2011 White-nose Syndrome Monitoring and Bat Population Survey of Hibernacula in Tennessee

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Cover photo of white-nose infected tri-colored bat (Perimyotis subflavus) in Cooper Creek Cave taken by Cory Holliday of The Nature Conservancy

Acronyms

AAFB.....	**Arnold Air Force Base**
APSU.....	**Austin Peay State University**
NPS.....	**National Park Service**
PCR.....	**Polymerase Chain Reaction**
SLP.....	**Salt-peter**
TCS.....	**Tennessee Cave Survey**
TDEC.....	**Tennessee Department of Environment and Conservation**
TVA.....	**Tennessee Valley Authority**
TWRA.....	**Tennessee Wildlife Resources Agency**
TNC.....	**The Nature Conservancy**
USGS.....	**United States Geological Survey**
USGS-NWHC.....	**United States Geological Survey's National Wildlife Health Center**
USFWS.....	**United States Fish and Wildlife Service**
WNS.....	**White-nose Syndrome**

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Introduction

To monitor the recovery success of endangered bat species in Tennessee, agencies and non-governmental groups within the state have historically conducted winter bat hibernaculum censuses. These have been on either a bi-annual basis or staggered every three years depending on the species involved and availability of personnel. Surveys generally focus on the two endangered species of bat found in Tennessee, *Myotis sodalis* (Indiana bats) and *Myotis grisescens* (gray bats). However, with the new concern of bat population decline due to White-Nose Syndrome (WNS), there is an increased awareness of the need to not only continue monitoring the status of these endangered species, but to also assess the numbers and health of the common species of cave hibernating bats.

WNS and the related *Geomyces destructans* fungus were first recorded in Tennessee in the winter of 2010. The fungus was found on three species of bats (*Myotis lucifugus*, *Myotis septentrionalis*, and *Perimyotis subflavus*) in six caves and in six different counties (Table 1). The documented occurrences included two confirmed infection sites where bats showed histological confirmation of fungal infection within the tissue, and four suspect sites. In suspect sites bats observed showed some signs of *G. destructans* but only tested positive for the fungus through genetic testing and did not show the histological fungal infection necessary for a confirmed WNS case.

In accordance with the 2010 Cooperative White-Nose Syndrome Monitoring and Surveillance Plan for Tennessee (Lamb and Wyckoff, 2010), the winter 2010-2011 hibernaculum monitoring was conducted with the following goals in mind:

- Minimize the potential for monitoring and research projects to contribute to the spread of WNS.
- Continue the WNS surveillance begun in 2009.
- Document the degree of mortality at WNS infected hibernacula.

The first of these goals was accomplished through strict adherence to the U.S. Fish and Wildlife White-nose Syndrome Decontamination Protocols found on the service's website (http:/www.fws.gov/whitenosesyndrome/research.html). The remaining goals were addressed through surveys at a total of sixty-one caves in twenty-six Tennessee counties with increased emphasis on common species of bats and banding efforts. It is important to note that although significant effort was made by all agencies and individuals involved in this year's surveys, the number of caves visited represents less than 1% of the approximate 9,600 caves found in Tennessee. Any conclusions or predictions concerning the spread of WNS in Tennessee and it's affect on the bat population should take this into consideration.

Table 1. 2010 affected caves and infection description.

2010 White-nose Syndrome Occurrences in Tennessee		
Cave Name	County	Infection Status
Grindstaff Cave	Carter	Confirmed, histology positive
Worley (Morril's) Cave	Sullivan	Confirmed, histology positive
Dunbar Cave	Montgomery	Suspect, PCR positive
East Fork Salt Peter Cave	Fentress	Suspect, PCR positive
White Oak Blowhole Cave	Blount	Suspect, PCR positive
Camps Gulf Cave	Van Buren	Suspect, PCR positive

Methods

The 2010-2011 winter hibernacula surveys were conducted between February 2nd 2011 and April 1st 2011. The surveys were purposefully scheduled later in the season compared to previous years to allow for the development of WNS symptoms which seemed to appear later during the 2009-2010 hibernation season. Sixty-one caves were surveyed during the 2010-2011 season by members of eight different agencies or organizations (Table 2). The Cooperative White-Nose Syndrome Monitoring and Surveillance Plan for Tennessee (Lamb and Wyckoff, 2010) set the objectives of the 2010-2011 hibernacula surveys which fell into one of four categories with overlap in some cases.

1.) WNS Surveillance

Conducted at all the caves visited, WNS surveillance followed a tiered approach designed to detect possible WNS infection and to minimize disturbance during surveys (Lamb and Wyckoff, 2010). Tier 1 surveys, in which a full hibernaculum count, examination of all accessible bats for signs of WNS, and band placement and/or recovery (where appropriate), occurred at forty-four caves. Tier 2 surveys, where a quick population estimate, examination of all accessible bats for signs of WNS, and band recovery (where appropriate), occurred at ten caves. And tier 3 surveys which involved observations made outside of cave entrances to check for unusual winter bat behavior (e.g. daytime activity in the cave entrance) occurred at seven caves with multiple visits made to two sites. A summary of caves visited and corresponding survey tier can be found in Table 2.

2.) WNS Mortality Monitoring

The six caves that were either confirmed or suspected to be WNS positive in 2010 were visited to assess the levels of mortality that may have occurred during the 2010-2011 hibernation period. These surveys were essentially Tier 1 surveys as described in the previous section on WNS Surveillance but specifically targeted WNS sites that may not have been normally scheduled for visitation in 2011.

3.) Biennial Indiana Bat Census

These surveys followed the normal monitoring protocols established by the USFWS draft recovery plan (USFWS 2007) and the Cooperative White-Nose Syndrome Monitoring and Surveillance Plan for Tennessee (Lamb and Wyckoff, 2010) with the exception of the survey dates. Again, in an attempt to increase the chance of detecting WNS symptoms, the survey dates were adjusted and surveys took place between February 2nd 2011 and April 1st 2011. Seventeen known *Myotis sodalis* sites were visited and one additional new occurrence was noted at Signature Cave in Franklin County. Tier 1 surveys were performed at all of these sites. Banding and band recovery took place at six of these caves, where individual bats could be safely retrieved (Table 5).

4.) Gray Bat (*Myotis grisescens*) Census

Although high priority gray bat hibernacula were surveyed during the winter of 2009-2010 (Samoray 2010) Rattling Pit Cave in Cocke County was not surveyed for logistical reasons. As stated in the Cooperative White-Nose Syndrome Monitoring and Surveillance Plan for Tennessee (Lamb and Wyckoff, 2010) an attempt to survey this cave during the 2010-2011 hibernation period was planned. However, again for logistical and scheduling reasons, this cave was not surveyed during this season's surveys.

Table 2. Cave survey schedule for winter 2011

Cave Name	County	Tier	Survey Date	Surveyors
Alexander	Perry	1	3/11/2011	TNC
Bat Cave	Sumner	1	3/31/2011	TNC
Bellamy	Montgomery	2 and 3	02/10/2011, 03/10/2011	TNC, TWRA
Bone	VanBuren	3	1/23/11, 2/3/11	TDEC
Bridge Creek	Putnam	1	3/24/2011	TNC
Bridgew ater	Smith	1	2/15/2011	TNC
Buis Farm Cave	Claiborne	1	3/31/2011	TWRA
Bull	Blount	1	2/5/2011	NPS
Buzzard's	Jackson	1	3/17/2011	TNC
Cagle SLP	VanBuren	1	3/4/2011	USFWS, TDEC
Camps Gulf	VanBuren	1	3/17/2011	USFWS, AAFB, USGS
Caney Hollow	Franklin	1	3/15/2011	AAFB
Carlton	Franklin	2	02/17/11	TWRA
Cooper Creek	Montgomery	1	2/9/2011	TNC
Cornstarch	Fentress	1	2/17/2011	TNC, USFWS
Cumberland River	Jackson	1	3/17/2011	TNC
Devil Step Hollow	Cumberland	3		TDEC
Draper	Jackson	1	3/17/2011	TNC
Dudd-Haile	Jackson	1	3/15/2011	TNC
Duke's River #1	Jackson	1	3/17/2011	TNC
Dunbar	Montgomery	1 and 3	2/22/11, 2/8/11, 2/15/11, 3/2/11, 3/7/11, 3/17/11, 3/22/11, 3/29/11	TDEC, TWRA, APSU
Durham	Sumner	1	3/31/2011	TNC
East Fork SLP	Fentress	2	3/16/2011	TNC, USFWS, USGS
Flynn's Creek	Jackson	1	3/15/2011	TNC
Grassy Cove SLP	Cumberland	3		TDEC
Great Expectations	White	2	2/16/2011	TNC
Gregory's	Blount	1	03/16/11	TWRA, NPS
Grindstaff	Carter	1	2/24/2011	TNC, TWRA
Hardin	Davidson	1		
Herron	Rutherford	2	3/17/2011	TDEC
Hubbard's	Warren	2	3/2/2011	TNC, AAFB

