Breeding Bird Survey data for Long-billed Curlews, 1980-2005. A blank indicates a year when a survey was not conducted. An asterisk identifies the routes most useful for monitoring this species.

Route #	Route Name	Year																				Route Total		
		1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999		2000	2001
9	Dubois	0	0	0	0	0	0		0	0	0	1	0	0	0			0	0					1
15	Fontenelle			0	0	0			0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	3
28	Yoder	0	0	0				0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
*33	Clark											0	2	3								4	1	10
*36	Moose	0	0	0	0	1	0	2	0	1	2	2	2	0	0	0	2	4	4	0	4	0		24
45	Recluse	0		0	0			0	0	0		2	1	3	0	0	0	0	0	0	0	0	2	8
48	Seely ^a											2	0	0	0	0	0	0	0	0	0	0	0	2
67	Highlight	0	0	0	0				0		0	0	0	1		0								1
*69	Newcastle									1	4	0		2	0	2	0	0	0	0	1	0	0	10
71	Soda Lake	0	0	0	0	0	0			0		0	3	1	0	0	0		0				0	4
*74	Boulder			0	2	2							0			0	0		0	0	3			7
*75	Big Sandy		0		0				0	2	7	5		3		6		8	0	0	3	1	5	40
76	Farson				1												0						0	1
*82	Lamont								1	0	0	1	1	1	0	0	0	1	0	0	1	2	1	9
83	Pathfinder			1	0	0			0	0	0	0	0		0	0	0	0	0	0	0	0	0	1
*89	Meadowvale				0	13	0				0	2	0	0		0	0							15
*90	Lusk			7	9	0			0	0	0	0	0	1	0	0	0			0	5	1	0	23
*93	Mtn. View	11	10	9	5				0		0	0	0			0					0		0	35
150	Gov't. Valley													0	0	0	0	0	3	0	1	0	2	6
173	Ryegrass	1	0	0	0	1	0			1						0		0	0	0	0	1	0	4
195	Seedskadee	0	2	0	0	0		0						0	1	0	0	0	0	0	0		0	3
206	Caballa Creek													4	0	0	0	0	0	1	0	0	0	5
<i>Total Observed / Year</i>		12	12	17	17	17	0	2	1	7	14	15	9	19	1	8	2	13	7	1	19	9	11	213

Table 2. Continued.

Route #	Route Name	Year				Route Total
		2002	2003	2004	2005	
9	Dubois					1
15	Fontenelle	0	0	0	0	3
28	Yoder	0	0	0	0	1
*33	Clark	1	0	4	0	15
*36	Moose		1	0		25
45	Recluse	2	1	2		13
148	Seely 2 ^a	0		2	0	4
67	Highlight					1
*69	Newcastle					10
71	Soda Lake	0	0		0	4
*74	Boulder	0	0			7
*75	Big Sandy				0	40
76	Farson	5				6
*82	Lamont	0		0		9
83	Pathfinder	1	0	0	0	2
*89	Meadowvale	0	0			15
*90	Lusk			4	4	31
*93	Mtn. View	0	1			36
150	Gov't. Valley	0	0	0	0	6
173	Ryegrass	0	3	1		8
195	Seedskadee	2	0			5
206	Caballa Creek	0	0		0	5
<i>Total Observed / Year</i>		<i>11</i>	<i>6</i>	<i>13</i>	<i>4</i>	<i>243</i>

^a Route #48 (Seely) was modified in 2002 and is now #148 (Seely 2).

BOREAL OWL SURVEY COMPLETION REPORT

STATE OF WYOMING

NONGAME BIRDS – Species of Special Concern
Boreal Owl

PERIOD COVERED: 15 April 2004 – 14 April 2006

PREPARED BY: Andrea Cerovski, Nongame Bird Biologist
Ron Lockwood, Wildlife Biologist

INTRODUCTION AND METHODS

The Boreal Owl is classified as a Special of Greatest Conservation Need (SGCN) by the Wyoming Game and Fish Department (Department) due to population status and trends that are unknown but suspected to be stable and habitat that is restricted or vulnerable but without recent or on-going significant loss (Wyoming Game and Fish Department 2005). It is also classified as a Sensitive Species by the U.S. Forest Service (USFS).

Habitat for this species occurs in parts of the Department's Green River Region; however, specific surveys to document nesting in this region had not been conducted prior to initiating surveys in the late winter of 2000. The Department is interested in documenting the presence/absence of Boreal Owls throughout the state and the extent of potential nesting habitat in the various forests that occur in Wyoming.

In the Rocky Mountain region, Boreal Owls typically inhabit mature, high elevation subalpine forests comprised of Englemann spruce, subalpine fir, and mature lodgepole pine, with some use of mature aspen stands that are interspersed with the conifer types listed above (Garber et al. 1991). Forests should have many openings or an open stand structure for foraging, and trees large enough for Northern Flicker cavities (Boreal Owls nest in relatively large cavities). Elevational range for Boreal Owls in Wyoming during the breeding season is 6,560 to 10,630 feet (based on 31 records) (Garber et al. 1991).

Surveys are conducted during the peak breeding season when males are calling, typically between 1 March and 15 April. Each survey route is conducted twice, with a minimum of two weeks between replicates. If Boreal Owls are heard during the first survey, presence has been documented and a replicate is not necessary.

For survey forms and details on survey methodology, refer to Cerovski (1999).

RESULTS

A snowmachine survey was conducted for Boreal Owls in the Upper Gray's River drainage within the Bridger-Teton National Forest (BTNF) on 21 March 2005. Boreal Owls were documented at two of the eleven stops along the five-mile survey route. A total of three Boreal Owls, one male and two females, were heard vocalizing in response to the Boreal Owl call playback tape.

A completed data sheet for the above survey is available from the Wyoming Game and Fish Department Nongame Bird Biologist.

DISCUSSION

The presence of Boreal Owls has been documented on the BTNF in the past; however efforts were conducted in the northern portion of the forest prior to initiating these surveys in the southern portion in 2000 and 2001. Suitable, but limited, nesting habitat for this species is present in the southern portion of the BTNF within the Department's Green River Region. Therefore, this species can be categorized as a SGCN on the entire BTNF. Furthermore, based on the timing of the surveys and the response of Boreal Owls to the call tape (a male Boreal Owl vocalizing on breeding territory), it appears that: 1) male Boreal Owls were advertising their presence to potential mates and rivals within their territories, 2) a female Boreal Owl was responding to the male Boreal Owl on the call tape, and 3) this species was attempting to breed in this portion of the BTNF.

The 2005 survey was conducted in mature Englemann spruce-subalpine fir and mixed mature spruce-fir/mature lodgepole pine habitats with scattered small to large openings. It is apparent that these habitat types are necessary to provide breeding habitat for Boreal Owls. The importance of maintaining these mature forest habitat conditions within the Bridger-Teton National Forest cannot be overstated, and care should be taken to restrict habitat loss via removal of mature spruce-fir and lodgepole pine stands.

Additional surveys will be conducted within the Green River Region to determine the distribution of Boreal Owls in other drainages within the Bridger-Teton National Forest.

ACKNOWLEDGMENTS

Special thanks are extended to Dr. Greg Hayward, University of Wyoming, for providing information and advice on conducting Boreal Owl surveys.

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RAPTOR NESTING SURVEY COST-SHARE AGREEMENT COMPLETION REPORT

STATE OF WYOMING

NONGAME BIRDS – Species of Special Concern
Raptors

PERIOD COVERED: 15 April 2004 – 14 April 2005

PREPARED BY: Andrea Orabona Cerovski, Nongame Bird Biologist

INTRODUCTION

The purpose of this study is to provide baseline data on raptor nesting activity associated with lands administered by the Bureau of Land Management (BLM) Casper Field Office, and to inventory known and document new nest locations on the U.S. Forest Service Thunder Basin National Grassland (TBNG) in northeastern Wyoming.

A cost-share agreement to survey for nesting raptors was initiated in 1996 between the BLM, TBNG, and Wyoming Game and Fish Department (Department) and has continued each year since, excluding 2003. In 1997-2002 and 2004, priority survey areas included specific portions of the TBNG and regions of the BLM Platte River, Buffalo, Newcastle, and Casper Resource Areas that had not been previously surveyed, including lands proposed for coal bed methane production. Surveys in 2005 focused on two priority areas within the Casper Resource Area and five priority areas within the TBNG.

Funding for this cooperative effort was provided by the BLM and TBNG. The Department conducted all aerial surveys.

METHODS

The 2005 survey followed similar study parameters detailed in previous years' raptor nest survey reports. Survey transects were established at 0.5-mile (0.8 km) intervals. Transects were flown in an Arctic Tern fixed-wing aircraft from 15 May through 3 June (the 2005 surveys started much later in the season compared to previous years due to the length of time it took to obtain the necessary pre-survey paperwork). The Department's Nongame Contract Biologist, Nate Maxon, and Nongame Bird Biologist, Andrea Cerovski, conducted all aerial surveys. No ground surveys or follow-up aerial surveys were conducted in 2005.

A Geographic Positioning System (GPS) unit was used to record nest locations and maintain accurate flight patterns on survey transects. Each located nest was observed for

evidence of nesting activity and the presence of adult birds, young birds, or eggs. The physical condition of each observed nest was also noted. All raptor nests encountered, regardless of activity or condition, were recorded. Observations were recorded at each nest using the field names and codes presented in Appendix I.

RESULTS AND DISCUSSION

Approximately 40 hours of flight time was expended to search for, locate, and observe nests during the survey (ferry time is not included in this total). Inventories were not completed in all priority areas due to the limited amount of survey time available, and windy conditions during the survey period, which reduced flight time. Surveys were conducted in part of the first and all of the second of the BLM's priority areas, and in three of the TBNG's five priority areas.

Results of nesting surveys are summarized in Tables 1 and 2 for the BLM and TBNG, respectively. Codes used during the survey and in the data tables are presented in Appendix I. Specific nest locations are detailed in Appendix II and were also provided to each funding agency in electronic format. Nest locations and data files are not intended for general distribution and should be used for management purposes only.

A total of 82 raptor nests were located within the BLM-administered priority areas (Table 1). Surveys located 45 occupied diurnal raptor nests, including Ferruginous Hawk (n = 14), Golden Eagle (n = 5), Red-tailed Hawk (n = 14), Swainson's Hawk (n = 6), and unknown raptor species (n = 6). One occupied Great Horned Owl nest was located. Numerous unoccupied nests and unoccupied nests in varying degrees of disrepair were also recorded (n = 36).

A total of 104 raptor nests were located within the Thunder Basin National Grassland priority areas (Table 2). Surveys located 54 occupied diurnal raptor nests, including Bald Eagle (n = 1), Ferruginous Hawk (n = 14), Golden Eagle (n = 9), Red-tailed Hawk (n = 28), Swainson's Hawk (n = 3), and unknown raptor species (n = 2). Six occupied Great Horned Owl nests were documented. A total of 40 unoccupied nests or unoccupied nests in varying degrees of disrepair were also recorded.

The 1996, 1997, and 1998 surveys were conducted to coincide with the timing of the incubation, hatching, and pre-fledging stages for Ferruginous Hawks and the nestling stage (post-hatching and pre-fledging) for Golden Eagles. The surveys in 1999-2004 (excluding 2003 when surveys were not conducted) were initiated two to three weeks earlier than previous years due to slightly different project objectives in 1999 and to avoid the observation problems with early leaf-out that occurred in 1998. Therefore, the 1999-2004 surveys coincided with the timing of the incubation and hatching stages for Ferruginous Hawks and the incubation, hatching, and nestling stages for Golden Eagles. The 2005 surveys were planned for the same time frame as 1999-2004. However, delays in obtaining the necessary pre-survey paperwork precluded initiating the inventory until mid-May.

A few biases have been noted during past surveys that should receive consideration during future efforts or evaluations of results. Swainson's Hawk nests often deteriorate during the winter, and their late arrival in the spring means that this species may be missed during surveys in late April or early May (this was not an issue in 2005, however, due to the later survey time frame). Falcons cannot be adequately detected with fixed wing aircraft surveys, and the absence of records for raptor species known to occupy habitats in northeastern Wyoming should not be considered documentation that they do not occur in the survey areas. Adequate ground or helicopter surveys would be required to document nesting falcons, neither of which was conducted in 2005.

Table 1. A summary of the 2005 raptor nest survey for the Bureau of Land Management Casper Field Office Priority Areas.

Species	OCCU	OCAC	UNOC	UNDI	UNDE	Total Nests
Ferruginous Hawk	3	11	14	7	3	38
Great Horned Owl	1					1
Golden Eagle		5	2	1	1	9
Red-tailed Hawk		14	4			18
Swainson's Hawk	1	5				6
Unknown raptor	1	5	4			10
Total Nests	6	40	24	8	4	82

Legend:

- OCCU An occupied nest with two adults present at or near the nest and/or fresh lining material in the nest.
- OCAC An occupied, active nest in which a breeding attempt was made, indicated by the presence of an incubating or brooding adult, eggs or young in the nest, or fledged young near the nest.
- UNOC An unoccupied nest that is in good condition but with no apparent recent use or adult presence at the time of the observation.
- UNDI An unoccupied, dilapidated nest in a state of ruin due to weather, natural aging, and/or neglect.
- UNDE An unoccupied nest showing no sign of raptor activity that is destroyed to the point that it is no longer useable without major reconstruction. These nests, for all practical purposes, have disappeared.

Table 2. A summary of the 2005 raptor nest survey for the Thunder Basin National Grassland Priority Areas.

Species	OCCU	OCAC	UNOC	UNDI	UNDE	Total Nests
Bald Eagle		1				1
Ferruginous Hawk	4	10	18	4	4	40
Great Horned Owl		6				6
Golden Eagle	1	8	1			10
Red-tailed Hawk		28			1	29
Swainson's Hawk	1	3				4
Unknown raptor		2	11		1	14
Total Nests	6	58	30	4	6	104

Legend:

- OCCU An occupied nest with two adults present at or near the nest and/or fresh lining material in the nest.
- OCAC An occupied, active nest in which a breeding attempt was made, indicated by the presence of an incubating or brooding adult, eggs or young in the nest, or fledged young near the nest.
- UNOC An unoccupied nest that is in good condition but with no apparent recent use or adult presence at the time of the observation.
- UNDI An unoccupied, dilapidated nest in a state of ruin due to weather, natural aging, and/or neglect.
- UNDE An unoccupied nest showing no sign of raptor activity that is destroyed to the point that it is no longer useable without major reconstruction. These nests, for all practical purposes, have disappeared.

RAPTORS TAKEN FOR FALCONRY

FALCONRY COMPLETION REPORT

STATE OF WYOMING

NONGAME BIRDS – Raptors

PERIOD COVERED: 1 January 2005 – 31 December 2005

PREPARED BY: Laurie Van Fleet, Nongame Biologist
Jason Hunter, Wildlife Technician

SUMMARY

In 2005, a total of 42 falconry licenses were issued. Of these 42 licenses, 13 raptors were captured in Wyoming for use in falconry (Table 1). The average number of birds captured between 1981-2005 is 46.8%, with the capture success rate in 2005 at 31% (Table 2). Compared with 1981-2004, the number of birds captured and the success rate in 2005 has dropped to that of the mid 1990s (Table 2).

Unlike previous years, the Wyoming Game and Fish Department no longer requires falconers to list the species they desire to capture or the area in which they desire to capture them when they apply for a falcon capture license. However, five falconry licenses were issued in 2005 for Peregrine Falcons on a first come basis.

Based on the number of falcons captured, the Northern Goshawk was in greatest demand, followed by the Golden Eagle and Peregrine Falcon (Table 2).

Residents had a slightly higher capture success rate than nonresidents. Nineteen resident licenses were issued and six birds were captured, for a capture success rate of 32%. Twenty-three nonresident licenses were issued and seven birds were captured, for a capture success rate of 30%.

Data are no longer being collected on the number of falconers, species of raptors used for falconry, number of days spent training raptors, number of days spent hunting with raptors, or species of animals taken by raptors in Wyoming.

Table 1. Wyoming falcons captured by species, 2005.

Species	Resident Captures	Non-resident Captures	Total Captures
Ferruginous Hawk	0	0	0
Golden Eagle	0	2	2
Northern Goshawk	0	3	3
Gyr Falcon	1	0	1
Peregrine Falcon	1	2	3
Prairie Falcon	2	0	2
Red-tailed Hawk	2	0	2
<i>Total Captured</i>	<i>6</i>	<i>7</i>	<i>13</i>

Table 2. The number of raptors captured and the capture rate (%) in Wyoming, 1981-2005.

Year	Number of Raptors Captured	Capture Rate (%)
1981	27	37
1982	40	52
1983	18	18
1984	25	33
1985	39	53
1986	33	35
1987	19	36
1988	28	51
1989	26	55
1990	32	68
1991	29	66
1992	22	53
1993	13	37
1994	21	33
1995	12	30
1996	25	47
1997	19	61
1998	31	63
1999	27	55
2000	24	57
2001	21	45
2002	29	58
2003	21	49
2004	33	48
2005	13	31

OTHER NONGAME

BREEDING BIRD SURVEY COMPLETION REPORT

STATE OF WYOMING

NONGAME BIRDS – Other Nongame

PERIOD COVERED: 15 April 2005 – 14 April 2006

PREPARED BY: Andrea Orabona Cerovski, Nongame Bird Biologist
U.S. Geological Survey - Biological Resources Division

INTRODUCTION AND METHODS

The Breeding Bird Survey (BBS) is sponsored jointly by the U.S. Geological Survey – Biological Resources Division (USGS-BRD) (formerly the U.S. Fish and Wildlife Service) and the Canadian Wildlife Service. Surveys are used to monitor population trends of bird species that nest in North America. Survey routes are 24.5 miles (39.4 km) long and consist of 50 stops spaced 0.5 miles (2.1 km) apart. Beginning at sunrise, observers record every bird seen and heard at each stop during a three-minute time period. Population trend information obtained from route analysis is especially useful if a species is adequately monitored using this survey method and if routes are conducted annually over the long term.

RESULTS AND DISCUSSION

In 2005, 2,844 BBS routes were conducted in Canada and the United States. The Wyoming Game and Fish Department (Department) Nongame Bird Biologist serves as the state BBS coordinator. The Department uses BBS data to monitor populations of many bird species, especially terrestrial species and those for which no other means of monitoring is presently feasible.

The number of Wyoming BBS routes completed in 2005 (n=55) decreased by 7 from 2004 (n=62), decreased by one from 2003 (n=56), decreased by four from 2002 (n=59), and decreased from 1991-2001, which varied from 63 to 77 routes completed. Observers agreed to conduct 83 of the 108 available routes in 2005 but only 55 (66%) routes were completed (Table 1).

The average number of species per route in 2005 (n=39) is slightly higher than in 2004 but similar to previous years, and the range in numbers of species per route (n=13-67) is also similar to previous years. In 2005, 26,342 individuals comprising 181 species were detected (Table 2). Compared with previous years, 2005 tied with 2003 with the lowest number of species detected from 1993 through 2005 (Table 3).

Tables 4, 5, 6, and 7 summarize the history of BBS routes in Wyoming from 1968 through 2005. Fewer than 20 routes have been run continuously, or with only a few scattered years missing, for 10 or more years. The majority of routes contain gaps of two or more years or have had a succession of observers. Nine routes completed in 2004 were not conducted in 2005; 12 routes were completed in 2005 that were not conducted in 2004; and observers were added, removed, or changed on 19 routes between 2004 and 2005 (Table 7). The primary purpose of the BBS is to monitor population trends of avian species. Therefore, it is important that each route is conducted annually, and preferably by the same observer, which is a primary goal of BBS coordinators.

The USGS-BRD conducts a detailed statistical analysis of BBS data from the survey's inception in 1966 in the East and 1968 in the West to the current year. From this analysis, population trends for individual species can be examined on a continental, western region, statewide, and physiographic region scale. For this and additional route information, contact the BBS home page at www.pwrc.usgs.gov/bbs.

Population trend analysis data is only significant for species occurring on 14 or more separate BBS routes. Therefore, other survey methods are necessary to determine population trends for those species that are not adequately monitored by the Breeding Bird Survey.

ACKNOWLEDGEMENTS

The Department would like to thank the volunteers and the biologists from this and other natural resources management agencies for their valuable contributions to the 2005 Breeding Bird Survey (see names in Table 1). The continued dedication of these individuals to this survey makes it possible to collect long-term population trend data on numerous avian species in Wyoming.

Table 1. 2005 Breeding Bird Survey (BBS) observers and route information.

Observer	Latilong	BBS Route Number and Name	Number of Species
T. McEneaney	1	1 – NE Entrance, YNP	55
G. Nutting	2	2 – Cody	53
T. Stephens	3	3 – Otto	42
T. Easterly	4	4 – Basin	31
J. Berry	5	5 – Wyarno	40
J. Adams	7	7 – Sundance	67
A. Moscicki	9	9 – Dubois	Route not conducted
--	10	10 – Midvale	--
D. Walgren	11	11 – Nowood	47
S. Buckman	13	13 – Bill	Route not conducted
C. Deno	15	15 – Fontenelle	45
B. Meyer	16	16 – Elk Horn	Route not conducted
A. Cerovski	17	17 – Bear Creek	18
--	18	18 – Ervay	--
B. Walgren	19	19 – Brookhurst	64
M. Hicks	21	21 – Dwyer	Route not conducted
C. Deno	22	22 – Cumberland	28
L. Van Fleet	24	24 – Patrick Draw	Route not conducted
T. Woolley	25	25 – Savery	Route not conducted
S. Loose	26	26 – Riverside	48
G. Johnson	27	27 – Buford	Route not conducted
J. Lawrence	28	28 – Yoder	49
T. McEneaney	1	30 – Mammoth, YNP	67
K. Hicks	2	32 – Hunter Peak	Route not conducted
K. Hicks	2	33 – Clark	Route not conducted
B. Anderson	3	35 – Frannie	36
B. South	8	36 – Moose	Route not conducted
J. Peters	3	37 – Lovell	31
N. Miller	3	38 – Meeteetse	49
A. Humphrey	4	39 – Ten Sleep	Route not conducted
B. Ostheimer		40 – Dayton	Route not conducted
G. Olsen	4	41 – Bald Mountain	27
G. Nutting	5	42 – Crazy Woman	52
--	5	43 – Schoonover	--
--	5	44 – Arvada	--
--	6	45 – Recluse	--
--	6	46 – Soda Well	--
--	7	49 – Upton	--

Table 1. Continued.

