

**HERPESVIRUS INFECTIONS IN WATER TURTLES**

ANIMAL GROUP AFFECTED	TRANSMISSION	CLINICAL SIGNS	FATAL DISEASE ?	TREATMENT	PREVENTION & CONTROL
Fresh water turtles	Unknown	Hepatitis, pneumonia		None known	<i>In houses</i> <i>in zoos</i> Strict hygiene and quarantine procedures for a minimum of 3 months

Fact sheet compiled by Norin Chaï, Ménagerie du Jardin des Plantes, Paris, France	Last update December 2002
Fact sheet reviewed by P. Zwart, formerly Vakgroep Pathologie, Afd. Bijzondere Dieren, Utrecht University, The Netherlands R. Marschang, Universität Hohenheim, Institut für Umwelt- und Tierhygiene, Stuttgart, Germany	
Susceptible animal groups Pacific pond turtles (<i>Clemmys marmorata</i>), painted turtles (<i>Chrysemys picta</i>), map turtles (<i>Graptemys</i> spp.).	
Causative organism Herpesvirus-like particles associated with lesions.	
Zoonotic potential	
Distribution North America.	
Transmission The route of transmission is unknown.	
Incubation period	
Clinical symptoms Lethargy, anorexia, and subcutaneous oedema. One adult male painted turtle was treated for an abscess before dying. Herpesvirus-like particles were found in the liver and lung of that animal.	
Post mortem findings Characteristic necropsy findings include hepatomegaly and pulmonary oedema. Light microscopy indicates areas of hepatic necrosis with the presence of intranuclear inclusion bodies in hepatocytes. Inclusions have also been demonstrated in the spleen, lungs, kidneys, and pancreas.	
Diagnosis Based on detection of intranuclear inclusion bodies in tissues by light microscopy, and electron microscopic detection of viral particles.	
Material required for laboratory analysis	
Relevant diagnostic laboratories Contact pathologists with experience with reptiles. For virus detection: Dr. Rachel E. Marschang, Institut für Umwelt- und Tierhygiene (460), Hohenheim University, Stuttgart, Germany. It is best to contact the laboratory before collecting and sending the samples to optimize chances of success.	
Treatment None described. Described cases have all been diagnosed post mortem.	
Prevention and control in zoos <ul style="list-style-type: none"> • Strict hygiene and quarantine procedures for a minimum of 3 months. • Tanks should have separate water sources. Herpesviruses can cause latent infections, so that any animals that become infected should be considered carriers for the rest of their lives.	



Suggested disinfectant for housing facilities
Notification
Guarantees required under EU Legislation
Guarantees required by EAZA Zoos
Measures required under the Animal Disease Surveillance Plan
Measures required for introducing animals from non-approved sources
Measures to be taken in case of disease outbreak or positive laboratory findings
Conditions for restoring disease-free status after an outbreak
Contacts for further information
References <ol style="list-style-type: none">1. Cox, W. R., W. A. Rapley, and I. K. Barker. 1980. Herpesvirus-like infection in a painted turtle (<i>Chrysemys picta</i>). <i>J. Wildl. Dis.</i> 16: 445-449.2. Frye, F. L., L. S. Oshiro, F. R. Dutra, and J. D. Carney. 1977. Herpesvirus-like infection in two pacific pond turtles. <i>J. Am. Vet. Med. Assoc.</i> 171: 882-884.3. Jacobson, E. R., J. M. Gaskin, and H. Wahlquist. 1986. Herpesvirus-like infection in map turtles. <i>J. Am. Vet. Med. Assoc.</i> 181: 1322-1324.4. Schumacher, J. 1996. Section III: Special topics, Chapter 19: Viral diseases. <i>In: Reptile Medicine and Surgery</i>, D. R. Mader (ed.). W. B. Saunders Company, Philadelphia, USA. Pp. 224-234.