OFFICE OF PUBLIC PROTECTION

EVIDENCE AND CHAIN-OF-CUSTODY RECORD

REGION #	CASE NAME		NUMBER OF CONTINUATION SHEETS
2	BEAR CUB CENTRAL PARK		
CASE NUMBER/CFS	DATE SEIZED: (mm/dd/yyyy)	TIME SEIZED:	LABORATORY CASE NUMBER
14-017608	10/06/2014	16:10	140609

OFFICER'S NAME	SHIELD #	COUNTY OF OCCURANCE:	SUBMITTED TO LAB BY:
ECO JL BASTEDO	597	NEW YORK	ECO JL BASTEDO

NAME: LAST:	FIRST:	MIDDLE:

ADDRESS OF DEFENDANT/VICTIM: (LIST ALL ADDITIONAL DEFENDANTS IN THE EVIDENCE SECTION BELOW OR ON A CONTINUATION SHEET)

DOB:	ALIASES:	CONTACT PHONE NUMBER:

PHYSICAL LOCATION OF EVIDENCE WHEN SEIZED: CENTRAL PARK NEAR W 68 ST & WEST DRIVE

NEAREST CROSS STREET: "

TICKETS ISSUED – including up to the three (3) most significant charges

TICKET #	SECTION OF LAW:	SHORT CHARGE:
TICKET #	SECTION OF LAW:	SHORT CHARGE:
TICKET #	SECTION OF LAW:	SHORT CHARGE:

PORTAL CHECK (E-JUSTICE): YES Date: | EVIDENCE PHOTOGRAPHED: YES X Date: 10/06/14

FIREARM INFO	MAKE :	MODEL:	SERIAL #	CALIBER
	TYPE:	ACTION:	FIREARM CAPACITY:	CONDITION:

ACKNOWLEDGEMENT OF OWNERSHIP

I, _____, acknowledge that I am the sole owner of the item(s) listed. I understand that false statements made herein are punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law.

Signed: _____ Date: _____

EVIDENCE

ITEM #	DESCRIPTION	EXAMINATION REQUESTED	ADDITIONAL INFORMATION
1	BEAR CUB	YES	

TRANSFER RECORD

ITEM #	DATE RELINQUISHED BY	RECEIVED BY	PURPOSE OF CHANGE OF CUSTODY
1	Printed Name: ECO JL BASTEDO Signature: ECO JL Bastedo Date: 10/06/14	Printed Name: Kevin Hynes Signature: [signature] Date: 10/6/14	Forensic necropsy
	Printed Name Signature Date	Printed Name Signature Date	
	Printed Name Signature Date	Printed Name Signature Date	
	Printed Name Signature Date	Printed Name Signature Date	

ADDITIONAL INFORMATION:

NYPD INSPECTOR JOHN COMBISFORD (646) 610-8741 } would like lab results as well
NYPD SGT (DET) BARB THOMAS (347) 203-5804 } as myself (JL BASTEDO)

ORIGINAL

Wildlife Health Unit
New York State Department of Environmental Conservation
108 Game Farm Road Delmar, NY 12054
Phone: 518-478-3034/3038 Fax: 518-478-3035

FORENSIC NECROPSY REPORT

Species: **black bear (Ursus americanus)**
Division of Law Enforcement Case #: **14-017608** WHU Case #: **140609**
County: New York Town: Manhattan Coordinates: N/P
Specific location: Central Park near West 68th Street and West Drive
Found: 10/06/2014 Received: 10/06/2014 Necropsy: 10/07/2014 Prosector: K. Hynes
Submitted by: Environmental Conservation Officer Jeannette Bastedo NYSDEC DLE Region 2.

HISTORY: Evidence carcass delivered in person with chain-of-custody record by ECO Jeannette Bastedo on 6 October 2014 with request for forensic necropsy to determine cause of death and collect evidence. The carcass was wrapped in a blue plastic tarp. Active joint NYPD/NYSDEC investigation. Bear carcass found in Central Park on morning of 6 October 2014. Carcass was assigned WHU Case # 140609 and the forensic necropsy was conducted on the morning of 7 October 2014.

GROSS NECROPSY FINDINGS: This is the incomplete carcass of a 7 to 8 month old, 20.3 kg (44.8 lb.), female black bear cub. There are no ear tags or lip tattoos present. The bear is in good flesh with good fat reserves for its age and season. The carcass is relatively fresh and the tissues are in good postmortem condition. There are fly eggs in the hair over the ventral throat, adjacent to a large laceration over the right axillary region, in both ears, and in the hair over the right lateral shoulder cranial to a small laceration. No fly larvae are observed. There is a ~10 cm diameter area of abraded hair over the right ventrolateral thorax. The distal claws on the left forefoot are moderately shredded. The skin is torn away from the distal mandibles ~8 cm, the distal mandibles are fractured; there are fly eggs in the open fracture of the left mandible. There is a comminuted crushing fracture of the nasals and maxilla; the upper lip is torn away from the distal maxilla ~2 cm. There is brain tissue in the mouth. There is a comminuted skull fracture, the cranium is destroyed; the remaining brain tissue is scrambled, liquefied, and hemorrhagic; some brain tissue has exited through the nares/mouth. The brain structures are unrecognizable (unsuitable for rabies testing). There is a laceration over the medial right foreleg in the axillary region that measures ~19 X 9 cm with an underlying compound fracture of the proximal humerus. There is a laceration over the caudal right foreleg at the level of the distal radius and ulna that measures ~6 X 6 cm. There is a laceration over the right cranial "knee" that measures ~16 X 8 cm and a second laceration caudal to the right "knee" that measures ~11 X 7 cm; there is an underlying compound fracture of the distal femur at the epiphysis. There is a laceration over the craniolateral left "knee" that measures ~12 X 6 cm with an underlying compound fracture of the distal femur at the epiphysis. The left humerus is fractured.

