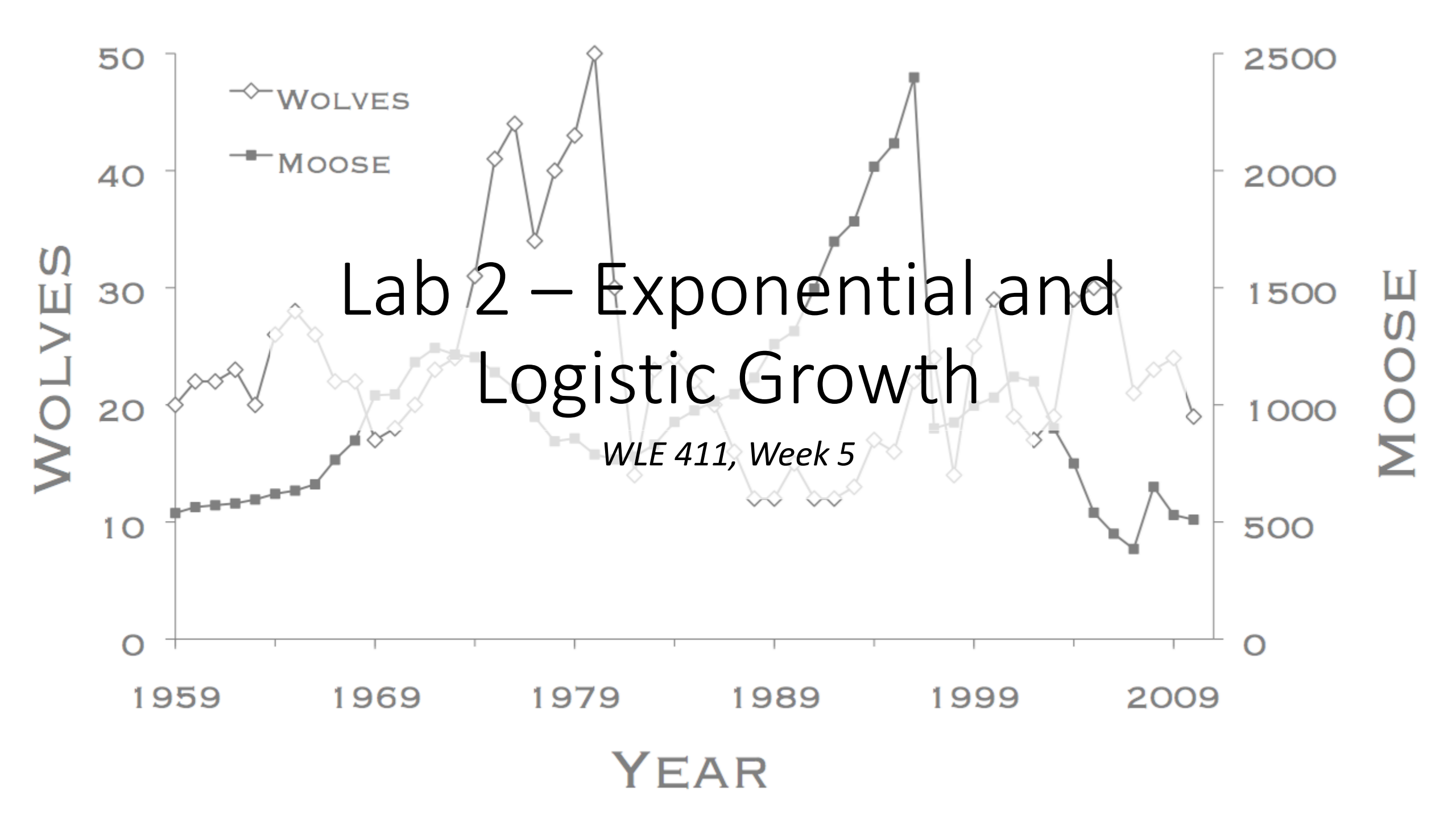
