

1 Supplementary online material

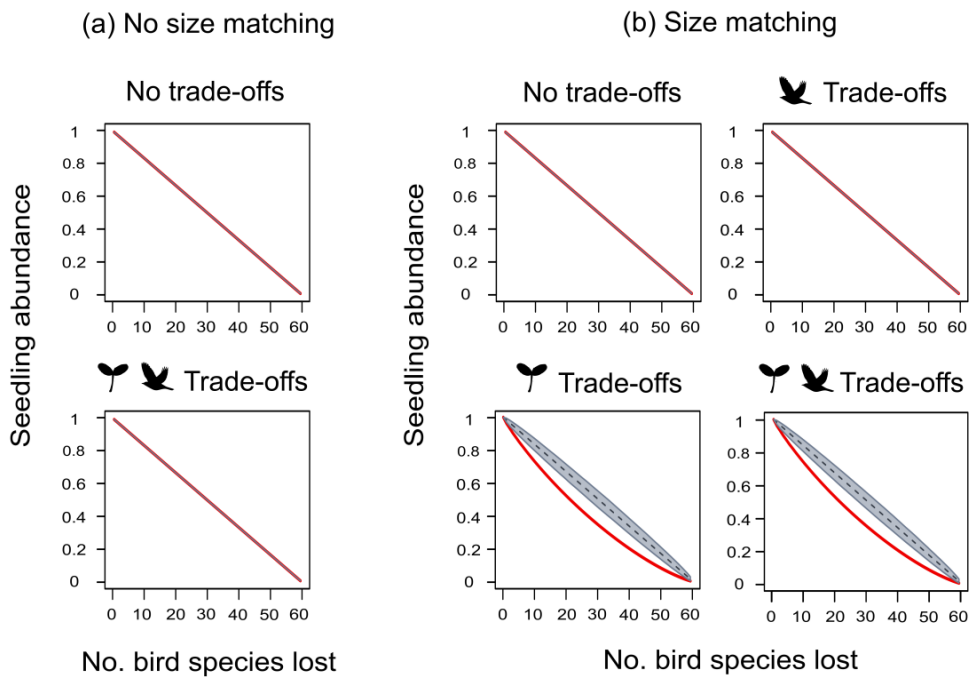
2 Article: Defaunation effects on plant recruitment depend on size matching and size
3 trade-offs in seed-dispersal networks

4 Authors: Isabel Donoso, Matthias Schleuning, Daniel García, Jochen Fründ.

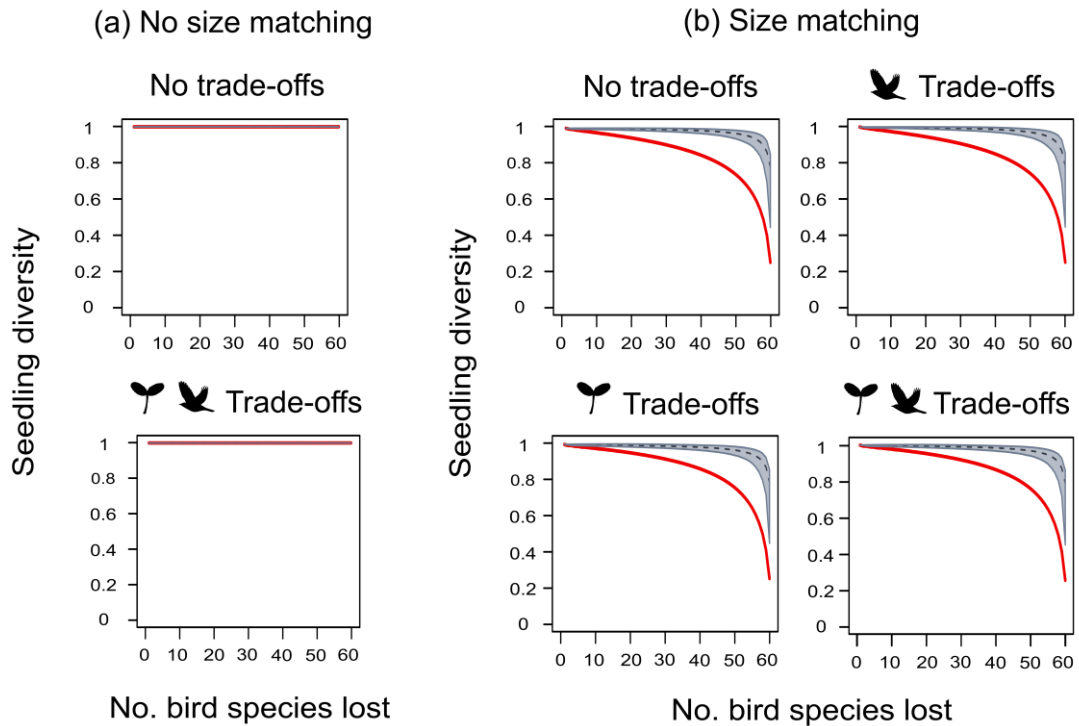
5 Journal: Proceedings of the Royal Society B

