This is an electronic appendix to the paper by Emmerson, M. & Yearsley, J. M. 2004 Weak interactions, omnivory and emergent food-web properties. *Proc. R. Soc. Lond.* B **271**, 397–405. (DOI 10.1098/rspb.2003.2592.)

Electronic appendices are refereed with the text. However, no attempt is made to impose a uniform editorial style on the electronic appendices.

ELECTRONIC APPENDIX B: WEAK INTERACTIONS, OMNIVORY AND EMERGENT FOOD WEB PROPERTIES.

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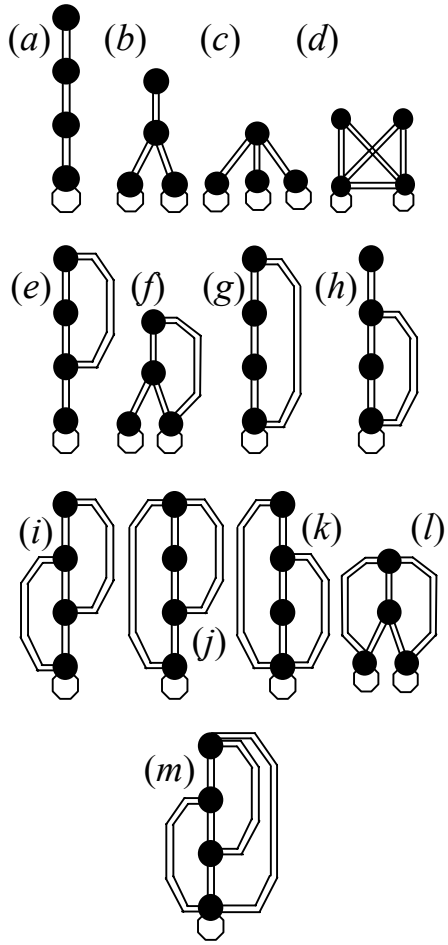


Figure 4: The 13 food webs used in this paper. The food webs in panels a-f are the same as those used by Pimm & Lawton (1977, 1978). The food webs vary in their connectance, number of trophic levels, number of basal species and degree of omnivory.

This electronic appendix provides more comprehensive information regarding the effect of interaction strength distribution on the return times of model food webs *a-f* opposite. A subset of these return times for webs *a* & *e*, are presented in the main manuscript (Figure 2 of main article). The full figure is presented here to illustrate the consistent lengthening of the tail of the return time distribution (see page 3 of this document).

Figure 3 of the main article illustrates how the interaction strengths ($J_{ij} = a_{ij}X_i^*$) of the omnivorous loops are skewed towards weak interactions, despite parameterisation using a uniform distribution of interaction strengths. Here we present these same results for the locally stable and permanent subsets of food webs *a*, *b* & *e-m* opposite (see pages 5-15), to illustrate the consistency of the result.

Figure 5

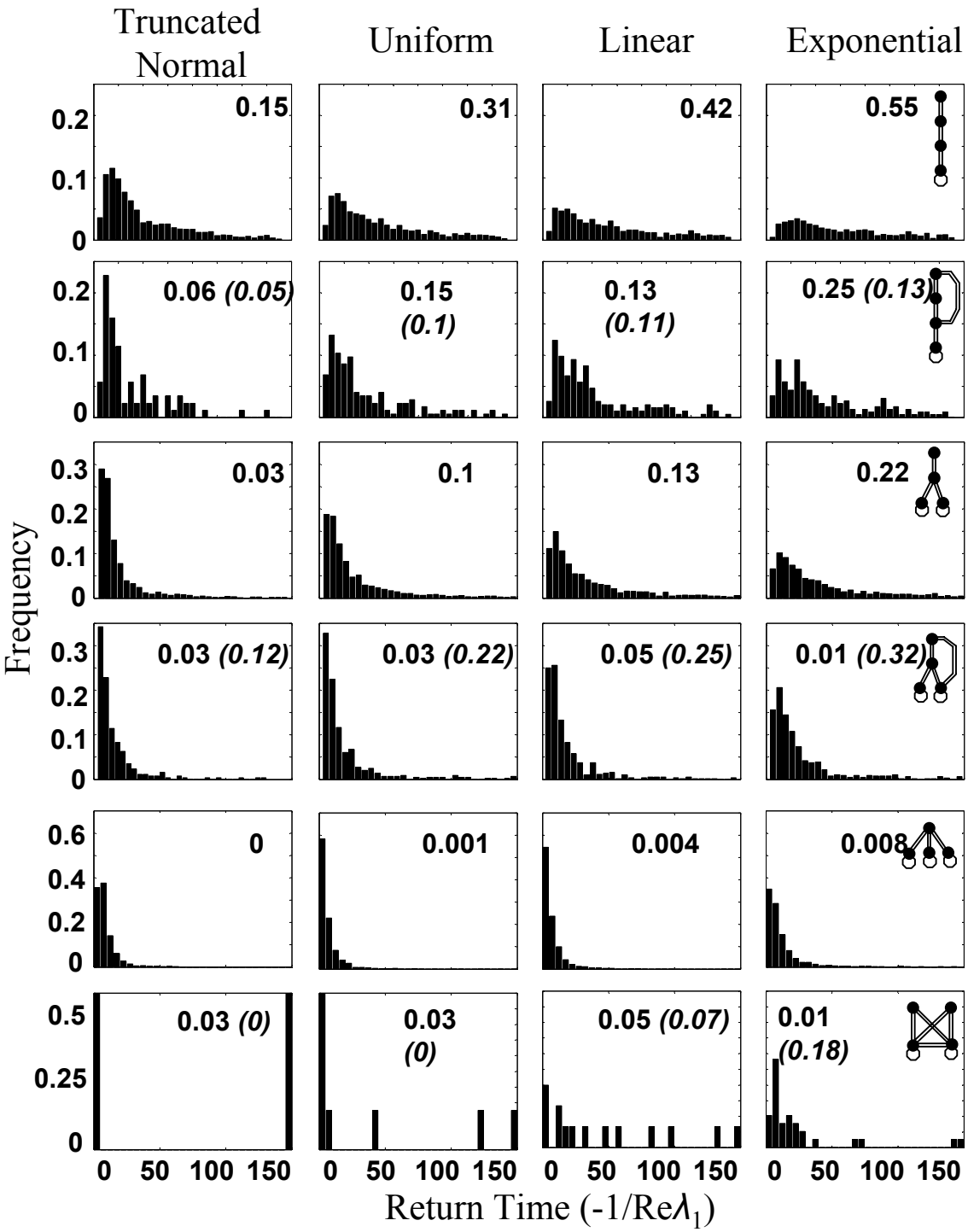

Truncated Normal
Uniform
Linear
Exponential
Frequency
0.15
0.31
0.42
0.55
0.06 (0.05)
0.15 (0.1)
0.13 (0.11)
0.25 (0.13)
0.03
0.1
0.13
0.22
0.03 (0.12)
0.03 (0.22)
0.05 (0.25)
0.01 (0.32)
0
0.001
0.004
0.008
0.03 (0)
0.03 (0)
0.05 (0.07)
0.01 (0.18)
0 50 100 150
Return Time (-1/Reλ_1)

