THE TRUMPETER SWAN SOCIETY
Twenty-second Conference

"Looking to the Future"

In coordination with the
Greater Yellowstone Trumpeter Swan Working Group

Best Western KwaTaqNuk Resort
Polson, Montana

October 10-13, 2011

Program

Monday, October 10, 2011

8:00 am-5:00 pm **TTSS Board of Directors Meeting - Koostahtah Room**
5:30 pm-8:00 pm **Conference Registration – Lower Level**
6:00 pm-9:00 pm **Conference Reception - Michel/Victor/Alexander Conference Rooms**

Tuesday, October 11, 2011

7:00 am - 5:00 pm **Conference Registration – Lower Level**

Conference Presentations – Michel/Victor/Alexander Conference Rooms

OPENING SESSION

8:00 am **Opening Remarks** – Dale Becker, Confederated Salish and Kootenai Tribes Wildlife Management Program, The Trumpeter Swan Society President

8:10 am **Welcome to the Flathead Indian Reservation** – Steve Lozar, Confederated Salish and Kootenai Tribes Tribal Council Member, Polson District

8:20 am **Opening Prayer** – Tony Incashola, Salish and Pend d' Oreille Elders and Culture Committee Director

OVERVIEW OF POPULATIONS AND ISSUES

Session Chair: Dale Becker, The Trumpeter Swan Society President

8:35 am **The 2010 North American Trumpeter Swan Survey**
Co-authors: Deborah J. Groves, Timothy J. Moser, and John E. Cornely, and David F. Caithemer
Presenter: Deborah J. Groves, U. S. Fish and Wildlife Service

8:55 am **The Trumpeter Swan Society—Past, Present, and Future**
John E. Cornely, The Trumpeter Swan Society Executive Director

CONSERVATION OF GREATER YELLOWSTONE'S FLOCKS

9:20 am **Status of Resident Trumpeter Swans in Wyoming 2011**
Co-authors: Susan Patla and Bob Oakleaf
Presenter: Susan Patla, Wyoming Game and Fish Department

9:40 am **Managing Idaho's Trumpeter Swan Flock for Long-term Viability: Current Status, Long-term Trends, Management Opportunities and Concerns**.
Co-authors: Adonia Henry and Ruth E. Shea
Presenter: Adonia Henry, Scaup and Willet, LLC

10:00 am - 10:20 am – Break

RESEARCH AND MANAGEMENT OF TRUMPETER SWANS IN GREATER YELLOWSTONE

Session Chair: Gary L. Ivey, The Trumpeter Swan Society Vice President

10:20 am RMP Trumpeter Swan Management within the Southeast Idaho National Wildlife Refuge Complex Challenges and Opportunities
Presenter: William Smith, U. S. Fish and Wildlife Service

10:40 am Analysis of Trumpeter Swan Winter Use in the Upper Snake River Region of Idaho
Presenter: Rob Cavallaro, Idaho Department of Fish and Game

11:00 am Conservation-reliant Species: Our New Relationship with Nature
Presenter: J. Michael Scott, University of Idaho

11:20 am Trumpeter Swan Production and Habitat in the Centennial Valley, Montana
Presenter: Jim Roscoe, Centennial Valley Association

11:40 am Endogenous Contributions to Egg Formation in Trumpeter Swans
Co-authors: Kyle Cutting and Jeffrey Warren
Presenter: Kyle Cutting, U. S. Fish and Wildlife Service

12:00 – 1:15 – Lunch

RESTORATION EFFORTS AND GENETIC IMPLICATIONS

Session Chair: John E. Cornely, The Trumpeter Swan Society Executive Director

1:20 pm Current Status Of The Trumpeter Swan Reintroduction To The Flathead Indian Reservation
Co-authors: Janene Lichtenberg and Dale Becker
Presenter: Janene Lichtenberg, Confederated Salish and Kootenai Tribes

1:40 pm Middle Madison Valley Trumpeter Swan Restoration Project
Co-authors: Claire Gower and Tom Hinz
Presenter: Claire Gower, Montana Fish, Wildlife and Parks

2:00 pm Trumpeter Swans in Oregon – Status of the Oregon Flock
Co-authors: Gary L. Ivey and Martin J. St. Louis
Presenter: Gary L. Ivey, The Trumpeter Swan Society

2:20 pm History, Current Status and Future Management of Trumpeter Swans in Yellowstone National Park
Presenter: Douglas W. Smith, U. S. National Park Service

2:40 pm Molecular Genetic Insights into the Biology of Trumpeter Swans
Presenter: Sara J. Oyler-McCance, U. S. Geological Survey, Fort Collins Science Center

3:00 - 3:15 pm – Break

MANAGING FOR LONG-TERM VIABILITY
Session Chair: Ruth Shea, The Trumpeter Swan Society Board Member

3:15 pm How Do We Manage for Long-term Viability of the Greater Yellowstone Meta-population of Trumpeter Swans? Lessons from Greater Sage Grouse Population Viability Analyses
Co-authors: Edward O. Garton and Ruth E. Shea
Presenter: Edward O. Garton, University of Idaho

3:35 pm Making More Effective Use of Partnerships to Ensure the Long-Term Viability of the RMP/US Breeding Segment
Presenter: Dan Casey, American Bird Conservancy

3:55 pm Panel and Group Discussion- Building a Long-term Conservation Vision for Greater Yellowstone's Trumpeter Swans

Panel: Douglas W. Smith (National Park Service), Edward O. Garton (University of Idaho), David Olson (U. S. Fish and Wildlife Service), Yvette Converse (Great Northern Landscape Conservation Cooperative), Dan Casey (American Bird Conservancy), Sara Oyler-McCance (U. S. Geological Survey)

Tuesday Evening - Michel/Victor/Alexander Conference Rooms

7:00 pm Greater Yellowstone Trumpeter Swan Working Group Business Meeting - Rob Cavallaro, Idaho Fish and Game, Acting Working Group Chair

Wednesday, October 12, 2011

FIELD TRIP (advance registration required)
8:00 am – 7:00 pm: Board bus for field trip at the north end of the hotel parking lot. Stops will occur at Pablo National Wildlife Refuge and Ninepipe National Wildlife Refuge to discuss Trumpeter Swan restoration on the Flathead Indian Reservation. The group will then travel to the Blackfoot River Valley to view and discuss Trumpeter Swan restoration and land conservation efforts there, and then return to Polson through the Swan Valley. Box lunch provided.