6 **Appendix S2. Influence of undercompensation parameter, matching strength** 7 **and niche shape on defaunation curves**

8 Versions of Fig.2-4 after selecting different values for the undercompensation parameter
9 (β) (Fig.S1-S6), specialization parameter (s) (Fig.S7-S12), and a different niche shape
10 (Fig.S13-S15).

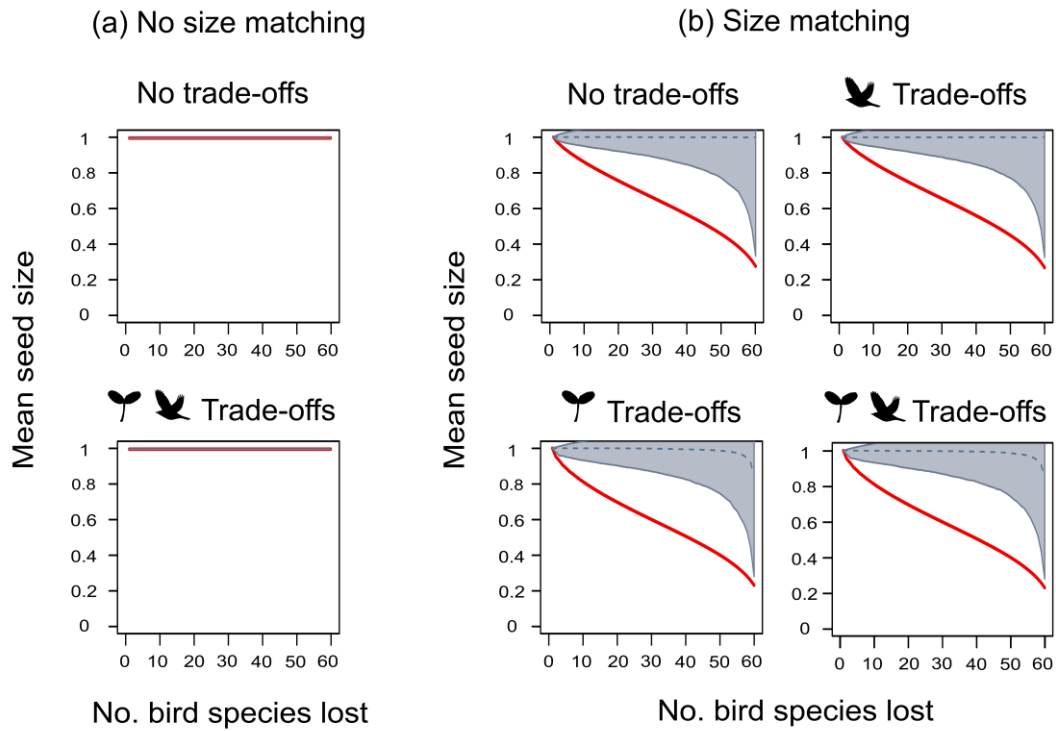


11
12 **Figure S1.** Defaunation effects on seedling **abundance** under different scenarios of *size*
13 *matching* and *size trade-offs* using a **skewed** niche shape, specialization parameter $s=10$
14 and **no undercompensation** parameter β . We compared consequences of size-
15 structured bird extinction (red line; defaunation) and random extinction (black dashed
16 line, with grey areas representing the confidence intervals). Model scenarios were
17 defined as explained in Fig. 2 of the main text.



