

**Western Equine Encephalitis  
(Highlands Jay Virus)**

**Prepared by Bill Bigler, PhD  
DOH, Bureau of Epidemiology**

Western Equine Encephalitis (WEE) virus like its close relative EEE virus is capable of producing morbidity in equines, game birds and humans. The earliest evidence of WEE virus in Florida was in May 1958 when serum neutralizing antibodies were found in 11% (4/360) of the wild birds collected from Orange, Seminole and Volusia Counties as part of a study of EEE virus.<sup>1</sup> In October of that year, a horse from Flagler County with clinical encephalitis was found to have a complement fixation titer of 1:64 for WEE virus. The Florida strain of WEE virus was first isolated in 1960 from scrub jays, mosquitoes and sentinel mice infected in Highlands County.<sup>2</sup> It was not until 1964 that the Highlands Jay strain of WEE was isolated from a horse that died with encephalitis in Hillsborough County.<sup>3</sup> Since then the virus has also been isolated from chukar partridges, sentinel chickens and several species of mosquitoes including *Culesita melanura*, *Coquillettidia perturbans*, *Aedes infirmatus*, *A. atlanticus-tormentor*, and *A. taeniorhynchus*.<sup>2,4,5,6</sup> Still, Highlands Jay WEE virus has not yet been associated with human illness in Florida.

Highlands Jay WEE appears to circulate throughout the year in Florida, with a peak in activity during the summer months. It is found in the same habitat types as EEE (fresh water swamps and waterways) and on numerous occasions both viruses have been isolated concurrently from a single collection of mosquitoes. Surveillance over the years has shown that the virus is somewhat restricted to central, north and northwest Florida.<sup>7</sup> Currently, less than 10% of all cases of equine encephalitis serologically diagnosed by the State Department of Agriculture and Consumer Services, Animal Disease Diagnostic Laboratory in Kissimmee, are attributable to Highland Jay WEE. Also most veterinary practitioners now clinically differentiate this virus from EEE by its protracted morbidity and lower mortality.

Highlands Jay WEE is still considered somewhat of a threat to public health and agriculture in Florida, but because of its low pathogenicity does not seem to have the epidemic potential of the related strains found in the western United States.

**References**

**10/26/99**

1. Favorite, FG, *Investigations on Eastern Equine Encephalomyelitis in the Southeastern United States*, thesis University of Maryland, College Park Md. 1960;pp1-57.
2. Henderson et al. *A Survey for Arthropod -Borne viruses in South-Central Florida*, Am. J. Trop. Med. & Hyg., 1962;11:800-10.
3. Jennings, WL et al. *Western Equine Encephalitis in a Florida Horse*, Am. J. Trop. Med. & Hyg. 1966;15:96-97.
4. Ranck, FM, et al. *Natural Outbreak of Eastern and Western Encephalitis in Pen-Raised Chukars in Florida*. Avian Dis. 1965;9:8-20.
5. Chamberlain, R, et al. *Laboratory Findings in Tampa Bay Arbovirus Investigations, 1959-61*, Florida state Board of Health, Jacksonville, Monograph No.5, 1963;65-68.
6. Wellings, FM, et al. *Agents Encountered During Arboviral Ecological Studies: Tampa Bay Area, Florida 1963-1970*. Am. J. Trop. Med. Hyg. 1972;21:201-13.
7. Hoff, GL, et al. *Occurrence and Distribution of Western Equine Encephalomyelitis in Florida*, J. Am. Vet. Med. Assoc. 1978;172:351-52.