



# United States Department of the Interior

(b)(6),  
(b)(7)(C)

FISH AND WILDLIFE SERVICE  
Office of Law Enforcement  
Clark R. Bavin  
National Fish and Wildlife Forensics Laboratory  
1490 East Main Street  
Ashland, Oregon 97520

IN REPLY REFER TO:

February 26, 2008

## GENETICS EXAMINATION REPORT

Agency:  
USFWS/LE, Tolland  
36 Buff Cap Rd.  
[REDACTED]  
Tolland, CT 06084

Lab Case #: 07-000459  
Examiner: [REDACTED]  
Agency Case #: 2007505077  
Investigator: [REDACTED]  
Suspects:

Case Title: Shelburne Massachusetts  
Wolf

### EVIDENCE RECEIVED:

The following evidence was received in the Evidence Unit of the Laboratory on October 24, 2007:

- LAB-1: "One (1) suspected wolf carcass" [ST [REDACTED] Item#1]
- LAB-2: "One (1) bag w/ stomach contents" [ST [REDACTED] Item#2]
- LAB-3: "One (1) small bag w/ stomach contents" [ST [REDACTED] Item#3]
- LAB-4: "Two (2) bags w/ tongue samples" [ST [REDACTED] Item#4]

On November 6, 2007, LAB-1 was subsampled in the presence of [REDACTED] Forensic Laboratory [REDACTED] by the undersigned examiner.

### EXAMINATIONS REQUESTED:

The submitting officer, Special Agent [REDACTED] requested that the species origin of the individual represented by LAB-1 be determined. Items LAB-2 through LAB-4 originated from LAB-1 and were not analyzed. Item LAB-1 was examined visually, and identification was made by macroscopic comparison by [REDACTED] Morphology. [REDACTED] concluded that the animal in LAB-1 was consistent with gray wolf (*Canis lupus*) and inconsistent with coyote (*C. latrans*), red wolf (*C. rufus*), domestic dog (*C. familiaris*), and wolf-dog hybrids (*C. lupus* x *C. familiaris*). See report dated February 26, 2008.

### EXAMINATIONS CONDUCTED:

#### *Canid Species Identification by Mitochondrial DNA*

A segment of the mitochondrial DNA (mtDNA) control region of LAB-1 was amplified by the polymerase chain reaction (PCR) and subjected to DNA sequence analysis. The mtDNA control region has been widely accepted as a genetic marker for species identification of vertebrates.

U. S. Fish and Wildlife Service  
Office of Law Enforcement  
70 Everett Avenue, [REDACTED]  
Chelsea, MA 02150

INV# 2007505077  
Attachment # 5 ROI # 002  
Page # 1 of 4

(b)(6),  
(b)(7)(C)

*Canid Species Identification by Nuclear DNA*

The DNA of LAB-1 was characterized by short tandem repeat (STR) analysis at eight autosomal nuclear loci designated as 109, 123, 172, 200, 204, 225, 250 and 377 and at seven loci located on the Y-chromosome designated as 34A, 34B, 41A, 41B, 35.4, 650 79.2I and 650 79.2II.

Assignment tests were used to determine if the STR genotype of LAB-1 was most likely to occur in North America gray wolf (*C. lupus*) populations from the Northern Rocky Mountain (Idaho, Montana and Yellowstone National Park) region of the United States, Western Great Lakes (Michigan, Minnesota and Wisconsin) region of the United States, Alaska and northwestern Canada (Alberta, British Columbia and the Northwest Territories), Mexican wolves (*C. l. baileyi*), domestic dogs (*C. familiaris*), wolf-dog hybrids (*C. lupus* x *C. familiaris*) or coyote (*C. latrans*) populations.

**EXAMINATION RESULTS:**

*Canid Species Identification by Mitochondrial DNA*

The mtDNA sequence of LAB-1 is identical to the mtDNA of North American gray wolf reference standards found throughout North America.

*Canid Species Identification by Nuclear DNA*

The STR genotype of LAB-1 is unlike that of gray wolves from western North America (Alaska, Alberta, British Columbia, Idaho, Montana and Yellowstone National Park), Mexican wolves, domestic dogs and wolf-dog hybrids. Although it was similar to gray wolves from the Great Lakes region of the United States, the analysis indicates that the individual from LAB-1 did not originate there. Rather, its similarity to both eastern gray wolves and eastern coyotes suggest that it is from a population not represented in the database (e.g., gray wolves from southern Ontario or Quebec).