Right ribs # 1-6 are fractured proximally, #7 is fractured medially and the right lung is lacerated. Left ribs #1-2 and #7-10 are fractured proximally, the sternum is fractured. The heart is intact. There are complete fractures of the thoracic spine between T-2 and T-3 and between T-7, T-8, and T-9. There are multiple crushing fractures of the pelvis. There is brain tissue in the trachea and upper bronchus. There is a laceration in the left lateral abdominal wall and skin measuring ~19 X 12 cm, there is ~ 125 cm of intestine protruding from this wound; there is a large degloved avulsion that extends from the dorsal margin of this laceration over the dorsal abdomen and pelvis. The stomach, liver, spleen, and a large section of the small intestine are missing. There is a ~5 X 3 cm laceration around the anus. The urinary bladder is empty. The colon and large intestines contain forming yellow/orange material and unidentified ribbed seeds.

HISTOPATHOLOGY: A sample of tissues was preserved in 10% formalin for routine histopathological examination and will be submitted to Cornell Animal Health Diagnostic Lab on 8 October 2014. **Histologic Diagnosis:** Lungs: marked congestion. **Final Comments:** "Based on the gross findings the cause of death of this bear cub is trauma. Histopathology does not reveal evidence of any underlying disease. However, the tissues are autolyzed and a full set of tissues was not available for examination." Pathologist: Elizabeth L. Buckles, DVM, PhD, DACVP.

MICROBIOLOGY: The brain tissue is unsuitable for rabies testing. A sample of skeletal muscle preserved in 95% ethanol was submitted to the Northeast Wildlife DNA Laboratory on 8 October 2014 for DNA evaluation to attempt to determine geographic region or population of origin: **Methodology:** "A nine microsatellite DNA profile was constructed for the NYC black bear (140609). This profile was then entered into the Bayesian clustering program STRUCTURE (version 2.3.4) to possibly determine the origin of the black bear cub. The database consisted of a total of 419 black bears: 347 from NJ, 31 from eastern PA, 30 from western PA, 7 from Sullivan and Orange County NY and 3 from northern (Adirondacks) NY. In order to use Bayesian clustering analysis to determine the origin of the Central Park black bear (140609), known control sets from each region/state were used. Known controls allow the program, in this case STRUCTURE, to "learn" what the gene frequencies of an area look like by utilizing the USEPOPINFO = 1 flag. Multiple simulations were tested using only female black bears by state, female black bears by regions/zones, all black bear genotypes by state and all black bear genotypes by regions/zones. For each simulation the NYC black bear was entered as an unknown, allowing the program STRUCTURE to assign the best relative location based on the allelic frequencies. Program STRUCTURE assigns a Q-value (y-axis) to each individual sample. The Q-value indicates the percent probability of an individual belonging to a population." **Summary:** "Multiple simulations of program STRUCTURE were completed to determine the possible origin of black bear # 140609. From the analysis black bear # 140609 is likely from the geographical area where Orange County NY borders NJ management zone 3. The black bear is likely from the Sterling Lake/Sterling Forest region of NJ/NY. With the small sample size from Orange County NY it is hard to draw an exact conclusion to whether the bear originated from the NJ side or the NY side." DNA Technician: Nicole L. Chinnici, MS, Laboratory Director: Jane E. Huffman, MS, PhD, MPH.

EVIDENCE RETAINED: A sample of flies and fly eggs was collected from the carcass by K. Hynes and preserved in 70% ethanol on 6 October 2014 at approximately 1900 hours and are retained as evidence. Air-dried heart blood swabs (2) and skeletal muscle samples in desiccant are retained as evidence. A small sample of brain tissue is retained frozen. The carcass and skin are retained frozen. Seeds from the colon are retained for identification. Two necropsy sketches illustrating the location and size of the lacerations and 49 digital photographs taken at necropsy are retained with the case file as evidence.

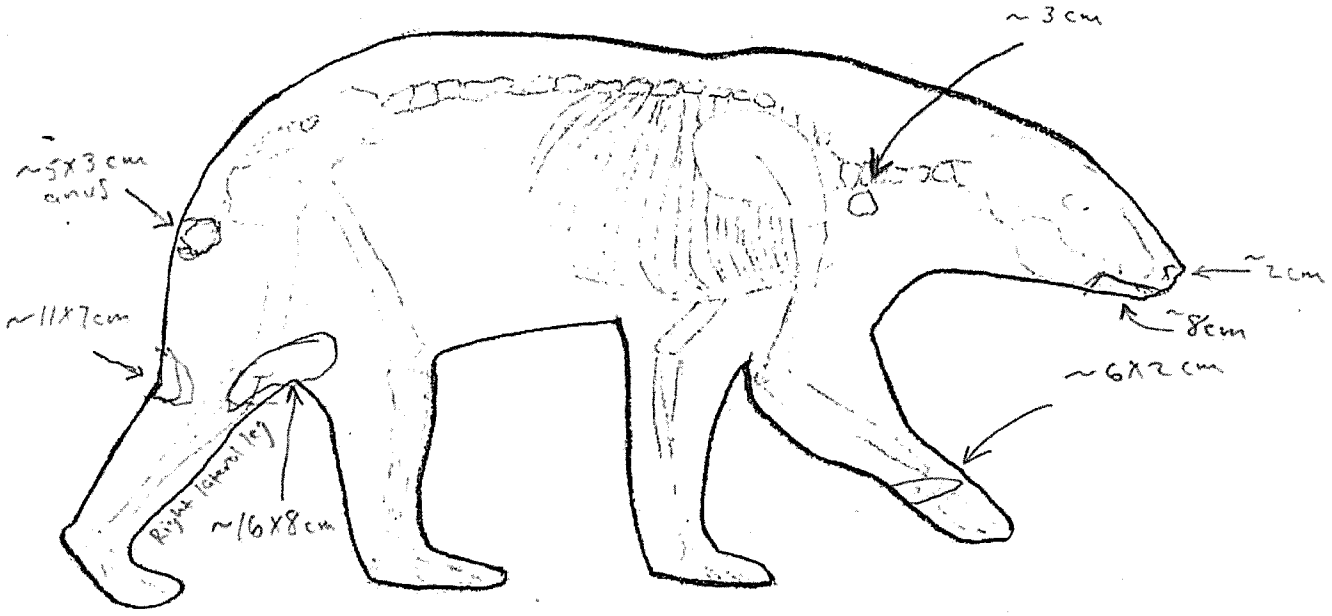
DIAGNOSIS: Massive blunt impact trauma.