Table 2 (continued). Cave survey schedule for winter 2011

2011 Hibernacula Survey Schedule				
Cave Name	**County**	**Tier**	**Survey Date**	**Surveyors**
Indian	White	1	3/3/2011	TNC
Indian Grave Point	Dekalb	2	2/4/2011	TNC, TWRA
Johnson	Putnam	1	3/25/2011	TNC, TCS
Keith	Franklin	1	4/1/2011	TNC
Kelly Ridge	Blount	1	2/6/2011	NPS
Little Bat	Warren	1	3/2/2011	TNC, AAFB
Little Jack Creek	Fentress	1	2/17/2011	TNC, USFWS
Lost Creek	White	2	2/16/2011	TNC, TWRA, USFWS
Marble Bluff	Roane	3	3/17/2011	TVA
Measles Gulf	White	1	3/1/2011	TNC, AAFB
Meredith	Campbell	1	3/22/2011	TNC
New Mammoth	Campbell	1	2/22/2011	TNC, TWRA
Norris Dam Cave	Campbell	1	2/23/2011	TVA
Oaks	Union	1	03/01/11	TWRA
Old Squire's SLP	Smith	1	2/15/2011	TNC
Pearson	Hawkins	2	03/23/11	TWRA, TNC
Rainbow	Blount	1	2/5/2011	NPS
Red Bud	Fentress	1	2/17/2011	TNC, USFWS
Rice	VanBuren	1	3/4/2011	USFWS, TDEC, AAFB
Rose	VanBuren	2	03/16/11	TWRA, AAFB
Saltpeter	Blount	1	2/26/2011	NPS
Scott Gap	Blount	1	2/26/2011	NPS
Signature	Franklin	1	02/17/11	TWRA, AAFB
Tobaccoport SLP	Stewart	1	2/10/2011	TNC
White Oak Blowhole	Blount	1	3/27/2011	USFWS, NPS
Whiteside	Marion	1	03/07/11	TWRA, AAFB
Windlass	Cumberland	3	2/10/2011	TDEC
Wolf River	Fentress	1	3/18/2011	TNC, TWRA, USFWS
Worley (Morril's)	Sullivan	1	2/24/2011	TNC, TWRA
Zarathustras	Fentress	1	3/23/2011	USFWS, AAFB

Results

WNS and Mortality Monitoring

Of the sixty-one caves surveyed, only eight showed signs of *G. destructans* infection (Table 3). Six of those eight caves were considered suspect or confirmed caves in 2009-2010. The two newly infected caves were Cooper Creek Cave in Montgomery County and Bellamy Cave, also in Montgomery County. A more detailed account of the surveys at these caves is given later in this report.

Table 3. 2011 Mortality survey results.

2011 Mortality Survey Results					
Cave Name	County	Survey Date	Species Affected	Evidence of WNS	WNS % Affected
Bellamy	Montgomery	3/10/2011	MYLU	Yes	<1%
Camps Gulf	VanBuren	3/17/2011	PESU	Yes	<1%
Cooper Creek	Montgomery	2/9/2011	MYSE, MYLU, PESU	Yes	12%
Dunbar	Montgomery	2/24/2011	NA	No	0%
East Fork SLP	Fentress	3/16/2011	MYLU	Yes	<1%
Grindstaff	Carter	2/24/2011	MYLU, PESU, MYsp	Yes	approx 45%
White Oak Blowhole	Blount	3/27/2011	MYSO, MYLU	Yes	<1%
Worley (Morrill's)	Sullivan	2/24/2011	PESU	Yes	42%

Previously Infected Sites

In the winter of 2009-2010, six caves in Tennessee were either confirmed or suspect WNS sites (Table 2). The status of those caves during the 2010-2011 survey is listed below.

East Fork Saltpeter Cave, Fentress County

This cave has been considered a suspect WNS site since the early fall of 2010 when one *M. septentrionalis* tested PCR positive for *G. destructans*. This year's survey showed no increased sign of WNS and no mortality. However one female *M. lucifugus* with trace amounts of a white substance on the elbow, wrist, and forearm, was euthanized and sent to USGS National Wildlife Health Center (NWHC) in Madison, Wisconsin for testing and came back PCR positive for *G. destructans* (Appendix A).

Camps Gulf Cave, Van Buren County

Camps Gulf Cave was classified as a suspect cave in 2010 after two *P. subflavus* tested PCR positive for *G. destructans* (Appendix A). Evidence of WNS was minimal during the 2010-2011 survey. However a single *P. subflavus* was euthanized and sent to the NWHC for testing. This bat did not test PCR positive for *G. destructans*. A report of the test results is in Appendix A of this document.

White Oak Blowhole Cave, Blount County

This cave was classified as suspect in 2010. The 2010-2011 survey found approximately four bats with visible fungal growth. One *M. lucifugus* was euthanized and sent to the NWHC for testing. Although the lab did find a fungus on this bat, it did not test positive for *G. destructans.* A report of the test results is in Appendix A of this document.

Dunbar Cave, Montgomery County

This cave was considered a WNS suspect site after a single *M. septentrionalis* tested PCR positive in 2010. This year's survey showed no signs of the *G. destructans* fungus; all bat numbers and roosting locations seemed to be consistent with those of previous years (D. Withers pers. comm.). A large flood event did occur in Dunbar Cave in May of 2010. It is not known how this may have affected bat behavior, but a significant amount of mud and sediment was left behind by this event.

Worley Cave, Sullivan County

This cave tested positive for *G. destructans* and showed histological evidence of WNS on *P. subflavus* in the winter of 2010. The 2010-2011 survey showed an increase in the number of bats and a large progression of WNS throughout the cave (Sterling Daniels, pers. comm.) Approximately 42% of the bats showed signs of WNS. Evidence of mortality at this cave was low with only two dead-hanging *P. subflavus* noted.

Grindstaff Cave, Carter County

Grindstaff Cave tested positive for *G. destructans* and showed histological evidence of WNS on *P. subflavus* and *M. septentrionalis* in late winter of 2010. This year's survey showed a general progression of the infection with a large number of bats showing signs of fungal infection. There was an increase in the number of dead bats found in this cave compared to the count from the 2009-2010 survey.

Twenty-one dead-hanging *P. subflavus* were noted, but no carcasses were found on the cave floor. The surveyors counted a total of 101 bats (dead and alive). Of those, 17 showed definite signs of WNS and 25 were not accessible for determination. If the 25 inaccessible bats are not considered, 31% of the bats in this cave were WNS positive during the 2010 – 2011 survey. A significant decrease in the number of Myotis species was also observed by the 2011 survey crew. One hundred seventy-five Myotis septentrionalis were counted in 2010 while only four were present during this year's survey (Cory Holliday, pers. comm.)

<u>Newly Infected Sites</u>

Cooper Creek Cave

Bats in Cooper Creek Cave showed significant signs of WNS with approximately 12% of the total population exhibiting visible fungal growth. The fungus was found on three of the five species in the cave, *Myotis septentrionalis*, *M. lucifugus*, and *Perimyotis subflavus*. The fungus was not found on the two *M. grisescens*, or on any of the seventeen *Eptesicus fuscus* found in the cave. Four dead bats were found hanging very close to the cave entrance, and no bat carcasses were found on the cave floor. A total of five bats were submitted for WNS testing to the USGS NWHC in Madison, Wisconsin. Two of the five were dead bats (one *M. septentrionalis* and one *P. subflavus*) found near the cave entrance. The remaining bats, one *M. septentrionalis*, one *M. lucifugus*, and one *P. subflavus* were all found in the normal roost areas in the cave and were euthanized. Four of the five bats submitted tested PCR positive for G. destructans, and three of those tested positive (histological confirmation) for white-nose syndrome. Further test details can be found in the NWHC report in Appendix A of this document.

Bellamy Cave

A tier 1 survey of the *M. grisescens* hibernacula at Bellamy Cave was conducted in March of 2010; no signs of WNS were detected during this survey. A tier 2 survey was conducted this season, and although the majority of *M. grisescens* observed still appeared healthy, there was a significant drop in the overall number of bats compared to the 2010 count, and many of the bats present were active (i.e., not in deep torpor).

A single *M. lucifugus* did show signs of a fungus on the snout. Because this did not represent a newly infected species or a new county occurrence, the bat was not submitted for testing. Several pictures of the suspect bat were taken. Bellamy cave is located approximately 1.7 miles (straight-line distance) from Cooper Creek Cave (confirmed WNS positive in 2011). Given the close proximity to a known WNS positive site and the discovery of fungal growth on the single *M. lucifugus*, it was decided by Tennessee state officials to classify Bellamy cave as suspect for *G. destructans*.

Biennial Indiana Bat Census

Sixteen of the sixty-one caves surveyed during the 2010-2011 season were part of the established biennial, tier 1 *M. sodalis* surveillance. In addition to the expected Indiana bat caves surveyed, Signature Cave in Franklin County contained a previously unknown group of Indiana bats; bringing the total number of tier 1 *M. sodalis* surveys to seventeen. A summary of the 2011 *M. sodalis* counts is listed in Table 4 below.

Tier 2 surveys were performed at two known *M. sodalis* caves during the 2010-2011 season. Approximately two hundred thirty-five *M. sodalis* were counted at East Fork Saltpeter Cave while *M. sodalis* were noted as present at Rose Cave.

