Supplemental Feed Effects at the Ranch Scale

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Supplemental feeding

- **Became popular in South Texas 1980's**

- **Increases:**
  - **Fawn:doe ratios**
  - **Body size**
  - **Antler size**

- **Marginally productive rangelands and variable rainfall**

Impacts on free-ranging deer at ranch level?

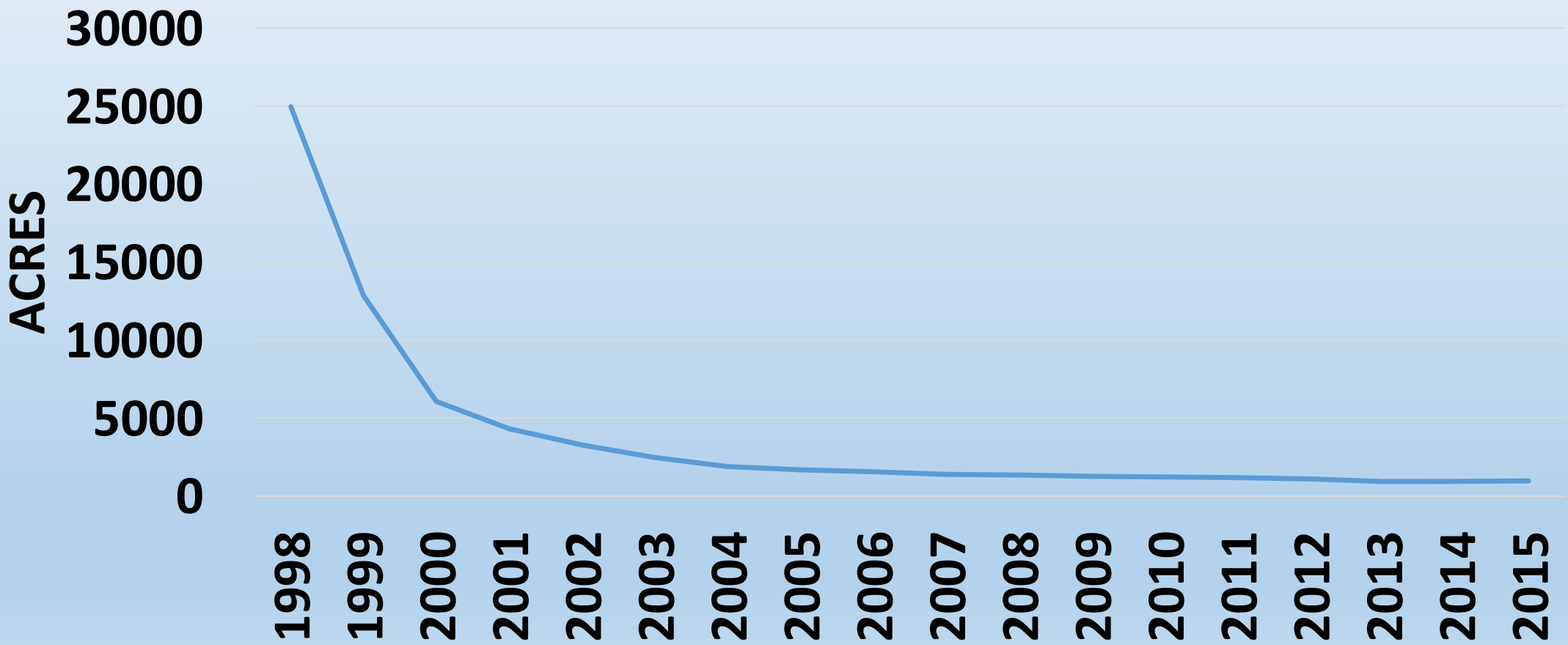
Corral Continuum

Impacts on free-ranging deer at ranch level?

EST. 1853
KING RANCH

Corral Continuum

Acres/feeder

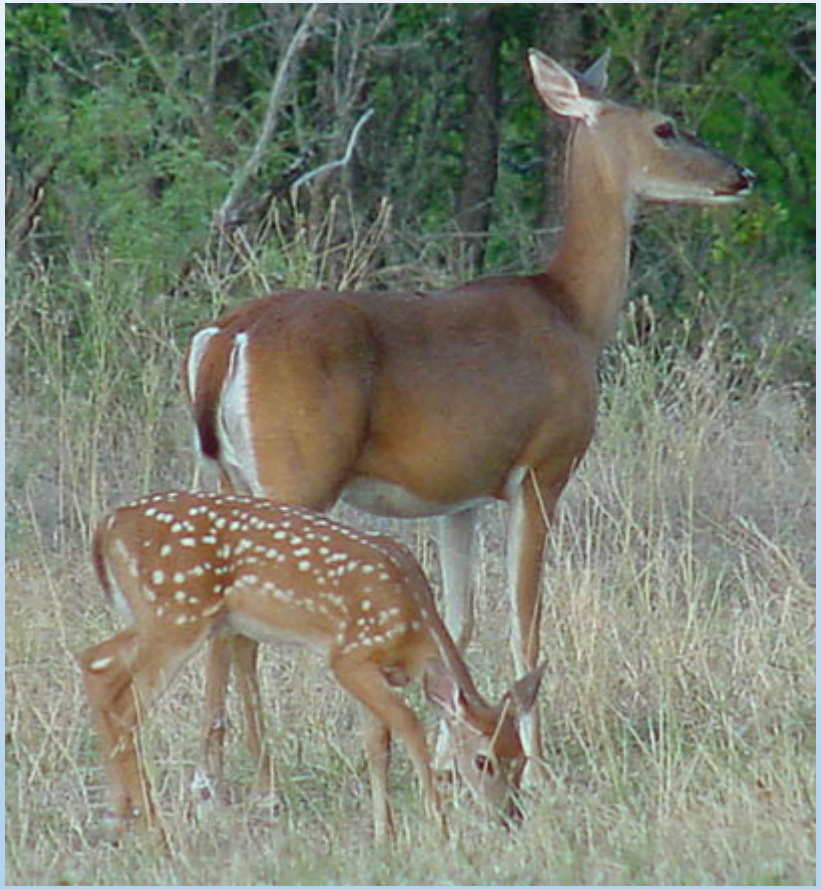


Typical feeder on King Ranch

- **Timed feeders (few free-choice)**
- **Year-around**
- **Switch from 100% protein to 50:50 protein:corn during hunting season (Oct-Dec)**
- **Fenced (not fawn friendly)**

Expectations

- **Higher fawn:doe ratios**



Fawn:doe ratios

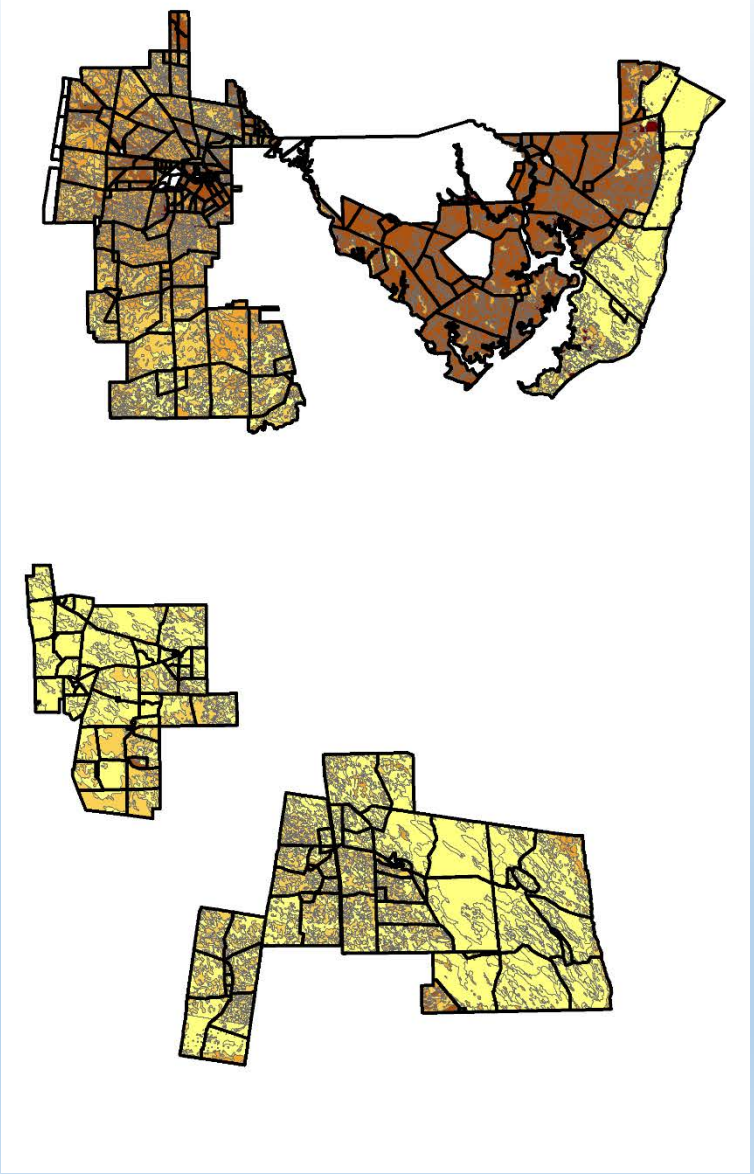
- **September helicopter surveys**
- **Lease level**
  - **35 leases**
  - **7,000 – 42,000 acres**
  - **Average: 19,000 acres**

Need to use a model

- **Account for other factors**
  - **Rainfall**
  - **Habitat/soils**
  - **Feeder density**
  - **Interactions**

Fawn:doe ratios

- **Model**
  - **Soil profile (% lease ≥60% sand)**
  - **May-June rainfall (total inches)**
  - **Feeders per acre**