Observer	Latilong	BBS Route Number and Name	Number of Species
S. Patla	8	51 – Alpine	60
--	8	52 – Wilson	--
E. Crane	9	53 – Horse Creek	49
P. Hnilicka	9	55 – Crowheart	38
K. Firchow	10	56 – Ethete	Route not conducted
P. Hnilicka	10	57 – Anchor	45
--	10	58 – Gebo	--
R. Schilowsky	11	59 – Arminto	Route not conducted
G. Anderson	11	60 – Lysite	24
--	11	61 – Worland	--
--	12	62 – Teapot Dome	--
D. Bjerke	12	63 – Mayoworth	35
B. Ostheimer	12	64 – Sussex	--
--	13	65 – Harland Flats	--
--	13	66 – Pine Tree	--
--	13	67 – Highlight	--
--	14	68 – Riverview	--
--	14	69 – Newcastle	--
B. Munro	14	70 – Raven	Route not conducted
G. Fralick	15	71 – Soda Lake	29
G. Fralick	15	72 – Buckskin Mountain	26
S. Patla	16	74 – Boulder	Route not conducted
S. Patla	16	75 – Big Sandy	Route not conducted
W. Cornell	16	76 – Farson	24
E. Crane	17	77 – Fiddler Lake	46
K. Jones	17	78 – Sand Draw	22
S. Harter	17	79 – Sweetwater	29
--	18	80 – Gas Hills	--
G. Hiatt	18	81 – Bairoil	Route not conducted
G. Hiatt	18	82 – Lamont	Route not conducted
L. Schwieger	19	83 – Pathfinder	32
D. Walgren	19	84 – Leo	36
A. Hines	19	85 – Shirley	13
J. Lawrence	20	86 – Warbonnet	47
G. Lawrence	20	87 – Fletcher Peak	53
J. Binfet	20	88 – Shawnee	38
M. Hicks	21	89 – Meadowdale	Route not conducted
G. Lawrence	21	90 – Lusk	31

Table 1. Continued.

Observer	Latilong	BBS Route Number and Name	Number of Species
--	21	91 – Lingle	--
--	22	93 – Mountain View	--
--	23	96 – Reliance	--
M. Corbett	23	97 – Rock Springs	Route not conducted
A. Cerovski	24	98 – Black Rock	Route not conducted
B. Falvey	25	101 – Wamsutter	17
B. Falvey	25	102 – Rawlins	25
T. Woolley	25	103 – Baggs	25
F. Blomquist	26	104 – Walcott	41
H. Smith	26	105 – Fox Park	Route not conducted
--	26	106 – Ryan Park	--
B. Falvey	27	107 – Sybille Canyon	38
B. Falvey	27	108 – Rock River	37
--	27	109 – Harmony	--
P. Deibert	28	110 – Cheyenne	23
R. Rothwell	28	111 – Chugwater	Route not conducted
--	28	112 – Pine Bluff	--
C. Michelson	20	120 – Welch	35
K. Paulin	23	123 – Flaming Gorge	17
--	6	147 – Rozet	--
M. Yemington	7	148 – Seely 2	45
J. Adams	7	150 – Government Valley	37
S. Smith	15	173 – Rye Grass	Route not conducted
--	23	192 – Carter	--
C. Damberg	23	195 – Seedskafee	Route not conducted
S. Johnson	6	206 – Caballa Creek	30
S. Wolff	8	208 – Moran	50
L. Keffer	12	212 – Bucknum	26
B. Munro	14	214 – Hampshire	Route not conducted
J. Adams	7	250 – Moskee 2	54
T. McEneaney	1	901 – Yellowstone, YNP	51
B. Falvey	1	902 – Pryor Flats	42

Table 2. Summary of species and numbers detected on Breeding Bird Survey routes conducted in Wyoming in 2005.

Species Detected on BBS Routes in 2005	Total Detected in 2005
Canada Goose	702
Trumpeter Swan	2
Wood Duck	7
Gadwall	21
American Wigeon	37
Mallard	184
Blue-winged Teal	38
Cinnamon Teal	15
Northern Shoveler	15
Northern Pintail	26
Green-winged Teal	8
Ring-necked Duck	14
Lesser Scaup	65
Bufflehead	8
Barrow's Goldeneye	24
Common Merganser	7
Ruddy Duck	2
Chukar	2
Ring-necked Pheasant	269
Ruffed Grouse	7
Greater Sage-grouse	21
Blue Grouse	1
Wild Turkey	33
Pied-billed Grebe	5
Eared Grebe	15
Western Grebe	9
Clark's Grebe	2
American White Pelican	128
Double-crested Cormorant	11
Great Blue Heron	20
Turkey Vulture	54
Osprey	4
Bald Eagle	1
Northern Harrier	14
Sharp-shinned Hawk	2
Cooper's Hawk	2
Northern Goshawk	3
Unidentified Accipiter	1

Species Detected on BBS Routes in 2005	Total Detected in 2005
Swainson's Hawk	30
Red-tailed Hawk	67
Ferruginous Hawk	32
Golden Eagle	22
American Kestrel	72
Peregrine Falcon	2
Prairie Falcon	15
Sora	10
American Coot	12
Sandhill Crane	88
Killdeer	343
Mountain Plover	1
American Avocet	35
Willet	6
Spotted Sandpiper	63
Upland Sandpiper	34
Long-billed Curlew	4
Wilson's Snipe	200
Wilson's Phalarope	66
Ring-billed Gull	2
California Gull	60
Rock Pigeon	83
Mourning Dove	676
Black-billed Cuckoo	1
Yellow-billed Cuckoo	10
Great Horned Owl	2
Burrowing Owl	2
Common Nighthawk	114
Common Poorwill	4
White-throated Swift	49
Calliope Hummingbird	2
Broad-tailed Hummingbird	21
Belted Kingfisher	8
Lewis's Woodpecker	3
Red-headed Woodpecker	2
Red-naped Sapsucker	17
Williamson's Sapsucker	1
Downy Woodpecker	6
Hairy Woodpecker	18
American Three-toed Woodpecker	4
Northern Flicker – Red-shafted race	156
Northern Flicker – Yellow-shafted race	2

Species Detected on BBS Routes in 2005	Total Detected in 2005
Olive-sided Flycatcher	3
Western Wood-Pee-wee	101
Willow Flycatcher	21
Least Flycatcher	11
Hammond's Flycatcher	21
Dusky Flycatcher	73
Cordilleran Flycatcher	10
Say's Phoebe	49
Western Kingbird	67
Eastern Kingbird	62
Loggerhead Shrike	40
Plumbeous Vireo	10
Warbling Vireo	283
Red-eyed Vireo	11
Gray Jay	18
Steller's Jay	10
Blue Jay	3
Pinyon Jay	26
Clark's Nutcracker	116
Black-billed Magpie	252
American Crow	209
Common Raven	251
Horned Lark	2374
Tree Swallow	124
Violet-green Swallow	179
Northern Rough-winged Swallow	53
Bank Swallow	48
Cliff Swallow	879
Barn Swallow	134
Black-capped Chickadee	54
Mountain Chickadee	137
Red-breasted Nuthatch	81
White-breasted Nuthatch	3
Brown Creeper	7
Rock Wren	299
Bewick's Wren	1
House Wren	185
Marsh Wren	2
American Dipper	3
Ruby-crowned Kinglet	308
Blue-gray Gnatcatcher	2
Western Bluebird	2

Species Detected on BBS Routes in 2005	Total Detected in 2005
Mountain Bluebird	213
Townsend's Solitaire	32
Veery	20
Swainson's Thrush	21
Hermit Thrush	107
American Robin	1245
Gray Catbird	46
Sage Thrasher	579
Brown Thrasher	1
European Starling	443
American Pipit	1
Cedar Waxwing	3
Orange-crowned Warbler	9
Yellow Warbler	302
Yellow-rumped Warbler – Audubon's race	276
American Redstart	33
Ovenbird	67
MacGillivray's Warbler	32
Common Yellowthroat	39
Wilson's Warbler	22
Yellow-breasted Chat	20
Western Tanager	59
Green-tailed Towhee	199
Spotted Towhee	93
Eastern Towhee	2
Chipping Sparrow	296
Clay-colored Sparrow	15
Brewer's Sparrow	704
Field Sparrow	4
Vesper Sparrow	973
Lark Sparrow	270
Sage Sparrow	163
Lark Bunting	1141
Savannah Sparrow	173
Grasshopper Sparrow	41
Fox Sparrow	8
Song Sparrow	159
Lincoln's Sparrow	107
White-crowned Sparrow	116
Dark-eyed Junco – Oregon race	102
Dark-eyed Junco – Pink-sided race	49
Dark-eyed Junco – White-winged race	28

Species Detected on BBS Routes in 2005	Total Detected in 2005
Dark-eyed Junco – Gray-headed race	16
Dark-eyed Junco	89
McCown's Longspur	76
Chestnut-collared Longspur	51
Black-headed Grosbeak	28
Blue Grosbeak	4
Lazuli Bunting	8
Bobolink	1
Red-winged Blackbird	1165
Western Meadowlark	3746
Yellow-headed Blackbird	37
Brewer's Blackbird	780
Common Grackle	283
Brown-headed Cowbird	293
Orchard Oriole	2
Bullock's Oriole	82
Cassin's Finch	53
House Finch	21
Red Crossbill	159
Pine Siskin	335
American Goldfinch	87
House Sparrow	167
<i>Total Species Detected</i>	<i>181</i>
<i>Total Individuals Detected</i>	<i>26,342</i>

Table 3. Total number of species recorded on BBS routes in Wyoming, 1993 – 2005.

Year	Number of Species Detected
1993	186
1994	185
1995	187
1996	189
1997	186
1998	184
1999	205
2000	199
2001	186
2002	194
2003	181
2004	191
2005	181

Table 4. Breeding Bird Survey time line, 1968-1980. Names under the years are the observers who conducted the routes. Continuous years with the same observer are distinguished with a line. Years that routes were not conducted are left blank.

Route Number and Name	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
1 NE Entrance (YNP)													
2 Cody													
3 Otto													
4 Basin			Kessinger-----				Domi ^a -----					McGough-----	
5 Wyarno			Kessinger-----				Domi ^a ---					Raper-----	
6 Clarkelen	Hall----		Kessinger-----	Spring			Hall-----	Downing-----					
7 Sundance							Downing-----					CHANGED TO #206 IN 1979	
8 Colter Bay	Scott-----						Downing-----						
9 Dubois	Back-----			Back-----									
10 Midvale							Back-----						
11 Nowood													
12 Natrona	Scott-----												
13 Bill							Tate---						
14 Redbird	Scott-----												
15 Fontenelle													
16 Elk Horn													
17 Bear Creek	Layton-----				Layton-----							Layton-----	
18 Ervay						Layton-----							
19 Brookhurst	Scott-----												
20 Glenrock	Layton-----				Layton-----								CHANGED TO #120 IN 1978
21 Dwyer													
22 Cumberland										June-----			
23 McKinnon		Layton-----			Layton-----					June-----			
24 Patrick Draw						Layton-----				June-----			
25 Savery													
26 Riverside	Gree ^a -----												
27 Buford							Spring-		Spring-----	Dorn-----			
28 Yoder	Gree ^a -----											Luce-----	
29 Canyon (YNP)													
30 Mammoth (YNP)													
31 West Thumb (YNP)	ROUTE NO LONGER RUN												
32 Hunter Peak													
33 Clark													
35 Frannie													
36 Moose									Scott-----				
37 Lovell													
38 Meeteetse													
39 Ten Sleep													
40 Dayton													Hanebury-----

Table 4. Continued.

Route Number and Name	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
41 Bald Mountain													
42 Crazy Woman												Daly-----	
43 Schoonover													
44 Arvada													
45 Recluse													Pallister----
46 Soda Well												Daly-----	
47 Piney													Pallister----
48 Seely													
49 Upton													
50 Moskee													Faanes-----
51 Alpine												Oakleaf-----	
52 Wilson												Raynes-----	
53 Horse Creek													Mikol-----
55 Crowheart													
56 Ethete													
57 Anchor													
58 Gebo													Baggs-----
59 Arminto													
60 Lysite													
61 Worland													
62 Teapot Dome													
63 Mayoworth													
64 Sussex													
65 Harland Flats													
66 Pine Tree													Gasson-----
67 Highlight													Gasson-----
68 Riverview													
69 Newcastle													
70 Raven													
71 Soda Lake													Johnson-----
72 Buckskin Mtn.													Johnson-----
73 Daniel													Johnson-----
74 Boulder													
75 Big Sandy													
76 Farson													
77 Fiddler Lake												Oakleaf-----	
78 Sand Draw													
79 Sweetwater													Emmerich-----
80 Gas Hills													

Table 4. Continued.

Route Number and Name	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
81	Bairoil												
82	Lamont												
83	Pathfinder												
84	Leo												
85	Shirley											Bohne-----	
86	Warbonnet												
87	Fletcher Park											Rothwell-	
88	Shawnee												
89	Meadowdale												
90	Lusk												
91	Lingle												Rothwell-----
92	Diamondville	ROUTE NO LONGER RUN								June-----			
93	Mountain View												June-----
95	Green River									June-----			
96	Reliance									June-----			
97	Rock Springs									June-----			
98	Black Rock												
101	Wamsutter												
102	Rawlins												
103	Baggs												
104	Walcott												
105	Fox Park												
106	Ryan Park												
107	Sybillie Canyon												McAd ^a -----
108	Rock River												
109	Harmony												Bohne-----
110	Cheyenne												Floyd-----
111	Chugwater											Rothwell-----	
112	Pine Bluff												Strickland----
120	Welch											Layton-----	
123	Flaming Gorge												
147	Rozet												
173	Ryegrass												
195	Seedskadee												
206	Caballa Creek												
900	Hayden Val. (YNP)	ROUTE NO LONGER RUN											
901	Yellowstone (YNP)												
902	Pryor Flats												

^a These names were reported as a 4 letter code; full names are unknown.

Table 5. Breeding Bird Survey time line, 1981-1990. Names under the years are the observers who conducted the routes. Continuous years with the same observer are distinguished with a line. Year 1981 routes conducted by the same observer as in 1980 have two dashes before the observer's name. Years that routes were not conducted are left blank.

Route Number and Name	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
1 NE Entrance (YNP)		Bystrak----						Nutting-----		
2 Cody			Belitsky--					Greenquist-----		
3 Otto	--McGough----		Stelter-----				Stelter-----			
4 Basin	--Raper-----		Stelter-----				Stelter-----			
5 Wyarno	--Downing----	Eads-----	Jackson-----			Downing-----		Berry-----		
6 Clarkelen	CHANGED TO #206 IN 1979									
7 Sundance		Adams-----								
8 Colter Bay									Wallen-----	
9 Dubois	Merrifield-----			Abbott-----			Abbott-----	Wimpfheimer	Abbott-----	
10 Midvale							Ritter-----	Ryder-----		
11 Nowood								Means-----		Means-----
12 Natrona	Herold-----									
13 Bill										
14 Redbird	--Scott-----									
15 Fontenelle		Row-----					Luce-----	Baker-----		
16 Elk Horn								Kinter-----		Kinter-----
17 Bear Creek	--Layton-----					Layton-----				
18 Ervay	--Layton-----		Layton-----						Layton-----	
19 Brookhurst	--Scott-----								South-----	
20 Glenrock	CHANGED TO #120 IN 1978									
21 Dwyer										
22 Cumberland	--June-----							Luce-----		
23 McKinnon	--June-----					Kesselheim-	CHANGED TO #123 IN 1988			
24 Patrick Draw	--June-----	Hays-----	June-----					Jahnke-----	Raper-----	
25 Savery								Jahnke-----	Fitton-----	
26 Riverside									Straw-----	
27 Buford										
28 Yoder	--Luce-----					J.Lawrence-				
29 Canyon (YNP)		Bystrak--ROUTE NO LONGER RUN								
30 Mammoth (YNP)		Gniadek-----			Zarki-----					
31 West Thumb (YNP)		Bystrak--ROUTE NO LONGER RUN								
32 Hunter Peak		Bystrak---Holmes----				Hicks-----		Hicks-----		
33 Clark										Hicks-----
35 Frannie									Bryant-----	
36 Moose	--Scott-----			Herold-----	South-----					
37 Lovell									Peters-----	
38 Meeteetse										
39 Ten Sleep										

Table 5. Continued.

Route Number and Name	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
40 Dayton	--Hanebury-----			Downing-----				Johnson-----		Daly-----
41 Bald Mountain										Roney-----
42 Crazy Woman	--Daly-----									Posner-----
43 Schoonover		Pallister--				Pallister-----				
44 Arvada		Segerstrom-----				Segerstrom-Daly-----				Daly-----
45 Recluse		Segerstrom-----				Segerstrom-Burton-----				Oedekoven-
46 Soda Well	--Daly-----						Ernst-----			
47 Piney	--Pallister--Gasson-----		Segerstrom-				Winland---		Winland-----	
48 Seely										Droege----
49 Upton							Ryder-----		Lanka-----	
50 Moskee		Bystrak----					Adams-----			
51 Alpine									Luce-----	
52 Wilson	--Raynes-----	Glen-----	Raynes-----			Duffy-----				
53 Horse Creek		Mikol-----				Ritter-(formerly Mikol)-----				
55 Crowheart							Reid-----			
56 Ethete										
57 Anchor										
58 Gebo	--Baggs-----		Lawson-----					Fuchs-----		
59 Arminto		Pate-----			Pate-----		Guenzel-----			
60 Lysite									Ryder-----	
61 Worland										
62 Teapot Dome	Pate-----						Guenzel-----			
63 Mayoworth		Talbott---	Luce-----				Bjerke-----		Johnson---	Bjerke----
64 Sussex										
65 Harland Flats										Cerovski--
66 Pine Tree	--Gasson-----		Segerstrom-				Hurley----Johnson---			Leggett---
67 Highlight	--Gasson-----		Segerstrom-				Hurley----		Oelklaus-----	
68 Riverview		Fuchs-----					Helms-----			
69 Newcastle								Ryder-----	Lanka-----	Adams----
70 Raven										
71 Soda Lake	--Johnson-----							Wollrab---		Smith----
72 Buckskin Mtn.	--Johnson-----									
73 Daniel	--Johnson-----							Wollrab---	CHANGED TO #173 IN 1988	
74 Boulder		Row-----								
75 Big Sandy			Straley----				Straley-----		Fralick-----	
76 Farson			June-----							
77 Fiddler Lake		Oakleaf----					Belitsky-----			Nelson----
78 Sand Draw										
79 Sweetwater	--Emmerich-----									
80 Gas Hills										

Table 5. Continued.

Route Number and Name	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	
81 Bairoil								Bredehoft--		Hiatt-----	
82 Lamont							Hiatt-----				
83 Pathfinder		Pate-----					Guenzel-----				
84 Leo		Gilbert---									
85 Shirley	Hays-----								Luce-----	Rudd-----	
86 Warbonnet										Droege---	
87 Fletcher Park	Rothwell-----								G.Lawrence-----		
88 Shawnee								Helms-----			
89 Meadowdale			Hymas-----						Fitton----	Ritter---	
90 Lusk		Fuchs-----					Helms-----				
91 Lingle	--Rothwell-----					Stroud-----	Straw-----	Lockwood--		Howe-----	
92 Diamondville	--June-----	Hays--	ROUTE NO LONGER RUN								
93 Mountain View	--June-----										
95 Green River	--June-----		Luke-----					Luce-----	Deen-----		
96 Reliance	--June-----	Hays--	Luke-----								
97 Rock Springs	--June-----						Raper-----			Luke-----	
98 Black Rock										Christiansen	
101 Wamsutter										Jahnke----	
102 Rawlins								Rinkes-----			
103 Baggs						Moody-----		Jahnke-----	Longobardi-----		
104 Walcott		Long-----			Long-----				Parks-----	Long-----	
105 Fox Park											
106 Ryan Park											
107 Sybille Canyon									Ritter-----	Mobley---	
108 Rock River										Oneale---	
109 Harmony	Hays-----	Bystrak---					Bohne-----				
110 Cheyenne	--Floyd-----		Hill-----								
111 Chugwater	--Rothwell-----					Bohne-----			Rothwell----		
112 Pine Bluff	--Strickland-----			Wollrab---					Samuelson-----		
120 Welch	--Layton-----		Layton-----								
123 Flaming Gorge								Christiansen		Christiansen	
147 Rozet											
173 Ryegrass										Wollrab---	
195 Seedskafee						Adams-----					
206 Caballa Creek											
900 Hayden Valley (YNP)					Zarki-----				ROUTE NO LONGER RUN		
901 Yellowstone (YNP)								Zarki-----			
902 Pryor Flats											

Table 6. Breeding Bird Survey time line, 1991-2000. Names under the years are the observers who conducted the routes. Continuous years with the same observer are distinguished with a line. Year 1991 routes conducted by the same observer as in 1990 have two dashes before the observer's name. Years that the route was not conducted are left blank.

Route Number and Name	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
1 NE Entrance (YNP)	--Nutting-----				Nutting----		McEneaney-----			
2 Cody	--Greenquist-		Nutting-----							
3 Otto	--Stelter----	Stephens-----								Stephens--
4 Basin	--Stelter----		Easterly-----							
5 Wyarno	--Berry-----									
6 Clarkelen	CHANGED TO #206 IN 1979									
7 Sundance	Yemington--	Adams-----								
8 Colter Bay	--Wallen-----					Duffy-----			S.Patla	CHANGED TO #208 IN 2000
9 Dubois	--Abbott-----					Vernon-----				
10 Midvale	--Ryder-----		Ryder-----			Hnilicka-----				
11 Nowood			Walgren-----							
12 Natrona	--Herold-----		CHANGED TO #212 IN 1993							
13 Bill		Picken-----				Bartosiak-----			Buckman-----	
14 Redbird			CHANGED TO #214 IN 1994							
15 Fontenelle	Leebt-----	Deno-----								
16 Elk Horn					Gunyan-----		Meyer-----			
17 Bear Creek	--Layton-----					Cerovski-----				
18 Ervay										
19 Brookhurst	Scott-----			Patterson--	Walgren-----					
20 Glenrock	CHANGED TO #120 IN 1978									
21 Dwyer		Lutz-----		Roberts-----		Felley-----				
22 Cumberland		Deno-----								
23 McKinnon	CHANGED TO #123 IN 1988									
24 Patrick Draw	--Raper-----			Cerovski-----						Van Fleet--
25 Savery		Michelson-----			Michelson--					
26 Riverside	--Straw-----		Straw-----				Loose-----			
27 Buford			Johnson-----				Johnson----			Johnson---
28 Yoder	--J.Lawrence-----									
29 Canyon (YNP)	ROUTE NO LONGER RUN									
30 Mammoth (YNP)	McEneaney-----									
31 West Thumb (YNP)	ROUTE NO LONGER RUN									
32 Hunter Peak		Hicks-----								Hicks-----
33 Clark	Roop-----			Roop-----						Hicks-----
35 Frannie	Bryant-----				Wehrfritz--				B.Anderson--	
36 Moose	--South-----									

Table 6. Continued.