COMMENT: In my opinion the multiple traumas in this case are consistent with motor vehicle strike and death was likely instantaneous. There is no evidence of trauma unrelated to vehicle strike and no gross signs of disease. This appears to be a healthy bear cub that was struck by a motor vehicle. The DNA evaluation may indicate what bear population the bear originated from, the results will be compared to populations in NJ, PA, and NY. A final report will be issued when the DNA evaluation and histopathology reports are complete.

FNAL COMMENT: The seeds from the colon are tentatively identified as autumn olive (*Elaeagnus umbellate*) which is considered a natural food item for foraging bears. The histopathology tests revealed no evidence of disease in this bear and do not change the diagnosis in this case. The DNA analysis indicate that the bear is likely from the Sterling Lake/Sterling Forest region of New Jersey or New York. Based on the massive impact trauma it is my opinion that this bear was hit by a motor vehicle travelling at highway speeds. The NYS Thruway (I-87) runs through southeastern Orange County and western Rockland County which, according to the DNA evaluation, could be a potential population origin for this bear.

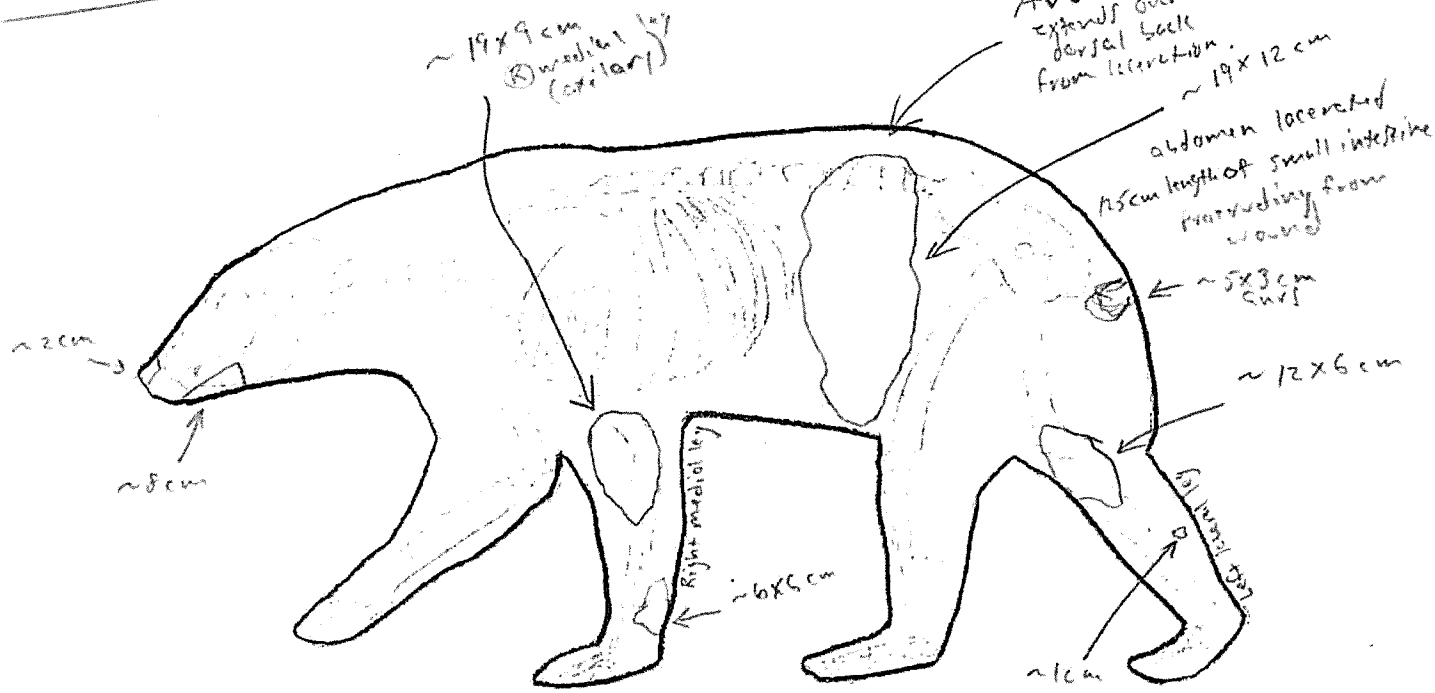
Kevin Hynes
27 October 2014

WHU Case # 140609 DLE Case # 14-017608 Date 10/7/14 Prosector Kevin Hynes



Right lateral view

* Not to Scale.



Left lateral view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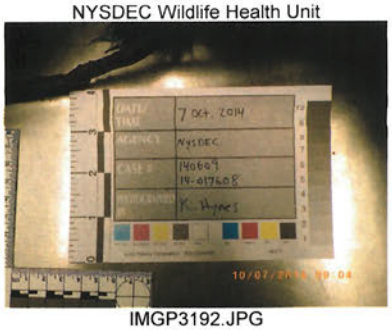