Fawn:doe ratios

- **Model**
  - Soil profile (% lease ≥60% sand)
  - **March-July rainfall (total inches)**
  - Feeders per acre

Ginnett and Young 2000

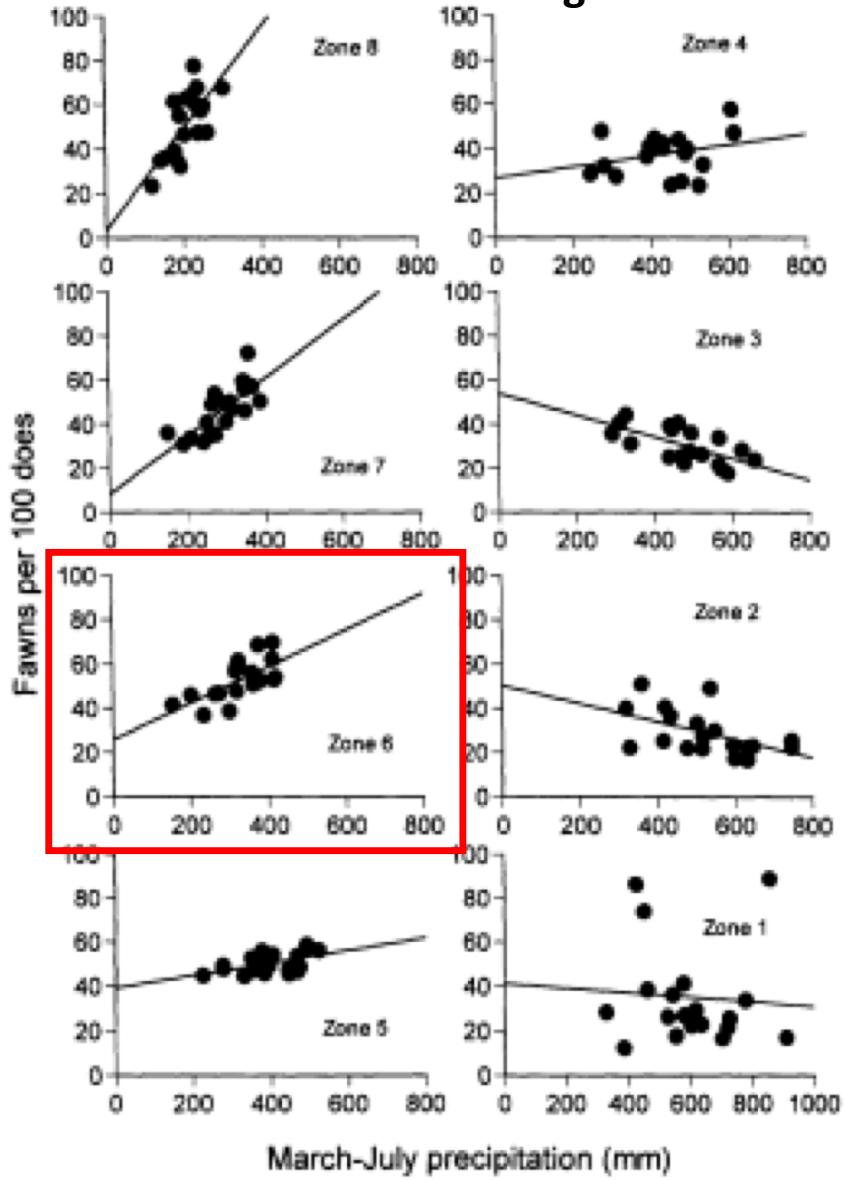
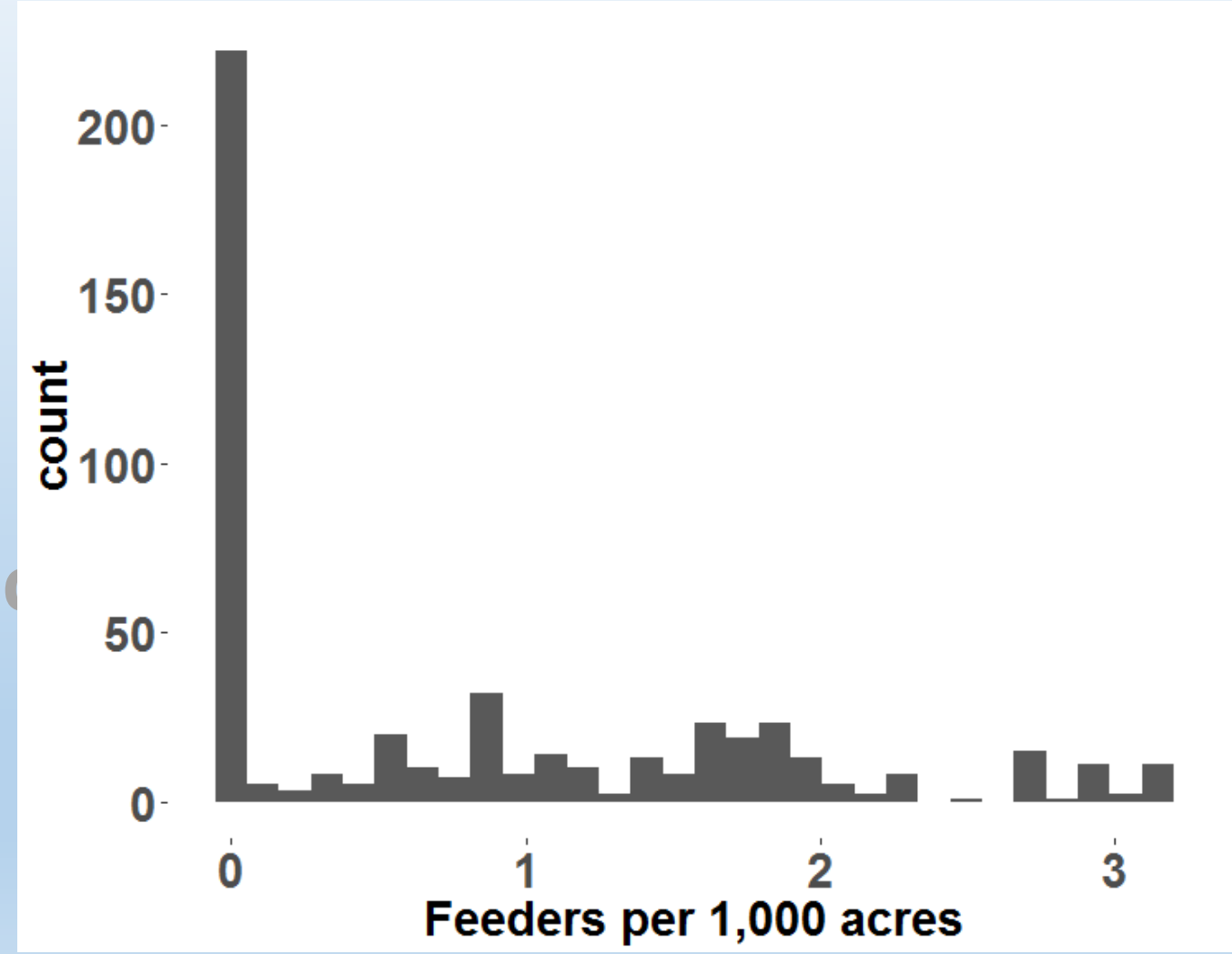


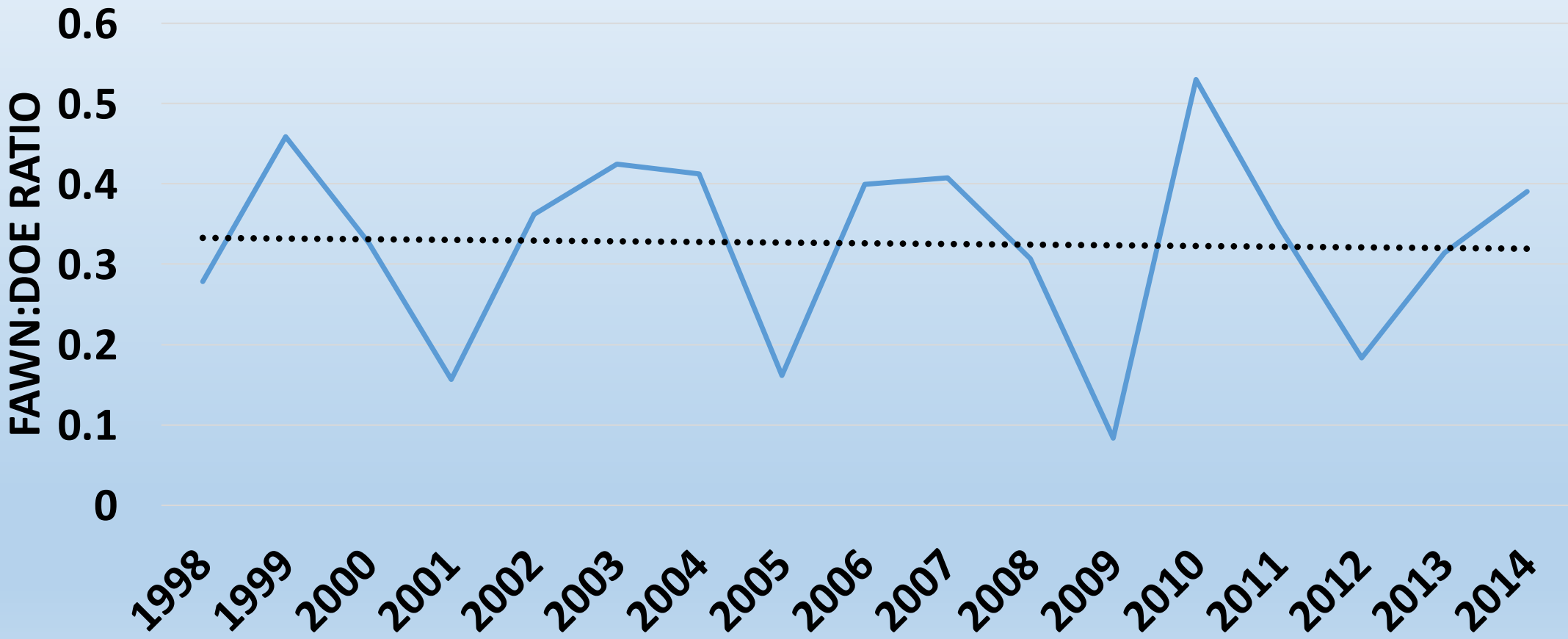
Fig. 2. Regression of recruitment (fawns per 100 does) against the sum of March–July precipitation for each of the 8 precipitation zones in Texas, USA. Zones are defined in Fig. 1 and Table 1.

