Tick-Borne Infections Council of North Carolina, Inc.

2013 SUMMER NEWSLETTER

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Quote of the Season: "We can't solve problems by using the same kind of thinking we used when we created them." - *Albert Einstein*

Highlights…
Scroll down to see these features and more!

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Links to Letters to Medical Providers from the State Department of Public Health on Lyme Disease and Rickettsial Diseases

These links are to the letters the state Department of Public Health issues every year to medical providers on Lyme disease and the Rickettsial diseases such as RMSF:

2013 Rickettsial Disease Memo
2013 Lyme Disease Memo

North Carolina Data on Reportable Tick-borne Infections

Disease	Total cases by year of report 2011 FINAL (Confirmed/Probable/Suspected)	Total cases by year of report 2012 Final (Confirmed/Probable/Suspected)	Cases between 1/1/12 and 8/15/2013 (Probable + Confirmed)
Lyme disease	88 (18/70/135)	122 (27/95/80)	99 (16 confirmed)
Rickettsioses	327 (16/311/281)	591 (12/579/341)	189 (7 confirmed)
Ehrlichia	83 (27/56/102)	109 (18/91/56)	39 (13 confirmed)
Anaplasma	21 (1/20/19)	21 (0/21/21)	5 (all probable)

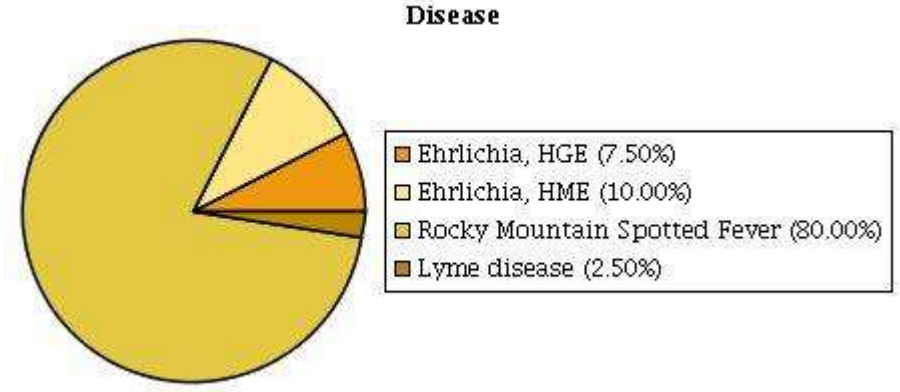
* illness onset may be prior to 1/1/13

Note: Endemic counties (at least two confirmed case of Lyme disease in a person who had not traveled out of the county for 30 after their tick exposure) now total 3: **Wake, Haywood, and Guilford.**

TIC-NC Invited to Participate in the Indy Week's Give!Guide Project. Please Join Us and Donate.

TIC-NC is honored to be among the 28 non-profits chosen by the Independent Weekly to participate in their 2nd Annual Give!Guide Project. The Give!Guide's mission is to motivate giving from all people and from all corners, but especially from locals ages 18-35. Here's the Indy's press release announcing the project: Indy Press Release Please visit TIC-NC's Give!Guide page and make your donation between November 12 and midnight on December 31, 2013. TIC-NC has partnered with Townsend Bertram & Co., Insect Shield, and HOMS (Bio-UD) in the Give!Guide. Your donations of $15 and up will receive a gift from one or more of our partners – check it out: TIC-NC Partner Gifts