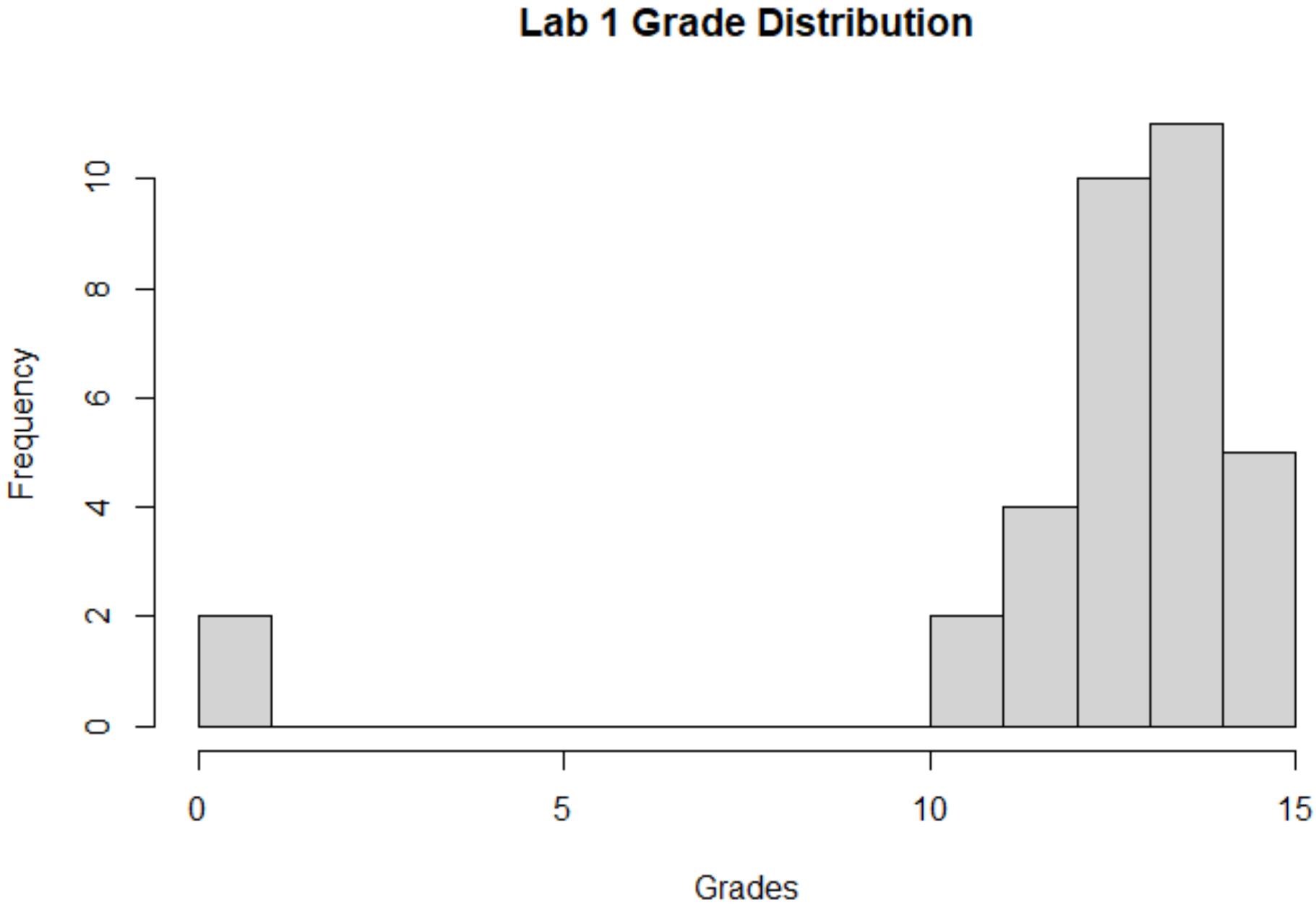
