Programmatic Updates

New York State Department of Environmental Conservation, Maine Department of Inland Fisheries and Wildlife, and New Hampshire Fish and Game are the first official members of NWDC. We are proud to welcome these agencies and appreciate their valuable input and collaboration during our inaugural year! We look forward to working with additional members in the coming months.

We are pleased to announce that Dr. Walter Cottrell (formerly the wildlife veterinarian for the PA Game Commission) has retired, moved to Vermont and is now the NWDC Field Veterinarian. In addition to being a veterinarian with extensive experience with a variety of domestic and wild species, Dr. Cottrell is also a Certified Wildlife Biologist. Dr. Cottrell is available to provide advice and guidance via email and phone on general issues related to wildlife health, and when real-time situations require decisions concerning the significance of a disease event and the appropriate response. He will also work with NWDC diagnostic laboratories to provide training workshops for members, and is available to provide specific services (e.g. necropsy training) and support for disease components of state/university wildlife studies.

NWDC labs in Maine, New Hampshire, and New York are collaborating with state wildlife agencies to investigate potential causes of moose mortality in the region. This work will include live capture and radio-collaring activities beginning in January, and subsequent investigation of any mortalities in collared animals through the spring and summer.

Northeast states have been invited to participate in Project SNOWstorm. Project SNOWstorm is a geographically widespread collaborative effort to learn as much as possible from the historic 2013-2014 irruption of Snowy Owls into eastern Canada and the eastern United States. Irruptions of this magnitude only occur at a periodicity of many decades. The last irruption of large magnitude in eastern North America was at least 50 years ago in the early 1960s. This opportunity to learn information that will lead to better conservation actions to benefit Snowy Owls when they move south into eastern North America should not be missed. More information about reporting sightings of these birds and collecting samples from birds in hand can be found at the project website at projectsnowstorm.org

Diagnostic Case Summary

(Fall and Winter 2013)

MAINE
University of Maine Animal Health Lab

We have seen multiple pathogens on select young moose necropsies; a representative case is discussed here. While we expect this combination of factors may be “old news” to many who study moose, the following case seemed a good illustration of the combination of parasites we can see in our younger moose. Lung parasite survey results from 2012 and 2013 Maine hunts are in preparation.

During late spring, the head, lungs and heart of a young (subadult) moose were presented for necropsy. One gallon of saline was used to flush the lungs and trachea, and lungworms were collected in a muslin
sieve, then preserved in 70% isopropyl alcohol under refrigeration. Several hundred lungworms were obtained from the flush.

The lungs were severely affected, with approximately 90% of the lung tissue of abnormal appearance. Severe diffuse consolidation was present over both lung fields, and a distinct “checkerboard” pattern of white, firm, ischemic lobules adjacent to normal, pink, soft lobules or deep red, wet, firm lobules was seen in large regions of lung tissue (Fig. 1). Subpleural edema and moderate interstitial edema was present.

The pericardium was severely distended with deep yellow fluid; approximately 1 liter of pericardial fluid was present. The heart contained over 50 cysts on the epicardium, within the myocardium, and on the endocardial surfaces (Fig. 2). Many of the cysts were ovoid, approx. 1*0.5 cm in size, and had a “striped” appearance, similar to *Taenia krabbei*. A few cysts were round and cloudy white. Multiple fine petechiae were seen on the epicardium, and serous atrophy of epicardial fat was noted.

Fecal flotation revealed ~200 ova per gram and occasional small larvae; a fecal Baermann test showed several hundred active L3-type larvae, consistent with *Dictyocaulus*-type lungworms. Histology showed extensive inflammation, along with occasional nematode cross-sections (Fig. 3).

**NEW HAMPSHIRE**

**NH Veterinary Diagnostic Laboratory**

**Case 1.** Hunter-shot adult female white-tailed deer submitted to NHVDL by NH F&G October 2013. Numerous firm, pale masses were present throughout liver (Fig. 4). Liver

**Figure 2. Myocardium and endocardium with Taenia-like cysts**

**Figure 3. Lung histology with nematode section**

**Figure 1. Gross appearance of lungs: “Checkerboard pattern”**

**Figure 4. Liver lesions found in hunter-shot deer from NH**
was submitted to NHVDL for analysis. These masses were a metastatic tumor with features of hepatocellular carcinoma (liver cells) and cholangiocarcinoma (bile duct). Liver tumors are rarely reported in deer. Similar types of tumors in humans and domestic animals are associated with longstanding inflammation, chemical exposure, parasites, and viral infection – no evidence of these or other causes were seen in this case.

