



Swan Dive

Trumpeter Swan Restoration
Trumped by Politics

August 2001

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2. **Monitor** land management and environmental protection agencies;
3. **Inform** policymakers and the public about substantive issues of concern to PEER members; and;
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About This Report

This PEER white paper is a case study of how politics rather than biology have come to dominate migratory bird management decisions in the U.S. Swan Dive was written by staff within the U.S. Fish & Wildlife Service who have become convinced that their own Division of Migratory Bird Management has, under intense pressure from Utah game officials, decided to stake out a position that is contrary to law, scientifically disingenuous, and pre-determined to authorize harvest of trumpeter swans on a permanent basis.

The authors decided to write this report after it became clear that their careers would be threatened for raising the concerns about hunting of migratory trumpeters. Only when they determined that further communication within their chain-of-command was futile did they seek the assistance of PEER.

Swan Dive traces how the declining prospects for the survival of Greater Yellowstone's trumpeters have intertwined with decisions by the Service's Division of Migratory Bird Management that have further imperiled this last native nesting population of trumpeter swans in the lower 48 states. The authors also make recommendations about what

steps the Service should take to reverse the plight of these swans.

While critical of Service decisions in opening a hunting season that includes trumpeters, this report is not meant to be anti-hunting. Several of the authors are themselves avid hunters. It is important to note that many waterfowl hunters also do not support trumpeter swan hunts. The issue is sustainability — whether a particular hunt is compatible with the long-term survival of a significant and highly vulnerable trumpeter swan population.

In order to avoid distracting from the message and avoid the prospect of future retaliation, the authors have chosen to remain anonymous. The authors also believe that the facts presented herein speak for themselves. The source materials for data presented in this report are cited in the appendix.

PEER is proud to assist conscientious public servants who have dedicated their careers to the protection of our natural resources and to faithful execution of the laws.

Jeff Ruch
PEER Executive Director

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I. Executive Summary

"Some hunts take precedence over the restoration effort."

— Tom Aldrich, Utah State Waterfowl Coordinator quoted in the Salt Lake Tribune, January 6, 1990.

The above statement by Utah's top waterfowl official encapsulates the story of this white paper. In **Swan Dive**, employees of the U.S. Fish and Wildlife Service (FWS) explain how their agency has been co-opted and manipulated into authorizing *legal harvest of trumpeter swans from the last native nesting population in the lower 48 states even though it faces serious risks and has been petitioned for listing under the Endangered Species Act.*

Today, the restoration of America's majestic, rare, and largest waterfowl species is being held hostage in the western U.S. by a poorly conceived and inadequately analyzed hunt of its look-alike relative, the tundra swan. Hunted for their feathers and meat, trumpeter swans were nearly driven to extinction in North America by 1900. In the lower 48 states, only a single nesting population survived in Montana's Centennial Valley and adjacent parts of the remote Greater Yellowstone Ecosystem in Wyoming and Idaho.

Continuing Trumpeter Decline

This "Tri-State" Population is still the only native breeding population of trumpeter swans in the lower 48 states. Restoration flocks have been established in the Midwest, where the species was totally extirpated, but they are an amalgamation of captive-reared birds and their offspring, drawn from mixtures of Alaskan and the Tri-State stock, and have limited migratory potential. The only hope for the continued survival of the species in the western U.S. is secure restoration of the Tri-State Population.

While trumpeters are not currently classified as endangered or threatened under the Endangered Species Act, they remain under special concern in

most states and provinces, and a petition is currently pending to list the Tri-State Population as threatened.

In order to increase their distribution and wean the birds from their dependence on humans, in 1992 the Service ended its supplemental winter feeding program at the Red Rock Lakes Refuge in Montana. Unfortunately, almost half of Tri-State trumpeters died that winter when they failed to move to adequate wintering sites. Winter mortality continued throughout the 1990's, while the Service's commitment to monitor and resolve problems steadily waned. According to FWS data, by 1995 the Tri-state Population contained only 364 individuals, down from highs close to 600 individuals in 1990.

The feeding program actually sustained a tenuous "cushion" of "extra" birds that could be relocated to new areas or that dispersed on their own to surrounding habitats such as Yellowstone National Park. With the end of the feeding program and subsequent increased winter mortality, those surplus birds are gone. As a result of all these cumulative effects, *the Tri-state Population is at the lowest point that it has been at since the late 1940's, with a declining breeding base.*

Case of Mistaken Identity

An additional factor in the trumpeters' troubles is its resemblance to the more plentiful tundra swan. The major difference between the two is size; trumpeters are substantially larger than tundra swans. But size differences are difficult to make out when a bird is in flight, especially at a distance. For this reason, trumpeter swans have become victims of tundra swan hunting seasons, which several states in the West still run. Utah, for example, has offered a hunting season for tundra swan since 1962.

In states that allowed tundra swan hunting where the trumpeter ranges overlapped, invariably trumpeters became casualties. Although prosecutions were rare, some state game managers argued that tundra swan



hunters who accidentally shot trumpeters should not be treated like criminals.

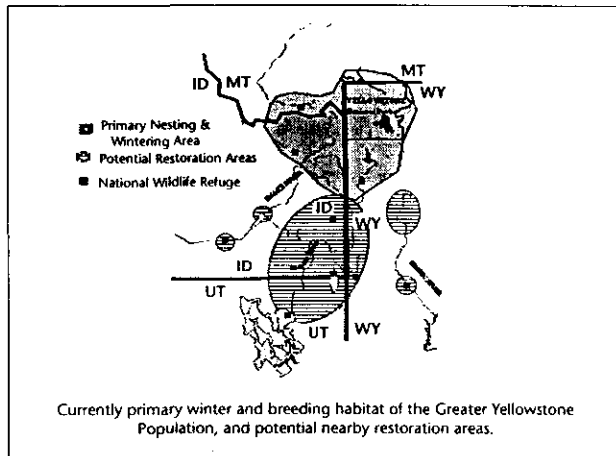
“Experimental” Trumpeter Hunts

In 1995, the Service, bowing to pressure from Utah state officials, for the first time set a legal quota of trumpeters that could be taken during tundra season. In effect, this established a legal hunting season for the recovering trumpeters. These trumpeter hunt quotas were considered “experimental” and set to expire in 2000.