Route Number and Name	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
37 Lovell	--Peters-----									
38 Meeteetse	Miller-----				Miller-----					
39 Ten Sleep					Ward-----					
40 Dayton	--Daly-----		Corbett-----				Corbett-----			
41 Bald Mountain	--Roney-----								Peters-----	
42 Crazy Woman	--Posner-----							Nutting-----		
43 Schoonover	--Pallister-----							Ward-----		
44 Arvada	--Daly-----		Daly-----		Ward-----					
45 Recluse	--Oedekoven-----									
46 Soda Well	--Ernst-----									
47 Piney	CHANGED TO #147 IN 1991									
48 Seely	Cerovski---Yemington-----									
49 Upton	Lanka-----Talbot-----	Brimeyer---	Dykstra---	Brimeyer-----			G.Anderson-----			
50 Moskee	Yemington--Adams-----									
51 Alpine		Luce-----	Wile-----					Wile-----		
52 Wilson	--Duffy-----									
53 Horse Creek	--Ritter-----		Crane-----							
55 Crowheart										
56 Ethete	Firchow-----				Firchow---		Firchow-----			
57 Anchor			Firchow---							
58 Gebo			Stephens-----				Atkins-----			
59 Arminto		Thiele----		Patterson-----						
60 Lysite	--Ryder-----					Hnilicka---		Hnilicka-----		
61 Worland		Serrano-----								
62 Teapot Dome										
63 Mayoworth	--Bjerke-----									
64 Sussex	Fralick-----			Thiele-----						
65 Harland Flats	--Cerovksi-----		Hunter----		Hunter----					
66 Pine Tree			James-----							
67 Highlight	--Oelklaus-----			Oelklaus---						
68 Riverview	--Helms-----		Robertson-----			Anderson-----				
69 Newcastle		Talbott---	Brimeyer-----			Anderson-----				
70 Raven		Bartosiak--	Picken---	Bartosiak--	Domsalla--	Bartosiak-----				Snell-----
71 Soda Lake	Bohne-----		Fralick-----				Fralick----			
72 Buckskin Mtn.		Stone-----		Fralick----						Fralick---
73 Daniel	CHANGED TO #173 IN 1988									
74 Boulder	Rawlins----			Rawlins-----			Rawlins-----			
75 Big Sandy		Ritter-----		Smith-----		Smith-----				
76 Farson					Hunter-----					

Table 6. Continued.

Route Number and Name	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
77 Fiddler Lake	--Nelson-----					Crane-----				
78 Sand Draw			Jones-----			Jones-----				
79 Sweetwater	--Emmerich-----		--Ryder-----							
80 Gas Hills	Laurion-----									
81 Bairoil	--Hiatt-----									
82 Lamont	--Hiatt-----									
83 Pathfinder	Hines-----	Schwieger-----								
84 Leo				Walgren-----						
85 Shirley		Easterly--	Hines-----			Hines-----				
86 Warbonnet		Schwieger--		Schwieger-----				J.Lawrence-----		
87 Fletcher Park	--G.Lawrence-----									
88 Shawnee	--Helms-----		--Robertson--	Helms-----				Kroger-----		
89 Meadowdale	--Ritter-----	--Lutz-----		Hnilicka---	Zornes-----					
90 Lusk	--Helms-----		--Robertson--	Helms-----				G.Lawrence-----		
91 Lingle	Ritter-----	--Lutz-----			Lutz-----	Felley-----				
92 Diamondville			CHANGED TO #192	IN 1983						
93 Mountain View	--Deen-----			Adams-----					Paulin-----	
95 Green River	CHANGED TO #195	IN 1986								
96 Reliance										
97 Rock Springs	--Luke-----			Gunyan-----						
98 Black Rock			Gunyan-----							
101 Wamsutter	--Jahnke----		Jahnke-----		Cerovski---		Woolley-----			
102 Rawlins	--Rinkes-----					Apple-----				
103 Baggs	Iversen----				Hnilicka---		Woolley-----			
104 Walcott	Blomquist-----									
105 Fox Park		Bohle-----								
106 Ryan Park										
107 Sybille Canyon	--Mobley-----		Pauley-----				Felley-----			
108 Rock River	--Oneale-----		--Young-----			Young-----		Young-----		
109 Harmony				Guenzel----						
110 Cheyenne		Brockmann-----			Zornes-----	Deibert-----				
111 Chugwater	Rothwell---			Rothwell-----						
112 Pine Bluff		Samuelson--	Young-----					Young-----		
120 Welch	Michelson---									
123 Flaming Gorge		Reinmuth-----		Norvell----	Lewis-----		Paulin-----			
147 Rozet	Winland----		Hayes-----							
150 Gov't. Valley (NEW IN 1992)	Adams-----									
173 Ryegrass				Smith-----		Smith-----				
192 Carter										

Table 6. Continued.

Route Number and Name	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
195 Seedskadee		Luke-----	Bryant-----		Pedersen---	Halvorson-----				
206 Caballa Creek		Plato-----								
212 Bucknum			Herold-----							
214 Hampshire				Bartosiak-----		Beauchaine-	Bartosiak-----		Snell-----	
901 Yellowstone (YNP)	McEneaney-----									
902 Prior Flats	Scott-----									

Table 7. Breeding Bird Survey time line, 2001-2005. Names under the years are the observers who conducted the routes. Continuous years with the same observer are distinguished with a line. Year 2001 routes conducted by the same observer as in 2000 have two dashes before the observer's name. Years that the route was not conducted are left blank.

Route Number and Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
1 NE Entrance (YNP)	--McEneaney-----									
2 Cody	--Nutting-----									
3 Otto	--Stephens-----									
4 Basin			Easterly-----							
5 Wyarno	--Berry-----									
6 Clarkelen	CHANGED TO #206 IN 1979									
7 Sundance	--J.Adams-----									
8 Colter Bay	CHANGED TO #208 IN 2000									
9 Dubois										
10 Midvale										
11 Nowood	--Walgren-----									
12 Natrona	CHANGED TO #212 IN 1993									
13 Bill	--Buckman-----									
14 Redbird	CHANGED TO #214 IN 1994									
15 Fontenelle	--Deno-----									
16 Elk Horn	--Meyer-----									
17 Bear Creek	--Cerovski---		Cerovski---		Cerovski---					
18 Ervay										
19 Brookhurst	--Walgren-----									
20 Glenrock	CHANGED TO #120 IN 1978									
21 Dwyer										
22 Cumberland	--Deno-----									
23 McKinnon	CHANGED TO #123 IN 1988									
24 Patrick Draw	--Van Fleet-----			Van Fleet--						
25 Savery										
26 Riverside	--Loose-----									
27 Buford	--Johnson---		Johnson-----							
28 Yoder	--J.Lawrence-----									
29 Canyon (YNP)	ROUTE NO LONGER RUN									
30 Mammoth (YNP)	--McEneaney-----									
31 West Thumb (YNP)	ROUTE NO LONGER RUN									
32 Hunter Peak	--Hicks-----									
33 Clark	--Hicks-----									
35 Frannie	--B.Anderson-----									
36 Moose		South-----								

Table 7. Continued.

Route Number and Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
37 Lovell	--Peters-----									
38 Meeteetse	--Miller-----		Miller-----							
39 Ten Sleep										
40 Dayton										
41 Bald Mountain	--Peters-----	Olsen-----								
42 Crazy Woman	--Nutting-----									
43 Schoonover	--Ward-----									
44 Arvada	--Ward-----									
45 Recluse	--Oedekoven-----									
46 Soda Well	Ernst-----									
47 Piney	CHANGED TO #147 IN 1991									
48 Seely	--Yemington--	CHANGED TO #148 IN 2002								
49 Upton	--G.Anderson-									
50 Moskee	--Adams-----	CHANGED TO #250 IN 2002								
51 Alpine	--Wile-----	Patla-----								
52 Wilson										
53 Horse Creek	--Crane-----									
55 Crowheart		Hnilicka-----								
56 Ethete		Firchow----								
57 Anchor		Hnilicka---		Hnilicka-----						
58 Gebo										
59 Arminto	Harter-----									
60 Lysite		G.Anderson-----								
61 Worland										
62 Teapot Dome										
63 Mayoworth	--Bjerke-----									
64 Sussex										
65 Harland Flats										
66 Pine Tree										
67 Highlight										
68 Riverview										
69 Newcastle	--G.Anderson--									
70 Raven										
71 Soda Lake	Fralick-----				Fralick----					
72 Buckskin Mtn.	--Fralick-----				Fralick----					
73 Daniel	CHANGED TO #173 IN 1988									
74 Boulder										
75 Big Sandy	--Smith-----	Stroud----								
76 Farson	Cornell-----				Cornell----					

Table 7. Continued.

Route Number and Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
77 Fiddler Lake	--Crane-----									
78 Sand Draw					Jones-----					
79 Sweetwater	--Ryder-----				Harter-----					
80 Gas Hills										
81 Bairoil		Hiatt-----								
82 Lamont	--Hiatt-----									
83 Pathfinder	--Schwieger-----									
84 Leo	--Walgren-----									
85 Shirley	--Hines-----									
86 Warbonnet	--J.Lawrence-----									
87 Fletcher Park	--G.Lawrence-----									
88 Shawnee	--Kroger-----			Binfet-----						
89 Meadowdale										
90 Lusk	--G.Lawrence-----									
91 Lingle										
92 Diamondville	CHANGED TO #192 IN 1983									
93 Mountain View	Paulin-----									
95 Green River	CHANGED TO #195 IN 1986									
96 Reliance	Luce-----									
97 Rock Springs										
98 Black Rock	Cornell----									
101 Wamsutter	--Woolley-----			Falvey-----						
102 Rawlins				Falvey-----						
103 Baggs	--Woolley-----									
104 Walcott	--Blomquist-----									
105 Fox Park	--Bohle-----									
106 Ryan Park										
107 Sybille Canyon					Falvey----					
108 Rock River					Falvey----					
109 Harmony										
110 Cheyenne	Deibert-----				Deibert----					
111 Chugwater										
112 Pine Bluff										
120 Welch	--Michelson-----									
123 Flaming Gorge	--Paulin-----									
147 Rozet										
148 Seely 2		Yemington-----								
150 Gov't. Valley	--Adams-----									
173 Ryegrass	--Smith-----		Smith-----							

Table 7. Continued.

Route Number and Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
192 Carter										
195 Seedskafee		Halvorson--Glass-----	Damberg----							
206 Caballa Creek	--Plato-----							Johnson----		
208 Moran		Wolff-----		Wolff-----						
212 Bucknum	--Herold-----							Keffer----		
214 Hampshire	--Snell-----									
250 Moskee 2		Adams-----								
901 Yellowstone (YNP)	--McEneaney-----							McEneaney--		
902 Prior Flats				Falvey-----						

MONITORING AVIAN PRODUCTIVITY AND SURVIVORSHIP BIRD BANDING COMPLETION REPORT

STATE OF WYOMING

NONGAME BIRDS – Other Nongame

PERIOD COVERED: 15 April 2005 – 14 April 2006

PREPARED BY: Andrea Orabona Cerovski, Nongame Bird Biologist

INTRODUCTION AND METHODS

In 1995, the Wyoming Game and Fish Department (Department), The Nature Conservancy (TNC), Audubon Wyoming, Red Desert Audubon, the U.S. Fish and Wildlife Service (USFWS), and the Institute for Bird Populations (IBP) began a long-term partnership for the benefit of resident birds and Neotropical migratory birds (those species that breed in the United States and Canada and winter in Mexico, Central America, South America, and the Caribbean). These partners pooled resources to initiate a Monitoring Avian Productivity and Survivorship (MAPS) bird banding station on TNC's Red Canyon Ranch just south of Lander, Wyoming.

The objectives of this project are to: 1) obtain long-term information on avian use and relative abundance of this properly functioning riparian ecosystem, 2) determine survivorship trends of adult birds, 3) determine the success of species productivity and recruitment of young into the population, 4) determine long-term population trends for both Neotropical migrant and resident species, and 5) determine the cause(s) of population change, if any, of avian species on site.

METHODS

The study area consists of 10 mist nets set up within riparian vegetation along Deep Creek in approximately a 10-acre (4 ha) area. Each net site is carefully selected in an attempt to capture as many birds as possible, and net sites remain constant throughout the life of the project.

Nets are opened once every 10 days from early June through early August to ensure that primarily breeders, and not migrants, are captured. On each banding day, nets are opened at sunrise, left open for 6 hours, and are checked every 45 minutes. Birds are removed from the mist nets and are placed in cotton bags until they can be processed. Captured birds are identified to species and leg banded with the appropriate sized USFWS numbered band. Sex is determined by plumage and the presence of either a cloacal protuberance (male) or brood patch (female). Wing chord (length of the unflattened wing),

tail length, and culmen length (distance between the anterior end of the nostril and the end of the bill) are measured and the amount of body fat is determined. Flight feathers are checked for wear and molt, and body molt is determined. The amount of skull pneumatization is examined to accurately determine the bird's age. Weight is taken, and then the bird is released. A more detailed description of MAPS station protocol and methodology is presented in the Handbook of Field Methods for Monitoring Landbirds (Ralph et al. 1993).

Bird banding data is submitted to the IBP, located in Point Reyes Station, California, where a national database is maintained with all MAPS station data from across the United States and Canada. By following a standard protocol for setting up and conducting MAPS stations, data can be compared between stations across North America.

RESULTS AND DISCUSSION

Data for the 2005 field season are presented in Table 1. In 2005, a total of 35 different bird species and 266 individual birds were captured, including 181 new individuals, 74 recaptures, and 11 birds that were unbanded. Out of the 35 species captured, 18 were known to breed on-site, 3 were suspected to breed on-site, 13 species were considered transients, and 1 species was a post-breeding migrant. Eight of the 12 target species were captured and banded in 2005. Over the 11-year period, 11 of the 12 IBP MAPS regional target species for the northwest region have been banded (Dark-eyed Junco has not been banded as yet). No new species were captured in 2004.

Monitoring Avian Productivity and Survivorship capture data for all years of the project are presented in Tables 2 and 3. Out of the 86 species captured during the 11-year project, 16 species were captured all 11 years, 6 species were captured in 10 of the 11 years, and 6 species were captured in 9 of the 11 years.

Longevity of some passerine species at the banding site has been surprising. Recapture data have shown that, not only do individual birds return to this same area to nest every year, but that some songbirds are living for six years or more.

Although the Deep Creek MAPS station has reached the goal to provide data for 10 years, volunteers have agreed to continue with the same protocol and banding methodology during the 2006 field season. By following this protocol, the value of the data collected at this MAPS station is increased because these data can be directly compared with data from other MAPS stations across North America. By increasing the life span of this MAPS station, valuable long-term data can continue to be collected.

ACKNOWLEDGEMENTS

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LITERATURE CITED

Ralph, C. J., G. R. Geupel, P. Pyle, T. E. Martin, and D. F. DeSante. 1993. Handbook of field methods for monitoring landbirds. General Technical Report PSW-GTR-144. Albany, CA, Pacific Southwest Research Station, USDA Forest Service. 41pp.

Table 1. Monitoring Avian Productivity and Survivorship (MAPS) station bird banding summary, Red Canyon Ranch, Deep Creek Station, 2005.

Species Name	6/7/05	6/16/05	6/24/05	7/6/05	7/14/05	7/26/05	8/4/05	Total	Status
American Dipper	1							1	T
American Goldfinch	5	1	5	10	4	4	4	33	B
American Robin ***					1	4	3	8	B
Barn Swallow		2						2	T
Black-capped Chickadee					1	2		3	B
Black-headed Grosbeak	4		4	1				9	T
Brewer's Sparrow				1		2	4	7	B
Brown-headed Cowbird					2			2	L
Bullock's Oriole	2	5	5	1	1	1		15	B
Common Yellowthroat	7	2	2	3	5	5	5	29	B
Cordilleran Flycatcher ***		1	2			1		4	T
Dusky Flycatcher	2		2					4	T
Eastern Kingbird		3				1		4	B
Gray Catbird	1			1	1	1	1	5	B
Green-tailed Towhee						2	1	3	T
House Wren	4		2		1	1	2	10	B
Lazuli Bunting		1	1	4	1	2		9	B
Least Flycatcher						1		1	T
Lincoln's Sparrow ***	1					2		3	T
Northern Flicker	2							2	T
Orange-crowned Warbler ***					1			1	T
Ovenbird	1							1	M
Red-naped Sapsucker						2		2	T
Red-winged Blackbird	2	3	5	3	2	1		16	B
Song Sparrow ***		1		2	8	3	2	16	B
Spotted Towhee	2		3	2	1	1		9	B
Swainson's Thrush ***	1	1						2	T
Vesper Sparrow				1	2		1	4	B
Violet-green Swallow						3		3	L
Warbling Vireo ***	3					1		4	B
Western Tanager	4							4	T
Western Wood-Pewee	2			1	1	1		5	B
Willow Flycatcher	1							1	L
Yellow-breasted Chat	5	1	1	2	2	4	2	17	B
Yellow Warbler ***	7	5	3	5		4	3	27	B
<i>Total Number</i>	57	26	35	37	34	49	28	266	~
<i>Total Species</i>	20	12	12	14	16	23	11	35	~

*** = MAPS Regional Target Species for the Northwest Region

New Captures = 181, Recaptures = 74, Unbanded = 11

B = Breeder (confirmed breeding on site) = 18 species (Total captures = 221)

L = Likely Breeder (suspected breeding on site) = 3 species (Total captures = 6)

T = Transient (within breeding range but does not breed on site) = 13 species (Total captures = 38)

M = Migrant (site is not within breeding range) = 1 species (Total captures = 1)

Table 2. Monitoring Avian Productivity and Survivorship (MAPS) station bird banding species and status list, Red Canyon Ranch, Deep Creek Station, 1995-2005. ^a

Species	First Captured	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
American Dipper	7/12/1996		T		T	T						T
American Goldfinch	5/30/1995	B	B	B	B	B	B	B	B	B	B	B
American Redstart	6/13/1995	T							T	T		
American Robin	7/18/1995	B	B	B	B	B	B	B	B	B	L	B
Barn Swallow	7/28/1998				T	T		T	T			T
Belted Kingfisher	7/6/2000						T	T	T	T	T	T
Black-and-white Warbler	6/17/1999					M						
Black-billed Cuckoo	6/6/2000						T					
Black-billed Magpie	7/14/1997			T				B	B		T	
Black-capped Chickadee	8/15/1996		T	B	B		B	B	B	B	B	T
Black-headed Grosbeak	5/30/1995	T	B	B	B		T	T	T	T	T	L
Black-throated Gray Warbler	8/6/2003									T		
Blue Grosbeak	6/14/1996		T			T	T	T	T			
Blue Grouse	8/6/1998				T	B		T				
Brewer's Blackbird	6/7/1996		T	T			T	T				
Brewer's Sparrow	8/15/1996		T	T		T	B	B	B	B	B	T
Broad-tailed Hummingbird	8/6/1996		T					T	T			
Brown-headed Cowbird	6/5/1995	T	T	B	B	B	B	B	T	L	L	L
Brown Thrasher	6/2/1998				T							
Bullock's Oriole	5/30/1995	T	T	T	T	T	B	B	B	B	B	B
Calliope Hummingbird	7/27/1999					T	T		T			
Cedar Waxwing	7/26/1996		T	T	T	T	B	T	T	T		
Chestnut-sided Warbler	7/3/1996		M					M				
Chipping Sparrow	8/6/1996		T				T		T	T	T	T
Cliff Swallow	7/18/1995	T	T	T		T	T	T	T		T	T
Common Grackle	6/23/1995	T	T	T	T	T	T					
Common Nighthawk	7/24/2001							T	T			
Common Yellowthroat	5/30/1995	B	B	B	B	B	B	B	B	B	B	B
Cordilleran Flycatcher	6/5/1995	T	T	T		T			T		T	T
Downy Woodpecker	8/28/1996		T				T		T			
Dusky Flycatcher	8/25/1995	T	T	T		T	T	T	T	T		T
Eastern Kingbird	6/5/1995	T	T	T	B	T	T	T	T	L	L	B
European Starling	6/7/1996		T	T	T	T	T	T	T	T		
Evening Grosbeak	6/26/2003									T		
Gray Catbird	5/30/1996		B	B	B	B	B	B	B	L	L	B
Gray Flycatcher	8/25/1995	T										
Green-tailed Towhee	5/30/1995	T	T	T	T		B	B	B	B	T	T
Hermit Thrush	7/18/1995	T	T			T	T					
Hooded Warbler	7/7/1999					M						
House Wren	8/15/1995	T	T	T	T	T	T	T	B	B	T	B
Indigo Bunting	6/4/2002								T			
Lark Sparrow	8/7/2001							T				

Table 2. Continued.

Species	First Captured	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Lazuli Bunting	7/7/1995	B	B	B	B	B	B	B	B	B	B	B
Least Flycatcher	5/30/1995	T	T					T	T			T
Lincoln's Sparrow	5/30/1995	T	T				T	T	T	T	T	T
MacGillivray's Warbler	5/30/1995	B	B	B	B	T	T	T	T	T	T	T
Mountain Chickadee	8/3/2000						T					
Northern Flicker	6/27/1997			T			T		T		T	T
Northern Parula	6/25/2002								M			
Northern Waterthrush	8/15/1995	M		M								
N. Rough-winged Swallow	8/3/1995	T	T	T	T			T	T			
Orange-crowned Warbler	5/30/1995	B	B	B			T		T	T	T	T
Ovenbird	7/18/2000						T					T
Pine Siskin	6/5/1995	T	T	T	T		T	T	T		T	T
Plumbeous Vireo	8/6/2002								T			
Red-eyed Vireo	5/30/1996		T							A		
Red-naped Sapsucker	7/28/1995	T			T	T	T	T		T	T	T
Red-winged Blackbird	5/30/1995	B	B	B	B	B	B	B	B	B	B	B
Rufous Hummingbird	7/28/1995	M	M		M		M	M	M		M	M
Sage Thrasher	8/6/2003									T		
Savannah Sparrow	7/16/1998				T		T		T		T	T
Song Sparrow	5/30/1995	B	B	B	B	B	B	B	B	B	B	B
Sora	6/1/2001							T				
Spotted Sandpiper	8/25/1995	T	T	T							T	T
Spotted Towhee	5/30/1995	B	B	B	B	B	B	B	B	B	B	B
Swainson's Thrush	5/30/1996		T		T	T	T		T		T	T
Tennessee Warbler	5/30/1996		M									
Townsend's Solitaire	6/25/2002								T			
Tree Swallow	8/6/1996		T	T	T			T	T		T	T
Veery	6/14/1996		T									
Vesper Sparrow	7/7/1995	B	B	B		T	B	B	B	B	B	T
Violet-green Swallow	6/23/1995	T	B	B	T	T	T	T	T		T	L
Virginia Rail	7/8/2003									L		
Virginia's Warbler	8/28/1996		M			M				A		
Warbling Vireo	5/30/1995	B	B	B	B	B	B	B	B	B	B	B
Western Meadowlark	7/14/1997			T		B		T	B			
Western Tanager	6/5/1995	T	T	T	T	T	T	T			T	T
Western Wood-Pewee	8/25/1995	T	T	T	B	B	B	B	B	B	B	B
White-crowned Sparrow	5/30/1995	T	T	T			T					
Willow Flycatcher	6/5/1995	B	B	B		B	B	B	B	B	B	L
Wilson's Snipe	5/30/1995	T	T		T			T	B	T		
Wilson's Warbler	8/15/1995	T	T	T	T			T			T	T
Yellow-breasted Chat	5/30/1995	B	B	B	B	B	B	B	B	B	B	B
Yellow-headed Blackbird	7/16/2002								T			
Yellow-rumped Warbler	5/30/1996		T									
Yellow Warbler	5/30/1995	B	B	B	B	B	B	B	B	B	B	B

Table 2. Continued.