8:00 pm *Return of the Trumpeters* Film Project- Michel/Victor/Alexander Conference Rooms

Filmmakers Steve and Char Harryman have begun a 5-year film project which will tell the remarkable story of the Trumpeter Swan. They are seeking our ideas and help

Thursday – October 13, 2011

Conference Presentations – Michel/Victor/Alexander Conference Rooms

PACIFIC COAST POPULATION (ALASKA AND CANADA)
Session Chair: Jim Hawkings, Canadian Wildlife Service

8:00 am Trumpeter Swan Survey Design Changes for Alaska in 2010
Presenter: Deborah J. Groves, U. S. Fish and Wildlife Service

8:20 am A Summary of the Status, Nesting Success and Cygnet Survivability of a Resident Population of Trumpeter Swans in the Knik River Drainage and Palmer Hay Flats State Game Refuge, Alaska
Presenter: William Quirk, Anchorage, Alaska

8:40 am Trumpeter Swan Surveys on Minto Flats, Alaska, 1968-2010
Presenter: Karen S. Bollinger, U. S. Fish and Wildlife Service

9:00 am Staging Strategies of Trumpeter Swans in the Knik River Drainage and the Palmer Hay Flats State Game Refuge, Alaska
Presenter: William Quirk, Anchorage, Alaska

9:20 am Potential for Analysis and Comparisons Using Long-term Data Gathered from the Cordova Area, Alaska
Presenter: Jim King, The Trumpeter Swan Society Board Member

9:40 am Comox Valley Waterfowl Management Reduces Swan Impacts to Farms on Vancouver Island
Presenter: Graeme Fowler, Comox, British Columbia

10:00 – 10:20 am – Break

TRUMPETER SWAN RESEARCH
Session Chair: Joe Johnson, Michigan State University, Kellogg Bird Sanctuary

10:20 am Unexpected Increases in the Canadian-Breeding Segment of the Rocky Mountain Population: Increasing Population or an Artifact of Changing Survey Methodology?
Presenter: Jim Hawkings, Canadian Wildlife Service

10:40 am Trumpeter Swans and Snapping Turtles
Presenter: Harry Lumsden, The Trumpeter Swan Society Board Member

11:00 am Efficacy of Stable Isotopes to Identify Breeding and Natal Origins of Trumpeter Swans
Co-authors: Kyle Cutting and Jeffrey Warren
Presenter: Kyle Cutting, U.S. Fish and Wildlife Service

11:20 am Lead Shot Poisoning in Swans: Sources of Pellets Within Whatcom County, Washington, and Sumas Prairie, British Columbia

Co-authors: Michael Smith, Michael Davison, Laurie Wilson, Cindy Schexnider, Jennifer Bohannon, James Grassley, Donald Kraege, Walter Boyd, Barry Smith, Martha Jordan and Christine Grue
Presenter: Mike Smith, University of Washington

11:40 am Effects of Drawdowns on Trumpeter Swan Broods in Ontario
Presenter: Harry Lumsden, The Trumpeter Swan Society Board Member

12:00 – 1:15 pm – Lunch

INTERIOR POPULATION
Session Chair: Ron Andrews, The Trumpeter Swan Society Board Member

1:20 pm Interior Population Swans: Status and Trends
Presenter: Joe Johnson, Michigan State University, Kellogg Bird Sanctuary

1:40 pm Trumpeter Swans - Not Just Your Wilderness Bird Anymore
Presenter: Larry Gillette, Three Rivers Park District

2:00 pm The Status of Trumpeter Swans at Tamarac National Wildlife Refuge: A Quarter Century After Reintroduction
Co-authors: Wayne L. Brininger, Jr. and Lowell C. Deede
Presenter: Wayne Brininger, U. S. Fish and Wildlife Service

2:20 pm Iowa to Arkansas Project
Presenter: Dave Hoffman, Iowa Department of Natural Resources

2:40 pm Update on Ontario Trumpeter Swans
Presenter: Harry Lumsden, The Trumpeter Swan Society Board Member

3:00 – 3:20 pm – Break

INTERIOR AND PACIFIC COAST MANAGEMENT
Session Chair: Becky Abel, The Trumpeter Swan Society Board Member

3:20 pm The Management Plan for the High Plains Trumpeter Swan Flock
Presenter: Shilo Comeau, U. S. Fish and Wildlife Service

3:40 am Landscape-level Habitat Use by Trumpeter Swans in the Sandhills of Nebraska and South Dakota
Co-Authors: Andy Bishop, Shilo Comeau**,** James Dubovsky, Adrianna Araya, Roger Grosse, Neal Niemuth and Terry Shaffer
Presenter: Roger Grosse, U. S. Fish and Wildlife Service, Rainwater Basin Joint Venture

4:00 pm Washington State Swan Stewards Update
Martha Jordan, The Trumpeter Swan Society, Leader, Washington Swan Stewards

4:20 pm Wrap-up/Conclusions

Thursday Evening

6:30 pm Banquet – Alexander Conference Room

Banquet Address: ***George Melendez Wright, A Pioneer of Trumpeter Swan Conservation***

Jerry Emory, Director of Communications, California State Parks Foundation, is a former board member of the George Wright Society. Jerry has written extensively about Mr. Wright's accomplishments and his great influence on science-based wildlife management in our National Parks.

