



DISEASES OF CONCERN IN NORTH CAROLINA FOR HUMANS AND ANIMALS

One Medicine Symposium

The Tenth “One Medicine” Symposium, “Pesticides from All Sides: A One Medicine Approach to Pesticides,” will be held on December 12, 2013 at the Sheraton Imperial Hotel and Convention Center in Durham, NC. This year, the program will focus on the history, regulation, current uses, and impact of pesticides related to human health, animal health, and the environment. The conference targets physicians, nurses, veterinarians, veterinary technicians, public health professionals, environmental health specialists, agriculture professionals, wildlife professionals, and federal, military, state, and local government partners and disaster responders. The program is designed to improve awareness and understanding of the topics from a One Medicine perspective and to foster objective, intellectual discussion across disciplines. Registration fee is \$50. For registration and information visit www.onemedicinenc.org.

Table 1. New or Ongoing Morbidity or Mortality Animal or Zoonotic Disease Events

Estimated first onset	Estimated end date	Jurisdiction affected	Species affected	Diagnosis	Estimated # of cases to date	Lead agency	Comment
August 2013	September 2013	NC Zoo	Western lowland gorilla	<i>Balamuthia mandrillaris</i>	1	CDC	
October 2013	October 2013	Granville, Duplin, Person County	Cattle	Anaplasmosis	3 herds	Rollins Laboratory (Raleigh, NC)	

***Balamuthia* in gorilla at NC Zoo (contributed by Chelsea Trull, Animal Sciences MS student, NC State University)**

On September 3, 2013, a twenty-one year old, male western lowland gorilla from the North Carolina Zoo was euthanized following a rapid decline over a 10-day period with progressive neurological clinical signs. Ameba had infiltrated the brain causing a severe, multifocal, suppurative meningoencephalitis. Ameba were also present in the pancreas and kidneys. Based on morphology of the ameba, a presumptive diagnosis of *Balamuthia* was made and confirmed at CDC by PCR.

Balamuthia mandrillaris is a free-living ameba that is found throughout the environment in soil and dust. It was first isolated from the brain of a baboon that died in 1986 at the San Diego Wildlife Park. Since then, there have been 70 human cases identified in the United States. *Balamuthia* causes serious infections of the brain and spinal cord, known as Granulomatous Amebic Encephalitis (GAE), which has a very high fatality rate. Although many individuals may be exposed through the environment, only few develop clinical disease. Why certain individuals develop GAE after exposure is not well understood, but CDC is interested in this rare disease as it has been seen with organ transplant patients. For more information go to: <http://www.cdc.gov/features/OrganSafety/>.



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Anaplasmosis Infections in North Carolina (contributed by Danielle Lindquist, Class of 2016, NC State College of Veterinary Medicine)

Anaplasmosis is the common name for a vector-borne disease seen in cattle and people caused by different organisms and with different clinical presentations. In cattle, anaplasma infections are caused by the blood bacterium *Anaplasma marginale*. This organism infects red blood cells and is transmitted by ticks and biting insects. Humans are affected by the bacterium *Anaplasma phagocytophilum*, which infects neutrophils. Despite common tick vectors, these two *Anaplasma* spp are only recognized to cause disease in their respective hosts.

In humans, the disease was previously known as human granulocytic ehrlichiosis (HGE) and currently is called human granulocytic anaplasmosis (HGA). Typical symptoms in people include fever, headache, chills, and muscle aches, usually occurring within 1-2 weeks of a tick bite. The majority of human cases reported to the CDC occur during the summer months when black-legged ticks (*Ixodes* spp.), the primary vector, are abundant.

Between October 18 and October 24 2013, the Rollins Laboratory in Raleigh, NC diagnosed anaplasmosis in 2 cattle herds and there is a presumed diagnosis in a 3rd herd. These herds are located in Granville, Duplin, and Person counties. Adult cattle are most severely affected with death rates between 20-50%. Common clinical presentation in cattle includes severe anemia, fever, off feed, and depression. For more information, please visit the NC Department of Agriculture website at <http://www.ncagr.gov/vet/FactSheets/Anaplasmosis.htm>, and the Center for Disease Control at <http://www.cdc.gov/anaplasmosis/>.

