YELLOWSTONE BIRD REPORT 2005

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Yellowstone Center for Resources
National Park Service
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YCR-2006-2

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Unique cumulonimbus, or bellow, clouds over Yellowstone.

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Front cover: A well-concealed nest and eggs of a Wilson's Snipe. It is important to keep human scent well away from the nest at all times to prevent predation.

All photographs in this report are by Terry McEneaney unless otherwise indicated.

Contents

Introduction

The Yellowstone Bird Report summarizes all bird information in Yellowstone National Park. The report originally started as a quarterly publication, then in 1996 became an annual document summarizing all results and activities that occurred within the calendar year. The 2005 Yellowstone Bird Report is an annual report. Information found in this publication is used in the Superintendent's Annual Report and provides valuable information for the Yellowstone historical record and interested public.

2005 Weather Patterns and Summary

January 2005 began as extremely mild, with warm temperatures and below-average snowfall. The first major snowstorm occurred on New Year's Eve. More typical winter weather arrived in March, with snowstorms occurring well into April. Ice-out on Yellowstone Lake continued to show a trend toward earlier dates (Figure 1). Mountain snowpack began to melt relatively early but slowed down in May, when temperatures were below average and precipitation slightly above average. The spring, particularly May, turned out to be surprisingly wet (in the rare form of rain), thus slowing down snowmelt. The months of May and June were cool and wet, allowing only a handful of wildfire starts for the entire 2005 season. Despite the welcome precipitation, the drought of the last seven years continued to dry out small ponds and lakes, especially on the northern range, due to the lack of underground recharge. July and August had average monsoon moisture, and September through mid-October had slightly above-average precipitation. November turned out to be dry and warm overall, with snowstorms early and late in the month. December was, for the first time in many years, a more typical snowy month. As the year 2005 came to a close, the park experienced above-average precipitation and average temperatures. A cold spell in early December led to an unusual thaw throughout the month, finally ending the year with wet (although badly needed) snow.

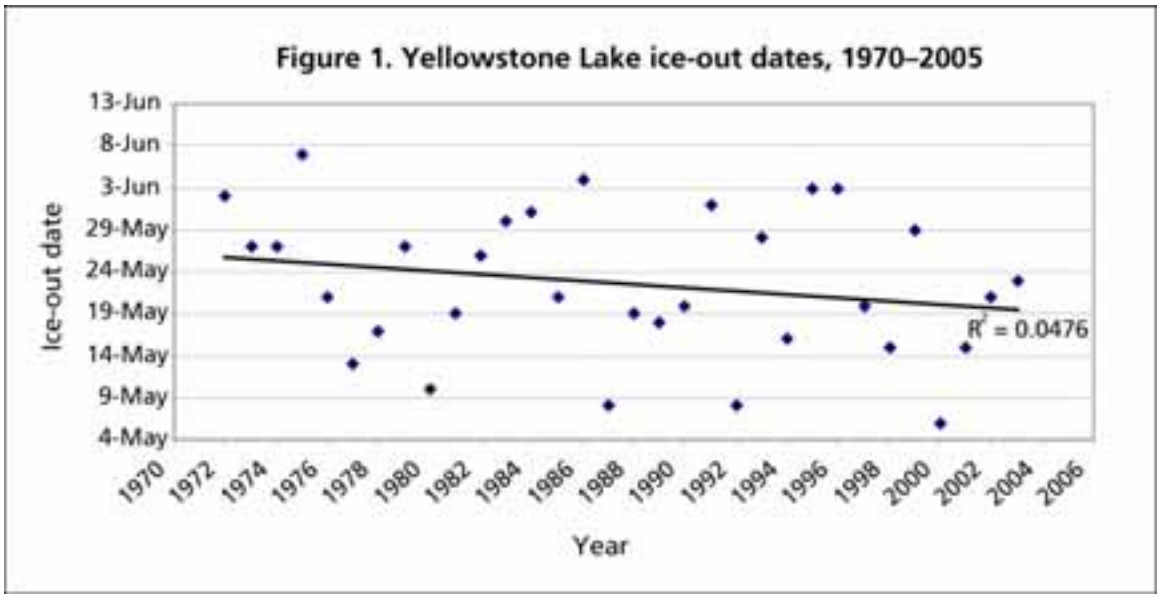


Figure 1. Data courtesy Phil Farnes and Lake rangers.

Female Bald Eagle brooding young.

Threatened and Endangered Species

Bald Eagle

In 1995, the U.S. Fish and Wildlife Service downlisted the Bald Eagle from endangered to threatened due to significant population gains made over the last three decades. Certain specific populations, however, are not completely recovered due to heavy metal contamination problems in the Great Lakes region and habitat encroachment and development problems associated with riparian zones in the desert southwest.

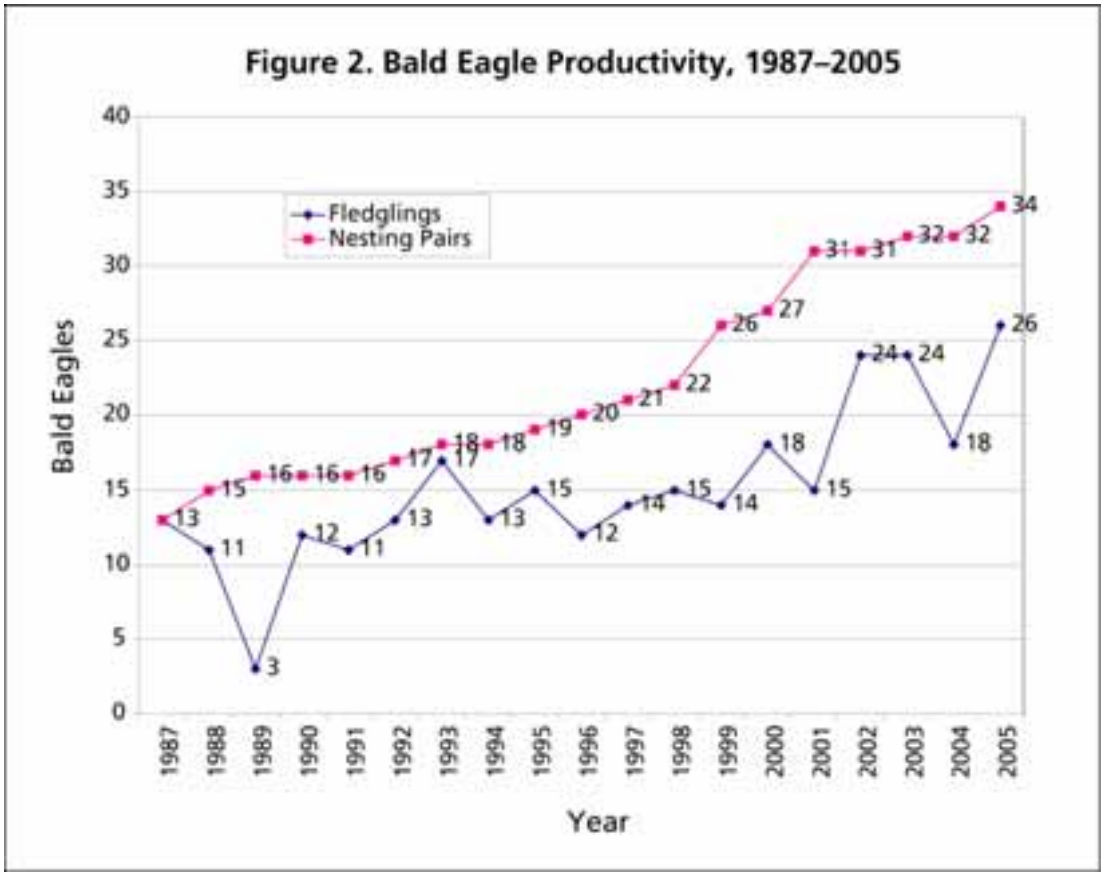


Figure 2. Bald Eagle productivity, Yellowstone National Park.

In Yellowstone, a total of 26 eaglets fledged from 34 active nests during 2005 (Figure 2). This represents the highest number of fledglings recorded to date in Yellowstone National Park. Nest failures that did occur were primarily due to the weather, namely in the form of wet snows, rain, and strong winds. The Yellowstone Bald Eagle subpopulation continues to incrementally increase over time; however, territorial shifts are starting to occur and new nests are appearing in unexpected places.

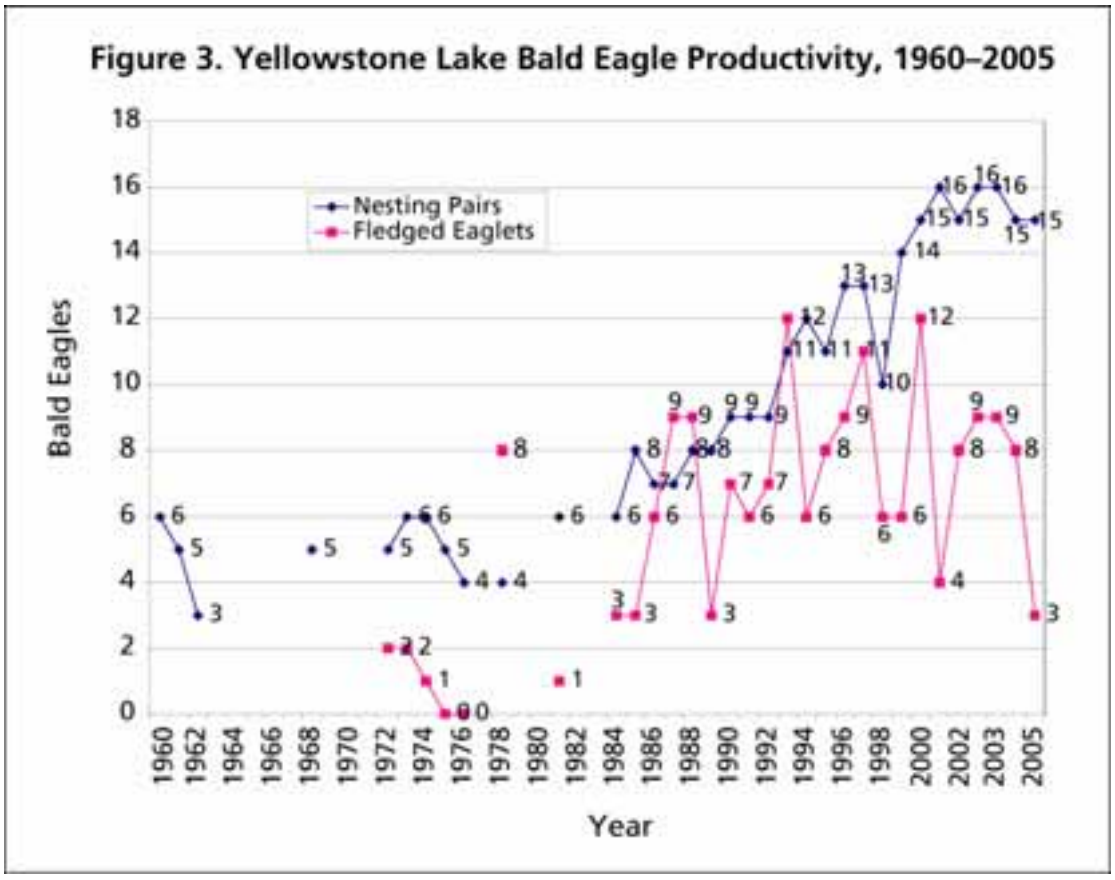


Figure 3. Yellowstone Lake Bald Eagle productivity.

In addition, incremental changes in Bald Eagle numbers are beginning to occur on Yellowstone Lake, one of the strongholds for nesting Bald Eagles in Yellowstone National Park (Figure 3). Most noticeable are declines in the number of fledglings, and a slight reduction in the number of nesting pairs. A number of factors can influence fledgling success and nest site stability; one is weather. Although lake trout predation of Yellowstone cutthroat trout in Yellowstone Lake is also a concern, it should be noted that Bald Eagles are not solely dependent on fish for food; they can supply young with other sources of nourishment, such as waterfowl. Therefore, it is inadvisable to try and offer predictions as to the degree Bald Eagles might decline on Yellowstone Lake as a result of invasive lake trout; the factors involved are diverse, numerous, and complex.

For the fourth year in a row, a pair of Bald Eagles took up residence in a large tree nest located 55 meters from the Madison-to-West Yellowstone road in an area locally known as "6 Mile." The 6-Mile Bald Eagle pair fledged two eaglets in 2005. This created an attraction for visitors and kept wildlife managers and rangers busy with crowd control throughout the spring and summer. The paired adults did not abandon the site, and continued to maintain the territory throughout the year.

Nest substrate instability resulting from the 1988 Yellowstone wildfires, coupled with strong winds, continued to raise havoc with nesting pairs. Over the next couple of decades it is expected that large numbers of dead standing trees will topple to the ground, resulting in further nest failure, loss of nest sites, or sudden changes in location of a nesting territory. Although Bald Eagles have occasionally been documented taking over previously occupied Osprey nests, the incidence of takeover appears to be gradually increasing due to competition for nest sites.

One of the two juvenile 6-Mile Bald Eagle fledglings in 2005.

Whooping Crane

Although Whooping Cranes are sometimes reported in Yellowstone, there is no evidence to confirm the veracity of those sightings—at least not in recent years. The Whooping Crane is currently classified as an endangered species. The worldwide population consists of both wild and captive components. This endemic North American species continues to rank as the rarest and most endangered crane in the world. Population figures as of the summer 2005 placed the wild population at 338 cranes and the captive population at 136 cranes, for a total world population numbering 474 Whooping Cranes (Table 1, Figure 4). For a detailed description of the history of Whooping Cranes in Yellowstone, see the 2000 Yellowstone Bird Report.

