

Research Ideas from *Lizards in an Evolutionary Tree*

Greater Antillean Ecomorphs:

Traits of Ecomorphs:

- a. “Whether the ecomorphs differ in a wide variety of other important ecological factors, including abundance, parasite load, rates of predation, social structure and foraging behavior, has yet to be studied.”
- b. “No study has looked at tooth or claw morphology or aspects of the musculature.”

The Other Four Anole Faunas:

a. Effect of Geography:

“The ecomorphology of populations on other land-bridge islands has not been examined, although nothing in the literature suggests notable divergence.”

b. Trends on Mainland:

“Whether an alternative, mainland ecomorph syndrome exists—in which the same set of microhabitat specialists (but different from those in the Greater Antilles) occurs in different mainland regions—remains to be determined.”

c. Rarer Anoles:

“We know much about the common species, but the rarer ones may be the key to understanding what is evolutionarily possible in the *Anolis* world. For this reason, detailed autecological studies of the unique anoles could prove very insightful.”

Anole Life History and Population Biology:

a. Anole Ecological Traits:

“Many basic aspects of anole ecology remain to be learned...Dietary data are surprisingly incomplete and considerably less is known about predation and parasitism. The role of anoles in the ecosystem has barely been examined.”

Social Behavior, Sexual Selection, and Sexual Dimorphism:

a. Behavioral Ecology:

“Basic time budget data and other information on other aspects of behavioral ecology are sorely needed. Such data are not difficult to collect; they require only time and patience.”

b. Display Behavior (in phylogenetic context):

“Analysis of evolutionary diversification in display behavior, conducted in a phylogenetic context and investigating potential causal factors, such as shifts in habitat, could prove very interesting.”

Habitat Use:

a. Thermoregulation:

“Most of the work on anole thermoregulation was conducted prior to the development of modern methods for assessing the extent to which anoles nonrandomly regulate their body temperature.”

b. Other Aspects of Habitat Use:

“The hydric and light ecology of only a few species have been studied. Now that remote sensing methods are available, such data will be critical to cross-validate the conclusions concerning the environmental factors that determine anole distributions.”

Ecology and Adaptive Radiation:

a. Effect of Predation on Adaptive Radiation:

“A study of the role of predation in structuring anole communities would be particularly useful.”

“Whether predation can alter interspecific interactions among anoles remains to be studied.”

b. Absence of Ecomorph Type from Some Communities:

“An additional question that might prove interesting concerns why some ecomorph types are absent from some Greater Antillean communities.”

Natural Selection and Microevolution

a. Study of Natural Selection and Microevolutionary Change:

“The biggest message from this chapter is how few studies of natural selection and microevolutionary change have been conducted on anoles.”

Form, Function, and Adaptive Radiation

Relationship Between Habitat and Morphology

a. “One area that is ripe for investigation is the interaction of habitat and morphology.” (Effect of more pliant surfaces on performances, etc)

b. “The functional significance of toepad design also requires more study.”

Speciation and Geographic Differentiation

a. Species Recognition:

“Head-bobbing display patterns has not received much work in recent years.”

ADDITIONS:

1. More *Anolis* embryos.