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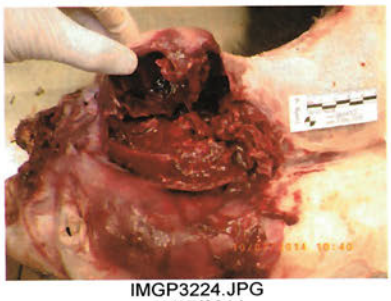
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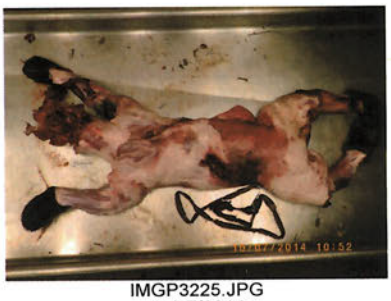
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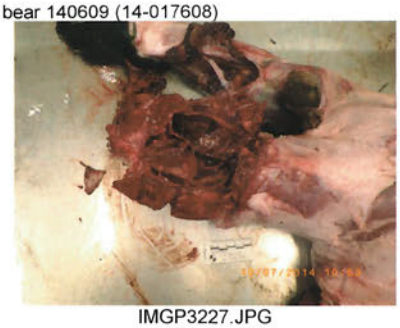
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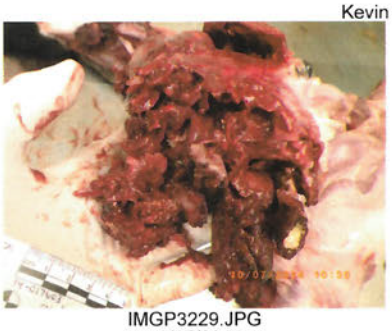
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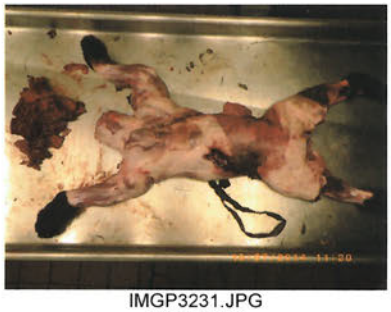
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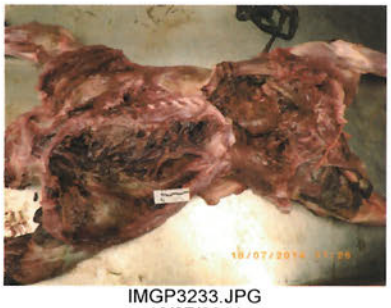
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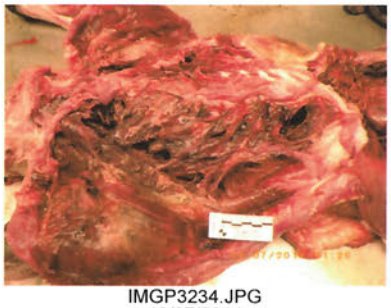
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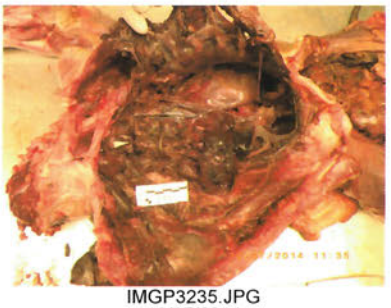
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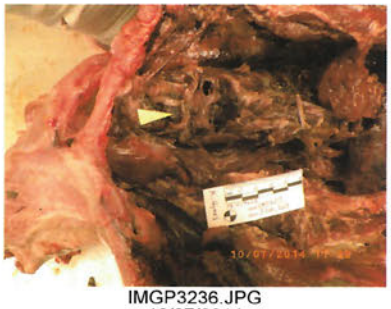
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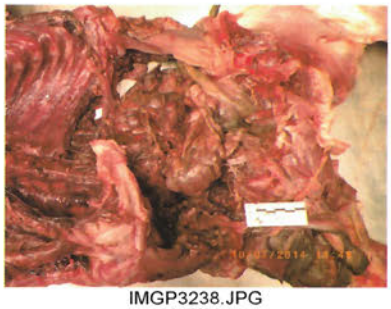
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Cornell University
Animal Health Diagnostic Center
240 Farrier Road, Cornell University, Ithaca, NY 14853
Ph: 607-253-3900 Fax: 607-253-3943
http://diagcenter.vet.cornell.edu

Finalized Report

Owner: New York State Wildlife
Premise ID: ERIN145

Accession Number: **144328-14**

Dec Wildlife Pathology Unit - (16764)
Dr Elizabeth Bunting
108 Game Farm Rd
Delmar, NY 12054
(518) 478-3038

Sampled: 10/06/2014
Received: 10/09/2014
Finalized: 10/17/2014
Reference Number: NEW YORK

ANATOMIC PATHOLOGY

Department of Biomedical Sciences
Phone: 607-253-3319 | Fax: 607-253-3357

140609

1 **14069** - Ursidae American Black Bear

Histopathology

Additional Information
Submitted tissue: Submitted is a single jar of formalin fixed tissues in a sealed evidence bag.

Histologic Diagnosis
Lungs: Marked congestion

Final Comments
Based on the gross findings the cause of death of this bear cub is trauma. Histopathology does not reveal evidence of any underlying disease. However, the tissues are autolyzed and a full set of tissues was not available for examination.

Description
Colon: (slides 1 and 2) The mucosal epithelium is autolyzed but otherwise the tissue appears within normal limits.

Diaphragm: (slide 4). WNL

Eye: (slides 6 and 7): The tissue is crushed but appears WNL

Heart: (slide 3) : Within normal limits.

Kidney: (slide 5): WNL

Lung: (slide 1): The tissue is autolyzed and congested but otherwise appears within normal limits.

Muscle: (slide 2): Within normal limits. A small amount of fragmented cartilage is associated with the tissue.

Urinary Bladder: (slide 4): WNL

Pathologist Elizabeth L. Buckles, DVM, Ph.D, DACVP

NORTHEAST WILDLIFE DNA LABORATORY
APPLIED DNA SCIENCES, EAST STROUDSBURG UNIVERSITY, 562 INDEPENDENCE ROAD, SUITE 114,
EAST STROUDSBURG, PA 18301
570-422-7892

DNA EVALUATION REPORT

October 20, 2014

Submitted by:

Kevin Hynes
NYSDEC Wildlife Health Unit
108 Game Farm Road
Delmar, New York 12054-9767

Laboratory ID # NY-BB-H-033
Case # - 140609
Services Requested: *Ursus americanus*, determine possible origin of location of a black bear found in Central Park, NYC.

Date Received at DNA Lab: 10/9/2014

Description of Sample Submitted: Muscle tissue from black bear (140609) found in Central Park NYC.

Summary of Results:

Table 1: Microsatellite genotype profiles for multiplex I.

Sample	G10P	G10H	CXX20	MU23	MU59	MU50	G10O	G10J	UamA107
140609	170 174	238 250	120 136	162 162	236 238	140 140	202 216	90 90	158 164

Methodology: A nine microsatellite DNA profile was constructed for the NYC black bear (140609). This profile was then entered into the Bayesian clustering program STRUCTURE[1, 2] (version 2.3.4) to possibly determine the origin of the black bear cub. The database consisted of a total of 419 black bears: 347 from NJ, 31 from eastern PA, 30 from western PA, 7 from Sullivan and Orange County NY and 3 from northern (Adirondacks) NY.

