

**2002-2003 AVM Update**  
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The apparent impact of avian vacuolar myelinopathy (AVM) on wild birds in the Southeast during the migratory and wintering season of 2002-2003 has not been as severe as in previous years. During the past fall and winter, three bald eagles from Lake Thurmond on the Georgia/South Carolina border were either confirmed (2) or suspected (1) of having AVM. This is a considerable reduction from the fall and winter of 2000-2001 and 2001-2002, when AVM was confirmed or suspected in 16 and 7 bald eagles, respectively. Furthermore, clinical disease was not observed in other avian species such as American coots, Canada geese, or great-horned owls as it had been during 2000-2002.

AVM is a neurologic disease that has killed at least 93 bald eagles in Arkansas, Georgia, North Carolina, and South Carolina since 1994. AVM also is responsible for the deaths of hundreds of American coots and has been detected in very low numbers in other avian species, including several species of ducks, Canada geese, great-horned owls, and a killdeer. The cause of AVM remains undetermined despite extensive diagnostic and research efforts; however, a man-made or natural neurotoxicant is suspected because the lesions are consistent with toxicosis and there has been no evidence of viruses, bacteria, prions, or other infectious agents.

From October 2002-April 2003, SCWDS conducted field investigations at nine sites in the Southeast. American coots from sites in Arkansas (DeGray Lake and Lake Ouachita), Georgia (Lake Juliette and Lake Seminole), South Carolina (Lake Thurmond, Lake Murray, and Par Pond and L-Lake at the U.S. Department of Energy's Savannah River Site), and Texas (Rayburn Reservoir) were collected and examined for AVM lesions. Only three sites were AVM positive this year: Lake Thurmond on the Georgia/South Carolina border, Lake Ouachita, Arkansas, and Lake Murray, South Carolina. The apparent prevalence of AVM lesions in the brains of coots at the positive sites this past year was less than in the past few years, and there were no reports of sick eagles or waterfowl other than the three eagles found at Lake Thurmond.

In a pilot study, SCWDS researchers recently reproduced AVM in domestic chickens. Five chickens were fed a mixture of AVM-affected coot tissues (brain, fat, intestinal tract, kidney, liver, muscle) for 28 days. A control chicken was fed the same coot tissue mixture from AVM-negative coots collected from Lake Seminole, Georgia, a historically negative site. All exposed chickens displayed neurological abnormalities as early as 10 to 12 days and most had moderate AVM lesions. The control chicken had neither AVM clinical signs or lesions. These findings demonstrate that chickens are susceptible to AVM, adding another species and a new order, Galliformes, to the susceptible list. This also strengthens theories that AVM probably affects a wider range of wild avian species than has been documented in field studies. Chickens are excellent animal models for future AVM research because reference physiologic parameters are known and because they are easily obtained, economical, easy to work with, and will readily consume various materials under experimental conditions.

Dr. William Bowerman and Ms. Anna Birrenkott, researchers at Clemson University in South Carolina, recently reproduced AVM in pen-reared ducks by feeding them aquatic plant material (*Hydrilla verticillata* and associated materials) collected from Lake Thurmond during fall-winter

2002-2003. This project was part of a collaborative effort involving Clemson University, SCWDS, the South Carolina Department of Natural Resources, the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, and the National Oceanic and Atmospheric Administration. Although this study demonstrated acquisition of AVM through consumption of aquatic vegetation, the exact etiologic agent has yet to be identified. Future studies will include attempts to isolate the causative agent from the aquatic vegetation.

Additional laboratory trials currently are underway at SCWDS and Clemson University, and further field research is planned for the fall and winter of 2003-2004 in an effort to determine the cause of AVM, its source, and the range of susceptible species. (Prepared by Lynn Lewis-Weis)