Table 4. 2011 *M. sodalis* Tier 1 Cave survey results

2011 *M. sodalis* Tier 1 Cave Survey Results			
Cave Name	County	Survey Date	Observed # of MYSO
Alexander	Perry	3/11/2011	6
Bull	Blount	2/5/2011	2491
Cagle SLP	VanBuren	3/4/2011	19
Camps Gulf	VanBuren	3/17/2011	14
Cornstarch	Fentress	2/17/2011	293
Kelly Ridge	Blount	2/6/2011	1137
Little Jack Creek	Fentress	2/17/2011	5
New Mammoth	Campbell	2/22/2011	12
Rainbow	Blount	2/5/2011	11
Rice	VanBuren	3/4/2011	17
Saltpeter	Blount	2/26/2011	10
Scott Gap	Blount	2/26/2011	12
Signature	Franklin	02/17/11	18
Tobaccoport SLP	Stewart	2/10/2011	3
White Oak Blowhole	Blount	3/27/2011	7495
Wolf River	Fentress	3/18/2011	875
Zarathustras	Fentress	3/23/2011	53
TOTAL			12471

Banding and Band Recovery

The encroachment of WNS into Tennessee has prompted an increase in the bat banding efforts taking place throughout the state. During the 2010-2011 hibernacula surveillance banding took place at eleven caves with a total of 475 bats of eight species banded (Table 5). All bats banded were apparently healthy and did not exhibit signs of WNS. By far the highest percentage of bats banded took place at Little Bat Cave and Measles Gulf Cave where 53% and 37% (respectively) of the big-eared bats observed were banded.

Band recoveries occurred at nine caves. Some band information was recorded at all these caves with the exception of Kelly Ridge Cave where the three banded bats were unable to be retrieved. Some bands were also observed but not retrieved at Wolf River Cave, East Fork SLP Cave, and Cornstarch Cave. Individual banding and band recovery information for each of these caves can be found in Appendix B.

Table 5. 2011 Banding and band recovery data.

2011 Banding and Band Recovery

Cave Name	County	Survey Date	# bands recovered	# new bats banded	Species	Surveyors
Bull	Blount	02/05/11	3	0	MYSO, MYLU	NPS
Caney Hollow	Franklin	3/15/2011	1	0	MYGR	AAFB
Cornstarch	Fentress	2/17/2011	11	44	MYSO, MYLU	TNC, USFW
Dunbar	Montgomery	02/24/11	0	6	PESU, MYSE	TDEC, APSU
East Fork SLP	Fentress	3/16/2011	6	50	MYSO, MYLU, PESU	TNC, USFWS, USGS
Johnson	Putnum	3/25/2011	0	3	CORA	TNC, TCS
Kelly Ridge	Blount	2/6/2011	3	0	MYSO, MYLU	NPS
Little Bat	Warren	03/02/11	8	58	CORA	TNC, AAFB
New Mammoth	Campbell	2/22/2011	0	17	MYSO, MYLU, MYSE, MYLE	TNC, TWRA
Measles Gulf	VanBuren	3/1/2011	8	73	CORA	TNC, AAFB
Oaks	Union	3/1/2011	0	1	MYGR	TWRA
Red Bud	Fentress	02/17/11	0	21	MYLU, PESU	TNC, USFWS
Rose	VanBuren	2/24/2011	1	51	MYSO, MYGR	TWRA
Signature	Franklin	02/17/11	0	34	MYLU, PESU, MYSO, EPFU	TWRA, AAFB
Tobaccoport SLP	Stewart	3/17/2011	0	27	MYLU, PESU, MYGR	TNC
Whiteside	Marion	3/2/2011	14	81	PESU	TWRA
Wolf River	Fentress	3/18/2011	66	0	MYSO, MYLU	TNC, USFW, TWRA

Census Results by Species

Survey and monitoring of bats in Tennessee is frequently linked to resources and funding associated with endangered species. This leads to a relatively robust body of knowledge about rare bats but leaves many questions about the more common species. The encroachment of WNS into Tennessee and its potential impact on several species of bats, both endangered and common, emphasizes the importance of gaining baseline population information on all bat species. With this in mind, Tier 1 and 2 surveys conducted during the 2010-2011 season attempted to capture census data on all species found during cave visits. Nine bat species were recorded during these surveys with a total of 23,459 bats reported. A complete list of species estimates can be found in Table 6 below.

Table 6. 2011 Species Counts by Cave. * 1 dead-hanging, **20 dead-hanging, p= present.

2011 Hibernacula Survey Species Counts																
Cave Name	County	Tier	Survey Date	Species:	MYSO	MYLU	MYGR	MYSE	MYLE	MYsp	CORA	PESU	EPFU	LANO	Unknown	TOTAL
Alexander	Perry	1	3/11/2011		6		6					13				25
Bat Cave Sumner Co	Sumner	1	3/31/2011									17				17
Bellamy	Montgomery	2	3/10/2011			1	P	3				87				91
Bone	VanBuren	3	1/23/11, 2/3/11	NA												0
Bridge Creek	Putnum	1	3/24/2011									2				2
Bridgewater	Smith	1	2/15/2011			6				16		16				38
Bius Farm Cave	Claiborne	1	3/31/2011									2				2
Bull	Blount	1	2/5/2011		2491	352		10			4	229	2			3088
Buzzard's	Jackson	1	3/17/2011									1	1			2
Cagle SLP	VanBuren	1	3/4/2011		19	3						48				70
Camps Gulf	VanBuren	1	3/17/2011		14	21		1			4	229	2			271
Caney Hollow	Franklin	1	3/15/2011				54					133				187
Carlton	Franklin	2	02/17/11												200	200
Cooper Creek	Montgomery	1	2/9/2011			129	2	36				218	17			402
Cornstarch	Fentress	1	2/17/2011		293	509		1			1	31				835
Cumberland River	Jackson	1	3/17/2011				22					3				25
Devil Step Hollow	Cumberland	3	02/10/11	NA												0
Draper	Jackson	1	3/17/2011													0
Dudd-Hail	Jackson	1	3/15/2011			1	6					18	3			28
Duke's River #1	Jackson	1	3/17/2011													0
Dunbar	Montgomery	1	2/24/2011					5				75				80
Durham	Sumner	1	3/31/2011							1		32				33
East Fork SLP	Fentress	2	3/16/2011		235	273					1	254				763
Flynn's Creek	Jackson	1	3/15/2011													0
Grassy Cove SLP	Cumberland	3	2/11/2011	NA												0
Great Expectations	White	2	2/16/2011					2			1	300				303
Gregory's	Blount															0
Grindstaff	Carter		2/24/2011			4*				1		85**	16			17
Hardin	Davidson															0
Herron	Rutherford	2	3/17/2011									23				23
Hubbard's	Warren	2	3/2/2011	NA												0

Table 6 (continued). 2011 Species Counts by Cave.

2011 Hibernacula Survey Species Counts																
Cave Name	County	Tier	Survey Date	Species:	MYSO	MYLU	MYGR	MYSE	MYLE	MYsp	CORA	PESU	EPFU	LANO	Unknown	TOTAL
Indian	White	1	3/3/2011				1					42	6			49
Indian Grave Point	Dekalb	2	2/4/2011			1		1		1		38				41
Johnson	Putnum	1	3/25/2011						1		115	97	1			214
Keith	Franklin	1	4/1/2011									225				225
Kelly Ridge	Blount	1	2/6/2011		1137	454					198	69				1858
Little Bat	Warren	1	3/2/2011								110					110
Little Jack Creek	Fentress	1	2/17/2011		5							3				8
Lost Creek	White	2	2/16/2011									350	10	1	30	361
Marble Bluff	Roane	3	3/17/2011					1				87				88
Measles Gulf	White	1	3/1/2011								190	5	2			197
Meredith	Campbell		3/22/2011									14	2			16
New Mammoth	Campbell	1	2/22/2011		12	532		25	11	25		222	2			829
Norris Dam Cave	Campbell	1	2/23/2011									32				32
Oaks	Union	1	3/1/2011				1					49	4			54
Old Squire's SLP	Smith	1	2/15/2011									5				5
Pearson	Hawkins	2	02/23/11	NA												0
Rainbow	Blount	1	2/5/2011		11	51						77				139
Red Bud	Fentress	1	2/17/2011			12						54				66
Rice	VanBuren	1	3/4/2011		17		1					143	1			162
Rose	VanBuren	2	02/24/11		P	700						13	2			715
Saltpeter	Blount	1	2/26/2011		10	11						133	1			155
Scott Gap	Blount	1	2/26/2011		12	148		5				64				229
Signature	Franklin	1	02/17/11		18	1						14	1			34
Tobaccoport SLP	Stewart	1	2/10/2011		3	246	97	4		14		44	24			432
White Oak Blowhole	Blount	1	3/27/2011		7495	574		71				148				8288
Whiteside	Marion	1	03/07/11									535				535
Windlass	Cumberland	3	2/10/2011	NA												0
Wolf River	Fentress	1	3/18/2011		875	734	5	1				148				1763
Worley (Morril's)	Sullivan	1	2/24/2011			1						258	5			264
Zarathustras	Fentress	1	3/23/2011		53	3					1	31				88

Works Cited

Lamb, J.W. and G.R. Wyckoff, Eds. 2010. *Cooperative White-nose Syndrome Monitoring and Surveillance Plan for Tennessee.*

Samoray, Steve. 2010. 2010 Survey of Gray Bat Hibernacula in Tennessee. Prepared for the TN Chapter of The Nature Conservancy.

U.S. Fish and Wildlife Service. 2007. Indiana Bat (*Myotis sodalis*) Draft Recovery Plan: First Revision. U.S. Fish and Wildlife Service, Fort Snelling, MN. 258 pp.