Table 1. 2005 Wild and Captive Whooping Crane Populations

Wild populations				
Area	**Adults**	**Young**	**Total**	**Adult pairs**
Aransas NWR (TX)/Wood Buffalo NP (Canada)	214	n/a	214	73
Rocky Mountain	0	0	0	0
Florida (non-migratory)	60	0	60	14
Wisconsin/Florida (migratory)	41	23	65	2
Subtotal in the wild	**315**	**23**	**338**	**79**

Captive Populations				
Area	**Adults**	**Young**	**Total**	**Breeding pairs**
Patuxent WRC, MD	54	2	56	13
International Crane Fdn.,WI	35	4	39	10
Devonian WCC/Calgary,ALTA	17	3	20	7
Calgary Zoo, ALTA	2	0	2	0
San Antonio Zool. Gardens, TX	5	1	6	1
Lowery Park Zoo, Tampa, FL	2	0	2	0
Homosassa Springs WSP, FL	1	0	1	0
New Orleans Zoo, LA	2	0	2	0
Species Survival Ctr., LA	8	0	8	1

Subtotal captive	126	10	136	32
Subtotal wild	315	23	338	79
Total (wild and captive)	**441**	**33**	**474**	**111**

Source: Stehn, T. 2005. Whooping Crane Recovery Activities Report, U.S. Fish and Wildlife Service.

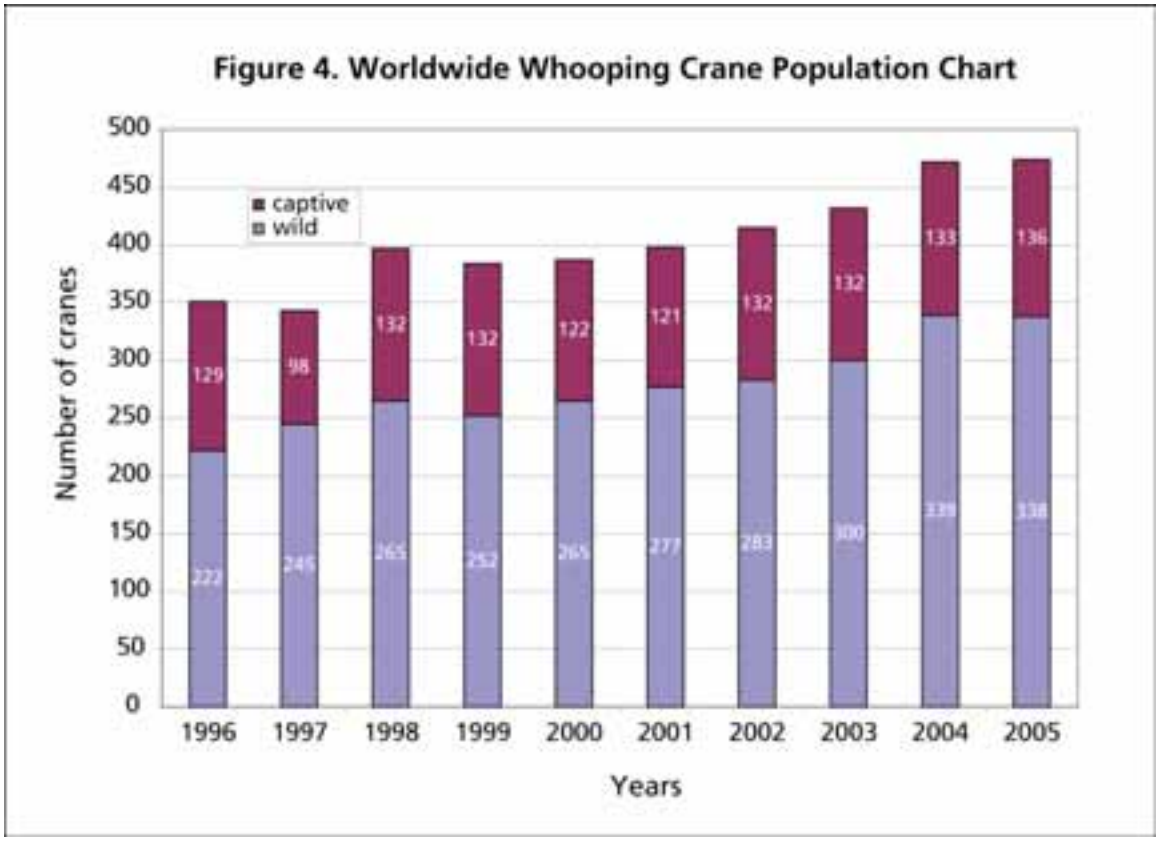


Figure 4. Population status of the Whooping Crane.

Production in Wood Buffalo National Park (Canada) was very good in 2005, with 62 chicks documented hatching from 58 nests. Mid-August surveys found that 31 chicks had survived, including two sets of twins.

The eastern Whooping Crane population consists of a migrant flock that summers in Wisconsin and winters in western Florida, and a sedentary flock that remains in central Florida year-round. Forty-two Whooping Cranes, all part of a reintroduction program, made up the migratory eastern Whooping Crane population in 2005. Of this migratory flock, all but a few have been following the correct migration corridor from Wisconsin to Florida, with most returning to the core release area in Wisconsin. Nesting occurred for the first time in the migratory reintroduction as the initial cohorts of birds reached breeding age. Five pairs showed initial nesting behavior, and two pairs laid eggs at Necedah National Wildlife Refuge in Wisconsin. However, both pairs quickly lost their eggs, presumably to predators. Twenty-four additional juveniles were being trained to enter the population in the fall of 2005.

The captive facilities had a very good production season, with 39 total chicks fledged. Nine of those chicks were maintained in captivity to be future breeding stock. Twenty-six birds were supplied to the eastern migratory reintroduction.

Seven Sandhill Crane hunters who killed two Whooping Cranes in central Kansas in fall 2004 were each fined $3,000 and lost their hunting privileges for two years. Following this incident, some states increased efforts to protect Whooping Cranes during hunting season.

A peregrine pauses before pursuing its aerial prey.

Species of Special Concern

Peregrine Falcon

On August 26, 1999, the Peregrine Falcon was de-listed, or removed, from the federal list of threatened and endangered species. However, under the provisions of the Endangered Species Act, this species still needs to be closely monitored to ensure its recovery. The Peregrine Falcon is now managed as a species of special concern, and Yellowstone National Park continues to be a stronghold for peregrines in the Northern Rockies. The year 2005 marked the sixth year since de-listing, and Yellowstone data support the contention that peregrines are on the road to full recovery.

Figure 5. Peregrine Falcon productivity, Yellowstone National Park.

Peregrine monitoring is time-consuming. In the future, a sampling scheme will be developed in which perhaps only one-third of all known eyries in the park will be checked for young each year, thus completing a full parkwide production survey every three years. This will allow time to check cliffs for new eyries. Four new eyries were found in 2005, bringing the total number of peregrine eyries in the park to 30, compared to 26 eyries in 2004. A total of 44 young fledged in 2005—the third-highest number of fledged peregrines ever recorded in Yellowstone National Park (Figure 5).

Trumpeter Swan

The Yellowstone National Park resident Trumpeter Swan subpopulation continues to show signs of a species at risk of local imperilment. Swan recruitment from outside Yellowstone National Park is a critical factor in maintaining the resident swan population. Montana's Centennial Valley has traditionally been a hotspot for cygnet production in the Greater Yellowstone Area, and most swans that died in the park were eventually replaced by swans from that area. However, events over the last two decades have led to a reduction of breeding swans, particularly outside the park. Coupled with low numbers of fledged cygnets throughout Greater Yellowstone (Figure 6), this is reason for serious concern.

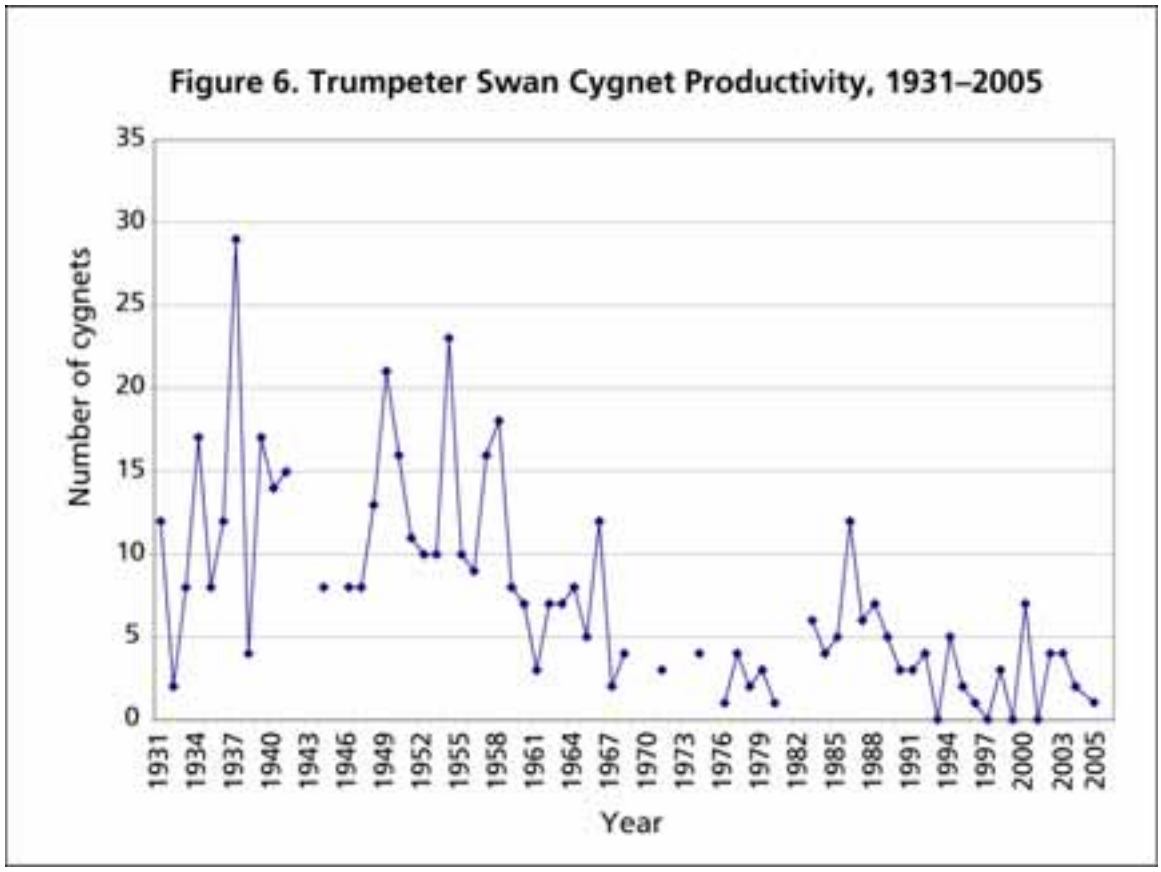
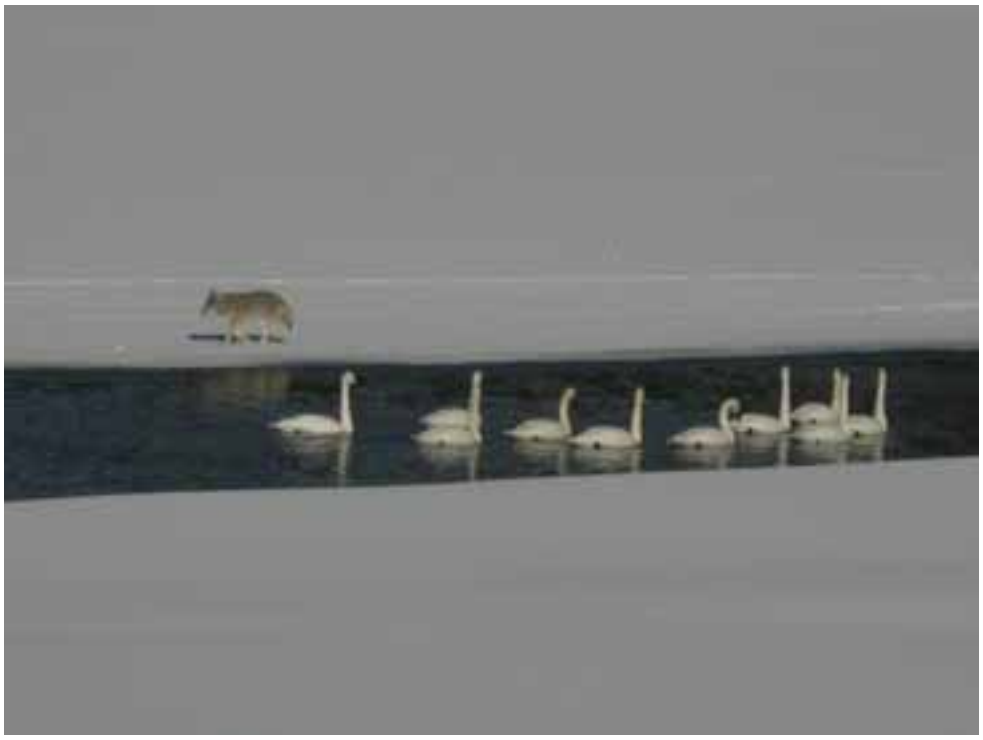


Figure 6. Trumpeter Swan cygnet productivity, Yellowstone National Park.



Ten nervous Trumpeter Swans and one bold coyote.

Wintering Trumpeter Swans on the Yellowstone River.

