

# Biomass analysis

## Figures

### Compensation and total biomass

Lines are 6-month moving averages. Horizontal lines + ribbons are means and SE or CL from GLM or GLS.

#### Compensation

**Compensation** refers to compensatory gains in biomass by small granivores on enclosure plots relative to controls. Calculated as  $\frac{SmgranExclosure - SmgranControl}{DipoControl}$ . **Total biomass** refers to the overall loss in biomass caused by kangaroo rat removal.

```
## Joining, by = "oera"
```

#### Total biomass ratio

```
## Joining, by = "oera"
```

### Rodent community composition

#### C. baileyi

```
## Warning in eval(family$initialize): non-integer #successes in a binomial glm!
```

```
## Warning in eval(family$initialize): non-integer #successes in a binomial glm!
```

```
## Warning in eval(family$initialize): non-integer #successes in a binomial glm!
```

```
## Joining, by = c("period", "oplottype")
```

```
## Joining, by = c("period", "oplottype", "censusdate")
```

#### Dipodomys

```
## Warning in eval(family$initialize): non-integer #successes in a binomial glm!
```

```
## Joining, by = c("period", "oplottype")
```

```
## Joining, by = "period"
```

## Full figure

```
## Setting row to 1
```

```
## Setting column to 1
```

```
## Setting row to 2
```

```
## Setting column to 1
```

```
## Setting row to 3
```

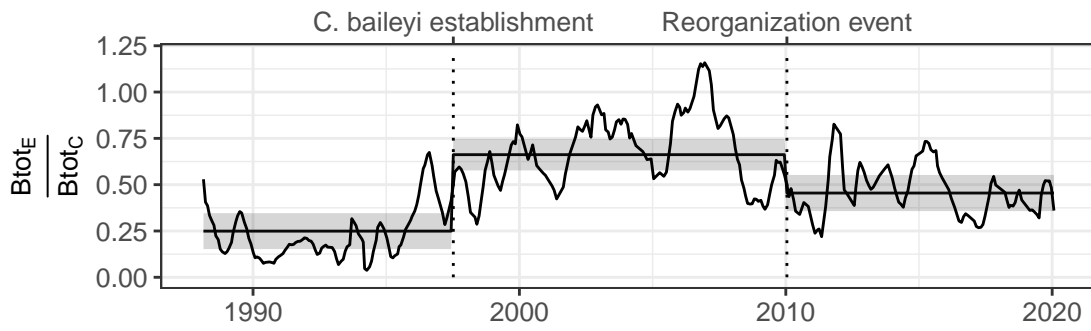
```
## Setting column to 1
```

```
## Setting row to 4
```

```
## Setting column to 1
```

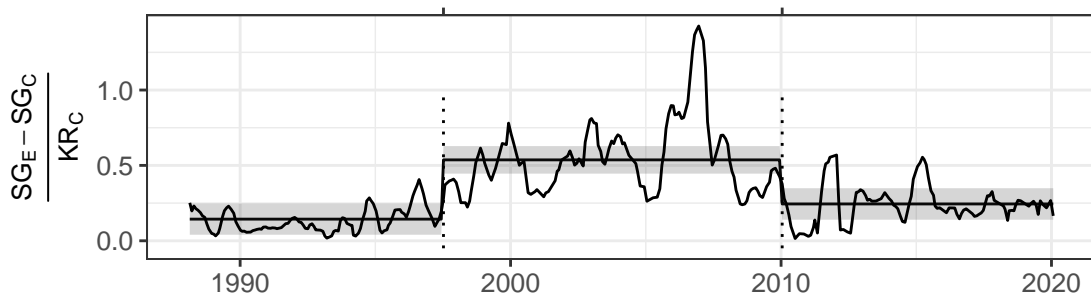
```
## Warning: Removed 228 row(s) containing missing values (geom_path).
```