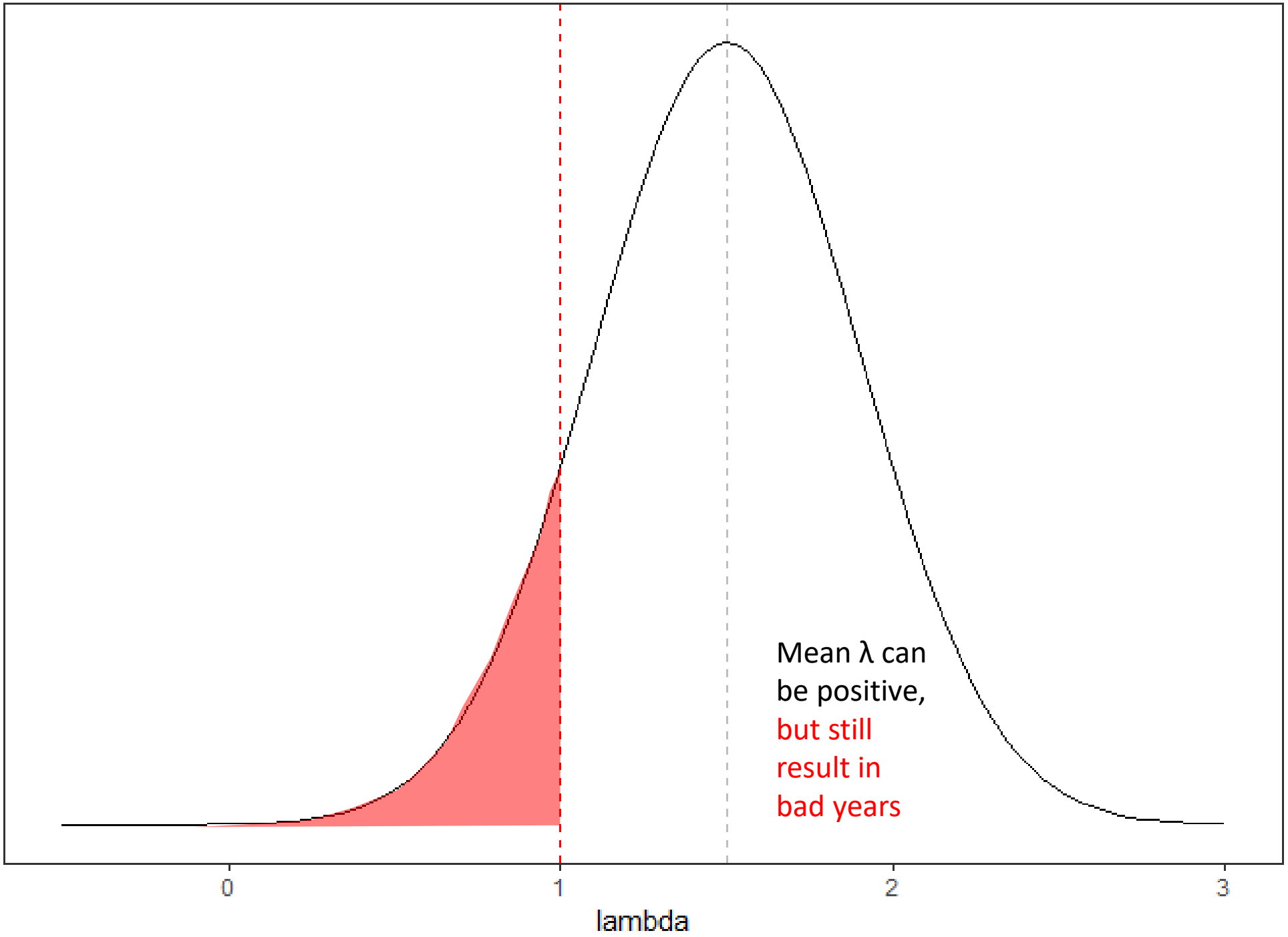