- ^a Blank = not captured
- T = Transient (within breeding range but does not breed on site)
- B = Breeder (confirmed breeding on site)
- L = Likely Breeder (suspected breeding on site)
- M = Migrant (not within breeding range)
- A = Altitudinal Disperser (moved from breeding area prior to migration)

Table 3. Summary of Red Canyon Ranch MAPS data, 1995-2005.

Year	Number of Individuals Captured	Number of Species Captured	Total Breeding Species ^a	Total Transient Species ^b	Total Migrant Species	Total Accidental Species
1995	371	41	14	25	2	0
1996	441	56	17	35	4	0
1997	298	43	16	26	1	0
1998	291	38	15	23	0	0
1999	297	40	18	20	1	1
2000	398	49	20	28	1	0
2001	394	44	20	22	2	0
2002	358	48	19	27	2	0
2003	293	39	22	17	0	0
2004	261	41	15	22	1	0
2005	266	35	21	13	1	0
<i>Avg.</i>	<i>333</i>	<i>43</i>	<i>18</i>	<i>23</i>	<i>1.4</i>	<i>0.01</i>

^a Includes both confirmed and likely breeders.

^b Includes both transients and altitudinal dispersers.

NONGAME BIRD DISTRIBUTION AND ABUNDANCE SURVEYS COMPLETION REPORT

STATE OF WYOMING

NONGAME BIRDS – General Inventories

PERIOD COVERED: 15 April 2005 – 14 April 2006

PREPARED BY: Laurie Van Fleet, Nongame Biologist
Andrea Orabona Cerovski, Nongame Bird Biologist

INTRODUCTION

The distribution, relative abundance, and population trends of nongame birds are being monitored through several different approaches. This report discusses the Avian Atlas, riparian transects, the Birds of Jackson Hole Checklist, and the Wyoming Bird Checklist. The Breeding Bird Survey is discussed elsewhere in this publication. A summary of the accomplishments of the Wyoming Bird Records Committee is also provided here.

WYOMING AVIAN ATLAS

The Wyoming Avian Atlas (Oakleaf et al. 1982) was designed to summarize available information on distribution, relative abundance, seasonal status, and habitat associations of birds in Wyoming. Data were summarized by latilong. Periodic updates and changes to the Atlas are typical as new and additional information become available. In 1991, the format was revised, and the mammal and bird atlases were combined into a new publication, Draft Distribution and Status of Birds and Mammals in Wyoming. This publication was reviewed by wildlife observers throughout the state and was published as the Wyoming Bird and Mammal Atlas in 1992 (Oakleaf et al. 1992). In 1997, the Atlas was updated and reptile and amphibian sections were included; this was published as the Atlas of Birds, Mammals, Reptiles, and Amphibians in Wyoming (Luce et al. 1997), and was reprinted with additional updates in 1999 (Luce et al. 1999). Updates and corrections were once again made in 2004; this is the current version of the Atlas, published as the Atlas of Birds, Mammals, Amphibians, and Reptiles in Wyoming (Cerovski et al. 2004) and available on the Wyoming Game and Fish Department's (Department) web site at <http://gf.state.wy.us>. If you would like a compact disk version of the 2004 Atlas, please send your name and mailing address to: Nongame Coordinator, 260 Buena Vista, Lander, WY 82520.

RIPARIAN TRANSECTS

Volunteers conduct point-count transects along six riparian areas in Wyoming. In the Sheridan area, Roger Hybner previously conducted the Ash Creek transect with assistance from Bo Deveraux, but a new observer is now needed. Also, the Tongue River transect was previously conducted by Hal Corbett and is also in need of a new observer. In Casper, Bruce and Donna Walgren conduct the Garden Creek and North Platte River Parkway transects. In northeastern Wyoming, the Sand Creek transect near Beulah is conducted by Mary Yemington with assistance from Jean Adams. The Belle Fourche River transect by Devils Tower was conducted by various National Monument personnel, but a permanent observer is needed.

The Sheridan area transects were first conducted in 1976 and have been run one day in each of three or four seasons every year since, with the exception of 1994-1997, 1999, 2003 and 2005 during which the Ash Creek transect was not conducted, and 1997-1999 and 2000-2005 when the Tongue River transect was not conducted. The Casper area transects were started in 1982 and have been run one day in each of three or four seasons every year, with the exception of 1999, 2001, and 2002 when the Garden Creek survey was not conducted, and 2000 when the North Platte River survey was not conducted. The Sand Creek transect was started in 1983, and has been run one day in each of two or three seasons every year, with the exception of 1988 and 1997 during which the survey was not conducted. The Belle Fourche transect was first conducted in 1989 and has been run several days every spring, with the exception of 2000-2005. Results from the Belle Fourche transect were not included in riparian survey analysis until 1993 because not enough data were available to evaluate trends.

The long-term data from these transects are valuable for evaluating changes in bird populations, not only along each riparian area but also combined. Detailed data from these transects are available from the Nongame Bird Biologist, Wyoming Game and Fish Department, 260 Buena Vista, Lander, WY 82520.

The frequency that species were recorded on spring transects for all years that transects were conducted is presented in Table 1. Spring data were chosen because survey dates were more consistent than during summer surveys.

SPECIES CHECKLISTS

In 2005, 10 of 58 avian Species of Special Concern with a Native Species Status of 1 through 4 were detected by the Birds of Jackson Hole checklist participants, compared to 17 in 2004, 10 in 2003, 7 in 2002, and 17 in 2001. Interpreting trends from these checklists is difficult. Trends are influenced by the quality of the observations and the locations observers visit, both of which vary annually. Also, since 1993, checklists have been on display at the Moose Visitor Center in Grand Teton National Park but were only available to visitors upon request. As a result, it is likely that fewer casual birders submitted checklists in the most recent years. Weather also affects species lists by influencing the amount of time

visitors spend in the field. Still, the checklist remains valuable because it provides a way of tracking populations through incidental observations, in addition to the Breeding Bird Survey and riparian transects.

In 1991, the Wyoming Bird Checklist was published and made available to the public; in 1995 it was updated and improved. This checklist divides the state into six regions based on latilongs, and can be stapled closed, stamped, and mailed to the Nongame Bird Biologist. This checklist may help obtain sightings from people who have not been contributing in the past. In 2005, Wyoming Bird Checklist participants detected 37 of the 58 avian Species of Special Concern compared to 37 in 2004, 24 in 2003, 20 in 2002, and 23 in 2001.

WYOMING BIRD RECORDS COMMITTEE

The Wyoming Bird Records Committee (WBRC) was established in 1989 to accomplish the following goals.

- 1) To solicit, organize, and maintain records, documentation, photographs, tape recordings, and any other material relative to the birds of Wyoming.
- 2) To review records of new or rare species or species difficult to identify and offer an intelligent, unbiased opinion of the validity or thoroughness of these reports. From these reviews, the WBRC will develop and maintain an Official State List of Wyoming's Birds.
- 3) To disseminate useful and pertinent material concerning the field identification of Wyoming birds in order to assist Wyoming birders in increasing their knowledge and skill.

The WBRC is interested in promoting and maintaining quality and integrity in the reporting of Wyoming bird observations, and it treats all bird records as significant historical documents. The Wyoming Bird Records Committee operates under a set of bylaws approved in 1991 and updated in 1992 and 1998.

As of 2005, the WBRC has reviewed 916 documentations. Of these, 670 observations have been accepted, 190 have not been accepted, and the remainder of the sightings are awaiting review.

The Wyoming Bird Records Committee Database is a dynamic document, updated on a yearly basis following the WBRC annual meeting. Rather than provide the extensive WBRC Database in paper form, with a new printing each year, the database will be available on-line (read-only) by the end of 2006. It will be linked with the Department's website, available now at <http://gf.state.wy.us>.

A record of the WBRC Official Wyoming State Bird List and the avian species for which documentation is requested is presented in Appendix I. How to document rare and unusual birds and a WBRC Rare Bird Form appear below.

To improve the accuracy and breadth of Wyoming's ornithological record, the following suggestions are given to assist with documentation of sightings.

- 1) Read "How to Document Rare Birds", by Donna L. Dittman and Greg W. Lasley (pages 145-159 in the 1992 issue of Birding, Vol. 24, No. 3). This article is the best we have seen on the subject.
- 2) Acceptable documentation *must* eliminate all similar species. Bear in mind that immatures or juveniles of one species can be very similar to adults of another species. Examples that might cause confusion are gulls, jaegers, sparrows, and longspurs. Species that exhibit multiple color morphs can also be problematic.
- 3) Study and learn bird topography. Most field guides provide a schematic of avian body parts and feather groups. Specialized identification guides also provide specific structural and anatomical detail. A thorough grasp of this subject will heighten your general birding skill and facilitate accurate, detailed documentation.
- 4) Take meticulous and thorough field notes *during* or immediately after the observation. Alternatively, you can also use a tape recorder to capture identification details. If the bird is cooperative, write your notes during the observation period. Try not to consult your field guide during the observation to avoid predisposing your identification. *Do not rely on memory* to document a rare/unusual bird.
- 5) The subject bird's physical description is most crucial. Include everything you observe in this description. Utilizing bird topography, include all details concerning plumage, shape, relative size, eyes, legs, and bill. Note the colors, including color distribution, color density, and color contrast between different feather groups. When making field notes, consider proportional details; i.e. bill length compared to head width and/or tail length as a proportion of body length. Record plumage characteristics, such as degree of wear or signs of molt. When describing size, try to compare nearby known species or some other object of known dimensions. Avoid trying to estimate size in actual inches, feet, etc., since this is a very subjective endeavor.
- 6) Observe and record the subject bird's behavior. While behavior is seldom diagnostic by itself, in combination with other details it is often conclusive. Wyoming's only documented Connecticut Warbler was accepted by the WBRC, in part, because it was walking, not hopping.
- 7) If possible, take photographs. Lacking an actual specimen, good to fair photographs are the best back up to a thoroughly detailed written description. Do not assume that only one photograph will display diagnostic features, or that the developing lab will not ruin a single negative. Take a number of shots to ensure a complete portrait. The value of photography is immediately apparent when one is trying to differentiate the wing tip patterns of the various gulls.

- 8) If you do not have a camera and the bird is cooperative, you can still get a good picture. Make a sketch. You do not need the talent of Rembrandt to draw a convincing and diagnostic sketch. Utilize your knowledge of bird topography, and you will be surprised how well you do. Draw your sketch in the field, during the observation. *Do not rely on memory.*
- 9) Hopefully the bird will be vocalizing in some manner. In addition to a well-written description of the vocalizations, a tape recording is extremely beneficial. The recorded song and/or calls need not be of professional quality. A hand-held cassette recorder with a built-in microphone will often provide reliable results. It is unlikely that an Alder or Yellow-bellied Flycatcher will ever be added to the Wyoming State list without recorded vocalizations to support written and/or photographic evidence.
- 10) Specimens that are identified and repositied at the University of Wyoming Zoological Museum are still the most convincing evidence of an occurrence. If you encounter a dead rare/unusual bird while in the field, please deliver the body to the appropriate authority; i.e. Wyoming Game and Fish Department, National Park Service, or U.S. Fish and Wildlife Service personnel. Note the exact location and date of the discovery. Freeze the specimen if delivery is to be delayed.

LITERATURE CITED

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Rare and Unusual Bird Sighting Form
WYOMING BIRD RECORDS COMMITTEE
260 BUENA VISTA, LANDER, WY 82520

Common Name:		Specific location of observation:			
Scientific Name:					
Observation Date:					
Observation Time:		UTM E	UTM N	Datum	Zone
Length of Observation:		T	N / R	W / Sec.	/ ¼ Sec. / ¼ ¼ Sec.
Distance from Bird:		Latitude		Longitude	
Light Conditions:		Weather at time of observation:			
Optical Equipment:					
Notes made (please circle one):		Date report prepared:		Prior weather (how many days since last change):	
_ During sighting From memory					
GENDER	AGE	PLUMAGE		PHOTO/TAPE/DRAWING	
Male:	Adult:	Breeding:	Juvenal:	Available:	
Female:	Juv./Imm.:	Winter:	Dark Morph:	Enclosed:	
Unknown:	2-3 yr bird:	Eclipse:	Light Morph:	Please submit a copy of your field drawings.	
Total:	Unknown:	Other:			

A general description of size, shape, and other points to help place the bird in its family group. _____

A detailed description of the size, shape, color, and pattern of the bill, head, neck, upperparts, underparts, wings, tail, legs, and feet. *Description should especially include details on key characteristics of the species observed. Acceptance of a sighting depends on the thoroughness of the observer's description of what was seen and what was not seen on the species observed.*

BILL _____

HEAD _____

NECK _____

UPPER-PARTS _____

UNDER-PARTS _____

WINGS _____

TAIL _____

LEGS & FEET _____

Please do not write below here! For WBRC use only! *Form updated June 2006*

Record Number	Category	Latilong	Date Received

Detailed description of the bird (continued from the previous page) _____

List similar species and describe how or why you eliminated them. _____

Describe the behavior of this bird and the interaction with others. _____

What is the habitat at this location? _____

Describe the bird's song or vocalizations. _____

Reporter's name, address, phone #, and e-mail address.

What is your experience with this and similar species? _____

Corroborating observers who are not reporting separately.

Please do not write below here! For WBRC use only!

Form updated June 2006

**Record
Number**

Latilong

Atlas Update

**Sighting Entered in WGFD WOS
Database**

Table 1. The number of years species were recorded on spring riparian transects, through 2005. Years equals the number of years transects were actually surveyed.

Species	Ash Creek Years = 22	Belle Fourche Years = 10	Garden Creek Years = 23	Platte River Years = 24	Sand Creek Years = 23	Tongue River Years = 24
Western Grebe				1		
American White Pelican				1		
Double-crested Cormorant	1		2	21		
Great Blue Heron	14	7	1	4	21	4
Great Egret				1		
Green-backed Heron		1				
Black-crowned Night Heron				3		
Canada Goose	1	3	1	5		
Wood Duck		3		2	5	
Mallard	16	4	11	18	18	11
Blue-winged Teal		1		3	4	
Gadwall				2		
Common Merganser		1		2	9	23
Turkey Vulture	2	5		1	5	6
Osprey	1			2	1	
Northern Harrier	3					
Sharp-shinned Hawk	1		1			3
Cooper's Hawk	1			1		
Northern Goshawk	1					
Broad-winged Hawk	2			1		
Swainson's Hawk			1	1		
Red-tailed Hawk	3	2	2	6	9	3
Ferruginous Hawk			1			
Golden Eagle	5				4	6
American Kestrel	16	6	1	8	7	8
Merlin	1			1		
Prairie Falcon	1	2				2
Chukar			1			
Ring-necked Pheasant	4	1				2
Wild Turkey	14	2				
Killdeer	5	3	1	18	3	
American Avocet				5		
Spotted Sandpiper		1		12	1	2
Common Snipe	2					1
Ring-billed Gull			1	2		
California Gull			18	20		
Caspian Tern				8		
Rock Pigeon		4	6	8	13	13
Mourning Dove	21	10	20	21	20	9
Western Screech-Owl	2					
Great Horned Owl	1					1
White-throated Swift		1			6	23
Calliope Hummingbird						2
Broad-tailed Hummingbird						2
Belted Kingfisher	9	1	2	2	20	3
Lewis' Woodpecker		3			1	
Red-headed Woodpecker	1	9		1	1	

Table 1. Continued.

Species	Ash Creek Years = 22	Belle Fourche Years = 10	Garden Creek Years = 23	Platte River Years = 24	Sand Creek Years = 23	Tongue River Years = 24
Yellow-bellied Sapsucker					1	
Red-naped Sapsucker	1				1	
Downy Woodpecker	7	2	7	11	9	1
Hairy Woodpecker	3	7			6	2
Northern Flicker	20	10	11	19	16	9
Olive-sided Flycatcher			1	1		
Western Wood-Pewee	7	8	9	1	18	13
Willow Flycatcher	2				1	8
Least Flycatcher	6		2	1		17
Dusky Flycatcher	1				1	2
Cordilleran Flycatcher	2		1	4	9	2
Western Kingbird			1	5		
Eastern Kingbird	13	10		10	23	
Tree Swallow	5		1	1	5	6
Violet-green Swallow	1	5			21	15
N. Rough-winged Swallow	7		11	4	15	
Cliff Swallow		8		10	5	
Barn Swallow	2	4	5	7	1	2
Gray Jay		1				
Blue Jay		5	7	3	14	
Pinyon Jay	7	3				
Clark's Nutcracker	6					5
Black-billed Magpie	15	1		21	13	4
American Crow	1	6	1	3	18	1
Common Raven						4
Black-capped Chickadee	21	10	14	15	23	19
Mountain Chickadee			1			2
Red-breasted Nuthatch	5	2		2	7	1
White-breasted Nuthatch	6	4			5	1
Rock Wren	14				2	4
Canyon Wren					1	1
House Wren	20	10	12	18	17	18
American Dipper						10
Ruby-crowned Kinglet	1		3	4	1	4
Blue-gray Gnatcatcher				2		
Mountain Bluebird	13	5			3	
Townsend's Solitaire	4				6	2
Veery	1		2	2		3
Swainson's Thrush	4		6	15	2	8
Hermit Thrush			1			
American Robin	21	10	21	20	23	23
Gray Catbird	9	1	20	8	9	7
Brown Thrasher	2		6	11	1	
Cedar Waxwing	2	4	12	2	7	1
European Starling	14	10	19	19	5	7
Plumbeous Vireo	2	2		1	3	5
Warbling Vireo		1	4	2	2	22
Red-eyed Vireo	3	1		1	16	3

Table 1. Continued.

Species	Ash Creek Years = 22	Belle Fourche Years = 10	Garden Creek Years = 23	Platte River Years = 24	Sand Creek Years = 23	Tongue River Years = 24
Tennessee Warbler	1			2		4
Orange-crowned Warbler	2		5	8		2
Nashville Warbler						1
Northern Parula			1			
Yellow Warbler	20	10	21	18	22	22
Chestnut-sided Warbler						2
Magnolia Warbler				1		
Yellow-rumped Warbler	7	2	3	15	5	5
Blackpoll Warbler					1	
American Redstart					2	
Ovenbird	1				1	2
Northern Waterthrush			3	1		
MacGillivray's Warbler	3		2	3		15
Common Yellowthroat	8	2	3	15	19	19
Wilson's Warbler	1		1	3	1	1
Yellow-breasted Chat	18	1	1	1	16	1
Western Tanager		3	6	1	6	7
Rose-breasted Grosbeak			1			
Black-headed Grosbeak	1	4	21	5	19	
Lazuli Bunting	15		4	1	19	22
Indigo Bunting					10	
Lazuli-Indigo cross					12	
Green-tailed Towhee	1		2	2		1
Spotted Towhee	21	8	4	6	23	23
American Tree Sparrow		1				
Chipping Sparrow	19	9	2	6	16	4
Brewer's Sparrow	1					
Vesper Sparrow	2			2		
Lark Sparrow	17	9			19	
Lark Bunting	1			2		
Fox Sparrow					1	
Song Sparrow	4	1	16	4	14	11
Lincoln's Sparrow	2			5		1
White-crowned Sparrow	1		2	7		
Harris' Sparrow				1		
Dark-eyed Junco					3	1
Bobolink				1	1	
Red-winged Blackbird	17	10	1	20	13	2
Western Meadowlark	19	10	2	19	22	7
Yellow-headed Blackbird	1					
Brewer's Blackbird	11		6	7	13	7
Common Grackle	15	10	22	19	12	8
Brown-headed Cowbird	19	6	7	14	22	9
Orchard Oriole					5	
Bullock's Oriole	11	10	19	17	23	2
Cassin's Finch			7			2
House Finch	4		21	11		
Red Crossbill	9	3			6	

Table 1. Continued.

Species	Ash Creek Years = 22	Belle Fourche Years = 10	Garden Creek Years = 23	Platte River Years = 24	Sand Creek Years = 23	Tongue River Years = 24
Pine Siskin	2	2	11		2	11
American Goldfinch	12	8	13	6	21	6
House Sparrow			21	15		
Evening Grosbeak			12		1	1
<i>Total Number of Species</i>	<i>92</i>	<i>65</i>	<i>71</i>	<i>92</i>	<i>85</i>	<i>82</i>
<i>Avg. Number of Species/Year</i>	<i>31</i>	<i>31</i>	<i>23</i>	<i>32</i>	<i>33</i>	<i>25</i>
<i>Avg. Number of Individuals/Year</i>	<i>253</i>	<i>384</i>	<i>249</i>	<i>182</i>	<i>187</i>	<i>225</i>

WYOMING PARTNERS IN FLIGHT COMPLETION REPORT

STATE OF WYOMING

NONGAME BIRDS – Partners In Flight

PERIOD COVERED: 15 April 2005 – 14 April 2006

PREPARED BY: Andrea Orabona Cerovski, Nongame Bird Biologist

INTRODUCTION

Analysis of long-term data indicates that population trends of many landbirds are declining due to changes in land use; habitat loss, fragmentation, and deterioration; pesticide use; and human disturbance. The international Partners In Flight program, of which Wyoming is an active participant, was initiated in 1990 to address and reverse these declines. State, regional, national, and international Bird Conservation Plans comprehensively address the issues of avian and habitat conservation on a landscape scale.

Wyoming Partners In Flight (WY-PIF) is comprised of participants from the Wyoming Game and Fish Department (Department), Bureau of Land Management (BLM), U.S. Forest Service, U.S. Fish and Wildlife Service, Bureau of Reclamation, National Park Service, Rocky Mountain Bird Observatory, Audubon Wyoming and affiliate chapters, Wyoming Natural Diversity Database, University of Wyoming, and The Nature Conservancy. The Department's Nongame Bird Biologist has served as the State's WY-PIF chairperson since its inception in 1991.

BIRD CONSERVATION PLANNING

The Wyoming Bird Conservation Plan, Version 2.0 (Nicholoff 2003) is available on the Partners In Flight web site at www.blm.gov/wildlife/plan/WY/menu.htm. The Plan presents population objectives for birds, habitat objectives for the major habitat groups in the state, Best Management Practices to benefit birds, and recommendations to ensure that landbirds and the habitats they require remain intact and viable into the future through proactive and restorative management techniques.

