

Rocky Mountain Trumpeter Swan Population (RMP) Range Expansion Project – the first winter range expansion project for the RMP was Star Valley, Wyoming – 1985–1988

Dave Lockman, Wyoming Trumpeter Swan Project Leader – 1980–1990

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As Prepared and Presented to the Star Valley Historical Society
by Dave Lockman on April 21, 2022



There are 15 species of swans in the world and of 258 species of waterfowl (ducks, geese, and swans) the trumpeter is the largest.





Acknowledgements and Project Cooperators

*Landowners

- > Porter family - Grover
- > Eliason family - Thayne
- > Bagley family - Grover
- > all landowners along the Salt River whom have swan visitors and provide habitat for swans and other wildlife

*Personnel of the Red Rocks Lake NWR and Greys Lake NWR

*My wife and sons Rex, Clint, and Dusty who participated with me in most of the field monitoring, raising cygnets, and record-keeping

*The local Game Warden, Dwayne Hyde, worked with local people in protecting and enjoying the swans

*State Waterfowl Supervisor, Leonard Serdiuk, Lander, WY

*** Special Note: THIS PRESENTATION IS A VERY CONDENSED SUMMARY OF ALL OF THE PLANNING, THOUGHT PROCESSES, AND EXPERIMENTAL WORK IT TOOK TO SUCCESSFULLY IMPLEMENT THIS PROJECT. While conducting swan and crane work in the field many hours were spent by myself (Dave L.) and Dr. Rod Drewien planning and testing strategies for behavioral modification in swans. Swans and cranes are very long-lived species; have excellent memory retention; have very similar life cycle strategies for pioneering, finding security and food, and establishing tradition. However, breaking traditions when they become established over periods of years can become detrimental to the population and may require the interdiction of man to induce pioneering to new habitats.

