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Subject PRO/AH/EDR> West Nile virus, reptiles, alligators - USA (FL) (04)

WEST NILE VIRUS, REPTILES, ALLIGATORS - USA (FL) (04)

A ProMED-mail post

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[1]

Date: Sat 16 Nov 2002

From: Steve Grenard "sgrenard" <sgrenard@si.rr.com>

Comments on the biology of alligators

Viruses that affect endothermic mammals and birds are rarely found in ectothermic reptiles. The late Dr Sherman A Minton discovered evidence for the presence of Western equine encephalitis virus in garter snakes during the summer and early fall but, after winter and hibernation, it had disappeared, indicating that the wide variation in body temperature endured by ectotherms offers an unfavorable environment for such agents (1).

Crocodylians, particularly those in the warmer latitudes, may prove a stunning reversal of the above finding (2).

1. Larger reptiles are very adept at thermoregulation.
2. Alligators, which are Archosaurs, are more closely related to birds than to other reptiles, according to paleontologists such as Robert Baaker (3).
3. Baaker believes that some dinosaurs (Archosauria) actually were able to thermoregulate internally.
4. Some alligator farming operations use heated slabs (hot water pipes embedded in them; solar energy is used to heat the water) which cause alligators to grow faster, feeding year round and in more abundance than they would naturally. These devices provide a warmer environment for these animals, maintaining them at steady body temperatures in the mid to high 90s, at a level very similar to the body temperatures of birds and mammals.
5. The fact that West Nile virus was discovered in captive farm-raised alligators is relevant. Alligators are the only semi-aquatic reptile that are commercially raised for their hide and meat.
6. These animals are farmed in outdoor pens or barns or on property set aside for this purpose.
7. They are kept in or near to stagnant water, existing in close proximity to ideal conditions for abundant mosquito populations, both in captive rearing as well as under wild conditions.
8. Unexplained deaths of alligators under these captive conditions represent significant financial losses for such operations so it is not surprising that every possible cause would be investigated.

It is hard to say how amazing the discovery of West Nile virus in alligators is, but it is certainly unusual. From what we know about

crocodilians (alligators) including their thermoregulating abilities and their captive rearing conditions, they are of all reptiles, in retrospect, the most likely candidate to become infected with West Nile virus.

References:

1. Minton SA. Personal communication quoted in Medical Herpetology, 1994.
- 2, Grenard S. Handbook of Alligators and Crocodiles, (Krieger Publishing, 1990), and Medical Herpetology, (NG Publishing, 1994).
3. Baaker, Robert. The Dinosaur Heresies.

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Steve Grenard
Staten Island University Hospital
Staten Island NY 10309
"sgrenard" <sgrenard@si.rr.com>

[2]
Date: Sat 16 Nov 2002
From: "alexis shelokov" <alexis@ont.com>

Comment on "West Nile virus, reptiles, alligators - USA (FL) (03)"

Why is it "amazing" to find West Nile virus in Florida alligators? If my memory serves me right, some years ago Craighead and colleagues of the NIH/MARU lab in Panama reported evidence of frequent Eastern equine encephalitis virus infections in local alligators.

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Alexis Shelokov
<alexis@ont.com>

[Do any readers remember the reference and have access to it? If so, do let us know, and please summarise it for ProMED-mail. A Medline search on the terms "alligator" and "encephalitis" yielded only one paper, on diseases of captive crocodiles in Papua New Guinea (Aust Vet J 1990; 67: 323-30). Viral infections were not mentioned in the abstract. - Mod.SH]

[see also:
West Nile virus, reptiles, alligators - USA (FL) (03) [20021116.5820](#)
West Nile virus, reptiles, alligators - USA (FL) (02) [20021115.5815](#)
West Nile virus, reptiles, alligators - USA (FL) [20021114.5797](#)]

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