MONITORING WYOMING'S BIRDS

One of the highest priority population objectives throughout the Plan is to implement *Monitoring Wyoming's Birds: The Plan for Count-based Monitoring*

(Leukering et al. 2001). For the sixth consecutive year, the BLM developed a cooperative assistance agreement with the Department that provides for collaborative efforts between the two agencies to establish a statewide monitoring protocol for birds, determine the distribution and abundance of selected avian species, and develop educational materials on birds in Wyoming. Through this agreement, the Department continued contract agreements with the Rocky Mountain Bird Observatory (RMBO), Audubon Wyoming (Audubon), and the Wyoming Natural Diversity Database (WYNDD). The RMBO implements the Monitoring Wyoming's Birds program in six habitats in Wyoming (aspen, grassland, juniper woodland, mid-elevation conifer, montane riparian, and shrubsteppe). Audubon assists with inventory and monitoring efforts for those species that require techniques other than point-counts, and produces and distributes educational materials on birds and their habitats. The WYNDD maintains a database that acts as a central repository for the Monitoring Wyoming's Birds data, and provides datasets to partners upon request. The Department also received some of the funds and contributed in-kind services to conduct surveys and provide data for Common Loons, colonial nesting waterbirds, songbirds, and raptors; to train Audubon Wyoming personnel to conduct colonial nesting waterbird surveys; and to compile, print, and distribute Partners In Flight educational materials.

PUBLIC CONTACTS

The WY-PIF Chair, Andrea Cerovski, continues to receive inquiries from and provide information to agency biologists, private consultants, and members of the public regarding the Wyoming Bird Conservation Plan and Best Management Practices. In addition to the web-based Plan, a compact disc copy is also available upon request.

The seventh Annual Lander Bird Festival was held during the month of May 2005 at the Wyoming Game and Fish Department Lander Regional Office (see flier below). Sponsors for this year's event comprised a diverse partnership: the Department, Red Desert Audubon Society, Popo Agie Conservation District, Wind River Seed, and Royal Blue Organics. Over 150 people enjoyed the free activities and information about birds and their habitats, and/or participated in the North American Migration Count.

LITERATURE CITED

Leukering, T., M. F. Carter, A. Panjabi, D. Faulkner, and R. Levad. 2001. Monitoring Wyoming's Birds: The Plan for Count-based Monitoring. Rocky Mountain Bird Observatory, Brighton, CO.

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7th ANNUAL LANDER BIRD FESTIVAL

"Celebrating birds during the month of May"

North American Migration Count:

Saturday, May 14th (call for details)

Bird Festival: WY Game & Fish, 260 Buena Vista

Week 1 theme (May 2-6): Collisions: Clear the Way for Birds!

Week 2 theme (May 9-13): Cats Indoors! Campaign for Safer
Birds and Cats

Week 3 theme (May 16-20): Landscaping is for the Birds

Week 4 theme (May 23-27): Birds and Coffee: What's the
Connection?

- Free bird posters, information packets, stickers, & rub-on tattoos while they last! (Office hours: Monday - Friday, 8 am-5 pm)
 - Owls of Wyoming program - Friday, May 13th, 7 pm (featuring "Jupiter", a live Great Horned Owl!)
 - Enter the weekly raffle to win lots of great prizes!
-

~ For more information contact: Andrea Cerovski 332-7723 ext. 232 ~

NONGAME INVENTORIES ON THE RIM FIRE RANCH, WYOMING COMPLETION REPORT

STATE OF WYOMING

NONGAME MAMMALS – Small Mammals

PERIOD COVERED: 13 June 2005 – 17 June 2005

PREPARED BY: Laurie Van Fleet, Nongame Biologist
Jeremi Artery, Nongame Technician
Todd Filipi, Nongame Technician

INTRODUCTION

The Wyoming Game and Fish Department (Department) conducted surveys on the Rim Fire Ranch, Sublette Co., Wyoming on 13-17 June 2005 at the request of the landowner. The data collected during these surveys will aid in implementing a strategic management plan for the comprehensive and integrated management of wildlife and agriculture on the Rim Fire Ranch (Dave Lockman, Wildlife Management Services of the Rockies, personal communication). As part of this plan, small mammal surveys were conducted to identify species associated with habitats on the Rim Fire Ranch (Ranch).

METHODS

Small mammal surveys were conducted on the Ranch between 13 and 17 June 2005 using techniques outlined in the Department's Handbook of Biological Techniques (in press).

Five hundred trap-nights of catch effort were planned over a four-day period. Trapping stations were spaced approximately 50 ft (15 m) apart. Each station consisted of four baited traps (one live trap and one rat and two mouse museum special snap traps). A total of 30 stations were placed along a 1,475 ft (450 m) transect. Five pitfall traps were also placed along each transect to catch species that may not be attracted to baits (e.g., shrews). A variety of baits (e.g., plain peanut butter, peanut butter and oatmeal, peanut butter and raisins) were utilized on each transect. The transect configuration was adjusted to cover irregularly shaped habitats such as riparian zones. Traps were set 24-hours a day to catch both diurnal and nocturnal species, and checked twice a day, mid-morning and mid-afternoon. Live traps were placed in the shade when available and cotton balls were provided for bedding material. Live traps were disinfected with a 10% bleach water solution after each capture.

Bat surveys were conducted along two riparian areas on 14 and 15 June 2005 using AnaBat ultrasonic bat detection equipment (Titley Electronics, New South Wales, Australia). AnaBat was set on active mode, where it was manned by a person who manually pointed the receiver and saved echolocation calls.

All survey results were entered in the Department's Wildlife Observation System database. New records will be updated in the Atlas of Birds, Mammals, Amphibians, and Reptiles in Wyoming (Atlas) (Cerovski et al. 2004).

RESULTS

Small mammal trapping

Twenty-eight small mammal species were expected to occur on the Ranch (Table 1). A total of 2,969 trap nights were recorded at six transects between 13 June and 17 June 2005. Three riparian transects, two sagebrush transects, and one greasewood transect were selected, as they were representative of the habitat types present on the Ranch. Due to cattle being moved into the area, the greasewood transect was relocated approximately 900 ft (275 m) northeast of its original location after two survey nights.

A total of 248 small mammals were captured, representing eight species (Table 2). The deer mouse (*Peromyscus maniculatus*), as would be expected, was strongly represented in the survey. A total of 157 deer mice were trapped at six locations, accounting for 63% of total captures. Fifty-one (21%) least chipmunks (*Tamius minimus*) were collected at three locations, including both sagebrush habitat and greasewood habitat. Twenty-two (9%) montane voles (*Microtus montanus*) were trapped at four sites, and 13 (5%) sagebrush voles (*Lemmyscus curtatus*) were trapped at six locations. Meadow voles (*Microtus pennsylvanicus*) were trapped at two locations, representing less than 1% of total captures. One capture each of Uinta ground squirrel (*Spermophilus armatus*), Wyoming ground squirrel (*Spermophilus elegans*), and dwarf shrew (*Sorex nanus*) were also captured, representing less than 1% of total captures.

The three riparian transects consisted primarily of willow bottom, irrigated meadow, and sedge-rush habitats (Table 3). Fifteen specimens were trapped in the riparian willow bottom, including 7 (32%) montane voles, 1 (8%) sagebrush vole, 1 (50%) meadow vole and 6 (4%) deer mice. The irrigated meadow produced 11 (50%) montane voles, 2 (15%) sagebrush voles, 1 (50%) meadow vole, 5 (3%) deer mice, and the only dwarf shrew. Two (15%) sagebrush voles and one (1%) deer mouse were trapped in the riparian sedge/rush habitat.

The two transects in sagebrush habitat were the most productive, resulting in 157 animals trapped (Table 3). One sagebrush transect trapped 59 (38%) deer mice, 17 (33%) least chipmunks, 4 (31%) sagebrush voles, and 1 (5%) montane vole. The second sagebrush transect produced 45 (29%) deer mice, 25 (49%) least chipmunks, 3 (23%) sagebrush voles, 3 (14%) montane voles, and the sole Uinta ground squirrel.

The greasewood transect produced 41 (27%) deer mice, 9 (18%) least chipmunks, 1 (8%) sagebrush vole, and the only Wyoming ground squirrel (Table 3).

Bat Surveys

AnaBat surveys were conducted on 14 and 15 June 2005. The 14 June survey was conducted at a canal and pond between 2030 and 2145 hours. No bats were observed or detected at this site. Total survey time was 75 minutes. The 15 June survey was conducted along South Cottonwood Creek from 2030 to 2200 hours. No bats were observed or detected using Active AnaBat. Total survey time was 90 minutes.

DISCUSSION

Small Mammals

Of the 28 small mammal species were expected to occur on the Ranch, 14 are considered Species of Greatest Conservation Need (SGCN) with a Native Species Status (NSS) ranking from 2 to 6 (Wyoming Game and Fish Department 2005). Small mammal trapping surveys resulted in the detection of four NSS species: dwarf shrew (NSS3), Uinta ground squirrel (NSS6), Wyoming ground squirrel (NSS6), and sagebrush vole (NSS4). Other species detected during the small mammal trapping included the deer mouse, least chipmunk, montane vole, and meadow vole.

As would be expected, the deer mouse was strongly represented in the survey, as it occurs in most habitats throughout Wyoming and was present in all six transects. The sagebrush vole is considered common in Wyoming and was also present at all six transects. The sagebrush vole prefers habitat where sagebrush, greasewood, or rabbitbrush are dense, which coincided with our survey habitats. The least chipmunk also occurs in most habitat types in Wyoming and inhabits more biotic communities; this species was found primarily in sagebrush and greasewood habitat on the Ranch.

Several other species were suspected to occur within this degree block of Wyoming but were not trapped, including the thirteen-lined ground squirrel (*Spermophilis tridencelineatus*), golden-mantled ground squirrel (*Spermophilis lateralis*), vagrant shrew (*Sorex vagrens*), and dusky shrew (*Sorex monticolous*). Thirteen-lined ground squirrels are generally associated with grassland type habitat or barren areas, mined areas, and overgrazed areas, which were not habitats available (Cerovski et al. 2004). A key habitat feature for golden-mantled ground squirrels are rocky outcrops, another habitat not available on the ranch (Clark and Stromberg 1987). Dwarf, dusky, and vagrant shrews were expected to occur; however, only one dwarf shrew was trapped in the irrigated meadow-riparian habitat. Shrews are often difficult to trap and generally have low capture probabilities, which may have resulted in under representation in captures.

More intensive surveys may be warranted for the Ranch. Failure to detect certain species does not mean the species was not present. Some expected species that were not

captured might be present; however, failure to detect these species may have occurred due to the timing and brevity of the surveys.

Bats

Six species of bats were expected to occur on the Ranch, and all are classified as SGCN with a NSS of 2 or 3. These species occupy a wide variety of summer roosts, including buildings, abandoned mines, caves, tree hollows, and cliff faces, and forage in a variety of habitats. Most spend the winter hibernating in caves and abandoned mines.

Habitat conditions on the Ranch were favorable for bats, including many open areas of water for foraging and abundant prey items. AnaBat has proven to be an accurate and time efficient method of sampling for bats to establish presence/absence of individual species (Luce 1999). The fact that no bats were detected could be the result of other factors, including lack of roosting sites within feeding areas, distance to feeding areas, and/or timing of surveys.

LITERATURE CITED

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- Clark, T. W. and M.R. Stromberg. 1987. Mammals in Wyoming. University of Kansas, Museum of Natural History. 214pp.
- Luce, R.J. 1999. Bat inventories using AnaBat Ultrasonic Bat Detector completion report. Pages 166 – 180 in Threatened, Endangered, and Nongame Bird and Mammal Investigations. Wyoming Game and Fish Department, Cheyenne. 298pp.
- Wyoming Game and Fish Department. 2005. A Comprehensive Wildlife Conservation Strategy for Wyoming. Wyoming Game and Fish Commission, Cheyenne.
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Table 1. Small mammal species expected to be observed/trapped on the Rim Fire Ranch, Sublette Co., Wyoming, 13-17 June 2005.

Common Name	Scientific Name	Trapped	Observed	Native Species Status
Dusky Shrew	<i>Sorex monticolous</i>			
Dwarf Shrew	<i>Sorex nanus</i>	X		NSS3
Vagrant Shrew	<i>Sorex vagrans</i>			NSS3
Western Small-footed Myotis	<i>Myotis ciliolabrum</i>			NSS3
Long-eared Myotis	<i>Myotis evotis</i>			NSS2
Little brown Myotis	<i>Myotis lucifugus</i>			NSS3
Long-legged Myotis	<i>Myotis volans</i>			NSS2
Big Brown Bat	<i>Eptesicus fuscus</i>			NSS3
Townsend's Big-eared Bat	<i>Corynorhinus townsendii</i>			NSS2
Pygmy Rabbit	<i>Brachyllagus idahoensis</i>			NSS3
Desert Cottontail	<i>Sylvillagus audobonii baileyi</i>		X	
White-tailed Jackrabbit	<i>Lepus townsendii</i>		X	
Least Chipmunk	<i>Tamias minimus</i>	X		
Yellow-bellied Marmot	<i>Marmota flaviventris</i>			
Wyoming Ground Squirrel	<i>Spermophilus elegans elegans</i>	X		NSS6
Uinta Ground Squirrel	<i>Spermophilus armatus</i>	X		NSS6
Golden-mantled Ground Squirrel	<i>Spermophilus lateralis</i>			
13-lined Ground Squirrel	<i>Spermophilus tridencemlineatus</i>			
White-tailed Prairie Dog	<i>Cynomys leucurus</i>		X	NSS4
Idaho Pocket Gopher	<i>Thomomys idahoensis</i>			NSS3
Northern Pocket Gopher	<i>Thomomys talpoides</i>			
Deer Mouse	<i>Peromyscus maniculatus</i>	X		
Northern Grasshopper Mouse	<i>Onychomys leucogaster</i>			
Meadow Vole	<i>Microtus pennsylvanicus</i>	X		
Montane Vole	<i>Microtus montanus</i>	X		
Long-tailed Vole	<i>Microtus longicaudus</i>			
Sagebrush Vole	<i>Lemmyscus curtatus</i>	X		NSS4
Western Jumping Mouse	<i>Zapus princeps</i>			

Table 2. Frequency of occurrence of nongame mammal species captured during 2,969 trap-nights using the standard Department trapping method.

Species	Number of Traplines Recording Species	Number Trapped	Percent of Total Captures (%)	Number Captured / 100 Trap Nights
Deer Mouse	6	157	63	5.29
Least Chipmunk	3	51	21	1.72
Montane Vole	4	22	9	0.74
Sagebrush Vole	6	13	5	0.44
Meadow Vole	2	2	<1	0.02
Dwarf Shrew	1	1	<1	0.01
Uinta Ground Squirrel	1	1	<1	0.01
Wyoming Ground Squirrel	1	1	<1	0.01
Total	--	248	--	--

Table 3. Results of nongame mammal survey conducted on the Rim Fire Ranch, Sublette County in 2005.

Habitat	Start Date	Name of Trapper	Total Animals Trapped	#1	#2	<u>Species</u>			UTM – Starting Transect	UTM – Ending Transect
						#3	#4	#5		
Riparian – Willow Bottom	6/14/05	T. Filipi	15	7-MIMO	6-PEMA	1-MIPE	1-LECU		0577299E – 4731420N	0577557E – 4731420N
Riparian – Irrigated Meadow	6/14/05	J. Artery	20	11-MIMO	5-PEMA	2-LECU	1-MIPE	1-SONA	0578773E – 4730553N	0579043E – 4730848N
Riparian – Sedge/Rush	6/14/05	L. Van Fleet	3	2-LECU	1-PEMA				058746E – 4733370N	0580537E – 4733491N
Sagebrush	6/14/05	T. Filipi	81	59-PEMA	17-TAMI	4-LECU	1-MIMO		0578033E - 4732339N	0577683E – 4732539N
Sagebrush	6/14/05	J. Artery	77	45-PEMA	25-TAMI	3-MIMO	3-LECU	1-SPAR	0578773E – 4730553N	0579043E – 4730848N
Greasewood	6/14/05	L. Van Fleet	26	20-PEMA	4-TAMI	1-LECU	1-SPEL		0578993E – 4732092N	0579340E – 4731955N
Greasewood	6/16/05	L. Van Fleet	26	21-PEMA	5-TAM				0580393N- 4732297E	0580307E – 4732630N

Legend:

LECU	<i>Lemiscus curtatus</i>	Sagebrush Vole
MIMO	<i>Microtus montanus</i>	Montane Vole
MIPE	<i>Microtus pennsylvanicus</i>	Meadow Vole
PEMA	<i>Peromyscus maniculatus</i>	Deer Mouse
SONA	<i>Sorex nanus</i>	Dwarf Shrew
SPAR	<i>Spermophilus armatus</i>	Uinta Ground Squirrel
SPEL	<i>Spermophilus elegans</i>	Wyoming Ground Squirrel
TAMI	<i>Tamius minimus</i>	Least Chipmunk

APPENDICES

**THE OFFICIAL STATE LIST OF THE COMMON AND SCIENTIFIC NAMES OF THE
BIRDS, MAMMALS, AMPHIBIANS, AND REPTILES IN WYOMING**

Spp. Code	Common Name	Scientific Name	Doc. Type	Seasonal Status and Additional Information ^{a,b}
<i>BIRDS</i> ^{c,d}				
Waterfowl				
Order: Anseriformes				
Family: Anatidae				
171.0	Greater White-fronted Goose *	<i>Anser albifrons</i>	(FL)	M
169.0	Snow Goose *	<i>Chen caerulescens</i>		M
170.0	Ross's Goose *	<i>Chen rossii</i>	(FL)	M
173.0	Brant	<i>Branta bernicla</i>	(AS)	A, Includes Black Brant (174.0)
172.0	Canada Goose *	<i>Branta canadensis</i>		R
178.2	Mute Swan	<i>Cygnus olor</i>	(AS)	A, Controlled
181.0	Trumpeter Swan *	<i>Cygnus buccinator</i>	(FL)	R, No season, NSS2
180.0	Tundra Swan *	<i>Cygnus columbianus</i>		W, No season
144.0	Wood Duck *	<i>Aix sponsa</i>		S
135.0	Gadwall *	<i>Anas strepera</i>		R
136.0	Eurasian Wigeon	<i>Anas penelope</i>	(FL)	A
137.0	American Wigeon *	<i>Anas americana</i>		R
133.0	American Black Duck	<i>Anas rubripes</i>	(AS)	A
132.0	Mallard *	<i>Anas platyrhynchos</i>		R
140.0	Blue-winged Teal *	<i>Anas discors</i>		S
141.0	Cinnamon Teal *	<i>Anas cyanoptera</i>		S
142.0	Northern Shoveler *	<i>Anas clypeata</i>		S
143.0	Northern Pintail *	<i>Anas acuta</i>		R, NSS3
139.2	Garganey	<i>Anas querquedula</i>	(AS)	A
139.0	Green-winged Teal *	<i>Anas crecca</i>		R
147.0	Canvasback *	<i>Aythya valisineria</i>		S, NSS3
146.0	Redhead *	<i>Aythya americana</i>		S, NSS3
150.0	Ring-necked Duck *	<i>Aythya collaris</i>		S
149.1	Tufted Duck	<i>Aythya fuligula</i>	(AS)	A
148.0	Greater Scaup *	<i>Aythya marila</i>	(FL)	M
149.0	Lesser Scaup *	<i>Aythya affinis</i>		S, NSS3
155.0	Harlequin Duck *	<i>Histrionicus histrionicus</i>		S, NSS3
166.0	Surf Scoter *	<i>Melanitta perspicillata</i>	(FL)	M
165.0	White-winged Scoter *	<i>Melanitta fusca</i>	(FL)	M
163.0	Black Scoter	<i>Melanitta nigra</i>	(AS)	A
154.0	Long-tailed Duck *	<i>Clangula hyemalis</i>	(FL)	M
153.0	Bufflehead *	<i>Bucephala albeola</i>		R
151.0	Common Goldeneye *	<i>Bucephala clangula</i>		R
152.0	Barrow's Goldeneye *	<i>Bucephala islandica</i>		R, NSS3
131.0	Hooded Merganser *	<i>Lophodytes cucullatus</i>		R
129.0	Common Merganser *	<i>Mergus merganser</i>		R

Spp. Code	Common Name	Scientific Name	Doc. Type	Seasonal Status and Additional Information ^{a,b}
130.0	Red-breasted Merganser *	<i>Mergus serrator</i>		S
167.0	Ruddy Duck *	<i>Oxyura jamaicensis</i>		S
141.2	Ruddy Shelduck	<i>Tadorna ferruginea</i>	(AS)	A, Controlled
141.1	Common Shelduck	<i>Tadorna tadorna</i>	(AS)	A, Controlled
<u>Gallinaceous Birds</u>				
Order: Galliformes				
Family: Phasianidae				
288.2	Chukar *	<i>Alectoris chukar</i>		R
288.1	Gray Partridge *	<i>Perdix perdix</i>		R
309.1	Ring-necked Pheasant *	<i>Phasianus colchicus</i>		R
300.0	Ruffed Grouse *	<i>Bonasa umbellus</i>		R
309.0	Greater Sage-Grouse *	<i>Centrocercus urophasianus</i>		R, NSS2
304.0	White-tailed Ptarmigan *	<i>Lagopus leucura</i>	(AS)	R, No season
297.0	Dusky Grouse *	<i>Dendragapus obscurus</i>		R
308.0	Sharp-tailed Grouse *	<i>Tympanuchus phasianellus</i>		R, NSS3, Includes Columbian subspecies
305.0	Greater Prairie-Chicken	<i>Tympanuchus cupido</i>	(AS)	A
310.0	Wild Turkey *	<i>Meleagris gallopavo</i>		R
Family: Odontophoridae				
289.0	Northern Bobwhite *	<i>Colinus virginianus</i>	(AS)	R
<u>Loons</u>				
Order: Gaviiformes				
Family: Gaviidae				
011.0	Red-throated Loon	<i>Gavia stellata</i>	(AS)	M
010.0	Pacific Loon	<i>Gavia pacifica</i>	(FL)	M
007.0	Common Loon	<i>Gavia immer</i>		S, NSS1
008.0	Yellow-billed Loon	<i>Gavia adamsii</i>	(AS)	A
<u>Grebes</u>				
Order: Podicipediformes				
Family: Podicipedidae				
006.0	Pied-billed Grebe	<i>Podilymbus podiceps</i>		S
003.0	Horned Grebe	<i>Podiceps auritus</i>		S
002.0	Red-necked Grebe	<i>Podiceps grisegena</i>	(AS)	S
004.0	Eared Grebe	<i>Podiceps nigricollis</i>		S
001.0	Western Grebe	<i>Aechmophorus occidentalis</i>		S, NSS4
001.1	Clark's Grebe	<i>Aechmophorus clarkii</i>		S, NSS4
<u>Pelicans and Cormorants</u>				
Order: Pelecaniformes				
Family: Pelecanidae				
125.0	American White Pelican	<i>Pelecanus erythrorhynchos</i>		S, NSS3
126.0	Brown Pelican	<i>Pelecanus occidentalis</i>	(AS)	A, Endangered