In order to use Bayesian clustering analysis to determine the origin of the Central Park black bear (140609), known control sets from each region/state were used. Known controls allow the program, in this case STRUCTURE, to "learn" what the gene frequencies of an area look like by utilizing the USEPOPINFO = 1 flag. Multiple simulations were tested using only female black bears by state, female black bears by regions/zones, all black bear genotypes by state and all black bear genotypes by regions/zones. For each simulation the NYC black bear was entered as an unknown, allowing the program STRUCTURE to assign the best relative location based on the allelic frequencies. Program STRUCTURE assigns a Q-value (y-axis) to each individual sample. The Q-value indicates the percent probability of an individual belonging to a population. Each state or region is assigned a population ID which is identified by a color in the program STRUCTURE (ie: red, green, blue and yellow). It should be noted that the tri-state area has very few barriers to limit black bear movements and thus some bears that were sampled in NJ, PA and NY may be migrants from other states (Chinnici, 2014). These individuals are illustrated by a Q-value that will be of opposite color than the population it was assigned.

The following are figures of the Q-values from the STRUCTURE analysis for Central Park black bear and NJ, NY, and PA black bear genotypes.

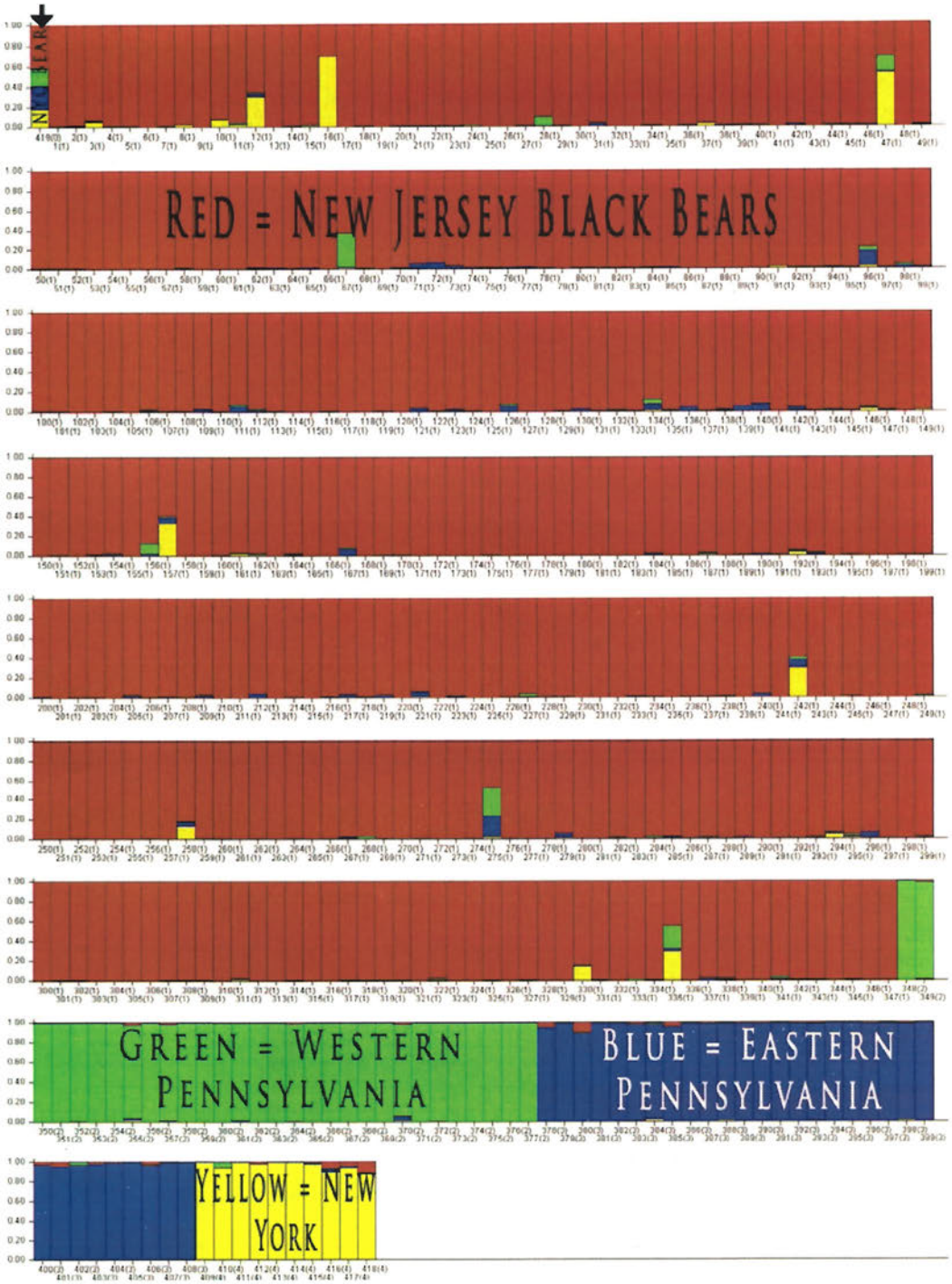

Figure 1: Graphical output of STRUCTURE's Bayesian clustering method where each individual bar represents a separate individual. The height of the bar (y-axis) indicates the magnitude of the Q-value for that particular clustering assignment. Q-values range from 0.000, which indicates no probability of clustering, up to 1.000, which indicates a 100% probability with clustering to a particular group. Along the x-axis are the numbers of the samples that were entered into the simulation. In this simulation each black bear genotypic profile was placed into a state population with PA divided into east and west. The color of the bar on the graph indicates the cluster or population to which that particular Q-value is associated. Red bars indicate association with New Jersey, green bars with western PA, blue bars with eastern PA and yellow bars with NY black bears. The NYC black bear sample is the first sample indicated by the black arrow above. The NYC black bear sample has 41.1% similarities to NJ black bears and 19.2% similarities to NY black bears.