The *North Carolina One Health Bulletin* is coordinated through the **North Carolina One Health Collaborative (NC OHC)**: <http://nconehealthcollaborative.weebly.com>; **NC OHC on Facebook**: <https://www.facebook.com/pages/North-Carolina-One-Health-Collaborative/300163350109335>; **NC OHC on Twitter**: https://twitter.com/NC_OneHealth). The *Bulletin* reflects the **NC OHC mission** to create a network of diverse health professionals, scientists, interested public, and students working to understand the interconnectedness of people, animals, and the environment in order to promote health and well-being of all species. Students from the area universities contribute the articles with oversight by members of the NC OHC.

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To report cases of disease in:	Contact Information:
Domestic animals	North Carolina Department of Agriculture & Consumer Services Veterinary Division, Animal Health Program (919) 733-7601
Humans	Your Local Health Department: find it here http://www.ncalhd.org/county.htm or NCDHHS, NC Division of Public Health, Epidemiology Section, Communicable Disease Branch (919) 733-3419 http://epi.publichealth.nc.gov/cd/

NORTH CAROLINA ANIMAL RABIES CASES, 2013

Table 2. Total Rabies Cases for 2013, Week Ending (As of November 30, 2013)

Jurisdiction	Bat Total	Cat Total	Cow Total	Dog Total	Fox Total	Goat Total	Raccoon Total	Skunk Total	Other Total	Total
Alamance	2	0	0	0	0	0	5	1	0	8
Alexander	0	0	0	0	0	0	1	0	0	1
Alleghany	0	0	0	0	0	0	0	0	0	0
Anson	0	0	0	0	0	0	0	3	0	3
Ashe	0	0	0	0	0	0	1	1	0	2
Avery	0	0	0	0	0	0	0	0	0	0
Beaufort	0	0	0	0	0	0	2	0	0	2
Bertie	0	0	0	0	0	0	1	0	0	1
Bladen	0	0	0	0	0	0	5	0	0	5
Brunswick	0	0	0	0	1	0	3	0	0	4
Buncombe	0	0	0	0	1	0	3	0	0	4
Burke	0	1	0	0	0	0	0	0	0	1
Cabarrus	1	0	0	0	3	0	2	1	0	7
Caldwell	0	0	0	0	0	0	0	1	0	1
Camden	0	0	0	0	0	0	1	0	0	1
Carteret	0	0	0	0	0	0	0	0	0	0
Caswell	0	0	0	0	0	0	3	2	0	5
Catawba	0	0	0	0	0	0	1	1	0	2
Chatham	0	0	0	0	1	0	3	1	0	5
Cherokee	0	0	0	1	0	0	2	1	0	4
Chowan	0	0	0	0	0	0	0	0	0	0
Clay	0	0	0	0	0	0	0	0	0	0
Cleveland	0	0	0	0	1	0	4	2	0	7
Columbus	0	1	0	0	1	0	1	0	0	3
Craven	0	0	0	0	0	0	0	0	0	0
Cumberland	6	0	0	0	1	0	3	0	0	10
Currituck	0	1	0	0	1	0	0	0	0	2
Dare	0	0	0	0	0	0	0	0	0	0
Davidson	0	0	0	0	2	0	1	3	0	6
Davie	0	0	0	0	0	0	1	0	0	1
Duplin	0	0	0	1	1	0	5	0	0	7
Durham	1	0	0	0	1	0	9	1	0	12
Edgecombe	0	0	0	0	0	0	0	0	0	0
Forsyth	1	1	0	0	0	0	9	0	0	11
Franklin	0	0	0	0	0	0	2	1	0	3
Gaston	0	1	0	0	0	0	0	0	0	1
Gates	0	0	0	0	0	0	0	0	0	0

NORTH CAROLINA ANIMAL RABIES CASES, 2013

Table 2 (continued). Total Rabies Cases for 2013, Week Ending (As of November 30, 2013)

