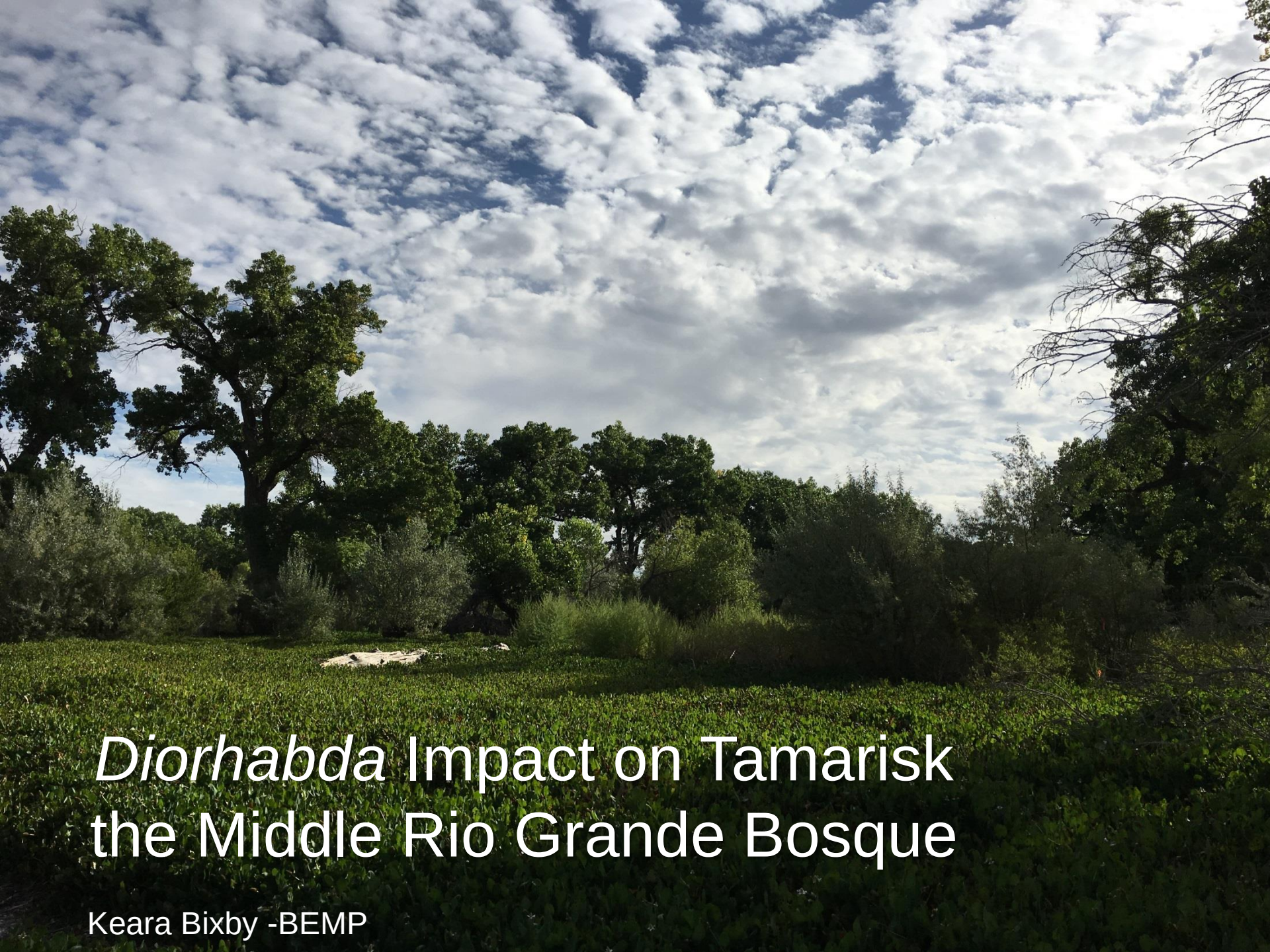