Scientists within FWS are concerned that even limited trumpeter hunts discourage the birds from migrating further south in the winter. It is the migrating trumpeters that are much more likely to be killed, and so the non-migrating birds are artificially selected for survival. The current lack of migration southward from Greater Yellowstone has created a severe “bottleneck” as increasing numbers of trumpeters arrive from Canadian nesting areas and try to spend the winter, rather than migrating further south to more suitable areas.

This bottleneck in eastern Idaho has caused the dangerous concentration of most Tri-state and Canadian trumpeters in an inadequate wintering area. This region, along the Henry’s Fork of the Snake River, does not have enough aquatic plants to provide winter food to support the swans, except in unusually mild winters. The trumpeters are also extremely vulnerable to severe winter storms that freeze essential feeding areas.

The Utah hunts have put FWS at cross purposes. While FWS concedes that the severely diminished winter distribution of the surviving trumpeters is the underlying cause of their continued vulnerability, the Service has approved hunts of trumpeters right in the path of their migration route southward from Idaho. By its own estimate, the Service has spent over \$1 million dollars to increase migration of trumpeters, mainly by transplanting trumpeters to less suitable locations and in less logical directions than southward into Utah. However, restoration of trumpeters to key habitat in Utah, including the Bear River Migratory Bird Refuge, has been blocked by swan hunt politics.



The Trumpeter Swan Society

A Wide Range: *Trumpeter swans will winter throughout the Rockies if they are left unmolested*

FWS Takes a “Swan Dive”

The “experimental” Utah hunts expired in 2000. Now FWS is poised to extend these hunts and make trumpeter hunts in Montana and Nevada permanent, despite growing questions about the wisdom of this policy.

In its June 2001 Environmental Assessment (EA), the Service’s Division of Migratory Bird Management issued a Finding of No Significant Impact (FONSI), meaning that in the “official” opinion of FWS, creating a general swan hunt in portions of Utah, Montana and Nevada that allows legal take of trumpeters will have no significant impacts. This finding precludes the more detailed analysis that a full Environmental Impact Statement would provide.

Amazingly, the FONSI goes so far as to assert that the proposed hunts are “not highly controversial,” in spite of the fact that a dozen organizations voiced strong opinions against the hunts during the comment period, and that at least three groups have sued to stop the hunts.

The EA’s conclusions set aside historical literature and established science, disregard records, and substitute conjecture. The Service ignores and distorts a number of long-accepted biological concepts, including:



- ▶ **Migration Memory.** Older swans “teach” migration patterns to young swans by leading them down traditional routes, returning in summer to natal areas. The strong attachment to the traditions of their parents makes trumpeters slow to pioneer new areas and creates a behavioral barrier to population interchange;
- ▶ **Historic Range.** Trumpeters occurred historically in Utah and migration persisted at least until the 1960s, when tundra swan hunting was legalized; and
- ▶ **Scientific Designation.** The Tri-State Population of trumpeters are distinct from Canadian populations and have been surveyed, modeled and managed separately since their discovery over 80 years ago.

Body Count

When it authorized the general swan hunt in Utah, the Service stated that it would close as soon as ten trumpeter swans were killed. However, monitoring has been so poor that trumpeter kills could not be accurately or promptly detected. The Service failed to require mandatory check stations, even on its

National Wildlife Refuges, and hunters were able to ignore check “requirements” without consequences.

In addition, the winter kill of swans that fail to migrate out of Greater Yellowstone is continuing. The lack of migration is further aggravated by the loss of the few individual birds that migrate to their premature death in Utah. Nonetheless, the Division of Migratory Bird Management contends the loss of trumpeter swans migrating southward from Greater Yellowstone is insignificant and biologically acceptable.

After many comments calling for the withdrawal of the EA for its shortcomings, the Service has signaled that it stands by the FONSI conclusion and approved the hunt. In so doing, the Service has unwisely taken a regulation-setting process that has worked well through the years to a new low.

The internal politics governing FWS now dictate that continuation of a tundra swan hunting season takes precedence over recovery of trumpeter swans in Greater Yellowstone. The Service appears determined to keep a hunting season for swans open at all costs, even the potential loss of the Tri-state Population.

II. The Decline of the Trumpeter Swan

Hunted for their feathers and meat, trumpeter swans were eliminated from most of North America by 1900. In the lower 48 states only a single nesting population survived in Montana's Centennial Valley and adjacent parts of the remote Greater Yellowstone Ecosystem in Idaho and Wyoming. Protection came in 1918, with enactment of the Migratory Bird Treaty Act that closed swan harvest, but by then trumpeters were almost extinct.

Today, this "Tri-State" Population is the only breeding population of trumpeter swans in the lower 48 states that has survived in its native habitat. Restoration flocks that have been established in the Midwest and Ontario, where the species was totally extirpated, are an amalgamation of captive-reared birds and their offspring, from mixtures of Alaskan and Tri-State stock. The Tri-State trumpeters are a historic native population with a decades-long legacy of restoration and public concern.

In 1932, only about 70 trumpeters remained in remote portions of Greater Yellowstone. Their key nesting area in Montana's Centennial Valley was finally afforded some protection with the creation of Red Rock Lakes National Wildlife Refuge in 1935. The Tri-State Population survived the harsh winter climate due largely to an artificial feeding program at the refuge from 1935-92. The feeding program probably also benefited trumpeters that resided in Yellowstone Park and adjacent areas of Idaho as well. Summer breeding increased through the years in the high-quality, relatively undisturbed wetlands of the region.