Fawn:doe ratios

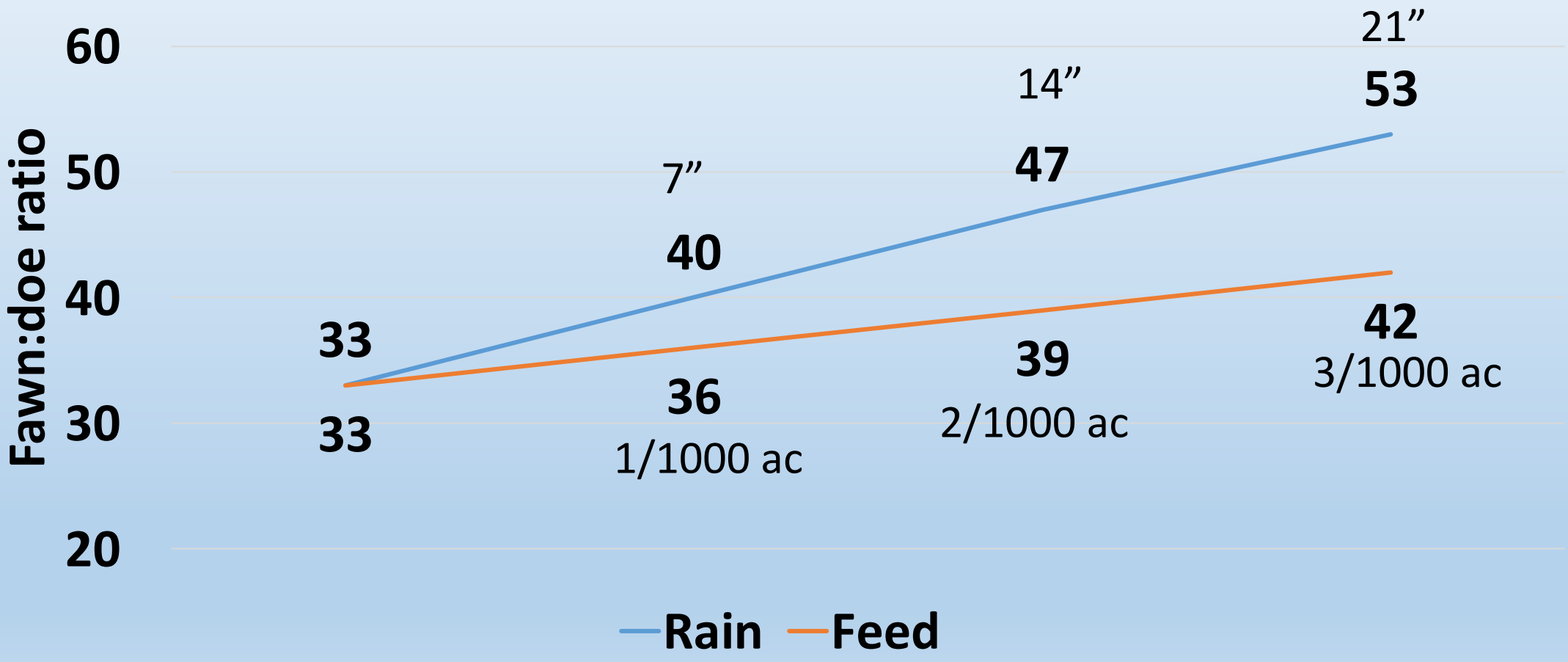
- **Model**
  - Soil profile (% lease ≥60%
  - May-June rainfall (total in
  - **Feeders per 1000 acres**



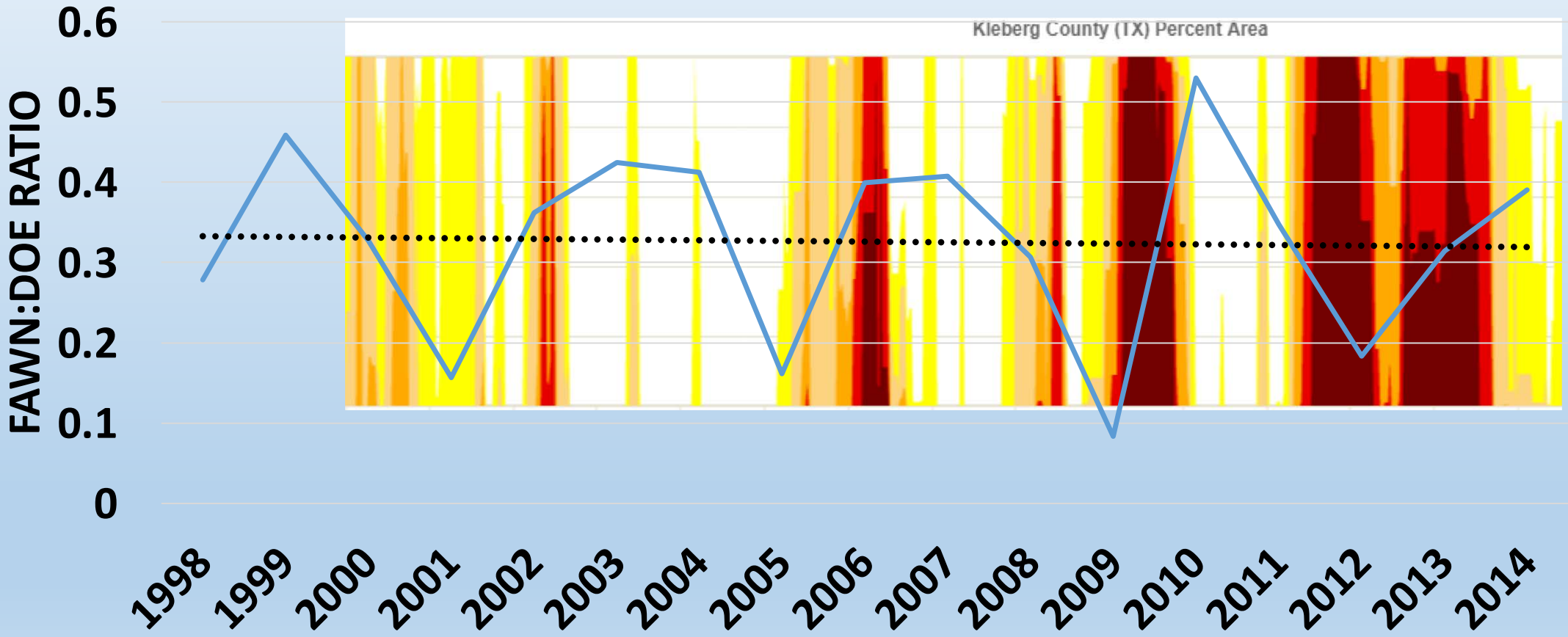
Fawn:doe ratios (September)