Chatham County Tick-borne Illness Cases Reported to the State in 2012

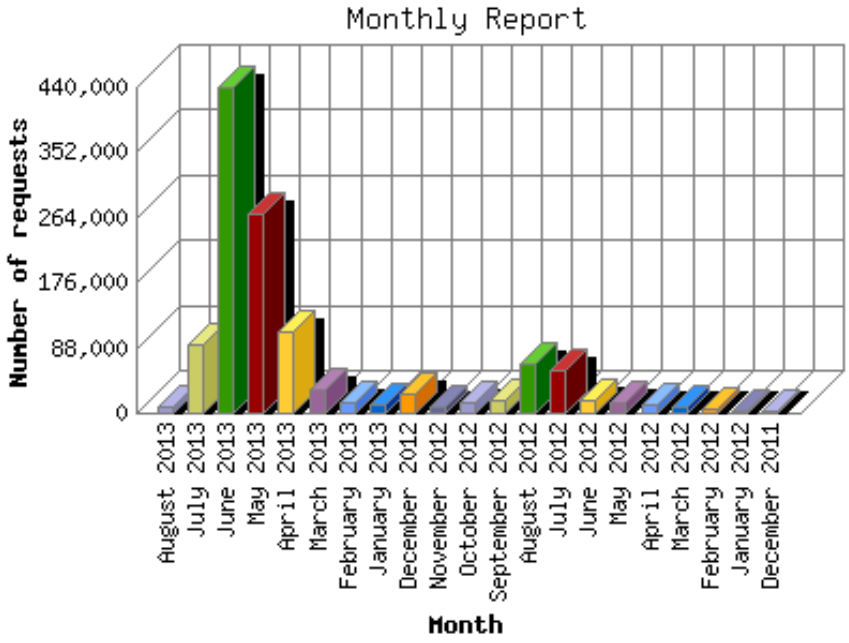


TATP Reported Case Counts CD
Report Period: 01/01/2012-01/01/2013
Classification status: Probable

Disease

Classification	Number of Records	Percent
Ehrlichia	0	0.00%
Ehrlichia, HGE	3	7.50%
Ehrlichia, HME	4	10.00%
Rocky Mountain Spotted Fever	32	80.00%
Lyme disease	1	2.50%
Total	**40**	**100.00%**

Recent Stats for TIC-NC's Website Use – Thousands Visit Our Website



Press Release from the CDC. New Study: CDC Provides Estimate of Americans Diagnosed with Lyme Disease Each Year—300,000

Monday, August 19, 2013. Preliminary estimates released by the Centers for Disease Control and Prevention indicate that the number of Americans diagnosed with Lyme disease each year is around 300,000. The preliminary estimates were presented Sunday night in Boston at the 2013 International Conference on Lyme Borreliosis and Other Tick-Borne Diseases.

This early estimate is based on findings from three ongoing CDC studies that use different methods, but all aim to define the approximate number of people diagnosed with Lyme disease each year. The first project analyzes medical claims information for approximately 22 million insured people annually for six years, the second project is based on a survey of clinical laboratories and the third project analyzes self-reported Lyme disease cases from a survey of the general public.

Each year, more than 30,000 cases of Lyme disease are reported to CDC, making it the most commonly reported tick-borne illness in the United States. The new estimate suggests that the total number of people diagnosed with Lyme disease is roughly 10 times higher than the yearly reported number. This new estimate supports studies published in the 1990s indicating that the true number of cases is between 3- and 12-fold higher than the number of reported cases.

"We know that routine surveillance only gives us part of the picture, and that the true number of illnesses is much greater," said Paul Mead, M.D., M.P.H, chief of epidemiology and surveillance for CDC's Lyme disease program. "This new preliminary estimate confirms that Lyme disease is a tremendous public health problem in the United States, and clearly highlights the urgent need for prevention."

CDC continues to analyze the data in the three studies to refine the estimates and better understand the overall burden of Lyme disease in the United States and will publish finalized estimates when the studies are complete. Efforts are also underway at CDC and by other researchers to identify novel methods to kill ticks and prevent illness in people.

"We know people can prevent tick bites through steps like using repellents and tick checks. Although these measures are effective, they aren't fail-proof and people don't always use them," said Lyle R. Petersen, M.D., M.P.H, director of CDC's Division of Vector-Borne Diseases. "We need to move to a broader approach to tick reduction, involving entire communities, to combat this public health problem."