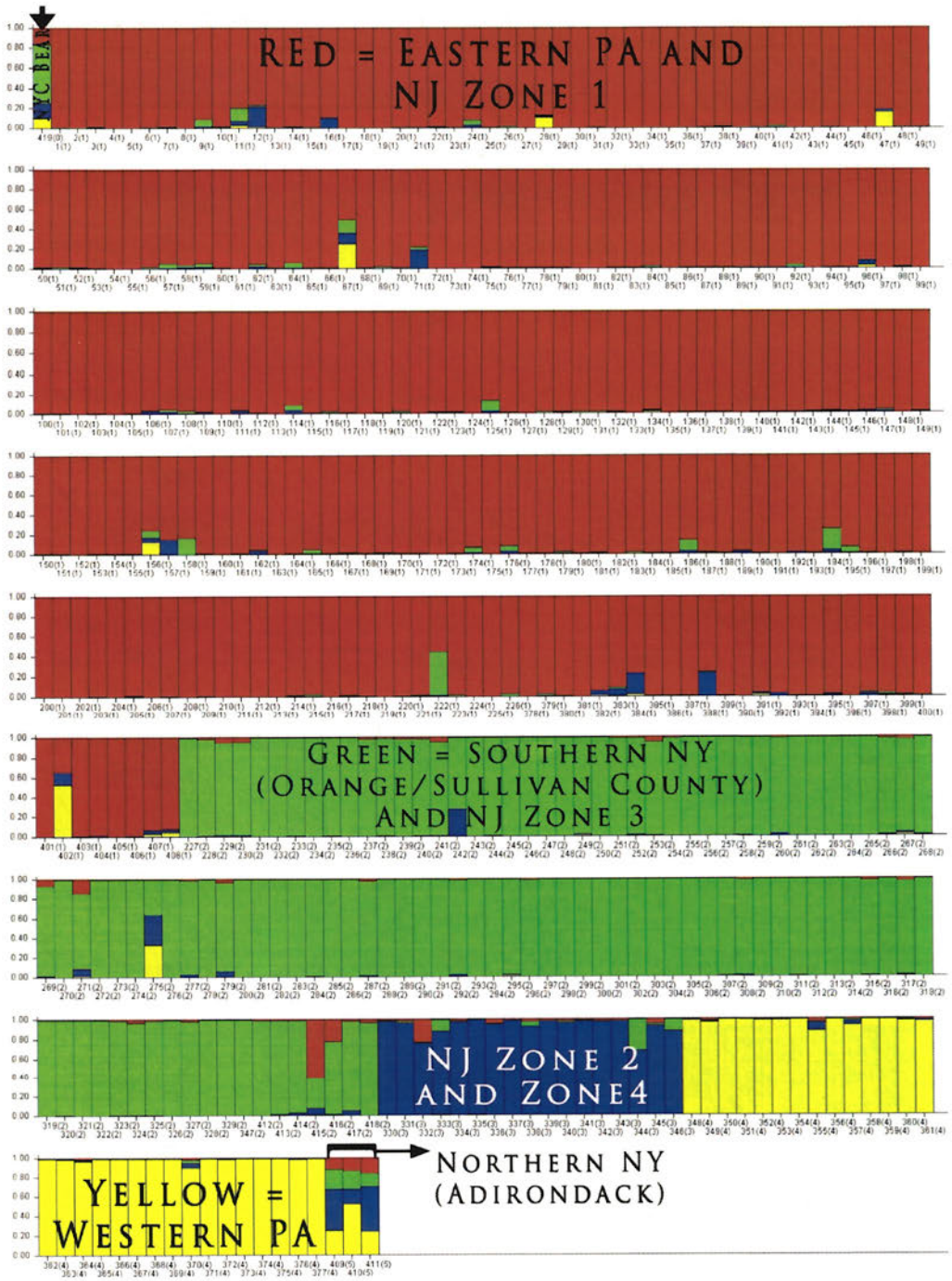

Figure 2: Graphical output of STRUCTURE's Bayesian clustering method where each individual bar represents a separate individual. For this simulation, NJ management zone 1 and eastern PA were placed in the same population and NJ management zone 3 was placed with Orange/Sullivan County. This simulation was completed due to the results of Chinnici, 2014 which illustrated the populations in NJ zone 1 favor an east/west movement and management zone 3 favors a north/south movement through NY. The height of the bar (y-axis) indicates the magnitude of the Q-value for that particular clustering assignment. Along the x-axis are the numbers of the samples that were entered into the simulation. The color of the bar on the graph indicates the cluster or population to which that particular Q-value is associated. Red bars indicate association with NJ zone 1 and eastern PA, green bars with NJ zone 3 and Sullivan/Orange County NY, blue bars with NJ zones 2 and 4, yellow bars with western PA and the final three samples are northern NY black bears. The black bear sample 140609 is the first bar indicated by a black arrow above. Sample 140609 has 57.9% similarity to NJ zone 3 and Sullivan/Orange county NY black bears.