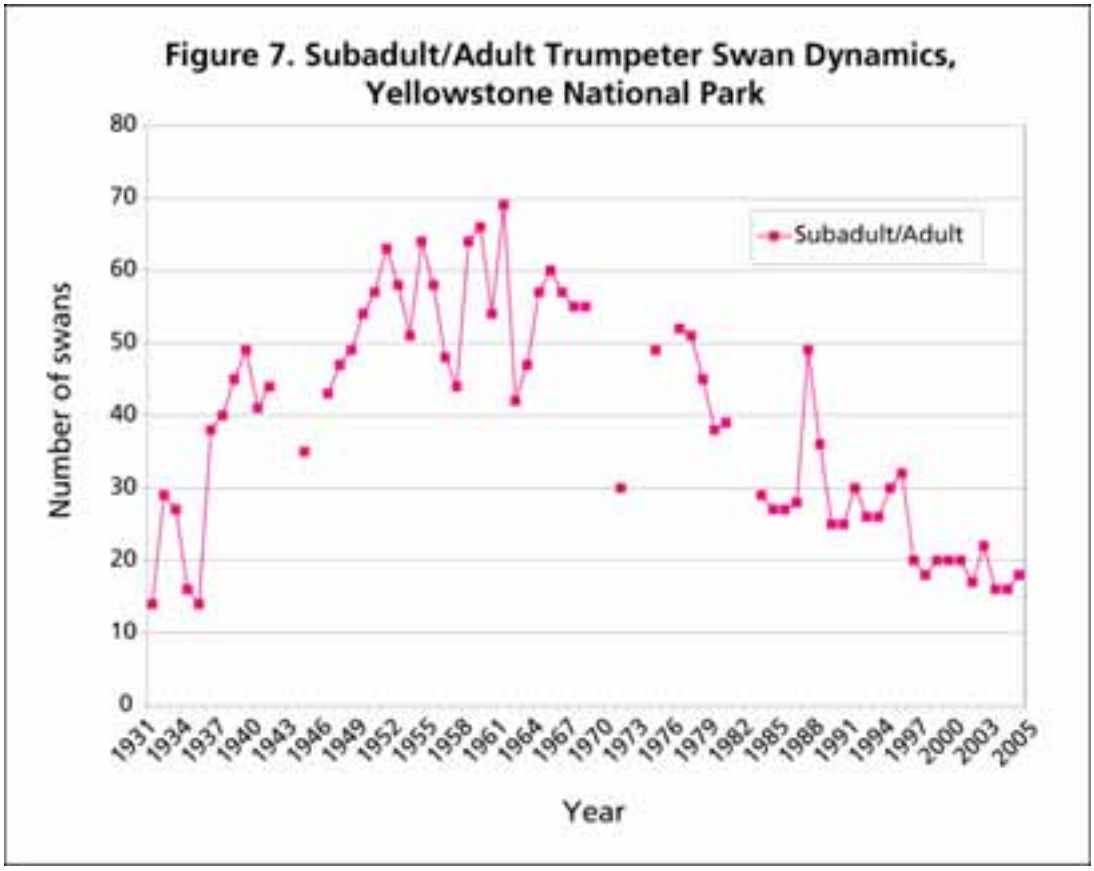


Figure 7. Trumpeter Swan population dynamics, Yellowstone National Park.

The number of subadult/adult resident swans in Yellowstone National Park has declined steadily since 1961, and currently stands at only 18 individuals (Figure 7). This is the sixth-lowest number of subadult/adults recorded in the park since population trend data has been collected. Adult swan recruits from Montana's Paradise Valley are helping to maintain the Yellowstone swan population for the time being. Also, for the second year in a row, adult swan recruitment was observed on the west side of the park.

The area known as 7 Mile Bridge (7 miles east of West Yellowstone, Montana) along the Madison River has been a traditional nesting area for Trumpeter Swans for at least the last 21 years. A total of 23 cygnets have fledged from this site since 1983, making it one of the more productive swan nesting areas in Yellowstone National Park in recent years. In February 2001, the adult male, or cob, was killed by a coyote near 7 Mile Bridge, leaving the adult female without a mate. Then in August 2004, after 42 months without a mate, the adult female swan picked up with a "floater" male yearling and remained in the vicinity of the 7 Mile Bridge site.[1]

What is perhaps most amazing about this find is the tenacity and fidelity these long-lived birds have for a particular type of habitat. It is also the first positive sign that some subadult recruitment is beginning to take place in the park. In spring 2005, three subadult/adult floaters, or non-breeders, showed up in the same area, providing signs of

[1] Unfortunately, it appears that this union was short-lived—see "Trumpeter Swans Killed By Wolves," page 54 of this document.

small but slow positive change in swan recruits' coming from the west of the park. However, it will take a large number of floaters to replace the swans already lost during the last two decades, a period when swan numbers in Montana's Centennial Valley have declined substantially, causing swan recruits, or floaters, to be nearly non-existent. The lack of or painstakingly slow recruitment of subadult/adult swans from outside the park has played a major role in the rate in which swans are replaced or new mates are found. The status of the swans of this area will continue to be monitored, but if recovery does occur it will be extremely slow, because Trumpeter Swans are long-lived birds with low reproductive potential.

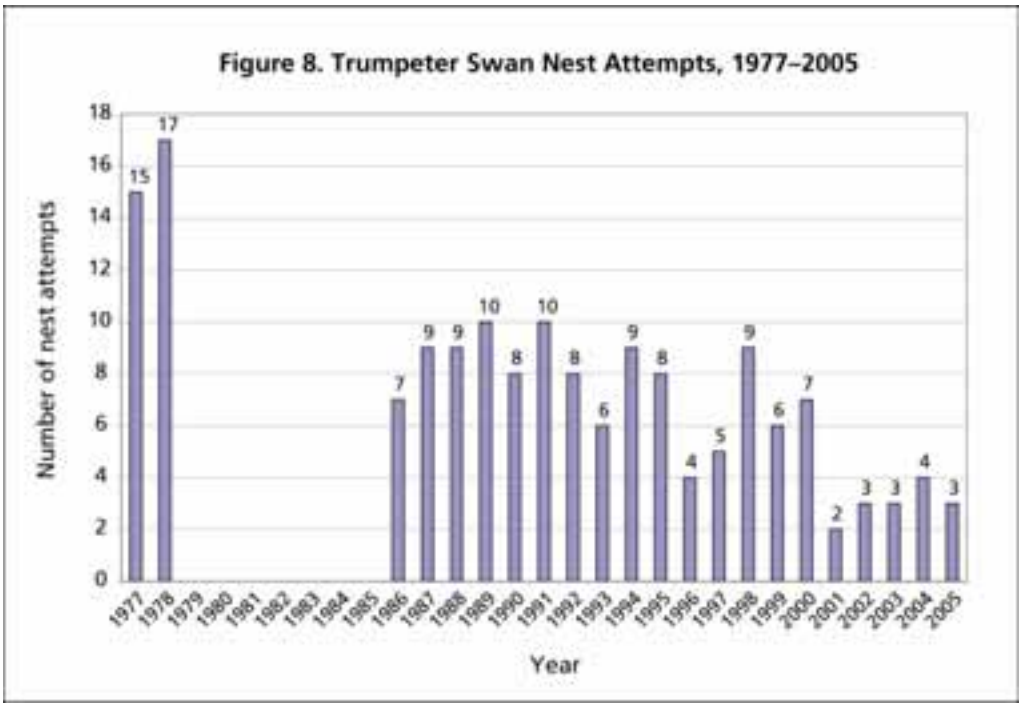


Figure 8. Trumpeter Swan nest attempts, Yellowstone National Park.

In recent years, trumpeter swan nest attempts have ranged from 2 to 10 per year (Figure 8). There were only three swan nest attempts in 2005, compared to four in 2004, and three in 2003. In 2005, four cygnets hatched from one brood in Yellowstone National Park, but only one cygnet reached fledgling age. The staff ornithologist observed as one newly hatched cygnet from a single swan brood of four was preyed upon by an adult Bald Eagle. Bears also played a role in swan nest failures this year, when egg clutches from two swan territories were documented as being destroyed by grizzly bears.

Paradise Valley Trumpeter Swan Flock. Yellowstone National Park began to participate in Trumpeter Swan conservation issues (north of the park) in the Paradise Valley of Montana due to the potential threat posed by exotic Mute Swans. In the 1960s, a private landowner purchased a pair of Mute Swans for aesthetic purposes. By the late 1970s, the Mute Swan population had grown to a high of 120 individuals. Fearing potential competition with native Trumpeter Swans in Yellowstone National Park, the National Park Service became involved in a program to reverse this alien threat to native swans. Working with Paradise Valley landowners interested in helping resident

Trumpeter Swans, an informal agreement was reached indicating the importance of eliminating Mute Swans immediately and replacing them with captive-raised Trumpeter Swans. The biggest obstacle was finding private funding to pay for the program, particularly because the purchase of captive Trumpeter Swans can be very expensive. Generous support from the Cinnabar Foundation and the Chevron Corporation, in addition to contributions from private citizens, allowed this program to proceed.

Yellowstone National Park's ornithologist, with the help of landowners and park rangers, began to eliminate the first Mute Swans in the fall of 1987. By 1989, the Mute Swan population was reduced to 13 individuals, and Trumpeter Swans were introduced into Paradise Valley. In 1991, Trumpeter Swans outnumbered Mute Swans nine to two in Paradise Valley. By the mid-1990s, Mute Swans were eliminated from Paradise Valley altogether. Therefore, the threat posed by an alien species was extinguished in a relatively short period of time.

Through the years, the Paradise Valley Trumpeter Swan program has experienced three major setbacks: 1) two captive swans and one wild swan were illegally shot or poached on the DePuy Ranch on December 2, 1995; 2) severe floods on the Yellowstone River during the spring and summer of 1997 and 1998 flushed many swans down river, leading to a major decline in the swan flock; and 3) a series of adult mortalities have occurred. In 1999, one captive swan pair managed to fledge five cygnets on one ranch and a wild swan pair fledged a single cygnet. In 2001, one of the wild swans died from a wire collision, leaving the nesting area vacant; however, a captive pair fledged one young.

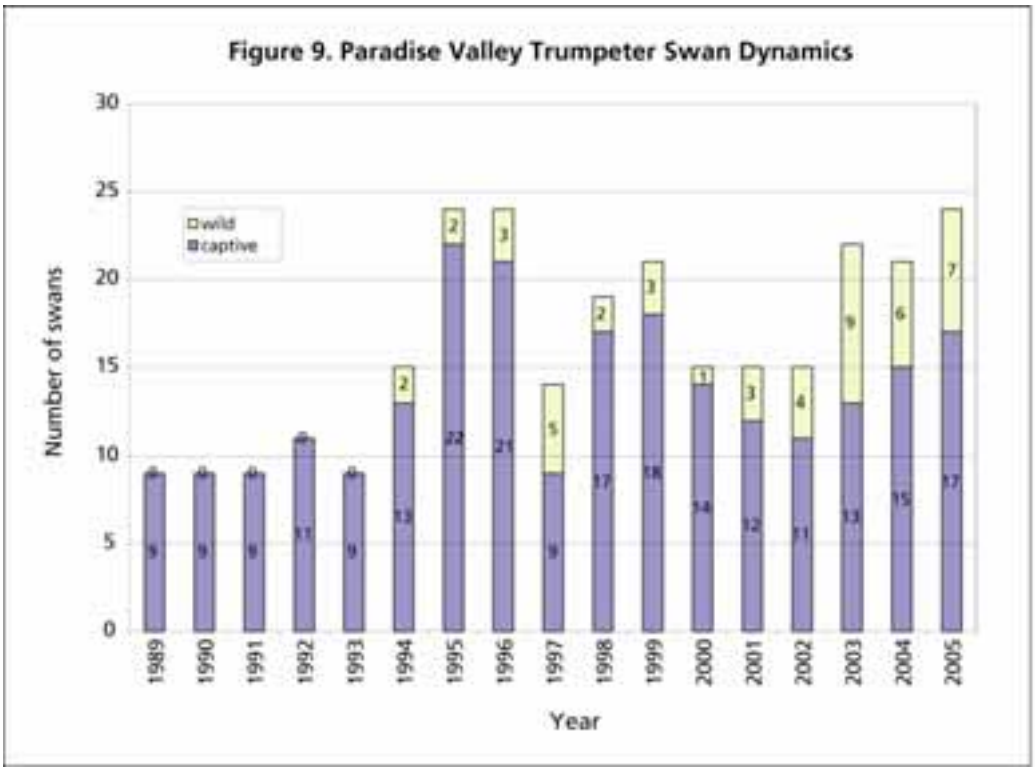


Figure 9. Paradise Valley Trumpeter Swan dynamics, 1989–2005.

In 2005, three nesting pairs fledged seven young from two broods in Paradise Valley. Of the eight young that hatched, seven successfully made it to the fledgling stage. In 2005, the fall survey of Paradise Valley swans tallied 24 individuals: 17 adults and 7 cygnets (Figure 9; details on production shown in Table 2). The primary reason why subadult/adult swans declined in numbers in the Paradise Valley was due to collision mortality with wires, lead poisoning, and recruits exploring the confines of Yellowstone National Park and Paradise Valley. The program continues to pay off in small increments; banded swans from the Paradise Valley have been seen in Yellowstone National Park on occasion.

Table 2. 2005 Trumpeter Swan Production Summary

	Yellowstone National Park	Paradise Valley
Occupied sites	3	3
Nesting pairs	3	3
Successful nests	1	3
Cygnets hatched	4	8
Broods w/ fledged young	1	2
Cygnets fledged	1	7
Adults	18	17
Total swans	**19**	**24**

First spring arrivals of American White Pelicans to Yellowstone.

Molly Islands Colonial Nesting Birds

The Molly Islands Colonial Nesting Bird Census was conducted in mid-May, early June, early August, and mid-September 2005. The Molly Islands consist of two small islands appropriately named Rocky Island and Sandy Island, due to the nature of the substrate. The census techniques applied in 2005 were consistent with those conducted over the last several years; however, both aerial and boat surveys were employed this year.

American White Pelicans arrived on the islands at the expected time again this year. On Rocky Island, a total of 152 pelicans initiated nests (130 successful nests) on the eastern or highest part of the island (Table 3). Nests were restricted to this one aggregation again this year. Double-crested Cormorants constructed 64 nests in the same area as the pelicans; 59 of those nests were successful. The islands were free of flooding this year and snow meltwater runoff was gradual, which is usually a promising sign for colonial nesting birds. However, of the 80 California Gulls that attempted to nest, only 31 were successful in hatching young, whereas of the three nest attempts by Caspian Terns, all three nests failed to rear fledged young. The following young fledged from Rocky Island: 138 American White Pelicans, 65 Double-crested Cormorants, 58 California Gulls, and 0 Caspian Terns. Predator pressure on the island appeared to be minimal.

Some predation did occur on Sandy Island this year, but the impact appeared to be minimal. A total of 115 American White Pelican nests were initiated, but only 89 nesting pairs were successful in rearing 96 young. Double-crested Cormorant nest attempts were low this year, with 12 nests initiated and only 10 nesting pairs successful in fledging 21 young. Pelicans nested again in four distinct aggregations, consisting of two large and two small aggregations. No Caspian Terns or California Gulls nested on Sandy Island this year.