This community approach would involve homeowners trying to kill ticks in their own yards, and communities addressing a variety of issues. These issues include rodents that carry the Lyme disease bacteria, deer that play a key role in the ticks' lifecycle, suburban planning, and the interaction between deer, rodents, ticks, and humans. All must be addressed to effectively fight Lyme disease.

Most Lyme disease cases reported to CDC through national surveillance are concentrated heavily in the Northeast and upper Midwest, with 96 percent of cases in 13 states. Lyme disease is caused by the bacterium Borrelia burgdorferi and is transmitted to humans through the bite of infected blacklegged ticks. Typical symptoms include fever, headache, fatigue, and a characteristic skin rash called erythema migrans. If left untreated, infection can spread to joints, the heart, and the nervous system.

CDC recommends people take steps to help prevent Lyme disease and other tick-borne diseases:

- Wear repellent

- Check for ticks daily
- Shower soon after being outdoors
- Call your doctor if you get a fever or rash

For more information on Lyme disease, visit www.cdc.gov/lyme.

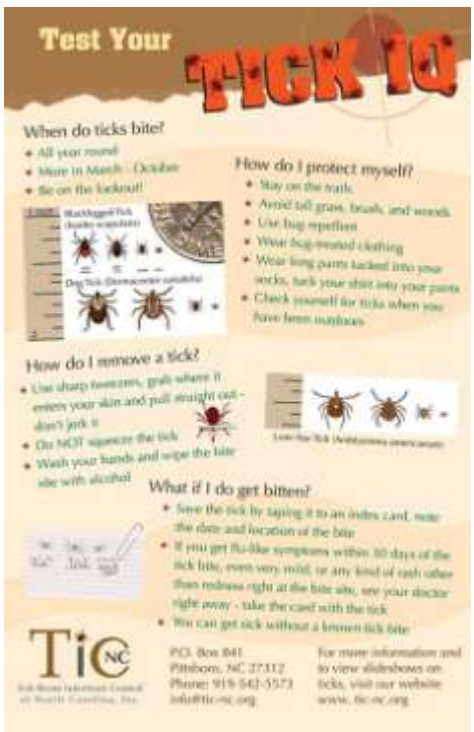
TIC-NC Summer Activities and Local News

Tick Warning Signs Given to the Mountain to Sea Trail (MST)

The MST contains about 550 miles of trail with hundreds of trail heads. The busiest sections in the Piedmont are along 1.) Falls Lake - particularly near the Falls Lake dam, 2.) at West Point on the Eno and Eno River State Park, 3.) along Greensboro's watershed lakes, and 4.) in Pilot Mt. and Hanging Rock State Parks. In the Coastal Plain, the busiest trail is the Neusiok in the Croatan National Forest near Havelock. The signs read: "Please Don't Feed the Ticks. Check Often. Remove Promptly." We will continue working to get our signs at trail heads.

Grant From Yahoo for $5,000 Allowed Distribution of Flyer on Tick Disease Prevention to 7,200 Orange County Students

Thanks to a $5,000 YEF grant (more on that coming soon) TIC-NC was able to distribute this informational flyer to 7,200 Orange County, NC students with their year-end report cards. It was also put on the website for a Raleigh high school in May in The Wakefield High School PTSA Connection.



NC's Town of Holly Spring's Councilman's Wife and Daughter Sick with Lyme Disease

Holly Springs, North Carolina town council declared May, Tick-Borne Disease Awareness Month. Councilman James Cobb's wife and daughter contracted Lyme disease 10-15 years ago and still receive treatment. Cobb said both have gone through intensive intravenous treatments.