Awards

Poster Presentations

Posters will be on display in the conference rooms and in the hallway throughout the conference.

Trumpeter Watch
Presenter: Peg Abbott, TTSS Outreach Coordinator

Zoos with Trumpeters
Presenter: Cindy Lund

Winter and Summer Use of the Core and Expansion areas in the Greater Yellowstone Ecosystem by Trumpeter Swans of the Rocky Mountain Population
Presenter: David Olson, U. S. Fish and Wildlife Service

Nesting Ecology of Trumpeter Swans at Seney National Wildlife Refuge, 2006-2009
Presenter: David Olson, U. S. Fish and Wildlife Service

Greater Yellowstone Trumpeter Swan Initiative
Presenter: Ruth E. Shea, The Trumpeter Swan Society Board Member

George Melendez Wright – The Man Who Saved Greater Yellowstone's Trumpeters
Presenter: Ruth E. Shea, The Trumpeter Swan Society Board Member

Leucistic Trumpeter Swans
Presenter: Harry Lumsden, The Trumpeter Swan Society Board Member

Minnesota's Expanding Trumpeter Swans
Presenters: Madeleine Linck and Arnie Fredrickson, Three Rivers Park District

Friday, October 14, 2011

Possible Field Trips for Interested Conference Attendees:
National Bison Range, local Wildlife and Wetland Habitat Restoration Projects and Trumpeter Swan Nesting Areas and other Wildlife Management Projects
Glacier National Park and Local Birding Areas

Conference Sponsors

Wiancko Charitable Foundation

Division of Fish, Wildlife, Recreation and Conservation Confederated Salish and Kootenai Tribes

The Trumpeter Swan Society

Northwestern Energy

Mission Mountain Audubon Chapter

Southwest Airlines

Montana Fish, Wildlife and Parks

Mission Valley Power

Flathead Audubon Chapter

The Trumpeter Swan Society

Members of The Trumpeter Swan Society share a common mission – to assure the vitality and welfare of wild Trumpeter Swan Populations. Since our founding in 1968, our Conferences have brought together agency managers, researchers, private sector partners, and involved citizens to discuss the issues, problems, and opportunities of Trumpeter Swan restoration and management. By maintaining this network between conferences, the Society has helped to promote more effective management and restoration of Trumpeter Swans. In Polson, we will celebrate our past successes from more than 40 years and look ahead to the future for swans and swan management.

The focus of the 22nd Conference will be on the status and challenges of the swans of the Yellowstone Region, but we will also learn about the other North American populations. We welcome your enthusiasm and knowledge and hope that all conference participants will renew their commitment to conserve the majestic Trumpeter Swan and its habitat.

If you are not already a member, we invite you to join The Trumpeter Swan Society.

The Trumpeter Swan Society
12615 County Road 9
Plymouth, Minnesota 55441-1248
763-694-7851
E-mail: ttss@threeriversparkdistrict.org
Web: www.trumpeterswansociety.org

LANDSCAPE-LEVEL HABITAT USE BY TRUMPETER SWANS IN THE SANDHILLS OF NEBRASKA AND SOUTH DAKOTA

Andy Bishop, Rainwater Basin Joint Venture, 2550 N Diers Ave Suite L, Grand Island, NE 68803

Shilo Comeau, LaCreek National Wildlife Refuge, 29746 Bird Road, Martin, SD 57551

James Dubovsky and Adrianna Araya, Division of Migratory Bird Management, USFWS, PO Box 25486, Denver, CO 80225

Roger Grosse, Rainwater Basin Joint Venture, 203 W 2nd St, Grand Island, NE 68801

Neal Niemuth, Habitat and Population Evaluation Team, USFWS, 3425 Miriam Ave, Bismarck, ND 58501

Terry Shaffer, Northern Prairie Wildlife Research Center, USGS, 8711 37th St, Jamestown, ND 58401

ABSTRACT

Trumpeter swans of the Interior Flock, of which the High Plains Flock (HPF) is a component, have been identified as a focal species within the U.S. Fish and Wildlife Service's Focal Species strategy. The Cooperative Management Plan for this population seeks to increase numbers and distribution of trumpeter swans, specifying "a dispersed population consisting of at least 500 total birds counted during the production survey and 50 successful breeding pairs." (Central Flyway Council 2005). Currently the HPF consists of 524 birds and 65 successful nesting pairs with an average growth rate of 4.9% per year during 1990-2010 (Comeau and Vrtiska 2010). However, the objectives of the plan were not based on any empirical information about the use of wetlands and surrounding landscapes by trumpeter swans. Rather, they were based simply on a desired abundance. Without an understanding of the types of habitats used by swans, managers cannot objectively determine the amount of habitat needed to maintain that number of birds.

We used trumpeter swan locations from survey information from the last 30 years in conjunction with digital GIS landscape data to investigate relationships between swan use of wetlands and characteristics of those wetlands and surrounding landscapes on their Sandhills breeding grounds. The objectives of this analysis were to (1) synthesize information on numbers and distribution of HPF swans from existing survey databases; (2) compare characteristics of wetlands and landscapes where swans were located to characteristics of wetlands and landscapes where swans were not observed to make inferences about broad-scale habitat use by swans in the region; and (3) use the results to provide information about other locations within the range of the HPF that are suitable for nesting swans, or could be made suitable with management. We hoped to provide information that would better enable managers to site management activities in their efforts to achieve both numerical and distributional objectives specified in the management plan.

