

Public Employees for Environmental Responsibility (PEER) is a non-profit organized in the District of Columbia to hold government agencies accountable for enforcing environmental laws, maintaining scientific integrity, and upholding professional ethics in the workplace. PEER has thousands of employee and citizen members nationwide, including employees both within FWS and in other public agencies whose work with the trumpeter swan is hampered by the effect of this *90-Day Finding* in the management of trumpeter populations. PEER also represents a number of public employees who contend that the trumpeter swan *90-Day Finding* is a work of intellectual dishonesty, formulated as a result of political pressure demeaning all biologists working in public service. In addition, PEER members include citizens who have dedicated their careers to researching trumpeter swan populations. The dissemination of this false information, which circulated internationally via the world wide web, negatively affects the ability of reputable scientific study to address issues concerning the trumpeter swan population.

On January 28th, 2003, the U.S. Fish and Wildlife Service published a *90-day Finding* in response to a lawsuit by the Biodiversity Legal Foundation and the Fund for Animals that would designate the Tri-state Population of Trumpeter Swans as a Distinct Population Segment (DPS). In this *90-Day Finding* the FWS concluded, "the petition does not provide substantial information indicating that this flock is a Distinct Population Segment." 68 FR 4221, 4221 (Jan. 28, 2003).

The Data Quality Act (DQA), Pub. L. 106-554 § 515 (Dec. 21, 2000), directs federal agencies to establish guidelines to ensure the "quality, objectivity, and integrity of information disseminated by federal agencies." DQA, Section a. The U.S. Department of Interior guidelines for implementing the Office of Management and Budget's rules enabling the Data Quality Act require that Interior agencies use the "best available science," rely on "peer-reviewed studies," and utilize "data collected by standard and accepted methods" 67 FR 8452, 8452-54 (Feb. 22, 2002). See also U.S. Fish and Wildlife Service Information Guidelines, Part III.

As detailed below, the information upon which the *90-Day Finding* was based fails to meet standards mandated in the DQA.

Summary of Argument

The Data Quality Act of 2000 provides,

- a. In General -- The Director of the Office of Management and Budget shall, by not later than September 30, 2001, and with public and Federal agency involvement, issue guidelines under sections 3504(d)(1) and 3516 of title 44, United States Code, that provide policy and procedural guidance to Federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information (including statistical information) disseminated by Federal agencies in fulfillment of the purposes and provisions of chapter 35 of title 44, United States Code, commonly referred to as the Paperwork Reduction Act.
- b. Content of Guidelines. -- The guidelines under subsection (a) shall --
 1. apply to the sharing by Federal agencies of, and access to, information disseminated by Federal agencies; and
 2. require that each Federal agency to which the guidelines apply --
 - A. issue guidelines ensuring and maximizing the quality, objectivity, utility and integrity of information (including statistical information) disseminated by the agency, by not later than 1 year after the date of issuance of the guidelines under subsection (a);
 - B. establish administrative mechanisms allowing affected persons to seek and obtain correction of information maintained and disseminated by the agency that does not comply with the guidelines issued under subsection (a); and
 - C. report periodically to the Director --
 - i. the number and nature of complaints received by the agency regarding the accuracy of information disseminated by the agency; and
 - ii. how such complaints were handled by the agency

See Treasury and General Government Appropriation Act for Fiscal Year 2001, Pub. L. No. 106-554, § 515 Appendix C, 114 Stat. 2763A-153 (2000).

The U.S. Office of Management and Budget ("OMB") published the Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies (Guidelines)(Feb. 22, 2002), which requires the U.S. Fish and Wildlife Service to have had, in place, by October 1, 2002,

regulations to implement the Data Quality Act of 2002 ("DQA"). See Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies; Republication, 67 F.R. 8452, 8452 (Feb. 22, 2002). The U.S. Fish and Wildlife Service enacted such enabling rules, which are located at <http://irm.fws.gov/infoguidelines/FWS%20Information%20Quality%20Guidelines.pdf>. The *90-Day Finding* fails to adhere to these guidelines and is therefore in violation of the DQA.

By relying primarily on a single source not compliant with OMB, Departmental and Service DQA Guidelines, the Service has violated the Data Quality Act.

The primary information source for the *90-Day Finding* was an internal report by FWS Region 6 officials James A. Dubovsky and John E. Cornely. Published in October 2002, "An Assessment Pertaining to the Status of Trumpeter Swans (*Cygnus buccinator*)." This source:

- Was not subjected to peer-review;
 - Relies on unsupported statements;
 - Fails to utilize accepted methods for information collection;
- and—
- Makes misleadingly selective use of data, rather than utilizing the best available science.