Trumpeter Swan Distribution in North America – pre 1990

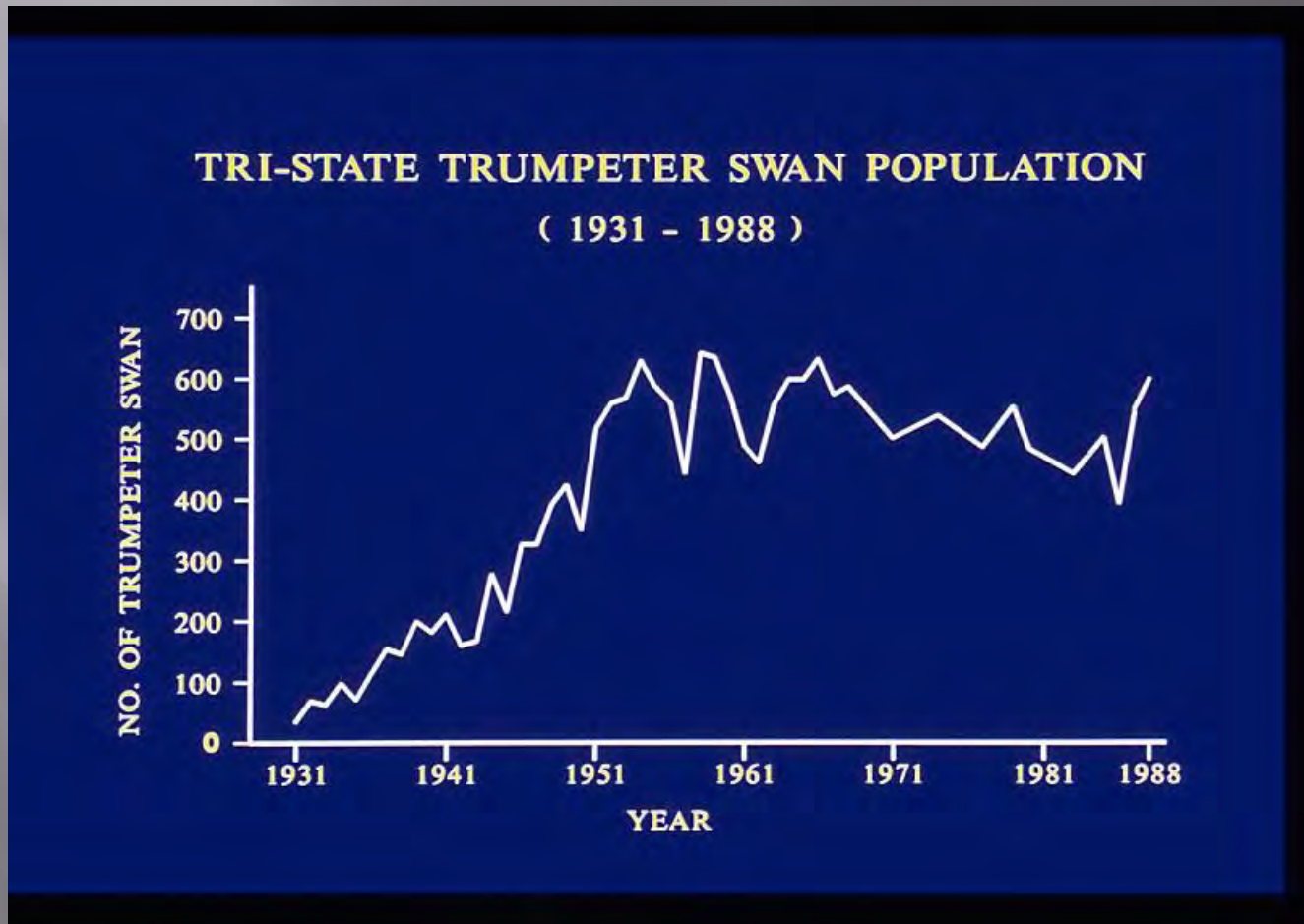
FORMER AND PRESENT TRUMPETER SWAN HABITAT



RMP Distribution 1990



Nesting and Sub-Adult Population of Trumpeters in the Tri-State Area , May - September



Winter Population of RMP Swans in the Tri-State Area

MID WINTER SWAN POPULATION

<u>YEAR</u>	<u>YNP</u>	<u>WYOMING</u>	<u>TOTAL POPULATION</u>
\bar{X} 1974 - 1978	49	46	816
\bar{X} 1979 - 1983	139	64	1100
1984	199	98	1460
1985	161	86	1516
1986	107	116	1603
1987	157	159	1582
1988	85	143	1730
1989	117	236	1743

Where do we go from here ?



Management Challenges toward Maintenance of Seasonal Habitat Availability in the Tri-State Portion of the RMP Range - 1979

1. CURRENT WINTER HABITAT IS LIMITING AND IS AT OR NEAR SATURATION DENSITY.
2. CURRENT AND HISTORICAL BREEDING HABITAT MAY NOT SUPPORT 70+ TERRITORIAL PAIRS.
3. CURRENT HABITAT IS BEING ALTERED AND SUBJECTED TO INCREASED HUMAN DISTURBANCE.
4. SWANS RESIDENT TO WYOMING AND TRI-STATE AREA ARE RELATIVELY SEDENTARY WITH LITTLE TRADITION TO MIGRATE OR PIONEER.

*STRATEGIES TO MAINTAIN 1988 LEVELS
AND
ACHIEVE 2005 OBJECTIVES*

THE PLAN, 1979 - 2005

WYOMING TRUMPETER SWAN PROGRAM OBJECTIVES

- I. 30 NESTING PAIR - 1988
70 NESTING PAIR - 2005

- II. 20 CYGNETS FLEDGED / YEAR - 1988
100 CYGNETS FLEDGED / YEAR - 2005

- III. WINTER 300 SWANS - 1988
WINTER 600 SWANS - 2005

1985 - 1989

2. MEASURE:

**PHYSICAL, CLIMATIC AND BIOLOGICAL ATTRIBUTES
OF HABITAT**

IDENTIFY:

