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Authors: Couvillion, C. E., Stacey, L. M., and HURST, G. A.

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Absence of Avian Pox in Wild Turkeys in Central Mississippi

C. E. Couvillion,[1] L. M. Stacey,[2] and G. A. Hurst,[2] [1] College of Veterinary Medicine, Mississippi State University, Mississippi State, Mississippi 39762, USA; [2] Department of Wildlife and Fisheries, Mississippi State University, Mississippi State, Mississippi 39762, USA

ABSTRACT: Eastern wild turkeys (*Meleagris gallopavo silvestris*) (n = 1,023), obtained during winter, spring, and summer from 1983 to 1988 on Tallahala Wildlife Management Area (TWMA) (Jasper County, Mississippi, USA) were examined for avian pox lesions. Domestic turkey poults (n = 152) maintained on the area for 1 to 2 wk periods from 1987 to 1989 also were examined. Neither wild nor domestic birds showed gross evidence of pox virus infection. This study indicated that avian pox was not endemic in wild turkeys at TWMA.

Key words: Avian pox, eastern wild turkey, *Meleagris gallopavo silvestris*, pox, survey.

Avian pox in considered one of the most important infectious diseases of wild turkeys (*Meleagris gallopavo silvestris*) in the southeastern United States (Davidson et al., 1985). The disease was diagnosed in turkeys in Alabama (Davidson et al., 1985), Arkansas (Davidson et al., 1985), Florida (Akey et al., 1981; Davidson et al., 1985; Forrester, 1991), Georgia, South Carolina, Tennessee, Virginia, and West Virginia (Davidson et al., 1985). There was only one case of pox reported in Mississippi (Prestwood, 1968).

In 1983, long-term investigations on the population dynamics of wild turkeys were begun in central Mississippi at Tallahala Wildlife Management Area (TWMA). These studies produced information on annual population densities, age and sex structure, productivity, movements, habitat use (Phalen et al., 1986; Kelley et al., 1988) and diseases (Stacey et al., 1990). The objective of this study was to determine if avian pox was present in wild turkeys on TWMA and to describe any seasonal and yearly changes in prevalence.

The study area consisted of 14,140 ha in TWMA (32°12′N, 89°12′W), located in the Strong River District of the Bienville National Forest, which is 56 km west of Meridian, Mississippi. Wild turkeys were trapped during winter (January to March) and summer (July to August) from 1983 to 1988. During these years, spring-harvested (March to May) males were brought by hunters to a check station for examination.

In addition to examination of wild turkeys, 152 domestic poults (1–2-wk-old broad breasted white; Thaxton's Turkeys, Inc., Watkinsville, Georgia 30677, USA) were used to detect the occurrence of pox. Domestic turkey poults were reared and maintained in facilities free of mosquitoes until used in the field. At regular intervals, domestic birds were delivered to the study area and placed in cages (91 × 91 × 60 cm) covered with wire mesh (1 × 1 cm), which allowed access by biting flies. Following exposure periods of 7 to 14 days, domestic birds were moved to insect-proof quarters where they were maintained for 3 wks. For wild-captured and domestic turkeys, gross examinations were done to detect the presence of pox lesions inside of the mouth and on the unfeathered portions of skin. For suspicious lesions, attempts were made to isolate pox virus by inoculation of embryonated eggs. Suspected lesions were preserved in 10% buffered neutral formalin and examined histologically after H&E staining.

During 1987, domestic birds were exposed in five locations (three birds/cage) for 14 consecutive days each month from 15 July through 6 November (four exposure periods). In 1988–1989, domestic poults were placed at a single site in two cages (three birds/cage) that were suspended 10 m and 1 m above ground, respectively. Birds were exposed for seven consecutive days every 2 wks from 5 April 1988 through 13 April 1989 (18 exposure

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periods). In 1987, the time between the end of one exposure period and the beginning of the subsequent exposure period was approximately 21 days but in 1988–1989, this period was reduced to 14 days.

In addition to field studies, wildlife case records from the diagnostic laboratory at the College of Veterinary Medicine, Mississippi State University (Mississippi State, Mississippi 39762, USA), were searched for cases in which avian pox was diagnosed in wild turkeys; diagnosis was done according to the above methods.

One thousand twenty three wild turkeys (295 yearling and adult females, 559 yearling and adult males, and 169 poults) were examined for lesions of avian pox. Numbers of wild birds examined by season were 337 in winter, 267 in spring and 419 in summer. Neither wild nor domestic birds showed gross lesions suggestive of avian pox. Based on case accessions, avian pox was diagnosed by virus isolation and/or histopathological examination in 6 wild turkeys. Cases originated from Bolivar, Coahoma, Pearl River, Neshoba, and Clark counties, as well as from an undetermined area near Jackson, Mississippi. At each of the above locations, only a single bird was diagnosed with avian pox.

Information on the prevalence of avian pox obtained from diagnostic laboratory case records of turkeys from widespread areas of the southeastern United States (Davidson et al., 1985) has suggested that pox was the most important infectious disease of wild turkeys. More intensive studies have shown that pox is an important limiting factor in some areas; at Fisheating Creek, Florida up to 50% of domestic turkeys exposed to biting flies for August–October were infected with pox (Forrester, 1991). In most other areas where detailed studies have been done, however, the prevalence of pox was low. Our studies indicated that avian pox was not endemic to wild turkeys on TWMA from 1983 through 1988 and was not a mortality factor for turkeys on the area. The absence of pox on TWMA is similar to the low prevalences reported in Rio Grande turkeys (*M. gallopavo intermedia*) (0.3%) (Thomas, 1964) and Merriam's turkeys (*M. gallopavo merriami*) (2.6%) (Lutz and Crawford, 1987). Also, pox usually was localized or rare in populations of other gallinaceous game birds such as California quail (*Callipepla californica*) (Crawford et al., 1979; Crawford, 1986), Gambel's quail (*C. gambelii*) (Blankenship et al., 1966), and northern bobwhite quail (*Colinus virginianus*) (Davidson et al., 1980); but epidemics may occur after long periods of low level infections as seen by Davidson et al. (1980) for northern bobwhite quail. Regional and local differences in the prevalence and disease potential of avian pox probably are due to factors such as presence and density of capable mosquito vectors, turkey population density, climate and proximity of other domestic and wild hosts.

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