***Use of the Service's secondary, back-up source has been
Impeached by that source's lead author.***

The other principal document cited in the *90-Day Finding* was Gale et al. (1987). According to this report's lead author, FWS sacrificed the DQA's standards of quality, objectivity and integrity of the data by:

- o Selecting data that support a pre-determined outcome;
- and—
- o Improperly re-interpreting the data.

Argument

***By relying primarily on a single source not compliant with OMB,
Departmental and Service DQA Guidelines --namely the Dubovsky and
Cornely Study -- the Service has violated the Data Quality Act.***

I. The Dubovsky and Cornely Study

The *90-day* Finding based the bulk of its conclusions on an internal analysis by Dubovsky and Cornely (October 2002). This analysis was a compilation of trumpeter data collected since 1949. The report includes a number of problems that make it an improper data source under the DQA.

A. **Not subjected to peer-review.** At the time the *Finding* was released, the Dubovsky and Cornely analysis had only circulated within FWS. It had never been published or submitted for peer review of any kind. Although much of this same body of literature had been summarized more comprehensively in the past, in literature that was rigorously reviewed, FWS chose to use the Dubovsky and Cornely analysis almost exclusively.

Reliance on this study runs in contrast to Department of Interior's guidance for the DQA, which proscribes the use of the "best available science. . .including peer-reviewed studies where available." The DQA further requires that information be "developed from reliable methods and data sources." By favoring a non-reviewed report over a body of rigorously reviewed studies, the *Finding* violates the DQA.

B. Relies on unsupported statements. The report relies on a number of unsupported statements, contrary to standard practice in the scientific community:

- On Page 2, paragraph 1, the authors write "No good estimates of abundance exist for any region of North America prior to the 1930s." Here the word "good" is used to wipe out inconvenient anecdotal information. Quantifiable estimates for any species of wildlife rarely exist before the 1930s. However, anecdotal information is nevertheless crucial to an understanding of the historical record and potential abundance. Anecdotal records are usually based on direct observations. The estimates before 1930 for most wildlife species may not lend themselves to statistical analysis, however, that does not mean the estimates are not noteworthy. 90-Day Finding at 2, ¶ 1.
- On page 3, paragraph 1, the authors contend "[t]he trumpeter swan was listed in the U.S. Fish and Wildlife Service's (Service) 'Red Book' during the 1960s, due to a limited understanding of its status at the time." Actually, the survival of trumpeters in the 1960s was precarious, and it is likely that Red Book listing was warranted. Here the report makes a generalization on an important subject without citing a single source. 90-Day Finding at 3, ¶ 1.
- On page 3, paragraph 2 the authors state "...the historical abundance and range of trumpeters suggest a generally contiguous distribution of the species, likely with a fair amount of mixing of birds from various regions." Once again, the report does not state a source for this "likely mixing," a highly significant, and debatable, point. The same paragraph adds, "These populations are defined primarily for management purposes and not in recognition of reproductive isolation or genetic differences." There is ample disagreement within the research community on this point and a rigorous assessment would note this. 90-Day Finding at 3, ¶ 2.

The DQA requires that agencies ensure the "quality," "integrity," and "objectivity" of data in public policy. These examples of unsupported statements demonstrate a lack of rigor at variance with these standards.

C. **Fails to utilize accepted methods for information collection.** In places, Dubovsky and Cornely make conclusions at odds with the body of history on Trumpeter populations.

For example, biologists commonly referred to the trumpeter swans of the tri-state area as a remnant population since the 1930's due to their significance as a distinct, remnant, self-sustaining population of birds. Through the following decades, this terminology was consistently applied. In the 1980s, biologists began to use the term "subpopulation", still recognizing the distinctness of the tri-state trumpeters from the Interior Canadian "subpopulation".

The *90-Day Finding* incorrectly characterizes this history, blithely stating that "the Service, in consultation with the Flyway Councils, divided trumpeter swans into three administrative populations on the basis of areas in which they nest. These populations are defined primarily for management purposes and not in recognition of reproductive isolation or genetic differentiation (Trost *et al.* 2000)." In the Assessment, Dubovsky and Cornely continually use the term "flocks", a lesser designation than either "population" or "subpopulation", in stark contrast to the accepted history, practices, and terminology of mainstream trumpeter scientists.