HISTORICAL, CURRENT AND POTENTIAL HABITATS

1985 - 1989 +

3. DEVELOP AND TEST METHODS:

TO RELOCATE SWANS INTO NEW HABITATS

TO INDUCE A PIONEERING AND MIGRATORY
BEHAVIORAL STRATEGY

INTRODUCE SWANS INTO AREAS WHERE NUMBERS
ARE LOW AND HABITAT IS AVAILABLE

EXPAND WINTER AND SUMMER DISTRIBUTION AND
INDUCE PIONEERING

1983 - 1990 +

4. SURVEY HABITATS WITH POTENTIAL FOR SWAN
WINTERING AND PRODUCTION

PREScribe AND IMPLEMENT HABITAT PROTECTION
AND IMPROVEMENT PROGRAM

1983-87 an evaluation of the Salt River Drainage was conducted

AREAS IN WYOMING IDENTIFIED REQUIRING EVALUATION AS POTENTIAL WINTER SWAN HABITAT

AREA

Salt River	Evaluation complete, report in progress
North Platte	Evaluation in progress
Bighorn River (Thermopolis - Kirby)	Evaluation terminated after initial survey - about 2 powerlines / linear mile
Lower Green	Evaluation will be initiated after dam repair
Wind River (Crowheart)	Evaluation not scheduled

CURRENT RMP TRUMPETER SWAN RANGE SOUTHERN EXTREMITY - PRE 1988



Determine Open Water Potential through the Winter on the warm water spring creeks and the Salt River, 1983–87

***this included open water areas with submergent aquatic vegetation**



Salt River

Aerial and ground surveys through each winter period, 1983-87 we determined the following:

- > there were at least 233.5 surface acres of open water where at least 75% of the foraging areas were open and available mid-November - mid-March
- > there were approximately 250 additional acres of open water resting and foraging habitat available in milder winter periods

An example of one of the spring fed creek habitats available to swans on most winters in the Salt River drainage, Wyoming



A Trumpeter Swan can reach to 48" when tipping up to feed on aquatic vegetation and tubers



Three of the Salt River decoy swans on the Eliason Ranch,
Flat Creek, Thayne, Wyoming 1988



National Elk Refuge Winter area -as of 1986 we completed studies of all of the current Tri-State winter areas in Wyoming. In those areas we determined over the period, 1983-87, the range of swan use was 86-154 days/acre of open water aquatic vegetation.



The Primary aquatic food species available and used by trumpeters as a winter food resource on both the Jackson area and the new Salt River area were:

- >Tubers, leaves, and associated insects of Sago, Fine-leaved, and Broad-leaved Pondweed
 - > Leaves and associated insects of Water Milfoil
 - >Leaves and associated insects of Pond Horned-weed
- >Chara (water muskgrass) leaves and associated insects
- >Ceratophyllum (coontail) leaves and associated insects
 - > water buttercup
 - > filamentous green algae
- >Some sedges and rushes (stems and rhizomes)

Measuring the relative abundance, species composition, and volume of the submergent aquatic plant resources available to trumpeter swans on 233.5 acres of open water winter habitat available to swans in most winter periods on the Salt River and adjoining spring fed creeks



Between 1982 and 1987 when the opportunity presented itself experiments were conducted to determine if a surrogate adult swan would accept young not its own. Several hundred hours of observation was conducted in winter and summer on behaviors of adults and younger age class swans that could be affected by handling, marking, and translocations.



Studies also included marking over 50% of the adult/sub-adult swans summering in Wyoming to monitor movements, adult/subadult seasonal habitat use, mortality factors, and other behaviors that would work in favor or against our range expansion efforts. This knowledge enabled us to identify risks and address those problems to the best of our ability that could affect our success.



Utilized available swan cygnet and adult resources when available to conduct range expansion into identified potential Salt River winter areas and adjacent nesting habitat and initiate a “stair-step” approach to RMP range expansion to the south and west.



A major resource of cygnets – packing eggs out from a site with a history of poor swan cygnet survival. **Note: the eggs were monitored through incubation and picked out of the nest site 2–4 days from hatching and imprinted to the vocalization of the adults while on the nest incubating.



The eggs were incubated out-of-sight of humans and when hatched were imprinted to the sound of adult swans and one specific human voice (Dave Lockman). These first cygnets from this site were raised in June, 1987. Five additional cygnets from Red Rock Lakes NWR were raised in 1987. These first cygnets were released near Grover and Thayne without an enclosure, and later moved to the Porter Farm enclosure.



The first cygnets were hatched, brooded and placed in a pen protected from predators and raised to 80 days of age.