"Lyme is some nasty stuff," he said. He urged people who find a tick attached to them to take precautions and visit a physician if a rash or fever develops. "It's out there and it can be quite interesting and quite serious," he said

Article in The New Yorker on Lyme Disease

Below is the link to an interesting and fairly balanced article on Lyme disease. The author got it wrong, though, about the so-called 'bull's eye' rash. Most of these rashes, officially known as *erythema migrans*, are solid red. And, he said nothing about the south and lone star ticks and the so-called STARI which has been implicated as Lyme disease by Dr. Kerry Clarks' recent publication: http://www.medsci.org/v10p0915.htm .

http://www.newyorker.com/reporting/2013/07/01/130701fa_fact_specter

And, followed up by an appearance on NPR:
http://www.npr.org/2013/06/26/195223507/the-lyme-wars-that-tiny-ticks-have-wrought

Lone Star Tick and Red Meat Allergy Issue, Winston-Salem Journal

If Lyme disease isn't reason enough to avoid ticks, here's another: the inability to enjoy a burger. Odd as it seems, researchers say that bites from the voracious lone star tick are making some people allergic to red meat—even if they've never had a problem eating it before.

- **The Lone Star Tick**
- **Scientific name**: Amblyomma americanum
- **Common name**: Lone star, due to the white spot on females' back
- **Habitat**: Wooded areas with thick underbrush
- **Natural hosts**: White-tailed deer, wild turkey
- **How to avoid**: Steer clear of wooded areas; wear pants tucked into socks; use tick repellent on skin and clothing; check gear, pets and body thoroughly
- **How to remove**: Use tweezers, gripping as close to the skin as possible

The allergic reactions range from vomiting and abdominal cramps to hives to anaphylaxis, which can lead to breathing difficulties and sometimes even death. It is a delayed reaction unlike most allergies. Usually several hours pass after eating mammalian meat before the sufferer begins to get symptoms. For the full story see:
http://online.wsj.com/article/SB10001424127887324634304578537203916053308.html?mod=e2tw

More on Red Meat Allergy

Article in Charlottesville, VA paper, June 21, 2013

The University of Virginia first identified the phenomenon in 2006: Bites from the Lone Star tick, one of Central Virginia's most prevalent tick species, or chiggers, another common summertime nuisance, could be enough to cause a reaction to a sugar compound found in meat from mammals, Dr. Scott Commins of the University of Virginia said. The bites make people allergic to red meat and pork -- burgers, steaks, lamb chops, sausage, etc. The condition can be serious enough to land people in the hospital with symptoms including itchiness, hives, stomach cramps and anaphylaxis.

For entire article:
http://www.dailyprogress.com/news/local/common-tick-can-cause-allergic-reaction-to-meat/article_36c8ae06-dad8-11e2-99fb-001a4bcf6878.html

Poughkeepsie Journal's Article on the Results of a Freedom of Information (FOI) Request to the CDC for Emails on Lyme Disease—A Five Year Effort

This article on Lyme disease is based on 3,000 pages of emails provided to Kim Newby, senior producer of the Lyme disease documentary "Under Our Skin," about 1,200 of which were whited out. Under a narrowed request resubmitted in July of 2010, Newby sought financial disclosure reports for three key CDC officials, which were not provided, and emails between them and eight outsiders, including two officials at the National Institutes of Health and six Lyme scientists. Ms. Newby filed a Freedom of Information Act request on June 26, 2007 with the U.S. Centers for Disease Control and Prevention for employee emails related to Lyme disease. After five years of wrangling — related, the CDC contends, to the scope of the request and haggles over cost — the request was granted and documents provided without fee from April to October 2012. See this link for the entire story:
http://www.poughkeepsiejournal.com/article/20130519/NEWS01/305190058/Lyme-emails-request-took-five-years-officials-blame-scope-fee-waiver

You can see and print the copies of the actual emails sent by CDC/IDSA people (obtained by FOIA request) by clicking on the red portions of this interactive poster:
http://www.poughkeepsiejournal.com/interactive/article/20130517/watchdog/305160051/proint-lyme-ties-bind?gcheck=1&nclick_check=1

Response to Freedom of Information Act Request from Public Health Officials about Lyme disease took five years; officials blame scope and fee waiver. http://pojonews.co/12mlx58

http://campother.blogspot.com/ (excellent discussion of the issues

CDC Study Focuses on Spraying Pesticides and Tick-Borne Diseases

By Allison Dunne

A new study from the Centers for Disease Control and Prevention looks at whether spraying yards with pesticides reduces the risk of contracting a tick-borne disease. In New York, the study focused

on Dutchess County.