Family: Phalacrocoracidae

Spp. Code	Common Name	Scientific Name	Doc. Type	Seasonal Status and Additional Information ^{a,b}
120.0	Double-crested Cormorant	<i>Phalacrocorax auritus</i>		S
Family: Fregatidae				
128.0	Magnificent Frigatebird	<i>Fregata magnificens</i>	(AS)	A
Wading Birds				
Order: Ciconiiformes				
Family: Ardeidae				
190.0	American Bittern	<i>Botaurus lentiginosus</i>	(FL)	S, NSS3
191.0	Least Bittern	<i>Ixobrychus exilis</i>	(AS)	A
194.0	Great Blue Heron	<i>Ardea herodias</i>		S, NSS4
196.0	Great Egret	<i>Ardea alba</i>	(FL)	A
197.0	Snowy Egret	<i>Egretta thula</i>		S, NSS3
200.0	Little Blue Heron	<i>Egretta caerulea</i>	(AS)	A
199.0	Tricolored Heron	<i>Egretta tricolor</i>	(AS)	A
200.1	Cattle Egret	<i>Bubulcus ibis</i>	(FL)	S
201.0	Green Heron	<i>Butorides virescens</i>	(FL)	M
202.0	Black-crowned Night-Heron	<i>Nycticorax nycticorax</i>		S, NSS3
203.0	Yellow-crowned Night-Heron	<i>Nyctanassa violacea</i>	(AS)	A
Family: Threskiornithidae				
184.0	White Ibis	<i>Eudocimus albus</i>	(AS)	A
186.0	Glossy Ibis	<i>Plegadis falcinellus</i>	(AS)	A
187.0	White-faced Ibis	<i>Plegadis chihi</i>		S
Family: Ciconiidae				
188.0	Wood Stork	<i>Mycteria americana</i>	(AS)	A, Endangered
Diurnal Birds of Prey				
Order: Ciconiiformes				
Family: Cathartidae				
325.0	Turkey Vulture	<i>Cathartes aura</i>		S
Order: Falconiformes				
Family: Accipitridae				
364.0	Osprey	<i>Pandion haliaetus</i>		S
328.0	White-tailed Kite	<i>Elanus leucurus</i>	(AS)	A
329.0	Mississippi Kite	<i>Ictinia mississippiensis</i>	(AS)	A
352.0	Bald Eagle	<i>Haliaeetus leucocephalus</i>		R, Threatened, NSS2
331.0	Northern Harrier	<i>Circus cyaneus</i>		S
332.0	Sharp-shinned Hawk	<i>Accipiter striatus</i>		S
333.0	Cooper's Hawk	<i>Accipiter cooperii</i>		S
334.0	Northern Goshawk	<i>Accipiter gentilis</i>		R, NSS4
343.0	Broad-winged Hawk	<i>Buteo platypterus</i>	(FL)	M
342.0	Swainson's Hawk	<i>Buteo swainsoni</i>		S, NSS4
337.0	Red-tailed Hawk	<i>Buteo jamaicensis</i>		R, Includes Harlan's Hawk (338.0)
348.0	Ferruginous Hawk	<i>Buteo regalis</i>		R, NSS3
347.0	Rough-legged Hawk	<i>Buteo lagopus</i>		W
349.0	Golden Eagle	<i>Aquila chrysaetos</i>		R

Spp. Code	Common Name	Scientific Name	Doc. Type	Seasonal Status and Additional Information ^{a,b}
Family: Falconidae				
362.0	Crested Caracara	<i>Caracara cheriway</i>	(AS)	A
360.0	American Kestrel	<i>Falco sparverius</i>		S
357.0	Merlin	<i>Falco columbarius</i>		R, NSS3
354.0	Gyrfalcon	<i>Falco rusticolus</i>	(FL)	W
356.0	Peregrine Falcon	<i>Falco peregrinus</i>	(FL)	R, NSS3
355.0	Prairie Falcon	<i>Falco mexicanus</i>		R
Marshbirds				
Order: Gruiformes				
Family: Rallidae				
215.0	Yellow Rail	<i>Coturnicops noveboracensis</i>	(AS)	A
212.0	Virginia Rail *	<i>Rallus limicola</i>		S, NSS3
214.0	Sora *	<i>Porzana carolina</i>		S
218.0	Purple Gallinule	<i>Porphyrio martinica</i>	(AS)	A
219.0	Common Moorhen	<i>Gallinula chloropus</i>	(AS)	A
221.0	American Coot *	<i>Fulica americana</i>		S
Family: Gruidae				
206.0	Sandhill Crane *	<i>Grus canadensis</i>		S, NSS3, Includes Greater Sandhill Crane subspecies
204.0	Whooping Crane	<i>Grus americana</i>	(AS)	S, Endangered
Shorebirds				
Order: Charadriiformes				
Family: Charadriidae				
270.0	Black-bellied Plover	<i>Pluvialis squatarola</i>		M
272.0	American Golden-Plover	<i>Pluvialis dominica</i>	(FL)	M
278.0	Snowy Plover	<i>Charadrius alexandrinus</i>	(FL)	S
274.0	Semipalmated Plover	<i>Charadrius semipalmatus</i>		M
277.0	Piping Plover	<i>Charadrius melodus</i>	(AS)	M, Endangered
273.0	Killdeer	<i>Charadrius vociferus</i>		S
281.0	Mountain Plover	<i>Charadrius montanus</i>		S, NSS4
Family: Recurvirostridae				
226.0	Black-necked Stilt	<i>Himantopus mexicanus</i>		S
225.0	American Avocet	<i>Recurvirostra americana</i>		S
Family: Scolopacidae				
263.0	Spotted Sandpiper	<i>Actitis macularius</i>		S
256.0	Solitary Sandpiper	<i>Tringa solitaria</i>		M
254.0	Greater Yellowlegs	<i>Tringa melanoleuca</i>		M
258.0	Willet	<i>Tringa semipalmata</i>		S
255.0	Lesser Yellowlegs	<i>Tringa flavipes</i>		M
261.0	Upland Sandpiper	<i>Bartramia longicauda</i>	(FL)	S, NSS4
265.0	Whimbrel	<i>Numenius phaeopus</i>	(FL)	M
264.0	Long-billed Curlew	<i>Numenius americanus</i>		S, NSS3
251.0	Hudsonian Godwit	<i>Limosa haemastica</i>	(AS)	M
249.0	Marbled Godwit	<i>Limosa fedoa</i>		M

Spp. Code	Common Name	Scientific Name	Doc. Type	Seasonal Status and Additional Information ^{a,b}
283.0	Ruddy Turnstone	<i>Arenaria interpres</i>	(FL)	M
234.0	Red Knot	<i>Calidris canutus</i>	(AS)	M
248.0	Sanderling	<i>Calidris alba</i>		M
246.0	Semipalmated Sandpiper	<i>Calidris pusilla</i>		M
247.0	Western Sandpiper	<i>Calidris mauri</i>		M
242.0	Least Sandpiper	<i>Calidris minutilla</i>		M
240.0	White-rumped Sandpiper	<i>Calidris fuscicollis</i>	(FL)	M
241.0	Baird's Sandpiper	<i>Calidris bairdii</i>		M
239.0	Pectoral Sandpiper	<i>Calidris melanotos</i>		M
243.0	Dunlin	<i>Calidris alpina</i>	(FL)	M
233.0	Stilt Sandpiper	<i>Calidris himantopus</i>		M
262.0	Buff-breasted Sandpiper	<i>Tryngites subruficollis</i>	(AS)	M
231.0	Short-billed Dowitcher	<i>Limnodromus griseus</i>	(FL)	A
232.0	Long-billed Dowitcher	<i>Limnodromus scolopaceus</i>		M
230.0	Wilson's Snipe	<i>Gallinago delicata</i>		S
228.0	American Woodcock	<i>Scolopax minor</i>	(AS)	A
224.0	Wilson's Phalarope	<i>Phalaropus tricolor</i>		S
223.0	Red-necked Phalarope	<i>Phalaropus lobatus</i>		M
222.0	Red Phalarope	<i>Phalaropus fulicarius</i>	(AS)	A
Gulls and Terns				
Order: Charadriiformes				
Family: Laridae				
058.0	Laughing Gull	<i>Larus atricilla</i>	(AS)	A
059.0	Franklin's Gull	<i>Larus pipixcan</i>		S, NSS3
060.1	Little Gull	<i>Larus minutus</i>	(AS)	A
055.1	Black-headed Gull	<i>Larus ridibundus</i>	(AS)	A
060.0	Bonaparte's Gull	<i>Larus philadelphia</i>		M
057.0	Heermann's Gull	<i>Larus heermanni</i>	(AS)	A
055.0	Mew Gull	<i>Larus canus</i>	(AS)	A
054.0	Ring-billed Gull	<i>Larus delawarensis</i>		S
053.0	California Gull	<i>Larus californicus</i>		S
051.0	Herring Gull	<i>Larus argentatus</i>		M
044.0	Glaucous-winged Gull	<i>Larus glaucescens</i>	(AS)	A
042.0	Glaucous Gull	<i>Larus hyperboreus</i>	(AS)	A
047.0	Great Black-backed Gull	<i>Larus marinus</i>	(AS)	A
062.0	Sabine's Gull	<i>Xema sabini</i>	(FL)	M
040.0	Black-legged Kittiwake	<i>Rissa tridactyla</i>	(AS)	A
061.0	Ross's Gull	<i>Rhodostethia rosea</i>	(AS)	A
074.0	Least Tern	<i>Sternula antillarum</i>	(AS)	A, Endangered
064.0	Caspian Tern	<i>Hydroprogne caspia</i>		S, NSS3
077.0	Black Tern	<i>Chlidonias niger</i>		S, NSS3
070.0	Common Tern	<i>Sterna hirundo</i>	(FL)	M
071.0	Arctic Tern	<i>Sterna paradisaea</i>	(AS)	A
069.0	Forster's Tern	<i>Sterna forsteri</i>		S, NSS3

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036.0	Pomarine Jaeger	<i>Stercorarius pomarinus</i>	(AS)	A
037.0	Parasitic Jaeger	<i>Stercorarius parasiticus</i>	(AS)	A
Seabirds				
Order: Charadriiformes				
Family: Alcidae				
023.0	Long-billed Murrelet	<i>Brachyramphus marmoratus</i>	(AS)	A
021.0	Ancient Murrelet	<i>Synthliboramphus antiquus</i>	(AS)	A
Doves and Pigeons				
Order: Columbiformes				
Family: Columbidae				
313.1	Rock Pigeon	<i>Columba livia</i>		R
312.0	Band-tailed Pigeon	<i>Patagioenas fasciata</i>	(AS)	M
315.2	African Collared-Dove	<i>Streptopelia roseogrisea</i>	(AS)	A
315.4	Eurasian Collared-Dove	<i>Streptopelia decaocto</i>	(FL)	A
319.0	White-winged Dove	<i>Zenaida asiatica</i>	(AS)	A
316.0	Mourning Dove *	<i>Zenaida macroura</i>		S
315.0	Passenger Pigeon	<i>Ectopistes migratorius</i>		Extinct
Cuckoos				
Order: Cuculiformes				
Family: Cuculidae				
387.0	Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	(FL)	S, NSS2
388.0	Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	(FL)	S
Owls				
Order: Strigiformes				
Family: Tytonidae				
365.0	Barn Owl	<i>Tyto alba</i>	(AS)	S, (AS) except L21
Family: Strigidae				
374.0	Flammulated Owl	<i>Otus flammeolus</i>	(AS)	A
373.2	Western Screech-Owl	<i>Megascops kennicottii</i>	(AS)	R, (AS) except L8
373.0	Eastern Screech-Owl	<i>Megascops asio</i>	(FL)	R
375.0	Great Horned Owl	<i>Bubo virginianus</i>		R
376.0	Snowy Owl	<i>Bubo scandiacus</i>	(AS)	W
377.0	Northern Hawk Owl	<i>Surnia ulula</i>	(AS)	A
379.0	Northern Pygmy-Owl	<i>Glaucidium gnoma</i>	(FL)	R, NSS4
378.0	Burrowing Owl	<i>Athene cunicularia</i>		S, NSS4
368.0	Barred Owl	<i>Strix varia</i>	(AS)	A
370.0	Great Gray Owl	<i>Strix nebulosa</i>		R, NSS4
366.0	Long-eared Owl	<i>Asio otus</i>		R
367.0	Short-eared Owl	<i>Asio flammeus</i>		R, NSS4
371.0	Boreal Owl	<i>Aegolius funereus</i>	(FL)	R, NSS4
372.0	Northern Saw-whet Owl	<i>Aegolius acadicus</i>	(FL)	R

Goatsuckers				
Order: Caprimulgiformes				
Family: Caprimulgidae				

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420.0	Common Nighthawk	<i>Chordeiles minor</i>		S
418.0	Common Poorwill	<i>Phalaenoptilus nuttallii</i>		S
Swifts				
Order: Apodiformes				
Family: Apodidae				
423.0	Chimney Swift	<i>Chaetura pelagica</i>	(FL)	S
425.0	White-throated Swift	<i>Aeronautes saxatalis</i>		S
Hummingbirds				
Order: Caprimulgiformes				
Family: Trochilidae				
426.0	Magnificent Hummingbird	<i>Eugenes fulgens</i>	(AS)	A
428.0	Ruby-throated Hummingbird	<i>Archilochus colubris</i>	(AS)	A
429.0	Black-chinned Hummingbird	<i>Archilochus alexandri</i>	(FL)	S
431.0	Anna's Hummingbird	<i>Calypte anna</i>	(AS)	A
436.0	Calliope Hummingbird	<i>Stellula calliope</i>		S
432.0	Broad-tailed Hummingbird	<i>Selasphorus platycercus</i>		S
433.0	Rufous Hummingbird	<i>Selasphorus rufus</i>		S
Kingfishers				
Order: Coraciiformes				
Family: Alcedinidae				
390.0	Belted Kingfisher	<i>Ceryle alcyon</i>		R
Woodpeckers				
Order: Piciformes				
Family: Picidae				
408.0	Lewis's Woodpecker	<i>Melanerpes lewis</i>		S, NSS3
406.0	Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	(FL)	S
407.0	Acorn Woodpecker	<i>Melanerpes formicivorus</i>	(AS)	A
409.0	Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	(AS)	A
404.0	Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>		S
402.0	Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	(AS)	A
402.1	Red-naped Sapsucker	<i>Sphyrapicus nuchalis</i>		S
394.0	Downy Woodpecker	<i>Picoides pubescens</i>		R
393.0	Hairy Woodpecker	<i>Picoides villosus</i>		R
399.0	White-headed Woodpecker	<i>Picoides albolarvatus</i>	(AS)	A
401.0	American Three-toed Woodpecker	<i>Picoides dorsalis</i>		R, NSS4
400.0	Black-backed Woodpecker	<i>Picoides arcticus</i>	(FL)	R, NSS4
412.0	Northern Flicker	<i>Colaptes auratus</i>		R, Includes Red-shafted and Yellow-shafted
405.0	Pileated Woodpecker	<i>Dryocopus pileatus</i>	(AS)	A
Passerines				
Order: Passeriformes				
Family: Tyrannidae				
459.0	Olive-sided Flycatcher	<i>Contopus cooperi</i>		S

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462.0	Western Wood-Pewee	<i>Contopus sordidulus</i>		S
461.0	Eastern Wood-Pewee	<i>Contopus virens</i>	(AS)	A
466.0	Willow Flycatcher	<i>Empidonax traillii</i>		S, NSS3
467.0	Least Flycatcher	<i>Empidonax minimus</i>	(FL)	S
468.0	Hammond's Flycatcher	<i>Empidonax hammondii</i>	(FL)	S
469.1	Gray Flycatcher	<i>Empidonax wrightii</i>	(FL)	S
469.0	Dusky Flycatcher	<i>Empidonax oberholseri</i>		S
464.0	Cordilleran Flycatcher	<i>Empidonax occidentalis</i>		S
456.0	Eastern Phoebe	<i>Sayornis phoebe</i>	(FL)	S
457.0	Say's Phoebe	<i>Sayornis saya</i>		S
471.0	Vermilion Flycatcher	<i>Pyrocephalus rubinus</i>	(AS)	A
454.0	Ash-throated Flycatcher	<i>Myiarchus cinerascens</i>	(FL)	S, NSS3
452.0	Great Crested Flycatcher	<i>Myiarchus crinitus</i>	(AS)	A
448.0	Cassin's Kingbird	<i>Tyrannus vociferans</i>	(FL)	S
447.0	Western Kingbird	<i>Tyrannus verticalis</i>		S
444.0	Eastern Kingbird	<i>Tyrannus tyrannus</i>		S
443.0	Scissor-tailed Flycatcher	<i>Tyrannus forficatus</i>	(FL)	A
Family: Laniidae				
622.0	Loggerhead Shrike	<i>Lanius ludovicianus</i>		S
621.0	Northern Shrike	<i>Lanius excubitor</i>		W
Family: Vireonidae				
631.0	White-eyed Vireo	<i>Vireo griseus</i>	(AS)	A
628.0	Yellow-throated Vireo	<i>Vireo flavifrons</i>	(AS)	A
629.1	Plumbeous Vireo	<i>Vireo plumbeus</i>		S
629.2	Cassin's Vireo	<i>Vireo cassinii</i>	(AS)	S
627.0	Warbling Vireo	<i>Vireo gilvus</i>		S
626.0	Philadelphia Vireo	<i>Vireo philadelphicus</i>	(AS)	M
624.0	Red-eyed Vireo	<i>Vireo olivaceus</i>		S
Family: Corvidae				
484.0	Gray Jay	<i>Perisoreus canadensis</i>		R
478.0	Steller's Jay	<i>Cyanocitta stelleri</i>		R
477.0	Blue Jay	<i>Cyanocitta cristata</i>		R
481.0	Western Scrub-Jay	<i>Aphelocoma californica</i>	(FL)	R, NSS3
492.0	Pinyon Jay	<i>Gymnorhinus cyanocephalus</i>		R
491.0	Clark's Nutcracker	<i>Nucifraga columbiana</i>		R
475.0	Black-billed Magpie	<i>Pica hudsonia</i>		R
488.0	American Crow	<i>Corvus brachyrhynchos</i>		R
486.0	Common Raven	<i>Corvus corax</i>		R
Family: Alaudidae				
474.0	Horned Lark	<i>Eremophila alpestris</i>		R
Family: Hirundinidae				
611.0	Purple Martin	<i>Progne subis</i>	(AS)	S

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614.0	Tree Swallow	<i>Tachycineta bicolor</i>		S
615.0	Violet-green Swallow	<i>Tachycineta thalassina</i>		S
617.0	Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>		S
616.0	Bank Swallow	<i>Riparia riparia</i>		S
612.0	Cliff Swallow	<i>Petrochelidon pyrrhonota</i>		S
613.0	Barn Swallow	<i>Hirundo rustica</i>		S
Family: Paridae				
735.0	Black-capped Chickadee	<i>Poecile atricapillus</i>		R
738.0	Mountain Chickadee	<i>Poecile gambeli</i>		R
733.0	Juniper Titmouse	<i>Baeolophus ridgwayi</i>	(FL)	R, NSS3
Family: Aegithalidae				
743.0	Bushtit (FL)	<i>Psaltriparus minimus</i>	(FL)	S, NSS3
Family: Sittidae				
728.0	Red-breasted Nuthatch	<i>Sitta canadensis</i>		R
727.0	White-breasted Nuthatch	<i>Sitta carolinensis</i>		R
730.0	Pygmy Nuthatch	<i>Sitta pygmaea</i>		R, NSS4
Family: Certhiidae				
726.0	Brown Creeper	<i>Certhia americana</i>		R
Family: Troglodytidae				
715.0	Rock Wren	<i>Salpinctes obsoletus</i>		S
717.0	Canyon Wren	<i>Catherpes mexicanus</i>		S
718.0	Carolina Wren	<i>Thryothorus ludovicianus</i>	(AS)	A
719.0	Bewick's Wren	<i>Thryomanes bewickii</i>	(FL)	S
721.0	House Wren	<i>Troglodytes aedon</i>		S
722.0	Winter Wren	<i>Troglodytes troglodytes</i>	(FL)	M
724.0	Sedge Wren	<i>Cistothorus platensis</i>	(AS)	A
725.0	Marsh Wren	<i>Cistothorus palustris</i>		S
Family: Cinclidae				
701.0	American Dipper	<i>Cinclus mexicanus</i>		R
Family: Regulidae				
748.0	Golden-crowned Kinglet	<i>Regulus satrapa</i>		R
749.0	Ruby-crowned Kinglet	<i>Regulus calendula</i>		S
Family: Sylviidae				
751.0	Blue-gray Gnatcatcher	<i>Poliptila caerulea</i>		S
Family: Turdidae				
766.0	Eastern Bluebird	<i>Sialia sialis</i>	(FL)	S
767.0	Western Bluebird	<i>Sialia mexicana</i>	(AS)	S
768.0	Mountain Bluebird	<i>Sialia currucoides</i>		S
754.0	Townsend's Solitaire	<i>Myadestes townsendi</i>		R
756.0	Veery	<i>Catharus fuscescens</i>		S
757.0	Gray-checked Thrush	<i>Catharus minimus</i>	(AS)	M
758.0	Swainson's Thrush	<i>Catharus ustulatus</i>		S
759.0	Hermit Thrush	<i>Catharus guttatus</i>		S
755.0	Wood Thrush	<i>Hylocichla mustelina</i>	(AS)	M

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761.0	American Robin	<i>Turdus migratorius</i>		R
763.0	Varied Thrush	<i>Ixoreus naevius</i>	(FL)	M
Family: Mimidae				
704.0	Gray Catbird	<i>Dumetella carolinensis</i>		S
703.0	Northern Mockingbird	<i>Mimus polyglottos</i>		S
702.0	Sage Thrasher	<i>Oreoscoptes montanus</i>		S, NSS4
705.0	Brown Thrasher	<i>Toxostoma rufum</i>		S
Family: Sturnidae				
493.0	European Starling	<i>Sturnus vulgaris</i>		R
Family: Motacillidae				
697.0	American Pipit	<i>Anthus rubescens</i>		S
700.0	Sprague's Pipit	<i>Anthus spragueii</i>	(AS)	M
Family: Bombycillidae				
618.0	Bohemian Waxwing	<i>Bombycilla garrulus</i>		W
619.0	Cedar Waxwing	<i>Bombycilla cedrorum</i>		R
Family: Parulidae				
641.0	Blue-winged Warbler	<i>Vermivora pinus</i>	(AS)	A
642.0	Golden-winged Warbler	<i>Vermivora chrysoptera</i>	(FL)	A
647.0	Tennessee Warbler	<i>Vermivora peregrina</i>	(FL)	M
646.0	Orange-crowned Warbler	<i>Vermivora celata</i>		S
645.0	Nashville Warbler	<i>Vermivora ruficapilla</i>	(FL)	M
644.0	Virginia's Warbler	<i>Vermivora virginiae</i>	(FL)	S
648.0	Northern Parula	<i>Parula americana</i>	(FL)	M
652.0	Yellow Warbler	<i>Dendroica petechia</i>		S
659.0	Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>	(FL)	M
657.0	Magnolia Warbler	<i>Dendroica magnolia</i>	(FL)	M
650.0	Cape May Warbler	<i>Dendroica tigrina</i>	(AS)	A
654.0	Black-throated Blue Warbler	<i>Dendroica caerulescens</i>	(FL)	M
655.0	Yellow-rumped Warbler	<i>Dendroica coronata</i>		S
665.0	Black-throated Gray Warbler	<i>Dendroica nigrescens</i>	(FL)	S
667.0	Black-throated Green Warbler	<i>Dendroica virens</i>	(AS)	A
668.0	Townsend's Warbler	<i>Dendroica townsendi</i>		S
669.0	Hermit Warbler	<i>Dendroica occidentalis</i>	(AS)	A
662.0	Blackburnian Warbler	<i>Dendroica fusca</i>	(FL)	M
663.0	Yellow-throated Warbler	<i>Dendroica dominica</i>	(AS)	A
671.0	Pine Warbler	<i>Dendroica pinus</i>	(AS)	A
673.0	Prairie Warbler	<i>Dendroica discolor</i>	(AS)	A
672.0	Palm Warbler	<i>Dendroica palmarum</i>	(AS)	M
660.0	Bay-breasted Warbler	<i>Dendroica castanea</i>	(AS)	M
661.0	Blackpoll Warbler	<i>Dendroica striata</i>	(FL)	M
636.0	Black-and-white Warbler	<i>Mniotilta varia</i>	(FL)	M
687.0	American Redstart	<i>Setophaga ruticilla</i>		S
637.0	Prothonotary Warbler	<i>Protonotaria citrea</i>	(AS)	A
639.0	Worm-eating Warbler	<i>Helmitheros vermivorum</i>	(AS)	A

