GAO
Accountability * Integrity * Reliability
United States General Accounting Office
Washington, DC 20548

March 6, 2002

Congressional Requesters

Subject: Unauthorized Hair Samples Submitted for Analysis

This report responds to your December 21, 2001, request and subsequent conversations with committee staff that we investigate allegations that biologists with the U.S. Forest Service, U.S. Fish and Wildlife Service, and Washington Department of Fish and Wildlife improperly submitted hair samples for deoxyribonucleic acid (DNA) analysis as part of the National Interagency Canada Lynx Survey (National Survey) during 1999 and 2000. Specifically, you asked us to (1) investigate allegations that biologists submitted for DNA analysis lynx hair samples that purported to be from the Gifford Pinchot and Wenatchee National Forests, but which were actually obtained from other sources and (2) determine whether the biologists who participated in the survey communicated about any such submissions. In addition, at the committee's request, we investigated a separate allegation that "fake" lynx hair samples were submitted to the laboratory as part of the National Survey for the Ashley National Forest, in Utah.

The National Survey is designed to determine whether Canada lynx exist in forests in the northern United States from Vermont to Washington and in high elevation forests within the Cascade mountain range, such as the Wenatchee and Gifford Pinchot National Forests, in Washington State. The survey has recovered samples of animal hair from these forests during specific periods of time[1] in 1999, 2000, and 2001.[2] Such surveys are important given that the Canada lynx is listed as a threatened species and may require certain actions or land management restrictions under the Endangered Species Act of 1973[3] in areas where they are found. The Forest Service sponsors the survey, with assistance from the Fish and Wildlife Service and the Washington Department of Fish and Wildlife. The University of Montana's Carnivore Conservation Genetics Laboratory (the laboratory) performed the DNA testing for the Forest Service.

[1] According to the field coordinator for the National Survey, the survey season primarily runs during the summer or fall months for approximately 4 weeks, although some surveys conducted in Midwest forests are done during the winter.

[2] Approximately 800 samples of hair were submitted to the laboratory for the entire survey in 1999 and approximately 1,000 such samples were submitted in 2000. According to the Fish and Wildlife Service, the number of samples from all of Oregon, Washington, and Idaho in 1999 is estimated to be no more than 200.

[3] 16 U.S.C. § 1531 et. seq.

Results in Brief

There were four instances in which unauthorized hair samples not obtained from the Wenatchee and Gifford Pinchot National Forests were submitted for DNA testing as part of the National Survey for those forests. These included submission of bobcat hair in 1999, and three submissions of lynx hair in September and October 2000. The Forest Service, Fish and Wildlife Service, and Washington Department of Fish and Wildlife employed the biologists who made those submissions. These biologists maintain that they submitted these samples to test the accuracy of the work performed by the laboratory, although they knew that the protocol for this survey did not provide for such action. They also stated that they did not have proper authority to make these submissions.

The survey was conducted pursuant to a National Lynx Detection Protocol (Protocol), which describes the method for detecting lynx, obtaining lynx hair samples, and submitting the samples to the laboratory for analysis. The Protocol did not provide procedures to submit hair samples collected outside the survey to test the accuracy of laboratory results.

In 2000, one of the participants, a Forest Service biologist with the Gifford Pinchot National Forest, notified the field coordinator for the National Survey that a control sample had been submitted, but did not identify the sample. As a result, the laboratory together with the Forest Service decided not to analyze any hair samples submitted as part of the 2000 survey for the region that included the Gifford Pinchot and Wenatchee National Forests until the Forest Service identified the unauthorized submission. After the unauthorized samples were identified, the laboratory completed its analysis of the 2000 survey samples, including the three unauthorized samples. These three samples were determined to be Canada lynx, and were the only samples submitted for analysis for the Gifford Pinchot and Wenatchee National Forests that tested positive for Canada lynx. We found that some of the individuals who participated in the unauthorized submissions had discussions about submitting unauthorized samples both prior to and after the submissions.

We found that the assertion that the National Lynx Detection Protocol permitted submissions of control samples to the Montana Laboratory from the Ashley National Forest was unfounded. The individual who made this statement acknowledged that he did so in error.