Table 3. Molly Islands Colonial Nesting Bird Productivity, 2005

Area and species	Nests initiated	Successful nests	Young fledged
Rocky Island			
American White Pelican	152	130	138
Double-crested Cormorant	64	59	65
California Gull	80	31	58
Caspian Tern	3	0	0
Sandy Island			
American White Pelican	115	89	96
Double-crested Cormorant	12	10	21
Molly Islands totals			
American White Pelican	267	219	234
Double-crested Cormorant	76	69	86
California Gull	80	31	58
Caspian Tern	3	0	0

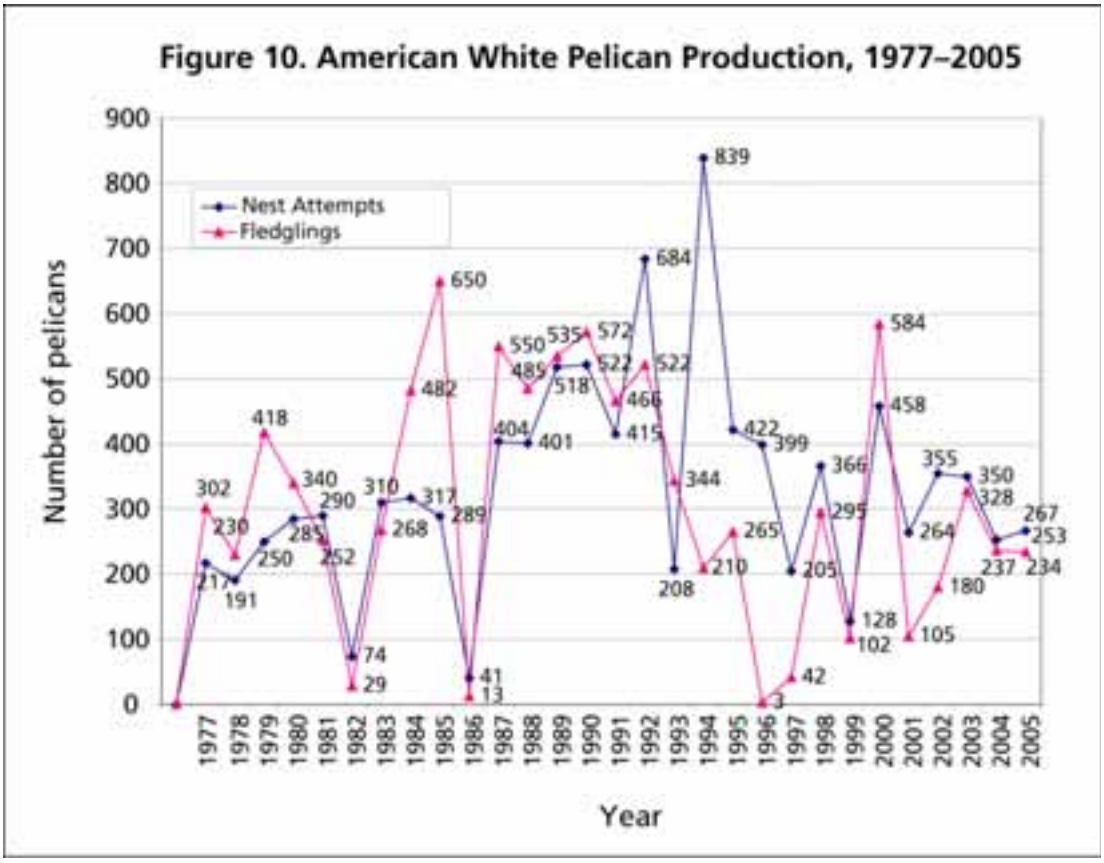


Figure 10. American White Pelican productivity, Yellowstone National Park.

In summary, 2005 was an average year for colonial nesting bird production. Lake flooding was average, which still presented somewhat favorable conditions for nesting. Total production on the Molly Islands resulted in fledging 96 American White Pelicans (Figure 10), 86 Double-crested Cormorants, 58 California Gulls, and 0 Caspian Terns.

As lake trout continue to influence fish dynamics in Yellowstone Lake, it will be important to carry on with monitoring the status of the Molly Islands bird colony. At present, lake trout do not appear to have affected colonial nesting bird production. Climatic conditions continue to be the most important single factor affecting the Molly Islands nesting colony. However, because the ecology of Yellowstone Lake could change incrementally or dramatically, close monitoring of the colonial birds of the Molly Islands will remain essential.

An Osprey refurbishes a long-established nest.

Osprey

The Yellowstone National Park Osprey population continued to show a downward trend in 2005, when a mere 15 young fledged from 48 nests, compared to only 19 young fledging from 54 nests in 2004, and 17 young fledging from 58 nests in 2003 (Figure 11). This represents the worst production seen in the last 19 years of collecting detailed Osprey population data. A series of strong winds and wet weather throughout the summer caused some of the nests and/or nest trees to fall to the ground, resulting in high failure rates again this year (Figure 12), and territorial occupancy was noticeably declining on Yellowstone Lake. Both weather and tree nest site instability continued to play a major role in influencing Osprey productivity in the park. Incidents of Bald Eagles' taking over Osprey nest sites was noted again this year. Monitoring the population dynamics of Ospreys and other piscivorous bird species will be especially important as native Yellowstone cutthroat trout and exotic lake trout numbers are charted over time.

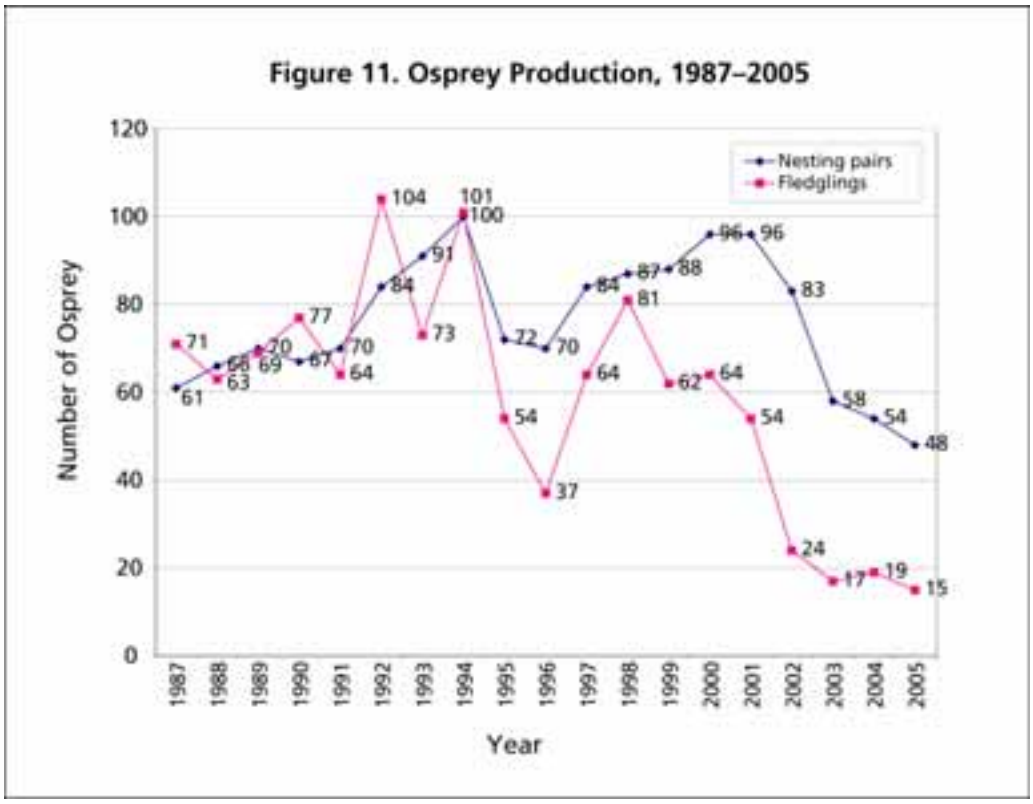


Figure 11. Osprey productivity, Yellowstone National Park.

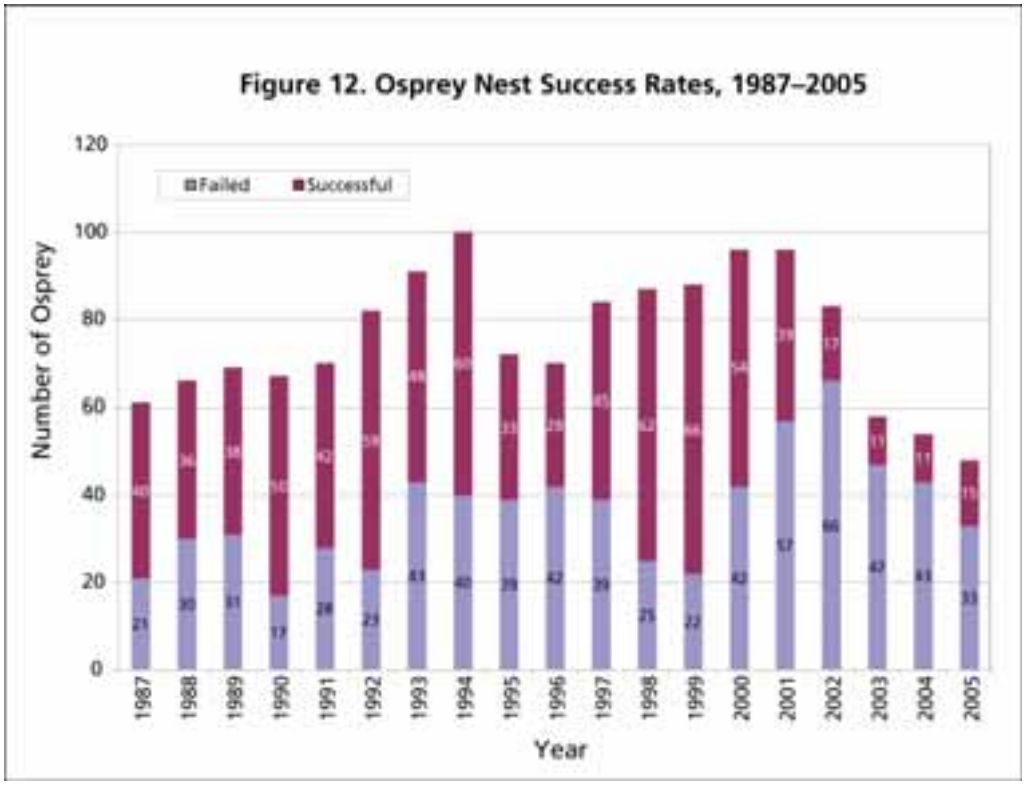


Figure 12. Osprey nest success and failure, Yellowstone National Park.

Frank Island Osprey update. Historically, Frank Island has been an important area for nesting Ospreys in Yellowstone. The island is so important, in fact, that in 1987 it was designated a protected area and off-limits to the public, with only the southeast point, or picnic area portion, open for visitor use. In 1994, Frank Island had as many as 25 nesting Osprey pairs and fledged a high of 28 young. However, in recent years, a slow but steady decline has occurred, primarily due to strong winds blowing down nest trees. Then a lightning strike on August 8, 2003, started an inferno that burned approximately 570 of the island's 600 acres. The fire engulfed nearly all of the old growth trees in a relatively short period of time. A post-fire aerial survey revealed that all of the Osprey nests but one succumbed to the wildfires, and only one Osprey young fledged from the single nest on Frank Island in 2003. In the last two years, only one Osprey pair has nested on Frank Island (Figure 13).

Bald Eagles also failed to produce young on Frank Island in 2003 and 2004, and their nest was destroyed by the wildfire. Surprisingly, however, within 30 days after the wildfire, a newly completed Bald Eagle nest was discovered on the island. In 2004 and 2005, the one Bald Eagle nest and one Osprey nest failed to fledge young due to severe winds. This is typical of the boom and bust trend of nesting raptors associated with Yellowstone Lake and similar environments.

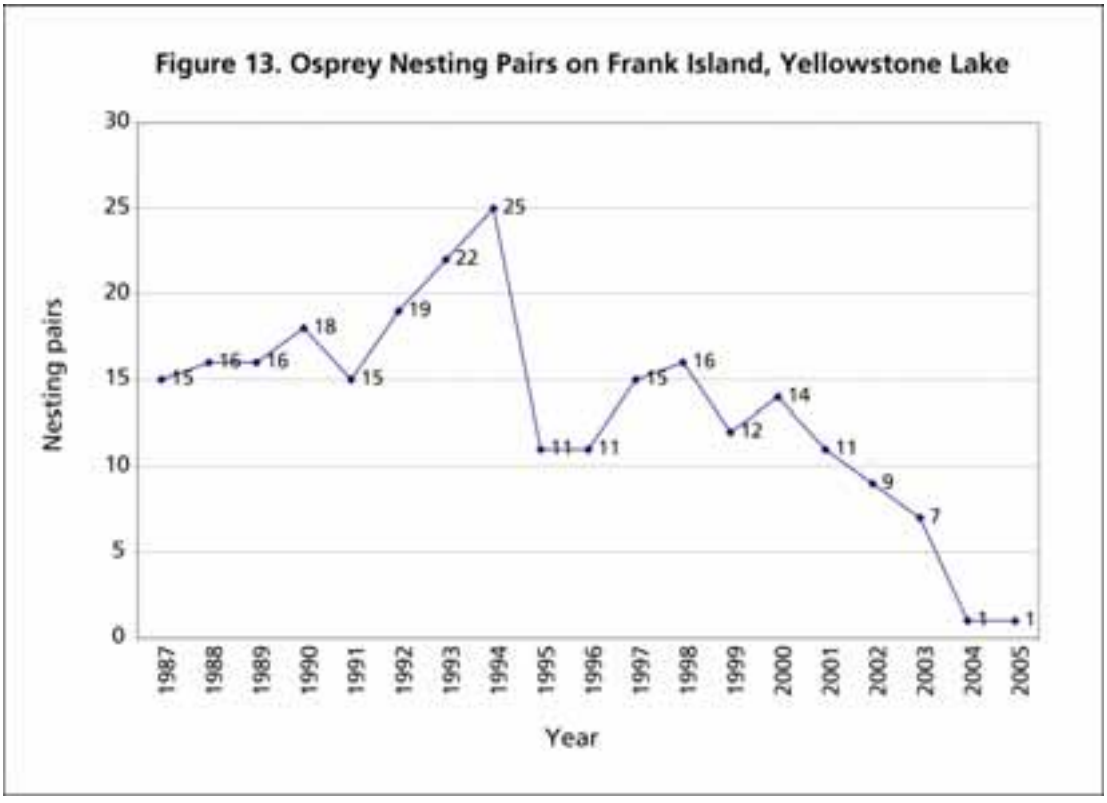


Figure 13. Over a 19-year period, Osprey nesting on Frank Island has ranged from 1–25 nesting pairs.

