



Public Employees for Environmental Responsibility

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Before the U.S. Department of the Interior

U.S. Fish & Wildlife Service (USFWS)
WASHINGTON, D.C.

ANDREW C. ELLER, JR. AND
PUBLIC EMPLOYEES FOR
ENVIRONMENTAL
RESPONSIBILITY (PEER)

Complainant,

v.

DEPARTMENT OF THE INTERIOR
Agency.

Dkt. No. _____

May 4, 2004

*Data Quality Act Challenge to U.S. Fish
& Wildlife Service Documents Pertaining
to the Survival and Recovery of the
Florida Panther (Puma concolor coryi)*

COMPLAINT OF
ELLER & PEER
PURSUANT TO THE DATA QUALITY ACT OF 2000

To: *Correspondence Control Unit
Attention: Information Quality Complaint Processing
U.S. Fish and Wildlife Service
1849 C Street, NW Mail Stop 3238-MIB
Washington, DC 20240*

Pursuant to Section (b) 2 (B), Data Quality Act of 2000 and Part IV, U.S. Fish and
Wildlife Service Information Quality Guidelines, Andrew C. Eller, Jr. and Public



Employees for Environmental Responsibility (PEER) hereby challenges data manipulation and conclusions drawn therefrom by the U.S. Fish & Wildlife Service (USFWS), as detailed infra.

Andrew C. Eller, Jr. has been an employee with the USFWS for 17 years. He has spent over half of his career, about ten years, working in the Florida panther recovery program and on panther-related issues. He served in 1991 as a member of a multi-agency Florida panther habitat preservation working group that included the Florida Fish and Wildlife Conservation Commission (FWC), the Florida Department of Environmental Protection, and the National Park Service. He then served as the Assistant Panther Coordinator from 1993 through 1998. He was co-chair of the MERIT Panther Subteam during its formative early meetings. Between 1998 and 2003 he was employed by the USFWS to write panther-related biological opinions for Endangered Species Act (ESA) section 7 consultations on federal actions in southwest Florida.

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 USFWS and in other public agencies whose work with the Florida panther is encumbered. PEER also represents a number of public employees who contend that the studies cited in this complaint are 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 ensuring the recovery of the Florida panther.

Panther literature considered "best available science" by the USFWS contains unsupported assumptions, uses inappropriate analytical methods, and selectively uses data to support conclusions. Errors in key papers authored by Dr. David Machr and colleagues have been documented in peer-reviewed papers (Comiskey et al. 2002, 2004), field reports (McBride 2000, 2001b, 2002), court declarations (McBride 2001a,

Comiskey 2001), and in an investigative literature review by an independent Scientific Review Team (Beier et al. 2003) convened jointly by the USFWS and the FWC; yet these errors have not been corrected and are still used and disseminated by the USFWS.

All USFWS documents have failed to adequately define panther habitat. Certain documents cite Maehr et al. (1991) and Maehr and Cox (1995) uncritically and make unqualified references to panther "habitat" or to habitat "use," "preference," "tolerance," or "avoidance" where these terms are derived from daytime frequency-of-use rankings, thereby endorsing Maehr's claim that day-use land covers represent 24-hour habitat use.

The unsound science used and disseminated by the USFWS has compromised panther recovery policy, population management, and section 7 consultations during the past decade. Interrelated errors in concepts and findings are found throughout most panther recovery documents. The cumulative effect of errors in these documents has been to misrepresent panther/habitat associations, minimize assessments of the impacts of land use changes to panthers, and obscure population viability issues. The prevalence of these errors handicaps the agency's ability to ensure the survival and recovery of the panther. The panther monitoring project authorized by the USFWS has failed to identify or correct these errors and has instead contributed to them

USFWS documents covered by this complaint include the Multi-Species Recovery Plan (MSRP), the Draft Landscape Conservation Strategy (Conservation Strategy), and several biological opinions. Related documents used and disseminated by the Corps of Engineers (Corps) that exhibit the same pattern of errors include the Southwest Florida Environmental Impact Statement and the Panther Key and Rationale.