The CDC studied 2,500 households in Fairfield, Litchfield, and New Haven Counties in Connecticut; Dutchess County in New York; and four counties in Maryland. Half of the yards were sprayed with Bifenthrin, a widely-used commercial pesticide. The other half was sprayed with a placebo – water. The result was a 60 percent reduction in ticks on the properties sprayed with the pesticide. However, tick–borne illness and tick encounters among those residing at the properties treated with the pesticide were not reduced. Tick encounters signify ticks crawling or ticks attaching.

Dr Alison Hinkley, an epidemiologist with the CDC's Division of Vector-borne Diseases, who delivered the presentation at the International Conference on Lyme Borreliosis and Other Tick-Borne Diseases, in Boston, says more studies are needed.

The study on pesticides followed one released a few days earlier in which the CDC found that preliminary estimates indicating the number of Americans diagnosed with Lyme disease each year is around 300,000. That's a figure roughly 10 times higher than the annual number of cases reported to CDC.

South African Study on Dogs Find Faster Transmission Time for Canine Ehrlichiosis than Previously Thought

TRANSMISSION of *EHRLICHIA CANIS* BY *RHIPICEPHALUS SANGUINEUS* TICKS FEEDING ON DOGS AND ON ARTIFICIAL MEMBRANES. Josephus J. Fourie, Dorothee Stanneck[b], Herman G. Luus, Frederic Beugnet, Michiel Wijnveld, Frans Jongejan
http://dx.doi.org/10.1016/j.vetpar.2013.07.026

A South African strain of Ehrlichia canis was isolated and used to infect a laboratory-bred Beagle dog. Rhipicephalus sanguineus nymphs, which fed on this dog, molted to adult ticks which carried infection rates of E.canis between 12% and 19% and were used in a series of in vivo and in vitro experiments. In conclusion, **transmission of E. canis by R. sanguineus ticks starts within a few hours after attachment, which is earlier than previously thought**. These findings underpin the need for acaricides to provide either a repellent, an anti-attachment, and/or a rapid killing effect against ticks in order to decrease the risk of transmission of E. canis.

Virus Found in the Lone Star Tick, Whether It is a Human Pathogen is Unknown

The Genome Sequence of Lone Star Virus, a Highly Divergent Bunyavirus Found in the *Amblyomma americanum* Tick

In this study published in April 2013 in the journal *PloS ONE*, Dr. Charles Chiu at the University of California, San Francisco and colleagues at the Centers for Disease Control and Prevention (CDC) conclusively identified Lone Star virus as part of a family of tick-borne viruses called bunyaviruses. Lone Star virus is carried by the Lone Star tick, *Amblyomma americanum*, which is present throughout the southeastern and northeastern United States including the Atlantic Coast. Related bunyaviruses to Lone Star virus, such as Heartland virus, reported in 2012 among farmers in Missouri, and Severe Fever and Thrombocytopenia Syndrome (SFTS) virus, identified between 2008 and 2010 in China, can cause fever and bleeding in infected individuals. The Lone Star virus was identified

using ultra-rapid deep sequencing, a promising strategy to rapidly identify and reconstruct the genome of emerging viral pathogens. Currently, it is unknown whether Lone Star virus can cause disease in humans, or whether it is even infectious. Efforts are now underway to determine the significance of Lone Star virus as a potential human pathogen.