On page 2, paragraph 1, they write that, "[p]robably due to the take of trumpeters for markets and subsistence, trumpeter abundance was reduced throughout the continent,..." 90-Day Filing at 2, ¶ 1. The demise of trumpeter swans due to market hunting is not in question. It is well established among professional biologists to be the major cause. This statement raises doubt where it doesn't generally exist in the scientific community.

By ignoring historic protocols, the authors come to misleading conclusions. On Page 8, paragraph 3, the authors note, "... the total number of birds derived from tri-state stocks was 697 for 2001 (Fig. 11), or 7% higher than the peak number of tri-state nesting birds." 90-Day Filing at 8, ¶ 3. Combining numbers of High Plains birds with those of

the tri-state birds is not common practice among experienced swan managers or biologists because the High Plains birds do not contribute to the productivity or security of the tri-state birds. Adding the High Plains swans to the tri-state swans biases the numbers of birds upwards, so that the overall number of tri-state birds appears higher.

Dubovsky and Cornely periodically reject consensus in the scientific community by ascribing common beliefs to a minority. On page 4, paragraph 2, they write that "...a few conservation groups are concerned that the trumpeter swans nesting in the tri-state area could be outcompeted for limited resources by their Canadian counterparts, or experience substantial winter mortality due to severe winter weather." 90-Day Filing at 4, ¶ 2. While this statement seems intended to trivialize legitimate concerns, it is also misleading. Many interested parties, including the USFWS, Canadian Wildlife Service, the Province of Alberta, State of Idaho and the Pacific Flyway, are concerned about these factors and potential winter mortality. FWS has spent hundreds of thousands of dollars over the past 15 years to re-distribute swans to more temperate winter habitat. It has funded hazing, captive rearing, and relocation efforts as well to help solve these problems.

The DQA requires that agency information be "developed only from reliable data sources based on accepted practices and policies." By ignoring the accepted history, practices, and terminology of mainstream Trumpeter scientists, the Dubovsky and Cornely report does not meet the DQA standard of a "reliable data source," and once again fails to meet the DQA test of "integrity" and "objectivity."

D. Makes misleadingly selective use of data. Data pieces that contradict the authors' thesis are regularly omitted from the Dubovsky and Cornely report.

On page 10, the authors note that "...when biologists wish to make inferences about free-ranging, unmanipulated birds, they tend to use only information from normal, wild birds." "We would expect these birds to behave 'normally'..." These statements are used to discount observed migrations of Swans into Utah. 90-Day Filing at 10. In 2001, PEER published a white paper titled, "Swan Dive: Trumpeter Swan Restoration

Trumped by Politics” which described the fate of 2 cygnets from Red Rocks Lakes NWR killed in Utah. These were “normal, wild birds,” yet the authors ignore their existence. Other swans from the Tri-state area have migrated to their premature death in Utah, yet Dubovsky and Cornely downplay the significance of the migration.

Conversely, on Page 14, paragraph 2, the Finding states that “...two U.S.-nesting birds were sighted in Alberta, and 2 birds marked in Grande Prairie summered in the U.S. (Gale et al. 293-294). 90-Day Filing at 14, ¶ 2. We contend that these instances suggest some reproductive intermingling of the Canada and Tri-state Area flocks may be occurring, that gene flow is possible between the groups, and that sampling procedures may simply be inadequate to detect much interchange to date.” Here Dubovsky and Cornely postulate intermixing of breeding populations based on 4 non-breeding birds with great zeal while ignoring more abundant data documenting migration of Trumpeters into Utah.

On page 8, paragraph 2, the authors state: “. . . recent surveys suggest swan abundance is increasing in Montana. If the rate of growth is maintained, the number of swans in Montana will reach 1963-88 levels in approximately 13 years.” 90-Day Filing at 8, ¶ 2. The conclusion is not supported by any analysis of available data and directly contradicts other recently peer-reviewed and published analyses which they ignore. They also ignore the 2002 USFWS Fall Survey of Trumpeter Swans, which revealed a significant loss of Montana swans over the previous winter. It is difficult to see how the “recent surveys” suggest an increase. Given the continued drought and lack of secure wintering habitat in Utah, the prediction that swan numbers will increase in Montana is unsupported by available data.

Dubovsky and Cornely use loaded language to introduce a non-empirical bias. On page 14, paragraph 1, the authors write that, “. . . few of those who voice concern about the status of tri-state swans mention issues related to habitat management at Red Rock Lakes or elsewhere as potential factors influencing swan status.” 90-Day Filing at 14, ¶ 1. Such statements have no place in a “scientific” paper performing an objective analysis.