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, information upon which USFWS recovery planning documents and biological opinions are based fails to meet standards mandated in the DQA.

Summary of Relevant Law

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://im.USFWS.gov/infoguidelines/USFWS%20Information%20Quality%20Guidelines.pdf>.

The Data Quality Act of 2000 requires that information be "developed from reliable methods and data sources" and that agencies ensure the "quality," "integrity" and "objectivity" of data in public policy. The examples described below demonstrate an urgent need to correct misinformation in the Florida panther administrative record.

The documents that guide or implement Florida panther recovery actions, cited herein, fail to adhere to these guidelines and are therefore in violation of the DQA.

Argument

The requests for correction fall into two categories: (1) panther/habitat associations and (2) estimates of demographic parameters used in viability analyses.

(1.) Errors associated with the definition of panther "habitat"

A. Day Counted as Night

STATEMENT OF ERROR:

The inter-related habitat studies of Maehr et al. (1991) and Maehr (1992) have defined "occupied and potential habitat" as "those areas preferred or tolerated by panthers" based on daytime-use habitat rankings. This definition underlies the key habitat selection study Maehr and Cox (1995) that extrapolates daytime use to 24-hour use.

WHY IT IS WRONG:

This definition is inadequate because it relies on the invalid assumption that all panther activity is restricted to day-use habitats.

Panther habitat, properly defined, should encompass the ecosystem elements that support the full life-cycle needs of the species. No evidence suggests that nighttime activities are restricted to land covers associated with daytime telemetry or that "preferred" habitat should be limited to day-use forest patches. Daytime cover, often associated with forest patches, is necessary but not sufficient to support the panther. A wide range of habitats are used during times of peak activity.

Telemetry locations for radio-collared panthers have been recorded three times per week during daylight hours since 1981. Panthers are most active at dusk and dawn and are typically at or near their daytime resting sites when telemetry data are collected. During limited 24-hour monitoring of panthers in the late 1980s, measurable shifts in location were rarely seen during the day, while nighttime travel distances of 20 km were not unusual (Maehr et al. 1990). The unreferenced claim in Maehr (1997a) that night-time habitat use does not differ from daytime use is countered by the only credible source for this information (McBride 2002, see also Comiskey et al. 2004:55).

Evidence indicates that Florida panthers, like similar *Puma concolor* subspecies elsewhere, use a broad spectrum of habitats at night. Researchers agree that sampling daylight habitat associations of a nocturnal species results in a biased representation of habitat use (Aebischer and Robertson 1992, Aebischer et al. 1993, Beyer and Haufler 1994, RIC 1998, Rettie and McLaughlin 1999, White and Garrott 1990).

Nonetheless, Maehr and Cox (1995) ranked vegetative land cover types as "preferred," "tolerated" or "avoided" based on their daytime frequency-of-use versus availability in the landscape, without addressing the known activity bias of these telemetry data toward resting cover.

Maehr and Cox (1995) forms the foundation of the Panther Habitat Evaluation Model (PHEM) (Maehr and Deason 2002), which limits impact assessment to day-use habitats. In both studies, the authors avoid the question of habitat use during unmonitored peak activity times by omitting any mention that data were collected during the daytime when animals are typically at rest. Peer-reviewers may therefore have mistakenly assumed that all activities were monitored, since results were extrapolated to 24-hour habitat use.

CONSERVATION IMPLICATIONS:

Such a narrow definition of panther habitat does not support protection of spatial extent of home ranges (living space) or of contiguous zones of habitat needed for panther life cycle requirements. Protecting isolated components of a home range does not ensure that the breeding, feeding and sheltering needs of the panther will be met in the restructured post-impact environment. Preservation of spatial extent of home ranges and land covers used during nighttime activities is also important. Loss of these components of habitat, and of connectivity between components, impacts panthers and requires compensation just as would loss of day-use habitats.