Figure 6

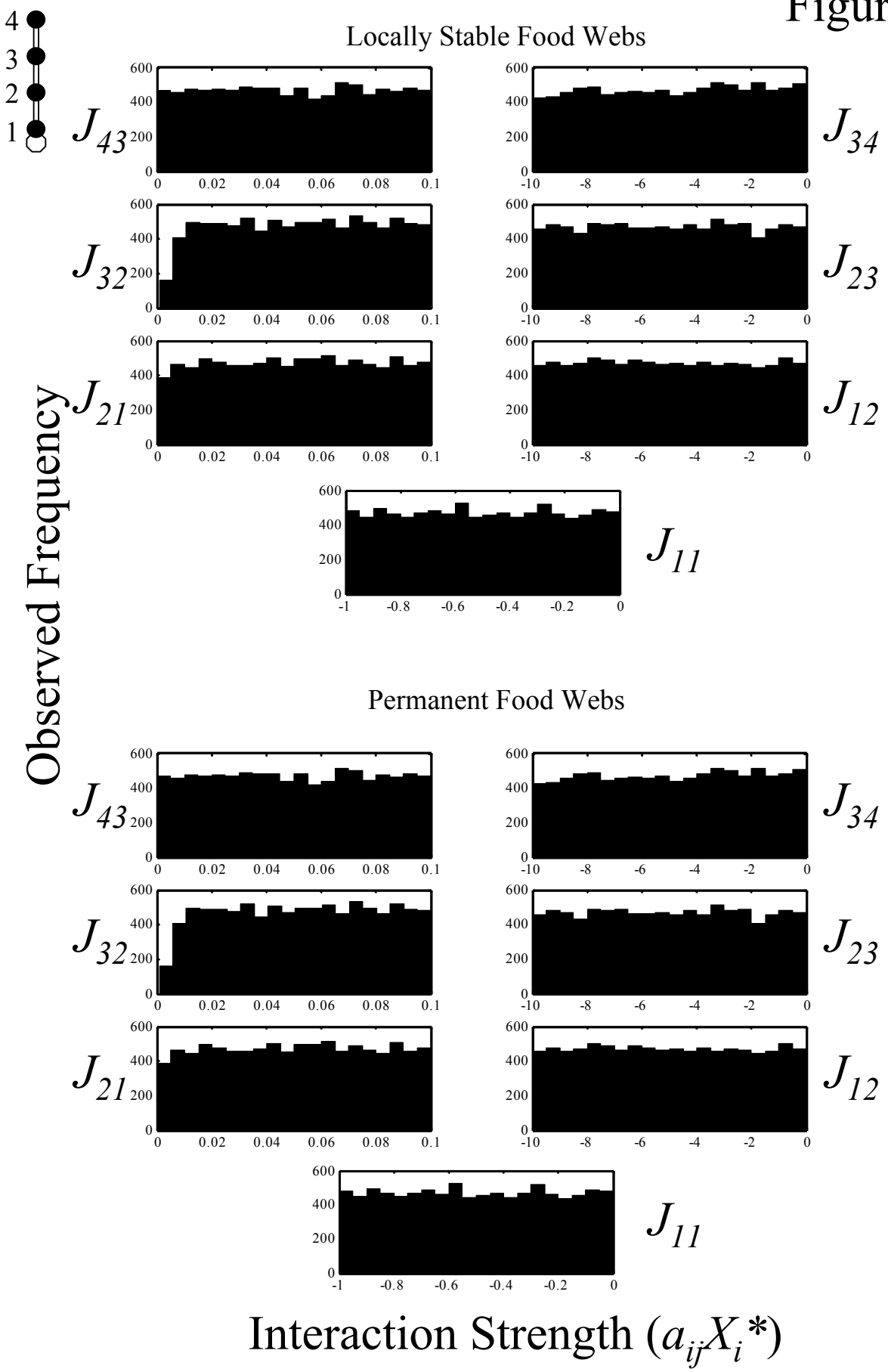

4
3
2
1
Locally Stable Food Webs
Permanent Food Webs
Observed Frequency
Interaction Strength ($a_{ij}X_i$*)
J_{43}
J_{34}
J_{32}
J_{23}
J_{21}
J_{12}
J_{11}
600
400
200
0
0
0.02
0.04
0.06
0.08
0.1
-10
-8
-6
-4
-2
0
-1
-0.8
-0.6
-0.4
-0.2
0