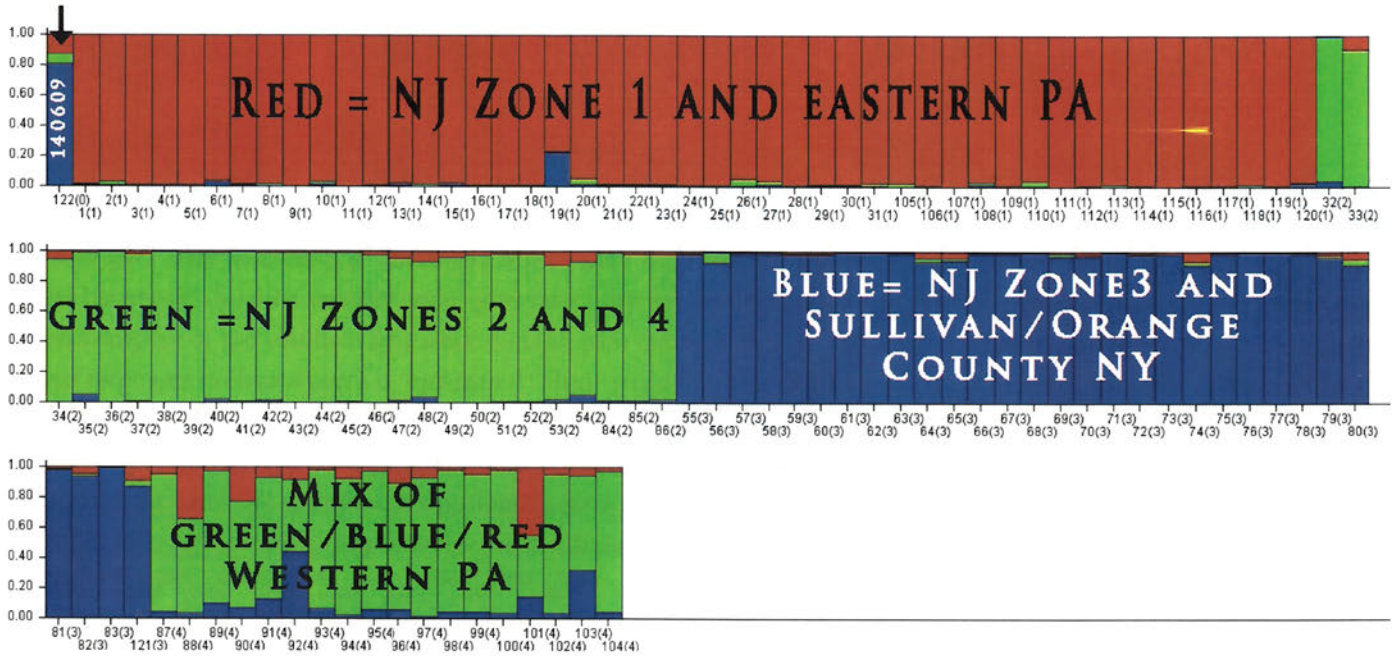

Figure 3: Graphical output of STRUCTURE's Bayesian clustering method where each individual bar represents a separate individual. For this simulation males were removed from the database to eliminate bias allele frequencies from migration. The height of the bar (y-axis) indicates the magnitude of the Q-value for that particular clustering assignment. Q-values range from 0.000, which indicates no probability of clustering, up to 1.000, which indicates a 100% probability with clustering to a particular group. Along the x-axis are the numbers of the samples that were entered into the simulation. The color of the bar on the graph indicates the cluster or population to which that particular Q-value is associated. Red bars indicate association with NJ zone 1 and eastern PA, green bars with NJ zones 2 and 4, blue bars with NJ zone 3 and Sullivan/Orange County NY and mixed green/blue/red bars with western PA. The black bear sample 140609 is the first bar indicated by a black arrow above. Sample 140609 has 81.1% similarity to NJ zone 3 and Sullivan/Orange county NY black bears when males were removed from the database.

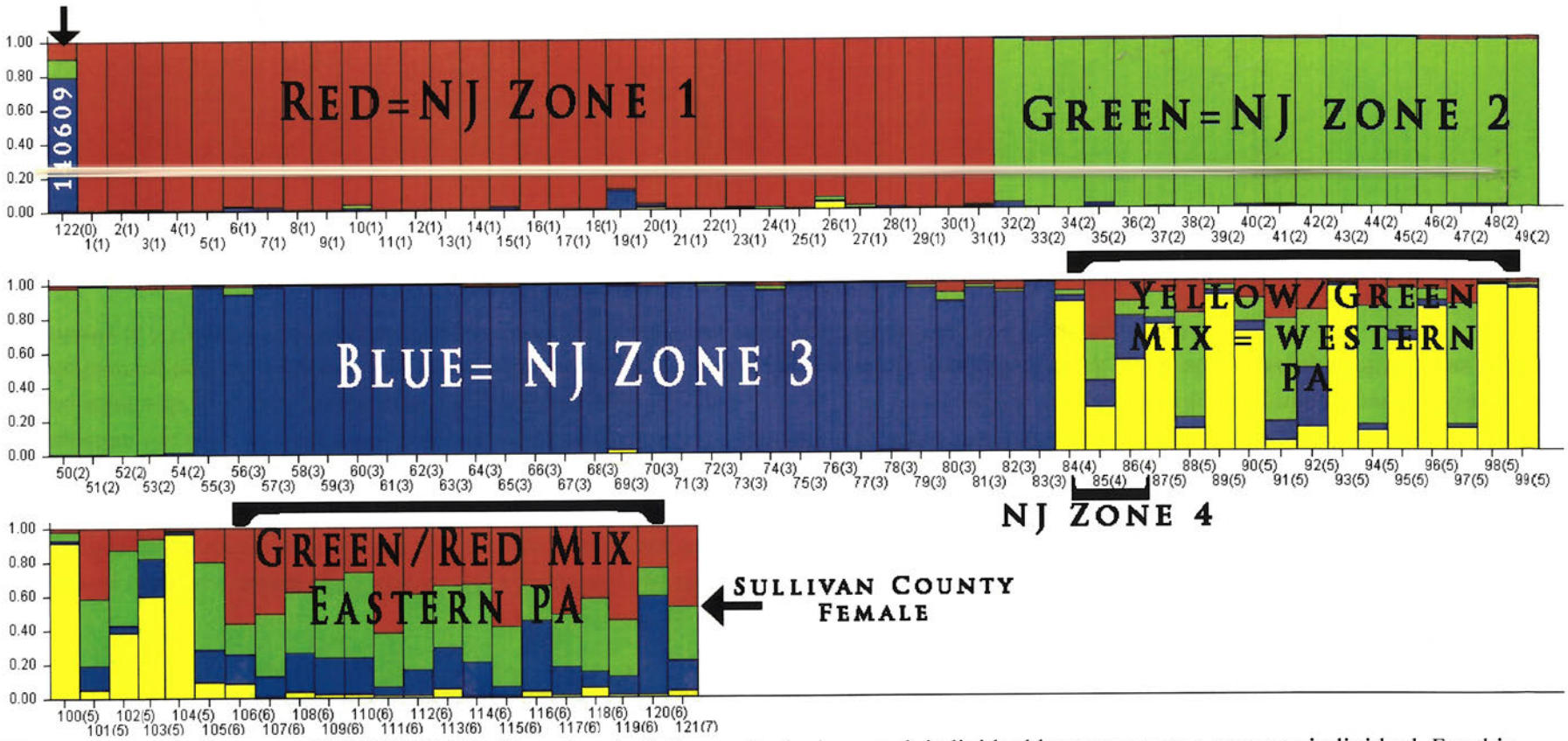

Figure 4: Graphical output of STRUCTURE's Bayesian clustering method where each individual bar represents a separate individual. For this simulation males were removed from the database to eliminate bias allele frequencies from migration. New Jersey female black bears were divided into their management zones (1, 2, 3 and 4), PA was divided into western and eastern region and only one sample from a Sullivan County NY female bear was collected and included. The height of the bar (y-axis) indicates the magnitude of the Q-value for that particular clustering assignment. Q-values range from 0.000, which indicates no probability of clustering, up to 1.000, which indicates a 100% probability with clustering to a particular group. Along the x-axis are the numbers of the samples that were entered into the simulation. The color of the bar on the graph indicates the cluster or population to which that particular Q-value is associated. Red bars indicate association with NJ zone 1, green bars with NJ zone 2, blue bars with NJ zones 3, yellow/green mix bars with western PA, green/red mixed bars with eastern PA and the Sullivan County NY female is indicated last by an arrow. The black bear sample 140609 is the first bar indicated by a black arrow, above. Sample 140609 has 78.3% similarity to NJ management zone 3 population.