Unqualified reference to day-use sites as "preferred habitats," while excluding other habitats used during a panther's active hours inappropriately characterizes panther habitat use in a way that underestimates the impacts of land use. Consequently, permit applicants may assert that no compensation should be assessed for habitats misleadingly described as "avoided." Even in the context of day-use sites, the term "avoided" is incorrect, since daytime use of these sites has been documented by telemetry. A more accurate characterization would be "used less frequently than other land covers during daytime hours."

Disturbance of land covers used less frequently than others can nonetheless impact panthers. These land covers are also important and even infrequent use of disturbed areas could expose panthers to hazards. Prudence dictates that impacts to the

integrity of the home range, prey resources, and connectivity within and between breeding units be considered in ESA section 7 consultations.

All USFWS documents that make unqualified references to panther "habitat" or to habitat "use," "preference," "tolerance," or "avoidance," where these terms are derived from daytime frequency-of-use rankings, make the implicit assumption that day-use land covers are representative of 24-hour habitat use. Key recovery planning documents such as the MSRP, Conservation Strategy and most biological opinions have failed to adequately describe panther habitat.

The USFWS (2002a) is circulating a Conservation Strategy that fails to incorporate a meaningful definition of habitat that encompasses the life cycle requirements of the panther, in effect defaulting to Maehr's narrow and inaccurate definition.

Despite acknowledging the limitations of daytime telemetry, the Conservation Strategy makes numerous such references to "habitat" and "habitat use" that imply that land covers not associated with daytime telemetry are not occupied or potential panther habitat. The Strategy describes a model that uses land covers associated with daytime telemetry to identify "habitat," implying that land covers not associated with daytime telemetry are not habitat (Subsection "Potential Habitat Model" in Chapter 3: "Potential Habitat and Landscape Connection Models" USFWS 2002a:38).

In biological opinions, USFWS has in effect accepted Maehr's definition of habitat by considering only those land use changes that occur in forested habitats as having potential impacts to panthers.

The USFWS (2002b) acknowledged in the Florida Rock Biological Opinion (Opinion) that Maehr's concept of "preferred" and "avoided" habitats is flawed because daytime telemetry does not describe 24-hr habitat use. However, the Opinion continued to use the terms "preferred" and "avoided" habitat uncritically elsewhere in the document. Furthermore, the USFWS accepted the applicant's impact assessment

for "forest only," although this assessment is based solely on daytime preferences. No explanation is provided for excluding non-forest land covers from impact assessment.

Continued use of the terms "preferred" and "avoided" based on association of land covers with daytime telemetry locations, after the methodology to derive them has been discredited (Beier et al. 2003, Comiskey et al. 2002), is indefensible.

B. Fatal Data Limitations

STATEMENT OF ERROR:

Unacknowledged data omissions, inappropriate methods, failure to compensate for spatial error, and conclusions that fail to acknowledge data limitations contribute to a biased view of panther/habitat associations in Maehr and Cox (1995) and papers that rely on its findings.

WHY IT IS WRONG:

Forty percent of telemetry data were omitted, excluding areas with small, scattered forest patches, although the authors stated that all data were used. The telemetry data points selected for inclusion were pooled and analyzed as if the panther population were making habitat selections as a single unit. These errors biased results toward a strong preference for large forest patches.

Spatial errors of accuracy and precision were not compensated for in the point-to-pixel association of telemetry locations with land cover pixels in Maehr and Cox (1995). Proximity of most daytime telemetry locations to forest patches (described as 90 meters by Maehr and Cox) was interpreted in Maehr and Deason (2002) as the distance panthers are likely to move from forest.

CONSERVATION IMPLICATIONS:

The findings of Maehr and Cox (1995) were incorporated into the Panther Habitat

Evaluation Model (PHEM) developed by Maehr for the Daniel's Parkway Extension project (Lee County 1999) and published by Maehr and Deason (2002).