Citation: Swei A, Russell BJ, Naccache SN, Kabre B, Veeraraghavan N, et al. (2013) The Genome Sequence of Lone Star Virus, a Highly Divergent Bunyavirus Found in the *Amblyomma americanum* Tick. PLoS ONE 8(4): e62083. doi:10.1371/journal.pone.0062083

Blumenthal: Congressional Hearing on Lyme Disease, 8/30/12

This document contains information about the Freedom of Information Act (FOIA) emails obtained by the makers of the film, "Under My Skin," about Lyme disease. It took 5 years and many pages were whited out.

FIELD HEARING
OF THE
COMMITTEE ON HEALTH, EDUCATION,
LABOR, AND PENSIONS
UNITED STATES SENATE
ONE HUNDRED TWELFTH CONGRESS
SECOND SESSION
ON
EXAMINING LYME DISEASE, FOCUSING ON A COMPREHENSIVE APPROACH TO AN EVOLVING THREAT

http://www.gpo.gov/fdsys/pkg/CHRG-112shrg75786/html/CHRG-112shrg75786.htm

Audio: http://www.help.senate.gov/hearings/hearing/?id=53342b1c-5056-9502-5d05-aa0c57233aed

S.719
Latest Title: A bill to provide for the expansion of Federal efforts concerning the prevention, education, treatment, and research activities related to Lyme and other tick-borne diseases, including the establishment of a Tick-Borne Diseases Advisory Committee.
Sponsor: Sen Blumenthal, Richard [CT] (introduced 4/11/2013) Cosponsors (9)
Latest Major Action: 4/11/2013 Referred to Senate committee. Status: Read twice and referred to the Committee on Health, Education, Labor, and Pensions.

COSPONSORS(9), ALPHABETICAL [followed by Cosponsors withdrawn]: (Sort: by date)

Sen Franken, Al [MN] - 4/11/2013
Sen Gillibrand, Kirsten E. [NY] - 4/11/2013
Sen King, Angus S. Jr. [ME] - 4/16/2013
Sen Klobuchar, Amy [MN] - 4/11/2013
Sen Lautenberg, Frank R. [NJ] - 4/11/2013
Sen Leahy, Patrick J. [VT] - 4/16/2013

Sen Reed, Jack [RI] - 4/11/2013
Sen Schumer, Charles E. [NY] - 4/11/2013
Sen Whitehouse, Sheldon [RI] - 4/11/2013

Tick-borne Infections Getting Worse in China, Lyme Disease Most Common

Distribution of tick-borne diseases in China by Xian-Bo Wu, et al. *Parasites & Vectors* 2013, **6**:119 doi:10.1186/1756-3305-6-119, Published: 23 April 2013

Abstract (provisional)

As an important contributor to vector-borne diseases in China, in recent years, tick-borne diseases have attracted much attention because of their increasing incidence and consequent significant harm to livestock and human health. The most commonly observed human tick-borne diseases in China include Lyme borreliosis (known as Lyme disease in China), tick-borne encephalitis (known as Forest encephalitis in China), Crimean-Congo hemorrhagic fever (known as Xinjiang hemorrhagic fever in China), Q-fever, tularemia and North-Asia tick-borne spotted fever. In recent years, some emerging tick-borne diseases, such as human monocytic ehrlichiosis, human granulocytic anaplasmosis, and a novel bunyavirus infection, have been reported frequently in China. Other tick-borne diseases that are not as frequently reported in China include Colorado fever, oriental spotted fever and piroplasmosis. Detailed information regarding the history, characteristics, and current epidemic status of these human tick-borne diseases in China will be reviewed in this paper. It is clear that greater efforts in government management and research are required for the prevention, control, diagnosis, and treatment of tick-borne diseases, as well as for the control of ticks, in order to decrease the tick-borne disease burden in China.