Declining trend of Ospreys on Yellowstone Lake. Osprey numbers on Yellowstone Lake have been monitored for the past 19 years. In the last few years, some alarming signs have begun to surface that warrant cause for concern. As recently as 2001, the staff ornithologist reported:

> The Osprey of Yellowstone National Park and Yellowstone Lake are doing remarkably well. Nesting pairs increased following the 1988 Yellowstone wildfires. Since food is highly abundant, the limiting factor continues to be availability of nest sites. Following the wildfires, snags increased and consequently so did the number of nesting pairs. . . . DDT is no longer a threat as it was midway through the last century. Osprey production is dynamic and remains largely weather dependent. In 2001, there were 59 nesting pairs of Osprey on Yellowstone Lake, fledging a total of 26 young.[2]

Since that time, much has changed. In 2005, only 26 nesting pairs of Ospreys could be located on the lake, fledging a total of two young (Figure 14, next page). The reasons for this decline appear to be multi-causal. Two major events on Yellowstone Lake are believed to be directly responsible: the Frank Island wildfire of 2003 and a severe windstorm in 2005 that blew down most of the potential remaining Osprey nest sites. In addition, Yellowstone's Fisheries and Aquatic Sciences section has reported a severe reduction in the sheer abundance of cutthroat trout on Yellowstone Lake.[3] This is especially evident in dramatic declines in spawning cutthroat trout at Clear Creek and Bridge Creek, important because Ospreys take smaller-sized (-aged) cutthroats than Bald Eagles do. Although small-aged cutthroats appear to be cycling back into the lacustrine system, the abundance or biomass of adfluvial cutthroat trout (i.e., those that live primarily in lakes, but spawn in rivers and streams) on Yellowstone Lake appears to have significantly declined.

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[2] Terry McEneaney, "Piscivorous Birds of Yellowstone Lake: Their History, Ecology, and Status," pages 121–134 *in* R. J. Anderson and D. Harmon, eds., *Yellowstone Lake: Hotbed of Chaos or Reservoir of Resilience? Proceedings of the 6th Biennial Scientific Conference on the Greater Yellowstone Ecosystem.* October 8–10, 2001, Mammoth Hot Springs Hotel, Yellowstone National Park (Yellowstone National Park, Wyo., and Hancock, Mich.: Yellowstone Center for Resources and The George Wright Society, 2002).

[3] T. M. Koel, J. L. Arnold, P. E. Bigelow, P. D. Doepke, B. D. Ertel, and D. L. Mahony. 2005. *Yellowstone Fisheries & Aquatic Sciences Annual Report, 2004* (Yellowstone National Park, Wyo.: Yellowstone Center for Resources, 2005), YCR-2005-04.

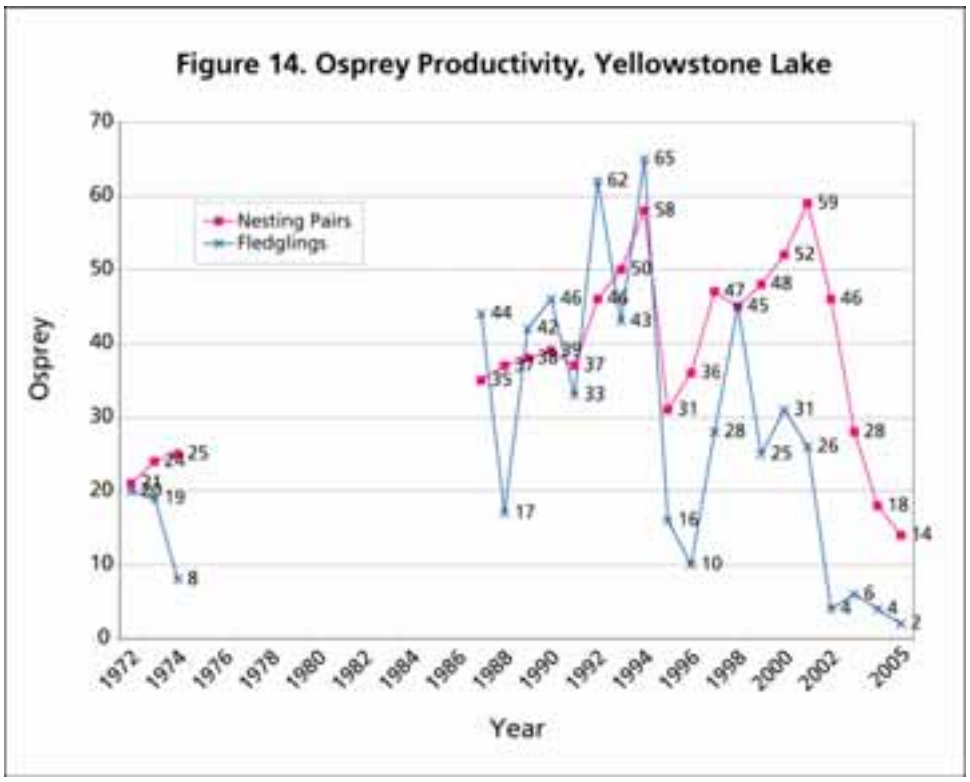


Figure 14. Osprey productivity on Yellowstone Lake has declined in recent years.

Harlequin Duck

The Harlequin Duck population in Yellowstone National Park continues to maintain itself and is only mildly variable from year to year, with generally 16–24 pairs residing in the park. Monitoring adults is the most effective method of keeping track of population vigor and trends. However, monitoring annual productivity is not cost-effective, as data collection is extremely time-consuming and difficult due to the remoteness of many of the areas in which Harlequin Ducks are found. Productivity is highly influenced by weather, such as flooding.

Common Loon

The park's Common Loon population continues to fluctuate from year to year. There were eight nest attempts in 2005, with four loonlets reaching fledgling age, compared to nine nest attempts fledging three young in 2004 , and eight nest attempts fledging one young in 2003 (Figure 15). Many of the nesting loons had to deal with variable water levels and shorelines as a result of unusual weather conditions. This was also the principal reason for the poor loon production in 2004. A total of 42 adults were found in the park in 2005, compared to 44 adults in 2004, and 40 adults in 2003. These adult numbers have reliably ranged between 34 and 51 individuals over the last 17 years. The moderate loon production and the low adult numbers continue to be a reflection of weather-related conditions.

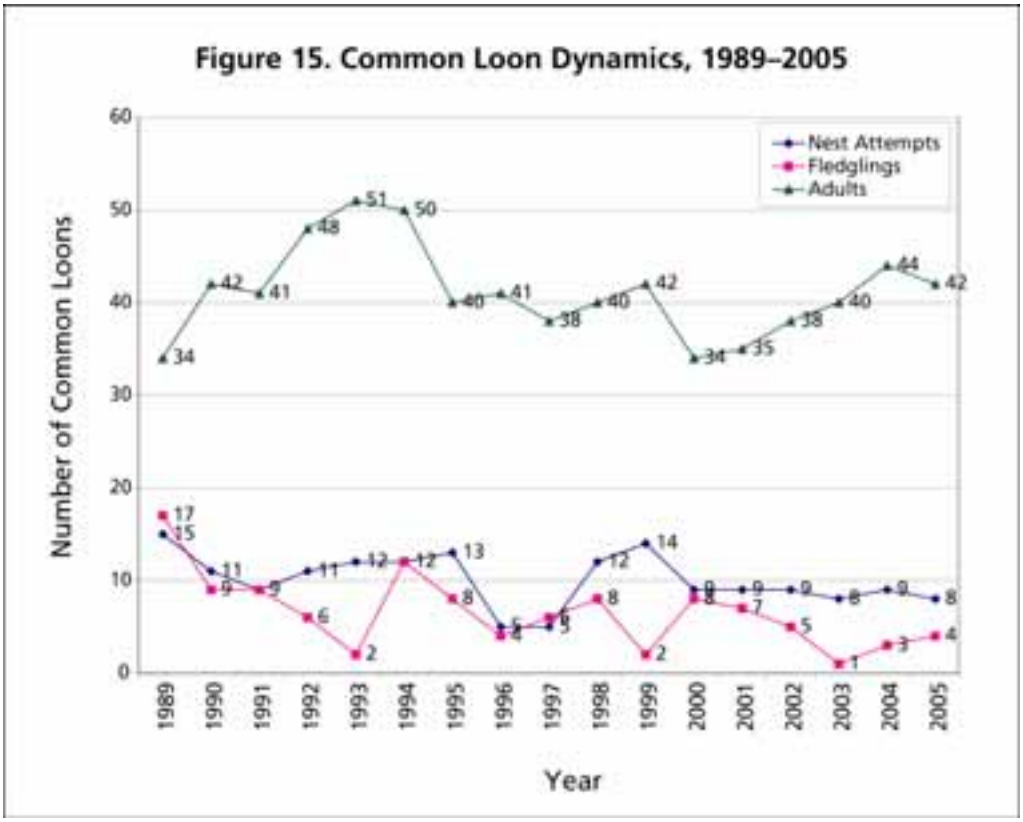


Figure 15. Common Loon population dynamics, Yellowstone National Park.

Population Monitoring

North American Bird Migration Count

Yellowstone National Park participated in the North American Bird Migration (NABM) Count for the thirteenth consecutive year in 2005. Originally designed to collect quantitative and qualitative spring bird migration information on a continental scale, the count has turned into a low-key social event. The survey is traditionally scheduled each year on the second Saturday in May. This year, the count was conducted on May 14. Three observers recorded a total of 3,109 individual birds. A total of 96 species of birds were recorded during the count, including 80 species within the confines of Yellowstone National Park (Table 4). A 13-year summary appears in Table 5. Numbers of individual birds and total species tallied were above average due to the wet spring conditions. However, the drought is still in effect, especially at lower elevations. The NABM count originates on Yellowstone Lake and ends 70 miles north of the park in the Shields Valley of Montana. It is an excellent means of gauging the pulse of migration in both the mountains and the intermountain valleys.

Table 4. North American Migratory Bird Count, Yellowstone National Park, May 14, 2005

Species	YNP, Wyo.	YNP, Mont.	Park Co., Mont.	Totals
Canada Goose	43	2	60	105
Trumpeter Swan	2		3	5
Wood Duck			2	2
Gadwall	46		60	106
American Wigeon	118		50	168
Mallard	60		85	145
Blue-winged Teal			2	2
Cinnamon Teal	17		4	21
Northern Shoveler	6		40	46
Northern Pintail	10		25	35
Green-winged Teal	57	2	26	85
Ring-necked Duck	4		14	18
Lesser Scaup	77		30	107
Harlequin Duck	13			13
Bufflehead	22		8	30
Common Goldeneye	76		12	88
Barrow's Goldeneye	83	23		106
Common Merganser	10		18	28

Species	YNP, Wyo.	YNP, Mont.	Park Co., Mont.	Totals
Ruddy Duck			41	41
Ruffed Grouse	1			1
Common Loon	12			12
Eared Grebe	7		400	407
Western Grebe	7		60	67
American White Pelican	7		26	33
Double-crested Cormorant	3		12	15
Great Blue Heron	5		8	13
Osprey	1	1	6	8
Bald Eagle	2		3	5
Northern Harrier	1		1	2
Swainson's Hawk	1			1
Red-tailed Hawk	1	1	10	12
Cooper's Hawk	1			1
Golden Eagle			3	3
American Kestrel	4		20	24
Peregrine Falcon	1			1
Turkey Vulture			1	1
American Coot	2		40	42
Sandhill Crane	7	2	10	19
Killdeer	3		8	11
Willet	3			3
Wilson's Snipe	6			6
Wilson's Phalarope	3		60	63
Spotted Sandpiper			8	8
Franklin's Gull	1			1
Rock Pigeon		22	90	112
Mourning Dove		91	8	
White-throated Swift		19		19
Calliope Hummingbird			1	1
Belted Kingfisher			1	1
Hairy Woodpecker			1	1
Three-toed Woodpecker	6			6
Red-naped Sapsucker	1	4	5	
Williamson's Sapsucker	1			1
Northern Flicker (red-shafted)	6	4	2	
Western Kingbird		1		1
Tree Swallow	9	12	20	41
Barn Swallow			1	1

Species	YNP, Wyo.	YNP, Mont.	Park Co., Mont.	Totals
Northern Rough-winged Swallow			70	70
Violet-green Swallow		20	20	40
Cliff Swallow	20		25	45
Bank Swallow			50	50
Clark's Nutcracker	5	2	9	2
Black-billed Magpie	4	8	28	40
Steller's Jay	1			1
Gray Jay	2			2
American Crow	4		10	14
Common Raven	28	1	22	51
Black-capped Chickadee		52	3	
Mountain Chickadee	5	2	7	
White-breasted Nuthatch			2	2
House Wren		82	6	
Rock Wren	1			1
American Dipper	1			1
Ruby-crowned Kinglet	31	5	15	51
Mountain Bluebird	6	2		4
American Robin	53	10	80	143
Townsend's Solitaire	1	1	3	1
European Starling	3	2	20	25
Yellow-rumped Warbler (Aud.)	23	2	40 (incl. 1 Myrtle's, PC)	65
Vesper Sparrow	17	8	7	32
Savannah Sparrow	54	6		60
Brewer's Sparrow			1	1
Chipping Sparrow	1	3	9	5
Song Sparrow		1	15	16
White-crowned Sparrow	14			14
Dark-eyed Junco	29			29
Red-winged Blackbird	11		17	28
Western Meadowlark	20	5	16	41
Yellow-headed Blackbird	2		10	12
Brewer's Blackbird	4		20	24
Common Grackle			7	7
Brown-headed Cowbird	9	2	7	
Cassin's Finch	2		19	21
House Finch			36	36

Species	YNP, Wyo.	YNP, Mont.	Park Co., Mont.	Totals
Pine Siskin	1		4	
House Sparrow		2	10	12
Totals	**1,085**	**172**	**1,852**	**3,109**

Total species recorded: 97
Total species detected in Yellowstone National Park only: 80
Observers: 3
Total group hours in the field: 35
Recorder: Terry McEneaney
Weather: 32–68° F. Cold and overcast with intermittent snow in a.m., sunny in p.m.
Yellowstone Lake remained frozen. Fair amount of rain and snow recently. Drought still in progress, especially at low elevations.