Comiskey et al. (2004) discuss the conservation implications of applying habitat evaluation methods that embody the errors identified in Maehr and Cox (1995), concluding that a flawed analysis led to a flawed concept of panther habitat.

After eliminating non-forest from consideration, PHEM compares forest patches on a project site to an arbitrary standard of "ideal" habitat and applies evaluation rules that reduce compensation based on this comparison. The conclusion that panthers prefer large forest patches resulted in a rule that reduces compensation for forest patches smaller than 600 ha. The conclusion that most daytime telemetry locations are within 90 meters of forest resulted in a rule that limits compensation for forest patches that are located more than 90 meters from other patches.

Errors in Maehr and Cox (1995) and Maehr and Deason (2002) are reflected in the conclusions of biological opinions in which day-use habitat rankings are used to assess impacts. The Conservation Strategy cites Maehr and Cox (1995) uncritically in many places, and uses a similar technique of pooling data over the population, treating location points rather than the individual panther as the sampling unit (Beier et al. 2003).

The PHEM 90-meter rule is referenced in the Conservation Strategy in a section that proposes to determine the distance panthers are found from forest by computing the proximity of daytime telemetry to forest (USFWS 2002a:37). The USFWS included this methodology and rationale in the Conservation Strategy despite strong objections from science advisers on the Panther Subteam, convened by USFWS to aid in designing the Strategy. Subteam members regarded this material as misinformation that perpetuates inaccurate characterizations of panther movement and habitat use.

Comparison of the south Florida landscape, where panthers are found, to an arbitrary ideal standard that is not well represented on the landscape would result in assessing a

large proportion of occupied habitat as unsuitable for panthers. Large-scale application of a methodology that excludes non-forested land covers and systematically reduces the value assigned to forested land covers would not conserve sufficient habitat to sustain the population.

(2.) Errors in Estimates of Demographic Parameters Used in Viability Analyses

A. Demographic Parameters for the Pre-introgression Panther Population

STATEMENT OF ERROR:

Estimates for pre-introgression population size ($N=60$) and rates of reproduction (100%) and kitten survival (80%), presented in the Maehr et al. (1999) population viability analysis and published in Maehr et al. (2002), are much higher than estimates used in earlier simulations (Ellis et al. 1999). These higher estimates are not supported by monitoring data and misrepresent the status of the panther population before genetic restoration (Beier et al. 2003; Comiskey 2001; Comiskey et al. 2004; McBride 2001a, 2002).

WHY IT IS WRONG:

The estimated population size of 60-70 panthers presented in Maehr et al. (1999, 2002) (of which 30 were assumed to be breeding females) was based on unwarranted extrapolation from an area of known panther occupation to an area in which there was no sign of occupation (Beier et al. 2003:46). McBride (2002) stated that the pre-introgression population probably comprised fewer than 30 individuals, a substantial number of which were non-breeding. The estimate of an 80% pre-introgression kitten survival rate in Maehr et al. (1999, 2002) was based on an indefensible estimate in Maehr and Caddick (1995) that was unsupported by data (Beier et al. 2003:47, 49, 143-144).

Tables in annual panther monitoring reports (e.g. Shindle et al. 2003:80-83) document many failed Florida panther litters and Maehr (1997b) stated that 4 of 15 monitored Florida females failed to reproduce and that only 11% of kittens survived to maturity.

CONSERVATION IMPLICATIONS:

The Maehr et al. (1999, 2002) PVA simulations incorporated unrealistically high estimates of pre-introgression demographic health and reproductive success to support the view that inbreeding was not a problem for panthers and that genetic restoration was unnecessary. Mischaracterization of the pre-introgression population makes resolution of issues related to population viability, genetic restoration, habitat suitability and carrying capacity more difficult. When the pre-introgression population is inaccurately characterized as having 30 regularly breeding females and 80% kitten survival, it belies the fact that population size and survival rates have doubled or tripled in the post-introgression population (McBride 2002, 2003; Comiskey et al. 2004).

