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United States General Accounting Office
Washington, DC 20548

August 14, 2001

The Honorable James Hansen
Chairman
Committee on Resources
House of Representatives

Subject: Accidental Contamination of Samples Used in Canadian Lynx Study Rendered the Study's Preliminary Conclusion Invalid

Dear Mr. Chairman:

This letter responds to your request that we investigate the results of a 1998 study concerning the Canadian lynx. The Forest Service contracted with Dr. John Weaver of the Wildlife Conservation Society in New York City to help conduct surveys for the Canadian lynx in the Cascade Mountain range of Washington and Oregon. In a March 1999 interim report, Dr. Weaver concluded that the Canadian lynx resides in certain forested portions of the states of Washington and Oregon. The U.S. Fish and Wildlife Service cited the 1999 interim report's preliminary data in the final rule it published in the Federal Register on the status of the Canadian lynx.[1] In March 2000, the Fish and Wildlife Service placed the lynx on its list of threatened species, pursuant to the Endangered Species Act of 1973,[2] in the forested portions of 13 states, including Washington and Oregon.

Dr. Weaver based his preliminary conclusion on the results of a deoxyribonucleic acid (DNA) analysis of hair samples recovered in the Cascade Mountain range of Washington and Oregon. That analysis was conducted by the Science Resource Center of the Wildlife Conservation Society. Additional DNA analysis was performed on the same hair samples by the Wildlife Genetics International Laboratory in Canada, which questioned whether the samples had been contaminated.
You asked us to (1) determine whether allegations that the study was deliberately falsified are accurate and (2) confirm that two laboratories reached different conclusions based on an analysis of the same samples.

We conducted our investigation between August 2000 and July 2001 in accordance with investigative standards established by the President's Council on Integrity and Efficiency. We interviewed Dr. John Weaver; Dr. George Amato, the Director of the

[1] 65 Federal Register16052.
[2] 16 U.S.C. § 1531 et. seq.

Science Resource Center for the Wildlife Conservation Society[3]; and Dr. David Paetkau, the Senior Geneticist at the Wildlife Genetics International Laboratory. We also interviewed Fish and Wildlife Service field and headquarters personnel and Forest Service field officials. Furthermore, we reviewed relevant Fish and Wildlife Service and Forest Service documentation. The scope and validity of the data relied on by the Fish and Wildlife Service in reaching its decision to list the lynx as threatened in the states of Washington and Oregon under the Endangered Species Act are beyond the scope of this investigation.

In summary, we found no evidence that the study conducted by Dr. Weaver was deliberately falsified. In fact, the preliminary conclusion reported in the March 1999 interim report was based on hair samples that had been accidentally contaminated. In September 2000, Dr. Weaver had the original hair samples submitted to the Wildlife Genetics International Laboratory for additional analysis. That analysis questioned whether the samples used in the study had been accidentally contaminated, which raised questions about the conclusion in the interim report. Dr. Weaver notified the Forest Service of the results of the second analysis, and in a letter to cognizant Forest Service supervisors and biologists characterized the Canadian lynx locations reported in the March 1999 interim report—the states of Washington and Oregon—as unverified. During our investigation, Dr. Weaver issued a final report in June 2001, which concluded that samples relied upon in the March 1999 interim report were contaminated. In a June 2001 letter to us, the Fish and Wildlife Service said that the interim report had no bearing on its final decision to list the Canadian lynx as a threatened species in Washington and Oregon.

A Second Laboratory's Analysis Determined that Samples Used in the Canadian Lynx Study Were Accidentally Contaminated

In 1998, the Forest Service contracted with Dr. Weaver to assist in the design, implementation, and analysis of a Canadian lynx survey in the Cascade Mountain range of Washington and Oregon. The surveys were an attempt to obtain information about the lynx populations in those states. Forest Service biologists and technicians collected hair samples from sites in Washington and Oregon and sent the samples to Dr. Weaver. Dr. Weaver then sent the samples to the Wildlife Conservation Society's Science Resource Center for DNA analysis. The laboratory's DNA analysis identified hair samples from nine collection sites in Washington and five sites in Oregon as being from the Canadian lynx. Dr. Weaver told both the Fish and Wildlife Service and the Forest Service of his preliminary findings, which were based on the laboratory analysis. He provided a written interim report, titled *Lynx Surveys in the Cascade Range: Washington and Oregon*, with those same results to the Forest Service in March 1999. The interim report named Dr. Weaver and Dr. Amato, the Director of the Science Resource Center, as co-authors.