Middle Madison Valley Trumpeter Swan Restoration Project

Claire Gower – Montana Fish Wildlife and Parks

Tom Hinz – Montana Wetlands Legacy Partnership

The Middle Madison is located in SW Montana, approximately 30 miles NW of Yellowstone National Park. It is a middle elevation, montane valley with limited commercial development. Wetland restoration and enhancement is currently ongoing and has been a priority activity for public and private conservation entities for more than a decade. Due to the ongoing efforts to restore wetlands in the valley there is widespread support from the public and local landowners for bird conservation initiatives, including that of encouraging breeding trumpeters in the area. While Canadian trumpeters winter in small numbers in the area, there are no known records of trumpeters that breed in Montana wintering in the middle Madison in recent years. Because the Blackfoot restoration work has proved to be a considerable success; we hope to broaden the geographic extent of these restoration efforts by proposing another restoration effort in the SW part of the state. It is therefore our intent to initiate limited releases of captive-reared trumpeter swans to establish a breeding flock of five established nesting pairs in the middle Madison Valley. We intend for the initial release to occur in summer 2012 and continue for 3-5 years. Because of the proximity to other suitable wetlands throughout the entire valley, this middle Madison flock is not expected to become isolated, but rather, we would expect interchange and connectivity with other flocks in eastern Idaho, Wyoming, and other parts of western Montana.

TRUMPETER SWAN SURVEYS ON MINTO FLATS, ALASKA, 1968 - 2010

Karen S. Bollinger, U.S. Fish and Wildlife Service, Migratory Bird Management, Waterfowl Management Branch, 1412 Airport Way, Fairbanks, AK 99701-5824

Ed Mallek, U.S. Fish and Wildlife Service, Migratory Bird Management, Waterfowl Management Branch, 1412 Airport Way, Fairbanks, AK 99701-5824

Rodney J. King, U.S. Fish and Wildlife Service-Retired, Migratory Bird Management, P.O. Box 1232, Goldendale, WA 98620-1232

The Minto Flats area, located in interior Alaska, has one of the highest densities of trumpeter swans (*Cygnus buccinator*) in the state. Aerial surveys began here in 1968, the year that the first statewide fall productivity trumpeter swan census was initiated by the U.S. Fish and Wildlife Service (USFWS). Intermittent spring and fall surveys have been flown in the Minto Flats area during the intervening years from 1975 through 2010. We report on trends in the total population, nesting activity, and productivity of trumpeter swans in the Minto Flats area from 1968 through 2010.

THE STATUS OF TRUMPETER SWANS AT TAMARAC NATIONAL WILDLIFE REFUGE: A QUARTER CENTURY AFTER RE-INTRODUCION

Wayne L. Brininger, Jr. and Lowell C. Deede, U.S. Fish and Wildlife Service, 35704 Co. Rd. 26, Rochert, MN 56578

ABSTRACT

As is the case with most upper Midwest states, the Trumpeter Swan (*Cygnus buccinator*) was extirpated from Minnesota in the late 1800's. Efforts to restore viable populations of trumpeter swans were pioneered in 1966 by the Hennepin County Park Reserve District (Twin Cities Metro area). The Minnesota Department of Natural Resources (DNR) Trumpeter Swan Program began in 1982 with the goal to establish a minimum of 15 breeding pairs in outstate Minnesota, although releases did not occur until 1987. Tamarac National Wildlife Refuge (NWR) in Becker County was the focal point of the restoration efforts in Minnesota due the high abundance of suitable wetlands. From 1987 to 1994, 98 trumpeter swans were released at Tamarac NWR. Population growth at Tamarac NWR has shown a similar pattern as other Trumpeter Swan restoration programs in the Midwest, with a dramatic increase in breeding pairs within the first twenty years of release. By 2011, the population had grown to 40 known breeding pairs on the Refuge, with over 100 cygnets produced annually. Brood size appears to be slightly above average for the Midwest, with as much as 5.71 cygnets per brood (n=14) in 2005. In 2010, one breeding pair successfully produced 10 cygnets, rearing all ten cygnets to fledge stage.

MAKING MORE EFFECTIVE USE OF PARTNERSHIPS TO ENSURE THE LONG-TERM VIABILITY OF RMP/US TRUMPETER SWANS

Dan Casey, Northern Rockies Bird Conservation Region Coordinator, American Bird Conservancy, Kalispell, Montana

As Trumpeter Swan reintroduction efforts take hold in the Rocky Mountain states, can we ensure that enough habitat will be available to sustain populations over the long term? While much planning has been done, ongoing threats to intermountain wetland complexes demand that we consider a much more strategic approach to identifying, protecting and enhancing suitable seasonal habitat for swans. I will discuss the recent history of conservation planning and implementation by the Intermountain West Joint Venture, as well as the role that state working groups such as the Montana Bird Conservation Partnership might play in gathering data, providing direction, and most importantly delivering habitat conservation on the ground. I will cite recent examples where successful North American Wetland Conservation Act (NAWCA) grants helped meet the current or perhaps future needs of Rocky Mountain Trumpeter Swans, but not always by design.

Dan Casey has been the Northern Rockies BCR Coordinator for American Bird Conservancy since January 2000. Prior to that time, he was the Montana Partners In Flight chair, and primary author of the Montana Bird Conservation Plan (which identified the Trumpeter Swan as a high priority species). He has served on the Technical Committees of the Prairie Potholes, Northern Great Plains, and Intermountain West Joint Ventures, and as an author and GIS analyst for the 2005 and 2011 Implementation Plans of the latter. He was a founding member of the Montana Bird Conservation Partnership, and has worked closely with The Nature Conservancy, US Fish and Wildlife Service, Trust for Public Lands, Flathead Land Trust and others to bring millions of NAWCA dollars to bear on wetland conservation on the Rocky Mountain Front, and in the Blackfoot, Centennial, Big Hole, and Flathead Valleys of Montana.