Winter feeding was also deliberately used to hold swans at the Red Rock Lakes Refuge because during the early decades, trumpeters that ventured from the security of the refuge were often shot, and trumpeter swans were too rare to lose to shooting. In 1992, the Service ended the supplemental feeding program at the Red Rock Lakes Refuge in an effort to wean the birds from their dependence on humans and encourage their migration



Winston E. Banko

A Rare Bird: Prized for their meat and plumage, trumpeters were hunted to near extinction by World War II

to more suitable winter habitat. Unfortunately, nearly half of the Tri-State trumpeters died that winter when they failed to move to adequate wintering sites. Annual winter mortality continued during the 1990's, as the Service's commitment to monitor and mitigate problems steadily waned. According to FWS data, the Tri-state Population was down to 364 individuals in 1995, from highs close to 600 individuals in 1990.

The feeding program had actually provided a tenuous "cushion" of "extra" birds that could be relocated to new areas or that dispersed on their own to surrounding habitats such as Yellowstone National Park. With the end of the feeding program and subsequent death of numerous birds, those surplus birds are gone.

As a result of all these cumulative effects, the Tri-state Population is now near the lowest point that it has been since the late 1940s, with a declining breeding base. Since feeding ended, the swans have not successfully re-established southward migrations and winter-kill continues to take more birds than anticipated.

The Migratory Imperative

Migration is key to the survival of healthy breeding populations of trumpeters and is essential to secure



restoration of the Tri-State Population. Albert Hochbaum (1955) provided a clear discussion of the crucial roles of the transmission of migratory tradition and pioneering by individuals and families, particularly in trumpeter swans, in his landmark book *Travels and Traditions of Waterfowl*. Based upon his experimentation in Germany, E. Mayr (1952) also wrote "There is little doubt that guidance by older, experienced birds plays a decisive part in the directional flying of such species."

The Service itself helped write a book on migration memory. In *Migration of Birds* (Lincoln 1979), the Service contends that "The 'pioneering spirit' in Canada geese, for example, is limited by their social structure - the young travel to and from specific breeding and wintering areas with their parents." It also described how swans travel in "family" groups and that cygnets will learn migration pathways from older birds:

"...[The] theory is sometimes advanced that older and more experienced birds lead the way and therefore show the route to their younger companions. This explanation may be acceptable for some species such as geese, swans, and cranes because they stay in family groups..."

Wyoming is using relocated swans and a captive breeding effort to restore trumpeters to their historic range. The Wyoming model is working largely because Wyoming does not have a hunting season on any swans and the portion of Utah directly to the south is also closed to swan hunting. Swans that develop survival strategies and move southward are allowed to survive from one year to the next, passing on their knowledge to progeny.

Migration of Trumpeter Swans in Utah

Records indicate that western trumpeter swans once migrated to Utah and to wetlands as far as Texas and California but the Service's current management approach ignores this evidence. Today, however, most individuals in the Tri-State Population do not migrate. The Utah Division of Wildlife Resources itself attests to their historic occurrence in its *Inventory of Sensitive Species and Ecosystems in Utah* (1997), sponsored in part by the Department of the Interior, the same Department of Interior that oversees the Fish and Wildlife Service. That Inventory concludes that the trumpeter swan was formerly more common in Utah but was "reduced to a rare winter visitor." Utah's Inventory also reports that trumpeter swans likely nested in Utah, and considers them "native and natural, presence confident" in Box Elder County, the county where the Bear River Migratory Bird Refuge (and the focus of the hunting controversy) is located.

Archeological records from Indian camps, confirmed specimens dating back to 1892, and records during the early 20th century, when the species was near extinction confirm that trumpeters occurred in Utah in the recent past. An adult taken at Bear River Refuge in November 1959 and others reported in the early 1960's show that migration into Utah persisted at least until the start of the tundra swan hunt, and summering trumpeters were documented in Utah as late as 1969.

Tom Crumb



Leading by Example: Individual trumpeters teach migratory behavior to the next generation.



U.S. Fish & Wildlife Service

During the late 1950's, noted ornithologists including Albert Hochbaum, Clarence Cottam, and Winston Banko warned the Service that opening a tundra swan hunt in Utah would lead to the loss of trumpeter swans in the state because trumpeters are very difficult to distinguish from tundra swans.

The growing body of scientific studies shows that trumpeter families had varied wintering traditions,

but the migratory birds in the population were almost entirely wiped out as they ventured further south, and there was a strong selection for those that did not migrate and wintered in the most remote portions of Greater Yellowstone. The feeding program helped reinforce this differential survival, and this contributed to the present lack of migration. The lack of migration is further aggravated by the loss of the birds that migrate to Utah and are shot.



III. Tundras & Trumpeters: *A Case of Mistaken Identity*

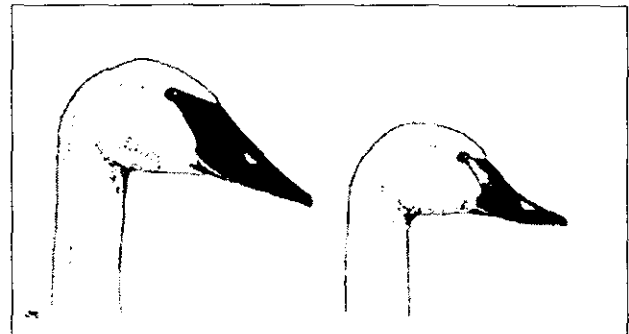
An additional factor in the trumpeters' troubles is its resemblance to the more plentiful tundra swan. The major difference between the two is size: trumpeters are substantially larger than tundra swans. But size differences are difficult to make out when a bird is in flight, especially at a distance. Their calls are also distinctive. Tundra swans used to be called "whistling" swans, and trumpeters are well known for their trumpet-like call. An experienced listener can pick out the trumpet from amidst the tundra whistles.