On page 7, paragraph 1, state: "However, during the late 1980s, managers enacted several rather dramatic management actions." 90-Day Filing at 7, ¶ 1. In reality, these actions were taken by the Service officially, and in conjunction with the Pacific Flyway Council. Calling them "rather dramatic" and ascribing them to a few "managers" adds unnecessary bias, implying that the managers were operating independent of the Service.

The Dupovsky and Cornely report fails every major test under the Data Quality Act: It has not been peer reviewed, it flouts standard scientific practices, it relies on unsupported statements and selected data, and it dismisses significant contrary opinions within the community. For these reasons it cannot be considered a reliable data source. The fact that FWS relied primarily on this document to write its 90-day Finding, especially in light of the large body of rigorously reviewed information available, violates the "integrity" and objectivity" standards of the DQA.

Use of the Service's secondary, back-up source --the Gale et al. Study-- has been impeached by that source's lead author.

II. The Gale et al. Study

The second major study cited in the 90-day Finding was a 1987 study by R.S. Gale, E.O. Garton, and I.J. Ball. This study, cooperatively funded by the Service and the states of Wyoming, Idaho and Montana, and having been peer-reviewed by numerous Service, State and private trumpeter swan biologists, may be considered a "reliable data source" under the DQA. However, FWS misinterpreted the import of the study.

In a March 7, 2003 letter to FWS Director Steve Williams -- the study's lead author, Ruth Shea (formerly Ruth Gale) --- details the manner in which the study was misappropriated by the service. See Letter, Ruth Gale Shea to Steve Williams (March 7, 2003), attached as Exhibit A.

A. Selecting Data. Shea notes that the Finding simply ignores Gale et al. when the data do not agree with the Service's theses. For example, the Finding asserts that

trumpeters form pairings “during the fall and winter months,” and that interbreeding between Canadian and Tri-state populations occurs. According to the Shea letter, Gale et al. “concluded that pairing most likely occurred when the populations were apart either during migration or on the breeding grounds.”

Similarly, the Finding contends that major differences in migration patterns between the two swan populations (i.e. the Canadian population tends to migrate while the Tri-state populations does not) do not constitute “a unique behavioral trait within the meaning of DPS policy.” (Federal Register 2003: Vol. 68, No. 18:14). According to the Shea letter, Gale et al. specifically details how migration patterns impacts “energetics, habitat use patterns, productivity, and survival,” making migration pattern “one of the most fundamental behaviors of avian species.”

B. Re-interpreting Data. The Service incorrectly cites Gale et al. to support its conclusion that members of the Tri-state population of trumpeters are likely to interbreed with the Western Canada population (Dubovsky and Cornely, 2002:14). In contrast, the Gale et al. report specifically concluded that “[t]here is currently no evidence that these swans interbreed with the Interior Canada trumpeters. Until evidence of matings between the two groups is found, the Tri-state trumpeters should be viewed as a significant breeding population whose continued existence is threatened, and managed as a threatened population.” The Shea letter argues that FWS “wrongly cites” the study, “while omitting any mention of that report’s real conclusion.”

In selectively using and misinterpreting the data from the Gale et al. study, the Service violates DQA mandate that Service reports “ensure and maximize the quality, objectivity, utility and integrity” of agency data and information.

Conclusion

According to the Data Quality Act guidelines for the U.S. Fish and Wildlife Service, “[h]igher levels of scrutiny are applied to influential scientific, financial, or

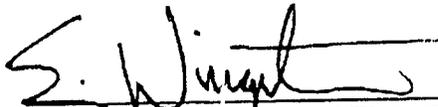
statistical information, which must adhere to a higher standard of quality.” U.S. Fish and Wildlife Service Information Guidelines, Part III-1, at 4. The term “influential” is defined as “information with a clear and substantial impact on important public policies or important private sector decisions” including “rules, substantive notices, policy documents, studies [and] guidance” as well as “issues that are highly controversial or have cross-agency interest. . .” U.S. Fish and Wildlife Service Information Guidelines, Part III-2, at 4.