Appendix A - NWHC WNS Test Results by Cave (**East Fork SLP**)

NATIONAL WILDLIFE HEALTH CENTER
6006 Schroeder Road
Madison, Wisconsin 53711-6223
608-270-2400 (FAX 608-270-2415)

DIAGNOSTIC SERVICES CASE UPDATE

CASE: 23482 **EPIZOO:** 4/7/2011

☐ Legal **INV NUM:**

FINDINGS TO DATE

Submitter:
David Pelren
USFWS Ecological Services/Cookeville TN
TN Ecological Services Field Office
446 Neal Street
Cookeville, TN 38501

Date Submitted: 3/18/2011
Specimen description/identification/Location:

ACC	SPECIES	SPECIMEN TYPE	BAND NUMBER	SUBMITTER's ID	COUNTY	STATE
001	Bat, Little Brown	CARCASS		E. Fork Saltpeter Ca	Fentress	TN

Summary of Physical Characteristics

ACC	SEX	AGE	WEIGHT	BODY CONDITION	POSTMORTEM STATE
001	Male	Adult	6.87 gm	Good	Good

Comment:

4/7/11 A single little brown bat was euthanized inside East Forks Saltpeter Cave on 3/16/11 with suspicious white material on the forearm. *G. destructans* DNA had been detected on a bat submitted in March 2010 so this animal was collected for further diagnostic evaluation this year.

This adult male was in good body condition with abundant subcutaneous fat. There was no obvious UV fluorescence detected on wing membranes at necropsy. Histologically, there was no evidence of white-nose syndrome (WNS) on the ear, wing and muzzle tissues examined; only one area on the wing had an inflammatory crust with associated fungal hyphae. However, the *Geomyces destructans* PCR was POSITIVE. Fungal culture results are still pending.

This bat is considered suspect positive for WNS because of the positive Gd PCR result. We would be happy to evaluate additional suspicious bats collected from this location in the future as we currently advise to consider this site contaminated with *G. destructans* based on laboratory results from both March 2010 and 2011. AEB

If you have questions regarding this case, contact:

Anne E. Ballmann

Anne E. Ballmann , DVM, Ph.D.
Wildlife Disease Specialist
Phone: 608-270-2445 **E-Mail:** aballmann@usgs.gov

Diagnostic findings may not be used for publication without the pathologist's knowledge and consent.

PRINTED Apr 07, 2011

Appendix A (continued) - NWHC WNS Test Results by Cave (**Camps Gulf**)

NATIONAL WILDLIFE HEALTH CENTER
6006 Schroeder Road
Madison, Wisconsin 53711-6223
608-270-2400 (FAX 608-270-2415)

DIAGNOSTIC SERVICES CASE UPDATE

CASE: 22984 **EPIZOO:** 2010-047 4/8/2010

FINDINGS TO DATE

Submitter:
George Wyckoff
Aerospace Testing Alliance Conservation
1103 Avenue
Arnold Air Force Base, TN 37389

Date Submitted: 3/25/2010

Specimen description/identification/Location:

ACC	SPECIES	SPECIMEN TYPE	BAND NUMBER	SUBMITTER's ID	COUNTY	STATE
001	Bat, Eastern Pipistrelle (Tri-colored)	CARCASS			Van Buren	TN
002	Bat, Eastern Pipistrelle (Tri-colored)	CARCASS			Van Buren	TN
003	Bat, Indiana	SLIDES(>1)			Van Buren	TN

Comment:

3/26/10: Two tricolor bat carcasses (1 female, 1 male partially scavenged) and fungal tape samples collected from an Indiana bat with signs suspicious of white-nose syndrome (WNS) were submitted for diagnostic evaluation to NWHC on 3/25/10. Light microscopy evaluation of the fungal tape strips from the Indiana bat could not detect any evidence of *Geomyces destructans* or any other identifiable fungal elements. Debris seen on the wing and muzzle in the photo of this animal appears similar to the substrate observed on the wall where the bat was roosting.

The female bat (Acc. 001) was in good body condition (5.82 g, forearm 32.11 mm). PCR results of wing tissues from the 2 tricolor bats tested weakly positive for *G. destructans*, the causative agent of skin lesions in WNS-affected bats. Histology, however, could not confirm the presence of WNS in these bats. Additional testing is being pursued to help clarify these findings and we hope to have some results next week. At this time, these bats are suspected to have come into contact with *G. destructans* and WNS may develop at this location in the future. Implementation of stringent decontamination of personnel and equipment entering this site is advised as is increased monitoring of nearby hibernacula for signs of WNS. Please don't hesitate to contact me if you have any questions. AEB

4/8/10: Sequencing of PCR products has confirmed the identification of *G. destructans* on the 2 tricolored bats submitted for WNS evaluation. So while these individuals had not yet developed the fungal skin infection of WNS at the time of collection, they were carrying the *G. destructans* fungus and may have only recently been exposed to the fungus. As always, please contact me if you have any questions.

If you have questions regarding this case, contact:

Signature on File

Anne E. Ballmann , DVM, Ph.D.
Wildlife Disease Specialist
Phone: 608-270-2445 **E-Mail:** aballmann@usgs.gov

Diagnostic findings may not be used for publication without the pathologist's knowledge and consent.

PRINTED April 08, 2010

NATIONAL WILDLIFE HEALTH CENTER
6006 Schroeder Road
Madison, Wisconsin 53711-6223
608-270-2400 (FAX 608-270-2415)

DIAGNOSTIC SERVICES CASE UPDATE

CASE: 23481 EPIZOO: 4/7/2011

☐ **Legal** **INV NUM:**

FINDINGS TO DATE

Submitter:
David Pelren
USFWS Ecological Services/Cookeville TN
TN Ecological Services Field Office
446 Neal Street
Cookeville, TN 38501

Date Submitted: 3/18/2011
Specimen description/identification/Location:

ACC	SPECIES	SPECIMEN TYPE	BAND NUMBER	SUBMITTER'S ID	COUNTY	STATE
001	Bat, Eastern Pipistrelle (Tri-colored)	CARCASS		Camps Gulf Cave	Van Buren	TN

Summary of Physical Characteristics

ACC	SEX	AGE	WEIGHT	BODY CONDITION	POSTMORTEM STATE
001	Female	Adult	5.84 gm	Good	Good

Comment:

4/7/11 A single tri-colored bat was euthanized inside Camps Gulf Cave on 3/17/11 with suspicious white material on the right arm near the wrist. This may be related to wall substrate, however, because of detection of *G. destructans* DNA from a bat submitted in March 2010, this animal was collected for further diagnostic evaluation.

This adult female was in good body condition with abundant subcutaneous fat. There was no obvious UV fluorescence detected on wing membranes at necropsy. Histologically, there was no evidence of white-nose syndrome (WNS) on the ear, wing and muzzle tissues examined. In addition, the *Geomyces destructans* PCR was negative. Fungal culture results are still pending.

Currently, there is no evidence that this specimen had WNS or that it was harboring the causative fungus, *G. destructans*. We would be happy to evaluate additional suspicious bats collected from this location in the future as we currently advise to consider this site contaminated with *G. destructans* based on laboratory results from March 2010. AEB

If you have questions regarding this case, contact:

Anne E. Ballmann

Anne E. Ballmann , DVM, Ph.D.
Wildlife Disease Specialist
Phone: 608-270-2445 **E-Mail:** aballmann@usgs.gov

Diagnostic findings may not be used for publication without the pathologist's knowledge and consent.

PRINTED April 07, 2011

Appendix A (continued) - NWHC WNS Test Results by Cave (**Cooper Creek**)

NATIONAL WILDLIFE HEALTH CENTER
6006 Schroeder Road
Madison, Wisconsin 53711-6223
608-270-2400 (FAX 608-270-2415)

DIAGNOSTIC SERVICES CASE UPDATE

CASE: 23444 **EPIZOO:** 3/3/2011

☐ Legal **INV NUM:**

FINDINGS TO DATE

Submitter:
Cory Holliday
Nature Conservancy/Gainesboro
862 Fort Blount Ferry Rd
Gainesboro, TN 38562

Date Submitted: 2/11/2011
Specimen description/identification/Location:

ACC	SPECIES	SPECIMEN TYPE	BAND NUMBER	SUBMITTER's ID	COUNTY	STATE
001	Bat, Little Brown	CARCASS	MYLU1		Montgomery	TN
002	Bat, Northern Long-eared	CARCASS	MYSE1		Montgomery	TN
003	Bat, Northern Long-eared	CARCASS	MYSE2		Montgomery	TN
004	Bat, Eastern Pipistrelle (Tri-colored)	CARCASS	PESU		Montgomery	TN
005	Bat, Eastern Pipistrelle (Tri-colored)	CARCASS	PESU2		Montgomery	TN

Summary of Physical Characteristics

ACC	SEX	AGE	WEIGHT	BODY CONDITION	POSTMORTEM STATE
001			7.32kg		
002	Female	Unknown	5.83kg	Fair	Good
003	Male	Subadult (adolescent)	5.11kg	Emaciated	Poor
004	Male	Subadult (adolescent)	4.28kg	Fair	Good
005			3.15kg		

Comment:
3/3/11: PCR analysis identified a genetic signature of *Geomyces destructans* in association with skin samples from four of four bats tested (Accs 001-004). Follow-up histopathology analysis confirmed fungal infection with cupping erosion consistent with white-nose syndrome in three of four bats (Acc 001, 002, 004). Accession 003 was too autolyzed for diagnostic interpretation. JLB

If you have questions regarding this case, contact:

Anne E. Ballmann

Anne E. Ballmann , DVM, Ph.D.
Wildlife Disease Specialist
Phone: 608-270-2445 **E-Mail:** aballmann@usgs.gov

Diagnostic findings may not be used for publication without the pathologist's knowledge and consent.

