

Blackfoot Swan Reintroduction Program

Objectives

Students will learn the history of the swans previously released in the Blackfoot, their fates, locations, return rates and mortality rate.

Method

Students study and analyze the data from the Blackfoot Swan Project and summarize the results of the project thus far, just as biologists do.

Materials

- Blackfoot Valley Trumpeter Swan Release Program Table
- Blackfoot Swan Release Worksheet

Background Information

Blackfoot Valley Release Program

In 2003, 3 cygnets were hatched from the eggs rescued from the wild swan nest at Bouma's wetland in Lincoln. These cygnets were returned to the wetland and released back to their father. They migrated to Kleinschmidt Lake in the fall; their status after that is unknown.

From 2005-2009, 112 trumpeter swans were released in the Blackfoot Valley (one bird was recaptured and re-released the following year). All swans were banded with USGS aluminum leg bands and a red plastic leg band with white number/letter/number sequence (i.e. 3P1). All one-year-plus birds were also fitted with red and white neck collars bearing codes that match the red plastic leg bands. These bands and collars allow individuals to be identified and their movements and fates to be followed through observations.

Thirty (27%) of these birds are known to be dead. Eight appear to have died

Grade level: 5-8

Subject Areas: Biology, math, geography, social studies

Duration: 1-2 hours

Topics: Graphing, proportions, rates, animal mortality

National/Montana Science

Standards: A, C, E, F, G / 1, 3, 5, 6

from severe intestinal parasitism and emaciation; three from power line strikes; three from legal hunting; two illegally shot; two due to unknown causes; and two were killed by predators. Thirty (27%) birds have been seen within the last year and are believed to be alive at the time of this report (spring 2010). Fifty-two (46%) of the release birds are missing from our observations over the last year, their status unknown.

Observations of the Blackfoot Valley swans following release indicate a strong tendency to migrate out of the Valley during winter. Many of the release birds move into the Snake River Valley in Idaho by late November to early December. Winter feeding and loafing areas are generally along the Snake and Bear Rivers but also on instream reservoirs (Oneida & American Falls). There have even been some re-observations of Blackfoot trumpeters feeding in stubble fields during the day.

Of the 28 birds released prior to 2008 that were alive at the time of fall migration out of the Blackfoot, eleven were documented wintering in southeast Idaho around American Falls and Oneida Reservoirs. No birds have been documented wintering in the Blackfoot Valley since the releases began in 2005.

Six birds have been observed in years subsequent to their release in the Blackfoot Valley. In general, birds return to the Blackfoot about the same time as wild birds are migrating through (late March to early May), dates varying due to dates of snow runoff, ice melting off Valley wetlands, and spring weather conditions. In maintaining the database on the Blackfoot release Trumpeters, the USFWS has received a number of other reports of red collared birds using the Blackfoot in the spring time but observers have not been able to verify any codes on these collars. As of this report, there have been no observed territories established by Blackfoot release birds.

A decision was made to release a portion of the birds earlier in the spring of 2008 in hopes that they would act as decoy birds to attract and keep previously released birds in the valley during the spring and summer. This strategy appeared to have some observable impact on both collared birds and uncollared wild birds. At least two of the previously released birds returned to the valley and molted (3P5 & 3P6). For the first time in 2008, four wild trumpeters spent the entire summer in the Blackfoot. Two of these four uncollared birds were frequently observed with 3P5 and 3P6.

In 2009 29 swans were released. Five of those were fitted with satellite transmitters. One swan was subsequently killed by a coyote, 2 dropped their satellite transmitters and 2 are missing. There are plans to release 30 swans in the Blackfoot Valley in 2010.

Procedure

1. Tell your students that because the Trumpeters that have been released in the Blackfoot are marked with individual numbers on their collars and bands, biologists have been able to collect some information on their movements and

2. Hand out the Blackfoot Valley Swan Program Data Table to your students. Explain that it provides all the information that the biologists have collected on the swans that have been released in the Blackfoot Valley. They will use these *data* (pieces of information gathered in a scientific study; a single piece of information, such as one number or location, is a *datum*) to analyze and summarize the results of the program thus far.
3. Go over the table with them to make sure they understand the kind of information given in the table. Hand out and discuss the questions on their Worksheet and how they would go about answering them. Have them create graphs and do the calculations to answer the questions.
4. After students have analyzed the data, discuss the answers together as a class.