History, Current Status, and Future Management of Trumpeter Swans in Yellowstone National Park

Douglas W. Smith, USNPS, Yellowstone National Park, Wyoming

Nesting trumpeter swans (*Cygnus buccinator*) were first observed in Yellowstone National Park (YNP) in 1919 and this group was considered the last population of trumpeter swans in the continental US. After this time, swans increased in the park through the middle part of the 20th century, but then began to decline with the steepest decline from the early 1990s to the present. In 2011 ten swans resided in YNP with two territorial pairs (Grebe Lake and Riddle Lake), neither of which attempted to nest, and six non-territorial birds that moved throughout the park over the summer. This was the third consecutive year that no cygnets were produced park-wide. To determine a cause of the swan decline and to decide what management action should be taken, a swan workshop was convened in April 2011. The group did not reach a consensus, but four non-mutually exclusive hypotheses were identified as possible causes of the decline: 1) changes in swan management throughout the greater Yellowstone area, 2) habitat change (global warming?), 3) human disturbance, and 4) predation. Two courses of action were recommended: gather more information to precisely determine what is causing the decline or act now, as once territorial pairs are lost restoring site attachment (e.g., tradition) is difficult. YNP is acting now to address all of the above concerns. The park is participating in discussions about swan management regionally, and is considering augmentation of the population through grafting cygnets and or introduction of adult birds. Artificial nest platforms are in the planning stage as they may mitigate some of the human disturbance, flooding, and predation causes of the decline. The workshop report is available from the author.

HOW DO WE MANAGE FOR LONG-TERM VIABILITY OF THE GREATER YELLOWSTONE METAPOPULATION OF TRUMPETER SWANS? LESSONS FROM GREATER SAGE-GROUSE POPULATION VIABILITY ANALYSES

Edward O. Garton, Fish and Wildlife Dept., University of Idaho, Moscow, ID 83844 and Ruth E. Shea, The Trumpeter Swan Society, 3934 Call Lane, Wayan, Idaho 83285...

ABSTRACT

Trumpeter Swans are distributed across the Greater Yellowstone Region in a series of populations with fairly discrete breeding ranges that mix to an unknown extent with each other on winter ranges as well as with a large influx of birds from the Rocky Mountain Population/Canadian Flocks from Alberta, British Columbia, Yukon, and the Northwest Territories. Although breeding populations are predominantly discrete, occasional exchanges of juvenile birds that enter other breeding populations as well as management actions to establish new populations and disperse wintering populations further south produce a metapopulation structure in which demographic correlations, genetic similarities and dispersal make the various populations demographically and genetically interdependent in a similar manner to the Greater Sage-Grouse metapopulation distributed across the Western United States and Canada. The recently published population viability analysis for Greater Sage-Grouse, which contributed to the USFWS decision that the species required a "warranted but precluded" status under Endangered Species Act (ESA), provides a helpful guide to what is required to prevent Trumpeter Swans from reaching a similar status under ESA. Long-term population datasets are required for each population to model population dynamics, estimate key demographic parameters and relationships and to identify appropriate population models to project future population and metapopulation viability. Such data sets and their analysis are essential to an adaptive management process that strives to identify critical habitat needs and threats to long-term viability as well as to evaluating contemplated management actions that could improve or harm the species long-term viability in the western U.S.

Abstract for the 22nd Trumpeter Swan Society Conference

Trumpeter Swans – Not Just Your Wilderness Bird Anymore
By Larry Gillette, Three Rivers Park District

Trumpeter swans have been restored to all states in the upper Midwest, and in most cases these flocks are flourishing. The swans have adapted to both rural and suburban environments, which has been essential for their successful restorations. This paper looks at some of the factors that made these adaptations possible, including the ways the restoration programs raised cygnets and how it may have altered the psychological state of the birds to make them more suited to the new environments. The presentation also speculates on factors that may be important in preserving the Yellowstone breeding population and how releases of captive-reared swans may help save the population.

THE 2010 NORTH AMERICAN TRUMPETER SWAN SURVEY

Deborah J. Groves, U.S. Fish and Wildlife Service, 3000 Vintage Blvd, Suite 240, Juneau, AK, 99801

Timothy J. Moser, U.S. Fish and Wildlife Service, 5600 American Blvd, West, Suite 950, Bloomington, MN, 55437-1458

John E. Cornely, The Trumpeter Swan Society, 3 Cliffrose, Littleton, CO, 80127

ABSTRACT

The North American Trumpeter Swan Survey has been conducted approximately every five years since 1968 to assess the abundance and productivity of Trumpeter Swans (*Cygnus buccinator*) in North America. The 2010 quinquennial survey was conducted May 2010-January 2011 by numerous cooperators over vast areas of Canada and the northern United States. Methods in 2010 varied among regions, although within a given region the methods were similar to those used in previous surveys. Notable exceptions included a change from complete censuses to stratified random samples in Alaska and parts of Canada. Most cooperators performed aerial cruise surveys, ground counts, or some combination of the two. The continental estimate of Trumpeter Swan abundance in 2010 was 46,225, an increase of 33% since 2005 and the highest recorded since the surveys began in 1968. The estimated average annual growth rate in 2005-2010 was +5.8%, and in 1968-2010 it was +6.2% ($P<0.0001$). Each of North America's three recognized Trumpeter Swan populations also reached record-high abundance levels in 2010. The 2010 abundance estimates (and percent changes from 2005) for the Pacific Coast (PCP), Rocky Mountain (RMP), and Interior (IP) Populations, respectively, were 26,790 swans (+7%), 9,626 swans (+84%), and 9,809 swans (+111%). The PCP, RMP, and IP comprised 58%, 21%, and 21% of the continental population in 2010, respectively. The percentage of the population as cygnets was 22% in the PCP, 34% in the RMP, 27% in the IP, and 26% overall. Results of linear regression indicated a significant long-term trend in the percentage of cygnets only in the RMP (+0.32% per year, $P = 0.02$). We recommend continuation of this valuable survey at 5-year intervals to monitor the status and trend of this recovering North American swan population.