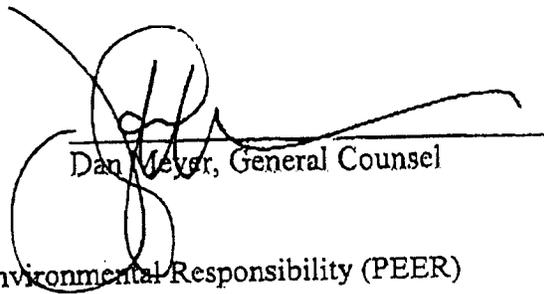
The subject matter of the 90-day Finding has a substantial impact on 1) the designation of whether trumpeter swans should be protected under the Endangered Species Act; and 2) the application of hunting laws throughout the Rocky Mountain states. For these reasons it must be treated with “higher levels of scrutiny” under the DQA. U.S. Fish and Wildlife Service Information Guidelines, Part III-2, at 4.

The Finding relies primarily on a non-peer-reviewed report, the Dubovsky and Cornely study even though a large body of rigorously reviewed reports was available. The Dubovsky and Cornely report breaches standard scientific practices, relies on unsupported statements and selected data, and it dismisses significant contrary opinions within the community, and as such does not constitute “a reliable data source” as defined by Interior’s DQA guidelines. It may not be used as a source for a government document under the DQA.

The misuse of the Gale et al. is also a violation of the DQA. The fact that data were selectively utilized, and that its conclusions were misinterpreted, undermines the DQA’s goal to “ensure and maximize the quality, objectivity, utility and integrity” of agency data and information.

In light of the evidence of multiple failures of the FWS to comply with the Data Quality Act in making its 90-day Finding on the trumpeter swan populations, PEER demands that the Department of Interior immediately withdraw the Finding.


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EXHIBIT A



THE TRUMPETER SWAN SOCIETY

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March 7, 2003

Dr. Steve Williams
Director, U.S. Fish and Wildlife Service
Main Interior Building
1849 C Street NW, Mailstop 3238
Washington, D.C. 20240

Dear Dr. Williams:

On January 28, 2003 the U. S. Fish and Wildlife Service published a 90-day Finding in the Federal Register in response to the August 25, 2000 petition by the Biodiversity Legal Foundation and Fund for Animals to designate the Tri-state (or Greater Yellowstone) Population of Trumpeter Swans as a Distinct Population Segment (DPS) and list it as threatened or endangered. This is the only breeding population of Trumpeter Swans that escaped extirpation in the lower 48 states. The Trumpeter Swan Society (TTSS) did not join in the listing petition and continues to believe that this important and imperiled population can be saved without invoking the Endangered Species Act, which could hinder essential cooperation from private landowners and states.

The 90-day Finding concluded that the Tri-state Population is neither 1) discrete from the remainder of the taxon *Cygnus buccinator* nor 2) significant to the taxon, and that this breeding group did not meet the criteria for assignment of DPS status. TTSS believes that the Service has a credible argument that the Tri-state Population does not pass the significance test, in the technical sense of significance to the taxon that is specifically required for DPS designation, and might reasonably deny DPS status on that basis.

However, we strongly disagree with the Finding's conclusion that the "*available evidence does not demonstrate that the Tri-state flock is discrete under DPS policy...*". We believe that this conclusion was based upon errors and omissions in the Finding, and fear that the Service's failure to recognize that the Tri-state trumpeters are markedly separated from other breeding populations will damage efforts to securely restore this important group of swans. One of the greatest vulnerabilities of the Tri-state Population is its very substantial, if not total, reproductive isolation. To date there are no data indicating that pairing with Canadian trumpeters is likely or that Canadian trumpeters will abandon their natal areas and fill in vacant Tri-state breeding habitat as the Tri-state Population declines. Failure to recognize the reproductive isolation and resulting vulnerability of the Tri-state trumpeters will impair development of the restoration strategies and actions needed to prevent their decline.

The erroneous conclusion regarding the discreteness of the Tri-state Population was based in large part on an unreviewed internal report by Dubovsky and Cornely (2002), which also contains numerous factual errors and omissions of important information. Therefore, TTSS requests that:

- 1) The Service work with TTSS and other professional wildlife organizations to review the information that we are providing and revise its 90-day Finding to recognize the Tri-state Population as a discrete breeding population that has tremendous social and historic value, although it does not meet the DPS test of significance to the taxon;

- 2) The Service remove the Dubovsky and Cornely (2002) report from its website and not circulate it further until it can be reviewed carefully and the errors corrected.

We also ask the Service to carefully review its policies for using the best available scientific data in decision making, and for publishing unreviewed internal reports worldwide on the web.