On August 25, 1987 four cygnets 67 days post-hatch were acquired from a pair of swans owned by Lambert Neidringhouse of Sheridan. These birds were placed in a pen on the Porter Ranch built by Dave Lockman and Lynn Porter to contain the birds. On September 2 we received an adult female with a broken wing from the Idaho Fish and Game to use as a surrogate parent to the swans. On Sept. 13, three cygnets from Red Rock Lakes Refuge were released with the 4 cygnets. One of the three was attacked by the previous 4 and died. By October 8 we released the 2 cygnets from the 2 taken from the initial wild site in Wyoming. This phase of the project was initiated and completed Aug. 25 - Oct. 8, 1987.

The Porter Farm near Grover and the Eliason Ranch on Flat Creek near Thayne became the release sites staging the “DECOY SWANS”.



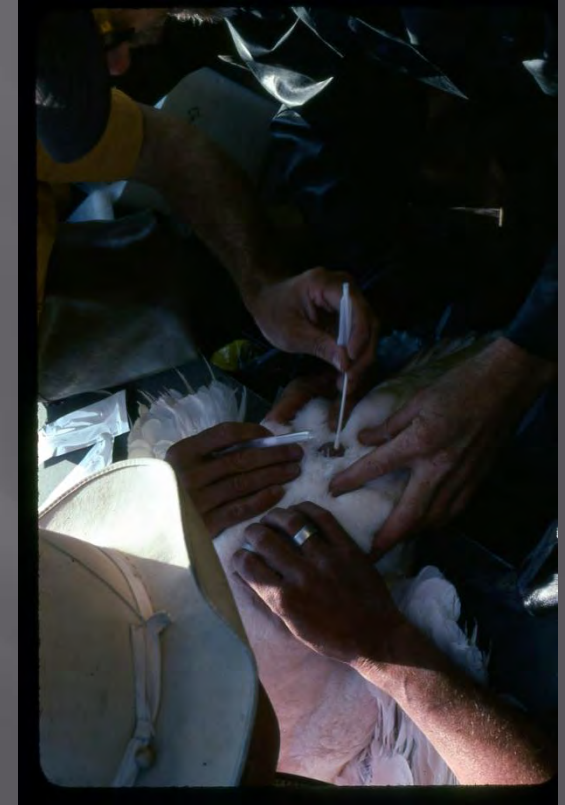
The Porters visited the swans two or three times daily, and fed them each day with grain until the swans were all eating their normal aquatic submergent food. They got them conditioned and habituated to their farm equipment, visitors, and nearby hunting activity.



Two hunt closure areas were implemented in the 1988 waterfowl season. Once the swans were conditioned to the farm activity, and other activity the swans were released from the pen by October 20th. The closures remained in effect through the first waterfowl season with no major problems encountered. When the birds were released from the pens four were left with the adult surrogate on the Porter farm site and three released on the Eliason Flat Creek site near Thayne - the DECOYS.