Reflections of a migrant Solitary Sandpiper.

Table 5. North American Bird Migration Count Summary, Yellowstone National Park and Vicinity

Year	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Number of species recorded	72	74	61	82	93	91	85	85	91	90	78	90	96
Revised number of species (1996 standards and route)	86	74	75	82	93	91	85	85	91	90	78	90	96
Total individual birds													
Yellowstone National Park, WY	1,545	1,793	2,408	1,797	1,038	1,073	826	750	967	895	716	839	1,085
Yellowstone National Park, MT	289	145	242	113	94	64	**163**	912	74	128	205	34	172
Park Co., MT	139	89	248	313	949	413	1,974	936	656	609	2,709	547	1,852
Grand totals	**1,973**	**2,027**	**2,898**	**2,223**	**2,081**	**1,550**	**2,963**	**2,598**	**1,697**	**1,632**	**3,630**	**1,420**	**3,109**
Number of observers	2	5	7	4	4	4		5	5	5	4	4	3
Total hours in the field	16	47.5	76.5	28	42	48	36	69	44	55	44	44	35
Total species, YNP only	69	73	52	73	70	69[3]	70	61	65	71	56	66	80

Mid-Winter Eagle Survey

The annual mid-winter Bald Eagle/Golden Eagle survey was conducted for the nineteenth consecutive year in Yellowstone National Park and on portions of the northern range outside the park. A total of 36 eagles were counted on January 7, 2005 (Figure 16). Of the total, 27 were identified as Bald Eagles, and nine were identified as Golden Eagles. Nineteen of the 36 total wintering eagles were found in the Jardine/Gardiner/Mammoth area. Eagles are both predators and scavengers in winter, and typically take advantage of surplus carcasses and gut piles. The northern range outside Yellowstone National Park continues to be a hotspot for wintering eagles due to waterfowl numbers, trapper discards, and carrion availability from the regular- and late-season elk hunts. Exposed carrion provided by wolves and coyotes is also a winter food source. Winter weather severity continues to play a major role in eagle distribution, as does prey and carrion availability.

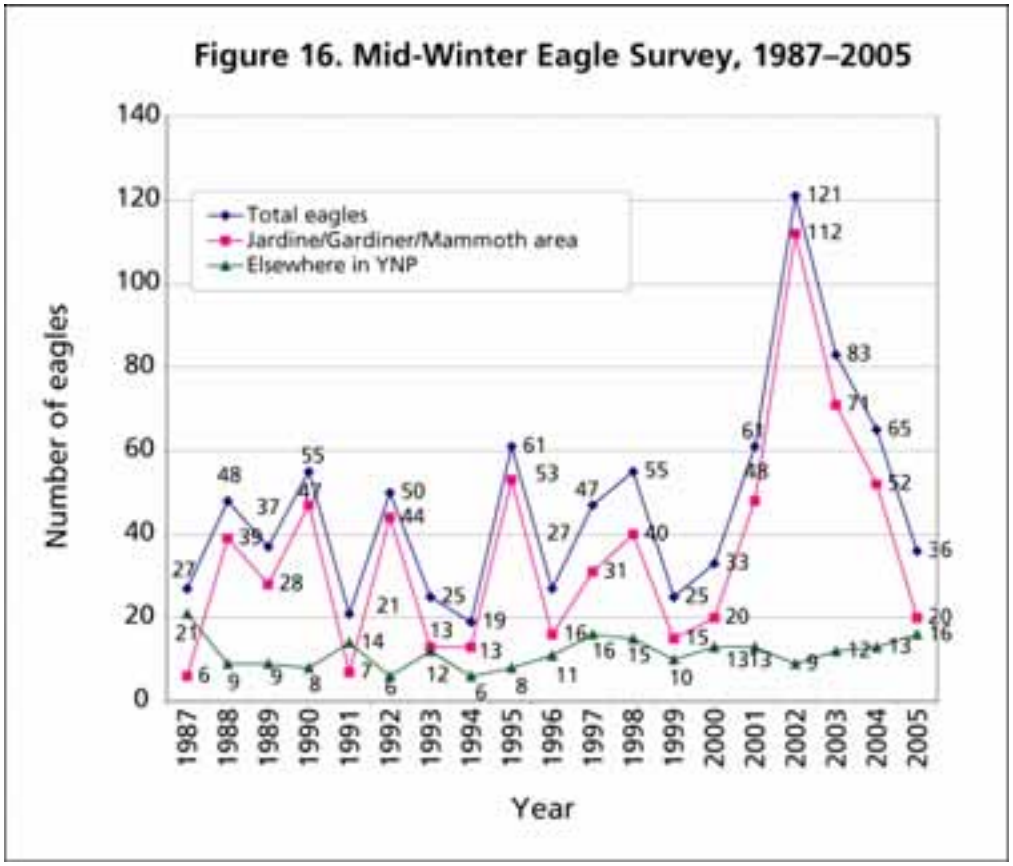


Figure 16. Mid-winter eagle numbers.

Breeding Bird Surveys

Three Breeding Bird Surveys were conducted in 2005. This songbird data was sent to the continental database clearinghouse located at the Patuxent Wildlife Research Center in Laurel, Maryland, and is included in the information available online at <www.mbr-pwrc.usgs.gov/bbs>. Data from these surveys are used to develop population trends for North American songbirds. Yellowstone National Park Breeding Bird Surveys date back as far as 1982.

Anyone who has ever completed a Breeding Bird Survey knows how much work they can be. The staff ornithologist was recently presented The U.S. Fish and Wildlife Service award "for outstanding contribution in the shared mission of monitoring the status and trends of our North American avifauna by having surveyed over 50 Breeding Bird Surveys routes" over the course of his extensive field career. Few career ornithologists have reached this level in field ornithology and the staff ornithologist is humbled by the award which included a signed copy of the *Birds of North America* by Chan Robbins.

Near-fledging-age American Pipits, Absaroka Range, YNP. Courtesy Thomas Toriano.

Glacier Boulder Route Songbird Survey

The Glacier Boulder songbird survey documents birdlife found exclusively in lodgepole pine habitats in Yellowstone. The survey was conducted in 2005. The transect begins at the Glacier Boulder trailhead near Inspiration Point. This point count census consists of 30 stations and is conducted entirely on foot. Census protocol for this survey is similar to that of a Breeding Bird Survey. This survey first began in 1986, and only one year (2002) has been missed to date. However, it is important to establish additional baseline data for neotropical migrant landbird monitoring. Traffic noise during the summer is beginning to affect Breeding Bird Survey routes, and it is for this reason that census routes are being developed away from established roads.

Christmas Bird Count

On December 18, 2005, the Yellowstone Christmas Bird Count (YCBC) was conducted in the Gardiner, Montana, and Mammoth, Wyoming, areas. This YCBC marked the thirty-third year for this traditional winter bird survey.

The 2005 Yellowstone Christmas Bird Count tallied a total of 40 bird species and 1,749 individual birds, resulting in slightly above-average numbers of bird species and total individual birds counted. Weather conditions were some of the coldest on record for this count, with temperatures ranging from –10 to 15°F, and strong winds. Snow depths varied from 0–6" depending on the elevation, and river edges were frozen, especially at shoreline.

No new species of wintering birds were detected during the 2005 YCBC. However, a Lesser Scaup (a new wintering species) was detected during Count Week. Notable finds for the YCBC included: 1 Red-tailed Hawk, 3 Rough-legged Hawks, 1 Cooper's Hawk, 1 Sharp-shinned Hawk, and 2 Virginia Rails.

Few bird records were tied or broken during the 2005 YCBC. Ten Pine Grosbeaks were counted, tying the previous abundance record set in 1997. Only one abundance record was broken: 34 Black-capped Chickadees were recorded, breaking the previous record of 32 counted in 2002. During Count Week, a record 13 Gray Partridges were observed; the previous record was 1 Gray Partridge during Count Week 1997.

In conclusion, the 2005 YCBC was very rewarding despite the cold weather, with above-average numbers of species and individual birds observed. A grand total of 97 species have been recorded on the YCBC (103 species with the YCBC and Count Week combined) during the 33 years the count has taken place (Table 5 and Table 6). Experience continues to show that colder temperatures and above-average snow depths are the optimum conditions for finding the greatest bird richness and abundance during the YCBC. Participants are reminded of these factors when deciding whether to attend the YCBC. Some people enjoy searching for rare birds; others find that learning the basics of bird identification is a thrill in itself, and many look forward to the exercise and/or social aspects of this festive event. Whatever the calling, the Yellowstone Christmas Bird Count tradition and the fun associated with this event continue.

Details on past Yellowstone Christmas Bird Count methods, results, and summaries can be found in the Winter 2001, 2002, and 2003 issues of *Yellowstone Science*.

Table 5. Yellowstone Christmas Bird Count, December 18, 2005

Species	YNP (Wyo.)	YNP (Mont.)	Outside YNP (Mont.)	Totals
Green-winged Teal	16	3	1	20
Mallard	35	17	31	83
Common Goldeneye			27	27
Barrow's Goldeneye			6	6
Bald Eagle 1	4		6	0
Golden Eagle			3	3
Red-tailed Hawk	**1**			**1**
Rough-legged Hawk	**3 1**		**2**	
Cooper's Hawk			**1**	**1**
Sharp- shinned Hawk			**1**	**1**
Wilson's Snipe	3			3
Virginia Rail	**2**			**2**
Rock Pigeon	26	6	129	161
Belted Kingfisher			1	1
Hairy Woodpecker			1	1
Downy Woodpecker			1	1
Northern Flicker			3	3
Clark's Nutcracker	14	1	5	20
Black-billed Magpie	31	14	69	114
Common Raven	46	5	89	140
Pinyon Jay			31	31
Black-capped Chickadee	**2**		**32**	**34**
Mountain Chickadee	8		40	48
Red-breasted Nuthatch			2	2
European Starling			1	1
American Dipper	18	7	9	34
Townsend's Solitaire	22	6	31	59
American Robin			1	1
Bohemian Waxwing			327	327
Northern Shrike			3	3
Song Sparrow			1	1
American Tree Sparrow			11	11
Gray-crowned Rosy Finch	16		452	468
Black Rosy-Finch			14	14
House Finch			35	35
Dark-eyed Junco			3	3
Pine Grosbeak			**10**	**10**

Species	YNP (Wyo.)	YNP (Mont.)	Outside YNP (Mont.)	Totals
American Goldfinch			6	6
Pine Siskin			12	12
House Sparrow			48	48
Totals	**245**	**59**	**1,445**	**1,749**

Total species: 40
Additional species recorded during Count Week: 7
Evening Grosbeak (6) December 17, 2005 (Gardiner, Mont.)
Gray Partridge (13) December 19, 2005 (Gardiner, Mont.)
Great Horned Owl (1) December 19, 2005 (Mammoth, Wyo.)
American Wigeon (2) December 21, 2005 (Gardner River, Mont.)
Gadwall (2) December 21, 2005 (Gardner River, Mont.)
Lesser Scaup (1) December 21, 2005 (Gardner River, Mont.)
Killdeer (1) December 21, 2005 (Mammoth, Wyo.)

Bald Eagle Classification
Class II: 2
Class V: 8
Total: 10

Golden Eagle Classification
Adults: 2
Juveniles: 1
Total: 3

Gray-crowned Rosy Finch Classification
Gray-crowned race: 345
Hepburn race: 123
Total: 468

Dark-eyed Junco Classification
Pink-sided race: 2
Slate-colored race: 1

Observers: Mark Donahue, Kathryn Hiestand, Dave Martyn, Don MacDougall, Terry McEneaney, Neal Miller, Melissa Scott, Rick Wallen (8)

Feeder watchers: Annie Baucus, Karen McEneaney, Joyce Queckborner (3)

Total observers: 11

Records
Tied abundance records (YCBC Count)
Pine Grosbeak: 10, previous record 10 in 1997

New abundance record (YCBC Count)
Black-capped Chickadee: 34, previous record 32 in 2002

New species detected (Count Week)
Lesser Scaup (1)
New abundance record (Count Week)
Gray Partridge (13)

General Observations
Location: Mont./Wyo. 45 02 N 110 42 W
Hours: 70 total
Miles: 55 miles vehicle, 5 miles foot
Bird abundance, 2005: 1,749 individuals (above-average; mean of 1,403 for history of count).
Species tallied on count day, 2005: 40 (above-average; mean of 33 for history of count).
Species tallied on count day for history of count: 97.
Species tallied on count day and count week combined for history of count: 103 (33 years of data).
Above-average numbers of species and of individual birds were observed.
Temperatures: –10 to 15°F. Snow depth: 0–6", deepest at higher elevations. River edges were frozen. Very cold and dangerous.
Compiler: Terry McEneaney

Table 6. Twelve Most Abundant Species, Yellowstone Christmas Bird Counts, 1920–2005 (based on 33 years of intermittent data)

Species	Number of individuals	Number of years detected	Average number of birds per year
Bohemian Waxwing	12,341	30	411.3
Gray-crowned Rosy Finch	6,471	31	208.7
Common Raven	4,590	33	139.1
Mallard	2,756	33	83.5
Black-billed Magpie	2,809	33	85.1
Rock Pigeon	2,069	23	89.9
Mountain Chickadee	1,820	32	56.8
American Dipper	1,667	33	51
Townsend's Solitaire	1,631	33	49.4
Black Rosy Finch	720	25	29.4
Clark's Nutcracker	882	33	26.7
Black-capped Chickadee	472	32	14.7

Partnerships and Working Groups

Greater Yellowstone Bald Eagle Working Group

The Greater Yellowstone Bald Eagle Working Group was established in 1982. Bald Eagle productivity and other management information are communicated to the group via either e-mail or an annual meeting; the meeting was not held in 2005 due to budget difficulties. The Bald Eagle is doing remarkably well and is ecologically recovered in the Greater Yellowstone Area (GYA), and the working group is unified in its belief that the Bald Eagle can be de-listed in the GYA. The U.S. Fish and Wildlife Service is expected to take such action in the near future.

