TICK BIOLOGY & ECOLOGY

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Do we understand enough about tick ecology to move forward with novel management approaches?

1) Move beyond static, presence/absence maps: densities, prevalence, habitat relations & seasonal phenologies

→ spatial modeling

2) Explore North-South differences, and differences among southern states

→ replicate “enhanced surveillance sites” in several southern states
Do we understand enough about tick ecology to move forward with novel management approaches?

3) Tick distributions changing, but the reasons are unclear; future climate change effects?
   - Establish baseline data
   - Study tick origins, movement (popn. genetics, host movement)

4) Poor TBD case data is presently a major stumbling point for ecological studies
   - Studies require reliable human case data to focus ecological survey efforts.

5) Pathogens maintained within cryptic cycles?
Lyme Disease and *I. scapularis* ecology

• Overarching question: why the low incidence of Lyme disease in southern states, despite significant numbers of adult *I. scapularis*?
Rocky Mountain Spotted Fever –
A. americanum and D. variabilis ecology

- Do recent increases in RMFS reports represent genuine increase in this disease, or milder infections associated with other SFG-rickettsiae?
Ehrlichioses – A. americanum ecology

• Given the predilection of lone star ticks to feed on reservoir competent deer, why are infection rates of *E. chaffeensis* so low in *A. americanum*?

• What impact do *R. amblyommi* and other rickettsiae infections in *A. americanum* have on transmission of lone star ticks with *E. chaffeensis*?
CONCLUSION

- Field ecological studies are expensive and logistically challenging.

- Given the complex situation in the South it is important to gain maximum value from such field studies when they do occur.