

# Eastern Equine Encephalitis<sup>1</sup>

J. R. Rey and C. R. Connelly<sup>2</sup>

## What Is Eastern Equine Encephalitis?

Eastern equine encephalitis (EEE) is a virus disease transmitted to horses and humans by mosquitoes. Birds are the source of infection for mosquitoes. The virus is found along the east coast from New England to Florida, the Gulf Coast, and some midwestern areas. The principal vector in avian populations is the mosquito *Culiseta melanura* (Figure 1). This mosquito does not feed on humans or horses, but in rare cases the virus can escape from its marsh habitat in other mosquitoes that feed on both birds and mammals (including horses and humans) and then transmit the virus to mammals, including people. Horses and humans are “dead end” hosts, meaning that they do not develop enough virus in their blood to transmit the virus. Therefore, sick horses or humans cannot transmit the disease to mosquitoes, only birds can.

## Symptoms and Prevention

Symptoms develop four to 10 days after infection. In horses, they include unsteadiness, erratic behavior, and a marked loss of coordination. There is no effective treatment, and seizures resulting in death usually occur within 48 to 72 hours. Most people that are infected with the virus have no symptoms; others get only a mild flulike illness with fever, headache, and sore throat. When serious infection of the central nervous system occurs, a sudden fever and severe headache can be followed quickly by seizures and coma, which often result in death or permanent brain damage.

A vaccine is available for horses, but not for humans (Figure 2). Prevention includes effective mosquito control and avoidance of mosquito bites by wearing protecting clothing and using repellents containing DEET, particularly between dusk and dawn. There have been more than 250 confirmed human cases of eastern equine encephalitis in the United States since 1964.



Figure 1. The mosquito *Culiseta melanura*, principal vector of EEE in birds. Top: lateral view. Bottom: close-up of mouthparts.

1. This document is ENY-652, one of a series of the Entomology and Nematology Department, UF/IFAS Extension. Original publication date July 2001. Reviewed October 2014. Visit the EDIS website at <http://edis.ifas.ufl.edu>.

2. J. R. Rey, professor and C. R. Connelly, associate professor, Entomology and Nematology Department, Florida Medical Entomology Laboratory, UF/IFAS Extension, Gainesville, FL 32611.

The Institute of Food and Agricultural Sciences (IFAS) is an Equal Opportunity Institution authorized to provide research, educational information and other services only to individuals and institutions that function with non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, marital status, national origin, political opinions or affiliations. For more information on obtaining other UF/IFAS Extension publications, contact your county's UF/IFAS Extension office.

U.S. Department of Agriculture, UF/IFAS Extension Service, University of Florida, IFAS, Florida A & M University Cooperative Extension Program, and Boards of County Commissioners Cooperating. Nick T. Place, dean for UF/IFAS Extension.



Figure 2. There is a vaccine for horses, but not for humans.

## Further Information

For updates on the current situation on West Nile and other mosquito-borne diseases in Florida, visit the Florida Medical Entomology Laboratory's website (<http://fmel.ifas.ufl.edu> [26 June 2012]). At this site, the Encephalitis Information System (EIS, <http://eis.ifas.ufl.edu>) can be accessed to view current health alerts. Additionally, information is provided to assist readers in understanding the real risk of exposure to the mosquito-borne viruses in Florida.