Figure 7

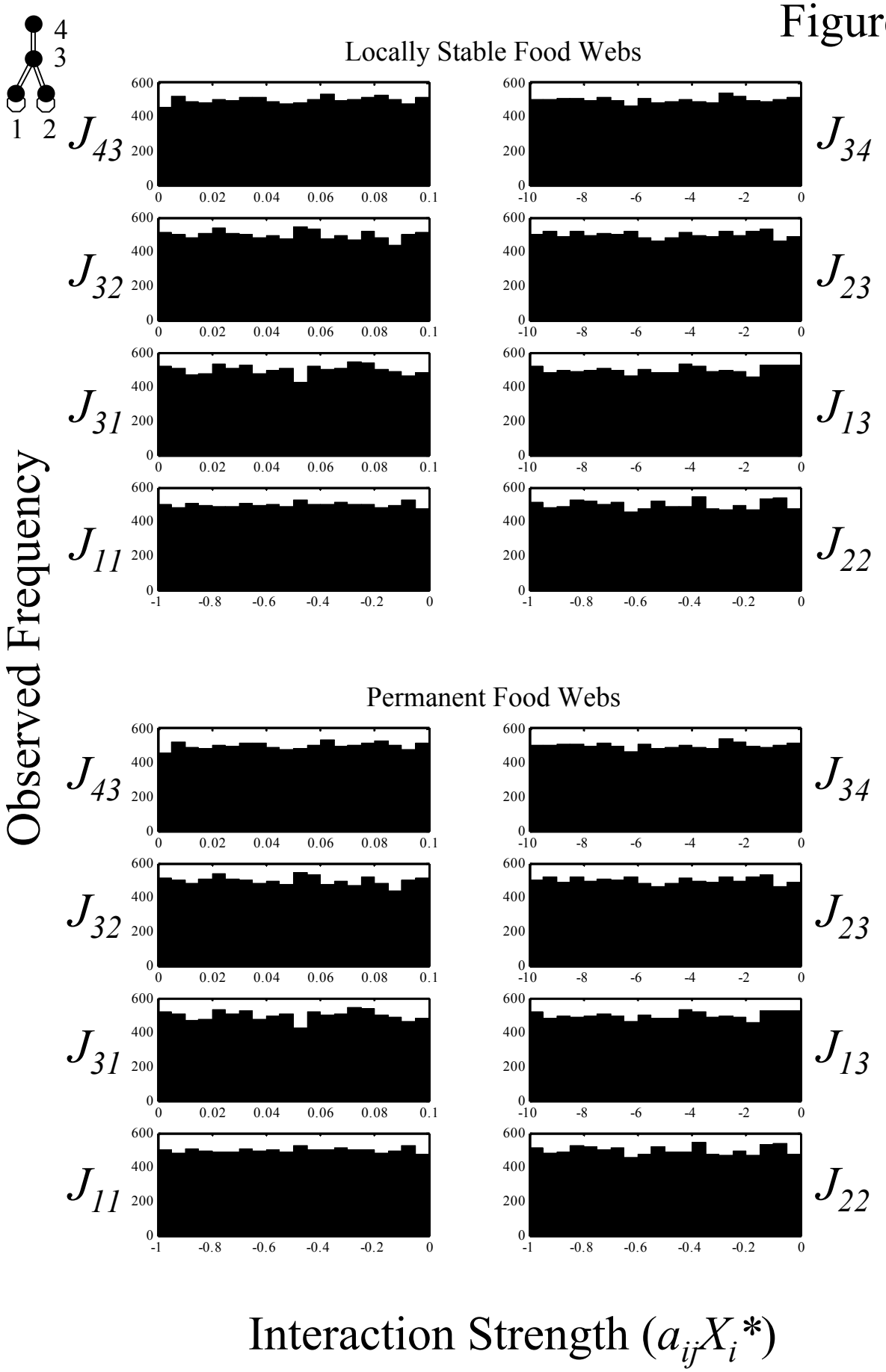

4
3
1 2
Locally Stable Food Webs
Permanent Food Webs
J_{43}
J_{34}
J_{32}
J_{23}
J_{31}
J_{13}
J_{11}
J_{22}
Observed Frequency
Interaction Strength ($a_{ij}X_i$*)

