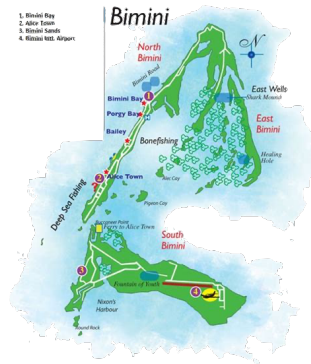


# Anolis lizards of Bimini

## Background context



Anolis sagrei



Bimini



*Anolis angusticeps*

**51 marks**

**Source:** T.W. Schoener (1968) "The Anolis lizards of Bimini: Resource partitioning in a complex fauna", *Ecology*, Vol. 49, pp. 704-726.

## Problem

“Less than 60 miles from the Florida shore lies the circular archipelago of Bimini, a tiny outpost of the West Indies fauna in general and the Bahaman fauna in particular. A scant 5 square miles in extent, it supports going populations of 4 species of anoline lizards, a number unrivaled on any other island of its size class in the West Indies ...

“Far from containing a complicated array of mountains and valley with concomitant areas of xeric and mesic vegetation, each with unique or nearly unique faunas, Bimini is almost totally flat and was covered in its natural condition with a fairly uniform “blackland” forest and with several types of beach, marsh or mangrove associations.

“Not only do the anoles fail to be completely separable on the basis of vegetation types, but all 4 species are relatively common in the blackland forest or transitional regions, essentially “syntopic” with respect to a two-dimensional area of the ground. ...

“The object of this study is to describe and document those characteristics of the 4 species, *Anolis sagrei*, *distichus*, *angusticeps* and *carolinensis*, which apparently allow them to coexist on Bimini. The situation is complicated by the addition of a second series of variables, differences within the same species, not only between the age classes but between the sexes as well.”

## Plan

“Rand (1964) has pointed out that it is often the case that the habitat preferences of anoline lizards living in the same area are readily separated if perch height and perch diameter, his “structural habitat,” are considered, either singly or especially in combination.

“Areas of blackland forest including both interior and edges, were repeatedly censused during the period November 18 to 30, 1966, between 9:00 A.M. and 4:30 P.M. (the time of greatest activity of the lizards for this part of the year), and the perch height and diameter of each lizard seen were recorded. Weather was sunny during nearly the entire observation period.

“In addition, the presence of the lizard on leaves or on the ground rather than on branches was noted when appropriate. If the lizard was moving, its position when first sighted only was used. If the movement was obvious escape behavior with reference to the observer, the observation was not counted. The observations gathered in this manner are catalogued by sex and age class ...”

## Data

Here we consider only a subset of data on two species of *Anolis* lizard: *Sagrei* and *Angusticeps*.

A total of 192 lizards were counted, together with their species and a categorization of their perch habitat.

The counts which fell into the various categories were assembled into the following table.

```
file <- file.path(dataDirectory, "AnolisLizards.txt")
lizards <- read.table(file, header=TRUE)
```

Alternatively we could have read the data in using the “.csv” file.

```
file <- file.path(dataDirectory, "AnolisLizards.csv")
lizards <- read.csv(file, header=TRUE)
```

In either case, the data looks like

```
lizards

##      species perch_height_ft perch_diameter_inches count
## 1      sagrei      >= 3      <= 4.25      15
## 2      sagrei      >= 3      > 4.25      18
## 3      sagrei      < 3      <= 4.25      48
## 4      sagrei      < 3      > 4.25      84
## 5 angusticeps      >= 3      <= 4.25      21
## 6 angusticeps      >= 3      > 4.25       1
## 7 angusticeps      < 3      <= 4.25       3
## 8 angusticeps      < 3      > 4.25       2
```

Of interest is whether the two species of lizard occupy different perch habitats.