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

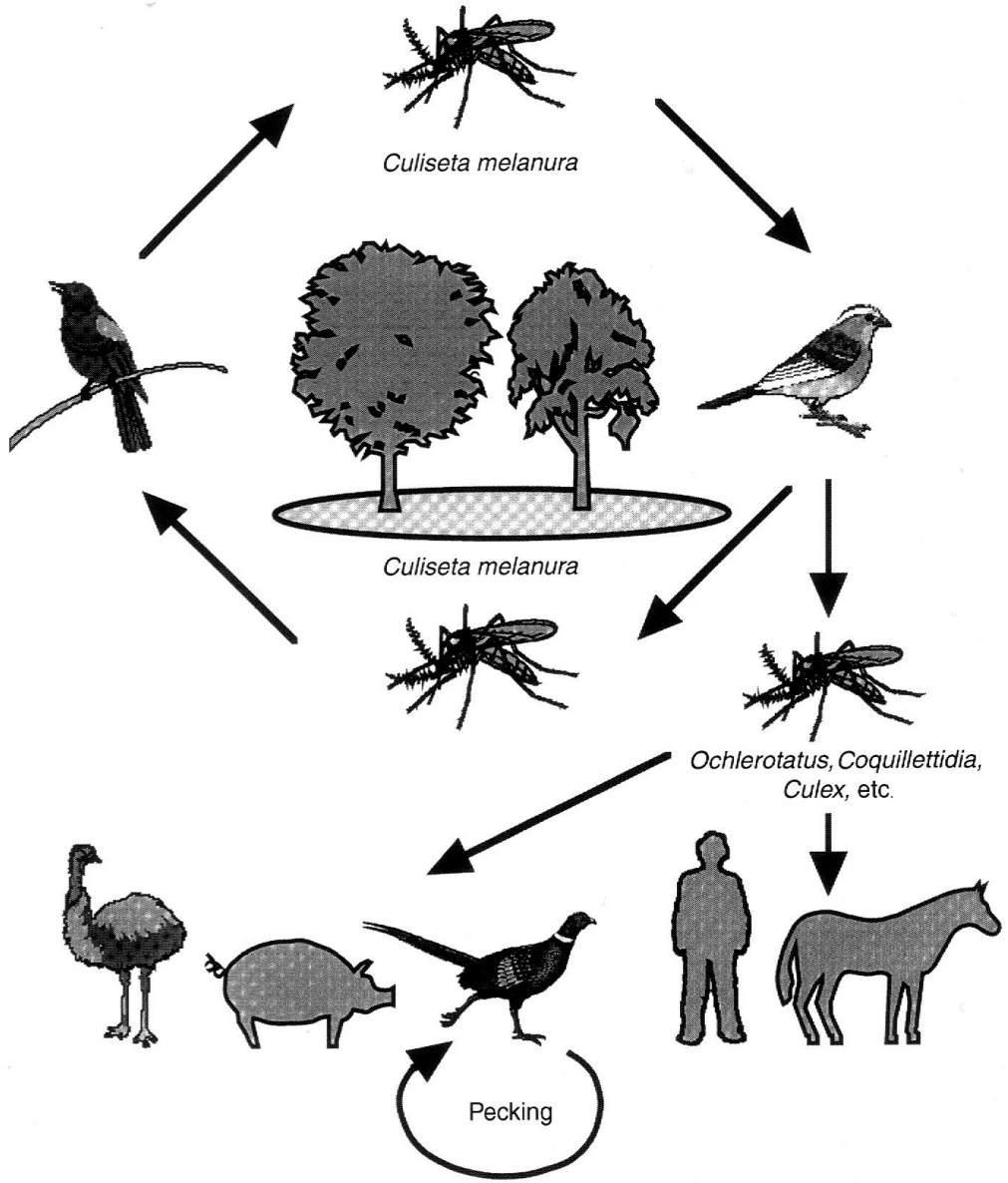
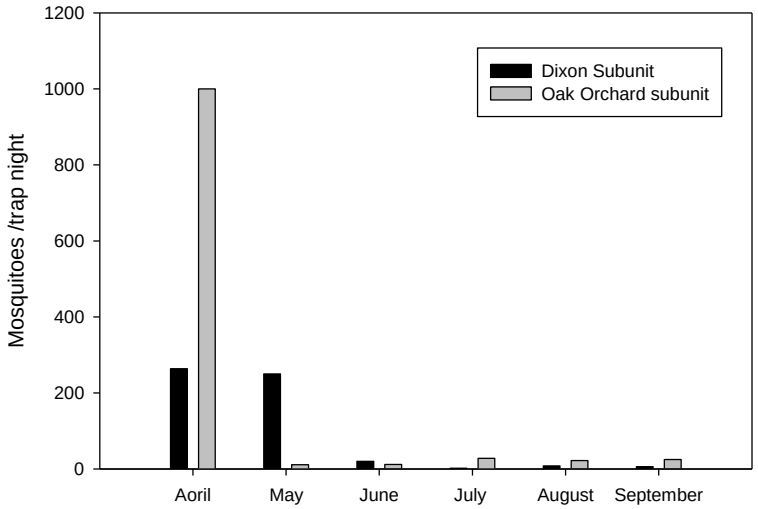