Figure 8

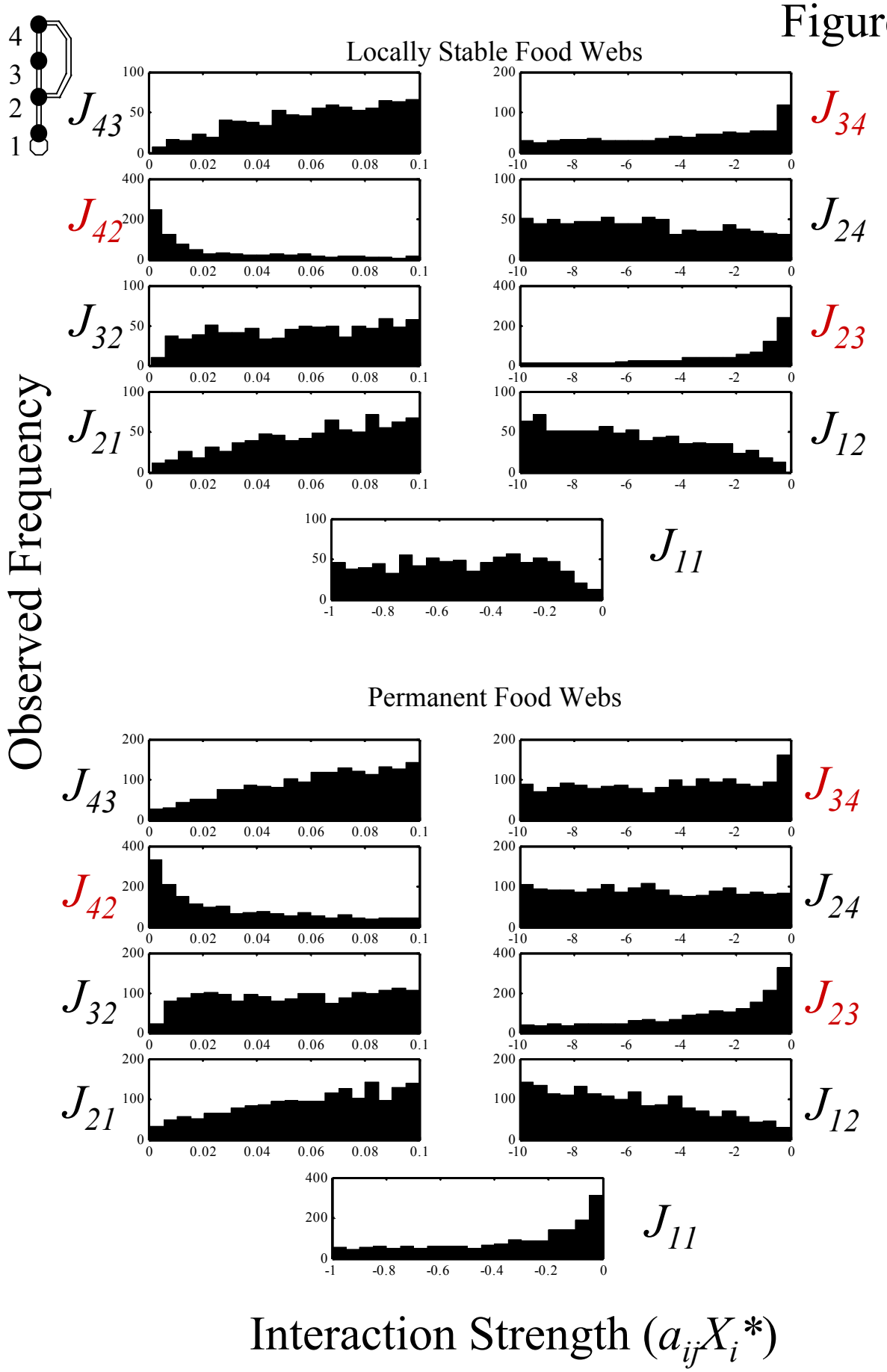

4
3
2
1
Locally Stable Food Webs
Permanent Food Webs
Observed Frequency
Interaction Strength ($a_{ij}X_i$*)
J_{43}
J_{34}
J_{42}
J_{24}
J_{32}
J_{23}
J_{21}
J_{12}
J_{11}

Figure 9

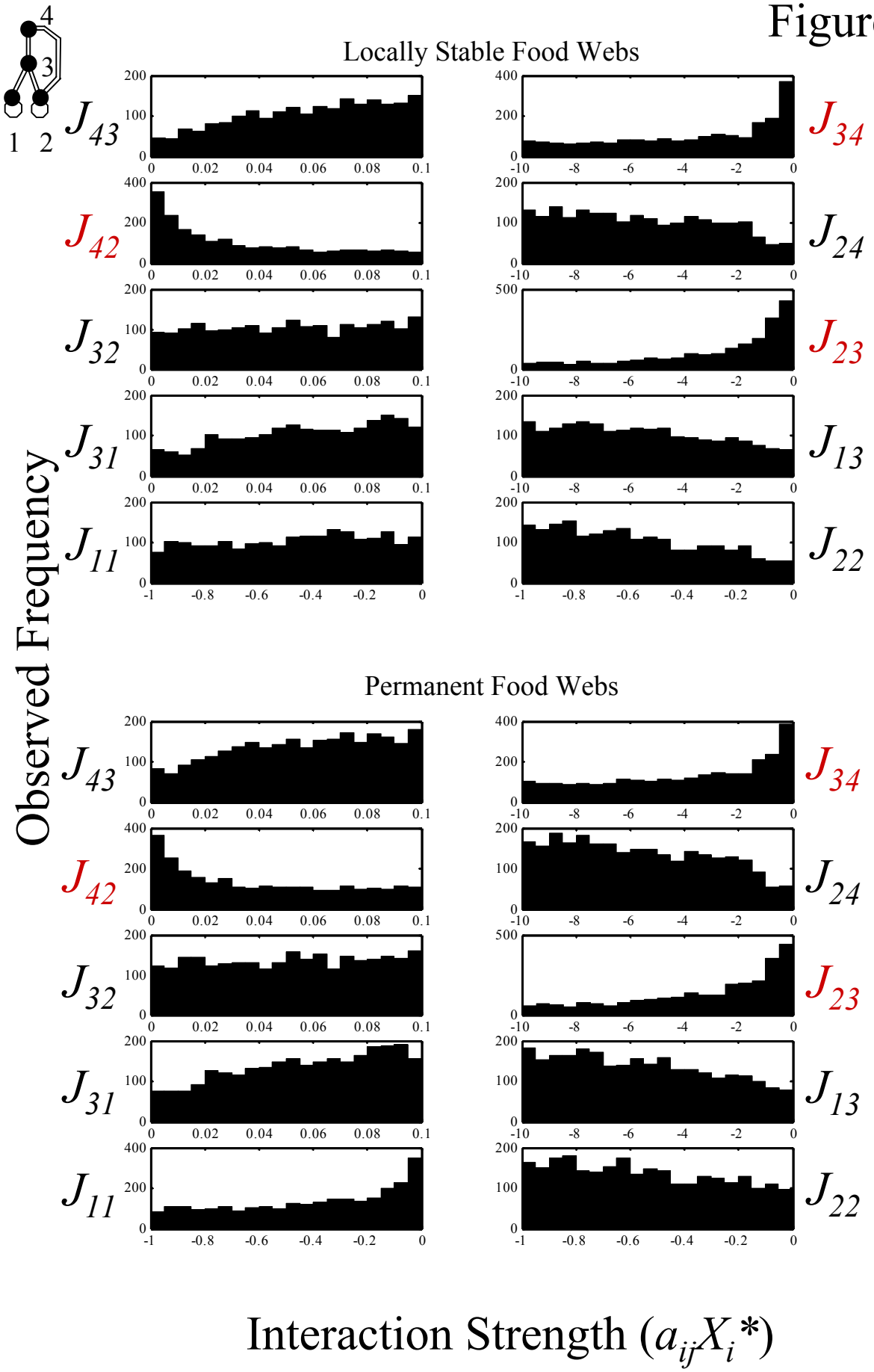

4
3
1 2
Locally Stable Food Webs
Permanent Food Webs
Observed Frequency
J_{43}
J_{42}
J_{32}
J_{31}
J_{11}
J_{34}
J_{24}
J_{23}
J_{13}
J_{22}
Interaction Strength ($a_{ij}X_i$*)