Background

In 1998, prior to the National Survey, the Forest Service entered into a contract with Dr. John Weaver of the Wildlife Conservation Society to conduct surveys, including DNA testing, of whether the Canada lynx was present in the Cascade Mountain range of Washington and Oregon. In a March 1999, Dr. Weaver reported finding three Canada lynx samples each from the Wenatchee and Gifford Pinchot National Forests. Dr. Weaver based his preliminary results on DNA analysis of hair samples recovered from each forest. However, in June 2001, Dr. Weaver issued a final report to the Forest Service concluding that hair samples on which the preliminary findings were based had been contaminated. We previously investigated this matter at the request of the House Committee on Resources and reported on it in: U.S. General Accounting

Office, *Accidental Contamination of Samples Used in Canadian Lynx Study Rendered the Study's Preliminary Conclusion Invalid*, GAO-01-1018R, (Washington, D.C.: Aug. 14, 2001). (See app. I.)

The National Survey was conducted pursuant to the Protocol, which was prepared by the Forest Service and the laboratory. The Protocol describes the method for detecting lynx. It describes how hair pads containing a scent lure were to be placed throughout the survey area, and sites for placing the hair pads would be selected. It also describes how hair samples were to be collected and submitted to the laboratory for analysis. The Protocol does not contain any provisions pertaining to the submission of control samples or tests of the accuracy of the laboratory's work. The laboratory does not release its analysis of samples until several months after submission. If the National Survey had detected Canada lynx in an area not previously recognized as a known lynx habitat, a follow-up snow-tracking survey would have been conducted in that area to determine whether or not a lynx population was present.

During 1999 and 2000, hundreds of biologists, who were to collect hair samples recovered from the forests as part of the survey, were trained in the procedures set forth in the Protocol. During a training session held on July 11, 2000, in Portland, Oregon, the field coordinator for the National Survey announced the findings for the 1999 survey season for Region 6, which includes the states of Washington and Oregon. Those findings were that the only lynx hair samples recovered had come from areas surveyed in the Okanogan National Forest, in Washington. According to the field coordinator, a discussion took place about how those findings contrasted with the 1998 Weaver study that identified Canada lynx samples from Gifford Pinchot National Forest. At that time, the results of the Weaver study were believed to be valid, since the contamination of samples during the Weaver study had not yet been announced. The biologists attending the session raised questions about the validity of the National Survey Protocol.

According to a Fish and Wildlife supervisor, although it is standard scientific procedure to submit control samples to test laboratory results, such testing is generally provided for in the protocol for a particular study. However, if submission of control samples were not provided for in the protocol, a scientist would be expected to notify a lab in advance of the submission of a control sample. The director of the laboratory at the University of Montana informed us that, prior to initiating the DNA analysis for the National Survey, he submitted 20 animal control samples to the Fish and Wildlife Service's forensic laboratory in Ashland, Oregon. He said that this laboratory validated his method of DNA analysis by following the Protocol, and correctly identifying the animal species in all 20 control samples. He added that the University laboratory also conducted internal "blind" testing which validated his methods.

In September 2000, a Forest Service biologist who participated in the survey notified the field coordinator for the National Survey that lynx hair obtained from an animal held in captivity had been submitted to the laboratory as a control sample as part of the National Survey for the Gifford Pinchot National Forest, but did not identify the sample. As a result, the field coordinator notified the laboratory, which together with the Forest Service decided not to process any hair samples submitted as part of the

2000 survey for Region 6, which included the Gifford Pinchot and Wenatchee National Forests. The Forest Service ultimately determined that two additional unauthorized submissions had occurred in connection with the survey for the Gifford Pinchot and Wenatchee National Forests. In February 2001, the Forest Service hired a private investigator to conduct an investigation. That investigation was completed in June 2001, and its Report of Investigation summarizes the statements made by the individuals interviewed by the private investigator.