In states allowing tundra swan hunting where the trumpeter ranges overlapped, invariably trumpeters became casualties. Although prosecution was very rare, some state game managers believe that hunters should not be held liable for shooting the wrong bird. When the tundra hunting season first opened in 1962 in Utah, the Service did not pursue any detailed analysis of potential impacts, even though ornithologists had warned of impacts to migrating trumpeters, given the known difficulty distinguishing tundra swans from trumpeters. The National Environmental Policy Act, which today requires extensive impact analyses for such actions, would not be created for another several years.

Over the subsequent years, scant information exists as to the impacts of the tundra swan hunts on the trumpeters. Although harvest of trumpeters was illegal, monitoring was never implemented to accurately document their kill during the hunt. Like other waterfowl species, they were "managed" by the Division of Migratory Birds, but since they were not historically hunted as game birds, there was little emphasis on their survival as they were viewed as "non-game". They were of little consequence to the traditional hunting-oriented biologists within the Service, except for the few that worked on refuges used by trumpeter swans.

The concern for their restoration came instead from citizens, both hunters and non-hunters alike, who

took a personal interest in trumpeter swans. As a result, trumpeter swan management was historically a grassroots movement, with government involvement coming after the fact, sometimes with actions that were not in the trumpeters' best interest. Only in the past 10-15 years has greater attention been devoted to trumpeter swan issues, but always with the caveat that their restoration would not preclude tundra swan hunting.



Trumpeter Swan Society

Mistaken Identity: Profile of trumpeter (left) and tundra swan (right) illustrate similarities.

Population Bottlenecks

In the 1980's, about 20 years after the onset of tundra swan hunting in Utah, trumpeter numbers in Canada began to increase, due in part to changes in water management that increased winter habitat in parts of eastern Idaho. The Canadian swans wintered in increasing numbers along the Henry's Fork of the Snake River near Island Park, Idaho. As a result of this concentration of swans in the Henry's Fork, a "bottleneck" developed as the trumpeters began to overcrowd the river and deplete its aquatic foods.

Many biologists blame the historic destruction of migratory tradition as the ultimate cause of the bottleneck — the swans that once migrated further south had been almost entirely eliminated from the population. The last remnant persisted in remote parts



of Greater Yellowstone, remaining there even as wintering conditions worsened. The increasing Canadian trumpeters began to stretch the limits of the region's carrying capacity.

Over the years, records of marked Tri-State and Canadian trumpeters began to point to a potential link between the continuing loss of this migratory tradition, the formation of the bottleneck, and the tundra swan hunting season in Utah.

“Experimental” Trumpeter Hunts

In 1995, the Service, bowing to pressure from Utah state officials, for the first time set a legal quota of trumpeters that could be taken during tundra season. In effect, this established a legal hunting season for the recovering trumpeters. These trumpeter hunt quotas were considered “experimental” and set to expire in 2000. Although “experimental”, there was no hypothesis, no experimental design, and not even a requirement for mandatory checkstations.



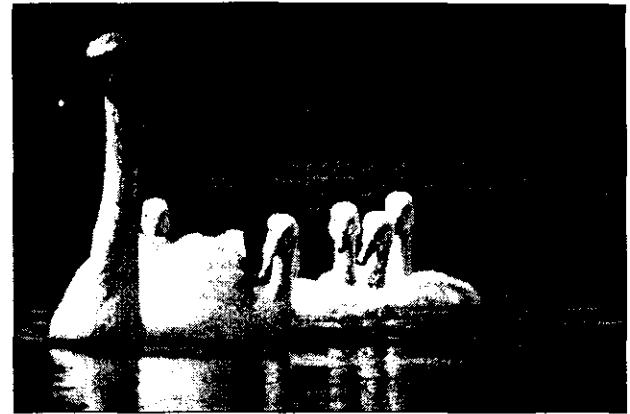
IV. A Tale of Two Cygnets

Through the past three decades, trumpeter swans from the Canadian and Tri-State Populations were occasionally sighted in Utah, distinguishable by neck collars that identified individuals. Unfortunately, the neck collars were usually identified from trumpeter swan carcasses. One notable example was the fate of two cygnet siblings, bearing the neck collars 30J and 32J. These cygnets were hatched at Red Rock Lakes Refuge in June 1992.

In the fall of 1992, the two cygnets were learning to migrate to more temperate wintering grounds in Utah with their family. Following the centuries old tradition, they had been led south by their adult parent swans. Both were killed during the tundra swan hunt. Cygnet 30J was shot at Ogden Bay, UT, on November 11, 1992. Cygnet 32J, its sibling, was shot at Farr West, UT, a scarce ten days later. The fate of the unmarked parents was undocumented. This family group had migrated on its own, well before any hazing or the end of winter-feeding at Red Rock Lakes had encouraged them to do so.

Had 32J and 30J been allowed to winter without being shot, they would have helped achieve the Service's objectives. That is, those individual cygnets, their siblings, and subsequent progeny would likely have established the very migration pattern that the Service has spent over a million taxpayer's dollars trying to re-establish, and helped to reduce the bottleneck on the Henry's Fork. The limited success in re-distributing trumpeter swans achieved through dedicated efforts and great expense, would have been much further along had trumpeters swans been given greater protection in northern Utah. The Service refuses to attach any significance to the contributions to migration that individual trumpeter swans make.

