

Disease Surveillance in white-tailed deer (*Odocoileus virginianus*) and feral swine (*Sus scrofa*) in Travis County, Texas.

Orion Research and Management Services, Inc. Dr. John C. Morrill, D.V.M., PhD. – President, and John D. Cornelius, CWB - Vice President

Orion has been continuously involved in data collection for long-term disease surveillance studies in WTD and feral swine since 2000. Databases of this depth are rare in the literature and prove useful in monitoring temporal prevalence of disease agents circulating in a geographic area. WTD and feral swine are important study subjects in Travis County due to their relatively high densities and their close contact with a major human population. Disease agents chosen for study are known to be zoonotic (transmissible from animal to human), and are identified as “of concern” by Center for Disease Control and Texas Department of Health.

Historically, Orion used the laboratory at UT Medical Branch in Galveston for laboratory analysis of specimens. That relationship ended in 2013 when the principle investigator abruptly retired. In 2017, a new partnership was established with UT – El Paso, and archived samples collected during 2014-2017 were delivered for analysis. More recently, 195 WTD and 36 hog samples collected during the 2017-2018 season were forwarded to the lab. Due to this backlog of more than 600 samples, lab analysis is ongoing but as yet incomplete. Results will be provided incrementally to the Land Managers group as they become available.

The current focus of the UTEP lab is on West Nile virus. Since WNV was first identified in a bluejay in Travis County in 2002, it has shown up in the local WTD population every year but one, at rates varying from 0 of 114 samples in 2010 to 8 of 64 samples (12.5%) in 2007. The last year for which results are available, 2013, showed 18 positives out of a sample size of 170 (10.6%). A separate group at the UTEP lab is working to develop an assay for antibodies to Zika virus. Three cases of Zika virus have been reported in Texas so far in 2018, all related to travel. However, since many Zika victims do not exhibit symptoms, the incidence rate is likely underreported. A workable assay for Zika in WTD would be a huge step forward in the effort to monitor possible establishment of a disease reservoir in the local area.

In addition, 195 sera and 21 vials of ticks collected from deer were submitted to a laboratory at Texas A&M University in support of studies on the development of serologic assays to detect antibodies to Lyme disease caused by the bacterium *Borrelia burdorferi* in WTD. Lyme in humans has been reported in small numbers in Travis County for decades, and sero-positive WTD have shown up in Orion samples from Steiner Ranch (adjacent to the COA-BCP Cortana tract), and from the Jollyville unit (Travis Co. BCP).

Finally, tissue samples were collected from 50 WTD in 2017-18 and submitted to Texas State University for studies on the genetic basis for melanism in WTD in Central Texas.

Submitted to the Balcones Canyonlands Conservation Plan, Scientific Advisory Committee at the meeting on July 17, 2018, by John Cornelius.