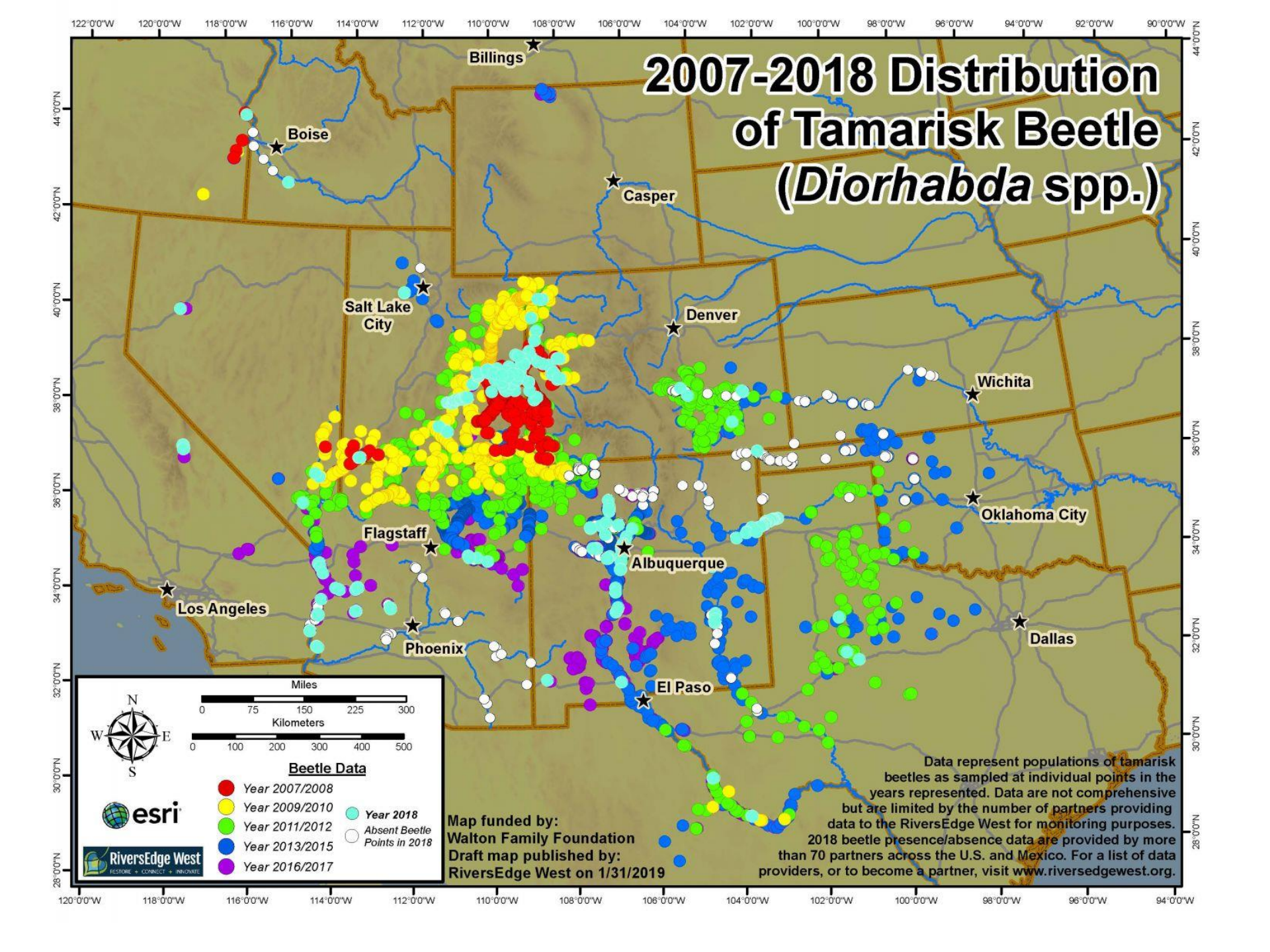