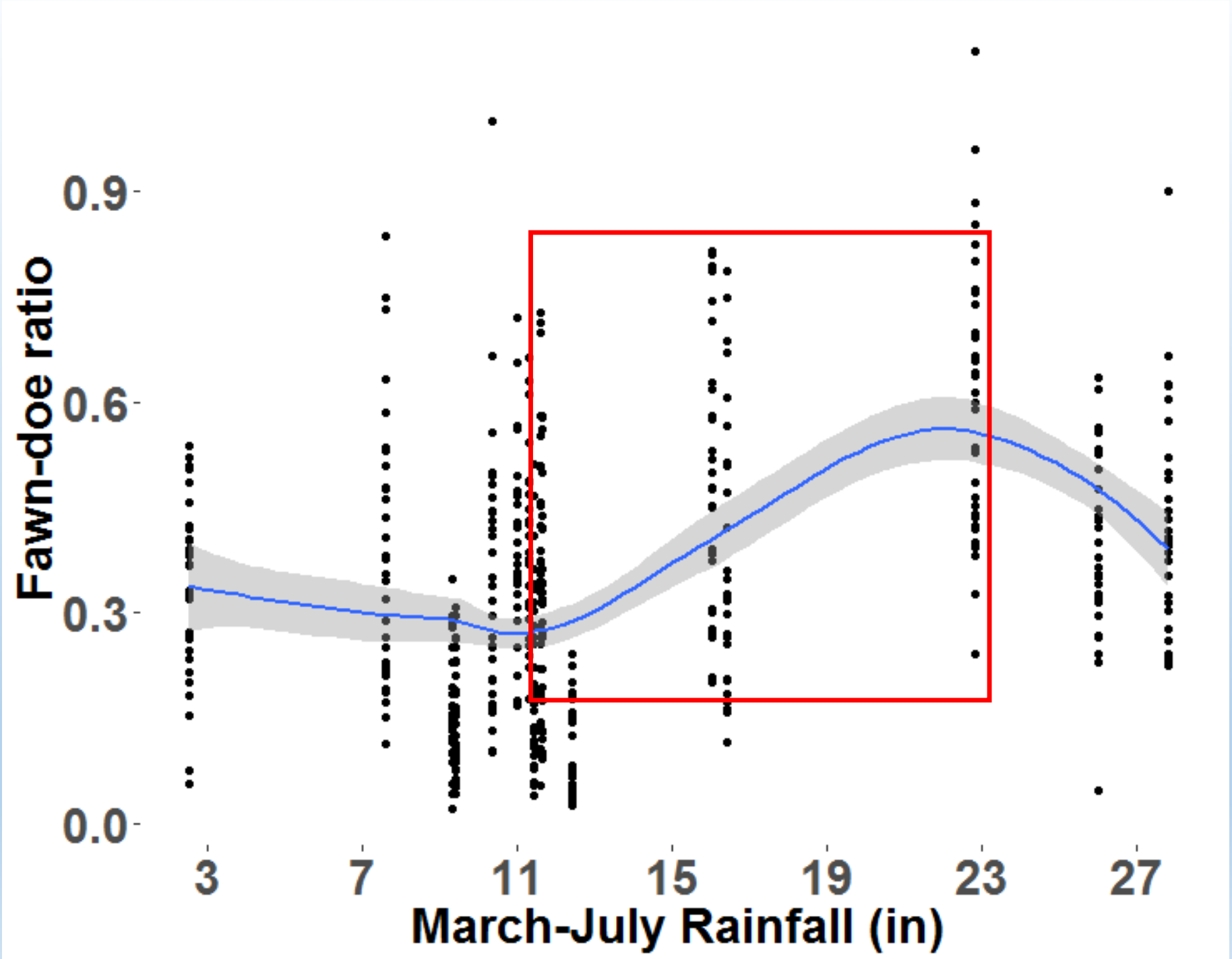


Results


Fawn:doe ratio
60
50
40
30
20
7”
14”
21”
33
40
47
53
33
36
39
42
1/1000 ac
2/1000 ac
3/1000 ac
Rain
Feed

Fawn:doe ratios (September)

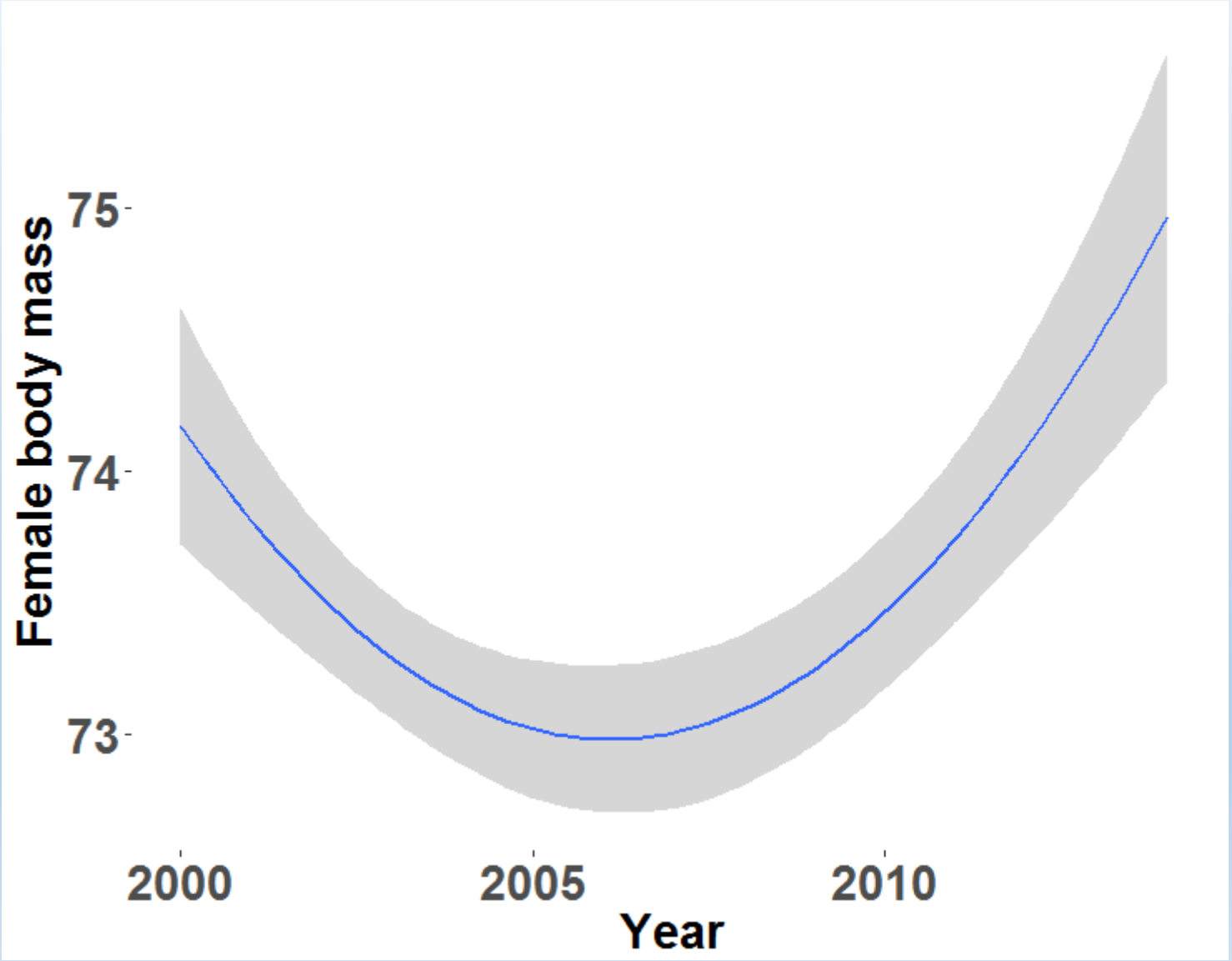



Fawn-doe ratio
0.9
0.6
0.3
0.0
3
7
11
15
19
23
27
March-July Rainfall (in)

Other expectations

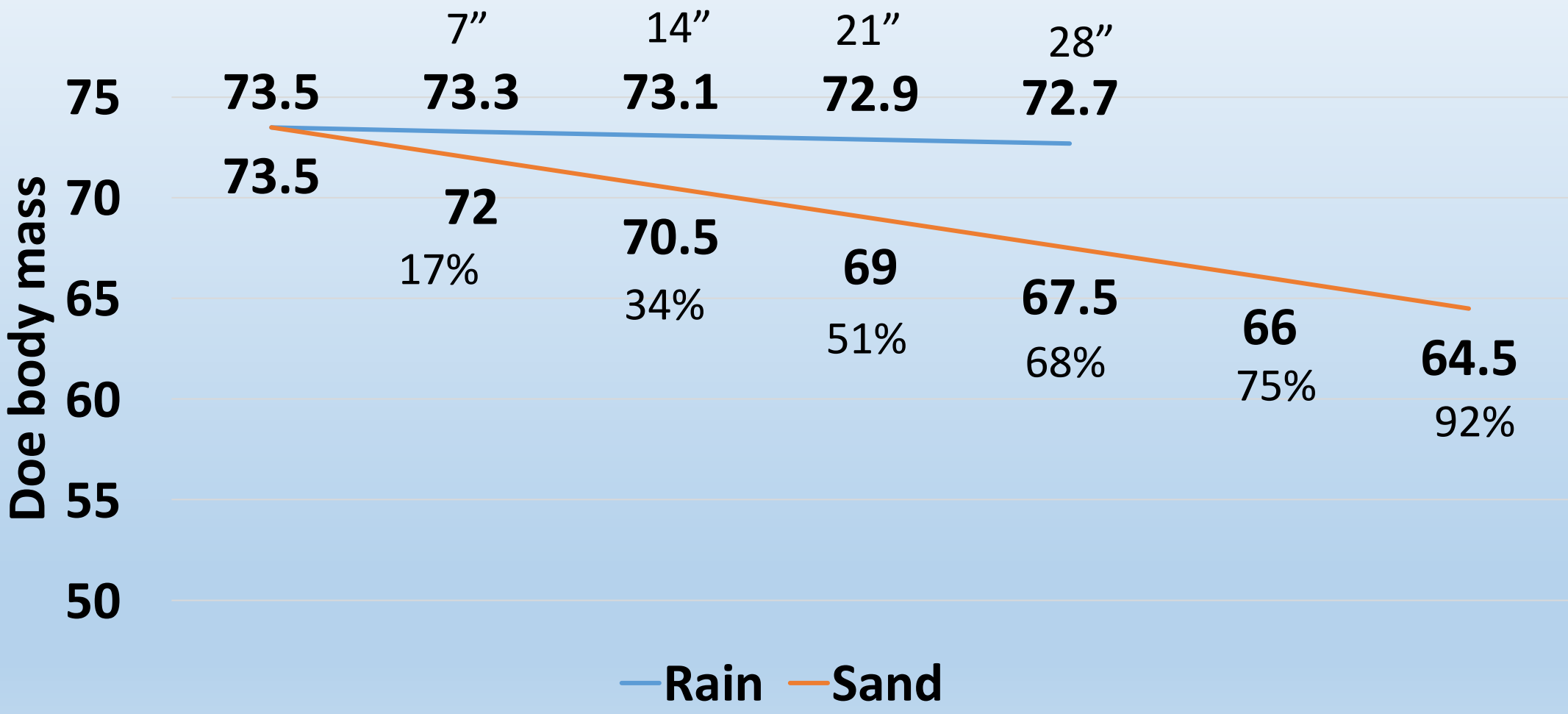
- **Larger body mass**
- **Larger antler size**

