(B . 2003, 2004, 2010, B . 2012).
(2003), (B . 2010, B . 2012), (2006, 1 8), (B . 2003)

Empirical food web and regional pool data

20 1 . s *S. ea*, (, 32°10′ , 81°60′), (, 46°71 , 71°27′), (, 58°4 ′ , 122°54′). . 3 *S. ea* (B . 2003, 2010).

3 6 (2.), ( ) (. 2004). 20 (1) (2005).

0 1, L, W, T

$$= LWT \tag{2}$$

s L

$$f(d, ,\theta) = \frac{d^{-1} e^{-d/\theta}}{(-1)!\theta} \tag{3}$$

d ( ) 1

(=1, q=0.1).

$$a_{ij} = -\alpha N \quad (8)$$

$$a_{ij} = -\gamma+1-N \quad ( )$$

1 2.5 ( ).

Mass-effects model

s s ( ).

Neutral model

s (. 2005).

Metrics of food-web structure and statistical analysis of model fit

($C = L/S^2$ L S), ($LD = L/S$), TD, (.2008). , b , (B 2010) . b- 1000 $0.025 \geq$ ≤ 0.75, < 0.025, > 0.75,

Model sensitivity

s ,), / ( ). , a_{ij}, (. (= 1, q = 0.1).

(,). 25% 20% 25% 20%. s E d ( ). a_{ij} (= 6, q = 0.05) a_{ij} . s 45 15 1000

a_{ij}

. 31 144 (,)-2144 144 2 144 144 / 1.2 -1.125 ,

$$Z = \frac{\quad - \quad}{\quad} \qquad (10)$$

a_{ij} Z-

a_{ij} $\times$ $\times a_{ij}$

(2004).

Results

Single-factor metacommunity models

S, C, LD TD

(. 3).

LD b

(TD), (. 3).

(. 3). s TD C LD b (. 3). s S S TD (. 3). s C b (. 3).

s LD S (. 3). LD, TD, (. 3).

Hybrid models

s (/). (. 3). s / S

TD (. 3).

/ LD C, C B (. 3).

/ b S TD (. 3).

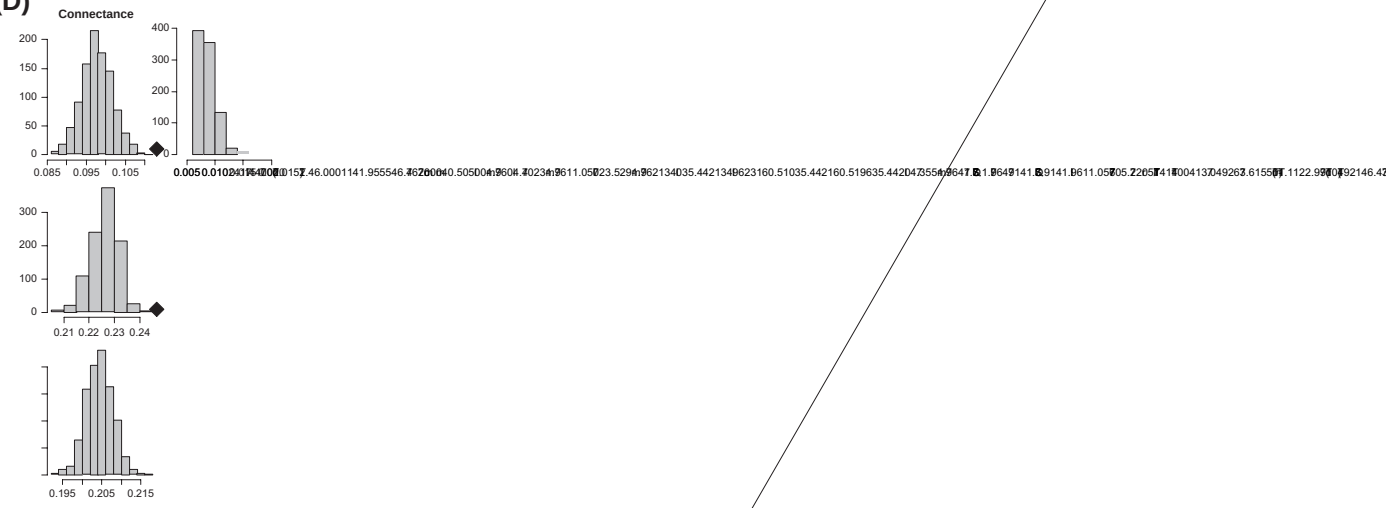
/ S (. 3).

s ( ) 10 LD, b C TD (. 3). s C S (. 3).

s (/) (. 3). s C LD, S (. 3). s / C, b C, S . s (. 3).