Spp. Code	Common Name	Scientific Name	Doc. Type	Seasonal Status and Additional Information ^{a,b}
674.0	Ovenbird	<i>Seiurus aurocapilla</i>		S
675.0	Northern Waterthrush	<i>Seiurus noveboracensis</i>		M
677.0	Kentucky Warbler	<i>Oporornis formosus</i>	(AS)	A
678.0	Connecticut Warbler	<i>Oporornis agilis</i>	(AS)	A
679.0	Mourning Warbler	<i>Oporornis philadelphia</i>	(AS)	A
680.0	MacGillivray's Warbler	<i>Oporornis tolmiei</i>		S
681.0	Common Yellowthroat	<i>Geothlypis trichas</i>		A
684.0	Hooded Warbler	<i>Wilsonia citrina</i>	(AS)	A
685.0	Wilson's Warbler	<i>Wilsonia pusilla</i>		S
686.0	Canada Warbler	<i>Wilsonia canadensis</i>	(AS)	S
690.0	Red-faced Warbler	<i>Cardellina rubrifrons</i>	(AS)	A
683.0	Yellow-breasted Chat	<i>Icteria virens</i>		S
Family: Thraupidae				
609.0	Hepatic Tanager	<i>Piranga flava</i>	(AS)	A
610.0	Summer Tanager	<i>Piranga rubra</i>	(AS)	M
608.0	Scarlet Tanager	<i>Piranga olivacea</i>	(AS)	A
607.0	Western Tanager	<i>Piranga ludoviciana</i>		S
Family: Emberizidae				
590.0	Green-tailed Towhee	<i>Pipilo chlorurus</i>		S
587.0	Spotted Towhee	<i>Pipilo maculatus</i>		S
591.0	Canyon Towhee	<i>Pipilo fuscus</i>	(AS)	A
578.0	Cassin's Sparrow	<i>Aimophila cassinii</i>	(AS)	A, (AS) except Torrington area
559.0	American Tree Sparrow	<i>Spizella arborea</i>		W
560.0	Chipping Sparrow	<i>Spizella passerina</i>		S
561.0	Clay-colored Sparrow	<i>Spizella pallida</i>		S
562.0	Brewer's Sparrow	<i>Spizella breweri</i>		S, NSS4
563.0	Field Sparrow	<i>Spizella pusilla</i>	(AS)	S
540.0	Vesper Sparrow	<i>Pooecetes gramineus</i>		S
552.0	Lark Sparrow	<i>Chondestes grammacus</i>		S
573.0	Black-throated Sparrow	<i>Amphispiza bilineata</i>	(AS)	S
574.0	Sage Sparrow	<i>Amphispiza belli</i>		S, NSS4
605.0	Lark Bunting	<i>Calamospiza melanocorys</i>		S, NSS4
542.0	Savannah Sparrow	<i>Passerculus sandwichensis</i>		S
546.0	Grasshopper Sparrow	<i>Ammodramus savannarum</i>		S, NSS4
545.0	Baird's Sparrow	<i>Ammodramus bairdii</i>	(AS)	S
548.0	Le Conte's Sparrow	<i>Ammodramus leconteii</i>	(AS)	M
549.1	Nelson's Sharp-tailed Sparrow	<i>Ammodramus nelsoni</i>	(AS)	A
585.0	Fox Sparrow	<i>Passerella iliaca</i>		R
581.0	Song Sparrow	<i>Melospiza melodia</i>		R
583.0	Lincoln's Sparrow	<i>Melospiza lincolnii</i>		S
584.0	Swamp Sparrow	<i>Melospiza georgiana</i>	(FL)	M
558.0	White-throated Sparrow	<i>Zonotrichia albicollis</i>		M
553.0	Harris's Sparrow	<i>Zonotrichia querula</i>		W

Spp. Code	Common Name	Scientific Name	Doc. Type	Seasonal Status and Additional Information ^{a,b}
554.0	White-crowned Sparrow	<i>Zonotrichia leucophrys</i>		S
557.0	Golden-crowned Sparrow	<i>Zonotrichia atricapilla</i>	(AS)	A
567.0	Dark-eyed Junco	<i>Junco hyemalis</i>		R, Includes White-winged (566.0), Slate-colored (567.0), Oregon (567.1), Pink-sided (568.0), and Gray-headed (569.0)
539.0	McCown's Longspur	<i>Calcarius mccownii</i>		S, NSS4
536.0	Lapland Longspur	<i>Calcarius lapponicus</i>		W
537.0	Smith's Longspur	<i>Calcarius pictus</i>	(AS)	A
538.0	Chestnut-collared Longspur	<i>Calcarius ornatus</i>	(FL)	S, NSS4
534.0	Snow Bunting	<i>Plectrophenax nivalis</i>		W
Family: Cardinalidae				
593.0	Northern Cardinal	<i>Cardinalis cardinalis</i>	(AS)	M
594.1	Yellow Grosbeak	<i>Pheucticus chrysopheplus</i>	(AS)	A
595.0	Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	(FL)	S
596.0	Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>		S
597.0	Blue Grosbeak	<i>Passerina caerulea</i>		S
599.0	Lazuli Bunting	<i>Passerina amoena</i>		S
598.0	Indigo Bunting	<i>Passerina cyanea</i>	(FL)	S
601.0	Painted Bunting	<i>Passerina ciris</i>	(AS)	A
604.0	Dickcissel	<i>Spiza americana</i>	(FL)	S, NSS4
Family: Icteridae				
494.0	Bobolink	<i>Dolichonyx oryzivorus</i>		S, NSS4
498.0	Red-winged Blackbird	<i>Agelaius phoeniceus</i>		S
501.1	Western Meadowlark	<i>Sturnella neglecta</i>		S
497.0	Yellow-headed Blackbird	<i>Xanthocephalus xanthocephalus</i>		S
509.0	Rusty Blackbird	<i>Euphagus carolinus</i>	(FL)	M
510.0	Brewer's Blackbird	<i>Euphagus cyanocephalus</i>		S
511.0	Common Grackle	<i>Quiscalus quiscula</i>		S
512.0	Great-tailed Grackle	<i>Quiscalus mexicanus</i>	(AS)	A
495.0	Brown-headed Cowbird	<i>Molothrus ater</i>		S
506.0	Orchard Oriole	<i>Icterus spurius</i>	(FL)	S
508.0	Bullock's Oriole	<i>Icterus bullockii</i>		S
507.0	Baltimore Oriole	<i>Icterus galbula</i>	(FL)	A
504.0	Scott's Oriole	<i>Icterus parisorum</i>	(FL)	S, NSS3
Family: Fringillidae				
514.1	Brambling	<i>Fringilla montifringilla</i>	(AS)	A
524.0	Gray-crowned Rosy-Finch	<i>Leucosticte tephrocotis</i>		R
525.0	Black Rosy-Finch	<i>Leucosticte atrata</i>		R
526.0	Brown-capped Rosy-Finch	<i>Leucosticte australis</i>	(FL)	R
515.0	Pine Grosbeak	<i>Pinicola enucleator</i>		R
517.0	Purple Finch	<i>Carpodacus purpureus</i>	(FL)	W
518.0	Cassin's Finch	<i>Carpodacus cassinii</i>		R

Spp. Code	Common Name	Scientific Name	Doc. Type	Seasonal Status and Additional Information ^{a,b}
519.0	House Finch	<i>Carpodacus mexicanus</i>		R
521.0	Red Crossbill	<i>Loxia curvirostra</i>		R
522.0	White-winged Crossbill	<i>Loxia leucoptera</i>	(FL)	R
528.0	Common Redpoll	<i>Carduelis flammea</i>		W
527.0	Hoary Redpoll	<i>Carduelis hornemanni</i>	(AS)	W
533.0	Pine Siskin	<i>Carduelis pinus</i>		R
530.0	Lesser Goldfinch	<i>Carduelis psaltria</i>	(FL)	M
531.0	Lawrence's Goldfinch	<i>Carduelis lawrencei</i>	(AS)	A
529.0	American Goldfinch	<i>Carduelis tristis</i>		R
514.0	Evening Grosbeak	<i>Coccothraustes vespertinus</i>		R
Family: Passeridae				
688.2	House Sparrow	<i>Passer domesticus</i>		R

Spp. Code	Common Name	Scientific Name	Doc. Type	Seasonal Status and Additional Information ^{a, b}
MAMMALS ^{d, e}				
<u>Marsupials</u>				
Order: Marsupialia				
Family: Didelphidae				
800.0	Virginia Opossum	<i>Didelphis virginiana</i>		A
<u>Insectivores</u>				
Order: Insectivora				
Family: Soricidae				
801.0	Masked Shrew	<i>Sorex cinereus</i>		R
801.1	Hayden's Shrew	<i>Sorex haydeni</i>		R, NSS4
806.0	Pygmy Shrew	<i>Sorex hoyi</i>		R, NSS2
805.0	Merriam's Shrew	<i>Sorex merriami</i>		R
807.0	Dusky Shrew	<i>Sorex monticolus</i>		R
803.0	Dwarf Shrew	<i>Sorex nanus</i>		R, NSS3
804.0	Water Shrew	<i>Sorex palustris</i>		R, NSS4
804.1	Preble's Shrew	<i>Sorex preblei</i>		R, NSS3
802.0	Vagrant Shrew	<i>Sorex vagrans</i>		R, NSS3
Family: Talpidae				
810.0	Eastern Mole	<i>Scalopus aquaticus</i>		R
<u>Bats</u>				
Order: Chiroptera				
Family: Vespertilionidae				
815.1	California Myotis	<i>Myotis californicus</i>		U
816.0	Western Small-footed Myotis	<i>Myotis ciliolabrum</i>		U, NSS3
818.0	Long-eared Myotis	<i>Myotis evotis</i>		U, NSS2
819.0	Northern Myotis	<i>Myotis septentrionalis</i>		U, NSS2
815.0	Little Brown Myotis	<i>Myotis lucifugus</i>		U, NSS3
826.0	Fringed Myotis	<i>Myotis thysanodes</i>		U, NSS2
817.0	Long-legged Myotis	<i>Myotis volans</i>		U, NSS2
817.1	Yuma Myotis	<i>Myotis yumanensis</i>		U
821.0	Eastern Red Bat	<i>Lasiurus borealis</i>		S, NSS4
822.0	Hoary Bat	<i>Lasiurus cinereus</i>		S, NSS4
820.0	Silver-haired Bat	<i>Lasionycteris noctivagans</i>		U, NSS4
820.1	Eastern Pipistrelle	<i>Pipistrellus subflavus</i>		U
825.0	Big Brown Bat	<i>Eptesicus fuscus</i>		U, NSS3
824.0	Spotted Bat	<i>Euderma maculatum</i>		S, NSS2
823.0	Townsend's Big-eared Bat	<i>Corynorhinus townsendii</i>		U, NSS2
827.0	Pallid Bat	<i>Antrozous pallidus</i>		S, NSS2
Family: Molossidae				
828.0	Brazilian Free-tailed Bat	<i>Tadarida brasiliensis</i>		A
829.0	Big Free-tailed Bat	<i>Nyctinomops macrotis</i>		A

Spp. Code	Common Name	Scientific Name	Doc. Type	Seasonal Status and Additional Information ^{a,b}
Lagomorphs				
Order: Lagomorpha				
Family: Ochotonidae				
830.0	Pika	<i>Ochotona princeps</i>		R
Family: Leporidae				
837.0	Pygmy Rabbit	<i>Brachylagus idahoensis</i>		R, NSS3
833.0	Desert Cottontail *	<i>Sylvilagus audubonii</i>		R
834.0	Eastern Cottontail *	<i>Sylvilagus floridanus</i>		R
835.0	Mountain (Nuttall's) Cottontail *	<i>Sylvilagus nuttallii</i>		R
836.0	Snowshoe Hare *	<i>Lepus americanus</i>		R
832.0	Black-tailed Jackrabbit *	<i>Lepus californicus</i>		R, Predatory animal
831.0	White-tailed Jackrabbit *	<i>Lepus townsendii</i>		R, Predatory animal
Rodents				
Order: Rodentia				
Family: Sciuridae				
841.0	Yellow-pine Chipmunk	<i>Tamias amoenus</i>		R
842.0	Cliff Chipmunk	<i>Tamias dorsalis</i>		R, NSS3
840.0	Least Chipmunk	<i>Tamias minimus</i>		R
843.0	Uinta Chipmunk	<i>Tamias umbrinus</i>		R
844.0	Yellow-bellied Marmot	<i>Marmota flaviventris</i>		R
846.0	Uinta Ground Squirrel	<i>Spermophilus armatus</i>		R
845.0	Wyoming Ground Squirrel	<i>Spermophilus elegans</i>		R
849.0	Golden-mantled Ground Squirrel	<i>Spermophilus lateralis</i>		R
847.0	Spotted Ground Squirrel	<i>Spermophilus spilosoma</i>		R, NSS3
848.0	Thirteen-lined Ground Squirrel	<i>Spermophilus tridecemlineatus</i>		R
851.0	White-tailed Prairie Dog	<i>Cynomys leucurus</i>		R, NSS4
850.0	Black-tailed Prairie Dog	<i>Cynomys ludovicianus</i>		R, NSS3
855.0	Abert's Squirrel	<i>Sciurus aberti</i>		R, NSS3
856.0	Eastern Gray Squirrel *	<i>Sciurus carolinensis</i>		R
852.0	Eastern Fox Squirrel *	<i>Sciurus niger</i>		R
854.0	Red Squirrel *	<i>Tamiasciurus hudsonicus</i>		R
853.0	Northern Flying Squirrel	<i>Glaucomys sabrinus</i>		R, NSS4
Family: Geomyidae				
862.0	Wyoming Pocket Gopher	<i>Thomomys clusius</i>		R
863.0	Idaho Pocket Gopher	<i>Thomomys idahoensis</i>		R, NSS3
860.0	Northern Pocket Gopher	<i>Thomomys talpoides</i>		R
861.0	Plains Pocket Gopher	<i>Geomys bursarius</i>		R, NSS4
Family: Heteromyidae				
865.0	Olive-backed Pocket Mouse	<i>Perognathus fasciatus</i>		R, NSS3
893.0	Plains Pocket Mouse	<i>Perognathus flavescens</i>		R, NSS3
866.0	Silky Pocket Mouse	<i>Perognathus flavus</i>		R, NSS3
867.0	Great Basin Pocket Mouse	<i>Perognathus parvus</i>		R, NSS3
868.0	Hispid Pocket Mouse	<i>Chaetodipus hispidus</i>		R, NSS3
869.0	Ord's Kanagaroo Rat	<i>Dipodomys ordii</i>		R

Spp. Code	Common Name	Scientific Name	Doc. Type	Seasonal Status and Additional Information ^{a,b}
Family: Castoridae				
875.0	Beaver *	<i>Castor canadensis</i>		R
Family: Muridae				
877.0	Western Harvest Mouse	<i>Reithrodontomys megalotis</i>		R
876.0	Plains Harvest Mouse	<i>Reithrodontomys montanus</i>		R, NSS3
878.0	Canyon Mouse	<i>Peromyscus crinitus</i>		R, NSS3
881.0	White-footed Mouse	<i>Peromyscus leucopus</i>		R
880.0	Deer Mouse	<i>Peromyscus maniculatus</i>		R
879.0	Pinyon Mouse	<i>Peromyscus truei</i>		R, NSS3
882.0	Northern Grasshopper Mouse	<i>Onychomys leucogaster</i>		R
883.0	Bushy-tailed Woodrat	<i>Neotoma cinerea</i>		R
884.0	Southern Red-backed Vole	<i>Clethrionomys gapperi</i>		R
885.0	Western Heather Vole	<i>Phenacomys intermedius</i>		R, NSS3
888.0	Long-tailed Vole	<i>Microtus longicaudus</i>		R
887.0	Montane Vole	<i>Microtus montanus</i>		R
890.0	Prairie Vole	<i>Microtus ochrogaster</i>		R, NSS3
886.0	Meadow Vole	<i>Microtus pennsylvanicus</i>		R
889.0	Water Vole	<i>Microtus richardsoni</i>		R, NSS3
891.0	Sagebrush Vole	<i>Lemmiscus curtatus</i>		R, NSS4
892.0	Muskrat *	<i>Ondatra zibethicus</i>		R
894.2	Norway Rat	<i>Rattus norvegicus</i>		R
894.1	House Mouse	<i>Mus musculus</i>		R
Family: Zapodidae				
895.0	Meadow Jumping Mouse	<i>Zapus hudsonius</i>		R
896.0	Western Jumping Mouse	<i>Zapus princeps</i>		R
Family: Erethizontidae				
900.0	Porcupine *	<i>Erethizon dorsatum</i>		R, Predatory animal
Carnivores				
Order: Carnivora				
Family: Canidae				
901.0	Coyote *	<i>Canis latrans</i>		R, Predatory animal
902.0	Gray Wolf *	<i>Canis lupus</i>		R, Predatory animal, Threatened
904.0	Swift Fox	<i>Vulpes velox</i>		R, NSS4
903.0	Red Fox *	<i>Vulpes vulpes</i>		R, Predatory animal
905.0	Gray Fox *	<i>Urocyon cinereoargenteus</i>		R
Family: Ursidae				
940.0	Black Bear *	<i>Ursus americanus</i>		R
941.0	Grizzly Bear *	<i>Ursus arctos</i>		R, Threatened, NSS3
Family: Procyonidae				
906.0	Ringtail	<i>Bassariscus astutus</i>		R
907.0	Raccoon *	<i>Procyon lotor</i>		R, Predatory animal
Family: Mustelidae				
908.0	Marten *	<i>Martes americana</i>		R, NSS4

Spp. Code	Common Name	Scientific Name	Doc. Type	Seasonal Status and Additional Information ^{a,b}
909.0	Fisher	<i>Martes pennanti</i>		R
910.0	Short-tailed Weasel (Ermine) *	<i>Mustela erminea</i>		R
911.0	Long-tailed Weasel *	<i>Mustela frenata</i>		R
913.0	Black-footed Ferret	<i>Mustela nigripes</i>		R, Endangered, NSS1
919.0	Least Weasel	<i>Mustela nivalis</i>		R, NSS3
912.0	Mink *	<i>Mustela vison</i>		R
914.0	Wolverine	<i>Gulo gulo</i>		R, NSS3
915.0	Badger *	<i>Taxidea taxus</i>		R
916.1	Western Spotted Skunk *	<i>Spilogale gracilis</i>		R, Predatory animal
916.0	Eastern Spotted Skunk *	<i>Spilogale putorius</i>		R, Predatory animal
917.0	Striped Skunk *	<i>Mephitis mephitis</i>		R, Predatory animal
918.0	River Otter	<i>Lutra canadensis</i>		R, NSS4
Family: Felidae				
922.0	Mountain Lion *	<i>Puma concolor</i>		R
920.0	Canada Lynx	<i>Lynx canadensis</i>		R, Threatened, NSS1
921.0	Bobcat *	<i>Lynx rufus</i>		R
Ungulates				
Order: Artiodactyla				
Family: Cervidae				
930.0	Elk *	<i>Cervus elaphus</i>		R
932.0	Mule Deer *	<i>Odocoileus hemionus</i>		R
933.0	White-tailed Deer *	<i>Odocoileus virginianus</i>		R
931.0	Moose *	<i>Alces alces</i>		R, NSS3
Family: Antilocapridae				
935.0	Pronghorn *	<i>Antilocapra americana</i>		R
Family: Bovidae				
925.0	Bison *	<i>Bos bison</i>		R
926.0	Mountain Goat *	<i>Oreamnos americanus</i>		R
927.0	Bighorn Sheep *	<i>Ovis canadensis</i>		R, NSS3

Spp. Code	Common Name	Scientific Name	Doc. Type	Seasonal Status and Additional Information ^{a, b}
AMPHIBIANS ^f				
<u>Salamanders</u>				
Order: Caudata				
Family: Ambystomatidae				
950.0	Tiger Salamander	<i>Ambystoma tigrinum</i>		R
<u>Toads and Frogs</u>				
Order: Anura				
Family: Pelobatidae				
951.0	Plains Spadefoot Toad	<i>Spea bombifrons</i>		R
951.1	Great Basin Spadefoot Toad	<i>Spea intermontana</i>		R
Family: Bufonidae				
951.2	Boreal Toad	<i>Bufo boreas boreas</i>		R
951.3	Great Plains Toad	<i>Bufo cognatus</i>		R
951.5	Wyoming Toad	<i>Bufo baxteri</i>		R
951.4	Woodhouse's Toad	<i>Bufo woodhousii</i>		R
Family: Ranidae				
952.1	American Bullfrog	<i>Rana catesbeiana</i>		R
952.2	Northern Leopard Frog	<i>Rana pipiens</i>		R
952.3	Columbia Spotted Frog	<i>Rana luteiventris</i>		R
952.4	Wood Frog	<i>Rana sylvatica</i>		R
Family: Hylidae				
952.0	Boreal Chorus Frog	<i>Pseudacris maculata</i>		R

Spp. Code	Common Name	Scientific Name	Doc. Type	Seasonal Status and Additional Information ^{a, b}
REPTILES^f				
<u>Turtles</u>				
Order: Testudines				
Family: Trionychidae				
953.0	Western Spiny Softshell	<i>Apalone spinifera hartwegi</i>		R
Family: Testudinidae				
953.2	Ornate Box Turtle	<i>Terrapene ornata ornata</i>		R
953.3	Western Painted Turtle	<i>Chrysemys picta bellii</i>		R
Family: Chelydridae				
953.1	Snapping Turtle	<i>Chelydra serpentina</i>		R
<u>Lizards</u>				
Order: Squamata				
Family: Teiidae				
954.0	Prairie Racerunner	<i>Cnemidophorus sexlineatus viridis</i>		R
Family: Scincidae				
954.1	Many-lined Skink	<i>Eumeces multivirgatus</i>		R
Family: Iguanidae				
954.3	Northern Sagebrush Lizard	<i>Sceloporus graciosus graciosus</i>		R
954.4	Northern Plateau Lizard	<i>Sceloporus undulatus elongatus</i>		R
954.5	Red-lipped Plateau Lizard	<i>Sceloporus undulatus erythrocheilus</i>		R
954.6	Northern Prairie Lizard	<i>Sceloporus undulatus garmani</i>		R
954.8	Cliff Tree Lizard	<i>Urosaurus ornatus wrighti</i>		R
954.2	Greater Short-horned Lizard	<i>Phrynosoma hernandesi</i>		R
954.7	Great Plains Earless Lizard	<i>Holbrookia maculata maculata</i>		R
<u>Snakes</u>				
Order: Squamata				
Family: Boidae				
955.2	Rubber Boa	<i>Charina bottae</i>		R
Family: Colubridae				
955.3	Plains Hog-nosed Snake	<i>Heterodon nasicus nasicus</i>		R
956.2	Eastern Yellow-bellied Racer	<i>Coluber constrictor flaviventris</i>		R
956.3	Smooth Green Snake	<i>Opheodrys vernalis</i>		R
955.4	Black Hills Red-bellied Snake	<i>Storeria occipitomaculata pahasapae</i>		R
956.1	Pale Milksnake	<i>Lampropeltis triangulum multistriata</i>		R
955.6	Great Basin Gophersnake	<i>Pituophis catenifer deserticola</i>		R
955.5	Bullsnake	<i>Pituophis catenifer sayi</i>		R
955.8	Intermountain Wandering Gartersnake	<i>Thamnophis elegans vagrans</i>		R
955.9	Red-sided Gartersnake	<i>Thamnophis sirtalis parietalis</i>		R
956.0	Valley Gartersnake	<i>Thamnophis sirtalis fitchi</i>		R
955.7	Plains Gartersnake	<i>Thamnophis radix</i>		R

Spp. Code	Common Name	Scientific Name	Doc. Type	Seasonal Status and Additional Information ^{a,b}
Family: Crotalidae				
955.0	Prairie Rattlesnake	<i>Crotalus viridis viridis</i>		R
955.1	Midget Faded Rattlesnake	<i>Crotalus viridis concolor</i>		R

- ^a Species seasonal status: R = year-round resident, S = summer resident, W = winter resident, M = migrant, A = accidental occurrence in Wyoming, U = residency status in Wyoming is unknown.
- ^b Wyoming Game and Fish Department Species of Special Concern with a Native Species Status of 1, 2, 3, or 4.
- ^c Common and scientific names and species order are from the American Ornithologists' Union (1983, 2004). An "(AS)" indicates species for which full written documentation of all sightings is requested by the Wyoming Bird Records Committee; an "(FL)" indicates species for which documentation is only requested for the first sighting in each latilong and all nesting observations. In addition, full documentation is required for any species not listed here and for observations of breeding attempts.
- ^d An asterisk following a species common name indicates those species classified as game, predacious bird, predatory animal, or furbearer by state statute or Wyoming Game and Fish Commission Regulation.
- ^e Common and scientific names (except *C. townsendii*) and species order are from Jones et al. (1997).
- ^f Common and scientific names and species order are from Baxter and Stone (1992) and Crother (2000).