In evaluating the effect of the "experimental" trumpeter kills in Utah, the Division limited its analysis only to those taken during the "experimental period" since 1994, even though historical records were summarized and



Tom Cumb

Trumpeter: *The Next Generation.* North America's largest Waterfowl is proposed for listing under the Endangered Species Act

provided to the Division by representatives of The Trumpeter Swan Society. In reality, the "experiment" could be said to have begun in 1962 when tundra swan hunting began. By limiting its time span to the "experimental period" of 1994-1999, the Division leaves out historical records that illustrate the link between the opening of the tundra swan season in Utah, the harvest of Canadian and Tri-state trumpeters, and the worsening bottleneck in eastern Idaho. Some of these records are summarized below, with trumpeter identified by their leg- or neck-bands:

- ▶ Subadult female banded at Red Rock Lakes in July of 1984 and shot near Ogden Bay, Utah, in November 1985. This bird migrated to its premature death.
- ▶ Cygnet 30J, a cygnet banded in the summer of 1992 at Red Rock Lakes, MT, shot at Ogden Bay, UT, November 1992. This bird migrated to its premature death.
- ▶ Cygnet 32J (a female sibling of 30J) banded at Red Rock Lakes NWR, MT, shot at Farr West, UT in November 1992, ten days after its sibling 30J. This bird migrated to its premature death.
- ▶ 34V, banded in November 1994 at Harriman State Park, possibly a Canadian migrant, transported



U.S. Fish & Wildlife Service

with two siblings to Summer Lake, OR, seen on Bear River MBR, winter of 1995-96, shot at Bear River MBR the subsequent winter in November 1996. This trumpeter had completed two migrations to Bear River before it was shot. As a Canadian migrant, it could have eventually led other swans out of the Henry's Fork bottleneck to Utah. This bird migrated to its premature death.

- ▶ 5V5, banded in November 1992 at Harriman State Park, ID, and transported to Seedskaadee National Wildlife Refuge in western Wyoming. After several successful migrations from Alberta to Nevada, and points in between including Idaho and Utah, this trumpeter was finally shot at Ogden Bay, UT, as it migrated to its third winter in Utah with its mate and a cygnet. The fate of the mate and cygnet is unknown. This was a migratory family group displaying the migratory behavior the Service is still trying to re-establish today.
- ▶ 16TA, female cygnet, banded in late summer of 1974 at Grande Prairie, Alberta, and then shot 5 km west of Corinne, UT in the fall of 1974
- ▶ Trumpeter swan from the Canadian Northwest Territories, shot at Rich County, UT in December 1989

While the Service can accurately state that overall the Rocky Mountain Population (all the combined

trumpeters of the western U.S. and Canada) continues to increase in spite of these losses, it fails to reveal that only the Canadians have significantly increased, and primarily due to a series of exceptionally mild winters. It also fails to analyze the impact these losses have had on the southward expansion of distribution that is essential to reduce mortality in severe winters.

The historic record of trumpeter migration patterns in Utah is spotty, but the ultimate responsibility for gathering evidence falls on the Service. Having failed to conduct prudent and precautionary analysis of the effects of hunting tundra swan on trumpeter swans, or require adequate monitoring, the Service now argues there is not enough evidence to support concerns that tundra swan hunts have reduced trumpeter swan migration.

With tundra swan hunting in northern Utah, as trumpeters attempted to rebuild the migration traditions necessary for their winter survival away from Greater Yellowstone's frigid temperatures, they literally migrated to their premature death. In so doing, the last remnants of migration memory were erased from the Tri-State trumpeters, artificially selecting for those less likely to migrate, thereby insuring that the bottleneck in the Henry's Fork would get worse.



V. A Permanent Trumpeter Season

For years, Utah state game professionals pushed the idea that the illegality of trumpeter swan kills was a burden on tundra swan hunters, and pressured the Service to allow for the legal take of trumpeters. By 1995, the Service acquiesced and authorized a "general" swan season in which a limited number of trumpeter swans could be killed during tundra season. In effect, this established a legal hunting season for the still-struggling trumpeters in Utah. These trumpeter hunt quotas were considered experimental, and set to expire in 2000.

In a well-intentioned effort to explore promised cooperation from Utah in trumpeter swan restoration, even the non-profit Trumpeter Swan Society set aside its objections to the experimental trumpeter hunts, and agreed to not fight the concept because the Service presented the experimental hunt as one part of a broad package of actions to expand trumpeter distribution southward, including a stepped-up reintroduction effort.

But after the hunt was authorized, the restoration actions began to unravel. The Utah Division of Wildlife Resources blocked trumpeter releases at Bear River because the Service proposed a hunt closure date about one week earlier than Utah desired. The next

year, Utah claimed that it would not support trumpeter swan restoration in Utah unless it was part of a research effort under state control.

Matters deteriorated when the public discovered that recently transported, disoriented trumpeter swans were released while the hunt was underway on the Bear River Refuge. Several were immediately shot, and most others quickly disappeared. Worse, the agencies began to withhold data regarding trumpeter mortality from the public. Citizens were told that the research was "proprietary," even though it was paid for with federal dollars. Still, the Service refused to intervene and the trumpeter hunts continued.

Data from the Pacific Flyway show that since 1995, nearly 2,000 swans of undetermined species have been harvested or crippled in Utah, a figure that allowed enormous opportunity for trumpeters to be shot without detection. As a result, the Service has no way to assess the impacts of the "experimental" general swan hunt on the recovery of trumpeters.

Calling the Experiment a Success

After five years of experimental trumpeter harvest in Utah, the Service is attempting to institutionalize the hunts. Last year, the Service began to consider Utah's request to make the experimental seasons permanent, and made them permanent in parts of Nevada and Montana. After a legal challenge to last year's decision, the Service reissued a draft EA in April 2001 proposing to continue the experimental season in Utah for 2 more years, while making the other general swan hunts permanent. Despite public protest, they are laying the foundation to make the season permanent in Utah also.