Few groups of birds are as well known, or as highly valued by the public, as the Trumpeter Swans that nest in Greater Yellowstone. We sincerely want to help the Service prevent the further decline of the Tri-state Population and securely restore this vulnerable breeding group. We hope this information helps us all achieve our common purpose.

Sincerely,

Ruth E. Shea

Ruth E. Shea
Executive Director

Specific Concerns

1. This 90-day Finding imposes an impracticably stringent standard for discreteness that contradicts DPS policy published in the Federal Register (February 7, 1996).

DPS Policy states that "*The Services do 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*".

Despite this clear direction, this 90-day Finding bases much of its rationale for concluding the Tri-state Population is not discrete upon the observations of 5 (0.25%) of the 1,971 normal-wild trumpeters that were tarsal-banded or auxiliary marked in Canada or the Tri-state Area between 1949-2002 (Dubovsky and Cornely 2002). These 5 observations included 2 marked Tri-state birds that were each observed once in Alberta (Gale et al. 1987, Dubovsky and Cornely 2002) and three marked Canadian trumpeters that were observed summering in either western Montana (1) or the Tri-state area (2), including 1 Canadian trumpeter that attempted unsuccessfully to nest in the Tri-state area (Gale et al. 1987, Shea and Drewien 1999).

These 5 records, collected over a 50+ year period, are totally inadequate to support the 90-day Finding's conclusion that "*however, current banding and marking information, (although limited in extent) indicates that there is some dispersal of swans from the Yellowstone Ecosystem to other parts of the RMP area and vice versa, and that pairings between Tri-state birds and Canadian birds can be expected to occur*." To date, there has been no known productive pairing between the Western Canada and Tri-state breeding populations in the wild and only one documented unsuccessful attempt (Gale et al. 1987, Shea and Drewien 1999).

2. The Finding errs in its assertion that pairing usually occurs during the fall and winter months when the Western Canada and Tri-state populations are sympatric and therefore mixed pairings can be expected to occur. The finding wrongly cites Gale et al. (1987) in support of that conclusion, while omitting any mention of that report's real conclusion.

Gale et al. (1987) conducted a 3-year review, funded by the Service, of all known data pertaining to the Tri-state and Canadian trumpeters and their conclusions regarding population discreteness and pair bonding directly contradicted those of the 90-day Finding. This review involved the Pacific Flyway Subcommittee on Rocky Mountain Trumpeter Swans, all living Tri-state and Canadian Trumpeter Swan biologists and managers dating back to Winston Banko in the 1950s, 7 researchers and state and federal managers who co-authored chapters, and 13 managers and researchers, including Winston Banko, who reviewed various drafts of the report. The primary authors were Ruth Gale (now Ruth Shea), Dr. Oz Garton (U. of Idaho), and Dr. Joe Ball (Montana Coop. Unit). While not advocating official ESA listing, Gale et al. (1987) concluded: "*The continued survival of the Tri-state breeding population is in doubt. There is currently no evidence that these swans interbreed with the Interior Canada trumpeters. Until evidence of matings between the two groups is found, the Tri-state trumpeters should be viewed as a significant breeding population whose continued existence is threatened, and managed as a threatened population*".

3. The Finding omits relevant marking studies by Wyoming Game and Fish Department (Lockman et al. 1987) and the Canadian Wildlife Service (Turner 1987 in Gale et al. 1987) that contradicted the Finding. Those studies indicated that pair bonds most likely are formed when the Tri-state and Canadian breeding populations are separate.

The Finding's new theory that Canadian and Tri-state trumpeters usually form pair bonds "*during the fall and winter months*" and that pairings between the two groups "*can be expected to occur*" is contradicted by the marking data from normal-wild Canadian and Tri-state trumpeters marked on their natal areas. Two studies have examined the behavior of marked sibling groups of normal-wild trumpeters and followed subadults through the pair-bonding process. During 1973-78, while the Grande Prairie flock numbered <200 swans, the Canadian Wildlife Service marked 232 Grande Prairie swans, including 56 broods, with coded neckbands. This research revealed the very strong philopatry of Canadian trumpeters and found no pairing with Tri-state swans. It concluded that pairing most likely occurred when the populations were apart either during migration or on the breeding grounds (Turner 1987 in Gale et al. 1987). During 1982-86, at a time when the Wyoming flock contained about 60 adults, the Wyoming Game and Fish Department studied the movements and behaviors of 42 marked trumpeters, including 5 sibling groups. This research documented the maintenance of adult-cygnets until after Canadian trumpeters had migrated in March, the fidelity of Wyoming yearlings and subadults to the Tri-state region, breakdown of sibling bonds and beginning of courtship during late winter of their second or third year, and lasting pair bond formation following a period of intense courtship at spring staging areas in April and early May, after Canadian trumpeters had migrated (Lockman et al. 1987).