BLACKFOOT VALLEY TRUMPETER SWAN RELEASE PROGRAM

(UNK indicates unknown) For some columns, see the codes below the table.

Band/ Collar #	Age	Release Location	Year of Release	Wintering Location	Observations of Return to Blackfoot	Status	Cause of Death
F27*	C	BP	2003	UNK	UNK	UNK	
F28*	C	BP	2003	UNK	UNK	UNK	
F29*	C	BP	2003	UNK	UNK	UNK	
0P1	2	NL	2005	UNK	UNK	UNK	
0P2	2	NL	2005	UNK	UNK	UNK	
0P3	2	NL	2005	UNK	UNK	UNK	
0P4	2	NL	2005	UNK	UNK	Dead	Unknown
0P5	2	NL	2005	BF River	Y-1	UNK	
0P6	2	NL	2005	UNK	UNK	UNK	
0P7	2	NL	2005	UNK	UNK	Dead	Unknown
0P8	2	NL	2005	UNK	UNK	Dead	Predator
0P9	1	NL	2005	UNK	UNK	UNK	
1P0	1	NL	2005	Flathead	Y-1	Alive	
1P1	1	KL	2006	UNK	UNK	Dead	Emaciation
1P2	1	WM	2006	AFR	UNK	Alive	
1P3	1	WM	2006	Dillon/Idaho	UNK	Dead	Emaciation
1P4	1	KL	2006	UNK	UNK	Dead	Emaciation
1P5	1	WM	2006	UNK	UNK	Dead	Power-line
1P6	1	NL	2006	UNK	UNK	Dead	Emaciation
1P7	1	KL	2006	UNK	UNK	UNK	
1P8	1	KL	2006	UNK	UNK	UNK	
1P9	1	WM	2006	UNK	UNK	UNK	
2P0	1	NL	2006	UNK	UNK	UNK	
2P1	1	NL	2006	UNK	UNK	Dead	Emaciation
2P2	1	WM	2006	UNK	UNK	UNK	
2P3	1	KL	2006	AFR	Yes-1	Alive	
2P4	1	NL	2007	Bear River	UNK	Alive	
2P5	1	NL	2006	AFR	Yes-1	Alive	
2P6	1	NL	2006	UNK	UNK	UNK	
2P7	1	NL	2006	AFR -1, Har -2	UNK	Alive (Calgary)	
2P8	1	NL	2007	UNK	UNK	UNK	
2P9	1	NL	2007	AFR	UNK	Alive	
3P0	1	NL	2006	AFR	UNK	UNK	
3P1	1	NL	2007	Snake River -1, Har -2	UNK	Alive (Browning)	