### Total biomass



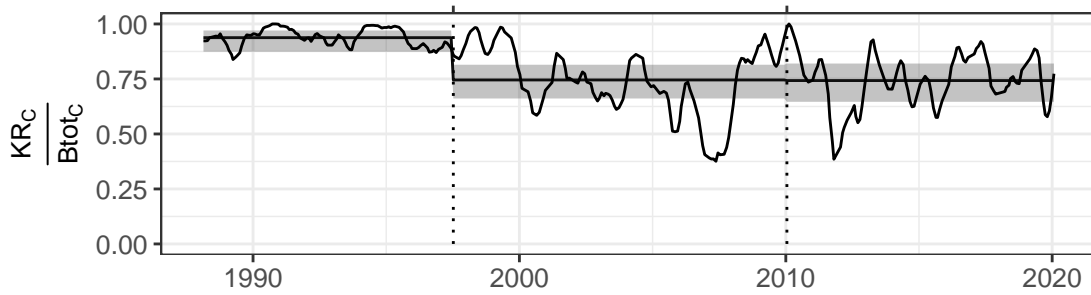
B

### Biomass compensation



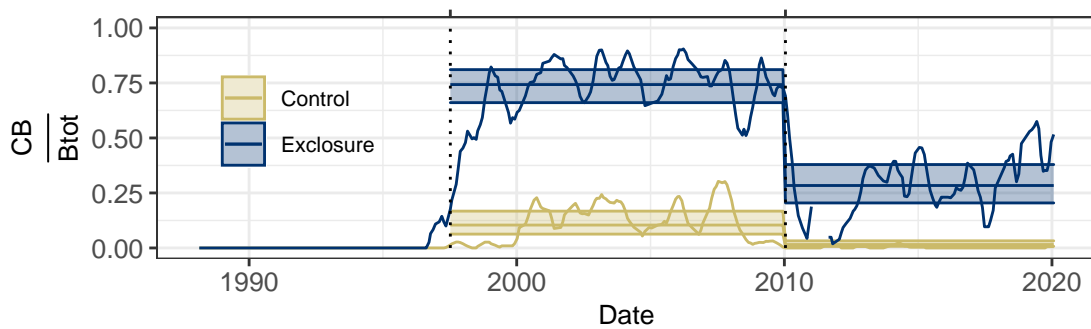
C

### Kangaroo rat (*Dipodomys*) biomass



D

### *C. baileyi* biomass



## Model results

### Compensation & total biomass

#### Compensation

Table S1. Coefficients from GLS for compensation

##		Value	Std.Error	t-value	p-value
##	(Intercept)	0.30814431	0.02905391	10.605950	6.936638e-23
##	oera.L	0.07114123	0.05141306	1.383719	1.673549e-01
##	oera.Q	-0.27991205	0.04652521	-6.016352	4.624854e-09

Table S2. Estimates from GLS for compensation

##		oera	emmean	SE	df	lower.CL	upper.CL
## 1	a_pre_pb	0.1435663	0.05114193	39.16210	0.04013563	0.2469969	
## 2	b_pre_reorg	0.5366915	0.04527450	41.78758	0.44531015	0.6280729	
## 3	c_post_reorg	0.2441751	0.05172050	41.05328	0.13972758	0.3486227	

Table S3. Contrasts from GLS for compensation

##		contrast	estimate	SE	df	t.ratio	p.value
## 1	a_pre_pb - b_pre_reorg	-0.3931253	0.06738108	43.09746	-5.834357	0.0000	
## 2	a_pre_pb - c_post_reorg	-0.1006089	0.07270904	40.24488	-1.383719	0.3588	
## 3	b_pre_reorg - c_post_reorg	0.2925164	0.06780029	44.29593	4.314383	0.0003	

#### Total biomass

Table S4. Coefficients from GLS on total biomass ratio

##		Value	Std.Error	t-value	p-value
##	(Intercept)	0.4553971	0.02724184	16.716827	3.547602e-46
##	oera.L	0.1454493	0.04779892	3.042941	2.525739e-03
##	oera.Q	-0.2531409	0.04273433	-5.923594	7.735453e-09

Table S5. Estimates from GLS on total biomass ratio

##		oera	emmean	SE	df	lower.CL	upper.CL
## 1	a_pre_pb	0.2492046	0.04765836	33.75206	0.1523249	0.3460842	
## 2	b_pre_reorg	0.6620857	0.04195145	35.90882	0.5769967	0.7471747	
## 3	c_post_reorg	0.4549009	0.04802155	34.91256	0.3574032	0.5523986	

Table S6. Contrasts from GLS on total biomass ratio

##		contrast	estimate	SE	df	t.ratio	p.value
## 1	a_pre_pb - b_pre_reorg	-0.4128811	0.06217389	38.34660	-6.640747	0.0000	
## 2	a_pre_pb - c_post_reorg	-0.2056963	0.06759788	34.60306	-3.042941	0.0121	
## 3	b_pre_reorg - c_post_reorg	0.2071848	0.06243247	39.12162	3.318542	0.0055	

## Community composition

### Kangaroo rat proportional biomass

Table S7. Coefficients from GLM on *Dipodomys* biomass.