Figure 10

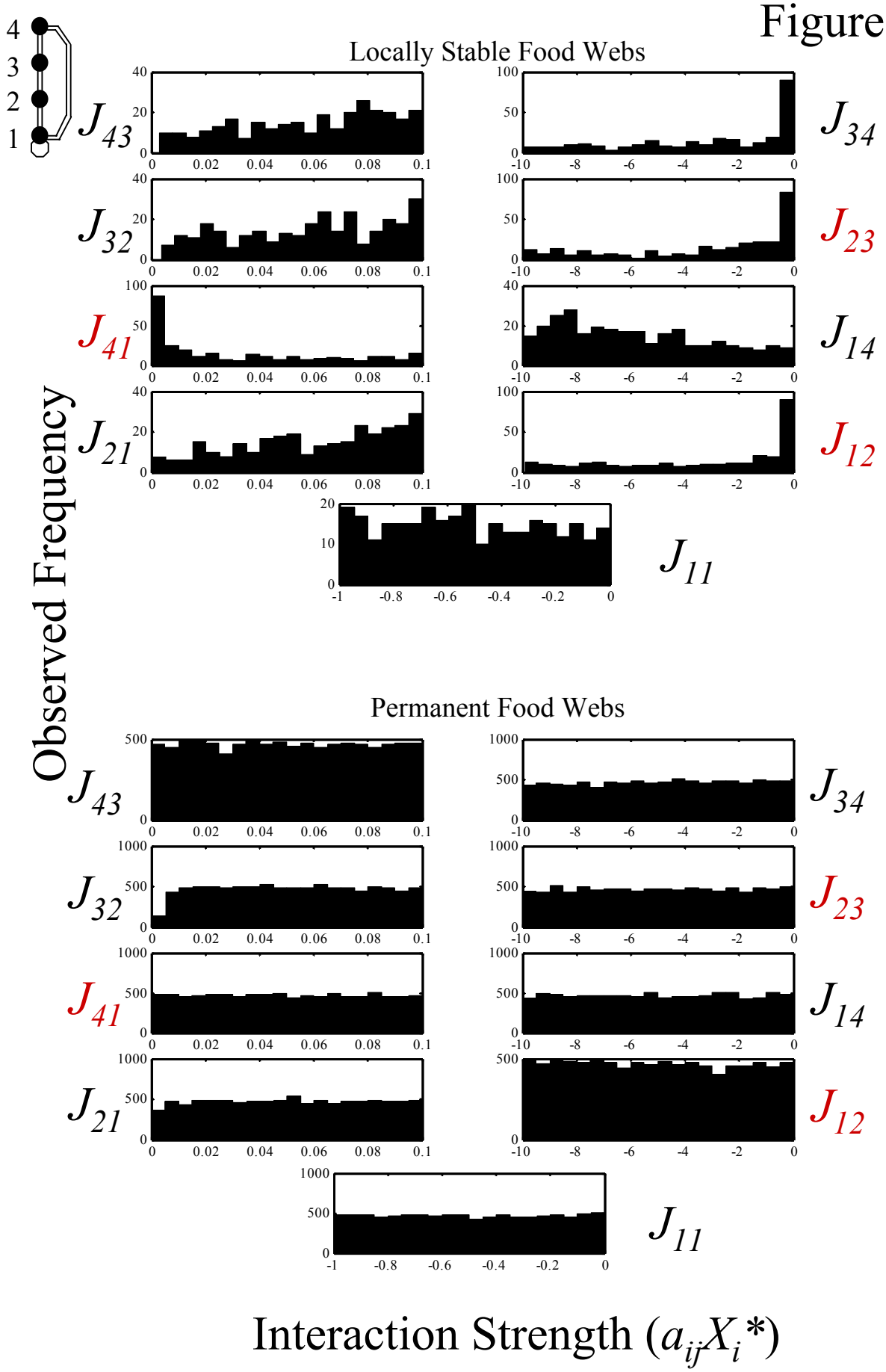
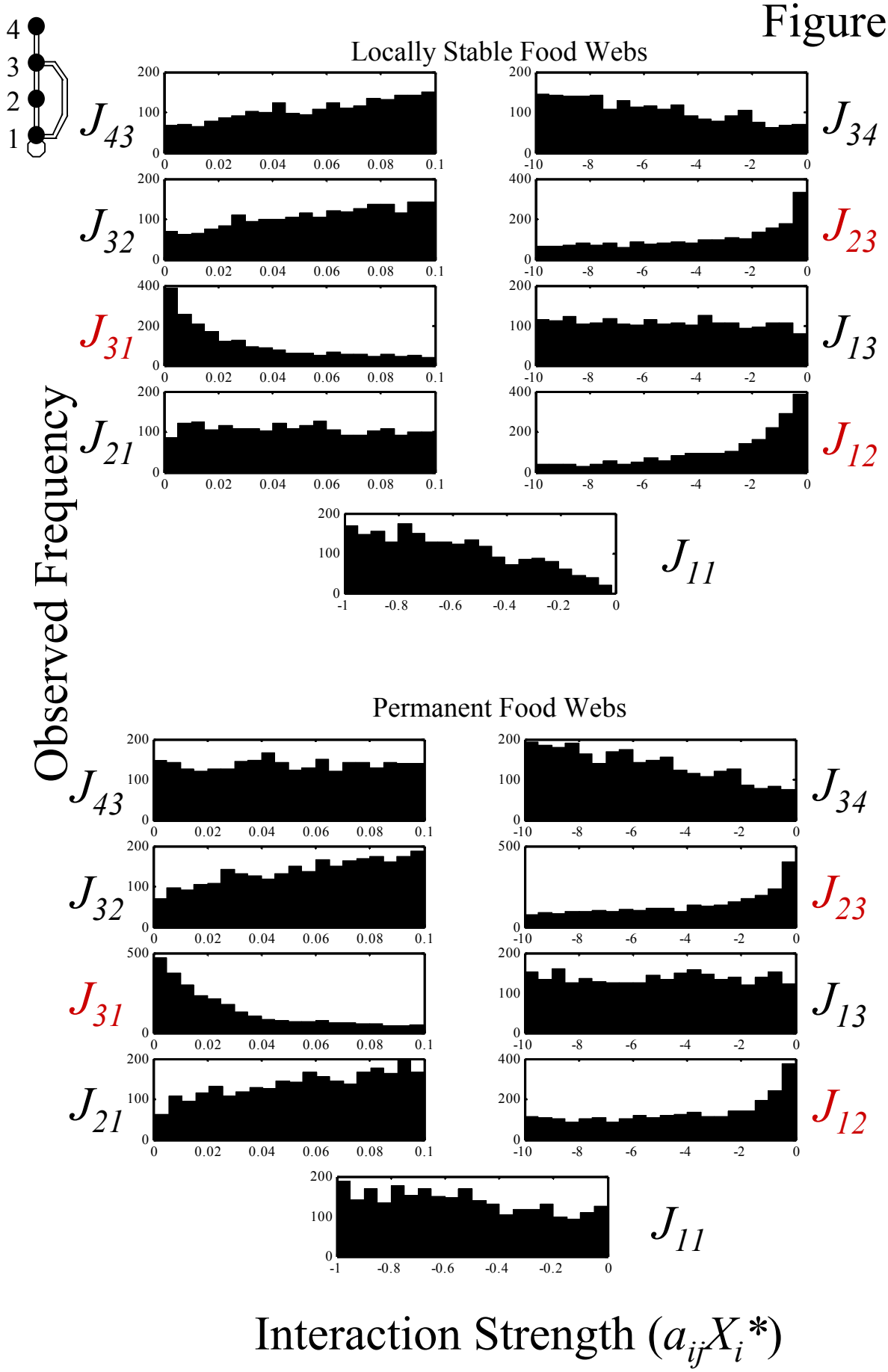