Diorhabda Impact on Tamarisk the Middle Rio Grande Bosque

Keara Bixby -BEMP

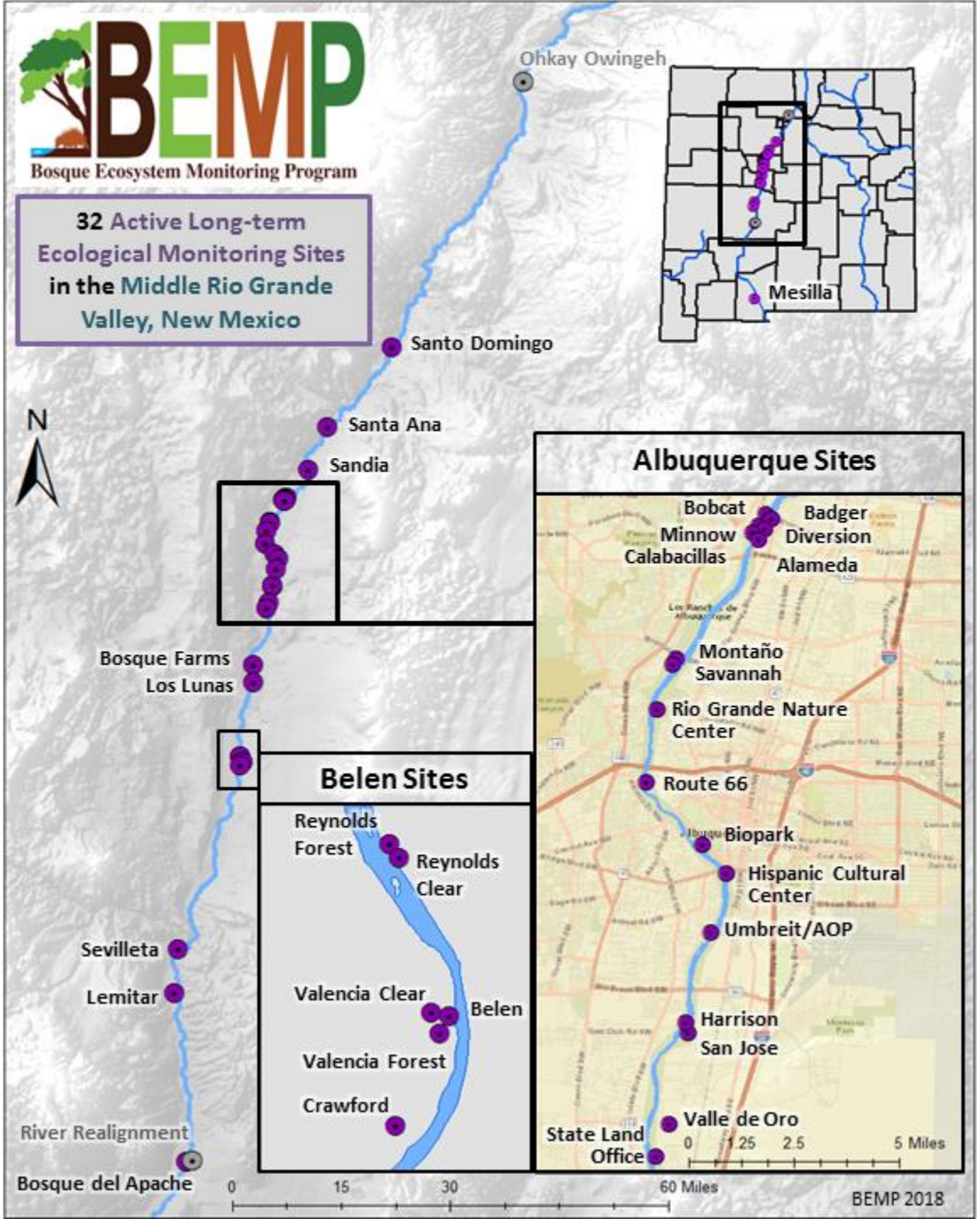
Background

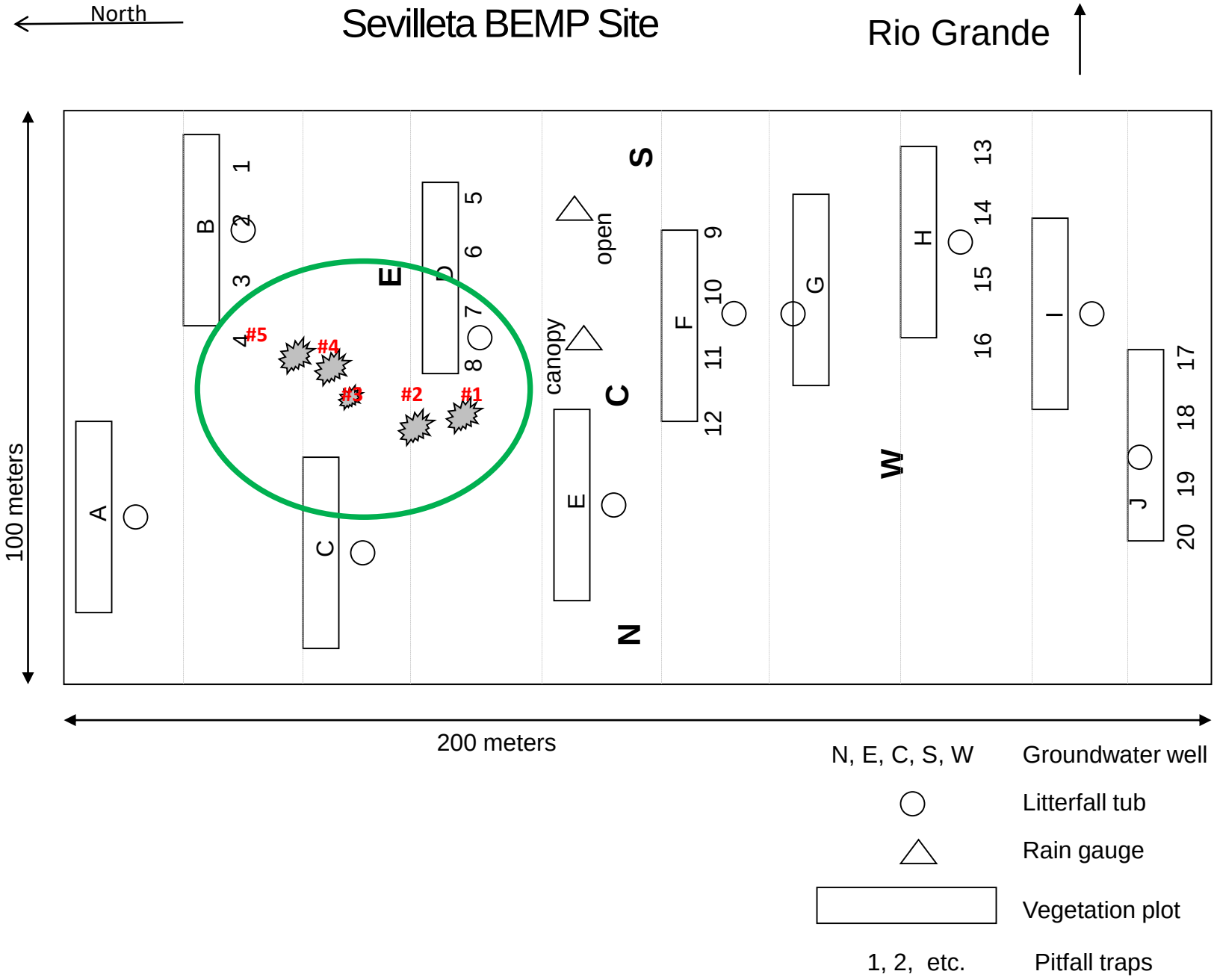
- Saltcedar (*Tamarisk* spp.*)* introduced in 1800's in bosque (riparian forest)
- Method of erosion control
- Saltcedar proven difficult to eradicate
- Tamarisk leaf beetle (TLB) (*Diorabhda* spp.) first introduced in Utah in 2008
- Concern for migration into New Mexico due to endangered Southwestern Willow Flycatcher (SWFL)