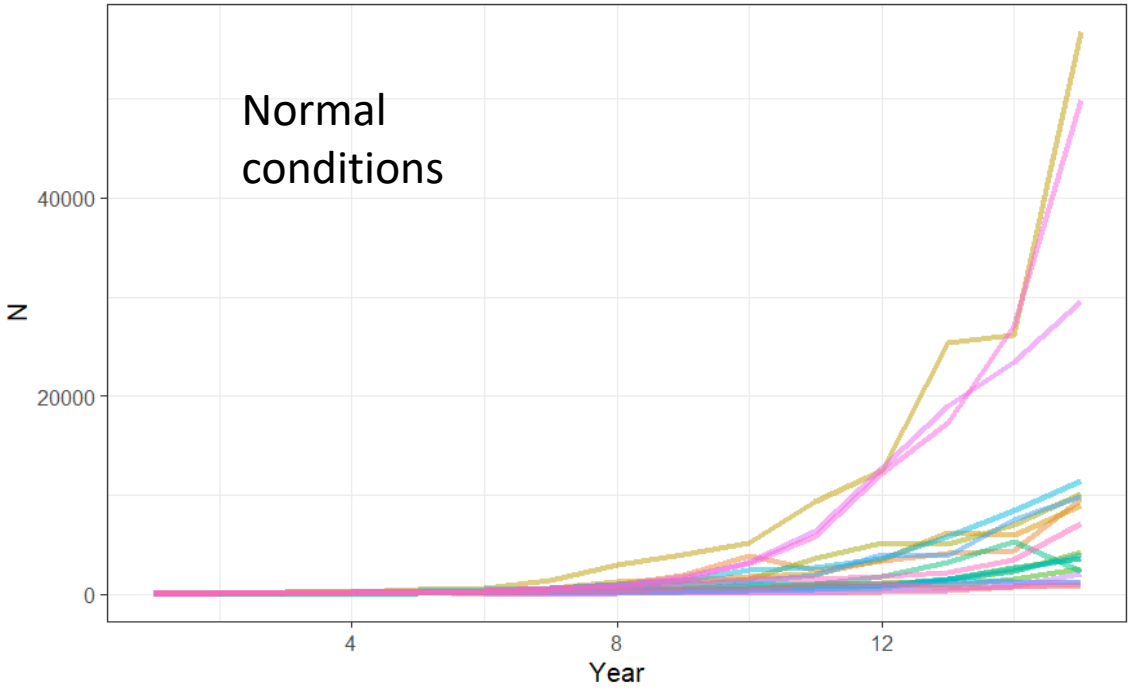
Lab 2 – Exponential and Logistic Growth

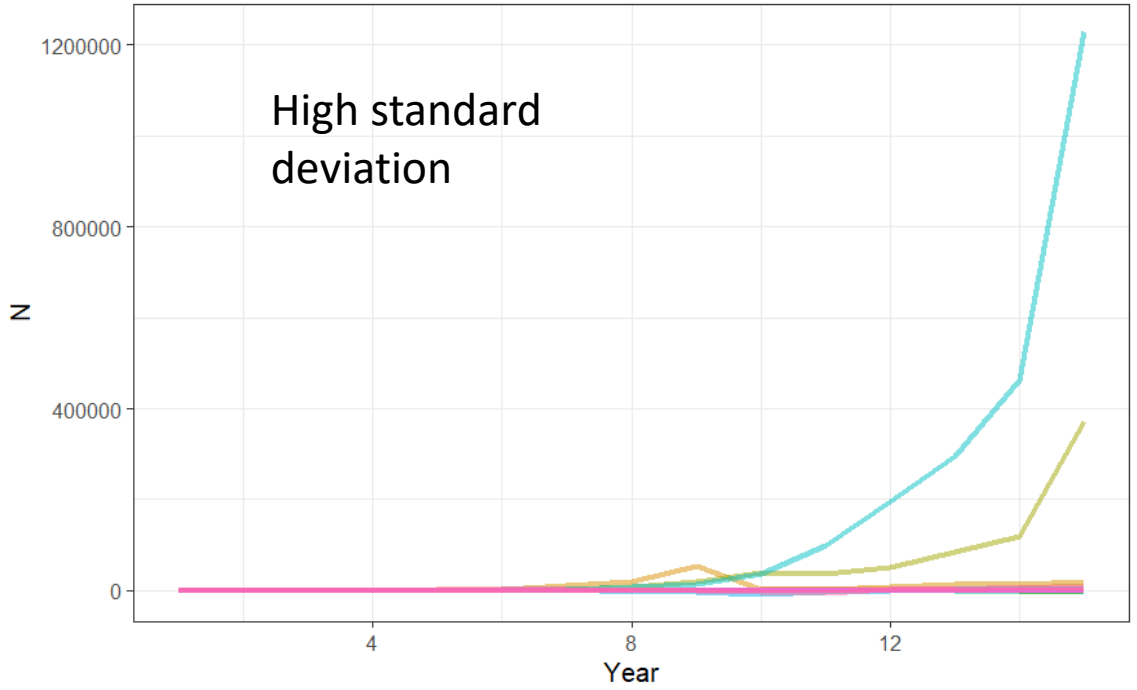
WLE 411, Week 5