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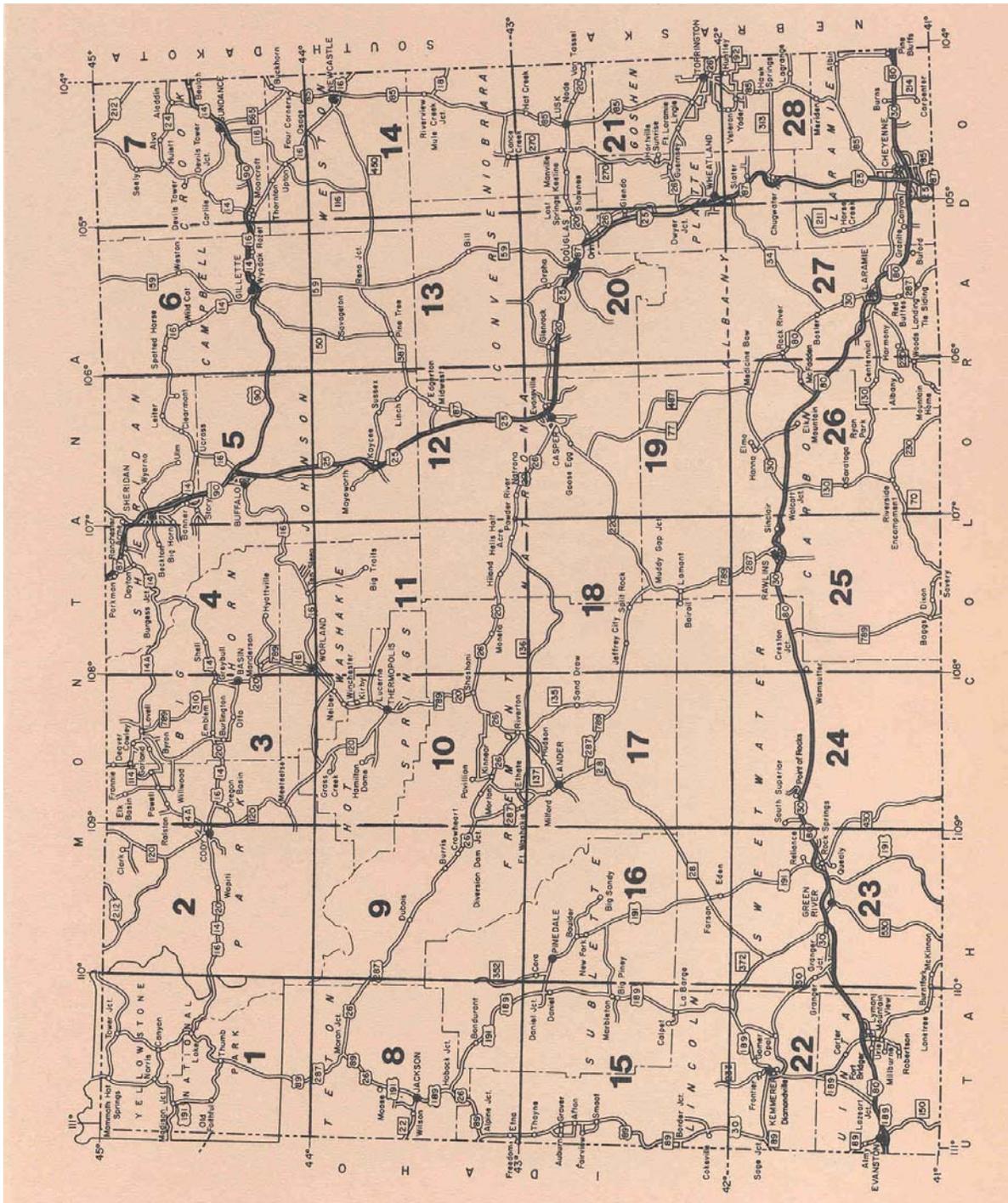
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APPENDIX II

LATILONGS (DEGREE BLOCKS) IN WYOMING

From: Dorn, J. L., and R. D. Dorn. 1990. Wyoming birds. Mountain West Publishing, Cheyenne, Wyoming. 138pp.



APPENDIX III

NATIVE SPECIES STATUS MATRIX

HABITAT VARIABLES

		A On-going significant loss of habitat	B Habitat is restricted or vulnerable but no recent or on-going significant loss; species may be sensitive to human disturbance	C Habitat is not restricted, vulnerable but no loss; species is not sensitive to human disturbance	D Habitat is stable and not restricted
P O P U L A T I O N V A R I A B L E S	1 Populations are greatly restricted or declining - extirpation appears possible	NSS1 1A	NSS2 1B	NSS3 1C	NSS4 1D
	2 Populations are declining or restricted in numbers and/or distribution - extirpation is not imminent	NSS2 2A	NSS3 2B	NSS4 2C	NSS5 2D
	3 Species is widely distributed; population status and trends are unknown but are suspected to be stable	NSS3 3A	NSS4 3B	NSS5 3C	NSS6 3D
	4 Populations are stable or increasing and not restricted in numbers and/or distribution	NSS4 4A	NSS5 4B	NSS6 4C	NSS7 4D

AVIAN SPECIES OF SPECIAL CONCERN IN WYOMING

NSS1 (Native Species Status 1)

Common Loon (1A) – Populations are greatly restricted in numbers and distribution; extirpation appears possible / On-going significant loss of habitat; species is sensitive to human disturbance

NSS2 (Native Species Status 2)

Bald Eagle (2A) – Populations are restricted in numbers and distribution / On-going significant loss of habitat; species is sensitive to human disturbance

Greater Sage-Grouse (2A) – Populations are declining / On-going significant loss of habitat

Trumpeter Swan (2A) – Populations are restricted in numbers and distribution / On-going significant loss of habitat; species is sensitive to human disturbance

Yellow-billed Cuckoo (2A) – Populations are restricted in numbers and distribution / On-going significant loss of habitat

NSS3 (Native Species Status 3)

American Bittern (2B) – Populations are restricted in numbers and distribution / Habitat is restricted and vulnerable but no on-going significant loss; species is sensitive to human disturbance

American White Pelican (2B) – Populations are restricted in numbers and distribution / Habitat is restricted and vulnerable but no on-going significant loss; species is sensitive to human disturbance

Ash-throated Flycatcher (2B) – Populations are restricted in distribution / Habitat is restricted but no on-going significant loss

Barrow's Goldeneye (2B) – Populations are restricted in distribution / Habitat is restricted and vulnerable but no on-going significant loss

Black-crowned Night-Heron (2B) – Populations are restricted in numbers and distribution / Habitat is restricted and vulnerable but no on-going significant loss; species is sensitive to human disturbance

Black Tern (2B) – Populations are restricted in numbers and distribution / Habitat is restricted and vulnerable but no on-going significant loss; species is sensitive to human disturbance

Bushtit (2B) – Populations are restricted in distribution / Habitat is restricted but no on-going significant loss

Canvasback (2B) – Populations are restricted in distribution / Habitat is restricted and vulnerable but no on-going significant loss

- Caspian Tern (2B)** – Populations are restricted in numbers and distribution / Habitat is restricted and vulnerable but no on-going significant loss; species is sensitive to human disturbance
- Columbian Sharp-tailed Grouse (2B)** – Populations are restricted in numbers and distribution / Habitat is vulnerable but no on-going significant loss
- Forster's Tern (2B)** – Populations are restricted in numbers and distribution / Habitat is restricted and vulnerable but no on-going significant loss; species is sensitive to human disturbance
- Franklin's Gull (2B)** – Populations are restricted in numbers and distribution / Habitat is restricted and vulnerable but no on-going significant loss; species is sensitive to human disturbance
- Greater Sandhill Crane (2B)** – Rocky Mountain population is restricted in number and distribution / Habitat is restricted and vulnerable but no recent or on-going significant loss; species is sensitive to human disturbance
- Harlequin Duck (2B)** – Populations are restricted in numbers and distribution / Habitat is restricted and vulnerable but no on-going significant loss; species is sensitive to human disturbance
- Juniper Titmouse (2B)** – Populations are restricted in distribution / Habitat is restricted but no on-going significant loss
- Lesser Scaup (2B)** – Populations are declining / Habitat is restricted and vulnerable but no on-going significant loss
- Lewis's Woodpecker (2B)** – Populations are restricted in distribution / Habitat is restricted but no on-going significant loss
- Long-billed Curlew (2B)** – Populations are restricted in distribution / Habitat is vulnerable but no on-going significant loss
- Merlin (2B)** – Populations are restricted in numbers / Habitat is restricted but no on-going significant loss; species is sensitive to human disturbance
- Northern Pintail (2B)** – Populations are declining / Habitat is restricted and vulnerable but no on-going significant loss
- Peregrine Falcon (2B)** – Populations are restricted in distribution / Habitat is restricted but no on-going significant loss; species is sensitive to human disturbance
- Redhead (2B)** – Populations are restricted in numbers / Habitat is restricted and vulnerable but no on-going significant loss
- Scott's Oriole (2B)** – Populations are restricted in distribution / Habitat is restricted but no on-going significant loss
- Snowy Egret (2B)** – Populations are restricted in numbers and distribution / Habitat is restricted and vulnerable but no on-going significant loss; species is sensitive to human disturbance
- Virginia Rail (2B)** – Populations are restricted in numbers and distribution / Habitat is restricted and vulnerable but no on-going significant loss
- Western Scrub-Jay (2B)** – Populations are restricted in distribution / Habitat is restricted and vulnerable but no on-going significant loss

NSS3 (Continued)

White-faced Ibis (2B) – Populations are restricted in numbers and distribution / Habitat is restricted and vulnerable but no on-going significant loss; species is sensitive to human disturbance

Willow Flycatcher (2B) – Populations are declining / Habitat is restricted and vulnerable but no on-going significant loss

Ferruginous Hawk (3A) – Species is widely distributed; population status and trends are unknown but are suspected to be stable / On-going significant loss of habitat; species is sensitive to human disturbance

NSS4 (Native Species Status 4)

Bobolink (2C) – Populations are restricted in distribution / Habitat is vulnerable but no loss; species is not sensitive to human disturbance

Brewer's Sparrow (2C) – Populations are declining / Habitat is vulnerable but no loss; species is not sensitive to human disturbance

Chestnut-collared Longspur (2C) – Populations are restricted in distribution / Habitat is vulnerable but no loss; species is not sensitive to human disturbance

Dickcissel (2C) – Populations are restricted in distribution / Habitat is vulnerable but no loss; species is not sensitive to human disturbance

Grasshopper Sparrow (2C) – Populations are restricted in distribution / Habitat is vulnerable but no loss; species is not sensitive to human disturbance

Lark Bunting (2C) – Populations are restricted in distribution / Habitat is vulnerable but no loss; species is not sensitive to human disturbance

McCown's Longspur (2C) – Populations are restricted in distribution / Habitat is vulnerable but no loss; species is not sensitive to human disturbance

Sage Sparrow (2C) – Populations are declining / Habitat is vulnerable but no loss; species is not sensitive to human disturbance

Sage Thrasher (2C) – Populations are declining / Habitat is vulnerable but no loss; species is not sensitive to human disturbance

Short-eared Owl (2C) – Populations are restricted in distribution / Habitat is vulnerable but no loss; species is not sensitive to human disturbance

American Three-toed Woodpecker (3B) – Population status and trends are unknown but are suspected to be stable / Habitat is restricted and vulnerable but no on-going significant loss

Black-backed Woodpecker (3B) – Population status and trends are unknown but are suspected to be stable / Habitat is restricted and vulnerable but no on-going significant loss

Boreal Owl (3B) – Population status and trends are unknown but are suspected to be stable / Habitat is restricted and vulnerable but no on-going significant loss

Burrowing Owl (3B) – Population status and trends are unknown but are suspected to be stable / Habitat is vulnerable but no on-going significant loss; species is sensitive to human disturbance

NSS4 (Continued)

- Clark's Grebe (3B)** – Population status and trends are unknown but are suspected to be stable / Habitat is restricted and vulnerable but no on-going significant loss; species is sensitive to human disturbance
- Great Blue Heron (3B)** – Species is widely distributed / Habitat is restricted and vulnerable but no on-going significant loss; species is sensitive to human disturbance
- Great Gray Owl (3B)** – Population status and trends are unknown but are suspected to be stable / Habitat is restricted and vulnerable but no on-going significant loss
- Mountain Plover (3B)** – Population status and trends are unknown but are suspected to be stable / Habitat is vulnerable but no on-going significant loss; species is sensitive to human disturbance
- Northern Goshawk (3B)** – Species is widely distributed; population status and trends are unknown but are suspected to be stable / Habitat is vulnerable but no on-going significant loss; species is sensitive to human disturbance
- Northern Pygmy-Owl (3B)** – Population status and trends are unknown but are suspected to be stable / Habitat is restricted and vulnerable but no on-going significant loss
- Pygmy Nuthatch (3B)** – Population status and trends are unknown but are suspected to be stable / Habitat is restricted and vulnerable but no on-going significant loss
- Swainson's Hawk (3B)** – Population status and trends are unknown but are suspected to be stable / Habitat is restricted and vulnerable but no on-going significant loss
- Upland Sandpiper (3B)** – Population status and trends are unknown but are suspected to be stable / Habitat is vulnerable but no on-going significant loss; species is sensitive to human disturbance
- Western Grebe (3B)** – Population status and trends are unknown but are suspected to be stable / Habitat is restricted and vulnerable but no on-going significant loss; species is sensitive to human disturbance
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MAMMALIAN SPECIES OF SPECIAL CONCERN IN WYOMING

NSS1 (Native Species Status 1)

Black-footed Ferret (1A) – Populations are greatly restricted in numbers and distribution; extirpation appears possible / On-going significant loss of habitat

Canada Lynx (1A) – Populations are greatly restricted in numbers and distribution; extirpation appears possible / On-going significant loss of habitat

NSS2 (Native Species Status 2)

Pygmy Shrew (1B) – Populations are greatly restricted; extirpation appears possible / Habitat is restricted but no on-going significant loss

Fringed Myotis (2A) – Populations are restricted in distribution / On-going significant loss of habitat; species is sensitive to human disturbance

Long-eared Myotis (2A) – Populations are restricted in distribution / On-going significant loss of habitat; species is sensitive to human disturbance

Long-legged Myotis (2A) – Populations are restricted in distribution / On-going significant loss of habitat; species is sensitive to human disturbance

Northern Myotis (2A) – Populations are restricted in distribution / On-going significant loss of habitat; species is sensitive to human disturbance

Pallid Bat (2A) – Populations are restricted in distribution / On-going significant loss of habitat; species is sensitive to human disturbance

Spotted Bat (2A) – Populations are restricted in distribution / On-going significant loss of habitat; species is sensitive to human disturbance

Townsend's Big-eared Bat (2A) – Populations are restricted in distribution / On-going significant loss of habitat; species is sensitive to human disturbance

NSS3 (Native Species Status 3)

Preble's Shrew (1C) – Populations are greatly restricted / Habitat is vulnerable but no loss; species is not sensitive to human disturbance

Abert's Squirrel (2B) – Populations are restricted in distribution / Habitat is restricted but no recent or on-going significant loss

Bighorn Sheep (2B) – Populations are declining and restricted in distribution / Habitat is restricted, but no recent or on-going significant loss

Black-tailed Prairie Dog (2B) – Populations are declining / Habitat is vulnerable but no on-going significant loss

Canyon Mouse (2B) – Populations are restricted in distribution / Habitat is vulnerable but no on-going significant loss

Cliff Chipmunk (2B) – Populations are restricted in distribution / Habitat is vulnerable but no on-going significant loss

- Dwarf Shrew (2B)** – Populations are restricted in numbers / Habitat is vulnerable but no on-going significant loss
- Great Basin Pocket Mouse (2B)** – Populations are restricted in distribution / Habitat is vulnerable but no on-going significant loss
- Grizzly Bear (2B)** – Populations are restricted in distribution / Habitat is restricted but no on-going significant loss
- Hispid Pocket Mouse (2B)** – Populations are restricted in distribution / Habitat is vulnerable but no on-going significant loss
- Idaho Pocket Gopher (2B)** – Populations are restricted in distribution / Habitat is vulnerable but no on-going significant loss
- Least Weasel (2B)** – Populations are restricted in distribution / Habitat is vulnerable but no on-going significant loss
- Moose (2B)** – Populations are declining / Habitat is vulnerable but no on-going significant loss
- Olive-backed Pocket Mouse (2B)** – Populations are restricted in distribution / Habitat is vulnerable but no on-going significant loss
- Pinyon Mouse (2B)** – Populations are restricted in distribution / Habitat is vulnerable but no on-going significant loss
- Plains Harvest Mouse (2B)** – Populations are restricted in distribution / Habitat is vulnerable but no on-going significant loss
- Plains Pocket Mouse (2B)** – Populations are restricted in distribution / Habitat is vulnerable but no on-going significant loss
- Prairie Vole (2B)** – Populations are restricted in distribution / Habitat is vulnerable but no on-going significant loss
- Pygmy Rabbit (2B)** – Populations are restricted in distribution / Habitat is vulnerable but no on-going significant loss
- Silky Pocket Mouse (2B)** – Populations are restricted in distribution / Habitat is vulnerable but no on-going significant loss
- Spotted Ground Squirrel (2B)** – Populations are restricted in distribution / Habitat is vulnerable but no on-going significant loss
- Western Heather Vole (2B)** – Populations are restricted in distribution / Habitat is vulnerable but no on-going significant loss
- Water Vole (2B)** – Populations are restricted in distribution / Habitat is vulnerable but no on-going significant loss
- Vagrant Shrew (2B)** – Populations are restricted in numbers / Habitat is vulnerable but no on-going significant loss
- Wolverine (2B)** – Populations are restricted in numbers / Habitat is vulnerable but no on-going significant loss, species is sensitive to human disturbance
- Big Brown Bat (3A)** – Species is widely distributed; population status and trends are unknown but are suspected to be stable / On-going significant loss of habitat
- Little Brown Myotis (3A)** – Species is widely distributed; population status and trends are unknown but are suspected to be stable / On-going significant loss of habitat
- Western Small-footed Myotis (3A)** – Species is widely distributed; population status and trends are unknown but are suspected to be stable / On-going significant loss of habitat

NSS4 (Native Species Status 4)

Hayden's Shrew (2C) – Populations are restricted in distribution / Habitat is vulnerable but no loss

Northern Flying Squirrel (2C) – Populations are restricted in distribution / Habitat is vulnerable but no loss

Plains Pocket Gopher (2C) – Populations are restricted in distribution / Habitat is vulnerable but no loss

Eastern Red Bat (3B) – Population status and trends are unknown but are suspected to be stable / Habitat is vulnerable but no on-going significant loss; species is sensitive to human disturbance

Hoary Bat (3B) – Species is widely distributed; population status and trends are unknown but are suspected to be stable / Habitat is vulnerable but no on-going significant loss; species is sensitive to human disturbance

Marten (3B) – Population status and trends are unknown but are suspected to be stable / Habitat is vulnerable but no recent or on-going significant loss

River Otter (3B) – Population status and trends are unknown but are suspected to be stable / Habitat is vulnerable but no on-going significant loss

Sagebrush Vole (3B) – Population status and trends are unknown but are suspected to be stable / Habitat is vulnerable but no on-going significant loss

Silver-haired Bat (3B) – Population status and trends are unknown but are suspected to be stable / Habitat is vulnerable but no on-going significant loss; species may be sensitive to human disturbance

Swift Fox (3B) – Population status and trends are unknown but are suspected to be stable / Habitat is vulnerable but no on-going significant loss

Water Shrew (3B) – Population status and trends are unknown but are suspected to be stable / Habitat is vulnerable but no on-going significant loss

White-tailed Prairie Dog (3B) – Population status and trends are unknown but are suspected to be stable / Habitat is vulnerable but no on-going significant loss

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