Biologists Submitted Unauthorized Samples in National Survey

In 1999 and 2000, biologists with the Washington Department of Fish and Wildlife, Forest Service, and Fish and Wildlife Service submitted unauthorized hair samples to the Montana laboratory for DNA analysis as part of the National Survey. The first unauthorized submission was samples of hair from a bobcat pelt submitted in 1999 by a biologist with the Washington Department of Fish and Wildlife. Subsequently, in 2000, three additional unauthorized samples were submitted to the laboratory. First, a biologist with the Washington Department of Fish and Wildlife submitted a sample from a captive lynx. Second, a biologist with the Forest Service submitted a sample obtained from lynx held in captivity at the Northwest Trek.[4] Third, a biologist with the Fish and Wildlife Service submitted a sample also obtained from lynx held in captivity at the Northwest Trek. Some of the individuals who participated in the unauthorized submissions had discussions about submitting unauthorized samples both prior to and after the submissions. In addition, other employees from these agencies knew of and/or participated in the unauthorized submissions, including some supervisors.

Submissions of Bobcat Hair in 1999 by a Washington Department of Fish and Wildlife Biologist

During the 1999 survey season, a biologist (WDFW-1) who was the lead person on the survey from the Washington Department of Fish and Wildlife for the Wenatchee National Forest submitted hair samples to the laboratory for analysis as part of the survey. Some of those samples consisted of hair obtained from a stuffed tanned bobcat pelt. WDFW-1 informed us that he submitted the bobcat hair samples to ensure that the results of the laboratory tests were accurate. He also informed us that he knew that the Protocol did not provide for the submission of these samples and that he never informed the laboratory about them. The laboratory analyzed the samples but could not conduct a valid test of them because they did not contain sufficient DNA.[5] This information was reported in the official laboratory results of 1999 DNA testing for the National Survey.

WDFW-1 further informed us that he discussed the submission of the bobcat hair samples with his supervisor, his office manager, and with another biologist employed by the Washington Department of Fish and Wildlife (WDFW-2). WDFW-2

[4] The Northwest Trek is a wildlife park that displays North American wildlife species. Among other species, the Northwest Trek maintains captured Canada lynx.

[5] The director of the laboratory explained that about 20 percent of the hair samples analyzed do not contain enough DNA to amplify, and as a result, the hair sample is listed as "No Qual," meaning no qualifying DNA. This lack of DNA could be attributed to a number of factors, such as exposure to heat, water, chemicals, etc.

subsequently made an unauthorized submission of captured lynx hair during the 2000 survey season. (See further discussion of WDFW-2's actions below.)

Additionally, WDFW-1 informed us that he subsequently told two biologists, a Fish and Wildlife Service employee and a Forest Service employee, about his submission of the bobcat hair. In Spring 2000, WDFW-1 had a conversation with a biologist for the Forest Service who coordinated the survey results for the Wenatchee National Forest. The coordinator discussed the fact that the laboratory was unable to identify the bobcat samples he submitted in 1999. WDFW-1 informed the coordinator that the samples the laboratory could not identify had been obtained from a bobcat pelt, and that he had submitted them as "control" samples. The coordinator told us that she did not take any action because the samples were from a bobcat pelt, the laboratory could not identify them, and she believed that WDFW-1 was in fact testing or validating the laboratory's work. In July 2000, WDFW-1 also told the lead person on the National Survey from the Fish and Wild Life Service for the Wenatchee National Forest (FWS-1) about the 1999 bobcat hair submissions. As set forth below, FWS-1 subsequently submitted a lynx hair sample taken from captive lynx during the 2000 survey season.

Submissions of Hair Samples from Captive Canada Lynx during 2000 Survey Season

During the 2000 survey season, three biologists submitted hair for DNA testing from lynx in captivity as part of the survey of the Wenatchee and Gifford Pinchot National Forests. These biologists were employees of the Forest Service, the Fish and Wildlife Service, and the Washington Department of Fish and Wildlife. In addition, other employees working for these same agencies became aware of these submissions. Some of these individuals had discussions about these submissions either before and/or after the actual unauthorized submissions.