The press release announcing the draft EA notes that Tri-state trumpeters increased to 426 individual trumpeters—an increase of 64 members since 1995.

US Fish & Wildlife Service/Megan Duram



Collateral Damage: *Tundra swan hunters complain that because of the close physical resemblance in flight they should not be held liable for shooting trumpeters.*



However, it failed to clarify that the increase was due almost entirely to a good cygnet crop last summer, and that mortality of young cygnets is usually high during their first winter. It failed to explain that adults, who are crucial to the population's persistence, only increased by 16 members. The release refers to the increase as a "rebound," ignoring the concerns of the many scientists within the agency, including the authors of this paper, who believe the Tri-State Population remains at great risk.

The news release even acknowledges that the Tri-state Population is likely at or near the carrying capacity of wintering grounds in the Greater Yellowstone area, and that "...any increases in the number of trumpeter swans within the Tri-State region will likely be dependent on the birds' ability to reestablish migration routes that expand their range into lower elevations."

With this statement, the news release inadvertently admits that a true population rebound would be possible if the swans had access to additional, more temperate wintering grounds. This, of course, is what outside experts have said all along: Nevertheless, the Service will allow Utah's swan hunts to continue killing southward migrating trumpeters.

The EA purports to make the case that permanent trumpeter hunts would not have a negative effect on the recovery of the population. To support its conclusions, the Service should have included an in-depth cause and effect analysis of the numerous trumpeter swan sightings and mortalities in Utah, assimilated by scientists. However, these records are absent from the EA.

Flock Vs. Population

This heavily flawed EA rewrites many decades of swan biology with one small semantic change: it refers to the Tri-State Population as a "flock" rather than a unique "population." The impact of this change is profound. The concept of a population is a scientifically determined status that identifies a group of animals that interbreed, and are

biologically distinct from other breeding populations. Their survival is dependent upon their own productivity and mortality, since recruitment of immigrants from other populations is insignificant or non-existent.

Using the general term "flock" ignores this distinction, and the Service tries to dismiss the fate of any particular "flock", so long as the total numbers of trumpeters in North America continue to increase. In this way, the Service can claim credit for successful conservation programs in Canada, where swan hunting is prohibited, without having to make difficult political decisions in the U.S.

Decades of scientific literature, and even published works by the Service, consistently recognized that the Tri-State Population is, in fact, a distinct entity, with no evidence that it interbreeds with other nesting populations in Canada or the U.S.

It seems clear that the Service had only one goal in mind when it changed its designation to "flock": to thwart a petition to list the Tri-State Population under the distinct population segment portion of the Endangered Species Act. Just such a petition was filed last year by the Fund for Animals, Biodiversity Legal Foundation, and others and still is pending.

Such a major change in designation should be backed by intensive study and documentation. The EA, however, tries to downgrade the Tri-State Population without a single sentence of discussion regarding the decades of data that demonstrates its distinctiveness or its significance as the only breeding population that survived in the lower 48 states.

The Division of Migratory Bird Management offers no scientific justification for the dramatic change in designation, even though this is strictly prohibited by the Service's own guidelines. According to the Division of Ecological Services, "When a distinct population is accepted or rejected for review pursuant to a petition or proposed for



listing or delisting, the Services intend to explain in detail why it is considered to satisfy both the discreteness and significance tests of the policy" (FWS 1996).

A "detailed" explanation would certainly note decades of U.S. and Canadian banding data which demonstrate that the Tri-State Population and the Canadian population do not interbreed, although they overlap in winter.

But neither total reproductive isolation or genetic data are necessary to demonstrate the discreteness of separate populations. According to the Services' Policy Regarding the Recognition of Distinct Vertebrate Population Segments Under the Endangered Species Act, revised in 1996, the Service does not "...consider it appropriate to require absolute reproductive isolation as a prerequisite to recognizing a distinct population segment. This would be an impracticably stringent standard, and one that would not be satisfied even by some recognized species that are known to sustain a low frequency of interbreeding with related species." The Service goes further by saying that it continues "...to believe that occurrence in an unusual ecological setting is potentially an indication that a population segment represents a significant resource of the kind sought to be conserved by the [Endangered Species] Act." (FWS, 1996).

If the Fish and Wildlife Service were to perform a true scientific analysis of the distinctness of the Tri-State vs. the Canadian populations, they would rely on the criteria outlined in the 1996 policy, made up of three elements:

1. The discreteness of the population segment in relation to the remainder of the species to which it belongs;
2. The significance of the population segment to the species to which it belongs; and
3. The population segment's conservation status in relation to the Act's standards for listing (i.e., is the population segment, when treated as if it were a species, endangered or threatened?).

The Policy goes on to further define each of these terms:

Discreteness: A population segment of a vertebrate species may be considered discrete if it satisfies either one of the following conditions:

1. It is markedly separated from other populations of the same taxon as a consequence of physical, physiological, ecological, or behavioral factors. Quantitative measures of genetic or morphological discontinuity may provide evidence of this separation.
2. It is delimited by international governmental boundaries within which differences in control of exploitation, management of habitat, conservation status, or regulatory mechanisms exist that are significant in light of section 4(a)(1)(D) of the Act.

Significance: If a population segment is considered discrete under one or more of the above conditions, its biological and ecological significance will then be considered in light of Congressional guidance (see Senate Report 151, 96th Congress, 1st Session) that the authority to list DPS's [Distinct Population Segments] be used "...sparingly" while encouraging the conservation of genetic diversity. In carrying out this examination, the Services will consider available scientific evidence of the discrete population segment's importance to the taxon to which it belongs. This consideration may include, but is not limited to, the following:

1. Persistence of the discrete population segment in an ecological setting unusual or unique for the taxon,
2. Evidence that loss of the discrete population segment would result in a significant gap in the range of a taxon,
3. Evidence that the discrete population segment represents the only surviving natural occurrence of a taxon that may be more abundant elsewhere as an introduced population outside its historic range, or



US Fish & Wildlife Service/Megan Duram



Migratory Hazard: A hunter places swan decoys

4. Evidence that the discrete population segment differs markedly from other populations of the species in its genetic characteristics.