4. The genetics conclusions in the 90-day Finding are based on several errors and omissions, and also do not comply with the DPS policy, which stressed that genetic distinctiveness need not be proven before a group can be deemed discrete when it stated, "*Thus, evidence of genetic distinctiveness or of the presence of genetically determined traits may be important in recognizing some DPS's, but the draft policy was not intended to always specifically require this kind of evidence in order for a DPS to be recognized.*"

The Finding attempts to build the case that not enough time could possibly have elapsed for the morphology, behavior, or genetics of Tri-state trumpeters to have become distinctly different from those

of other Trumpeter Swan flocks. The Finding's argument starts with the unsupported speculation that no significant differences existed among trumpeters before the mid-1800's, and then confuses the fundamental biological concepts of generation length (not calculated) and maximum individual longevity (24+ years) to conclude that the Tri-state Population has had only 6 or 7 generations (150/24+) in which divergence could possibly have occurred. The Finding omits any mention of the severe bottlenecks experienced by both the Tri-state and Canadian trumpeters that could have accelerated their divergence through founder effect and drift (Gale et al. 1987, Pelizza and Britten 2002). In addition, the Finding omits reference to the peer-reviewed publication by Pelizza and Britten (2002), which was supported by the Service, co-authored by one of their employees, available before the Finding was published, and which found statistically significant genetic differences between Tri-state and Alaskan trumpeters. This research directly refutes the Finding's speculation that there has been insufficient time for genetic divergence of the Tri-state trumpeters from other Trumpeter Swan populations.

5. The Finding arbitrarily rules that the major behavioral difference between the Tri-state and Canadian trumpeters (e.g. the Tri-state Population is almost entirely non-migratory while the Western Canada Population is entirely migratory) is "not a unique behavioral trait within the meaning of DPS policy". Migration, or lack thereof, is one of the most fundamental behaviors of avian species, impacting their energetics, habitat use patterns, productivity, and survival; these impacts are clearly evident when the Canadian and Tri-state trumpeters are compared (Gale et al. 1987). The Finding presents no objective rationale for disregarding this fundamental and significant behavioral difference.

6. The Finding's conclusions regarding movements and dispersal of marked trumpeters are based almost entirely upon the unreviewed analysis in the internal report by Dubovsky and Cornely (2002), which contains numerous errors and omissions of data that lead to incorrect conclusions.

Dubovsky and Cornely (2002) analyzed data from Canadian and Tri-state trumpeters marked between 1949-2002 by splitting the data into 5 categories, based upon whether the birds were normal-wild or translocated/captive reared, whether the records came from the Bird Banding Lab (BBL) database or the Service's Pocatello database, and whether swans were translocated in summer or winter. The majority of sightings of these same marked trumpeters have previously been summarized by Gale et al. (1987) and Shea and Drewien (1999). Problems in the Dubovsky and Cornely (2002) analysis are more numerous than we can address in this letter, however we will point out several examples at this time:

a. Dubovsky and Cornely (2002) analyzed the most informative set of birds, the 1,971 normal-wild trumpeters (including about 769 with auxiliary markers) that were marked on nesting areas in 1949-1998, but relied only on BBL records or 1988-2002 data in the Service's Pocatello database. This was a major mistake because neither of those databases contain the thousands of records of neck-band resightings that were made of these birds between 1949-88. The BBL did not accept neckband data in those years and the Service's database contains no records prior to 1988. Thousands of resightings of individually neck-banded birds, including long-term studies of the Wyoming and Grande Prairie flocks and marking studies at Red Rock Lakes NWR, were overlooked by the Dubovsky and Cornely (2002) analysis. It was these marking studies of normal-wild birds, conducted over a 50+ year period, that have provided much of the knowledge of the behavior, and discreteness, of the Tri-state and Western Canada populations. To understand this information, one must either read the individual study reports, read the summary in Gale et al. (1987) that was written with assistance from the original researchers, or dig into the various Canadian Wildlife Service, Red Rock Lakes NWR, or Wyoming Game and Fish auxiliary marker records. Dubovsky and Cornely (2002), and the 90-day Finding, completely ignore these important data.