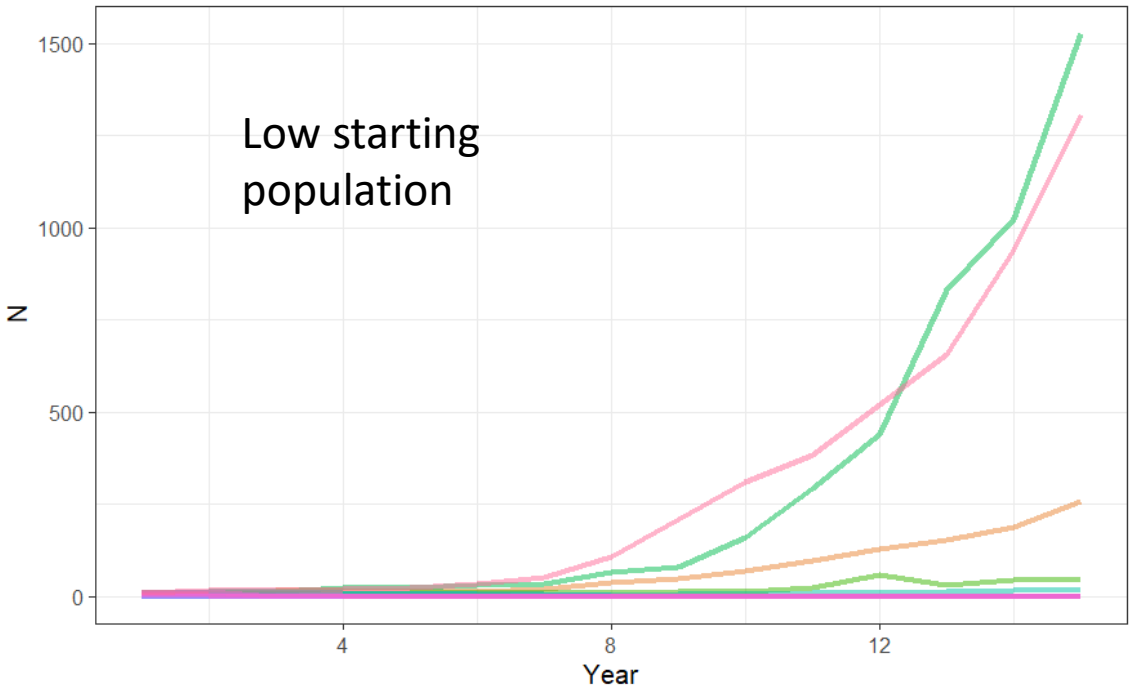

Lab 1 Grade Distribution
Frequency
0
2
4
6
8
10
0
5
10
15
Grades

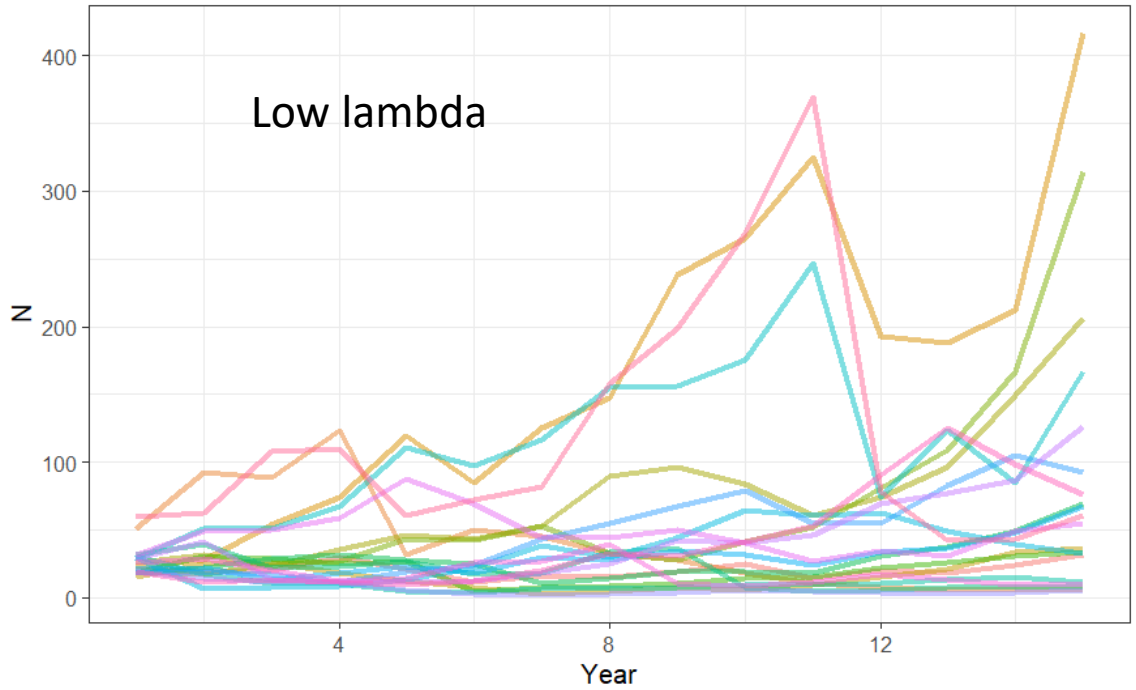
Year	λ
1	1.12
2	1.535714
3	1.581395
4	1.397059
5	0.978947
6	1.107527
7	1.533981
8	1.075949
9	1.6
10	1.327206
11	1.091413
12	1.532995
13	1.508278
14	1.299671
15	1.559966