PRINTED March 03, 2011

Appendix A (continued) - NWHC WNS Test Results by Cave (**White Oak Blowhole**)

NATIONAL WILDLIFE HEALTH CENTER
6006 Schroeder Road
Madison, Wisconsin 53711-6223
608-270-2400 (FAX 608-270-2415)

RECEIVED MAR 21 2011

DIAGNOSTIC SERVICES CASE REPORT

Final Report 3/17/2011

CASE: 23466
EPIZOO:
Legal ☐ **INV#:**
Declassified ☐

Submitter:
David Pelren
USFWS Ecological Services/Cookeville TN
TN Ecological Services Field Office
446 Neal Street
Cookeville, TN 38501

Date Submitted: 3/2/2011

Specimen description/identification/Location: WOB

ACC	SPECIES	SPECIMEN TYPE	BAND NUMBER	SUBMITTER's ID	COUNTY	STATE
001	Bat, Little Brown	CARCASS			Blount	TN

DIAGNOSIS

Negative for White-nose Syndrome

Comment:

3/17/2011

This adult female Little Brown bat was in good body condition. Although a fungus was present in the microscopic sections of the ears and wing membrane, this was not White-nose Syndrome (WNS), and the *Geomyces destructans* PCR was negative.

We occasionally see fungal hyphae on the surface of bat skin. This may be a more typical dermatophyte (like ringworm in dogs and cats), and not the invasive fungus that causes WNS.

Carol U. Meteyer DIPL.ACVP
Staff Diagnostic Pathologist

If you have questions regarding this case, contact:

for Anne E. Ballmann DVM, Ph.D.
Wildlife Disease Specialist

Phone: 608-270-2445 **E-Mail:** aballmann@usgs.gov

Diagnostic findings may not be used for publication without the pathologist's knowledge and consent.

Copies To:

DR. JEREMY COLEMAN
USFWS New York Field Office/Cortland NY, 3817 Luker Road, Cortland, NY 13045

ROGER APPLEGATE
Tennessee Wildlife Resources Agency- Region 2, PO Box 40747, Ellington Agricultural Center, Nashville, TN 37204

MIKE ARMSTRONG
USFWS Endangered Species/Frankfort KY, JC Watts Federal Bldg., Suite 265, Frankfort, KY 40601

Page 1 of 1

Appendix B - Banding and Band Recovery Data Sheets by Cave (**Caney Hollow**)

2011 Tennessee Bat Hibernacula Banding Data

USFWS Region 4 | Survey date: 3/15/11 | Sheet 1 of 1

Cave name: Caney Hollow Cave
County: Franklin
Ownership: Private
Extent (circle): Tier 1 | Tier 2 | External
Data Recorder: George Wyckoff
Surveyors: John Lamb

Additional Data on inside (circle) Yes | No

New Bands

Species (code)	Sex	Text	Number	Forearm (L/R)	WNS (+/-)
MYGR	F	AAFB TN	5265	L	-
MYGR	M	AAFB TN	5266	R	-
MYGR	M	AAFB TN	5267	R	-
MYGR	M	AAFB TN	5268	R	-
MYGR	F	AAFB TN	5269	L	-
MYGR	F	AAFB TN	5270	L	-
MYGR	F	AAFB TN	5271	L	-
MYGR	F	AAFB TN	5272	L	-
MYGR	F	AAFB TN	5273	L	-
MYGR	M	AAFB TN	5274	R	-
MYGR	M	AAFB TN	5275	R	-
MYGR	F	AAFB TN	5276	L	-
MYGR	M	AAFB TN	5277	R	-
MYGR	M	AAFB TN	5278	R	-
MYGR	F	AAFB TN	5279	L	-
MYGR	F	AAFB TN	5280	L	-
MYGR	M	AAFB TN	5281	R	-
MYGR	F	AAFB TN	5282	L	-
MYGR	M	AAFB TN	5283	R	-
MYGR	F	AAFB TN	5284	L	-
MYGR	F	AAFB TN	5285	L	-
MYGR	M	AAFB TN	5286	R	-
MYGR	M	AAFB TN	5287	R	-
MYGR	M	AAFB TN	5288	R	-
MYGR	M	AAFB TN	5289	R	-
MYGR	M	AAFB TN	5290	R	-
MYGR	M	AAFB TN	5291	R	-
MYGR	F	AAFB TN	5292	L	-

New Bands Continued

Species (code)	Sex	Text	Number	Forearm (L/R)	WNS (+/-)
MYGR	M	AAFB TN	5293		-
MYGR	M	AAFB TN	5294		-
MYGR	M	AAFB TN	5295		-
MYGR	M	AAFB TN	5296		-
MYGR	M	AAFB TN	5297		-
MYGR	M	AAFB TN	5298		-
MYGR	F	AAFB TN	5299		-
MYGR	M	AAFB TN	5300		-
MYGR	F	AAFB TN	5301		-
MYGR	M	AAFB TN	5302		-
MYGR	M	AAFB TN	5303		-
MYGR	M	AAFB TN	5304		-
MYGR	F	AAFB TN	5305		-
MYGR	M	AAFB TN	5306		-
MYGR	F	AAFB TN	5307		-
MYGR	F	AAFB TN	5308		-
MYGR	F	AAFB TN	5309		-
MYGR	F	AAFB TN	5310		-
MYGR	F	AAFB TN	5311		-
MYGR	F	AAFB TN	5312		-
MYGR	F	AAFB TN	5313		-
		Band Recoveries			
MYGR	F	AAFB TN	4102	L	-

Appendix B (continued) - Banding and Band Recovery Data Sheets by Cave (**Cornstarch**)

2011 Tennessee Bat Hibernacula Banding Data

USFWS Region 4 | Survey date: 2.17.11 | Sheet 1 of 1

Cave name: Cornstarch Cave
County: Fentress
Ownership: TN Division of Forestry
Extent (circle): Tier 1 | Tier 2 | External
Data Recorder: Steve Samoray
Surveyors: Cory Holliday, Dave Pelren

Additional Data on inside (circle)
Yes | No

New Bands

Species (code)	Sex	Text	Number	Forearm (L/R)	WNS (+/-)
MYSO	M	TNC	290	R	-
MYSO	M	TNC	301	R	-
MYSO	F	TNC	302	L	-
MYSO	M	TNC	303	R	-
MYLU	F	TNC	304	L	-
MYSO	F	TNC	305	L	-
MYSO	M	TNC	306	R	-
MYSO	F	TNC	307	L	-
MYSO	F	TNC	308	L	-
MYSO	M	TNC	309	R	-
MYSO	F	TNC	310	L	-
MYSO	M	TNC	311	R	-
MYSO	M	TNC	312	R	-
MYSO	F	TNC	313	L	-
MYSO	F	TNC	314	L	-
MYSO	M	TNC	315	R	-
MYSO	F	TNC	316	L	-
MYSO	M	TNC	317	R	-
MYSO	F	TNC	318	L	-
MYSO	F	TNC	319	L	-
MYSO	M	TNC	320	R	-
MYSO	F	TNC	321	L	-
MYSO	M	TNC	322	R	-
MYSO	F	TNC	323	L	-
MYSO	F	TNC	324	L	-
MYLU	M	TNC	325	R	-
MYLU	M	TNC	326	R	-
MYLU	M	TNC	327	R	-

New Bands Continued

Species (code)	Sex	Text	Number	Forearm (L/R)	WNS (+/-)
MYLU	M	TNC	328	R	-
MYLU	M	TNC	329	R	-
MYLU	M	TNC	330	R	-
MYLU	F	TNC	331	L	-
MYLU	F	TNC	332	L	-
MYLU	M	TNC	333	R	-
MYLU	M	TNC	334	R	-
MYLU	M	TNC	335	R	-
MYLU	M	TNC	336	R	-
MYLU	M	TNC	337	R	-
MYLU	F	TNC	338	L	-
MYLU	M	TNC	339	R	-
MYLU	M	TNC	340	R	-
MYLU	M	TNC	341	R	-
MYLU	M	TNC	342	R	-
MYLU	F	TNC	343	L	-

Band Recoveries

MYSO	M	KYFW	A15328	R	-
MYSO	F	TNTECHU	775	L	-
MYSO	F	TNTECHU	762	L	-
MYSO	F	TNTECHU	708	L	-
MYSO	F	TNTECHU	703	L	-
MYSO	F	TNTECHU	713	L	-
MYSO	F	TNTECHU	741	L	-
MYSO	F	TNTECHU	701	L	-
MYSO	F	TNTECHU	749	L	-
MYSO	F	TNTECHU	765	L	-
MYSO	F	TNTECHU	710	L	-

Appendix B (continued) - Banding and Band Recovery Data Sheets by Cave (**East Fork SLP**)

2011 Tennessee Bat Hibernacula Banding Data

USFWS Region 4 | Survey date: 3.16.11 | Sheet 1 of 1

Cave name: East Fork SLP Cave
County: Fentress
Ownership: Private
Extent (circle): Tier 1 | Tier 2 | External
Data Recorder: Steve Samoray
Surveyors: Cory Holliday, Dave Pelren, Anne Ballman