**Case 2.** Hunter-shot female white-tailed deer fawn, submitted Nov 15, 2013 to NHVDL by New Hampshire Fish and Game. The fawn had eight large ulcerated skin lesions (Fig. 5). On necropsy, a fungal infection was found to be causing the ulcers. Fungal morphology was consistent with a Zygomycete, a broad family of fungi found in soil and decaying vegetation that rarely cause invasive infections. A small number of cases have been reported in deer, none of which report skin lesions. In this case, fungi were found in both lung and skin, suggesting systemic spread. It is not clear where the infection originated (lungs or skin).

**NEW YORK**
Animal Health Diagnostic Laboratory, Cornell University

NYSDEC submitted 127 cases to the Animal Health Diagnostic Laboratory at Cornell in the last 4 months of 2013. Of these 24 were white-tailed deer, 27 were small furbearers and 5 were bats. The remainder were various species of birds, including 10 American Crows and 12 raptors. Common diagnoses included West Nile Virus (crows and raptors), *Bordetella* pneumonia (Eastern Grey Squirrels), Canine Distemper (Grey Fox) and Avian Pox (Wild Turkeys). Of interest, several Lesser Scaup from Oneida Lake were diagnosed with *Sphaeridiotrema globulus*, a fluke parasite that is transmitted through the ingestion of an invasive faucet snail. The parasite is believed to cause death in some species of birds through intestinal damage that leads to severe blood loss. This was the first time this parasite had been identified in this area of New York.

**“From the Field”**
(summary of observations by the public reported to state wildlife agencies)

New Hampshire: The first reported occurrence of avian pox/LPDV in NH turkeys were two occurrences in Grafton County in 2011. During 2012, 23 reports were received and during 2013 there were 56 reports from many areas of the state. While anecdotal, the reports suggest an increasing prevalence and/or greater awareness of these diseases on the part of the public.

New York: We had a number of reports from rehabilitators in primarily the eastern portion of NY that there seemed to be an absence of red and grey squirrels in the wild. We don’t have an explanation for this observation, we typically receive few squirrels for examination and haven’t documented any large scale disease outbreaks in squirrels.
Ask NWDC

Dr. Walt Cottrell has been fielding inquiries from NWDC member agencies regarding a variety of wildlife health and disease issues. One such inquiry, along with Dr. Cottrell’s answer, is as follows.

“In this deer has lacked hair (Fig. 6) for approximately 3 years, and not just in the spring. What is the deer’s condition?”

In general, possible causes of hair loss include five conditions:

Trauma: Wildlife lead a dangerous existence so a photo of an animal that has hair loss over its bony prominences may indicate that it has been injured either in a man-made event like a car impact, or in the wild in a chase or an interaction with a predator.

Dermatophilosis (bacterial): The distribution of hair loss and skin discoloration caused by this bacterium, known in the domestic animal world as “rain rot,” is usually where rain would strike the body then drain over the body: over the back and neck and down the upper limbs. Dermatophilosis.PDF

Demodex (mange): Note: deer are not affected by the same mange mite as bears and foxes; though it is closely related, it is not the same. There is another type of mange caused by a mite called Demodex, and there is a new, larger species of Demodex that we know is affecting some deer. The distribution of this mite on deer is in the skin over the back (like other causes of hair loss), but also on the limbs, and even farther down toward the hoof. Mange.PDF

Lice: Hair loss associated with this external parasite is usually seen in mid to late winter or early spring. There is usually a moth-eaten patchy appearance, often worse in areas the animal can reach to chew itself.

Endocrine: The most common distribution of hormone-influenced hair loss is symmetrical loss over the back. To date we have only made this diagnosis in bears.

In this particular case, given the history of year-round hair loss, the animal likely either has Demodex or, less likely, an endocrine issue. Testing would be necessary to confirm a diagnosis. Is it safe to consume an animal with this type of condition? If no abnormal color, texture, or odor is detected while processing the animal, it is probably safe to consume if the meat is cooked to an internal temperature of 165°F, as determined by a meat thermometer used according to the manufacturer’s instructions.

Note: Many diseases, including some of those that affect the skin and hair coat are spread by the congregation of animals. For this reason, feeding animals is not recommended and should be stopped immediately if you start to see symptoms of disease.

Recent Educational Opportunities Offered by NWDC

Webinar

Topic: Update on turkey LPDV

When: 2 - 3pm, February 11, 2014

Presenters and Talk titles:

• “Identification of turkey LPDV in North America,” Justin Brown, DVM, PhD (PA Game Commission)

• “LPDV lesion characterization and immunohistochemical characterization,” Gavin Hitchener, DVM (Cornell University)

Please contact NWDC at nwdc@tufts.edu if you are interested in attending future events.