Doe body mass (dressed) ≥2.5 years old

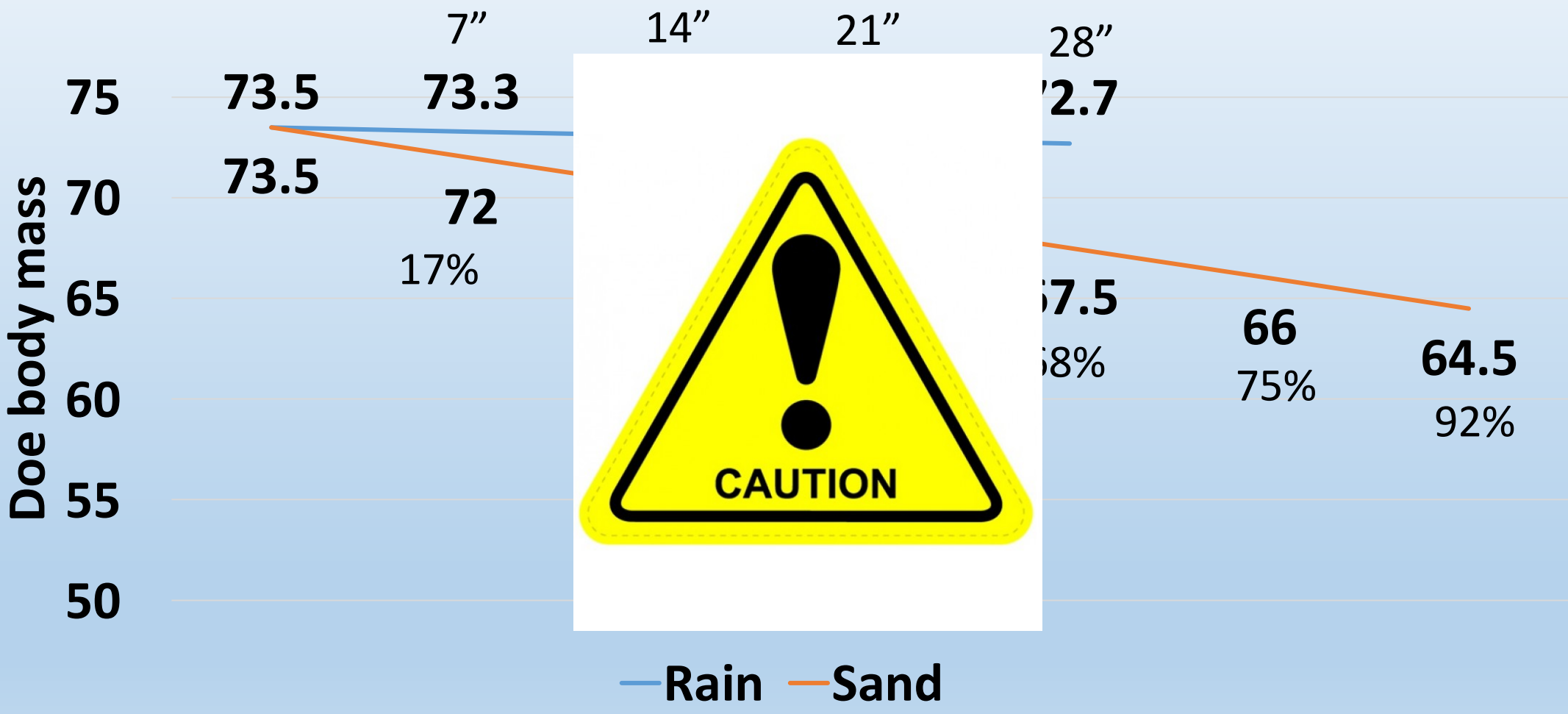


2 pounds (3%)

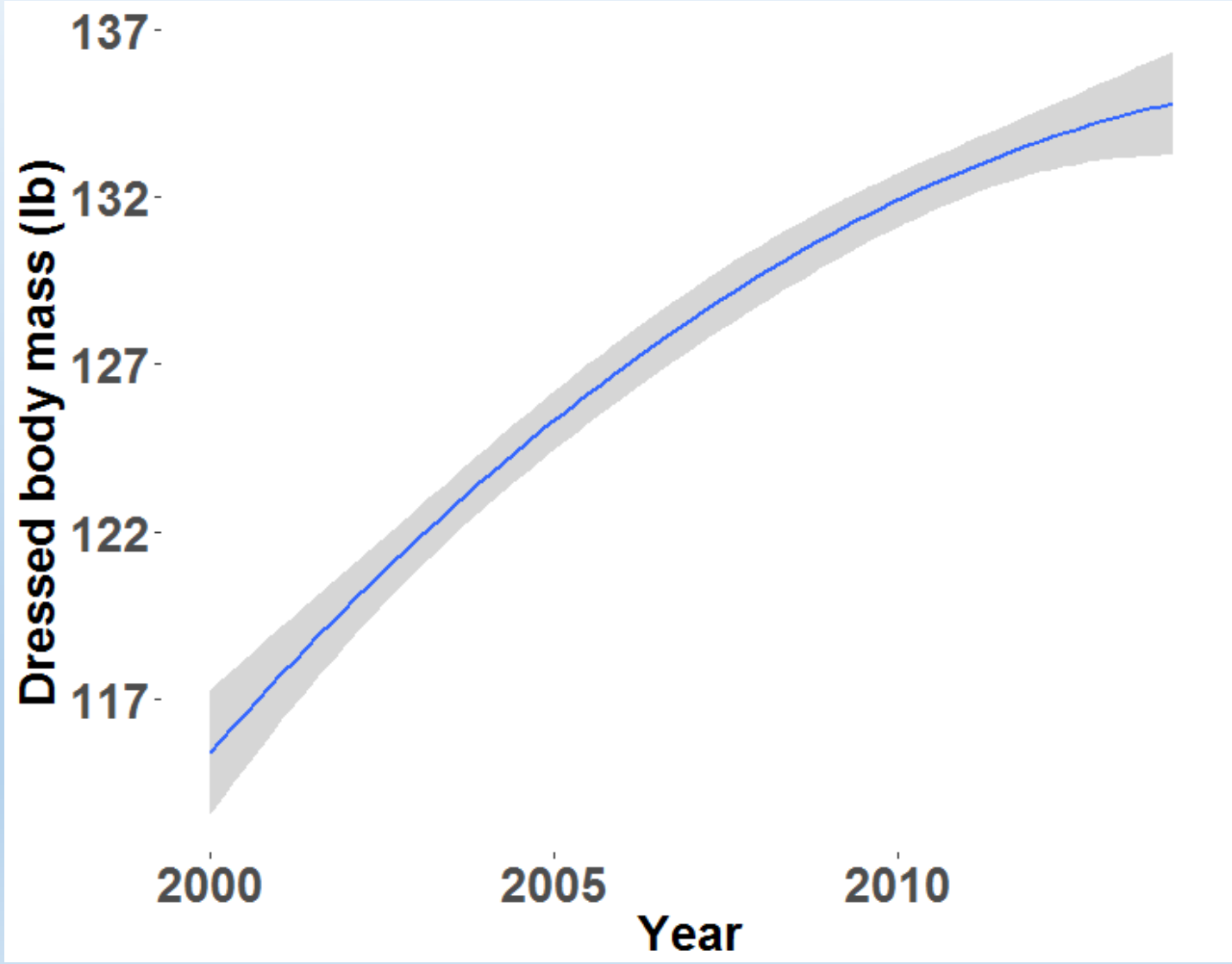
Results


7”
14”
21”
28”
75
70
65
60
55
50
Doe body mass
73.5
73.3
73.1
72.9
72.7
73.5
72
17%
70.5
34%
69
51%
67.5
68%
66
75%
64.5
92%
Rain
Sand

Results

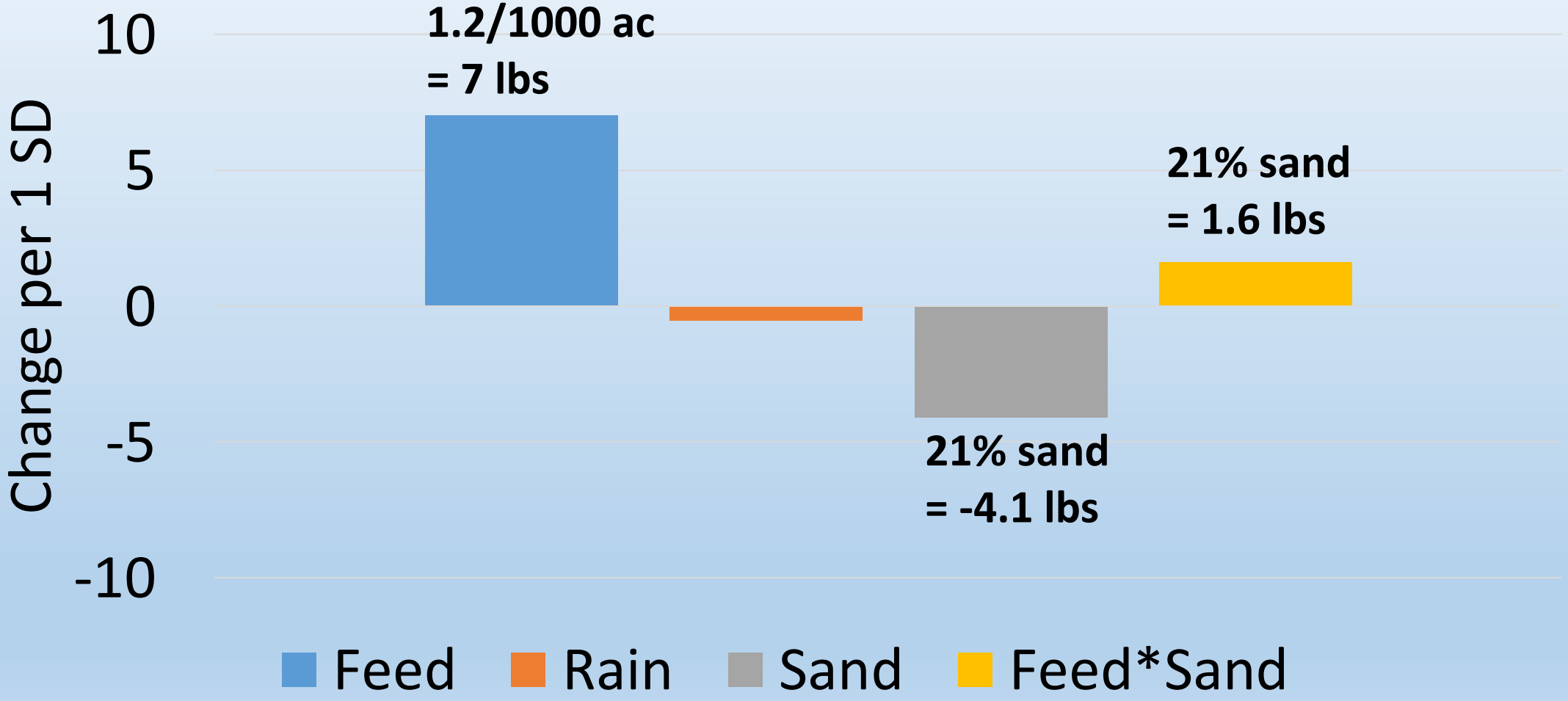

7”
14”
21”
28”
Doe body mass
75
70
65
60
55
50
73.5
73.3
73.5
72
17%
72.7
67.5
68%
66
75%
64.5
92%
CAUTION
Rain
Sand