4
3
2
1
Locally Stable Food Webs
J_{43}
J_{34}
J_{32}
J_{23}
J_{41}
J_{14}
J_{21}
J_{12}
J_{11}
Observed Frequency
Permanent Food Webs
J_{43}
J_{34}
J_{32}
J_{23}
J_{41}
J_{14}
J_{21}
J_{12}
J_{11}
Interaction Strength ($a_{ij}X_i$*)

Figure 11


4
3
2
1
Locally Stable Food Webs
J_{43}
J_{34}
J_{32}
J_{23}
J_{31}
J_{13}
J_{21}
J_{12}
J_{11}
Permanent Food Webs
J_{43}
J_{34}
J_{32}
J_{23}
J_{31}
J_{13}
J_{21}
J_{12}
J_{11}
Observed Frequency
Interaction Strength ($a_{ij}X_i$*)

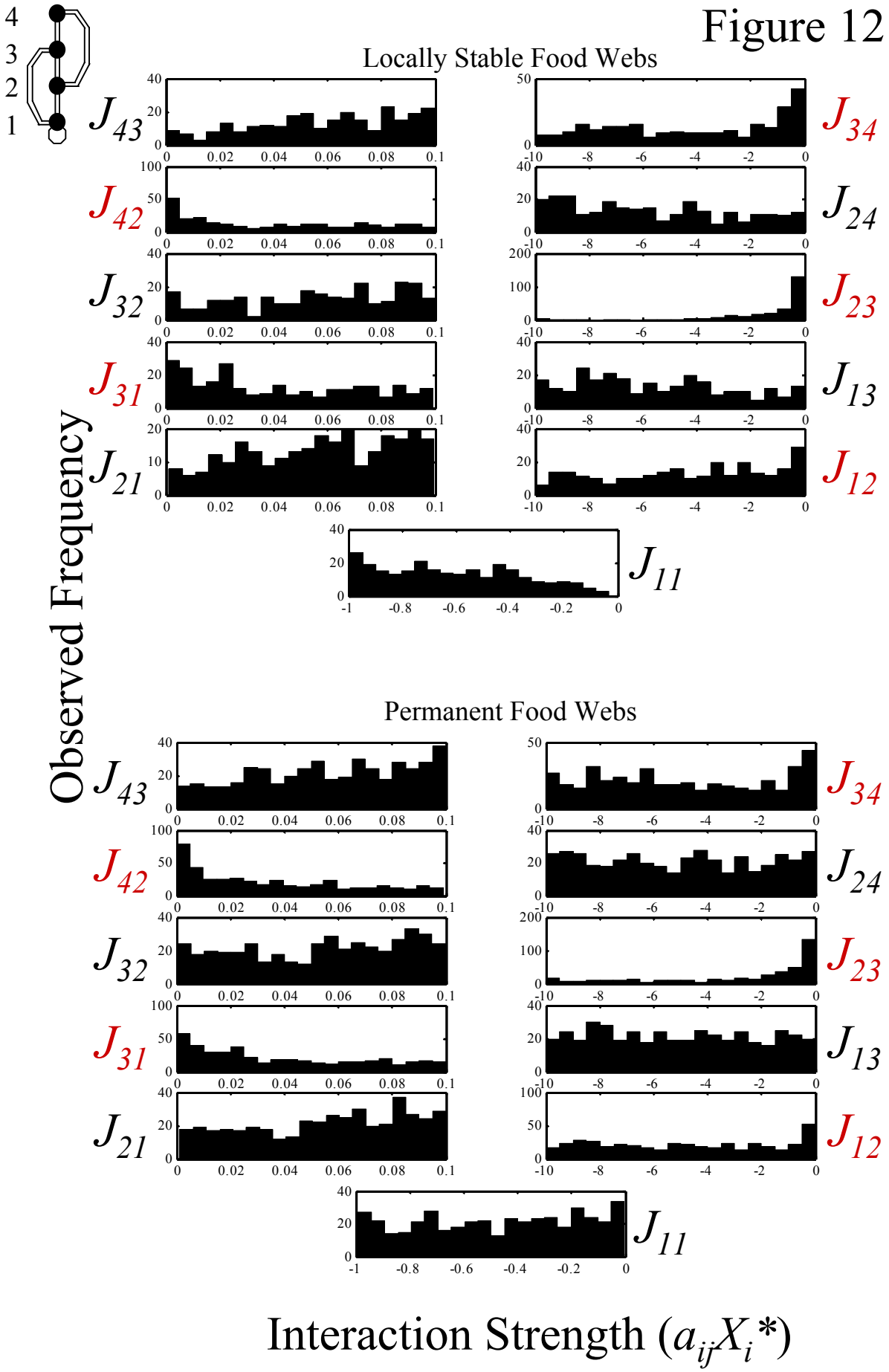


Figure 12
4
3
2
1
Locally Stable Food Webs
Permanent Food Webs
Observed Frequency
Interaction Strength ($a_{ij}X_i$*)
J_{43}
J_{42}
J_{32}
J_{31}
J_{21}
J_{34}
J_{24}
J_{23}
J_{13}
J_{12}
J_{11}