MANAGING IDAHO'S TRUMPETER SWAN FLOCK FOR LONG-TERM VIABILITY: CURRENT STATUS, LONG-TERM TRENDS, AND MANAGEMENT OPPORTUNITIES AND CONCERNS

Adonia Henry, Scaup & Willet LLC, 70 Grays Lake Rd., Wayan, ID 83285, and Ruth E. Shea, The Trumpeter Swan Society, 3934 Call Lane, Wayan, ID 83285

Nesting Trumpeter Swans in Idaho occur in three subunits: 1) Island Park (core area); 2) Ashton to Idaho Falls (core area); and 3) Expansion Areas (south of Idaho Falls). Prior to about 1988, all nesting and almost all wintering swans in Idaho occurred within the core area. The Idaho nesting flock has been classified as "Critically Imperiled" by Idaho Department of Fish and Game (IDFG). Since 1988, nesting and wintering swans have increased in the Expansion Area due to range expansion programs and the growth of the wintering Canadian Flocks. The Trumpeter Swan Society (TTSS) annually monitors swan nesting success in the core subunits and tracks Idaho's long-term nesting trends through a partnership agreement funded primarily by the US Forest Service (USFS), and also involving the US Fish and Wildlife Service (USFWS) and Idaho Department of Fish and Game (IDFG). We discuss status of the Idaho Flock in 2011, long-term nesting and habitat trends 1980-2011, management opportunities, and threats to maintaining the long-term continued viability of the Idaho Flock.

EFFICACY OF STABLE ISOTOPES TO IDENTIFY BREEDING AND NATAL ORIGINS OF TRUMPETER SWANS

Kyle A. Cutting and Jeffrey M. Warren, Red Rock Lakes NWR, U.S. Fish and Wildlife Service, Lima, MT 59739, USA

Analyses of the stable isotope composition of bird feathers can provide significant insight into the location of natal origins and breeding areas of avian species. We used tissue samples collected from 4 breeding areas across North America to assess natural variation in stable isotopes and delineate natal origins and breeding locations. There were highly significant differences in deuterium isotope signatures and less significant differences in carbon, nitrogen, and sulfur. Thus, our results show that all isotopes were useful in identifying differences at least between two breeding areas, while deuterium varied among all 4 areas. Three clusters were identified using multivariate statistics with Alaska and Yukon being most distinctive, and Alberta and Montana being most similar. However, all areas clustered within their own respective space. The power to predict the breeding origins of birds in our study using these data was strong as the combination of multiple-isotopes resulted in high clustering of breeding origins. A base map of isotope values from known breeding areas should be expanded to include other critical breeding sites used by Rocky Mountain Population trumpeter swans. This information can then be used to determine the breeding subpopulation (i.e., Canadian or Tri-state) of individual swan carcasses collected on wintering areas.

TRUMPETER SWANS IN OREGON – THE STATUS OF THE OREGON FLOCK

Gary L. Ivey, 1350 SE Minam Ave., Bend, OR 977021

Martin J. St. Louis, Oregon Dept. of Fish and Wildlife, Summer Lake Wildlife Management Area, 53447 HWY 31, Summer Lake, OR 97640

ABSTRACT

Trumpeter swans were first released in Oregon at Malheur National Wildlife Refuge in 1938. After their first breeding in the 1950s, the flock grew to approximately 80. However, these swans were primarily sedentary, wintering at Malheur, where winters are severe. The flock declined to about 20 individuals after historic flooding allowed common carp to invade key wetlands and consume wetland foods where Malheur trumpeters wintered. During the 1990s, Malheur Refuge and Oregon Dept. of Fish and wildlife formed a partnership to restore the Oregon flock. Cygnets from Malheur and subadults from Red Rock Lakes were translocated to Summer Lake. Additionally, 484 were moved to Summer Lake from Idaho's Harriman State Park from 1992-96 in an attempt to expand the Rocky Mountain Population's winter distribution. By the year 2000, the Oregon flock had grown to over 50 individuals, with eight new pairs established in central Oregon. However, releases were halted after 1999, because of ODFW's concern over a listing petition and lawsuit. By the year 2008, the Oregon flock declined to about 20. The project was restarted in 2009 and we are working to build the flock to the flyway goal of at least 15 pairs and 75 adults. Also, the numbers of wintering trumpeters at Summer Lake Wildlife Area has been grown, at least partly because of the translocations in the 1990s. Prior to 1990's wintering trumpeters were rarely observed there. In recent years, 50-75 individuals have been observed.

PAPER

WINTER AND SUMMER USE OF THE CORE AND EXPANSION AREAS IN THE GREATER YELLOWSTONE ECOSYSTEM BY TRUMPETER SWANS OF THE ROCKY MOUNTAIN POPULATION.