Mean λ can
be positive,
but still
result in
bad years
0
1
2
3
lambda


Normal conditions
N
40000
20000
0
4
8
12
Year

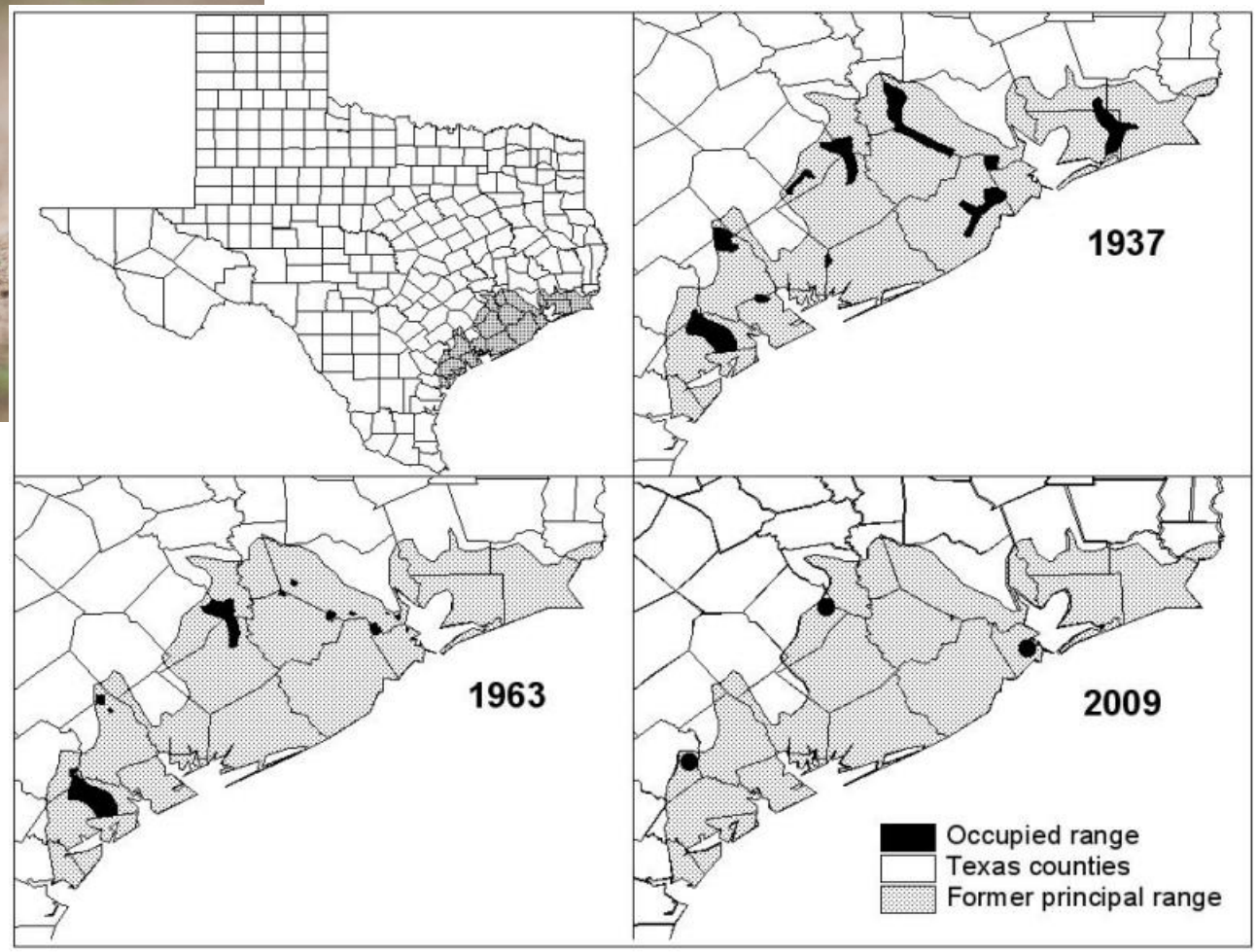

High standard deviation
N
1200000
800000
400000
0
4
8
12
Year


Low starting population
N
1500
1000
500
0
4
8
12
Year


Low lambda
N
400
300
200
100
0
4
8
12
Year

Attwater's prairie-chicken

(Tympanuchus cupido attwateri)



Arctic Tern

(Sterna paradisaea)

Black-crowned Night-Heron
(Nycticorax nycticorax)

How do we manage to avoid stochastic extinction of populations?

- Keep lambda high
  - Habitat quality, predator management, etc.
- Maintain high population sizes
- Allow immigration to reestablish populations
  - Population connectivity

Lab 2 - Projecting Population Growth Using Exponential and Logistic Growth Models

Erik Blomberg (edited by Matt Mensinger and Liam Berigan)

09/15/2023

Contents