Underestimation of the differences between Florida and introgressed kitten survival (and of pre- vs. post-introgression population size) prevents an accurate assessment of the effects of inbreeding on small populations of a wide-ranging mammal and of the recovery potential for various metapopulation structures, obscuring the benefits of subspecies introgression for the panther and other endangered species.

The USFWS issues monitoring permits to the FWC to gather information, including radio telemetry data, to guide the planning and implementation of recovery activities. These data are gathered at some risk to panthers and at public expense. Misrepresentation of these data to thwart rather than further panther recovery is an urgent matter that merits timely attention to repair the damage done, locate the breakdown in the flow of information from monitoring to published literature to policy, and provide safeguards to prevent a recurrence of the problem.

The Conservation Strategy references the Maehr et al. (2002) PVA uncritically in a number of places. This information should be removed or accompanied by a description

of its limitations and inaccuracies.

B. Breeding Adults Versus Known Population Size

STATEMENT OF ERROR:

It is erroneous and misleading to compare the known population of panthers, which includes non-breeding adult and sub-adult panthers, with target population sizes that stipulate breeding adult panthers (effective population size).

WHY IT IS WRONG:

A documented population size cannot be directly compared with an estimated minimum viable population size (MVP) when determining whether or not a recovery goal has been met. MVP sizes stipulate breeding adults, while a portion of actual populations are non-breeding for various reasons (e.g. age, health status, isolation, reproductive deficiencies). Such a comparison requires that the number of non-breeding and irregularly breeding panthers in the wild population be considered.

In a PVA, specific assumptions are made about the modeled population. It is commonly assumed that all adults in the simulated population are capable of breeding, that the sexes are equally represented (1:1 ratio of males to females) and that all individuals have an equal probability of producing offspring. It may also be assumed that there is no geographic isolation, habitat loss, environmental stochasticity, or inbreeding depression, or modelers may specify a range of assumptions for these factors.

A population size that offers a high likelihood of persistence under idealized conditions would have a lower likelihood of survival when these assumptions are not exhibited or achieved in the wild population. Expressed another way, the population size required to achieve a given probability of persistence increases in proportion to the degree that idealized model assumptions are exhibited or achieved in the wild population.

Model parameters include initial population size, carrying capacity of the environment,

and rates of reproduction, kitten survival and natural mortality. The reliability of a model depends in part upon how closely the estimated values for these parameters reflect actual population characteristics.

In endangered species recovery decision-making, it is essential that model results be reported in the context of assumptions and limitations, and that known deviations from assumed conditions are considered. For example, simulations that exclude habitat loss and inbreeding depression would overestimate survival probabilities of the target population. These risk factors are significant.

The Conservation Strategy uses the imprecise and misleading terms "panthers" or "individuals" rather than the required "breeding adults" when discussing minimum viable populations (MVP) and population viability analyses (PVA).

Recent USFWS Biological Opinions compare an MVP of 50 to McBride's Current Verified Population (CVP) of 78 and compute a surplus of 28 panthers, although the MVP refers to breeding adults (specifically 25 breeding females) while McBride's CVP refers to individuals (USFWS 2002b:17).

“The extant population is currently estimated at 78 (Roy T. McBride, personal communication, 2001). This number is 28 more than the 50 that the best currently available scientific information (Seal et al. 1989) indicates are needed to ensure demographic and genetic health in the extant population.”

McBride's count of documented individuals in the population included 16 juvenile panthers too young to breed, adults too old to breed, Texas females with contraceptive implants, females of breeding age that had rarely or never bred, and panthers isolated from mates (McBride 2001), while Seal et al. (1989) describe an "effective population" of breeding adults, half of which are assumed to be breeding females.

McBride's information is cited in the biological opinions as a personal communication, although his communication with the USFWS was in the form of a written report

(McBride 2001) that provides other relevant information. If McBride's written report had been properly cited and referenced, the reader could have determined that his information was misrepresented in biological opinions to make the panther appear less endangered. His subsequent reports (McBride 2002, 2003) note the errors associated with taking the population count out of context.