Figure 13

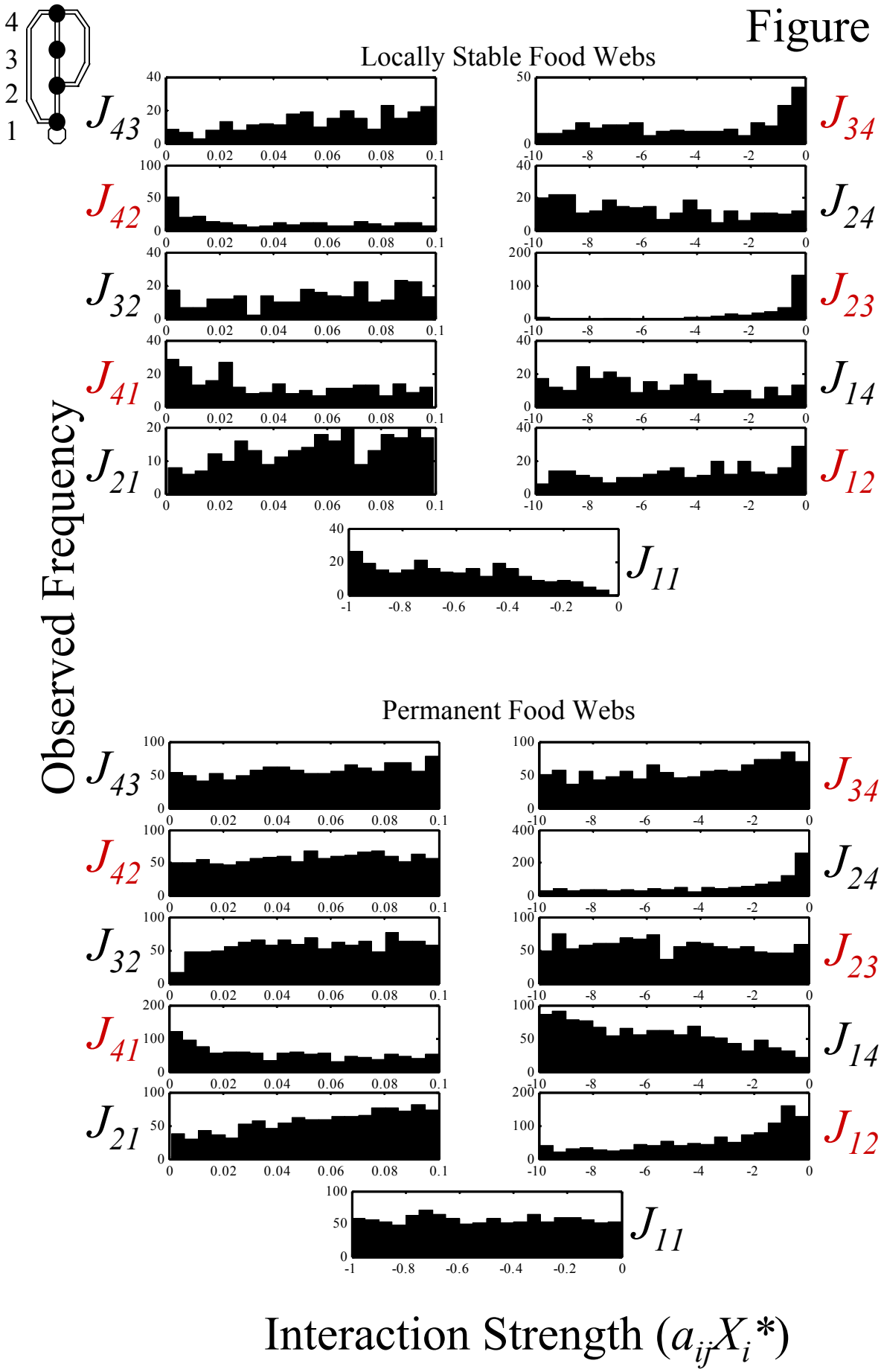
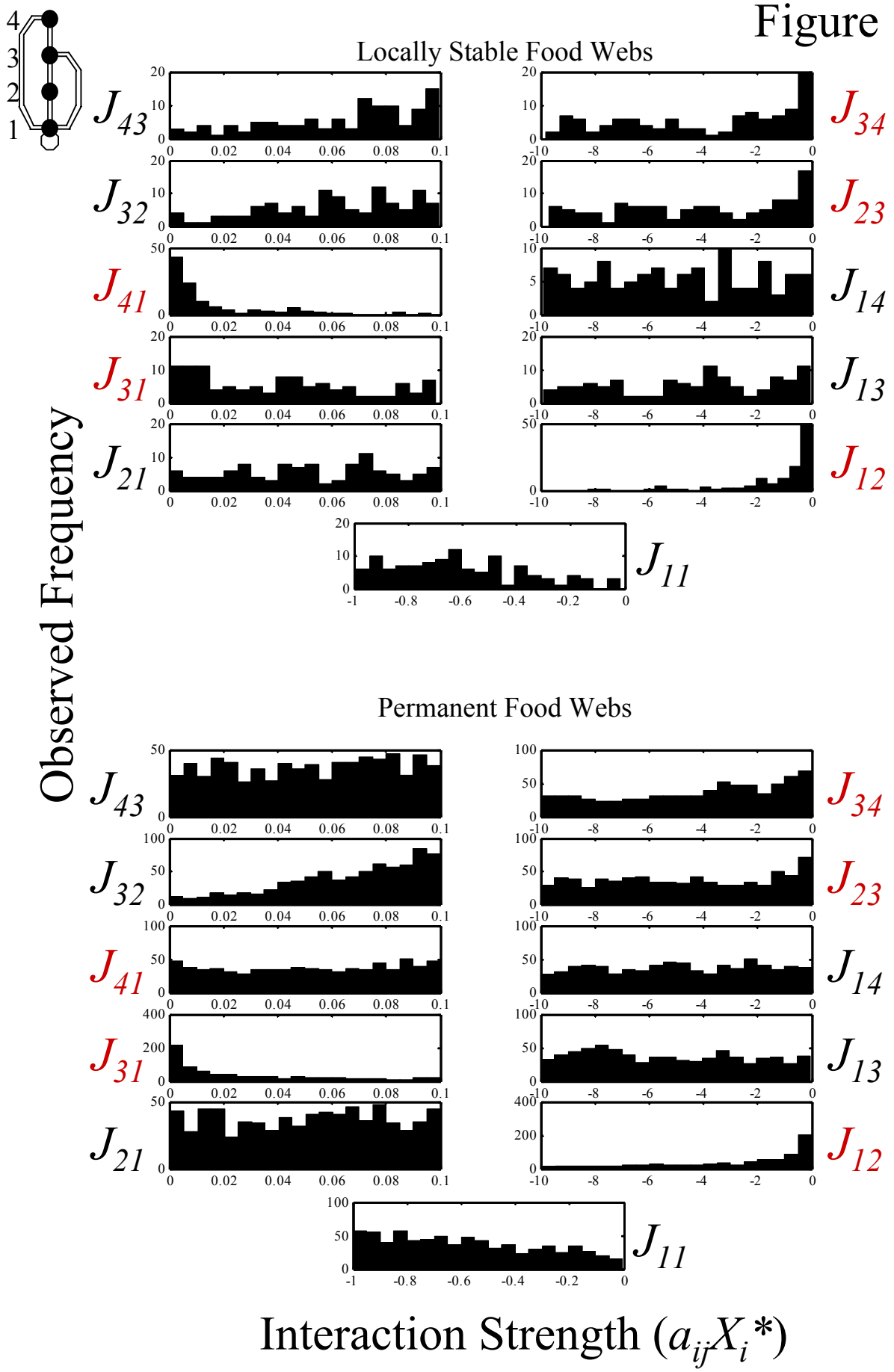