Additional Data on inside (circle) Yes | No

New Bands

Species (code)	Sex	Text	Number	Forearm (L/R)	WNS (+/-)
MYSO	M	TNC	1001	R	-
MYSO	M	TNC	1002	R	-
MYSO	F	TNC	1003	L	-
MYSO	M	TNC	1004	R	-
MYSO	M	TNC	1005	R	-
MYSO	M	TNC	1006	R	-
MYSO	M	TNC	1007	R	-
MYSO	F	TNC	1008	L	-
MYSO	M	TNC	1009	R	-
MYSO	M	TNC	1010	R	-
MYSO	F	TNC	1011	L	-
MYSO	F	TNC	1012	L	-
MYSO	M	TNC	1013	R	-
MYSO	M	TNC	1014	R	-
MYSO	M	TNC	1015	R	-
MYSO	F	TNC	1016	L	-
MYSO	F	TNC	1017	L	-
MYSO	M	TNC	1018	R	-
MYSO	M	TNC	1019	R	-
MYSO	M	TNC	1020	R	-
MYSO	M	TNC	1021	R	-
MYSO	M	TNC	1022	R	-
MYSO	M	TNC	1023	R	-
MYSO	M	TNC	1024	R	-
MYSO	F	TNC	1025	L	-
MYLU	M	TNC	1026	R	-
MYSO	F	TNC	1027	L	-
MYLU	M	TNC	1028	R	

New Bands Continued

Species (code)	Sex	Text	Number	Forearm (L/R)	WNS (+/-)
MYLU	M	TNC	1029	R	-
MYLU	M	TNC	1030	R	-
MYSO	F	TNC	1031	L	-
MYLU	M	TNC	1032	R	-
MYLU	F	TNC	1033	L	-
MYSO	F	TNC	1034	L	-
MYSO	M	TNC	1035	R	-
MYSO	M	TNC	1036	R	-
MYSO	M	TNC	1037	R	-
MYSO	M	TNC	1038	R	-
MYSO	M	TNC	1039	R	-
MYSO	M	TNC	1040	R	-
MYSO	M	TNC	1041	R	-
MYSO	F	TNC	1042	L	-
MYSO	M	TNC	1043	R	-
MYSO	M	TNC	1044	R	-
MYSO	M	TNC	1045	R	-
MYSO	F	TNC	1046	L	-
MYSO	F	TNC	1047	L	-
PESU	F	TNC	1048	L	-
PESU	M	TNC	1049	R	-
PESU	M	TNC	1050	R	-

Recovered Bands

MYSO	M	BFREE	A00142	R	-
MYSO	M	BFREE	A00149	R	-
MYSO	M	BFREE	A00146	R	-
MYSO	M	BFREE	A00141	R	-
MYSO	M	BFREE	A00150	R	-
MYSO	Na	Silverband	Na	Na	- (too high)

Appendix B (continued) - Banding and Band Recovery Data Sheets by Cave (**Dunbar**)

2011 Tennessee Bat Hibernacula Banding Data

USFWS Region 4 | Survey date: 3.24.11 | Sheet 1 of 1

Cave name: Dunbar Cave
County: Montgomery
Ownership: TDEC
Extent (circle): Tier 1 | Tier 2 | External
Data Recorder: Josh Campbell
Surveyors: Dave Withers, Seth McCormick, Josh Campbell

Additional Data on inside (circle) Yes | No

New Bands

Species (code)	Sex	Text	Number	Forearm (L/R)	WNS (+/-)
PESU	F	TWRA	00785	L	-
MYSE	M	TWRA	00786	R	-
MYSE	F	TWRA	00787	L	-
MYSE	F	TWRA	00788	L	-
MYSE	F	TWRA	00789	L	-
MYSE	M	TWRA	00790	R	-

New Bands Continued

Species (code)	Sex	Text	Number	Forearm (L/R)	WNS (+/-)

Appendix B (continued) - Banding and Band Recovery Data Sheets by Cave (**Johnson**)

2011 Tennessee Bat Hibernacula Banding Data

USFWS Region 4 | Survey date: 3.25.11 | Sheet 1 of 1

Cave name: Johnson Cave
County: Putnum
Ownership: Private
Extent (circle): Tier 1 | Tier 2 | External
Data Recorder: Steve Samoray
Surveyors: Cory Holliday, Kristen Bobo, Alexis Lienhart

Additional Data on inside (circle) Yes | No

New Bands

Species (code)	Sex	Text	Number	Forearm (L/R)	WNS (+/-)
CORA	M	TNC	282	R	-
CORA	M	TNC	283	R	-
CORA	M	TNC	284	R	-

New Bands Continued

Species (code)	Sex	Text	Number	Forearm (L/R)	WNS (+/-)

Appendix B (continued) - Banding and Band Recovery Data Sheets by Cave (**Little Bat Cave**)

2011 Tennessee Bat Hibernacula Banding Data

USFWS Region 4 | Survey date: 3/2/11 | Sheet 1 of 1

Cave name: Little Bat Cave
County: Warren
Ownership: TNC
Extent (circle): Tier 1 | Tier 2 | External
Data Recorder: Steve Samoray
Surveyors: Cory Holliday, John Lamb

Additional Data on inside (circle) Yes | No

New Bands

Species (code)	Sex	Text	Number	Forearm (L/R)	WNS (+/-)
CORA	M	TNC	0451	R	-
CORA	F	TNC	0452	L	-
CORA	F	TNC	0453	L	-
CORA	F	TNC	0454	L	-
CORA	M	TNC	0455	R	-
CORA	M	TNC	0456	R	-
CORA	F	TNC	0457	L	-
CORA	M	TNC	0458	R	-
CORA	M	TNC	0459	R	-
CORA	M	TNC	0460	R	-
CORA	F	TNC	0461	L	-
CORA	F	TNC	0462	L	-
CORA	M	TNC	0463	R	-
CORA	M	TNC	0464	R	-
CORA	F	TNC	0465	L	-
CORA	M	TNC	0466	R	-
CORA	M	TNC	0467	R	-
CORA	F	TNC	0468	L	-
CORA	M	TNC	0469	R	-
CORA	F	TNC	0470	L	-
CORA	F	TNC	0471	L	-
CORA	F	TNC	0472	L	-
CORA	M	TNC	0473	R	-
CORA	F	TNC	0474	L	-
CORA	M	TNC	0475	R	-
CORA	F	TNC	0476	L	-
CORA	M	TNC	0477	R	-
CORA	F	TNC	0478	L	-

New Bands Continued

Species (code)	Sex	Text	Number	Forearm (L/R)	WNS (+/-)
CORA	F	TNC	0479	L	-
CORA	F	TNC	0480	L	-
CORA	F	TNC	0481	L	-
CORA	F	TNC	0482	L	-
CORA	F	TNC	0483	L	-
CORA	F	TNC	0484	L	-
CORA	F	TNC	0485	L	-
CORA	F	TNC	0486	L	-
CORA	F	TNC	0487	L	-
CORA	F	TNC	0488	L	-
CORA	F	TNC	0489	L	-
CORA	F	TNC	0490	L	-
CORA	F	TNC	0491	L	-
CORA	F	TNC	0492	L	-
CORA	F	TNC	0493	L	-
CORA	F	TNC	0494	L	-
CORA	F	TNC	0495	L	-
CORA	F	TNC	0496	L	-
CORA	F	TNC	0497	L	-
CORA	F	TNC	0498	L	-
CORA	F	TNC	0499	L	-
CORA	F	TNC	0500	L	-
CORA	M	TNC	0401	R	-
CORA	F	TNC	0402	L	-
CORA	F	TNC	0403	L	-
CORA	F	TNC	0404	L	-
CORA	F	TNC	0405	L	-
CORA	F	TNC	0406	L	-
CORA	F	TNC	0407	L	-
		Band Recoveries			
CORA	M	TNC	0106	L	-
CORA	M	TNC	0104	L	-
CORA	M	TNC	0102	L	-
CORA	F	TNC	0109	L	-
CORA	F	TNC	0113	L	-
CORA	F	TNC	0103	L	-
CORA	F	TNC	0108	L	-
CORA	F	TNC	0105	L	-

Appendix B (continued) - Banding and Band Recovery Data Sheets by Cave (**Measles Gulf**)

2011 Tennessee Bat Hibernacula Banding Data

USFWS Region 4 | Survey date: 3/1/11 | Sheet 1 of 1

Cave name: Measles Gulf Cave
County: VanBuren
Ownership: Private
Extent (circle): Tier 1 | Tier 2 | External
Additional Data on inside (circle) Yes | No
Data Recorder: Steve Samoray
Surveyors: Cory Holliday, George Wyckoff, John Lamb

New Bands

Species (code)	Sex	Text	Number	Forearm (L/R)	WNS (+/-)
CORA	M	AAFB TN	4619	R	-
CORA	F	AAFB TN	4620	L	-
CORA	F	AAFB TN	4621	L	-
CORA	F	AAFB TN	4622	L	-
CORA	M	AAFB TN	4623	R	-
CORA	F	AAFB TN	4624	L	-
CORA	M	AAFB TN	4625	R	-
CORA	M	AAFB TN	4626	R	-
CORA	M	AAFB TN	4627	R	-
CORA	M	AAFB TN	4628	R	-
CORA	M	AAFB TN	4629	R	-
CORA	M	AAFB TN	4630	R	-
CORA	M	AAFB TN	4631	R	-
CORA	F	AAFB TN	4632	L	-
CORA	F	AAFB TN	4633	L	-
CORA	M	AAFB TN	4634	R	-
CORA	F	AAFB TN	4635	L	-
CORA	F	AAFB TN	4636	L	-
CORA	M	AAFB TN	4637	R	-
CORA	M	AAFB TN	4638	R	-
CORA	F	AAFB TN	4639	L	-
CORA	F	AAFB TN	4640	L	-
CORA	F	AAFB TN	4641	L	-
CORA	M	AAFB TN	4642	R	-
CORA	F	AAFB TN	4643	L	-
CORA	F	AAFB TN	4644	L	-
CORA	F	AAFB TN	4645	L	-
CORA	F	AAFB TN	4646	L	-