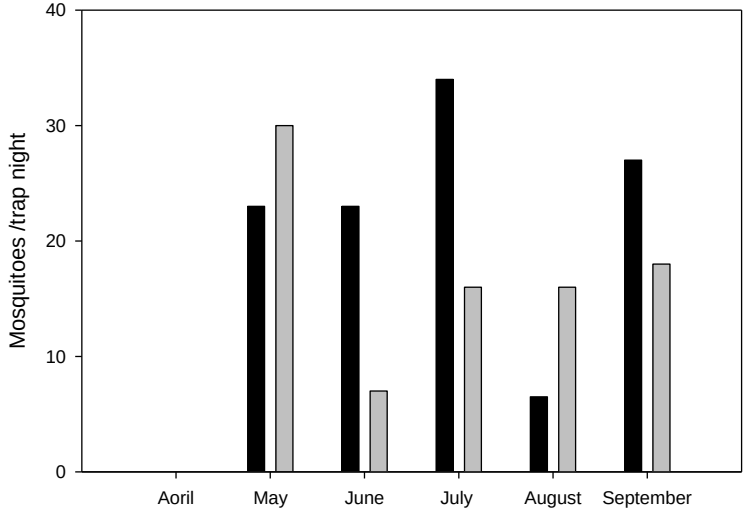
Fig. 4. Cartoon representing the enzootic and epizootic/epidemic EEE virus transmission cycles.