Greater Yellowstone Peregrine Falcon Working Group

Peregrine Falcon working groups are organized primarily by state. Yellowstone National Park participates in two Peregrine Falcon working groups (Montana and Wyoming), and has been an active participant ever since peregrines have been found in the Greater Yellowstone Area. Wyoming has an informal working group, for which most coordination is done over the telephone. Montana has a more formalized working group. Yellowstone National Park works closely with both state agencies and the Peregrine Fund. This kind of teamwork is one of the main reasons the peregrine has made such a remarkable recovery. The Peregrine Falcon was officially de-listed on August 26, 1999. The staff ornithologist did not attend the PFWG meeting in January 2005 due to an illness.

Greater Yellowstone Trumpeter Swan Working Group

The Greater Yellowstone Trumpeter Swan Working Group was organized in 1997. The staff ornithologist was the first chairman of this working group. Yellowstone National Park and Wyoming Game and Fish have been taking the lead to ensure that the Trumpeter Swans in Wyoming are adequately protected.

Annual population and production data for GYA Trumpeter Swans are collected by the group, and management activities are communicated between agencies at its meetings. Yellowstone participated in the fall 2005 meeting held in West Yellowstone, Montana.

Harlequin Duck Working Group

Yellowstone National Park is a member of the Harlequin Duck Working Group. Although unable to attend a formal meeting in recent years due to financial reasons, the staff ornithologist hopes to attend future HDWG meetings.

Montana Bird Records Committee

The Montana Bird Records Committee meets once or twice each year, depending on the volume of information, to review new bird records. This is a high-profile committee that keeps the park up-to-date on the latest advances in ornithology. The staff ornithologist was chairman of this committee for several years, but resigned the post to devote more time to writing projects. He remains a member of the MBRC, but was unable to attend the 2005 meeting due to budget restrictions.

Neotropical Migrant Working Groups

Yellowstone National Park typically participates in three neotropical migrant working groups. The two state working groups are Montana Partners in Flight and Wyoming Partners in Flight. The third group, an international working group, is called the Western Working Group Partners in Flight. Ornithologists from all over the West belong to this group, including colleagues from Canada and Mexico. They are currently focused on prioritizing species and developing conservation plans. Meetings occur twice each year, usually in different areas of the West. The staff ornithologist did not attend meetings in 2005 due to budget constraints.

Wyoming Important Bird Area Technical Review Committee

In 2005, the staff ornithologist participated as a member of the Wyoming Important Bird Area Technical Review Committee (WIBATRC). The WIBATRC is responsible for reviewing, designating, and implementing important land tracts in Wyoming for bird conservation. The WIBATRC is sponsored by Wyoming Audubon. All meetings were attended via conference call because of budget restrictions.

Projects and Programs

6 Mile Madison River Bald Eagle Nest Closure

From mid-February through early July, the pair of Bald Eagles that has occupied a nest approximately 55 meters off the road at 6 Mile (Eagle Bend) on the Madison River for the past four years again created quite an attraction. In an effort to protect the eagles from human disturbance, park staff (bird management, resource management, law enforcement rangers and interpretive staff) coordinated a temporary closure in the immediate vicinity of the nest. A zone-style system was established in which visitors could stop and observe or photograph the eagles from a distance, then travel by the nest without stopping. The no-stopping zone allowed the eagles to come and go freely with prey and nest material without being disturbed by people. Although some people violated the closure, compliance was exemplary for the most part. The eagles hatched two chicks, both of which reached fledgling age. The adult eagles continued to add material to the nest throughout the year. The closure is expected to be in place as long as the eagles continue to nest there.

AOU Changes in Bird Names for 2005

No new changes applied to Yellowstone birds this year.

Backcountry Bird Surveys

During the summer of 2005, general bird surveys were conducted in both remote and trail-accessible areas of Yellowstone National Park. The trail-accessible backcountry areas included Yellowstone Lake, Slough Creek, Thorofare, Bechler, Snake River, Specimen Creek, Black Canyon of the Yellowstone, and Lamar Valley. More remote areas of the park surveyed for birds in 2005 included Chicken Ridge, Mount Sheridan, the southern flank of the Absaroka Divide, and the Yellowstone Delta. Most of the backcountry of the park should be extensively inventoried for birds by the fall of 2007. A detailed report on these findings is expected to come shortly thereafter.

One of the remote backcountry bird survey sites in 2005. Courtesy Richard Jones.

Environmental Assessments, Status Reviews, and Technical Documents

The most important Yellowstone National Park assessments that utilized bird data in 2005 included the Canyon Information and Visitor Center project, Madison sewage upgrade, Norris sewage upgrade, Tower Development Plan, and various road assessments. The U.S. Fish and Wildlife Service is in constant contact with the staff ornithologist regarding status reviews of species whose status remains unclear. Because of the large number of bird species found in North America, more status reviews of this nature are expected in the future.

Injured and Road-Killed Birdlife

As long as there are roads, there will be injured birdlife. A protocol for handling injured and road-killed birds has been in place since November 2003 and appears to be working well. Procedures were followed very well in recent years, and there have been no problems associated with this protocol, copies of which can be obtained by contacting the staff ornithologist. The next revision is set for 2006. The only professional bird rehabilitator with which the park is involved is Big Sky Wild Care of Bozeman, Montana. All road-killed birds are to be salvaged, if possible, for future placement in the Yellowstone Heritage and Research Center collections.

Lake Trout Gillnetting and Bird Mortality Monitoring

Efforts to reduce lake trout on Yellowstone Lake are not without risks to birds. In 2005, one Barrow's Goldeneye and one Common Loon drowned in 3–5-meter shallow water sets. In 2004, two Barrow's Goldeneyes drowned in gillnets, while in 2003, eight birds drowned in gillnets, including two Barrow's Goldeneyes, two Common Goldeneyes, two Common Loons, 1 Double-crested Cormorant, and 1 Red-breasted Merganser. Most of these birds are believed to have been migrants. However, the fisheries unit and the bird management program are working together to monitor the extent of this netting mortality. More data remains to be collected over several years to determine the extent of lake trout gillnetting on birdlife, and to devise meaningful recommendations.

Museum Scientific Bird Collection

No specimens were added to the Albright Visitor Center museum collection in 2005.

Northern Range Songbird Research

In October 2005, the staff ornithologist presented a poster, "A Cautionary Note on the Pitfalls and Shortcomings of Conducting Songbird Research on the Northern Range (Yellowstone National Park)," at the 8th Biennial Scientific Conference on the Greater Yellowstone Ecosystem, held at Mammoth, Wyoming. The poster examined the history of songbird research on the northern range and explored the strengths and weaknesses of the existing science and data. Primarily, it identified the pitfalls and shortcomings of conducting songbird research on the northern range, and offered suggestions and insights as to how songbird research may be best accomplished, based

on a review of the published literature in addition to the author's personal experience censusing Yellowstone birds. The following conclusions were communicated:

- Breeding Bird Survey (BBS) data are the best long-term data available on the northern range to date.
- BBS data have their limitations (i.e., each BBS transect is a one-time annual survey with 50 points, one each ½ mile for 25 miles, spread over a broad area and varied habitats).
- The Northeast Entrance BBS transect runs through the heart of the northern range (Tower Junction nearly to Silver Gate, Montana) and the predator/prey/vegetation controversy.
- Limited BBS data show that overall, northern range songbird populations are flat-to-somewhat declining—not increasing, as expressed in the media (Figure 17).
- Limited BBS points in willow habitat (2/50) show mixed results, with songbirds showing both very slight declines and very slight increases in numbers, depending on the site.
- Short-term studies (2–3 years on average) will not address these complex issues.
- Comparing bird studies in other national parks and elsewhere to Yellowstone's northern range is dangerous and misleading. These studies need to be carefully scrutinized for their merits, habitat patch size, and study longevity.
- No other place compares with YNP's northern range, especially when one takes into consideration the area's limited, narrow riparian zones.
- There is a need for sophisticated, long-term (20 years plus) research and monitoring to address these complex YNP northern range issues. This will require long-term funding and commitment.
- It is necessary to rely on the data and refrain from making simple predictions based on speculation and media hype, because the northern range is a complex/dynamic ecological system.

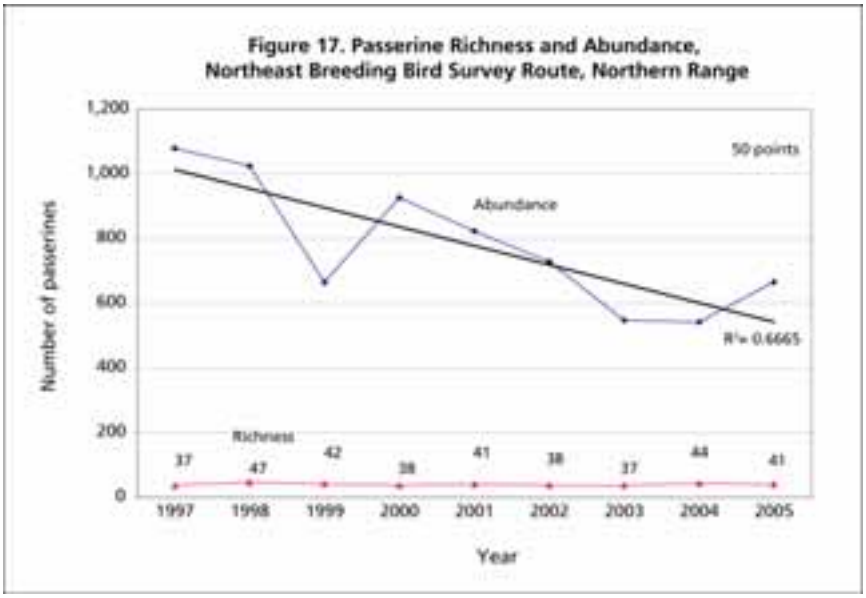


Figure 17. Northern range bird abundance is more complex than often reported.

Population Studies of Red-tailed and Swainson's Hawks

The year 2005 marked the third of a four-year effort to estimate population sizes of Red-tailed Hawks and Swainson's Hawks in Yellowstone National Park. In addition, incidental information has been collected for nearly two decades on productivity and nest success of these buteos. Incidental information on these species is always welcome.

Population Studies of Black-billed Magpies and Common Ravens

The year 2005 marked the second of a three-year effort to estimate population sizes of Black-billed Magpies and Common Ravens in Yellowstone National Park. In addition, incidental information has been collected for nearly two decades on these species. Because scavenging birds have been present before, during, and after government predator control efforts of the 1930s, this field exercise establishes a baseline in which future populations can be measured.

Publications Available

"Rare Color Variants of the Trumpeter Swan," by the staff ornithologist, was published in the March/April 2005 issue of *Birding*. Two additional bird publications became available at the start of 2005:

McEneaney,T. 2004. A Whooper Swan (*Cygnus buccinator*) at Yellowstone National Park, Wyoming, with comments on North American reports of the species. *North American Birds* 58(2):301–308; and

Channing, A., M. Schweitzer, J. Horner, and T. McEneaney. 2004. A silicified bird from Quaternary hot spring deposits. Proceedings of the Royal Society of London, Series B, doi:10:1098/rspb.2004.2989:1–7.

For copies of these publications, contact Terry McEneaney at 307-344-2222 or terry_mceneaney@nps.gov.

Speaking Engagements and Public Contacts

Public contacts are increasing each year. The park concessioners annually request bird lectures from professional biologists to train summer and winter guides, and speaking engagements were again popular in 2005. The Bird Management staff lectured at several venues in outlying communities bordering Yellowstone National Park. In addition, there were hundreds of letters of inquiry and bird information e-mail requests and questions.

Swallow, Northern Flicker, and Common Raven Management and Mitigation

Swallows, Northern Flickers, and Common Ravens continue to pose obstacles for the people responsible for the care and management of buildings in the park. In addition, there are some health risks associated with some of these bird species. These birds are protected by law under the Migratory Bird Treaty Act and, as such, mitigation options are very limited. With proper installation, plastic netting can be used to discourage nesting in selected areas of high public use.

Trumpeter Swan Data Analysis and Monograph

For the last four years, the staff ornithologist has been actively entering and analyzing Trumpeter Swan data for an upcoming scientific monograph on the Yellowstone Trumpeter Swan. A team of statisticians (Doug Johnson and Bobby Cox) from the Northern Prairie Wildlife Research Center has joined in this effort to get this valuable data published in the immediate future. A series of peer-reviewed publications are scheduled to be completed within two years and will pave a new course of action for Trumpeter Swan management in Yellowstone National Park.

Trumpeter Swan Genetics Study

The North American Trumpeter Swan genetics study conducted by Sara Oyler-McCance of the University of Denver is scheduled to be completed in 2006. Feathers, addled eggs, egg shells, and carcass muscle tissue were collected from nine separate sites in Yellowstone National Park in 2003; however, nothing was salvaged in 2004 or 2005. The study hopes to determine through DNA analysis, whether or not Trumpeter Swans in certain geographical areas are genetically distinct. This is an important study, for the findings will set the framework for future swan introductions in North America, and aid in our understanding of swan genetics.

Yellowstone Winter Use Wildlife Study

Much controversy surrounds the Yellowstone winter use issue. The bird management program is assisting in the field training, collection, and analysis of winter use data as part of an effort to better understand the recreational impacts of snowmobiles, snowcoaches, and skiers on park wildlife—particularly on Trumpeter Swans and Bald Eagles.

Unusual Sightings and Occurrences

New Bird Discoveries for Yellowstone National Park

No new bird species were added to the Field Checklist of Birds of Yellowstone National Park in 2005; the list was revised in March 2004 by the staff ornithologist and made available to the public in April 2004. This checklist is available on the park website at <www.nps.gov/yell/nature/animals/birds/index.htm>. As of the end of 2005, a total of 320 species of birds had been documented in the park since it was established in 1872. Updates to this checklist and the website are scheduled for March 2007. Interesting and/or unusual Yellowstone bird finds for the year are listed in Table 7.