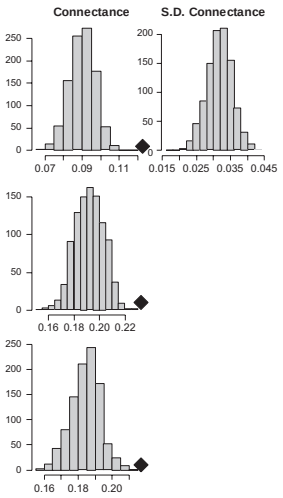
/ S, LD, C LD,

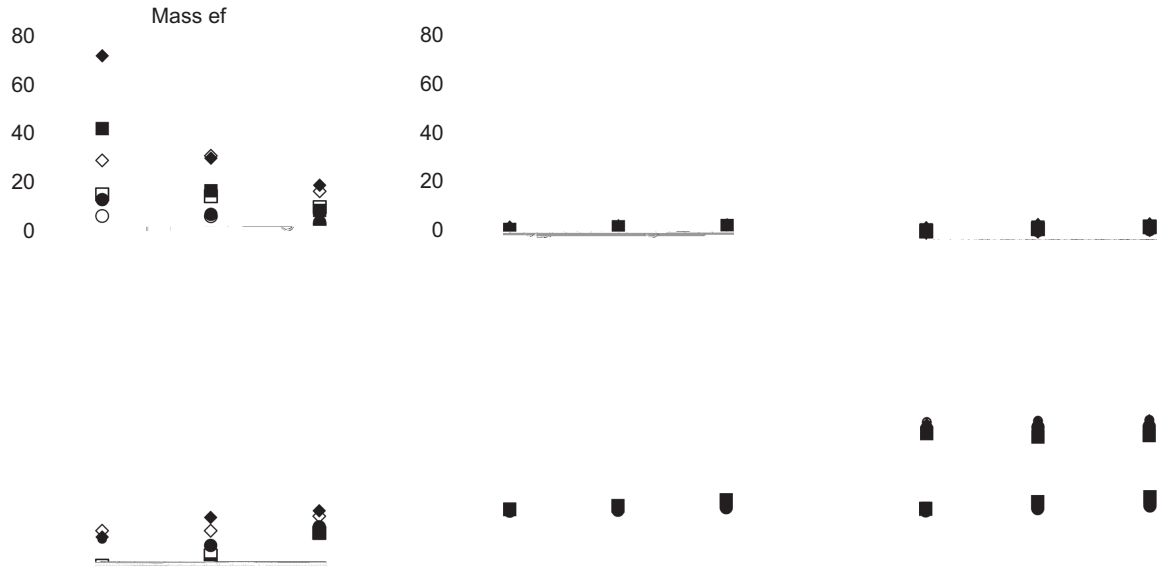
(D)

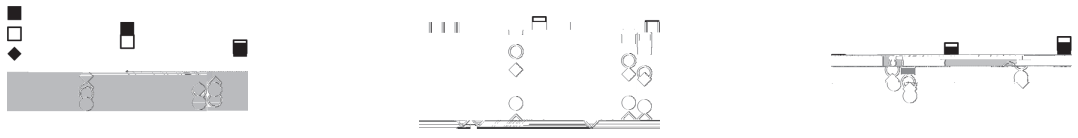


(E)

(F)


Connectance
S.D. Connectance
250
200
150
100
50
0
0.07
0.09
0.11
200
150
100
50
0
0.015
0.025
0.035
0.045
150
100
50
0
0.16
0.18
0.20
0.22
250
200
150
100
50
0
0.16
0.18
0.20


Mass ef
80
60
40
20
0
80
60
40
20
0



. 2008.
. 171 568 57 .
. 2008.
117 665 67.
. 2010.
. 3 223 237.
. 2011.
108 1 2 3 1 2 8.
. 1 82.
. 1 1.
. 138 123 155.
. 2002.
. 17 26 277.
. 2000.
405 1047 104 .
. 2010.
42 13 170.
. 2010.