Note: overwintering cycle unknown

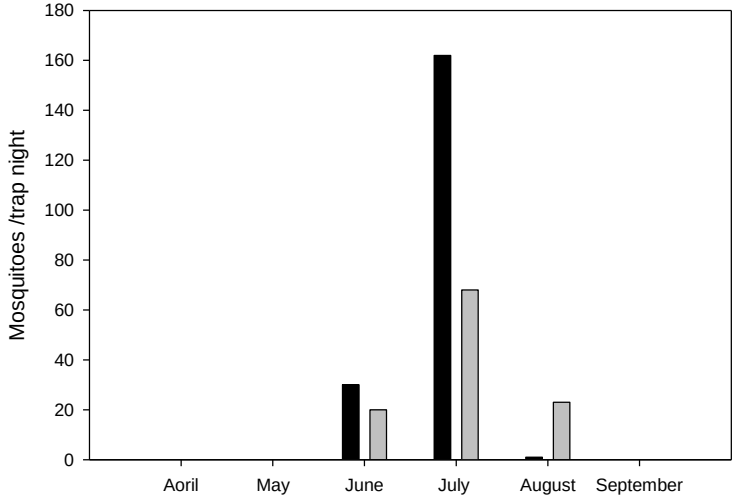
A. *Anopheles crucians*



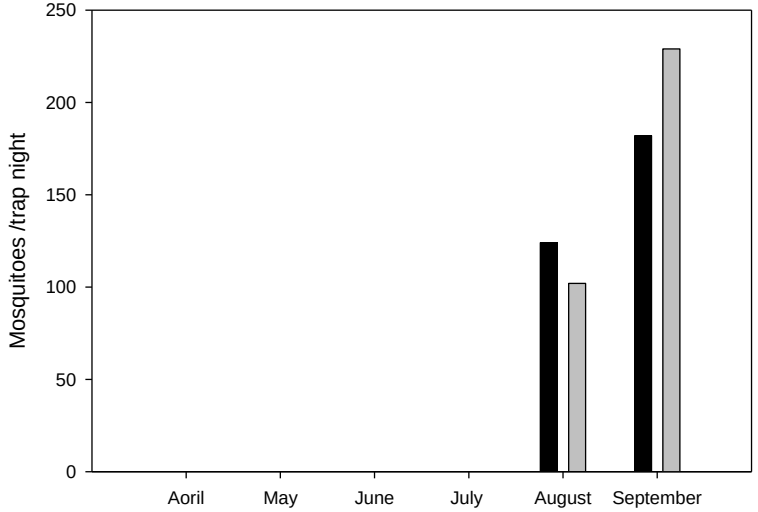
B. *Coquillettidia perturbans*



C. *Culiseta melanura*



D. *Culex* spp.

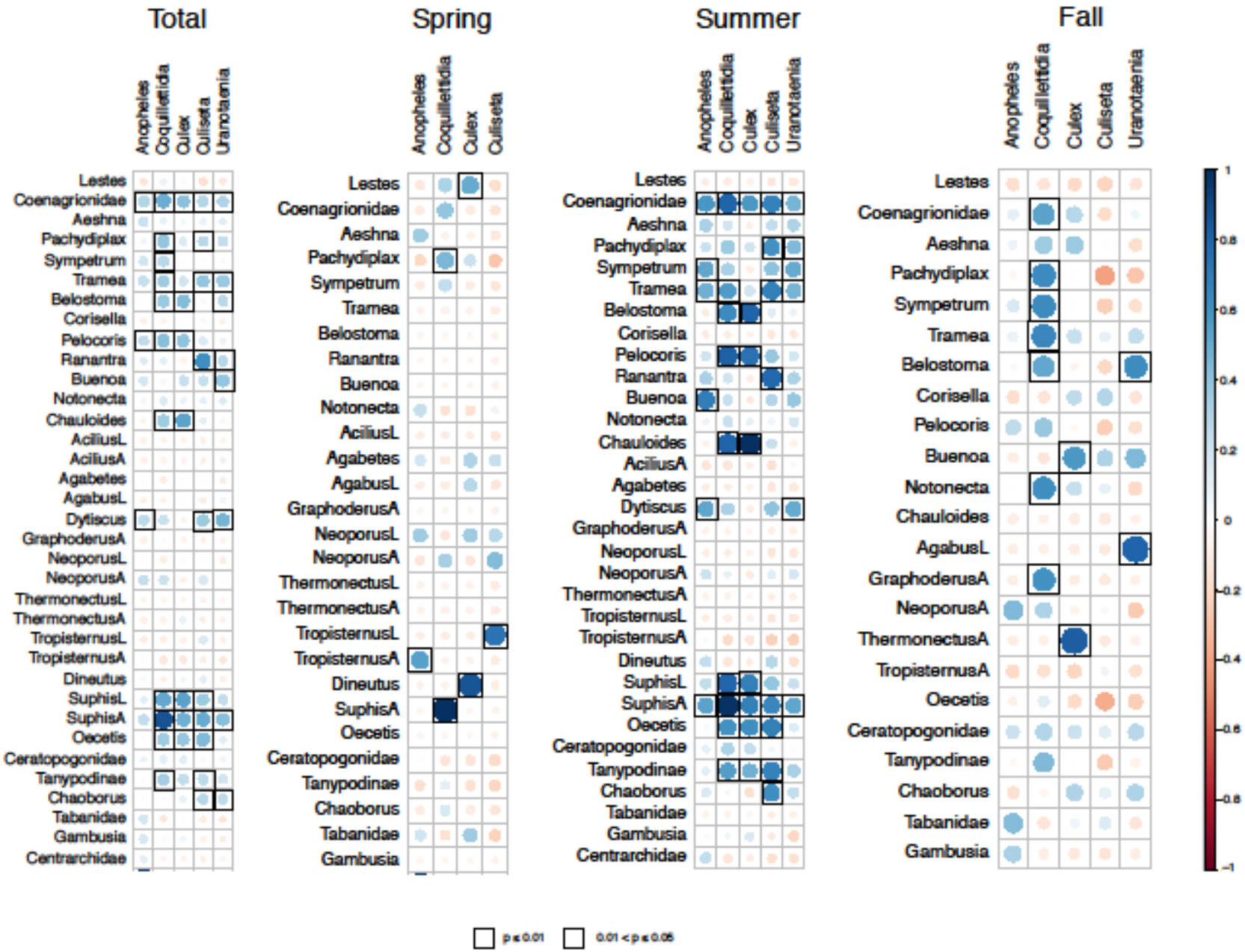


Although no EEE virus was detected, results still suggest some things about the possible cycle

- *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


Total
Spring
Summer
Fall
Anopheles
Coquillettidia
Culex
Culiseta
Uranotaenia
Lestes
Coenagrionidae
Aeshna
Pachydiplax
Sympetrum
Tramea
Belostoma
Corisella
Pelocoris
Ranantra
Buenoa
Notonecta
Chauloides
AciliusL
AciliusA
Agabetes
AgabusL
Dytiscus
GraphoderusA
NeoporusL
NeoporusA
ThermonectusL
ThermonectusA
TropisternusL
TropisternusA
Dineutus
SuphisL
SuphisA
Oecetis
Ceratopogonidae
Tanypodinae
Chaoborus
Tabanidae
Gambusia
Centrarchidae
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
p ≤ 0.01
0.01 < p ≤ 0.05

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 (*Coquillettidia* 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.