New Bands Continued

Species (code)	Sex	Text	Number	Forearm (L/R)	WNS (+/-)
CORA	F	AAFB TN	4647	L	-
CORA	M	AAFB TN	4648	R	-
CORA	M	AAFB TN	4649	R	-
CORA	M	AAFB TN	4650	R	-
CORA	M	TNC	100	R	-
CORA	M	TNC	0068	R	-
CORA	F	TNC	0069	L	-
CORA	M	TNC	0070	R	-
CORA	F	TNC	0071	L	-
CORA	F	TNC	0072	L	-
CORA	M	TNC	0073	R	-
CORA	M	TNC	0074	R	-
CORA	F	TNC	0075	L	-
CORA	M	TNC	0076	R	-
CORA	F	TNC	0077	L	-
CORA	F	TNC	0078	L	-
CORA	F	TNC	0079	L	-
CORA	M	TNC	0080	R	-
CORA	F	TNC	0081	L	-
CORA	F	TNC	0082	L	-
CORA	M	TNC	0083	R	-
CORA	F	TNC	0084	L	-
CORA	M	TNC	0085	R	-
CORA	M	TNC	0086	R	-
CORA	F	TNC	0087	L	-
CORA	M	TNC	0088	R	-
CORA	F	TNC	0089	L	-
CORA	F	TNC	0090	L	-
CORA	F	TNC	0091	L	-
CORA	F	TNC	0092	L	-
CORA	F	TNC	0093	L	-
CORA	F	TNC	0094	L	-
CORA	F	TNC	0095	L	-
CORA	F	TNC	0096	L	-
CORA	F	TNC	0097	L	-
CORA	M	TNC	0098	R	-
CORA	F	TNC	0099	L	-
CORA	F	AAFB TN	5351	L	-
CORA	M	AAFB TN	5352	R	-
CORA	M	AAFB TN	5353	R	-

New Bands Continued

CORA	F	AAFB TN	5354	L	-
CORA	M	AAFB TN	5355	R	-
CORA	F	AAFB TN	5356	L	-
CORA	M	AAFB TN	5357	R	-
CORA	F	AAFB TN	5358	L	-
CORA	F	AAFB TN	5359	L	-
CORA	M	AAFB TN	5360	R	-

Band Recoveries

CORA	M	TNC	0124	R	-
CORA	M	TNC	0123	R	-
CORA	M	TNC	0131	R	-
CORA	M	TNC	0132	R	-
CORA	M	AAFB TN	4605	R	-
CORA	F	AAFB TN	4614	R	-
CORA	M	AAFB TN	4617	R	-
CORA	M	TNC	0136	R	-

Appendix B (continued) - Banding and Band Recovery Data Sheets by Cave (**Red Bud**)

2011 Tennessee Bat Hibernacula Banding Data

USFWS Region 4 | Survey date: 2/17/11 | Sheet 1 of 1

Cave name: Red Bud Cave
County: Fentress
Ownership: TN Division of Forestry
Extent (circle): Tier 1 | Tier 2 | External
Data Recorder: Steve Samoray
Surveyors: Cory Holliday, Dave Pelren

Additional Data on inside (circle) Yes | No

New Bands

Species (code)	Sex	Text	Number	Forearm (L/R)	WNS (+/-)
PESU	F	TNC	0344	L	-
PESU	M	TNC	0345	R	-
PESU	M	TNC	0346	R	-
PESU	F	TNC	0347	L	-
PESU	M	TNC	0348	R	-
PESU	M	TNC	0349	R	-
PESU	M	TNC	0350	R	-
PESU	M	AAFB TN	4937	R	-
PESU	M	AAFB TN	4938	R	-
PESU	M	AAFB TN	4939	R	-
PESU	M	AAFB TN	4940	R	-
PESU	F	AAFB TN	4950	L	-
PESU	M	AAFB TN	4941	R	-
PESU	M	AAFB TN	4942	R	-
PESU	M	AAFB TN	4943	R	-
PESU	F	AAFB TN	4944	L	-
PESU	M	AAFB TN	4945	R	-
PESU	F	AAFB TN	4946	L	-
PESU	F	AAFB TN	4948	L	-
PESU	M	AAFB TN	4949	R	-
MYLU	F	AAFB TN	4947	L	-

New Bands Continued

Appendix B (continued) - Banding and Band Recovery Data Sheets by Cave (**Rose**)

2011 Tennessee Bat Hibernacula Banding Data

USFWS Region 4 | Survey date: 3.16.11 | Sheet 1 of 1

Cave name: Rose Cave
County: Van Buren
Ownership: TWRA
Extent (circle): Tier 1 | Tier 2 | External
Additional Data on inside (circle) Yes | No
Data Recorder: Mark Thurman
Surveyors: Mark Thurman, George Wyckoff, Chris Simpson

New Bands

Species (code)	Sex	Text	Number	Forearm (L/R)	WNS (+/-)
MYSO	F	TWRA	00251	L	-
MYSO	F	TWRA	00252	L	-
MYSO	M	TWRA	00253	R	-
MYSO	M	TWRA	00254	R	-
MYSO	F	TWRA	00255	L	-
MYSO	M	TWRA	00256	R	-
MYSO	F	TWRA	00257	L	-
MYSO	M	TWRA	00258	R	-
MYSO	M	TWRA	00259	R	-
MYSO	M	TWRA	00260	R	-
MYSO	F	TWRA	00261	L	-
MYSO	M	TWRA	00262	R	-
MYSO	F	TWRA	00263	L	-
MYSO	F	TWRA	00265	L	-
MYSO	F	TWRA	00264	L	-
MYGR	M	TWRA	00266	R	-
MYGR	M	TWRA	00267	R	-
MYGR	M	TWRA	00268	R	-
MYGR	M	TWRA	00269	R	-
MYSO	M	TWRA	00270	R	-
MYSO	F	TWRA	00271	L	-
MYSO	F	TWRA	00272	L	-
MYSO	F	TWRA	00273	L	-
MYSO	F	TWRA	00274	L	-
MYSO	M	TWRA	00275	R	-
MYLU	M	TWRA	00276	R	-
MYSO	M	TWRA	00277	R	-
MYLU	F	TWRA	00278	L	

New Bands Continued

Species (code)	Sex	Text	Number	Forearm (L/R)	WNS (+/-)
MYSO	M	TRWA	00279	R	-
MYSO	M	TRWA	00280	R	-
MYSO	M	TRWA	00281	R	-
MYSO	F	TRWA	00282	L	-
MYSO	F	TRWA	00283	L	-
MYSO	F	TRWA	00284	L	-
MYSO	M	TRWA	00285	R	-
MYSO	F	TRWA	00286	L	-
MYSO	F	TRWA	00287	L	-
MYSO	M	TRWA	00288	R	-
MYSO	F	TRWA	00289	L	-
MYSO	F	TRWA	00290	L	-
MYSO	F	TRWA	00291	L	-

Recovered Bands

MYSO		TNC	0018		-
MYSO		TNC	0027		-
MYSO		TNC	0008	L	-
MYSO		TNC	0020	R	-
MYSO		TNC	0016	R	-
MYSO		TNC	0015	R	-
MYSO		TNC	0009		
MYSO		TNC	0007		
MYGR		AAFBTN	4927		
MYSO		TNC	00021		
MYSO		TNC	0004		
MYSO		TNC	0025		

Appendix B (continued) - Banding and Band Recovery Data Sheets by Cave (**Signature**)

2011 Tennessee Bat Hibernacula Banding Data

USFWS Region 4 | Survey date: 2.17.11 | Sheet 1 of 1

Cave name: Signature Cave
County: Franklin
Ownership: TWRA
Extent (circle): Tier 1 | Tier 2 | External
Data Recorder: Josh Campbell
Surveyors: John Lamb, Josh Campbell

Additional Data on inside (circle) Yes | No

New Bands

Species (code)	Sex	Text	Number	Forearm (L/R)	WNS (+/-)
MYLU	F	TWRA	751	L	-
PESU	F	TWRA	752	L	-
PESU	F	TWRA	753	L	-
PESU	F	TWRA	754	L	-
PESU	M	TWRA	755	R	-
PESU	F	TWRA	756	L	-
MYSO	M	TWRA	757	R	-
MYSO	F	TWRA	758	L	-
MYSO	M	TWRA	759	R	-
MYSO	M	TWRA	760	R	-
MYSO	M	TWRA	761	R	-
MYSO	F	TWRA	762	L	-
MYSO	M	TWRA	763	R	-
MYSO	F	TWRA	764	L	-
MYSO	F	TWRA	765	L	-
MYSO	M	TWRA	766	R	-
MYSO	F	TWRA	767	L	-
MYSO	F	TWRA	768	L	-
MYSO	M	TWRA	769	R	-
MYSO	F	TWRA	770	L	-
MYSO	F	TWRA	771	L	-
MYSO	M	TWRA	772	R	-
MYSO	F	TWRA	773	L	-
MYSO	M	TWRA	774	R	-
PESU	M	TWRA	775	R	-
PESU	M	TWRA	776	R	-
PESU	M	TWRA	777	R	-
PESU	M	TWRA	778	R	

New Bands Continued

Species (code)	Sex	Text	Number	Forearm (L/R)	WNS (+/-)
PESU	M	TWRA	779	R	-
PESU	M	TWRA	780	R	-
PESU	M	TWRA	781	R	-
EPFU	F	TWRA	782	L	-
PESU	F	TWRA	783	L	-
PESU	M	TWRA	784	R	-