CONSERVATION IMPLICATIONS:

The distinction between effective (breeding) population size and total population size is a critical one that, for scientific purposes, must be observed in biological opinions, the Conservation Strategy, and other recovery documents. Comparing known population size to a target number of breeding adults gives the misleading impression that the panther is less endangered than it actually is, and hence less in need of recovery efforts mandated under the ESA, including determinations of jeopardy. Such comparisons also compromise efforts to determine whether recovery goals that include a target breeding population size have been achieved.

Even when breeding status is specified, suggested MVPs of 50 breeding adults are unrealistically low because they specify numerous conditions that do not exist in the Florida panther population (e.g. no habitat loss, equal breeding access, no inbreeding effects, no density dependent mortality, stable prey populations).

(3.) Conclusion

Errors Identified and Confirmed

Members of the FWS science advisory Panther Subteam identified serious flaws in Maehr and Cox (1995) and other papers by Maehr and colleagues related to habitat evaluation and viability, regarded as "best available science" by the USFWS. The Scientific Review Team (SRT) report confirmed these errors and identified additional ones, acknowledging the role of SRT members in the peer-review process that initially approved these flawed studies (Beier et al. 2003:15).

The Peer-Review Process

As the SRT reviewed the Florida panther habitat literature it became obvious that the paper by Maehr and Cox (1995) has been used to influence land management decisions involving Florida panthers, despite serious flaws. Particularly unsound conclusions of this paper (or conclusions later attributed to the paper by Maehr and colleagues) are that panthers are reluctant to use areas farther than 90 m from forest cover, that panthers require forest blocks >500 ha, and that panthers are forest obligates. These conclusions form the basis of a habitat model (Maehr and Deason 2002, Meegan and Maehr 2002) that might be used to evaluate and sanction development projects within panther range. Sadly, the peer-review process failed to prevent publication of these errors.

The peer-review process similarly failed to detect that later manuscripts inappropriately cited Maehr and Cox (1995) as supporting conclusions not stated therein -- such as panthers being "reluctant to cross" 90 m of nonforest -- perhaps because reviewers assumed Maehr would not misinterpret his own work.

These examples illustrate the failure of the peer-review process to prevent publication of seriously flawed analyses and illustrate how the conclusions drawn from a flawed peer-reviewed paper can be accepted as fact by repeated citation and mis-citation. The SRT questions the reliability of subsequent publications that uncritically rely on Maehr and Cox (1995) and cautions those responsible for the management and recovery of the Florida panther that the peer-review process can fail, at times seriously. At least 1 SRT member reviewed 1 or more of the papers involved in this particular example, and we emphasize that reviewers and editors share responsibility for the failures reported here.

Errors Acknowledged

The substance of these issues is not disputed within the scientific community. In his own response to the Scientific Review Team Report (Maehr 2004), Maehr did not contest the major errors that invalidate earlier peer-review of his work. He did not dispute unacknowledged data omissions, methodological errors, or time of telemetry collection relative to panther activity cycles, nor did he provide data to support challenged parameter estimates. While he defended his right to hold views outside the scientific mainstream, he did not contest review findings that those views are not supported by telemetry monitoring data or literature published on other *Puma concolor* subspecies.

Maehr's habitat selection studies and habitat evaluation methods are invalidated by data omissions, inappropriate methodology, and failure to recognize the limitations of daytime telemetry. His work has been used to limit protection to specific configurations of forest

rather than conserving contiguous areas necessary to meet the breeding, feeding, and sheltering requirements of panthers.

USFWS Response

Despite unanimous agreement among reviewers regarding the serious errors in panther literature described herein, the USFWS has failed to acknowledge these errors or take steps to correct misinformation and reevaluate policies based on misinformation, as required under Data Quality Guidelines. Other than remarks that minimize the significance of the SRT report in response to press inquiries, the USFWS has not responded to the substance of the report, although its conclusions, if accepted, would change prevailing agency practices.

