Avian Schistosomiasis Outbreak in Montana

In April 2018, the Montana Department of Fish, Wildlife and Parks received reports of approximately 235 dead waterfowl on two ponds of neighboring properties in Madison County, Montana. The primary species involved included mallards (Anas platyrhynchos), unidentified teal species, Canada geese (Branta Canadensis), and snow geese (Chen caerulescens). Approximately 30 additional waterfowl were reported dead on a third pond five days later. Six carcasses (3 mallards and 3 Canada geese) were examined at the U.S. Geological Survey’s (USGS) National Wildlife Health Center (NWHC) and found to be infested with avian schistosome parasites. Although this is the first case of schistosomiasis documented by NWHC in Montana, it has previously been associated with at least 18 other avian mortality events from all four flyways in the United States.

The morphology of the parasites and associated pathology observed in the examined birds from this event was consistent with Trichobilharzia physellae, which is the most common schistosome species in waterfowl. Resident and migratory ducks and geese are among the natural hosts for this schistosome. Infected birds pass eggs in their feces and the parasites then infect and develop in mollusk hosts. Free-swimming cercariae are then released from the mollusks and re-infect avian hosts by penetrating their skin and migrating to the blood vessels. Humans can also be infected by the free-swimming cercariae, causing a form of dermatitis known as “swimmer’s itch.” Although this infection can be very uncomfortable, humans are inadvertent hosts and the infection is self-limiting.

Sea Otter Strandings on Alaska Peninsula and Unalaska

The U.S. Fish and Wildlife Service (USFWS) Region 7 Marine Mammal Program (MMP) reported unusual morbidity and mortality in northern sea otters (Enhydra lutris kenyoni) near Port Moller and Nelson Lagoon on the southern Alaska Peninsula between January and April, 2018 (Figure 1). Initial reports began in mid-January with 10-17 dead otters reported. A total of 195 dead otters were counted by local residents on a 35 mile stretch of the southern Bering Sea on January 29. Additional reports continued in Alaska, including a few dead otters in Unalaska (starting in February) and observations of 30-40 dead otters around Port Heiden (March-April). On March 4, 2018, the USFWS Migratory Bird Management (MBM) Program conducted a northeast-bound, low-level reconnaissance survey of the southern Alaska Peninsula shoreline from Cold Bay to Pilot Point searching for dead or dying sea otters and other marine mammals. A total of 56 dead sea otters were observed on the survey, the majority of which (91%) were in the Nelson Lagoon/Port Moller area (Figure 2). With the assistance of local community members, three carcasses from Port Moller, two from Unalaska, one from Port Heiden, and selected tissue samples from five additional carcasses at Nelson Lagoon were expedited to the U.S. Geological Survey’s (USGS) National Wildlife Health Center (NWHC). Streptococcus lutetiensis (formerly known as Streptococcus infantarius ssp. coli, a member of the S. bovis-equinus complex) was confirmed as the
cause of death in three otters from Port Moller and the single otter from Port Heiden. The Port Heiden animal also had evidence of trauma. Gross, microscopic, and bacteriological examination of the submitted tissues from the five additional animals also revealed evidence of *Streptococcus lutetiensis* infection, particularly in the heart, similar to findings in Port Moller and Port Heiden animals. Carcasses from Unalaska appeared to have died of natural or undetermined causes, such as injury or emaciation, and tested negative for *Streptococcus spp*. The spike in mortality along the Alaska Peninsula appears to have subsided, as no further observations were reported in April. The USFWS and NWHC continue to monitor the situation through citizen observations and reporting. This mortality event on the southern Alaska Peninsula involved more sea otters than previously recorded events for that area and time frame.

In previous years, *Streptococcus spp.*-related mortality has occurred across sea otter range in Alaska including Kachemak Bay, Kodiak Island, Unalaska, Prince William Sound, and Southeastern Alaska. This bacterial complex is a common cause of septicemia in Alaska sea otters. It has also been reported as a cause of endocarditis and septicemia in other mammalian species, including humans (Counihan et al, 2015). The source of the bacteria in the marine ecosystem is unknown.

