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Parasites and Selected Diseases of Collared Peccaries (*Tayassu tajacu*) in the Trans-Pecos Region of Texas

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ABSTRACT: Fifty-five collared peccaries (*Tayassu tajacu*) were collected from October 1988 through April 1991 from five counties within the Trans-Pecos region of Texas (USA) to monitor for diseases and parasites. No endoparasites were recovered on gross examination. Antibody to *Borrelia bugdorferi* was documented in one (2%) of 55 specimens. Three (6%) of 54 collared peccaries were positive for *Yersenia pestis* antibodies. All collared peccaries were negative for antibodies against *Brucella* spp., *Francisella tularensis*, *Rickettsia rickettsii*, and *Rickettsia typhi*. This is the first report of *Borrelia* sp. and *Yersenia* sp. pathogens in collared peccaries from this region of Texas.

Key words: Collared peccary, disease, parasites, *Tayassu tajacu*, Texas, Trans-Pecos, survey.

Recently there has been increased interest among public health officials in the United States concerning the spread of zoonotic diseases (Texas Department of Health, 1986). The Texas Department of Health (TDH), Austin, Texas (USA) has participated in a zoonotic disease surveillance program by sampling a variety of wildlife species which included bobcat (*Felis rufus*), badger (*Taxidea taxus*), coyote (*Canis latrans*), gray fox (*Urocyon cinereoargenteus*), collared peccary (*Tayassu tajacu*), mountain lion (*Felis concolor*), porcupine (*Erethizon dorsatum*), raccoon (*Procyon lotor*), and ringtail (*Bassariscus astutus*). Personnel from TDH examined collected blood of wild mammal species for antibodies against four bacterial diseases: brucellosis (*Brucella abortus, B. melitensis,* and *B. suis*), Lyme disease (*Borrelia burgdorferi*), plague (*Yersenia pestis*), tularemia (*Francisella tularensis*), as well as two rickettsial diseases Rocky Mountain spotted fever (RMSF) (*Rickettsia rickettsii*) and murine typhus (*Rickettsia typhi*).

The collared peccary is an important game animal in Arizona (USA), New Mexico (USA), and Texas. In all three states, it has passed from unprotected to managed status and increased in numbers (Leopold, 1959). Most collared peccaries in Texas occur in the five southern counties within the Trans-Pecos area. Collared peccaries are considered social animals and are found in small herds. They routinely visit water holes and bed down in shaded thickets and caves (Sowls, 1978).

In West Texas, collared peccaries occupy the same habitat as domestic livestock and could serve as possible reservoirs for parasites and infectious diseases. Their social habits could contribute to the dispersal of these parasites and infectious diseases to both wild or domestic animals. The potential may also exist for some diseases to be transmitted to humans who come in contact with infected animals or parasites. Parasites and infectious diseases have not previously been reported from collared peccaries within the Trans-Pecos region of Texas.

This research was conducted in a five county area of the Trans-Pecos region of western Texas. The study area (29°00′ to 32°00′N, 101°30′ to 106°30W) included that region west of the Pecos River. The Trans-Pecos is an area of diverse habitats, varying from desert valleys and plateaus to wooded mountain slopes and ranging in elevations from 762 to 2,591 m. Primary vegetation in this region consists of creosote-tarbush (*Larrea tridentata*), desert shrub (*Artemisia, Atriples,* and *Salsola* spp.), grama grassland (*Bouteloua* spp.), yucca and juniper savannahs (*Yucca* and *Juniperus* spp.), and pinyon pine (*Pinus ponderosa*) forests (Gould, 1975).

Landowners in the study area were randomly selected and asked to allow collection of collared peccaries for this research. Fifty-five collared peccaries were collected from October 1988 to April 1991. Collection techniques included trapping (No. 4 Newhouse, Oneida Animal Trap Co., Lititz, Pennsylvania, USA), neck snares (Sure-Lock, Berkshire Co., Sheffield, Massachusetts, USA), and shooting. Peccaries trapped or snared were euthanized with a single gunshot to the head.