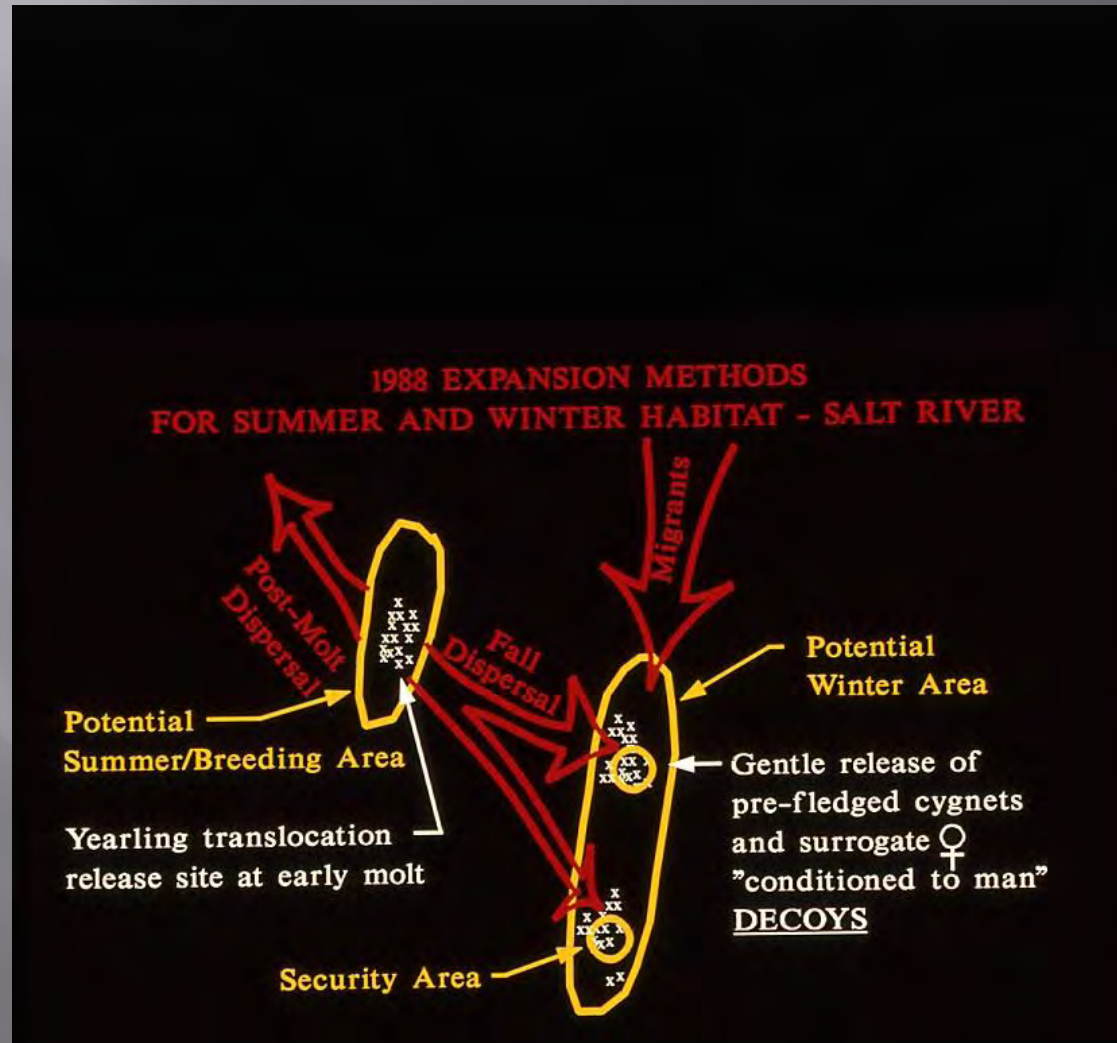
The Final Phase - transplanting 13 yearling trumpeters from Red Rock Lakes Refuge, Montana to the Greys Lake NWR in Idaho near the Salt River Valley in Wyoming. Greys Lake was a potential nesting area for adults. * These swans were released as flightless on 10 July, 1987



The Waterfowl Hunt Closures were only implemented on the creeks and Salt River on the Porter and Eliason properties and lasted for one year to condition the swans to hunting and fishing activity. No swan or snow goose hunting was allowed on the Salt River.



By 1986 and 87 all of the background work had been completed and a strategy designed. The various facets of the expansion project were initiated and completed by 1987 - 89.



- > Trumpeter Swan Winter Numbers in the Salt River Drainage prior to 1988 were incidental and only known to occasionally pass through the valley in late October - mid-November.
- > 1988 - 89 33 trumpeter swans and 7 tundra swans spent the winter in the valley and included some of the neck-collared birds from Greys Lake NWR
 - > 1990-2002 Trumpeter swan winter numbers varied between 51 and 152, annually
- > Since 2002 numbers have varied considerably between years with an average of about 75 each year.

The RMP winter range habitat expansion project has been a success, as the estimated open water and forage carrying capacity of the Salt River drainage was within the range of winter swan numbers.

This project has helped encourage the more southerly use of winter habitat in the area of Fort Hall along the Snake River and Swan Valley in Idaho. Coupled with nesting habitat expansion at Greys Lake NWR, the upper Green River, Wyoming and winter habitat expansion on the Salt River and the lower Green River, Wyoming has become a much more important contributor to the maintenance of the Trumpeter Swan RMP in the North American picture. It has also enhanced the use of new flight paths and corridors for pioneering to new seasonal habitats, especially coupled with translocation efforts in Montana and Idaho.

The decoy concept we developed has demonstrated itself to be a viable management tool for trumpeter swan seasonal habitat range expansion. It has also proven to be a management tool with applicability to condition swans and other wildlife species to use viable habitats with greater levels of human disturbance and proximity to human activities and structures.