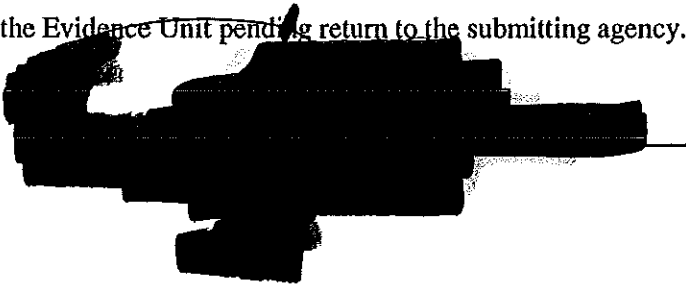
The Y-STR genotype of LAB-1 is characteristic of male gray wolves found throughout North America.

**CONCLUSIONS:**

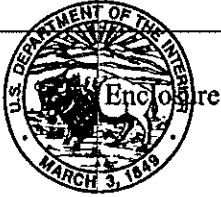
The individual represented by LAB-1 is an eastern gray wolf (*Canis lupus lycaon*).

**DISPOSITION OF EVIDENCE:**

All evidence items were transferred to the Evidence Unit pending return to the submitting agency.



INV# 2007 505077  
Attachment # 5 ROI# 002  
Page # 2 of 4



IN REPLY REFER TO:

# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Office of Law Enforcement

Clark R. Bavin

National Fish and Wildlife Forensics Laboratory

1490 East Main Street

Ashland, Oregon 97520

February 19, 2008

### MORPHOLOGY PROCESSING REPORT

**Agency:**

USFWS/LE, Tolland  
36 Buff Cap Rd.

Tolland, CT 06084

**Lab Case #:** 07-000459

**Examiner:** [REDACTED]

**Agency Case #:** 2007505077

**Investigator:** [REDACTED]

**Suspects:**

**Case Title:** Shelburne Massachusetts  
Wolf

#### EVIDENCE RECEIVED:

The following evidence was transferred to the undersigned examiner on February 11, 2008:

LAB-1: "One (1) suspected wolf carcass" [ST [REDACTED] Item#1]

#### PRE-EXAMINATION CONDUCTED:

The evidence was evaluated and photographed. The skull was skeletonized using dermestid beetles and maceration.

#### DISPOSITION OF EVIDENCE:

LAB-1 was transferred [REDACTED] for further analysis.

INV # 2007505077

Attachment # 5 ROI # 002

Page # 3 of 4

(b)(6),  
(b)(7)(C)



# United States Department of the Interior

(b)(6),  
(b)(7)(C)

## FISH AND WILDLIFE SERVICE

Office of Law Enforcement

Clark R. Bavin

National Fish and Wildlife Forensics Laboratory

1490 East Main Street

Ashland, Oregon 97520

IN REPLY REFER TO:

February 26, 2008

### MORPHOLOGY EXAMINATION REPORT

Agency:  
USFWS/LE, Tolland  
36 Buff Cap Rd.  
[REDACTED]  
Tolland, CT 06084

Lab Case #: 07-000459  
Examiner: [REDACTED]  
Agency Case #: 2007505077  
Investigator: [REDACTED]  
Suspects:

Case Title: Shelburne Massachusetts  
Wolf

#### EVIDENCE RECEIVED:

The following evidence was transferred to the undersigned examiner by the Evidence Unit of the Laboratory on February 8, 2008:

LAB-1: "One (1) suspected wolf carcass" [ST [REDACTED] tem#1]

#### EXAMINATION CONDUCTED:

LAB-1 was transferred to [REDACTED] - Morphology, who decapitated the animal, and cleaned the skull using dermestid beetles and low temperature maceration. (See report [REDACTED] dated February 19, 2008.) The skull was subsequently transferred back to the undersigned examiner for cranial measurements using goniometer and vernier calipers. Identification was made using the comparative method with reference to collections of known standards and published data.

#### EXAMINATION CONCLUSIONS:

LAB-1: Morphological and craniometric traits are consistent with gray wolf (*Canis lupus*), and inconsistent with coyote (*Canis latrans*), red wolf (*Canis rufus*), domestic dogs (*Canis familiaris*), and wolf/dog hybrids (*C. lupus x C. familiaris*). Direct comparison with skulls of known geographic localities reveals affinities between LAB-1 and skulls of wolves from Minnesota; however, no eastern Canadian wolf skulls or known wolf/coyote hybrid skulls were available for comparison. LAB-1 exhibits no physical traits consistent with domestic tenure.

#### DISPOSITION OF EVIDENCE:

LAB-1 was transferred to the Evidence Unit pending return to the submitting agency.

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED] INV # 2007505077

Attachment # 5 ROI # 002  
Page # 4 of 4