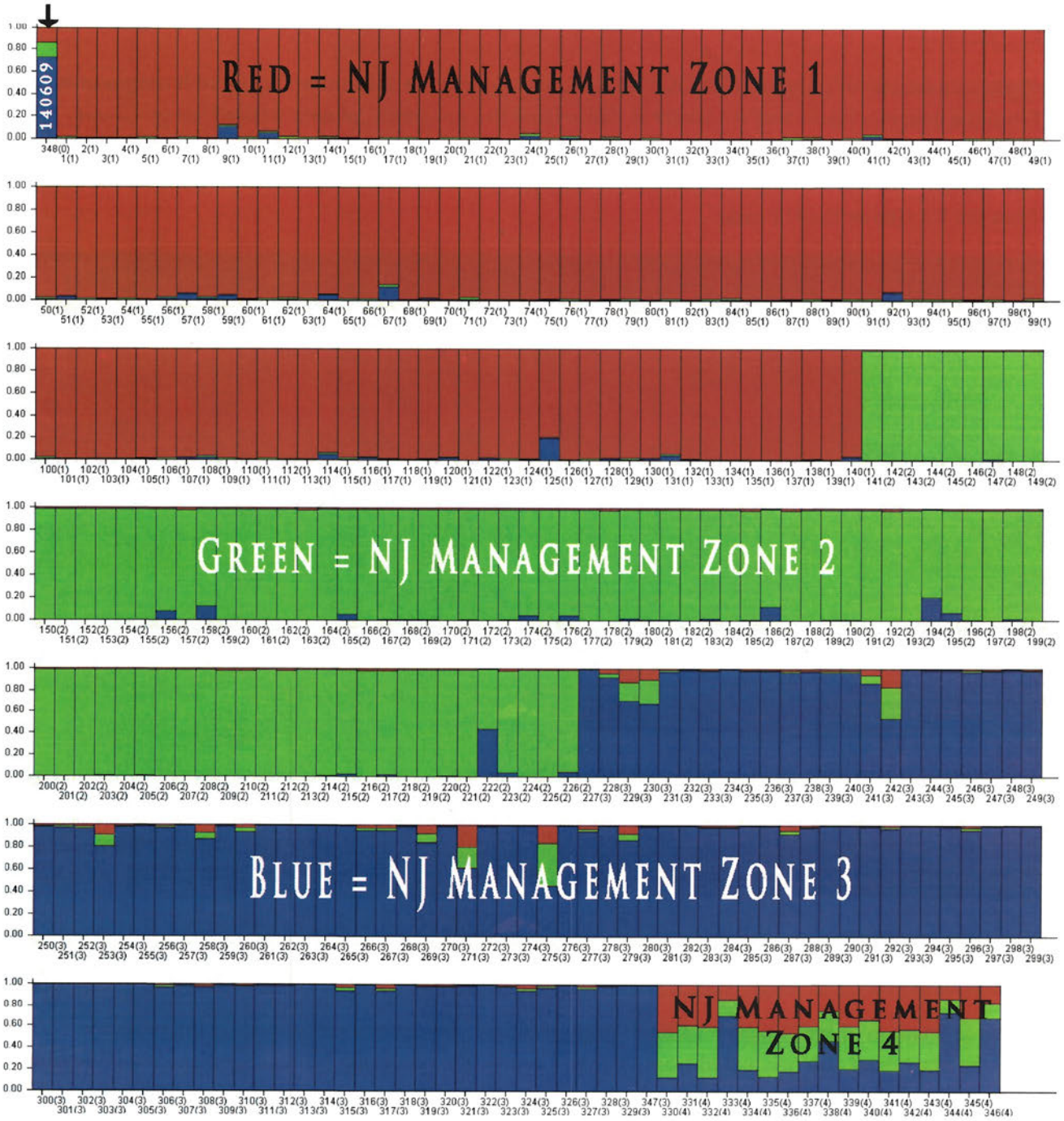

Figure 5: Graphical output of STRUCTURE's Bayesian clustering method where each individual bar represents a separate individual. For this final simulation all bears from only NJ four management zones were used to determine black bear 140609's origin. The height of the bar (y-axis) indicates the magnitude of the Q-value for that particular clustering assignment. Q-values range from 0.000, which indicates no probability of clustering, up to 1.000, which indicates a 100% probability with clustering to a particular group. Along the x-axis are the numbers of the samples that were entered into the simulation. The color of the bar on the graph indicates the cluster or population to which that particular Q-value is associated. Red bars indicate association with NJ zone 1, green bars with NJ zone 2, blue bars with NJ zones 3, and NJ zone 4 is represented by a mix of red/green/blue. The black bear sample 140609 is the first bar indicated by a black arrow above. Sample 140609 has 72.4% similarity to NJ management zone 3 black bears.

Summary:

Multiple simulations of program STRUCTURE were completed to determine the possible origin of black bear # 140609. From the analysis black bear # 140609 is likely from the geographical area where Orange County NY borders NJ management zone 3. The black bear is likely from the Sterling Lake/Sterling Forest region of NJ/NY. With the small sample size from Orange County NY it is hard to draw an exact conclusion to whether the bear originated from the NJ side or the NY side.

Figure 6: Possible location of black bear # 140609. From multiple simulations performed by the program STRUCTURE the black bear cub originated from Orange County NY bordering NJ management zone 3 region.

Literature Cited

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Nicole L. Chinnici, M.S.
DNA Technician

Jane E. Huffman, MS, PhD, MPH
Laboratory Director