

Day 2 - Introduction

SSA 200

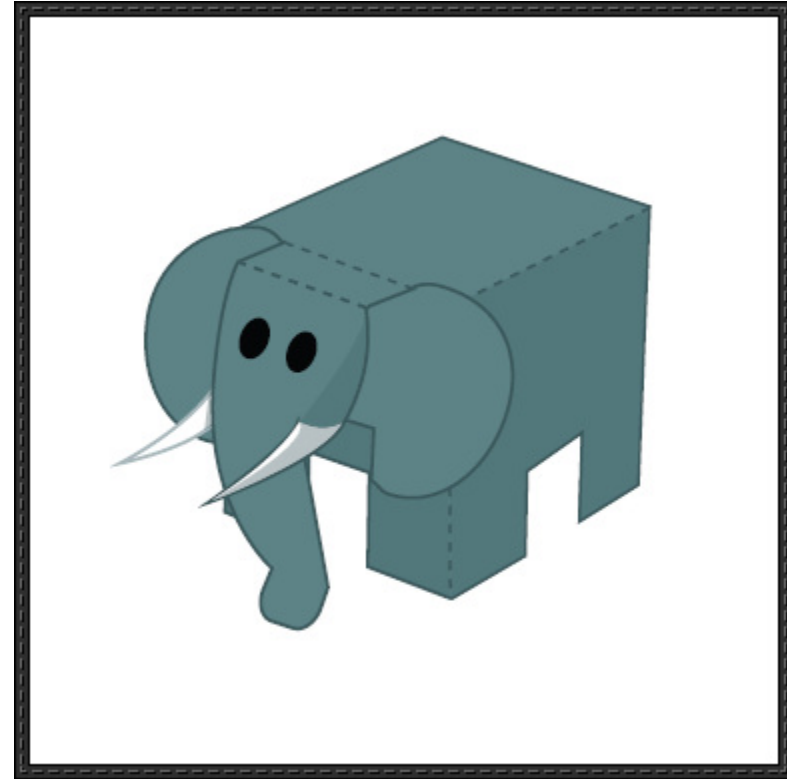
Data models yesterday...

- We reviewed some methods for analyzing data:
 - Descriptive
 - Occupancy
 - Count data, etc.
- Focused on estimating population parameters and ecological relationships
- Also estimated observation uncertainties (e.g., detection) and environmental variation

Today...

- Making predictions for the future!
 - Use results of previous data analysis (yesterday's focus)
- Accounting for demographic and environmental Stochasticity
- Accounting for “parametric uncertainty”

All models are wrong, but some models are useful – G. Box



Projection models are focused on

- Creating useful predictions
 - Do not require all system details
 - Decision context dependent

As simple as possible to be useful

Projection modeling platforms

- Rely on repeated execution codes/functions to project over time and replicate the projection
- Programs:
 - MS Excel
 - Netica
 - RAMAS, Vortex, PopTools
 - R, MatLab, SAS, Python, etc.

Time projections and replications

- Repeat a set of instructions (function) over a number of years
- Replicate that process multiples of times
 - estimate variability in predictions

	year					
replicate	1	2	3	4	5	...
1	200	186.6482	193.396	197.942	194.3061	...
2	200	200.9691	214.6901	224.4521	240.7295	...
3	200	180.0984	191.3048	189.7989	195.8254	...
4	200	212.4143	235.5381	237.627	230.6926	...
5	200	204.5244	192.3505	199.2723	196.0467	...
...	200	197.8708	194.1572	188.8351	203.3035	...

Projection models for today

- Occupancy / site persistence models
- Multi-state occupancy models
- λ growth models and Poisson projection models
- Demographic/matrix projection models
- Key issues
 - Conceptual → quantitative
 - Linking population parameters to environmental variables
 - Environmental stochasticity and parametric uncertainty
 - Sensitivity analyses

Questions?