Despite peer-review comments provided in November 2002 and February 2003 that identified serious errors in the Conservation Strategy, the USFWS has failed to address review comments and continues to use and disseminate the uncorrected draft, perpetuating misinformation about panthers. Agency officials and the public, including both regulators and developers, have derived mistaken views about panther habitat use and viability from published literature. Under such conditions, it is irresponsible for the USFWS to reinforce these misconceptions by continuing to use and disseminate material that cites fatally flawed studies and repeats misinformation after it has been discredited by a peer-review panel the agency itself convened. Refusing to address peer-review comments to the Conservation Strategy before it is disseminated contributes to the mistaken view of panther science held by those who have relied on literature by Maehr and colleagues for information about panthers.

For example, a passage in the Conservation Strategy that Subteam members and peer-reviewers objected to as misleading has been incorporated in a discussion of habitat in a fact sheet about Florida panthers, disseminated on a USFWS web site:

"Various authors (c.g. Belden et al. 1988, Maehr et al. 1991, Maehr and Cox 1995, Comiskey et al. 2002) also make the point that panthers often utilize non-forest cover types interspersed in landscapes dominated by forests." (USFWS

Florida panther fact-sheet. [online] URL:
<http://northflorida.fws.gov/Panther/panther-factsheet.htm>)

A Subteam member (Comiskey 2003) objected to this and other passages in the Conservation Strategy that state or imply that the only viable habitats for panthers are those dominated by forest, arguing that "the idea that panthers are forest obligates or require dense forest has been persuasively challenged ... and clearly contradicts the consensus view of the Subteam." This objection was shared by a peer-reviewer of the document (Beier 2003):

"The word 'dominated' is far too strong and is not justified by the studies you cite ... In general, use huge qualifiers when interpreting the results of any previous analysis that uses a point-to-pixel approach, or that was restricted to a fraction of panther range."

The conservation implications of such passages are clear. Accepting the view that panthers require landscapes dominated by forest eliminates most of south Florida from consideration as panther habitat, including most of the occupied range. This view also supports the PHEM rule (Maehr and Deason 2002) that eliminates non-forest from consideration in ESA section 7 consultations and reduces compensation for forest patches smaller than 600 ha.

Misinformation in literature and the administrative record has handicapped the USFWS in making decisions related to panthers, including the evaluation of impacts of land use changes to panthers and the extent to which these changes jeopardize panther survival and recovery. The USFWS policy that no project in southwest Florida constitutes jeopardy for the panther relies on science that has now been discredited. Public correction of what was considered "best available science" and careful definition and use of terminology in recovery planning documents and biological opinions will facilitate a transition from the prevailing permitting practices to conservation of the full spectrum of panther habitat.

Corrective Relief

The Federal government (OMB 2004) has suggested minimum requirements for the peer review of influential scientific information, in part to avert the possibility that an agency might use public funds to conduct an inquiry into the science they use and then ignore at their discretion conclusions, those that are likely to affect policy decisions and change prevailing agency practices:

“When the agency uses a [peer-review] panel ... the agency must also prepare a written response to the peer review report, indicating whether the agency agrees with the reviewers and what actions the agency has taken or plans to take to address the points made by reviewers. The agency is required to disseminate the peer review report and the agency’s response to the report on the agency’s web site, including all the materials related to the peer review such as charge statement, peer review report, and agency response to the review.”

We ask that the USFWS respond to the report of the Florida Panther Scientific Review Team (Beier et al. 2003) in this manner, indicating whether the agency agrees with the report and what steps the agency plans to take in response to its findings.

A strong response is in order. The USFWS must (1) correct the cited misinformation, (2) request that its counterpart federal agencies cease disseminating cited misinformation in their reports, (3) inform counterpart Florida state agencies and county governments of the extent to which the cited misinformation is repeated in their reports, (4) notify editors of journals and books that have published erroneous material about panthers to make them aware that these errors may have compromised the peer-review process and to request that appropriate measures be taken to correct misinformation.