David Olson, U.S. Fish and Wildlife Service, Region 6 - Migratory Bird Program, P.O. Box 25486 – DFC, Denver, CO 80225

ABSTRACT

The Pacific Flyway Management Plan for the Rocky Mountain Population (RMP) of Trumpeter Swans serves as a guiding document for managing this important bird species. The plan focuses on the restoration of the RMP to a migratory population to diverse wintering and breeding areas. An objective to expand the wintering distribution of swans outside of the core area especially around Harriman State Park (HSP) is stated in the plan as well as expanding to new breeding areas in the Greater Yellowstone Ecosystem. Fall and winter count data were analyzed to provide trend information to examine core and expansion area use from 2000 – 2011. Winter swan use in the core areas of both MT and ID have declined by 31.9% and 32.6% respectively over the last 12 years while WY use of the core area has increased by 12%. Winter use of the expansion areas have increased for MT, ID, and WY by 2.1%, 193.6%, and 32.7%, respectively. Only ID ($P = 0.05$) and WY ($P < 0.001$) winter expansion areas have shown a statistically significant increase. Summer swan use in the core areas for MT, ID, and WY have not changed significantly beyond 2% over the past 12 years. Also MT and ID summer use of the expansion areas have not changed significantly by less than 1% over a similar time frame. Only WY has had a statistically significant increase over the last 12 years in its expansion area by 6.9% ($P < 0.001$). Winter swan use of expansion areas is increasing and reducing some of the stress on the core areas. However, the percentage of Canadian birds residing in the core is increasing as well. Breeding swans are slowly exploring new areas but at a much lower rate than anticipated. A landscape scale analysis of potential breeding habitat is recommended to determine what is actually available.

Molecular Genetic Insights into the Biology of Trumpeter Swans.

Sara J. Oyler-McCance, USGS Fort Collins Science Center, 2150 Centre Ave, Building C, Fort Collins, CO 80526

The levels of genetic diversity and distribution of genetic variation across the range of the Trumpeter Swan (*Cygnus buccinator*) have been documented using both nuclear and mitochondrial genetic markers. Data from both markers revealed a significant difference between the Pacific Coast Population (PP) and the Rocky Mountain Population (RMP), with the Yukon Territory as a likely area of overlap. Additionally, the two populations were found to have similar levels of genetic diversity, suggesting that the PP underwent a genetic bottleneck similar in severity to the one documented previously in the RMP. Both genetic structure and diversity results reveal that the Tri-State (WY-MT-ID) flock is not genetically different from the Canadian flock of the RMP. In general, however, Trumpeter Swans appear to have much lower mitochondrial DNA variability than other waterfowl studied thus far suggesting a previous, species-wide bottleneck. Additionally, the use of genetic data to guide restoration efforts has also been examined. Considerations for future restorations include using multiple versus single source populations for restoration attempts as they may better preserve natural levels of genetic diversity.

QUIRK.1

A SUMMARY OF THE STATUS, NESTING SUCCESS, AND CYGNET SURVIVABILITY OF THE RESIDENT POPULATION OF TRUMPETER SWANS IN THE KNIK RIVER DRAINAGE AND THE PALMER HAY FLATS STATE GAME REFUGE, ALASKA

William A. Quirk, III, P. O. Box 212545, Anchorage, Alaska 99521-2545

ABSTRACT

Comprehensive aerial surveys of Trumpeter Swans (*Cygnus buccinator*) were completed during May through September 2008-10 in the Knik River Drainage and the Palmer Hay Flats State Game Refuge, Alaska to determine the population status, nesting success and cygnet survivability. Results show a resident population of 62-91 swans during the three year survey period. The average resident population was 40.7 white swans including an average of 10.0 pairs of nesting swans. The nesting swans reared an average of 39.0 fledged cygnets. Nesting success for the swans well into the incubation period is very high (90-100%). Cygnet survival to fledging averaged 81% for the 3 year period and reached a remarkable 94% in 2008. Disturbances by humans and motorized recreational activities appeared to be limiting swans choosing nesting sites in this region.

QUIRK.2

STAGING STRATEGIES OF TRUMPETER SWANS IN THE KNIK RIVER DRAINAGE AND THE PALMER HAY FLATS STATE GAME REFUGE, ALASKA

William A. Quirk, III, P. O. Box 212545, Anchorage, AK 99521-2545

ABSTRACT

Aerial surveys of migrating Trumpeter Swans (*Cygnus buccinator*) in the Duck-Swan Lake staging area of the Knik River Drainage and the Palmer Hay Flats State Game Refuge, Alaska during 2008-11 were conducted to better understand temporal and spatial use in the region. Twenty-nine daily autumn 2010 surveys (September 28-October 31) and eight bi-weekly spring 2011 surveys (April 9 through May 8) showed differing preferences for staging lakes by season. Autumn staging numbers for swans peaked at 1,240 on October 21, 2010. The Duck-Swan Lake staging area provided 18,360 total swan-use-days in the autumn 2010 migration with swans preferring Swan Lake. Peak spring 2011 swan numbers approached 2,900 swans on April 27 with a preference for Duck Lake. Disturbance levels by humans and food availability appeared to dictate the staging preferences.

CONSERVATION-RELIANT SPECIES: OUR NEW RELATIONSHIP WITH NATURE

J. Michael Scott, Distinguished Professor Emeritus, Department of Fish and Wildlife Resources, University of Idaho, Moscow, Idaho 83844

ABSTRACT

Gardenification of nature, domestication of nature, even requiems for nature - we live in a world of diminished expectations, a world in which our relationship with nature has changed in many ways. The Endangered Species Act of the USA was passed to turn the tide of extinctions. There was an assumption that species at risk could be identified, risk factors mitigated, species recovered, delisted and placed under existing regulations no longer needing the protections afforded under the ESA. This assumption is not met for eighty percent of listed species with recovery plans. Those species require continuing management intervention even after recovery goals are achieved and the species delisted. Policy and management implications of our findings for the Trumpeter Swan and other species will be discussed.