3P2	1	NL	2007	UNK		UNK	
3P3/ 6P6	1	NL	2007	Jackson –re-captured	Re-released at WPA in 08 as 6P6	Alive	
3P4	1	NL	2007	UNK	UNK	UNK	
3P5	1	NL	2007	Bear River	Yes -1	Alive	
3P6	1	NL	2007	Bear River	Yes -1	Alive	
3P7	1	NL	2007	Snake River	UNK	Alive	
9P1	C	BP	2007	UNK	UNK	Dead	Hunt-legal
9P3	C	BP	2007	UNK	UNK	Dead	Hunt-legal
9P4	C	BP	2007	UNK	UNK	Dead	Hunt-legal
9P5	C	BP	2007	UNK	UNK	Dead	Power-line
3P8	1	KL	2008	Dillon - 1	UNK	Alive	
3P9	1	KL	2008	UNK	UNK	Dead	Emaciation
4P0	1	KL	2008	UNK	UNK	Dead	Shot - Illegally
4P1	1	KL	2008	UNK	UNK	Alive	
Alum.	1	KL	2008	UNK	UNK	Dead	Emaciation
4P2	1	NL	2008	Warm Spring -1	UNK	Alive	
4P3	1	NL	2008	Warm Spring -1	UNK	Alive	
4P4	1	NL	2008	UNK	UNK	Alive	
4P5	1	NL	2008	UNK	UNK	Alive	
4P6	1	NL	2008	UNK	UNK	Alive	
4P7	1	NL	2008	UNK	UNK	Dead	Emaciation
4P8	1	NL	2008	UNK	UNK	Alive	
4P9	1	NL	2008	UNK	UNK	Dead	Predator
5P0	1	NL	2008	UNK	UNK	Alive	
5P1	1	NL	2008	UNK	UNK	Alive	
5P2	1	NL	2008	UNK	UNK	Alive	
5P3	1	NL	2008	UNK	UNK	Alive	
5P4	1	NL	2008	UNK	UNK	Dead	Emaciation
5P5	1	WM	2008	UNK	UNK	Alive	
5P6	1	WM	2008	UNK	UNK	Alive	
5P7	1	WM	2008	UNK	UNK	Alive	
5P8	1	WM	2008	UNK	UNK	Alive	
5P9	1	WM	2008	UNK	UNK	Alive	
6P0	1	WM	2008	UNK	UNK	Alive	
6P1	1	WM	2008	UNK	UNK	Alive	
6P2	1	WM	2008	UNK	UNK	Alive	
6P3	1	WM	2008	UNK	UNK	Alive	
6P4	1	BP	2008	UNK	UNK	Alive	
6P5	1	BP	2008	UNK	UNK	Alive	

6P6	2	WPA	2008	UNK	UNK	Alive	
6P7	1	WM	2008	UNK	UNK	Alive	
6P8	1	WPA	2008	UNK	UNK	Alive	
6P9	1	BP	2008	UNK	UNK	Alive	
7P0	1	WPA	2008	Dillon - 1	UNK	Alive	
7P1	1	WPA	2008	UNK	UNK	Alive	
7P2	1	BP	2008	UNK	UNK	Alive	
7P3	1	WPA	2008	UNK	UNK	Alive	
7P4	1	WPA	2008	Dillon - 1	UNK	Dead	Shot - Illegally
7P5	1	BP	2008	UNK	UNK	Alive	
7P6	1	WPA	2008	UNK	UNK	Alive	
7P7	1	BP	2008	UNK	UNK	Alive	
7P8	1	BP	2008	UNK	UNK	Alive	
7P9	1	WM	2008	UNK	UNK	Alive	

* The swans released in 2003 were hatched from the wild swan eggs laid in the nest at Bouma's wetland in Lincoln.

Age:

C=cygnet

Release location codes:

BP=Bouma Pond-1 #29

KL=Kleinschmidt Lake #12

NL=Neudecker Lake # 23

WM=Wigeon Marsh #26

WPA=Blackfoot Waterfowl Management Area-2 #5

Wintering Locations:

AFR=American Falls Reservoir

Har=Hariman Reservoir

Blackfoot Swan Release Worksheet

1. How many different wetlands have had swans released into them? Which wetland had the most swans released into it?
2. What proportions of the released swans were cygnets, 1-year-olds, and 2-year-olds? Show this with a graph.
3. Where do most of the swans released in the Blackfoot seem to winter? Can you find these locations on a map?
4. What percentage of swans has been observed returning to the Blackfoot thus far? How does this compare to what you would have expected?
5. Biologists compare the number of animals that have died to the total number of animals to calculate the *mortality rate* of a population or group. The mortality rate is expressed as the percentage of the animals that have died. What is the mortality rate of the swans that have been reintroduced into the Blackfoot Valley thus far? Are there different ways you can calculate this, given the data you have? Does it make a difference in your results? Use the data provided to calculate this rate and explain which way you did it.
6. Is the mortality rate higher or lower than you would have expected?
7. Are you certain that this is the correct percentage of swans that have died? Why or why not?
8. What is the primary known cause of Blackfoot Trumpeter mortality?