Appendix B (continued) - Banding and Band Recovery Data Sheets by Cave (**Tobaccoport SLP**)

2011 Tennessee Bat Hibernacula Banding Data

USFWS Region 4 | Survey date: 2.10.11 | Sheet 1 of 1

Cave name: Tobaccoport SLP Cave
County: Stewart
Ownership: Private
Extent (circle): Tier 1 | Tier 2 | External
Data Recorder: ST Samoray
Surveyors: Cory Holliday

Additional Data on inside (circle) Yes | No

New Bands

Species (code)	Sex	Text	Number	Forearm (L/R)	WNS (+/-)
MYLU	M	TNC	251	R	-
MYLU	F	TNC	252	L	-
MYLU	M	TNC	253	R	-
MYLU	M	TNC	254	R	-
MYLU	F	TNC	255	L	-
MYGR	F	TNC	256	L	-
MYGR	F	TNC	257	L	-
MYLU	F	TNC	258	L	-
MYLU	M	TNC	259	R	-
MYLU	M	TNC	260	R	-
MYLU	M	TNC	261	R	-
MYLU	F	TNC	262	L	-
PESU	F	TNC	263	L	-
PESU	M	TNC	264	R	-
PESU	M	TNC	265	R	-
MYGR	F	TNC	266	L	-
MYGR	M	TNC	267	R	-
MYGR	M	TNC	268	R	-
MYGR	M	TNC	269	R	-
MYLU	F	TNC	270	L	-
PESU	M	TNC	271	R	-
PESU	M	TNC	272	R	-
PESU	M	TNC	273	R	-
PESU	M	TNC	274	R	-
PESU	F	TNC	275	L	-
PESU	M	TNC	277	R	-
PESU	M	TNC	279	R	-

New Bands Continued

Species (code)	Sex	Text	Number	Forearm (L/R)	WNS (+/-)

Appendix B (continued) - Banding and Band Recovery Data Sheets by Cave (**Whiteside**)

2011 Tennessee Bat Hibernacula Banding Data

USFWS Region 4 | Survey date: 3.7.11 | Sheet 1 of 4

Cave name: Whiteside Cave

County: Marion

Ownership: _____ | Additional Data on inside (circle)

Extent (circle): Tier 1 | Tier 2 | External

Data Recorder: Chris Simpson | Yes | No

Surveyors: Josh Campbell, George Wyckoff, Chris Simpson

New Bands

Species (code)	Sex	Text	Number	Forearm (L/R)	WNS (+/-)/WDI
PESU	F	TWRA	00007	L	- / 2
PESU	F	TWRA	00008	L	- / 0
PESU	M	TWRA	00009	R	- / 0
PESU	F	TWRA	00010	L	- / 0
PESU	M	TWRA	00011	R	- / 0
PESU	M	TWRA	00012	R	- / 0
PESU	M	TWRA	00013	R	- / 0
PESU	M	TWRA	00014	R	- / 2
PESU	F	TWRA	00015	L	- / 0
PESU	M	TWRA	00016	R	- / 0
PESU	F	TWRA	00017	L	- / 0
PESU	M	TWRA	00018	R	- / 0
PESU	F	TWRA	00019	L	- / 0
PESU	M	TWRA	00020	R	- / 0
PESU	M	TWRA	00021	R	- / 0
PESU	M	TWRA	00022	R	- / 0
PESU	F	TWRA	00023	L	- / 0
PESU	M	TWRA	00024	R	- / 0
PESU	F	TWRA	00025	L	- / 0
PESU	M	TWRA	00026	R	- / 0
PESU	M	TWRA	00027	R	- / 0
PESU	M	TWRA	00028	R	- / 0
PESU	F	TWRA	00029	L	- / 0
PESU	M	TWRA	00030	R	- / 0
PESU	M	TWRA	00031	R	- / 0
PESU	M	TWRA	00032	R	- / 0
PESU	M	TWRA	00033	R	- / 0
PESU	M	TWRA	00034	R	- / 0

New Bands Continued

Species (code)	Sex	Text	Number	Forearm (L/R)	WNS (+/-)/WDI
PESU	F	TWRA	00035	L	- / 0
PESU	F	TWRA	00036	L	- / 1
PESU	F	TWRA	00037	L	- / 0
PESU	M	TWRA	00038	R	- / 0
PESU	M	TWRA	00039	R	- / 0
PESU	M	TWRA	00040	R	- / 0
PESU	F	TWRA	00041	L	- / 0
PESU	M	TWRA	00042	R	- / 0
PESU	M	TWRA	00043	R	- / 0
PESU	M	TWRA	00044	R	- / 0
PESU	M	TWRA	00045	R	- / 0
PESU	M	TWRA	00046	R	- / 0
PESU	M	TWRA	00047	R	- / 0
PESU	M	TWRA	00048	R	- / 0
PESU	M	TWRA	00049	R	- / 0
PESU	M	TWRA	00050	R	- / 0
PESU	M	TWRA	00101	R	- / 0
PESU	M	TWRA	00102	R	- / 0
PESU	M	TWRA	00103	R	- / 0
PESU	F	TWRA	00104	L	- / 0
PESU	M	TWRA	00105	R	- / 0
PESU	M	TWRA	00106	R	- / 0
PESU	M	TWRA	00107	R	- / 0
PESU	F	TWRA	00108	L	- / 0
PESU	M	TWRA	00109	R	- / 0
PESU	F	TWRA	00110	R (due to wing damage)	- / 1
PESU	M	TWRA	00111	R	- / 0
PESU	M	TWRA	00112	R	- / 0
PESU	F	TWRA	00113	L	- / 0
PESU	F	TWRA	00114	L	- / 0
PESU	M	TWRA	00115	R	- / 0
PESU	M	TWRA	00116	R	- / 0
PESU	M	TWRA	00117	R	- / 0
PESU	F	TWRA	00118	L	- / 0
PESU	M	TWRA	00119	R	- / 0
PESU	M	TWRA	00120	R	- / 0
PESU	M	TWRA	00121	R	- / 0
PESU	M	TWRA	00122	R	- / 0
PESU	M	TWRA	00123	R	- / 0
PESU	M	TWRA	00124	R	- / 0

New Bands Continued

Species (code)	Sex	Text	Number	Forearm (L/R)	WNS (+/-)/WDI
PESU	M	TWRA	00125	R	- / 0
PESU	M	TWRA	00126	R	- / 0
PESU	M	TWRA	00127	R	- / 0
PESU	M	TWRA	00128	R	- / 0
PESU	M	TWRA	00129	R	- / 0
PESU	F	TWRA	00130	L	- / 0
PESU	M	TWRA	00131	R	- / 0
PESU	M	TWRA	00132	R	- / 0
PESU	M	TWRA	00133	R	- / 0
PESU	M	TWRA	00134	R	- / 0
PESU	M	TWRA	00135	R	- / 0
PESU	M	TWRA	00136	R	- / 0
PESU	M	TWRA	00137	R	- / 0

Recovered Bands

Species (code)	Sex	Text	Number	Forearm (L/R)	WNS (+/-)
PESU	M	AAFB	4357		
PESU	M	AAFB	4559		
PESU	M	AAFB	4570		
PESU	M	AAFB	4592		
PESU	M	AAFB	4571		
PESU	F	AAFB	4574		
PESU	M	AAFB	4594		
PESU	M	AAFB	4581		
PESU	M	AAFB	4588		
PESU	M	AAFB	4597		
PESU	M	AAFB	4586		
PESU	M	AAFB	4564		
PESU	M	AAFB	4599		
PESU	M	AAFB	4568		

Appendix B (continued) - Banding and Band Recovery Data Sheets by Cave (**Wolf River**)

2011 Tennessee Bat Hibernacula Banding Data

USFWS Region 4 | Survey date: 3.18.11 | Sheet 1 of 1

Cave name: Wolf River Cave
County: Fentress
Ownership: SCCI
Extent (circle): Tier 1 | Tier 2 | External
Data Recorder: Steve Samoray
Surveyors: Cory Holliday, Chris Simpson, Dave Pelren

Additional Data on inside (circle)
Yes | No

Band Recoveries

Species (code)	Sex	Text	Number	Forearm (L/R)	WNS (+/-)
MYSO	F	TNTECHU	894	L	-
MYSO	F	TNTECHU	860	L	-
MYSO	F	TNTECHU	889	L	-
MYSO	F	TNTECHU	876	L	-
MYLU	F	TNTECHU	200	L	-
MYSO	F	TNTECHU	182	L	-
MYSO	F	TNTECHU	891	L	-
MYSO	F	TNTECHU	796	L	-
MYSO	F	TNTECHU	184	L	-
MYSO	F	TNTECHU	892	L	-
MYSO	F	TNTECHU	873	L	-
MYSO	F	TNTECHU	184	L	-
MYSO	F	TNTECHU	831	L	-
MYSO	F	TNTECHU	885	L	-
MYSO	F	TNTECHU	179	L	-
MYSO	F	TNTECHU	788	L	-
MYSO	F	TNTECHU	861	L	-
MYSO	F	TNTECHU	810	L	-
MYSO	F	TNTECHU	844	L	-
MYSO	F	TNTECHU	851	L	-
MYSO	F	TNTECHU	862	L	-
MYSO	F	TNTECHU	793	L	-
MYSO	F	TNTECHU	799	L	-
MYSO	F	TNTECHU	190	L	-
MYSO	F	TNTECHU	1605	L	-

New Bands Continued

Species (code)	Sex	Text	Number	Forearm (L/R)	WNS (+/-)