	Estimate	Std. Error	z value	Pr(> z )
(Intercept)	1.6149566	0.1644937	9.817741	9.443577e-23
oera.L	-1.1672395	0.3180813	-3.669626	2.429058e-04
oera.Q	0.6619048	0.2473324	2.676175	7.446776e-03

Table S8. Estimates from GLM on *Dipodomys* biomass.

	oera	prob	SE	df	asympt.LCL	asympt.UCL
1 a_pre_pb	0.9376458	0.02264595	Inf	0.8932605	0.9820310	
2 b_pre_reorg	0.7454543	0.03850245	Inf	0.6699909	0.8209177	
3 c_post_reorg	0.7426552	0.04371710	Inf	0.6569713	0.8283392	

Table S9. Contrasts from GLM on *Dipodomys* biomass.

	contrast	estimate	SE	df	z.ratio	p.value
1 a_pre_pb - b_pre_reorg	0.192191469	0.04466854	Inf	4.30261406	0.0001	
2 a_pre_pb - c_post_reorg	0.194990571	0.04923437	Inf	3.96045595	0.0002	
3 b_pre_reorg - c_post_reorg	0.002799103	0.05825481	Inf	0.04804929	0.9987	

### C. baileyi proportional biomass

```
## Warning in eval(family$initialize): non-integer #successes in a binomial glm!
```

```
## Warning in eval(family$initialize): non-integer #successes in a binomial glm!
```

```
## Warning in eval(family$initialize): non-integer #successes in a binomial glm!
```

```
## [1] 237.6847
```

```
## [1] 231.2374
```

```
## [1] 466.4937
```

```
## Analysis of Deviance Table
```

```
##
```

```
## Model 1: pb_prop ~ oera * oplotype
```

```
## Model 2: pb_prop ~ oera + oplotype
```

```
## Resid. Df Resid. Dev Df Deviance Pr(>Chi)
```

```
## 1 451 57.835
```

```
## 2 452 59.768 -1 -1.933 0.1644
```

```
## Analysis of Deviance Table
```

```
##
```

```
## Model 1: pb_prop ~ oera + oplotype
```

```
## Model 2: pb_prop ~ oera
##   Resid. Df Resid. Dev Df Deviance Pr(>Chi)
## 1      452      59.768
## 2      453     210.395 -1  -150.63 < 2.2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Note that a model fit as `pb_proportional_biomass ~ era + treatment + era:treatment` does not outperform a model fit without the interaction term, or `pb_proportional_biomass ~ era + treatment` (AIC for the no interaction model = 231 compared to 237 for the interaction model; p-value for an anova Chi-squared comparison of the two models = 0.16). We therefore use the model without the interaction term.

**Table S10. Coefficients from GLM on *C. baileyi* biomass**

```
##           Estimate Std. Error   z value    Pr(>|z|)
## (Intercept) -1.538798  0.1671239 -9.207525 3.337295e-20
## oera.L      -1.403286  0.2006948 -6.992140 2.707241e-12
## oplottype.L  2.270657  0.2298594  9.878462 5.161898e-23
```

**Table S11. Estimates from GLM on *C. baileyi* biomass**

```
##           oera      prob      SE df asymp.LCL asymp.UCL
## 1 b_pre_reorg 0.36667107 0.04061520 Inf 0.28706674 0.4462754
## 2 c_post_reorg 0.07370848 0.01748044 Inf 0.03944746 0.1079695
```

**Table S12. Contrasts from GLM on *C. baileyi* biomass.**

```
##           contrast estimate      SE df z.ratio p.value
## 1 b_pre_reorg - c_post_reorg 0.2929626 0.04132914 Inf 7.088523      0
```