Buck body mass (dressed) 5.5-7.5 years old

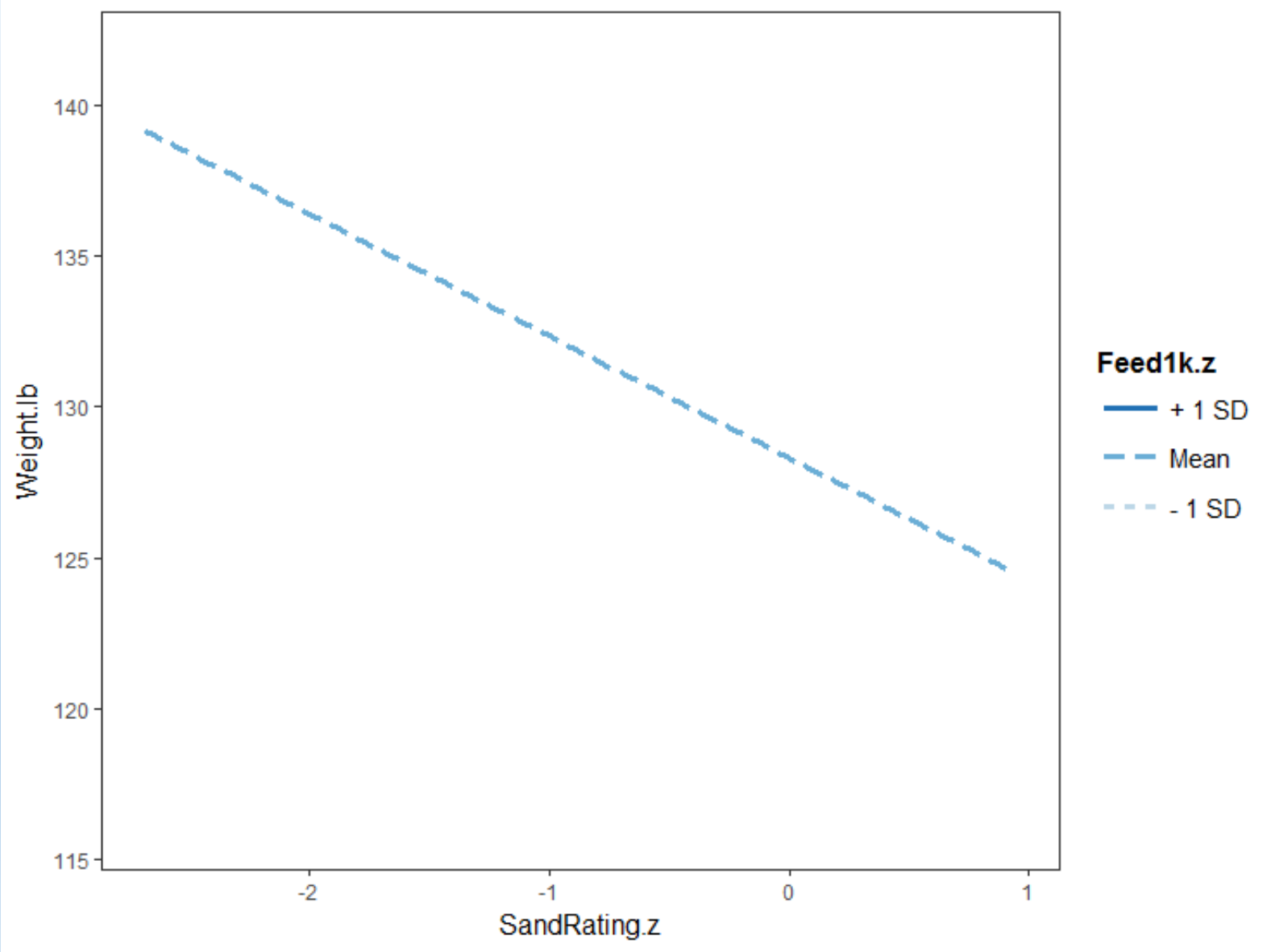


20 pounds (15%)

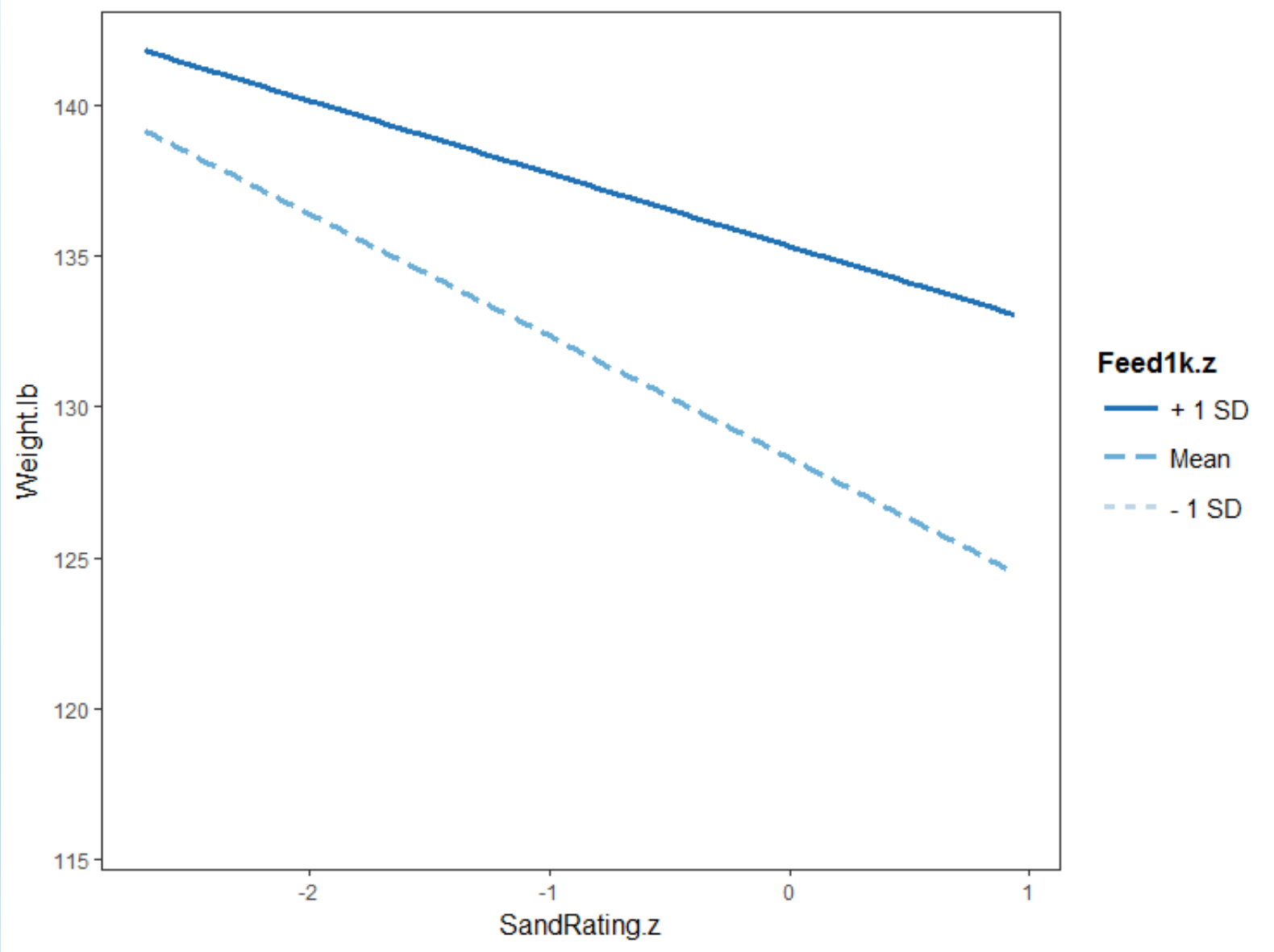
Buck body mass (dressed) 5.5-7.5 years old