2007-2018 Distribution of Tamarisk Beetle (Diorhabda spp.)
Billings
Boise
Casper
Salt Lake City
Denver
Wichita
Oklahoma City
Flagstaff
Albuquerque
Los Angeles
Phoenix
Dallas
El Paso
Miles
0 75 150 225 300
Kilometers
0 100 200 300 400 500
N
W
E
S
Beetle Data
Year 2007/2008
Year 2009/2010
Year 2011/2012
Year 2013/2015
Year 2016/2017
Year 2018
Absent Beetle Points in 2018
esri
RiversEdge West
RESTORE + CONNECT + INNOVATE
Map funded by:
Walton Family Foundation
Draft map published by:
RiversEdge West on 1/31/2019
Data represent populations of tamarisk beetles as sampled at individual points in the years represented. Data are not comprehensive but are limited by the number of partners providing data to the RiversEdge West for monitoring purposes. 2018 beetle presence/absence data are provided by more than 70 partners across the U.S. and Mexico. For a list of data providers, or to become a partner, visit www.riversedgewest.org.

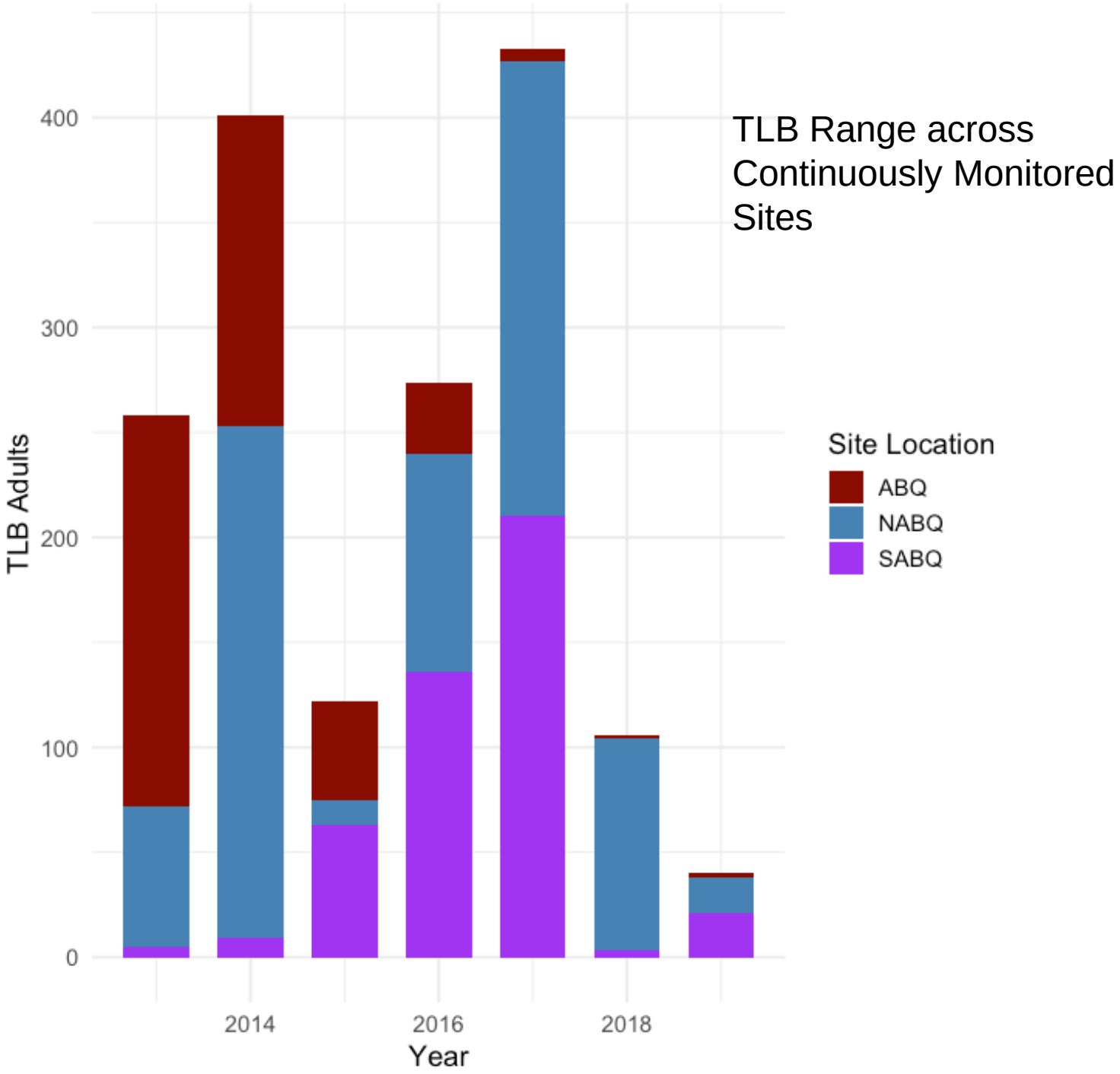
BEMP-Bosque Ecosystem Monitoring Program