Because precise circumstances are likely to vary considerably from case to case, it is not possible to describe prospectively all the classes of information that might bear on the biological

and ecological importance of a discrete population segment.

Status: If a population segment is discrete and significant (i.e., it is a distinct population segment) its evaluation for endangered or threatened status will be based on the Act's definitions of those terms and a review of the factors enumerated in section 4(a). It may be appropriate to assign different classifications to different DPS's of the same vertebrate taxon." (FWS, 1996).

The Tri-State Population of trumpeter swans is distinct from the Canadian population geographically, behaviorally and politically; the two groups are also quite obviously delimited by international boundaries, within which major differences in control of exploitation, management of habitat, conservation status, and regulatory mechanisms exist. For these reasons it meets each of the Service's standards. When viewed under the standards for Distinct Population Segments, the Tri-state trumpeters are a distinct population.



VI. Political Science

“No Significant Impact”

In June of 2001, the Division of Migratory Bird Management issued a Finding of No Significant Impact (FONSI), meaning that in the expert opinion of the US Fish and Wildlife Service, allowing a general swan hunt with harvest of trumpeters in portions of Utah, Montana and Nevada will have no significant impacts. This finding precludes the more detailed study that a full Environmental Impact Statement would provide.

The FONSI makes the amazing assertion that the proposed hunts are “not highly controversial,” and therefore do not require an EIS. The Service conveniently ignores the fact that a dozen organizations voiced strong opinions against the hunts during the comment period, and that at least three groups have sued to stop the hunts.

The Service is required to base its EA on sound science, but this decision was clearly determined by state politics. As the state waterfowl biologist from Utah explained to the Salt Lake Tribune, “some hunts take precedence over the restoration effort.”

Mixed Messages

In order to defend its FONSI conclusion, the Service is forced to make irreconcilable statements. For example, the news release describing the final EA on swan hunting says that while the Service has not yet evaluated a petition to list the Tri-state Population under the Endangered Species Act, it will nevertheless go forward with the plan to legalize harvest of these very birds.

The release closes by saying “...any increases in the number of trumpeter swans within the Tri-state region will likely be dependent on the birds’ ability to reestablish migration routes that expand their range into lower elevations.” On one hand, the Service acknowledges that migration is critical, yet, on the other hand, it seems too paralyzed by politics to admit that the tundra swan hunt in Utah impedes the reestablishment of critical migration routes.

Paradoxically, when it evaluates the proposed Utah hunting season, the Service now argues instead that the loss of birds that develop migration behavior is insignificant, this at a time that it has spent over a million dollars trying to artificially re-establish this migration behavior. If those birds that develop migration patterns are insignificant, then why spend thousands of dollars trying to re-establish migration? Even in the face of the Service’s publicized conclusions, many biologists within the agency understand that it takes individual birds to re-establish migration. Once migration memory is wiped out, an entire population isn’t likely to move on its own without individuals collectively leading the pack.

When it comes to trumpeter swans, the Service seems to have lost its own memory and thrown out its own published works on trumpeter swans. The Division now assumes that the loss of individual birds that possess pioneering behaviors and display a migration memory is biologically acceptable. It now “gives little credence” (FWS 2001) to the concept of migration memory in spite of its own scientific publications and research.

The Service now is forced to change course, arguing that the southward migrating “individuals” that retain essential migration memory are not important. Although individuals are not the focus of management in secure and thriving populations, the Service has long recognized the importance of individuals, particularly those with highly desired behaviors, when working to restore rare or endangered species or when concerned about distribution problems. Thus, this new position by the Service ignores the reality that these “pioneering birds,” by leading others south, would have helped expand the behavior of the population, reduce the overcrowding on the Henry’s Fork, and perhaps saved the taxpayers the great expense of enticing swans to migrate.

If one accepts that the lack of a migratory tradition is the root cause for the bottleneck in the Henry’s Fork area, then one has to examine why a migratory



tradition does not exist. And, in so doing, one cannot logically escape the evidence that the loss of individual trumpeter swans that acquired the migration knowledge contributes to this lack of migratory tradition, and therefore the bottleneck.

Rewriting History

As part of the Service's refusal to admit that the tundra swan season in Utah has impacted trumpeter migration, it even has trouble admitting that trumpeters historically occurred in Utah. Dismissing historical accounts, the Division of Migratory Bird Management has now adopted the position that trumpeters were always rare in Utah, and little evidence exists to document their past occurrence. Instead, it substitutes a new revelation that there is "little evidence" (FWS, 2001) that trumpeters ever migrated through Utah, and that focus should instead be placed on developing migration routes through Wyoming, where there would be no conflict with swan hunting.

Instead of thoroughly analyzing why migration into Utah has not been re-established, the Service seems intent on ignoring historic and scientific information by simply denying a problem exists. It plays a disingenuous numbers game, first lumping all trumpeters of Canada and the western U.S. into one "management population," and then concluding that the impact of trumpeter swan losses in the swan hunts is negligible since, overall, the Rocky Mountain Population is prospering—in Canada.