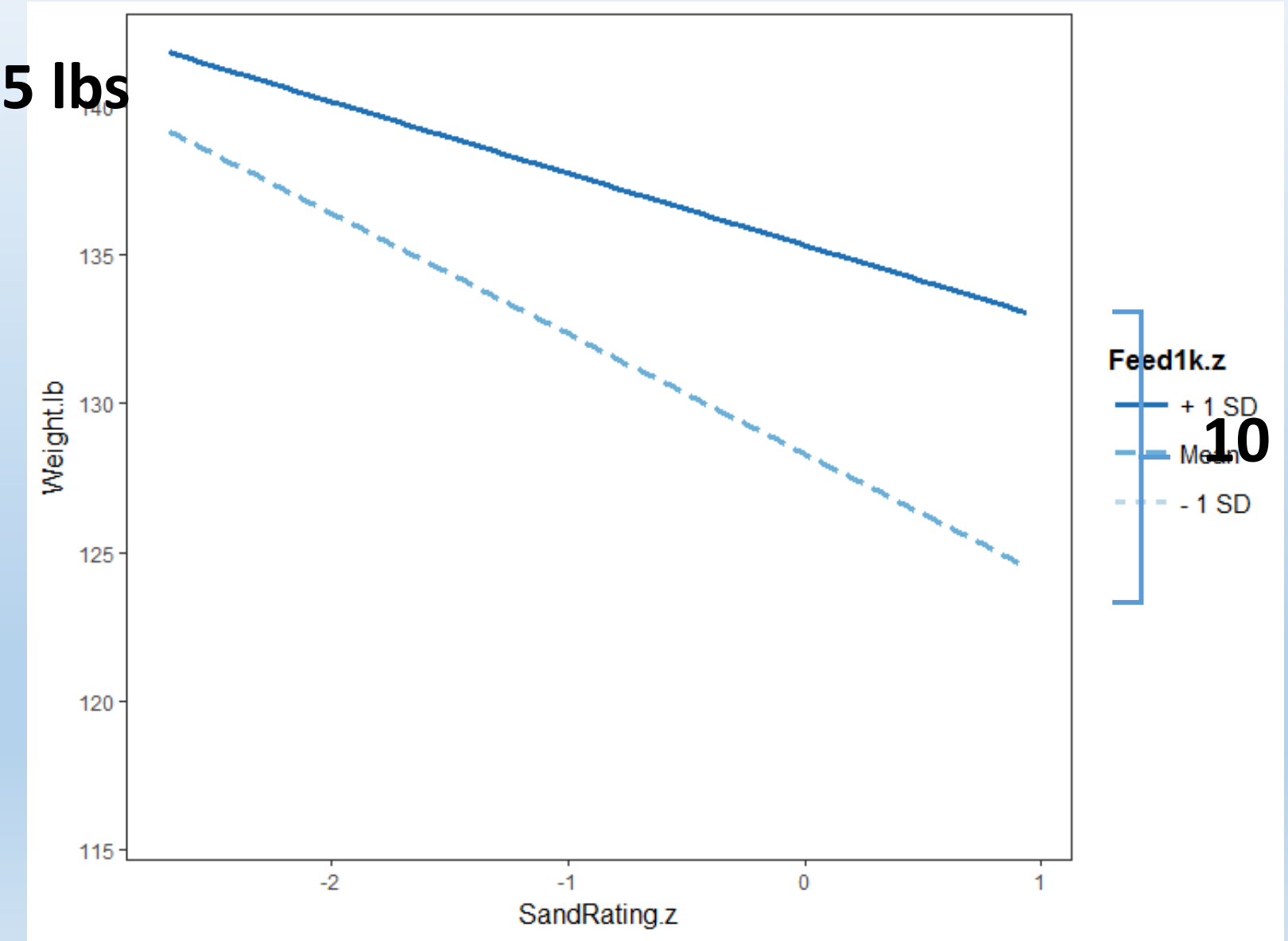
Effect of feeding depends on soils (sandiness)



Effect of feeding depends on soils (sandiness)

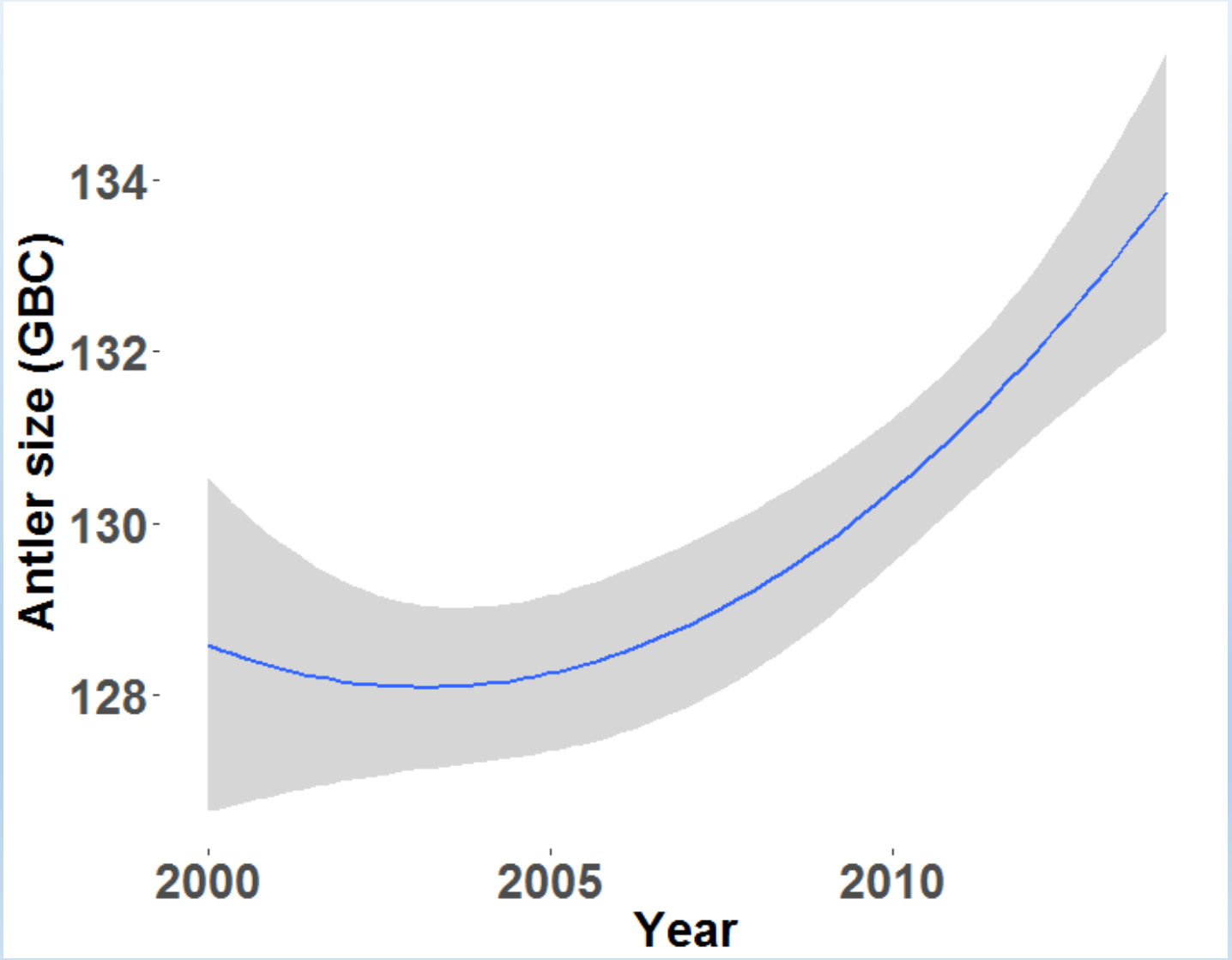


Effect of feeding depends on soils (sandiness)



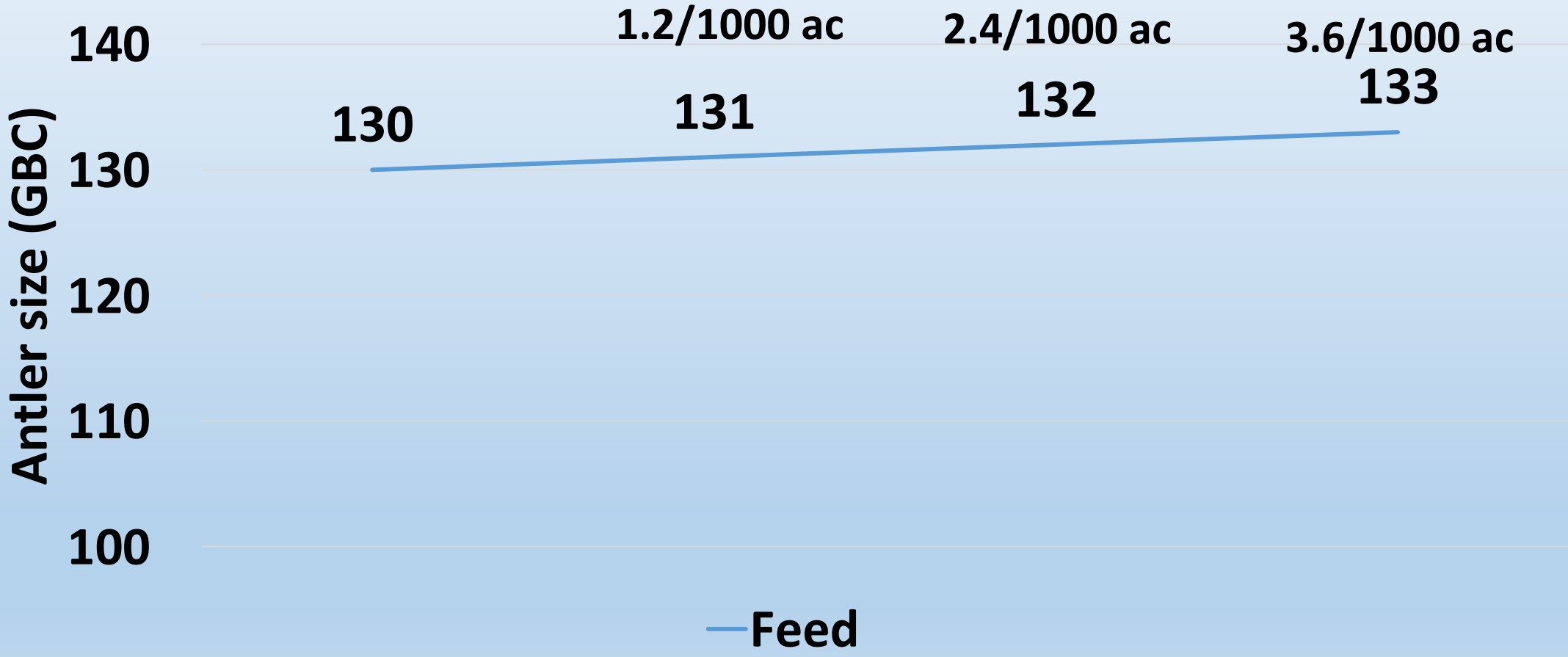
Antler size

5.5-7.5 years old



5 inches (4%)