The director of the laboratory confirmed information for 2000 that the laboratory received one unauthorized submission from the Gifford Pinchot National Forest and two from the Wenatchee National Forest. He stated that all three of these control samples tested positive for Canada lynx. In fact, these were the only samples that tested positive for Canada lynx hair from the Gifford Pinchot and Wenatchee National Forests. He added that if someone wished to submit a control sample to the laboratory for DNA analysis he would have accepted it, so long as it was labeled a control sample, so it could not be mistakenly included with the survey's published laboratory report. He also said that there was no procedure whereby the biologists who submitted samples would receive preliminary results, so that they could subsequently notify the laboratory of their unauthorized submissions.

Submissions of Captive Lynx Hair by a Biologist with the Washington Department of Fish and Wildlife

As previously discussed, in late October 1999, WDFW-1 told WDFW-2, a fellow biologist at the Washington Department of Fish and Wildlife, that he submitted bobcat hair samples as part of the 1999 survey season. WDFW-1 also asked that WDFW-2 help with the National Survey. On September 18, 2000, WDFW-2 submitted hair from a captive lynx to the laboratory as part of the survey for the Wenatchee National Forest. WDFW-2 informed us that on September 14, 2000, his supervisor

told him that local authorities had captured a pet Canada lynx and were keeping it temporarily in the office until it could be returned to its owner. WDFW-2 asked and received permission from his supervisor to obtain hair from this animal to submit to the laboratory as a test sample for the National Survey. The supervisor assisted WDFW-2 in collecting the hair samples. WDFW-2 also informed us that he informed WDFW-1 that he had submitted the captive lynx sample to the laboratory.

Neither WDFW-2 nor his supervisor notified the laboratory concerning the submission of unauthorized samples. WDFW-2 first disclosed his submission when he contacted the private investigator for the Forest Service and informed her of his actions.

Submissions of Lynx Hair by Biologists with the Forest Service

A Forest Service biologist with the Gifford Pinchot National Forest (FS-1)[6] provided Canada lynx hair samples he obtained from the Northwest Trek to a Forest Service colleague (FS-2), and asked him to submit them to the laboratory. On September 26, 2000, FS-2 submitted them as part of the Gifford Pinchot National Forest survey. FS-1 acknowledged that he was not in a position of authority to take such action and that the Protocol did not provide for it. FS-1 also said that he could have submitted a sample labeled as a control to test the laboratory. FS-1's supervisor told us that FS-1 informed him that he was going to submit a sample to test the laboratory. FS-1's supervisor added that, at that time, he was acting for FS-1's actual supervisor while that individual was on a detail. He added that he was not familiar with the National Survey and did not know about the Protocol. On September 29, 2000, FS-1 left a telephone message with the field coordinator for the National Survey stating that he had sent a sample, which he called a control sample. The field coordinator told us that in this message, FS-1 did not identify which sample from the Gifford Pinchot National Forest contained the control.

The second Forest Service biologist (FS-3) who went to the Northwest Trek was not involved in the unauthorized submissions to the laboratory; however, she was involved in the discussions prior to the submissions.

Submissions of Lynx Hair by biologists with the Fish and Wildlife Service

On October 18, 2000, FWS-1 submitted hair samples from captive Canada lynx to the laboratory as part of the survey for the Wenatchee National Forest. These samples had been obtained from lynx held in captivity in the Northwest Trek. FWS-1 told us that he submitted the lynx hair to test the ability of the laboratory to identify Canada lynx through DNA testing and that he did not notify the laboratory. FWS-1 also told us that he was aware at the time he submitted the captive lynx hairs that WDFW-1 had submitted unauthorized samples to the laboratory in 1999; that he knew the Protocol did not provide for the submission of control samples; and that he did not have proper authorization to take such action. FWS-1 also said that he could have submitted a sample labeled as a control to test the laboratory.

[6] FS-1 retired on September 30, 2000.

FWS-1 obtained the captive lynx hair samples from another Fish and Wildlife Service biologist (FWS-2). FWS-2 had traveled to the Northwest Trek on September 19, 2000, with two biologists from the Forest Service. During that trip, both FWS-2 and one of the Forest Service biologists, FS-1, who collected captive lynx hair samples discussed submitting them to the laboratory and subsequently provided them to other biologists who made the submissions. When FWS-1 submitted the lynx hair samples to the laboratory, he knew that FS-1 had also obtained lynx hairs during the trip to the Northwest Trek and was sending them to the laboratory.