LEAD SHOT POISONING IN SWANS: SOURCES OF PELLETS WITHIN WHATCOM COUNTY, WASHINGTON AND SUMAS PRAIRIE, BRITISH COLUMBIA. MICHAEL C. SMITH**,** *University of Washington, Washington Cooperative Fish and Wildlife Research Unit, School of Forest Resources, Seattle, WA 98195;smithmch@msn.com;* M. DAVISON, *Washington Department of Fish and Wildlife, Mill Creek, WA 98012*; L. WILSON, *Environment Canada - Canadian Wildlife Service, PWRC, Delta, BC V4K 3N2;* C. SCHEXNIDER, *US Fish and Wildlife Service, Lacey, WA 98503;* J. BOHANNON, *Washington Department of Fish and Wildlife, Mill Creek, WA 98012*; J. GRASSLEY, *University of Washington, Washington Cooperative Fish and Wildlife Research Unit, School of Aquatic and Fishery Sciences, Seattle, WA 98195;* D. KRAEGE, *Washington Department of Fish and Wildlife, Mill Creek, WA 98012;* S. BOYD, *Environment Canada, PWRC, Delta, BC V4K 3N2;* B. SMITH, *Environment Canada, PWRC, Delta, BC V4K 3N2;* M. JORDAN, *The Trumpeter Swan Society, Plymouth, Minnesota 55441;* C. GRUE, *University of Washington, Washington Cooperative Fish and Wildlife Research Unit, School of Aquatic and Fishery Sciences, Seattle, WA 98195*

Swan populations in northwest Washington State and on the Sumas Prairie, British Columbia have lost at least 2,000 members to lead poisoning since 1999, caused by the ingestion of lead pellets. In 2001, an international effort was initiated to locate the source(s) of the lead. Participants include the Washington Department of Fish and Wildlife, U. S. Fish and Wildlife Service, Canadian Wildlife Service, Trumpeter Swan Society, Washington Waterfowl Association and the University of Washington (Washington Cooperative Fish and Wildlife Research Unit). A total of 251 trumpeter swans (*Cygnus buccinator*) were outfitted with radio transmitters. A blood sample was collected at capture and analyzed for lead content. Sick and dead swans have been collected throughout the winter, and carcasses examined to determine cause of death and to identify gizzard contents. Results suggest that swans arrive on the wintering grounds with low blood lead levels, but subsequently may be exposed to lethal amounts of shot. The locations of collared swans were used to identify forage areas and roost sites, and data for swans that subsequently died from lead poisoning were used to identify and prioritize areas for soil/sediment samples. This sampling identified Judson Lake (~100 acre lake spanning U.S./Canada border) as a possible source of lead pellets. Swans were deterred from using Judson Lake through parts of the last five winters (2006-07 through 2010-11) as an experimental management project. Results of this experimental management action and future research will be discussed.

Endogenous contributions to egg formation in Trumpeter Swans

Kyle A. Cutting and Jeffrey M. Warren

Direct correspondence to:

Kyle A. Cutting
Red Rock Lakes NWR
U.S. Fish and Wildlife Service
Lima, MT 59739, USA

Phone: (406) 276-3536

Email: Kyle_Cutting@fws.gov

Trumpeter Swans (*Cygnus buccinator*) are capable of transporting large amounts of body reserves acquired on spring-staging areas to the breeding grounds. This transfer of macro-nutrients (i.e., protein and lipid) helps compensate for unpredictable weather conditions and buffer against low habitat productivity in the spring. A considerable proportion of known breeding territories in the Centennial Valley, Montana, have not been utilized by swans in recent years, suggesting that breeding habitat is not currently a limiting factor for the swans of the Tri-state subpopulation. Understanding the relative role pre-breeding and breeding habitats play in providing the resources swans need to breed is the first step towards identifying and protecting those habitats. We explored the importance of body (endogenous) reserves obtained prior to arrival on the breeding ground in egg formation in southwestern Montana during 2010 using stable-carbon ($\delta^{13}C$) and nitrogen ($\delta^{15}N$) isotope analyses of swan egg components, swan tissue, and local plant items. Isotopic values for egg albumen and yolk protein indicated two nutrient allocation strategies. The first strategy, isotopic values for egg albumen and yolk protein indicated that most (>80%) protein used to produce these components was obtained on the breeding grounds. However, in the second strategy, endogenous protein reserves contributed on average 80% of yolk protein and 70% of albumen. Overall, endogenous lipid reserves contributed on average 50% of yolk lipid. Higher contributions of endogenous reserves were used in closed-basin ponds than in open water habitats, which suggest a productivity gradient exists between these habitats. These results highlight the importance of providing both high quality breeding and staging habitats for swans. Whether this pattern holds between the Canadian vs. Tri-State subpopulations, which differ in the distance they migrate during spring, should be investigated.

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Status of Resident Trumpeter Swans in Wyoming 2011

Susan Patla and Bob Oakleaf, Wyoming Game and Fish Department

Wyoming Game and Fish Department has monitored and managed a small resident population of Trumpeter Swans in western Wyoming outside of Yellowstone National Park since the late 1980s. Currently, adult and subadult swans in Wyoming (n= 130, fall 2010) comprise approximately 35% of the Tri-State Area Flocks found within the Greater Yellowstone area. A range expansion program (1994-2002) resulted in the successful establishment of a nesting population in the Green River basin through release of captive-raised birds obtained from the Wyoming Wetlands Society. Number of nesting pairs and productivity of swans in the Green River area now exceeds that of swans in the core Snake River area near Jackson, WY. We will present an analysis of site specific productivity data in both the core and expansion areas to examine and compare characteristics of successful sites. What types of wetland habitats swans are pioneering in the expansion area will also be discussed as well as recent wetland project work designed to increase nesting capacity.