b. The analysis of 155 Red Rock Lakes normal-wild trumpeters that were marked and released the same day at their nesting area wrongly concluded that none have migrated to Utah. The analyses omit pertinent data, including a 2-year-old female from Red Rock Lakes shot in the swan hunt near Ogden Bay, Utah in November 1985, 2 Red Rock Lakes cygnets that migrated to Utah in November 1992 and were shot in the swan hunt, and a radioed adult from Red Rock Lakes that migrated with its mate to western Colorado and returned through north-eastern Utah in winter 1984-85 (McEneaney 1986 in Gale et al. 1987). A complete review of the original data would be needed to identify all omissions.

c. The analysis of swans captured during summer in the U.S. and translocated to distant release sites is also missing relevant data, particularly the resightings from Utah, such as the 4 Tri-state trumpeters from Grays Lake that migrated to west-central Utah in winter 1989-90 (Engler 1990). Again, a complete review of the original data would be needed to identify all omissions.

d. In the analysis of resightings of swans captured during the winter in the U.S. and translocated to other locations, large amounts of relevant data are also inexplicably missing. Again, it is impossible to detect all the omissions without searching the entire Pocatello database. However, easily detectable omissions include resightings from southern California, southern and western Nevada, Arizona, northern Mexico, southeastern New Mexico, and northern Texas, and hundreds of resightings from Oregon and Utah (Shea and Drewien 1999). The magnitude of omissions indicates that either the Pocatello database has somehow been corrupted or it was improperly queried.

e. The discussion of Tri-state Population trend in Dubovsky and Cornely (2002) is premised upon an erroneous portrayal of changes in the Tri-state fall survey effort since the 1940s. Dubovsky and Cornely (2002) once again wrongly cite Gale et al (1987) when they assert that the fall survey area expanded significantly between 1946-65 and then reference a personal communication as their sole basis for stating that the coverage has remained relatively consistent since 1966. Their portrayal completely contradicts previous reviews of the original survey maps and reports that showed that the survey area was remarkably consistent during the period 1946-65 (Gale et al. 1987) but changed significantly after 1966 as large new areas were included and survey frequency was reduced to once every 3 years during 1968-82 (Gale et al 1987, Lockman et al. 1987, Shea and Drewien 1999). Dubovsky and Cornely (2002) also omitted any reference to the USFWS September 2002 Tri-state Population Survey data, which were available to them and which found a 22% decline in the population since the September 2001 survey.

7. The Finding's analysis regarding differences in control of exploitation, habitat management, conservation status, or regulatory mechanisms in Canada and the U.S. inaccurately describes status in both countries and wrongly concludes that "essentially no differences in management exist".

The Finding wrongly describes the status of trumpeters in the Province of Alberta as "vulnerable" when, in fact, they have been classified as "threatened" since June 2001 and the Province is currently developing a recovery plan. The Finding also errs when it states that "*Neither country has a sport-hunting season specifically for trumpeter swans*" and that the only allowable harvest of trumpeters is by limited quota in Utah and Nevada. In fact, since 1995 the Service has also legalized the harvest of Trumpeter Swans in Montana, where no quota (other than total number of generic swan permits issued) or mandatory examination of harvested birds exists.

Contrary to the Finding, this difference in management has created the paradoxical situation where a bird that is threatened in Alberta, where all swan hunting is prohibited, can be legally harvested in a specifically authorized hunt as it migrates through Montana. Although trumpeter harvest is technically

illegal in the Central Flyway portion of Montana, state monitoring has also documented hunter harvest of trumpeters in the eastern portion of the state during the Tundra Swan hunt, with no measures implemented to halt this illegal harvest.

Legal harvest of trumpeters in Montana can impact Tri-state, as well as Canadian trumpeters (including the threatened Alberta segment). During the 1980s, nesting Tri-state trumpeters were increasing along the East Front of the Rocky Mountains of Montana, near the Tundra Swan hunt zone (Gale et al. 1987). This most northerly extension of the Tri-state Population held the potential to expand and gradually establish a reproductive link across Montana between Tri-state trumpeters and Canadian trumpeters nesting in southern Alberta. After 7 years of legalized Trumpeter Swan harvest, however, Montana's East Slope flock have declined and may have been extirpated (USFWS 1999, 2000, 2001). Although the role that harvest played in their demise can never be known with certainty, the prospects for rebuilding a continuous breeding distribution between the Tri-state and Western Canada populations by reoccupying central Montana nesting habitat are diminished as long as the swan hunt in that area continues.

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