Michelle St. Martin, USFWS MMP, contributed to this event summary. For additional information regarding this sea otter mortality event, please contact Barb Bodenstein (608-270-2447, bbodenstein@usgs.gov).

References:

- Katrina L. Counihana, Verena A. Gill, Melissa A. Miller, Kathleen A. Burek-Huntington, Rance B. LeFebvre and Barbara A. Byrne. 2015. Pathogenesis of *Streptococcus infantarius* subspecies *coli* Isolated from Sea Otters with Infective Endocarditis. Comparative Immunology, Microbiology and Infectious Diseases, Volume 40, June 2015, Pages 7-17.
White-nose Syndrome (WNS): Update on Winter 2017/2018 Surveillance

The documented distribution of both white-nose syndrome (WNS) and *Pseudogymnoascus destructans* (*Pd*), the fungus that causes white-nose syndrome, expanded pursuant to the 2017/2018 winter surveillance. WNS was confirmed in bats in two additional Canadian provinces (Manitoba and Newfoundland) and in the States of Kansas and South Dakota, bringing the total number of North American jurisdictions with confirmed cases of the disease to seven Canadian provinces and 33 states. Conversely, there appears to have been only a limited expansion of *Pd* in Washington state into Lewis County since WNS was first confirmed in King County in Spring 2016. The Canadian detections, reported by the Canadian Wildlife Health Cooperative (CWHC), involved little brown bats (*Myotis lucifigus*) found dead on the above-ground landscape at two locations in western Newfoundland and at a hibernaculum in the Lake St. George area of Manitoba. In the United States, WNS was confirmed in both tricolored bats (*Perimyotis subflavus*) and, for the first time, in cave myotis (*Myotis velifer*) in Barber, Cherokee, Comanche, and Kiowa counties located in the southeastern and south central regions of Kansas. Clinical signs, including wing damage, pale orange fluorescence when examined under longwave ultraviolet light, and mortality at hibernacula, were associated with the Kansas detections. In western South Dakota, a bat with wing damage and tentatively identified as a long-legged bat (*Myotis volans*) was trapped in late May near Jewel Cave National Monument (Custer County) and later confirmed positive for WNS. The fungus was also detected for the first time on bats captured on the landscape in May in western South Dakota (Jackson County) and eastern Wyoming (Goshen County). These detections involved big brown bats (*Eptesicus fuscus*), as well as another new myotis species, the Western small-footed bat (*Myotis ciliolabrum*), that had evidence of wing damage. Because these bats were not trapped in association with a hibernaculum, the source(s) of exposure to the fungus remains unknown. Environmental samples collected at several hibernacula in the region this spring did not detect the
presence of Pd. Additional detections of the fungus in the absence of clinical disease were reported on
bats at hibernacula in Woodward County, Oklahoma and four counties in Texas (Blanco, Foard, Kendall,
and Wheeler). Species involved included little brown bats, tricolored bats, Townsend’s big-eared bats
(Corynorhinus townsendii), and a single Mexican free-tailed bat (Tadarida brasiliensis). Eleven species of
North American bats are currently known to develop WNS (including nine Myotis spp.); an additional
eight bat species have been documented with Pd, in absence of disease, suggesting natural exposure to
the fungus. Population level effects associated with Pd and WNS may be challenging to determine as the
disease spreads westward, where locations and population status of susceptible bat species are less well
known.

Please visit www.whitenosesyndrome.org for more information about the national multi-agency WNS
response effort. A fact sheet titled “White-Nose Syndrome in North American Bats – USGS updates” is
available online. Also, a WNS poster and handout are available for use as needed at

For additional information regarding white-nose syndrome surveillance efforts in North America, please
contact Anne Ballmann (608-270-2445, aballmann@usgs.gov).

To view, search, and download historic and ongoing wildlife morbidity and mortality event records
nationwide visit the Wildlife Health Information Sharing Partnership event reporting system (WHISPers)
online database: http://www.nwhc.usgs.gov/whispers/

To request disease investigation services or report wildlife mortality:
http://www.nwhc.usgs.gov/services/