Body Count

When it authorized the general swan hunt in Utah, the Service stated that it would close as soon as ten trumpeter swans were killed. However, monitoring has been so lax that trumpeter kills could not be accurately accounted. Mandatory checking was supposed to be implemented, but checkstations were only sporadically conducted in one location and hunt states provided no harvest data until well after the draft EA evaluating the hunt impacts had been released for public comment. The Service did not even run a same-day checkstation throughout the hunt on Bear River Refuge, where much of the Utah swan hunt occurs,

and where hunters must enter via a single access road. The Final EA proclaims that only one trumpeter was reported shot last season in Utah, but fails to disclose the inadequacies of the harvest monitoring.

Furthermore, while most National Wildlife Refuges that could help restore Tri-state trumpeters have joined together to help expand their distribution and protect them, Bear River Refuge seems more interested in pleasing Utah wildlife managers. The Bear River Refuge has only minimally complied with directives to conduct a mandatory check of all harvested swans. Instead, the Service and the Utah sponsored and helped fund "flight Energetics" research - in a sad illustration of current Service "science" priorities. This research, which will cost \$120,000, aims to use theoretical mathematical formulas to prove that the lack of migration to Utah is not due to the swan hunt. The research will attempt to "prove" that swans cannot fly long distances, even though swans have done it for centuries. The "real" problem (which all others have apparently failed to recognize) is that trumpeters are aerodynamically unsuited to make the "long distance" flight to Utah, no matter that Bear River is a mere 150 miles south of major trumpeter habitats.

The refuge ignores the historical and recent records of trumpeters flying much farther than from Idaho to Utah, and of their past occurrence in the Bear River delta. There is no doubt that trumpeter swans are physically capable of migrating to Utah and beyond, but not if they are shot.

A Costly Mistake

As the EA reveals, the Service has spent over one million dollars trying to promote migration in trumpeter swans, mainly by transplanting trumpeters to less suitable locations and in less logical directions than southward into Utah. It could have spent a lot less had it instead closed the tundra swan hunt in Utah years ago when trumpeters started showing up in hunter bags. Doing so could have helped more of the important migratory swans survive, the bottleneck would have been less today, and taxpayers would have been better served.

The Service's Division of Migratory Bird Management has resisted linking these factors, preferring instead to downplay the significance of the Tri-State Population and stating that trumpeters lost from this population are not biologically significant. In order to justify the Utah hunt, the agency does not acknowledge that the loss of a migratory tradition has anything to do with trumpeters lost to shooting in Utah during tundra swan hunting seasons.

Its employees are expected to follow along with this official position. Only recently, and under pressure from a lawsuit, has the agency even begun to acknowledge that it should examine the impacts of tundra swan hunting on trumpeter swans. Having spent thousands of dollars to treat the symptoms, it is now being forced to examine the cause of the problem, but still cannot seem to do so objectively. And by limiting itself to the "experimental period" of the last five years, it avoided looking at the trumpeters lost before that period.

On the Bright Side

To their credit, other divisions within FWS and other state and federal agencies, irrigators, conservation groups, and Native Americans have begun taking positive steps toward trumpeter recovery. Many dedicated biologists have struggled to provide habitat, protect nesting territories, and address overcrowding issues for the benefit of trumpeter swans. Unlike the Bear River Refuge, these entities have welcomed trumpeter swan restoration and struggled to prevent the decline of the Tri-state Population. The states of Wyoming and Idaho do not

allow swan hunting, and both have aggressively worked to restore trumpeter swans to their historic range. For the most part, the Service has supported these state efforts, but still discourages any discussion of the effect of tundra swan hunting on the capacity for trumpeters to migrate.

Wyoming has a trumpeter swan captive breeding program that will provide some additional trumpeter swans over the long-term. Captive-breeding, however, is not a cure-all, because released swans will still need to find more temperate wintering grounds as suitable disturbance-free wintering areas in Wyoming and Idaho are approaching saturation. The Service's proposed solution of "augmentation" through captive breeding and release in summer habitat would merely treat a symptom, but not the root cause, and cannot solve the fundamental winter distribution problem caused by diminished migrations.

Bottom Line

While trumpeters are not yet classified as endangered or threatened under the Endangered Species Act, they remain under special concern in most states and provinces. A petition is currently pending to list the Tri-State Population as threatened.

The severely diminished winter distribution of Rocky Mountain trumpeters is widely recognized to be the underlying cause of their continued vulnerability. Instead of addressing the cause of this overriding threat, the Service is instead setting the stage for permanent trumpeter swan hunting seasons, and the demise of the Tri-state Population.



VII. Recommendations

While political considerations color any governmental decision, FWS has a duty to use sound science as a basis for its Environmental Assessments. Any discussion stating that the trumpeter swan population of the Tri-State area is a flock should be viewed with suspicion, as should any conclusion that the loss of a few southward migrating individuals is insignificant. While it is too late to rewrite a scientifically flawed, politically-biased EA, the following steps are necessary to ensure the recovery of the Tri-State Population.

Hunt Moratorium. The only way to evaluate the impact of the trumpeter hunts is to study how many trumpeters naturally arrive in Utah and attempt to winter and how they use the habitat. This can only be done with a moratorium on all swan hunts in the state. The Service should immediately withdraw the flawed EA, close the season on trumpeter swans and suspend tundra swan hunting in Utah for a period of five years, tipping the scales in favor of trumpeter swan restoration.

Monitoring. During this period, increased efforts to census trumpeter swans migrating into Utah should be employed. Actions should be monitored by independent third parties, individuals who would hold the public trust in escrow, since the Service has demonstrated it cannot always be trusted. All data and a report should be provided quarterly.

Peer Review. The results should be reviewed by independent scientists and other concerned parties, instead of the relatively small circle of biologists who may be under agency pressure to speak the party line.

EIS. Because of the wide-reaching impact of legal harvest of trumpeters, an Environmental Impact Statement is warranted. Any impact statements or analysis should also examine to what extent refuges within former trumpeter range are working to restore trumpeter swans and the cumulative impacts of problems the trumpeters face.

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