Sterile syringes were used to remove approximately 20 to 30 ml of whole blood from the heart. Blood was placed in sterile monojet vacuum tubes (Sherwood Medical Industries, St. Louis, Missouri, USA), placed on ice and transported to the Range Animal Science Research Laboratory (RASRL) (Sul Ross State University, Alpine, Texas) for centrifugation and separation of serum. Blood sera was frozen and shipped to TDH for antibody testing against brucellosis and tularemia using an agglutination test (Grant, 1978). Sera were also tested for Rocky Mountain spotted fever and murine typhus antibodies using an indirect fluorescent antibody test (Johnson and Holborow, 1973).

Nobuto filter paper strips (Micro Filtration Systems, Dublin, California, USA), supplied by TDH, were dipped into whole blood and allowed to air dry. Strips were shipped to TDH and tested for Lyme disease using an indirect fluorescent antibody test and tested for plague antibodies using the direct fluorescent antibody test (Johnson and Holborow, 1973).

Internal organs were removed and transported to RASRL and inspected for parasites and gross lesions. Gross examination for internal parasites and abnormalities was performed by visual inspection after opening all internal organs, including the circulatory system, as well as digestive, respiratory, and reproductive tracts. A necropsy was performed on the carcass to identify and document any injuries or unusual findings. Age of pecarries was determined by tooth wear and replacement (Kirkpatrick and Sowls, 1962). Body measurements including length, girth, and weight were also recorded.

No serological evidence of exposure to brucellosis was found in 47 sera tested. Johnson (1986) reported that three Barbary sheep (*Ammotragus lervia*) from the Glass Mountains in Brewster and Pecos Counties, Texas, were seropositive for *Brucella* spp. Although the role of most ticks, fleas, and other parasites as vectors in the spread of disease can only be speculated, Witter (1981) summarized their potential role as vectors in the spread of brucellosis.

Antibodies against *Borellia* spp. were found in one (2%) of 55 sera with a positive titer of 1:128. Guthrie (1990) reported serological reactors to Lyme disease were also found in four of 138 specimens from 11 mammal species tested in Terrell County, Texas. Also, Johnson (1986) found positive antibody titers for *Borrelia* spp. from 40 (95%) of 42 Barbary sheep collected in the Glass Mountains of Texas. However, the test used was not specifically designed for *Borrelia* spp. In 1986, Lyme disease was the most frequently reported tick or insect-borne disease in the country (Texas Department of Health, 1986).

Plague antibodies were documented in three (5%) of 55 sera samples each with titers of 1:164. The major vector of plague is considered the flea which is capable of carrying the bacteria for extended periods of time (Olson, 1981).

No serologic evidence of exposure to tularemia was found in this study. However, Guthrie (1990) located five seropositive animals among 138 samples taken from Terrell County, Texas. Titers for Rocky Mountain spotted fever were not found from 47 sera tested. Guthrie (1990) and Johnson (1986) did find titers from other animals sampled within the Trans-Pecos region. One possible explanation for the absence of tularemia antibodies from collared peccaries may have been the low number of ticks recovered. No titers for

murine typhus were found from 47 samples tested.

No endoparasites were found during gross examinations on peccaries during this study. The cat flea was found on one (2%) of 47 peccary and the javelina flea was recovered on 12 (25%) of 47 peccaries. One species of sucking louse (*Linognathida* spp.) was found on 19 (40%) of 47 peccaries and the black-legged tick was recovered from one (2%) of 47 peccaries. One unidentified species of fly larvae was also found on one (2%) of 47 peccaries. No endoparasites were found.

Collared peccaries in West Texas live in association with many other species of wildlife and domestic livestock. Based on this study, collared peccaries may be exposed to Lyme disease and plague. Collared peccaries were found serologically positive for two of the six diseases surveyed. Although the occurrence of Lyme disease and plague were low, it does indicate that peccaries may be a potential reservoir for these diseases within the study area. Peccaries live in association with many wild and domestic animals and are capable of making moderate range movements. Although it has not been determined that the collared peccary can transmit the diseases considered in this study managers of livestock and wildlife should be aware of these findings.

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