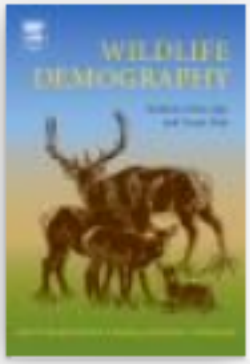


BOOK

Wildlife demography : analysis of sex, age, and count data

J. R. Skalski Kristin E Ryding (Kristin Elaine); Joshua J Millspaugh

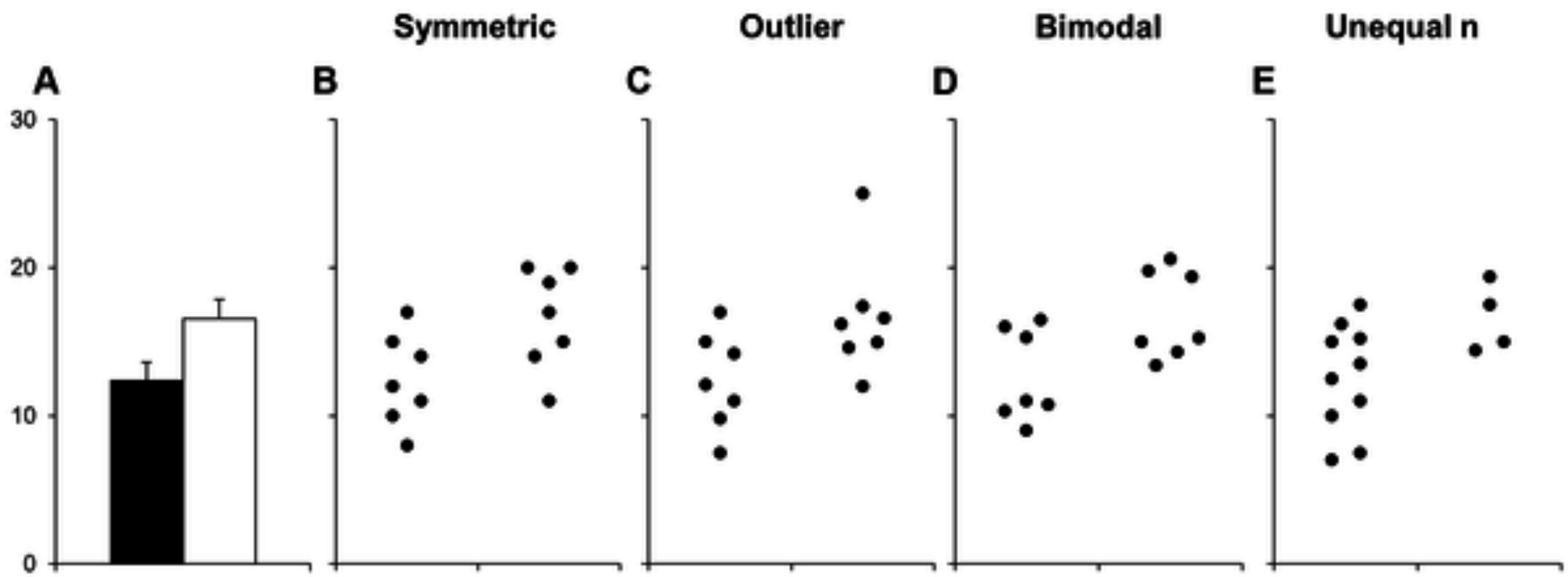
Amsterdam ; Boston : Elsevier Academic Press c2005

8.1.2 Basic Sampling Methods

1. Simple random sampling (SRS).
2. Stratified random sampling (STRS).
3. Systematic sampling (SYS).

Beyond Bar and Line Graphs: Time for a New Data Presentation Paradigm

Tracey L. Weissgerber, Natasa M. Milic, Stacey J. Winham, Vesna D. Garovic



Test	Symmetric	Outlier	Bimodal	Unequal n
	p value			
T-test: Equal var.	0.035	0.050	0.026	0.063
T-test: Unequal var.	0.035	0.050	0.026	0.035
Wilcoxon	0.054	0.073	0.128	0.103

Weissgerber TL, Milic NM, Winham SJ, Garovic VD (2015) Beyond Bar and Line Graphs: Time for a New Data Presentation Paradigm. PLOS Biology 13(4): e1002128. https://doi.org/10.1371/journal.pbio.1002128
https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.1002128

PLOS | BIOLOGY
FIFTEENTH ANNIVERSARY

AMERICAN STATISTICAL ASSOCIATION RELEASES STATEMENT ON STATISTICAL SIGNIFICANCE AND *P*-VALUES

Provides Principles to Improve the Conduct and Interpretation of Quantitative Science

March 7, 2016

ein, the ASA's executive director. "Well-reasoned statistical arguments conta
n the value of a single number and whether that number exceeds an arbitrar
. The ASA statement is intended to steer research into a 'post p<0.05 era.'"

Estimating population abundance for simple random sampling

$\hat{X} = K\bar{X}$	the estimated population size. This is formula 8.6 from [2]
K	the number of sampling units in the landscape.
$\bar{X} = \frac{1}{k}\sum_{i=1}^{k} x_i$	the mean count per sampling unit.
k	the number of sampling units in the landscape.
x_i	the count in the i^{th} sampling unit.
$\hat{X} \pm t_{k-1,1-\frac{\alpha}{2}} SE(\hat{X})$	is the $100(1-\alpha)$ percent confidence interval. This is equation 8.13 from [2].
$t_{k-1,1-\frac{\alpha}{2}}$	the t-statistic with $k-1$ degrees of freedom, and where $\alpha = 0.05$ will evaluate the 95% confidence interval.
$SE(\hat{X}) = \sqrt{\frac{K^2}{k}\left(1-\frac{k}{K}\right) s^2}$	the standard error in the population size estimate. This is equation 8.8 in [2].
$s^2 = \frac{\sum_{i=1}^{k}(x_i-\bar{X})^2}{k-1}$	between-sampling unit variability.
$\hat{\sigma} = SE(\hat{X})\sqrt{k}$	estimated standard error.

Abundance_Estimation.R

```r
# VISUALIZING UNCERTAINTY IN ABUNDANCE ESTIMATES: Alternatives to parameteric 95%
# confindence intervals
# clear already stored varaibles
rm(list=ls())
# load this library which enables violin plots
library(vioplot)
# load this library which is a dependency for "vioplot"
library(sm)
# load this library for beeswarm plots
library(beeswarm)
# load this library to perform a non-parameteric bootstrap.
library(boot)
```