The Fish and Wildlife Service division manager for the Northwest Forest Plan where FWS-1 and FWS-2 work stated that these biologists believed that scientists who focus on DNA analysis have a narrow view of the lynx habitat and that the description of the lynx habitat should be broadened. As a result of hearing these concerns, these biologists were instructed to prepare a paper laying out the basis for their concerns. Given the lack of knowledge about lynx abundance and distribution on the west slope of the Cascades, the issues were (1) how to characterize possible lynx habitat, and (2) to what extent possible lynx habitat should be protected when lynx are not known to currently be using the habitat. This paper was completed and submitted to the Interagency Lynx Steering Committee at its October 2001 meeting. The Steering Committee reviewed the paper and concluded that it lacked substance in which to change or modify either the lynx conservation assessment and strategy or the written direction for lynx habitat mapping.

Claim that the National Lynx Detection Protocol Permitted Submissions of Control Samples from the Ashley National Forest Was Unfounded

At the committee's request, we investigated another allegation that there were submissions of "fake" lynx hair samples to the University of Montana laboratory, as part of the National Survey for the Ashley National Forest in Utah. We interviewed the Forest Service biologist who authored an e-mail dated December 18, 2001, that included the following statement:

> "Here in Utah we're [sic] added several 'fake' lynx hairs to our snare surveys. This was done by the US Forest Service, USFWS [U. S. Fish and Wildlife Service] and the Utah Division of Wildlife to test the validity of the lab sampling techniques. On all "fake" samples the lab in Montana correctly identified the sample as a lynx. The lab then informs us of the positive lynx results and we inform them of our test. I can't say what the Washington forests were doing, but I think this is the same sort of validity test."

The biologist said that his e-mail message, which he sent to a number of different entities mistakenly, implied that under the National Survey Protocol control samples had been sent to the Montana laboratory from Utah. He added that he regrets this mistake.

Scope and Methodology

Beginning in January 2002, we investigated the facts and circumstances surrounding the unauthorized submission of hair samples to the Montana laboratory during the 1999 and 2000 survey seasons. We interviewed the private investigator and reviewed

her Report of Investigation, which included signed declarations of many of the individuals who participated in those unauthorized submissions. We also interviewed current and former employees of the Forest Service, Fish and Wildlife Service, and Washington Department of Fish and Wildlife, including the biologists involved in the submissions. In addition, we interviewed employees from the University of Montana and the Northwest Trek. This investigation did not review the Protocol or determine the impact of the actions taken by these biologists. GAO has been requested to conduct a separate review regarding the Protocol, and generally accepted practices, if any, that should have been applied by the National Survey.

Agency Comments

The Forest Service, Fish and Wildlife, and Washington Department of Fish and Wildlife provided comments on a draft of this report, in which they concurred with the facts and its findings. They also provided technical corrections and, where appropriate, we have made those corrections.

We will send copies of this report to the Chief, Forest Service; the Director, Fish and Wildlife Service; and the Director of the Washington Department of Fish and Wildlife Service. We will make copies available to others on request. The report will also be available at www.gao.gov. If you have any questions or need additional information, please contact Assistant Director Patrick Sullivan at (202) 512-6722. Key contributors to this report were Senior Special Agents George Ogilvie and Thomas Wiley, Senior Attorney Barry Shillito, and Assistant General Counsel Robert Cramer.

Ronald Malfi
Acting Managing Director
Office of Special Investigations

List of Requesters

The Honorable James V. Hansen
Chairman
Committee on Resources
House of Representatives

The Honorable Scott McInnis
Chairman
Subcommittee on Forests And Forest Health
Committee on Resources
House of Representatives

The Honorable Richard W. Pombo
House of Representatives

The Honorable Mike Simpson
House of Representatives

The Honorable Greg Walden
House of Representatives

The Honorable John Peterson
House of Representatives

The Honorable Doc Hastings
House of Representatives

The Honorable Tom Tancredo
House of Representatives

Appendix I

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 Register 16062.
[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 Shella 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

(600820)