- Focused on long-term ecological research of the Middle Rio Grande Bosque.
- Community science based organization
- Collaboration with University of New Mexico and Bosque School
- Science, Education, and Stewardship along the Rio Grande
- **Reached 100,000 people in last 23 years**
- 1996 organization started, now 33 active research sites


BEMP
Bosque Ecosystem Monitoring Program
32 Active Long-term Ecological Monitoring Sites in the Middle Rio Grande Valley, New Mexico
Ohkay Owingeh
Mesilla
Santo Domingo
N
Santa Ana
Sandia
Bosque Farms
Los Lunas
Albuquerque Sites
Bobcat
Badger
Minnow
Diversion
Calabacillas
Alameda
Montaño
Savannah
Rio Grande Nature Center
Route 66
Biopark
Hispanic Cultural Center
Umbreit/AOP
Harrison
San Jose
Valle de Oro
State Land Office
0 1.25 2.5 5 Miles
Belen Sites
Reynolds Forest
Reynolds
Clear
Valencia Clear
Belen
Valencia Forest
Crawford
Sevilleta
Lemitar
River Realignment
Bosque del Apache
0 15 30 60 Miles
BEMP 2018


North
Sevilleta BEMP Site
Rio Grande
100 meters
200 meters
A
B
C
D
E
F
G
H
I
J
N
E
C
S
W
open
canopy
#1
#2
#3
#4
#5
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
N, E, C, S, W
Groundwater well
Litterfall tub
Rain gauge
Vegetation plot
1, 2, etc.
Pitfall traps

Methods


TLB Range across Continuously Monitored Sites
TLB Adults
400
300
200
100
0
2014
2016
2018
Year
Site Location
ABQ
NABQ
SABQ