1. Correct Misinformation in USFWS Publications.

USFWS should either excise cited misinformation from the following documents or retract those documents in their entirety:

- Multi-species recovery plan for South Florida. South Florida Ecosystem Office; Vero Beach, Florida. 2172 pp. [USFWS] Fish and Wildlife Service. 1999.

- Draft Florida panther conservation strategy. South Florida Ecosystem Office, Vero Beach, Florida. [USFWS] Fish and Wildlife Service. 2002.
- Biological Opinions that cite Maehr and Cox (1995) [habitat issue]
 - > Lee County Department of Transportation (Daniel's Parkway Extension). Service # 4-1-98-F-310. November 9, 1998.
 - > Kaufmann Holdings, Inc. (Cypress Creek). Service # 4-1-98-F-517. December 8, 1999.
 - > Miromar Development, Inc. (Miromar). Service # 4-1-98-F-428. April 17, 2000.
 - > Barron Collier Company (Winding Cypress). Service # 4-1-02-F-014. October 8, 2002.
- The many additional biological opinions and other documents that cite and use the daytime habitat rankings of Maehr et al. (1991) as if they represent 24-hour habitat use [habitat issue]
- Biological opinions that treat known population as breeding population [population issue]
 - > Lee County Port Authority (Southwest Florida International Airport). Service # 4-1-00-F-585. December 14, 2001.
 - > Florida Rock Industries, Inc. (Ft. Myers Mine #2). Service # 4-1-98-F-372. January 30, 2002.
 - > Charles V. Benton. (Southern Marsh). Service # 4-1-00-F-178. March 7, 2002.
 - > Robert Schulman, Trustee (Hawk's Haven). Service # 4-1-01-F-148. April 24, 2002.

2. Notify Federal Agencies of DQA Violations

USFWS should notify the U.S. Army Corps of Engineers that information violating the DQA is being disseminated in the Corps publications relating to the Southwest Florida Environmental Impact Statement and Panther Key.

In addition, USFWS should notify the Environmental Protection Agency, Federal Highway Administration and the Natural Resources Conservation Service that those agencies may be disseminating information found to be in violation of the DQA.

3. Inform State and County Agencies of Misinformation

USFWS should contact the following state agencies and inform them that they may be disseminating information that has found to be in violation of the DQA:

- Florida Fish and Wildlife Conservation Commission;
- Florida Department of Environmental Protection;
- South Florida Water Management District; and
- Florida Department of Community Affairs.

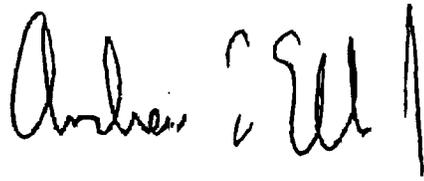
USFWS should similarly notify Collier County, Hendry County and Lee County of its findings of information that had been disseminated in violation of the DQA. In the case of the FWC, which monitors panthers under USFWS permits, the agencies should conduct a joint evaluation of the contribution of FWC staff to supporting and publishing misinformation about panthers.

4. Notify Editors of Journals and Books That Have Published Erroneous Material About Panthers

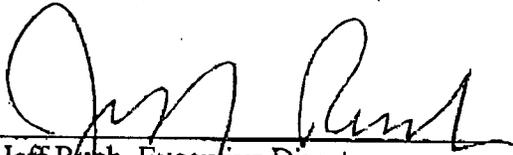
USFWS should contact the editors of the following journals and the publishers that have disseminated information that has been found to be in violation of the DQA:

- Ecology and Society (formerly Conservation Ecology)
 - Humboldt Field Research Institute (Southeastern Naturalist)
 - Society for Conservation Biology
 - Springer (Clean Technologies and Environmental Policy)
 - Island Press
 - University of Chicago Press
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Respectfully submitted,



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