4
3
2
1
Locally Stable Food Webs
Permanent Food Webs
Observed Frequency
Interaction Strength ($a_{ij}X_i$*)
J_{43}
J_{34}
J_{42}
J_{24}
J_{32}
J_{23}
J_{41}
J_{14}
J_{21}
J_{12}
J_{11}

Figure 14


4
3
2
1
Locally Stable Food Webs
J_{43}
J_{34}
J_{32}
J_{23}
J_{41}
J_{14}
J_{31}
J_{13}
J_{21}
J_{12}
J_{11}
Observed Frequency
Permanent Food Webs
J_{43}
J_{34}
J_{32}
J_{23}
J_{41}
J_{14}
J_{31}
J_{13}
J_{21}
J_{12}
J_{11}
Interaction Strength ($a_{ij}X_i$*)

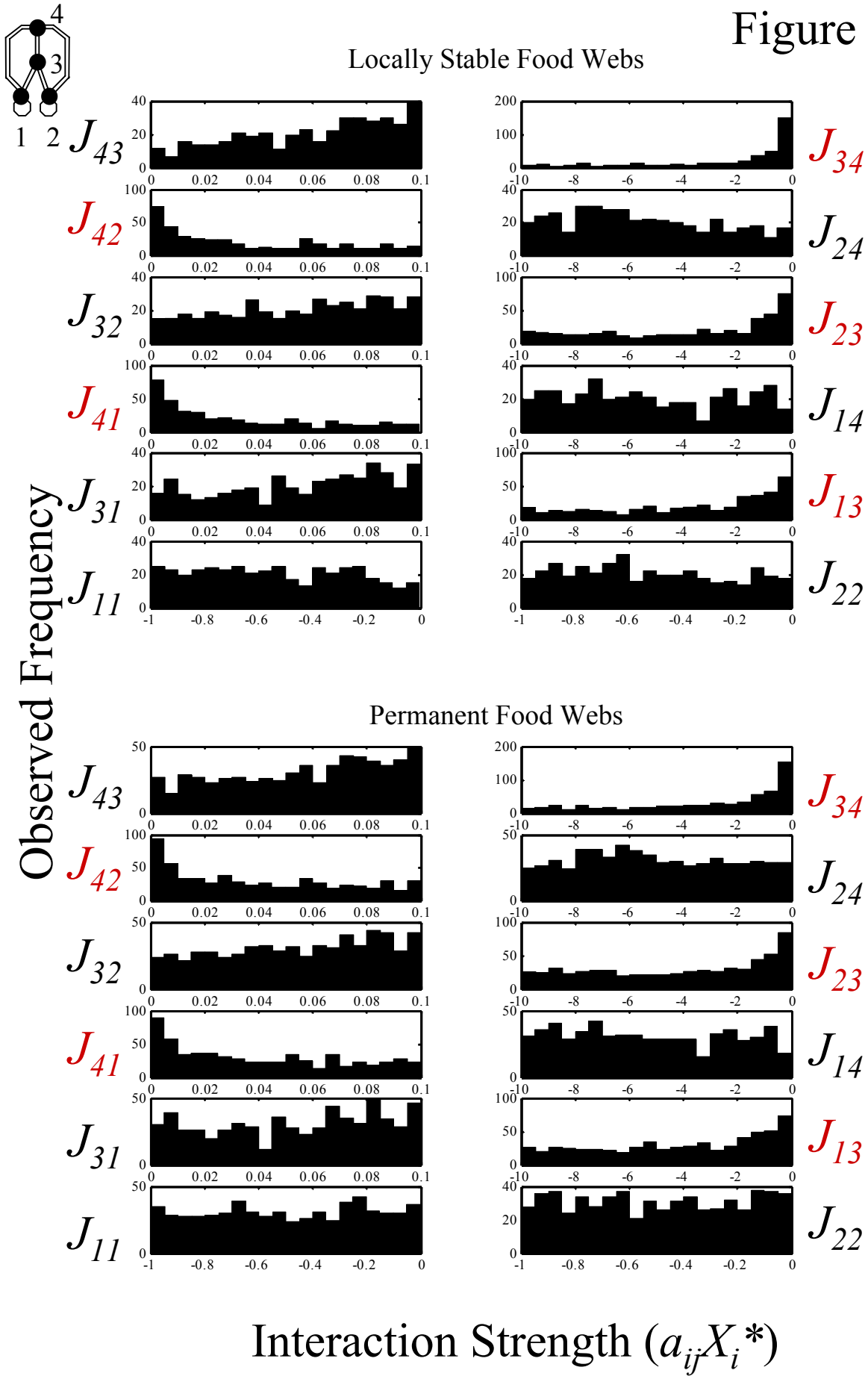


Figure 15
4
3
1 2
Locally Stable Food Webs
Permanent Food Webs
Observed Frequency
Interaction Strength ($a_{ij}X_i$*)
J_{43}
J_{42}
J_{32}
J_{41}
J_{31}
J_{11}
J_{34}
J_{24}
J_{23}
J_{14}
J_{13}
J_{22}

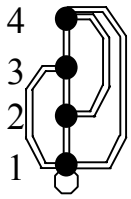


Figure 16

Locally Stable Food Webs

Permanent Food Webs

Observed Frequency

J_{43} J_{34} J_{42} J_{24} J_{32} J_{23} J_{41} J_{14} J_{31} J_{13} J_{21} J_{12} J_{11}

Interaction Strength ($a_{ij}X_i$*)