EMERGING INFECTIOUS DISEASES®

Emerg Infect Dis. Aug 2012; 18(8): 1372–1374. PMCID: PMC3414034
doi: 10.3201/eid1808.111902

# Zoonotic Pathogens among White-Tailed Deer, Northern Mexico, 2004–2009

Citlaly Medrano, Mariana Boadella, Hugo Barrios, Antonio Cantú, Zeferino García, José de la Fuente, and Christian Gortazar

Instituto de Investigación en Recursos Cinegéticos, Ciudad Real, Spain (C. Medrano, M. Boadella, J. de la Fuente, C. Gortazar);
Universidad Autónoma de Tamaulipas, Ciudad Victoria, Mexico (C. Medrano, H. Barrios);
Instituto Nacional de Investigaciones Forestales, Agrícolas, y Pecuarias, Tamaulipas, Mexico (A. Cantú);
Instituto Nacional de Investigaciones Forestales, Agrícolas, y Pecuarias, Morelos, Mexico (Z. García);
and Oklahoma State University, Stillwater, Oklahoma, USA (J. de la Fuente)

Corresponding author.
Address for correspondence: Christian Gortazar, Instituto de Investigación en Recursos Cinegéticos, Ronda de Toledo s/n, 13005 Ciudad Real, Spain; email: christian.gortazar@uclm.es

**Keywords:** zoonoses, viruses, epidemiology, tuberculosis, wildlife, transmission, Mycobacterium bovis, white-tailed deer, Odocoileus virginianus, host, vector, hepatitis E virus, tuberculosis and other mycobacteria, brucellosis, Brucella spp., raw deer meat, Mexico, United States



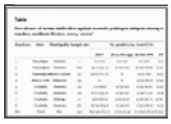
**To the Editor:** Intense wildlife management for hunting affects risks associated with zoonotic pathogens (*1*). White-tailed deer (*Odocoileus virginianus*) are increasingly managed by fencing, feeding, watering, and translocation to increase incomes from hunting in northern Mexico (*2*). These deer also play a major role in dissemination and reintroduction of pathogens and vectors from Mexico into the United States (*3*,*4*). White-tailed deer are suitable reservoir hosts for *Mycobacterium bovis* (*1*), and an *M. bovis*-positive white-tailed deer was recently found in Tamaulipas in northeastern Mexico (*2*). Brucellosis is widespread in many animal hosts in Latin America (*5*) and thus of interest in white-tailed deer. Another major zoonosis, sometimes linked to raw deer meat consumption, is hepatitis E, which is caused by genotypes of hepatitis E virus (HEV) (*6*). HEV is increasingly prevalent in red deer (*Cervus elaphus*) (*7*), but its prevalence in white-tailed deer is unknown.

The objective of this study was to determine the prevalence of zoonotic pathogens in white-tailed deer in northern Mexico. This study was conducted under a scientific collecting permit issued by the Mexican Division of Animal and Wildlife Health and on 8 ranches in 3 states in northern Mexico (≈26–28°N, 99–100°W).

Serum samples (n = 347) were collected during 2004–2009 in a cross-sectional survey for antibodies against HEV, *Brucella* spp., and mycobacteria. Deer were opportunistically sampled during live-capture operations as described by Cantú et al. (*8*). Bleeding was performed by using jugular venipuncture and vacuum tubes without anticoagulant. Samples were allowed to clot and centrifuged to collect serum that was stored at −20°C.

Serum samples were tested for IgG against HEV by ELISA as described (*7*). Serum samples were also tested for antibodies against *Brucella* spp. by using a commercial ELISA (Ingezim Brucella Compac 2.0 Ingenasa, Madrid, Spain), according to the manufacturer's instructions. Detection of antibodies cross-reacting with 2 widely used mycobacterial antigens, bovine purified protein derivative (PPD) and paratuberculosis protoplasmatic antigen 3 (PPA3), was conducted as described (*9*). The sensitivity and specificity of this assay have not been established for white-tailed deer, but it has been used in seroprevalence studies of wild boar and fallow deer (*9*,*10*).

Insufficient volumes of serum samples prevented testing for antibodies against all pathogens (Table). Limited serum volume and lack of other (organ) samples also precluded additional analyses to verify presence of pathogens.



Table

**Prevalence of serum antibodies against zoonotic pathogen antigens among white-tailed deer on 8 ranches, northern Mexico, 2004–2009***