Results

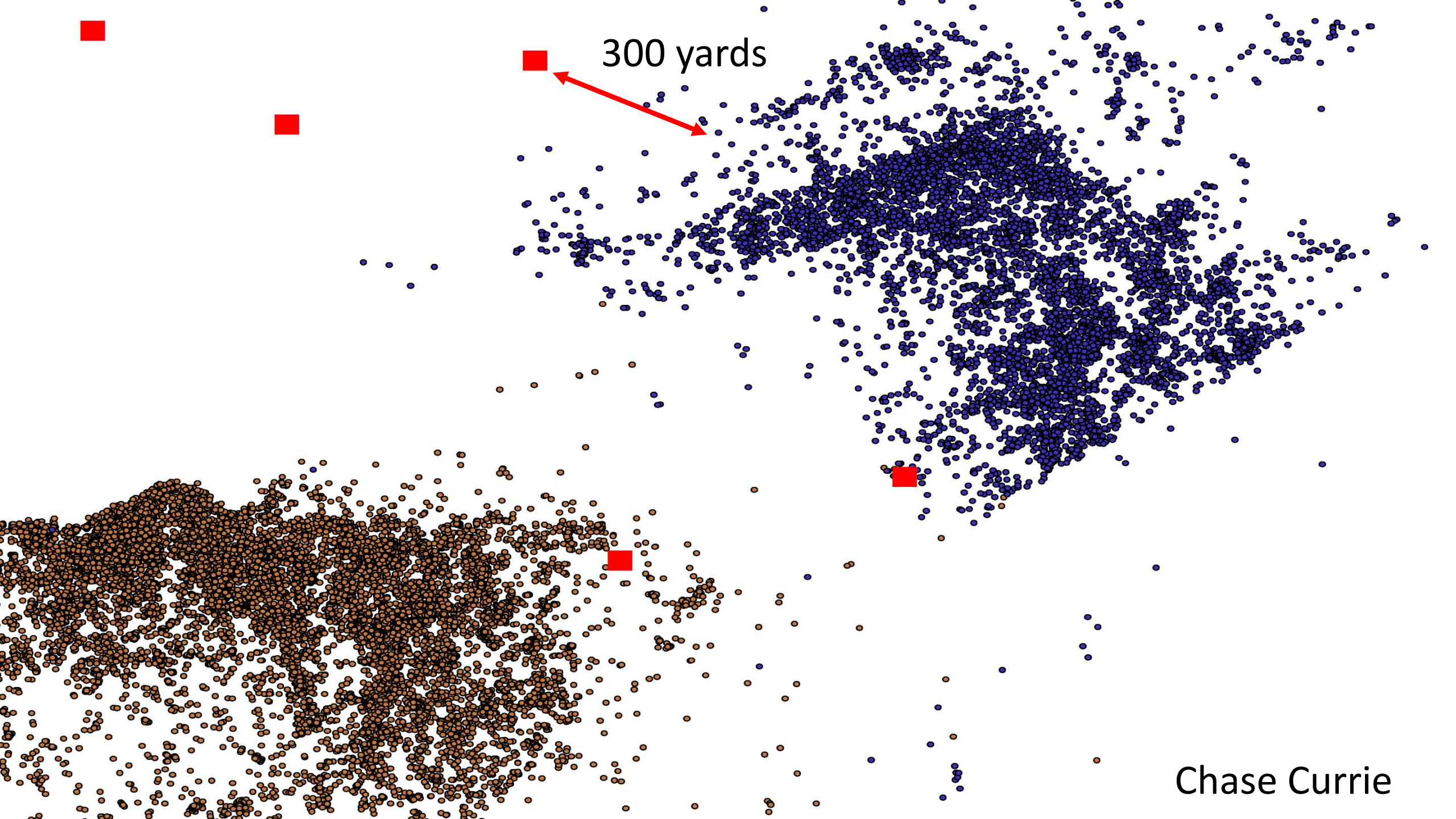

140
130
120
110
100
Antler size (GBC)
130
131
132
133
1.2/1000 ac
2.4/1000 ac
3.6/1000 ac
Feed

Summary

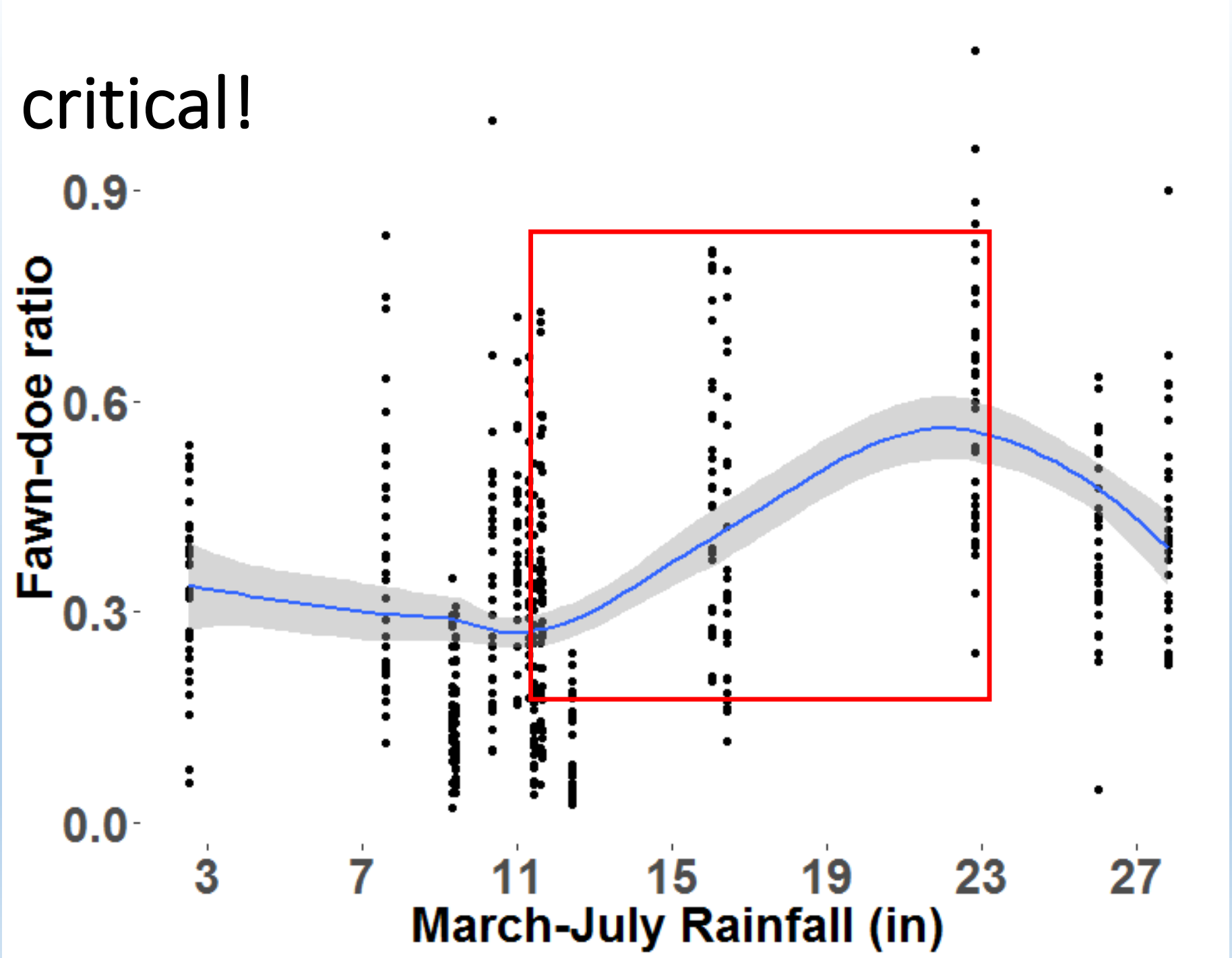
- **Primarily timed feeders =**
  - **Slight increase in fawn:doe ratios**
  - **No change in female body mass**

Previous studies

- **0-27% females ate feed (Bartoskewicz et al 2003)**
- **~20% accessed feed stations (Currie 2013)**


300 yards
Chase Currie

Rainfall critical!



Summary

- **Primarily timed feeders =**
  - **Increase in buck body mass**
  - **Slight increase in buck antler size**

Previous studies (Bartoskewitz 2003)

- **Body mass increased 12-23%**
- **Antler size increased 14% on 1 ranch* but not on 2**

  ***Barrier island**

- **23-48% ate feed**
  - **1 feeder/400, 850, and 1000 ac**

Points to consider

- **Results indicate *average* change**
  - **Buck harvest not random**
  - **Management vs trophy**
- **Individual bucks respond differently**

Points to consider

- **Feeders not uniformly distributed**
- **Lease system….different management goals**
  - **Lease A: 0 feeders/14,800 ac**
  - **Lease B: 42 feeders/18,000 ac (430 acres/feeder)**

Does feeding work?

- **Yes but magnitude depends on:**
  - **Scale**
  - **Goals**
  - **Habitat**
- **Each ranch is unique…**