Cytauxzoon felis, a Protozoal Organism Transmitted to Domestic Cats by Lone Star Tick Bites

News 12 First at Five / Tuesday, June 25, 2013 | AUGUSTA, Ga. (WRDW)

You won't see many bobcats in Augusta, but if you have a cat, you could see a disease called bobcat fever. "The cats are just miserable. They're very ill," Veterinarian Dr. Steve Knittel said. It's a parasite spread through ticks, especially the Lone Star tick. It's the most common type in Georgia and was just discovered to carry the disease.
Cytauxzoon felis is a protozoal organism transmitted to domestic cats by tick bites, and whose natural reservoir host is the bobcat. The same information in the news article applies to North Carolina.
http://www.wrdw.com/news/homeandfamily/headlines/Vets-warn-of-tick-borne-disease-that-could-kill-your-cat-213023361.html and en.wikipedia.org/wiki/Cytauxzoonosis

VMI Engineers Develop Robot to Lure, Kill Off Ticks

The Roanoke Times by Jacob Demmitt | Wednesday, July 10, 2013

After studying tick infestations for 20 years, Holly Gaff scoffed at the idea of using robots to kill the blood-sucking, disease-causing pests. But that was before she got her hands on one.

Gaff recently finished the first round of experiments on technology developed by a team of Virginia Military Institute engineers. The results surprised her as much as it did those who designed it. The robot killed 75 percent of ticks during the least effective trial at a wildlife preserve trail in Portsmouth. On the rest, it completely wiped out the population — all without spraying dangerous chemicals.

Gaff said that before the experiment, people on the trail would find ticks on themselves within five minutes. After the robot's work, "we were able to sit in the middle and have a picnic after we ran it … with not a tick bothering us," she said.

For whole story: http://www.roanoke.com/news/2066114-12/vmi-engineers-develop-robot-to-lure-kill-off.html

And, Finally for Fun!

Fortunately, the woods are home, not just for ticks, but for some wonderful animals. You can listen to their sounds on these links from MacCaulay Library, Cornell University. They've collected a searchable online database of more than 150,000 animal sounds. Careful though, you might not get out of there for hours! Links were selected by a Chatham County resident, Jackie Strouble.

Here are a few files of animal sounds you might hear in North Carolina.

Eastern Screech Owl: http://macaulaylibrary.org/audio/85307/megascops-asio-eastern-screech-owl-united-states-maryland-wilbur-hershberger

Whitetail deer: http://macaulaylibrary.org/audio/41832/odocoileus-virginianus-white-tailed-deer-united-states-new-york-william-evans

http://macaulaylibrary.org/audio/102857/odocoileus-virginianus-white-tailed-deer-united-states-ohio-randolph-little

Red fox: http://macaulaylibrary.org/audio/101092/vulpes-vulpes-red-fox-united-states-maine-charles-duncan

http://macaulaylibrary.org/audio/71612/vulpes-vulpes-red-fox-netherlands-noord-holland-arnoud-van-den-berg

Gray fox: http://macaulaylibrary.org/audio/60087/urocyon-cinereoargenteus-common-gray-fox-united-states-california-james-r-iii-howell

Coyote, Individual: http://macaulaylibrary.org/audio/53167/canis-latrans-coyote-united-states-new-york-steven-pantle

Coyote, Pack: http://macaulaylibrary.org/audio/50558/canis-latrans-coyote-united-states-oregon-david-herr

Barred owl hoots: http://macaulaylibrary.org/audio/134150/strix-varia-barred-owl-united-states-florida-gerrit-vyn and http://macaulaylibrary.org/audio/128927/strix-varia-barred-owl-united-states-arkansas-gerrit-vyn

Duet: http://macaulaylibrary.org/audio/49708/strix-varia-barred-owl-united-states-florida-william-evans

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Tick-Borne Infections Council of North Carolina, Inc. is a non-profit organization working to improve the recognition, treatment, control, and understanding of tick-borne diseases in North Carolina. We are all-volunteer and appreciate donations.