Table 7. Interesting/Unusual Bird Finds, 2005

Species	Location	Date
Gray-crowned Rosy Finch (partial albino)	Cooke City, Montana	February
Common Raven (unique "pied morph" partial albino)	West Yellowstone, Montana	February–May
Say's Pheobe	Old Faithful	April 2
Varied Thrush	Mud Volcano	April 3
Rose-breasted Grosbeak	Lower Mammoth	April 6
White-winged Scoter	Indian Pond	April 10
Long-billed Curlew	Fountain Freight Road	April
Spotted Towhee	Mammoth	April 21
Blackburnian Warbler	Old Faithful	May 5
Snowy Egret	Hayden Valley and Beach Springs	May
White-faced Ibis	Blacktail Ponds and Swan Lake	May
Semi-palmated Plover	Old Faithful	July 9
Northern Mockingbird	upper Duck Creek	July 22
Herring Gull	South Arm of Yellowstone Lake	August 19
Semi-palmated Plovers	Alum Creek, Beaver Lake, Fishing Bridge, and Nez Perce Ford	August 25
Townsend's Warbler	Nez Perce Ford	August 25
Sanderlings	Yellowstone River, Pelican Creek, and Gull Point	September
Sabine's Gulls (as many as 5 individuals)	Swan Lake, Mary Bay, Pelican Creek, and Gull Point	September
Ruddy Turnstone (juvenile)*	**Mary Bay**	**September 15**
Black-bellied Plover	Pelican Creek	September 19
Clay-colored Sparrows (4)	Old Gardiner Road	September 21
Herring Gull (juvenile)	West Thumb	September 27
Semi-palmated Sandpipers	Elk Antler Creek	September 26

Species	Location	Date
Bonaparte's Gulls	Swan Lake and Mary Bay	September 29
White-throated Sparrow (rare, tan-colored morph)	Beaver Ponds Trail	October 7
Pacific Loons (2 individuals)	Bridge Bay	October 16 and November 3
Horned Grebe	Bridge Bay	October 16
Blue Jay	Sulphur Mountain	October 20
Ospreys	Riverside (likely due to warm spell)	October 21
Herring Gull	Mary Bay	October 31
Bonaparte's Gulls (15)	Elk Antler Creek	November 2
Broad-winged Hawk	west shore of Yellowstone Lake	November 3
Pacific Loons	Bridge Bay	November 3
Pacific Loons	Indian Pond	November 7
Ospreys	West Thumb (likely due to warm spell)	December 21

*This was, without question, the rarest bird sighting for the year.

Juvenile Sabine's Gull and Sanderlings.

Observations of Wolves Chasing and Killing Small Birds

On January 13, 2005, numerous people reported a dead Common Raven at an elk carcass on the Madison River near Riverside Drive. An examination of the scene and a necropsy of the carcass revealed the raven had been injured by a wolf, and later killed and eaten by an adult Bald Eagle.

On July 28, 2005, while observing cliff-nesting Peregrine Falcons in the Thorofare, the staff ornithologist noticed a lone black wolf in the vicinity of Cliff and Escarpment creeks, and followed its movements across an open meadow with a spotting scope. As it traveled, the wolf killed and ate numerous grasshoppers; pounced on and swallowed a vole; chased adult Spotted Sandpipers and ate two of four chicks; swam; and chased young broods of Northern Pintails and American Wigeons.

Barrow's Goldeneye Dies in Thermal Pool

During an early February cold spell, a male Barrow's Goldeneye flew through the thick steam of West Thumb Geyser Basin and landed in the scalding hot water formation known as Black Pool. During cold air temperatures, thick steam created by thermal water and/or open water create hazards for birds such as waterfowl. Black Pool's temperature ranges around 180°F, and alternates colors and temperatures with nearby Abyss Pool. At the time, Black Pool was a turquoise color, indicating that it was in an extremely hot temperature phase. Once the goldeneye landed in the hot water it could not negotiate a take-off due to the small size of the pool, and it succumbed to the extreme exposure. When the carcass floated to the edge of Black Pool, it was eventually consumed by Common Ravens and coyotes.

Feather remains of Barrow's Goldeneye that perished in Black Pool.

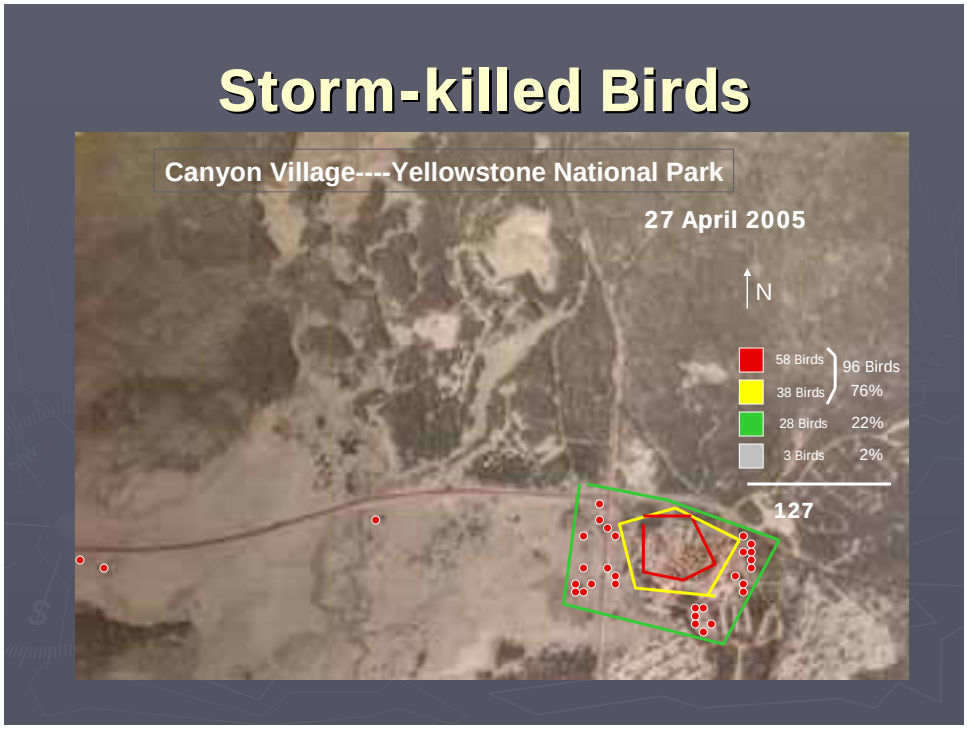
Spring Snowstorm Results In Massive Bird Die-off

On the night of April 26–27, 2005, a large-cell snow squall deposited several inches of snow in the Canyon area. At dawn the following morning, a maintenance worker contacted the bird management office in regard to large numbers of birds on the ground in the Canyon developed area. At the same time, the staff ornithologist was passing through the Canyon Junction area, and noticed large numbers of Eared Grebes in the snow-covered, open meadows.

One of the Eared Grebes that crash-landed at Canyon.

As it turned out, the major snowstorm had deposited large amounts of snow on the Yellowstone Plateau in the early morning hours of Wednesday, April 27, particularly in the Canyon area. Large numbers of waterbirds (in particular grebes, coots, and waterfowl), migrating at night and sucked into the storm cell, tried to escape to lighted areas or openings in the dark sky that turned out to be the lights of the Canyon development. By daybreak, birds had crashed into buildings, landed on roofs and wet pavement, and become stranded in snow-covered meadows; many were unable to take off again. Common Ravens quickly discovered and dismantled the disabled prey. The total number of dead birds that resulted was as follows: 105 Eared Grebes, 8 American Coots, 1 Western Grebe, 3 Green-winged Teals, 3 Northern Shovelers, 1 American Wigeon, 2 Cinnamon Teals, 1 Ruddy Duck, and 3 Lesser Scaups. This amounted to 127 dead birds, comprising a total of nine species. The main scavengers in the area were Common Ravens, pine martens, coyotes, Bald Eagles, and Red-tailed Hawks.

This was a major bird event, as the staff ornithologist observed the presence of 100 times more birds than ever have been recorded at comparable times of year in the past two decades. Unusually high bird numbers were particularly noted at Swan Lake, Nymph Lake, and the Yellowstone River. It is estimated that the storm blew 6,000 grebes, 1,000 avocets, and 40,000 ducks into Hayden Valley alone.



Point of contact for storm-killed birds.

An American Coot killed by a Common Raven on the roof of the Canyon store.

Trumpeter Swans Killed By Wolves

On May 22, 2005, two subadult/adult Trumpeter Swans were reported dead one-half mile east of the 7 Mile bridge area on the Madison River. Based on scene examination, carcass retrieval, necropsy results, and several independent reports and photographs, the following was determined: Witnesses saw three swans (a lone swan and a pair) feeding at a mud flat close to the main road at least 100 feet from the Madison River. At sunrise, two wolves were seen cutting off the swans' access to the water and cornering them on the mud flat. One of the pair of swans escaped into the water, another swan was captured in the back bay close to the river, and the third was found out in the flat sedge plain. Another vehicle drove up to the scene and scared the two wolves away, but not before one of the swans was decapitated and the other was left with a large puncture wound in its head. Other people who eventually showed up took pictures of the dead swans. Unfortunately, it is believed that one of the swans was the mate of the 7 Mile Bridge swan pair.

Victor Cavalier with decapitated Trumpeter Swan at 7 Mile Bridge. Courtesy Victor Cavalier.

In a different incident on July 14, 2005, during an aerial swan survey, a recently killed adult male swan was detected in a secluded sedge area on a lake that had nesting swans. A previous survey had tallied one cob (male) one pen (female) and 2 cygnets on this remote lake. The staff ornithologist retrieved and examined the carcass that same day. The dead swan was found in the molt (i.e., it would have been unable to fly) in two feet of water, decapitated and exhibiting bite marks on its back and patagium (the fold of

skin in front of the main segment of its wing). Fresh tracks in the area, coupled with the bite marks and reports that a wolf pack was frequenting the area, indicated that the cob had been killed by wolves. It will be interesting to see what happens to swan nesting on this lake, because it is the site of one of the most productive pairs of Trumpeter Swans in Yellowstone. Will there be recruitment of a new mate on this lake? And if so, how long will it take?

Most of the extant Yellowstone National Park Trumpeter Swan data has been collected after 1931, by which time wolves and most other major predators were essentially exterminated from the park. This gives more credence to the idea that summer swan numbers may never have been very high in the park, perhaps due to a full complement of predators and the area's harsh weather conditions.

Sandhill Cranes and Trumpeter Swan on Floating Island Lake

Likely due to the drought and the constant presence of predators, a pair of Sandhill Cranes nested on the small island in Floating Island Lake—which is not much bigger in size than the two cranes—and were very visible to the public. The female crane laid one egg, which eventually was preyed upon by Common Ravens. The pair left the site and laid an additional egg on a makeshift nest in a smaller marsh; that egg was preyed upon by a coyote. The cranes then laid a third egg in the original Floating Island Lake nest. This third egg addled due to weather, and was scavenged by ravens.

A lone adult Trumpeter Swan in need of open water and a place to molt took up residence on the same lake and frequented the same floating island for the second year in a row. Because of the sensitivity of Floating Island Lake for birdlife, this area has been closed to the public for many years, with wildlife viewing restricted to the road and pull-out. The lack of water in ponds and lakes of the northern range, due to the drought, continues to play a role in bird production and survival.

Reverse Altitudinal Bird Migration Incident

On June 9, 2005, a severe rain/snow storm forced thousands of songbirds to escape the park's high country to lower elevations. This was especially evident in the lower elevations of the northern range and the Gardiner and Paradise valleys. Species seen in exceptionally large numbers included Eastern Kingbirds, Western Kingbirds, Western Tanagers, Chipping Sparrows, Yellow-rumped Warblers, Mountain Bluebirds, and American Pipits.

Rare Find of Black Rosy Finch Nests

The Black Rosy Finch spends its summers in the alpine zone and usually winters at lower elevations. Access to its remote alpine habitat, even in summer, is difficult for most people and often requires mountaineering skills. On July 27, 2005, while traversing the base of an exposed major cliff wall on a high crag on Colter Peak in search of nesting Peregrine Falcons, the staff ornithologist made one of the most significant discoveries of his more than 30-year career. Black Rosy Finches were observed flying out of the cliff. A total of five nests were discovered on Colter Peak alone. Details of this find will be published in a scientific journal. Only 23 nests of this species have been described in the scientific literature to date, of which only six previous nests have been reported in the state of Wyoming. This was one of the personal highlights of an extensive field career.

Great Horned Owl Takes Lake Trout

On the night of September 26–27, 2005, Yellowstone Center for Resources fisheries staff, while conducting nighttime electroshocking of lake trout around Carrington Island in the West Thumb of Yellowstone Lake, observed a Great Horned Owl capturing and killing a lake trout. The owl left its perch in a lone tree and landed in the water, capturing a small-to-medium-sized lake trout.

Mountain Chickadee Preyed Upon By California Gulls

While setting up lake trout gillnets on Yellowstone Lake in fall 2005, fisheries employee Phil Doepke made an interesting observation: a family group of 4–5 Mountain Chickadees got disoriented in the fog and landed on the boat. When the chickadees tried to leave to return to shore, several California Gulls were seen killing and eating one of the chickadees.

Bobcat Feeding on a Trumpeter Swan

On December 20, 2005, a bobcat was reported feeding on an adult Trumpeter Swan near Mt. Haynes on the Madison River. Although the bobcat was not found killing the swan, this is evidence that swans are vulnerable to a multitude of risks during the winter, because bobcats normally do not feed on carrion, preferring instead to stalk live prey. A similar incident occurred on December 22, when witnesses reported actually seeing a bobcat kill a swan. The staff ornithologist recalls seeing bobcats kill wintering swans on two occasions when he was employed at Red Rock Lakes National Wildlife Refuge in Montana.

Acknowledgements

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American Avocets resting after a storm.

End of a July day in Yellowstone.