On March 24, 2000, the Fish and Wildlife Service published its final rule—a determination that the existence of the Canadian lynx is threatened in 13 states, including Washington and Oregon—in the Federal Register. The final rule includes available data on the Canadian lynx, including its habitat and historical residence in

[3] Dr. Amato, who was identified as a co-author of both the interim and final reports, said he was not aware that his name had been associated with the interim report.

various states and regions of the United States over the last 100 years or more and refers to Dr. Weaver's interim report as "preliminary" data presented for the states of Washington and Oregon.

Dr. Weaver told us that after he provided his interim report to the Forest Service in March 1999, a Forest Service colleague told him that some doubt had arisen within the agency about the existence of the Canadian lynx in Oregon. As a result, Dr. Weaver asked the Science Resource Center to send its samples to the Wildlife Genetics International Laboratory in Edmonton, Alberta. The laboratory's Senior Geneticist, Dr. Paetkau, said the laboratory received Dr. Weaver's samples on September 2, 2000, and provided the results to him by telephone on September 19, 2000. The Canadian laboratory's DNA analysis of the hair samples identified all of them as being hair from the Canadian lynx. However, the Canadian laboratory noted that the DNA "signal" was stronger than would normally be expected from hair samples and raised questions about whether the samples had been contaminated. In response, Dr. Weaver sent the portions of the original samples he had retained to the Canadian laboratory, without informing the laboratory of the samples' origin. The laboratory's DNA analysis identified the samples as cougar and bobcat, rather than lynx. Dr. Weaver concluded that the samples that were initially sent to the Science Resource Center must have become accidentally contaminated at that laboratory. The Center's director, Dr. Amato, disagreed that contamination actually occurred at his laboratory, but he acknowledged that it could have happened.

Dr. Weaver told us that he notified the Forest Service and the Fish and Wildlife Service of the different DNA results in approximately September 2000. Based on that notification, the Forest Service issued a letter to its Forest Supervisors and Wildlife Biologists in the Pacific Northwest. The letter said that the Forest Service considered the Canadian lynx locations reported in the March 1999 interim report—the states of Washington and Oregon—to be unverified. The letter also stated that a survey was currently being conducted for Canadian lynx in Washington and Oregon and that so far, lynx had only been detected in several locations in Washington. A Forest Service official told us that the agency would not use Dr. Weaver's 1998 study data in any management documents. In a June 1, 2001, letter to us, the Fish and Wildlife Service said Dr. Weaver's study had no bearing on its decision to list the Canadian lynx as threatened.

On June 26, 2001, Dr. Weaver told us that Dr. Paetkau of the Canadian laboratory performed additional DNA analyses of the hair samples it received from the Science Resource Center. Dr. Paetkau said the laboratory performed the analysis on May 16, 2001, and provided the results to Dr. Weaver the following day. He said the results showed that all but one of the samples came from the same lynx, which in Dr. Weaver's opinion provided further evidence that the samples had become contaminated. Dr. Weaver said that the Canadian laboratory had also analyzed hair samples from a lynx he had kept captive until approximately 1997 and that its DNA was different from the DNA samples received from the Science Resource Center. The June 2001 final report to the Forest Service concluded that the hair samples on which the March 1999 interim findings were based were contaminated.

Concerning the DNA analysis, Dr. Amato said he had received numerous hair samples from Dr. Weaver for DNA analysis and that each sample was routinely identified when the laboratory received them. Dr. Amato said that had he known that Dr. Weaver intended to present the results of the analysis to the Forest Service as evidence of the presence of Canadian lynx, he would have used different protocols. Dr. Paetkau told us that in general, (1) laboratories that perform the same type of analysis in a very rigorous manner, such as Canada's Wildlife Genetics International Laboratory, are concerned about following certain protocols and (2) academic laboratories, such as the Science Resource Center laboratory, focus on using information in a new way and are less concerned about certain protocols.

Agency Comments

The U.S. Fish and Wildlife Service and the Forest Service provided comments on a draft of this letter, in which they concurred with the letter and its findings.

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As arranged with your office, unless you announce its contents earlier, we plan no further distribution of this letter until 30 days after the date of the letter. At that time, we will send copies to interested congressional committees and the Secretaries of Agriculture and the Interior. We will also make copies available to others on request. The letter will also be available at www.gao.gov. If you have any questions about this investigation, please call me at (202) 512-7455 or Assistant Director Patrick Sullivan at (202) 512-6722. Senior Special Agent Woodrow Hunt, Senior Analyst Shelia James, and Senior Attorney Barry Shillito made significant contributions to this investigation and letter.

Sincerely yours,

Robert H. Hast
Managing Director
Office of Special Investigations

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