Mosquitoes in Carolina bay wetlands

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What is a Carolina bay?
Common breeding mosquitoes

- *Culiseta melanura*
- *Coquillettidia perturbans*
- *Anopheles crucians*
- *Uranotaenia sapphirina*
- *Culex spp.*
Eastern Equine Encephalitis

Note: overwintering cycle unknown

Fig. 4. Cartoon representing the enzootic and epizootic/epidemic EEE virus transmission cycles.
A. Anopheles crucians

Mosquitoes /trap night

April May June July August September

Dixon Subunit
Oak Orchard subunit

B. Coquillettidia perturbans

Mosquitoes /trap night

April May June July August September

C. Culiseta melanura

Mosquitoes /trap night

April May June July August September

D. Culex spp.

Mosquitoes /trap night

April May June July August September
Although no EEE virus was detected, results still suggest some things about the possible cycle

- *Coquillettidia* appeared to be bivoltine, not univoltine.
- But only the second generation followed the emergence peak of *Culiseta melanura*, and would be available bridge vectors.
- *Culex* emergence followed *Culiseta* emergence, and would be available as bridge vectors (Cupp found virus in *Culex*, we did not).
How important are aquatic predators to larval mosquito larval populations in natural wetlands?

• Odonata: Coenagrionidae, Libellulidae, Aeshnidae, Lestidae
• Hemiptera: Notonectidae, Corixidae, Naucoridae, Belostomatidae, Nepidae
• Coleoptera: Dytiscidae, Hydrophilidae, Noteridae, Gyrinidae
• Diptera: Chaoboridae, Tanypodinae
• Fishes: *Gambusia*, Centrarchidae
• Others: Leptoceridae, Corydalidae
Is “not very important” the correct answer?

• Maybe. The mosquitoes that are successful in Carolina bays may be well adapted to deal with co-existing predators (*Coquillettididia* on plant roots are deep into anoxic organic layer; *Anopheles* larvae entrain themselves in the meniscus of plant stems).

• What would happen if the predator complex was not there? Larval densities (per sample) were very low.

• Regardless, because of the large acreage, significant numbers of adult mosquitoes were still present.

• But larval control would be expensive, and maybe counterproductive.