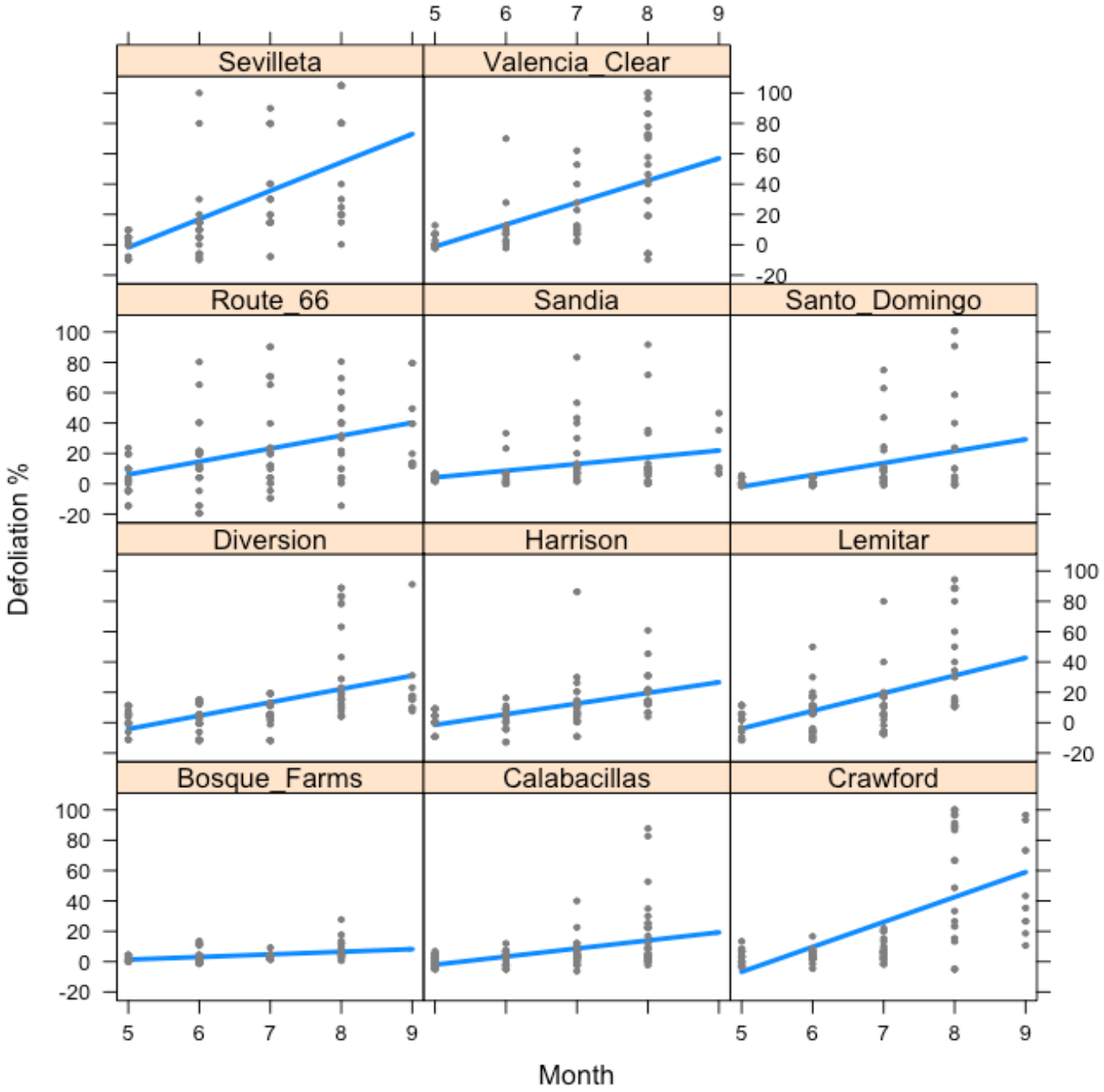
May 2017

June 2017

July 2017

August 2017

Modeled Defoliation across Continuously Monitored Sites



May 2014

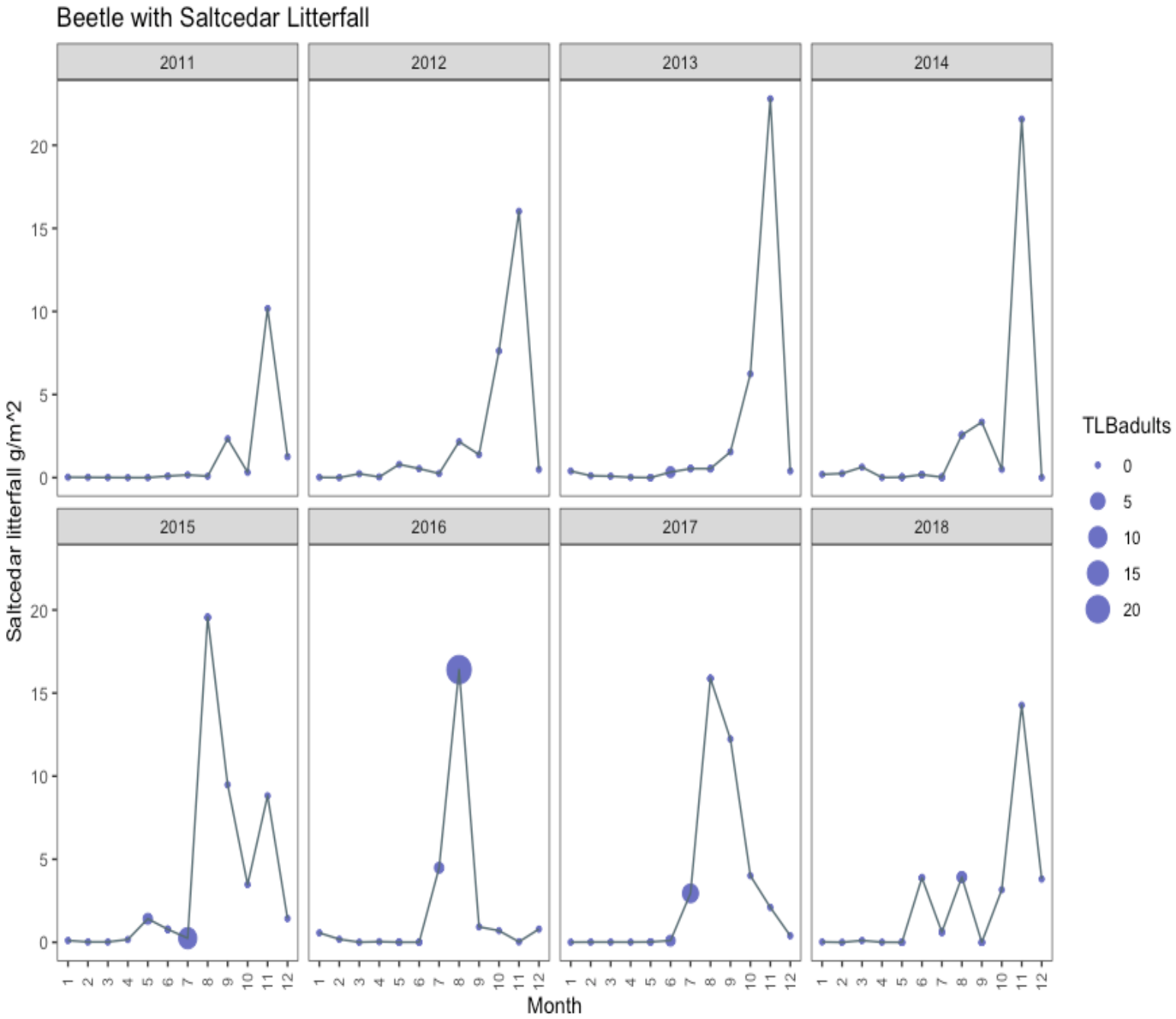
May 2015

May 2016

May 2017

May 2018

May 2019



TLB monitoring started in 2013

Conclusions

- Defoliation predicted to continue annually
- Beetle changing timing of saltcedar leaf drop
- Trees losing their canopy density
  - Directly impacting habitat of understory
- Beetle abundance and population are variable
  - Flooding? Temperature? Resource availability?

Questions

Thank you

- Specimens preserved at UNM
- Data available at www.BEMP.org

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BEMP
Bosque Ecosystem Monitoring Program

Courtesy of the NPS