Jurisdiction	Bat Total	Cat Total	Cow Total	Dog Total	Fox Total	Goat Total	Raccoon Total	Skunk Total	Other Total	Total
Graham	0	0	0	0	0	0	0	0	0	0
Granville	0	0	0	0	0	0	0	0	0	0
Greene	0	0	0	0	0	0	0	0	0	0
Guilford	2	2	0	0	5	0	8	0	0	17
Halifax	0	0	0	0	0	0	1	3	0	4
Harnett	2	0	0	0	1	0	0	0	0	3
Haywood	0	0	0	0	0	0	0	0	0	0
Henderson	0	0	0	0	1	0	0	0	0	1
Hertford	0	0	0	0	0	0	0	0	0	0
Hoke	0	0	0	0	0	0	2	0	0	2
Hyde	0	0	0	0	0	0	0	0	0	0
Iredell	0	0	2	0	0	0	2	1	0	5
Jackson	0	0	0	0	0	0	0	0	0	0
Johnston	0	0	0	0	0	0	2	0	0	2
Jones	0	0	0	0	0	0	0	0	0	0
Lee	0	0	0	0	0	0	0	0	0	0
Lenoir	0	0	0	0	0	0	1	0	0	1
Lincoln	0	0	0	0	1	0	3	0	0	4
Macon	0	0	0	0	0	0	0	0	0	0
Madison	0	0	0	0	0	0	0	0	0	0
Martin	0	0	0	0	0	0	0	0	0	0
McDowell	0	0	0	0	0	0	0	0	0	0
Mecklenburg	1	2	0	0	2	0	13	0	0	18
Mitchell	0	0	0	0	0	0	0	0	0	0
Montgomery	0	0	0	0	1	0	2	0	0	3
Moore	1	1	0	0	2	0	0	1	0	5
Nash	0	0	0	1	1	0	1	1	0	4
New Hanover	1	1	0	0	1	0	5	0	0	8
Northampton	0	0	0	0	1	0	0	0	0	1
Onslow	0	0	0	0	1	0	0	0	0	1
Orange	2	0	0	0	2	2	5	2	0	13
Pamlico	0	0	0	0	0	0	0	0	0	0
Pasquotank	0	0	0	0	0	0	1	0	0	1
Pender	0	0	0	0	1	0	3	0	0	4
Perquimans	0	0	0	0	0	0	0	0	0	0
Person	0	0	0	0	0	0	3	1	0	4
Pitt	0	0	0	0	0	0	0	1	0	1

NORTH CAROLINA ANIMAL RABIES CASES, 2013

Table 2 (continued). Total Rabies Cases for 2013, Week Ending (As of November 30, 2013)

Jurisdiction	Bat Total	Cat Total	Cow Total	Dog Total	Fox Total	Goat Total	Raccoon Total	Skunk Total	Other Total	Total
Polk	0	0	0	0	0	0	0	0	0	0
Randolph	0	1	0	0	5	0	5	0	0	11
Richmond	0	0	0	0	0	0	1	0	0	1
Robeson	0	2	0	0	3	0	12	0	0	17
Rockingham	0	0	0	0	1	0	3	5	0	9
Rowan	0	0	0	0	3	0	6	2	0	11
Rutherford	0	1	0	0	0	0	2	1	0	4
Sampson	0	0	0	0	1	0	3	0	0	4
Scotland	0	0	0	0	1	0	0	0	0	1
Stanly	0	0	0	1	1	0	1	3	0	6
Stokes	1	1	0	0	0	0	2	1	0	5
Surry	0	0	0	1	1	0	3	3	0	8
Swain	0	0	0	0	0	0	0	0	0	0
Transylvania	1	0	0	0	0	0	0	0	0	1
Tyrrell	0	0	0	0	0	0	0	0	0	0
Union	0	0	0	0	1	0	4	2	0	7
Vance	0	0	0	0	0	0	3	0	0	3
Wake	4	0	0	0	5	0	5	0	0	14
Warren	0	0	1	0	0	0	0	1	0	2
Washington	0	0	0	0	0	0	0	0	0	0
Watauga	0	0	0	0	1	0	2	1	0	4
Wayne	0	2	0	0	0	0	3	0	0	5
Wilkes	0	0	0	0	3	0	5	5	0	13
Wilson	0	0	0	0	0	0	0	0	0	0
Yadkin	1	0	0	0	0	0	6	1	0	8
Yancey	0	0	0	0	0	0	3	0	0	3
Total	27	18	3	5	60	2	190	53	0	358

Source: North Carolina State Laboratory of Public Health

Rabies-positive mammals by species in North Carolina (2012):

<http://epi.publichealth.nc.gov/cd/rabies/figures/rabiesstats4.pdf>

Map of rabies in raccoons by county in North Carolina (1991-2012):

http://epi.publichealth.nc.gov/cd/rabies/figures/map_raccoons_since91.pdf

U.S. Livestock and Poultry Disease Events and Trends:

http://www.aphis.usda.gov/animal_health

National Wildlife Health Center New and Ongoing Wildlife Mortality Events:

http://www.nwhc.usgs.gov/mortality_events?ongoing.jsp