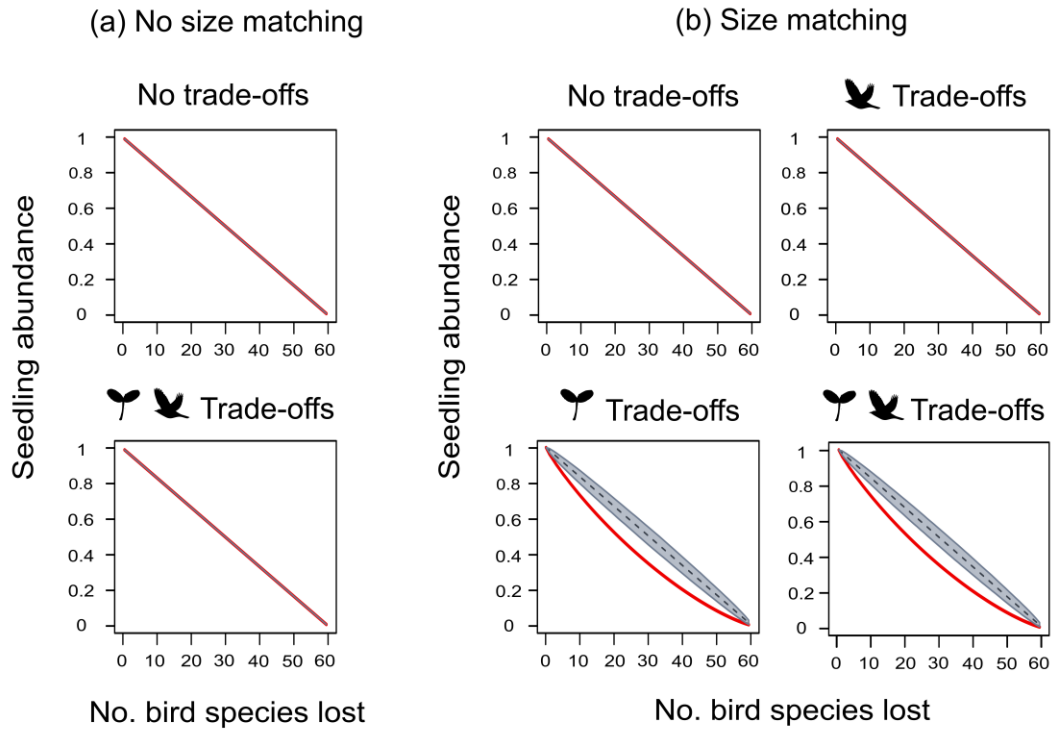
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19 **Figure S2.** Defaunation effects on seedling **diversity** under different scenarios of *size*
 20 *matching* and *size trade-offs* using a **skewed** niche shape, specialization parameter $s=10$
 21 and **no undercompensation** parameter β . We compared consequences of size-
 22 structured bird extinction (red line; defaunation) and random extinction (black dashed
 23 line, with grey areas representing the confidence intervals). Model scenarios were
 24 defined as explained in Fig. 2 of the main text.



25

26 **Figure S3.** Defaunation effects on **mean seed size** of recruited seedlings under different
 27 scenarios of *size matching* and *size trade-offs* using a **skewed** niche shape,
 28 specialization parameter $s=10$ and **no undercompensation** parameter β . We compared
 29 consequences of size-structured bird extinction (red line; defaunation) and random
 30 extinction (black dashed line; grey areas representing the confidence intervals, which
 31 extend to outside the plotting area). Model scenarios were defined as explained in Fig 2.
 32 of the main text.



33

34 **Figure S4.** Defaunation effects on seedling **abundance** under different scenarios of *size*

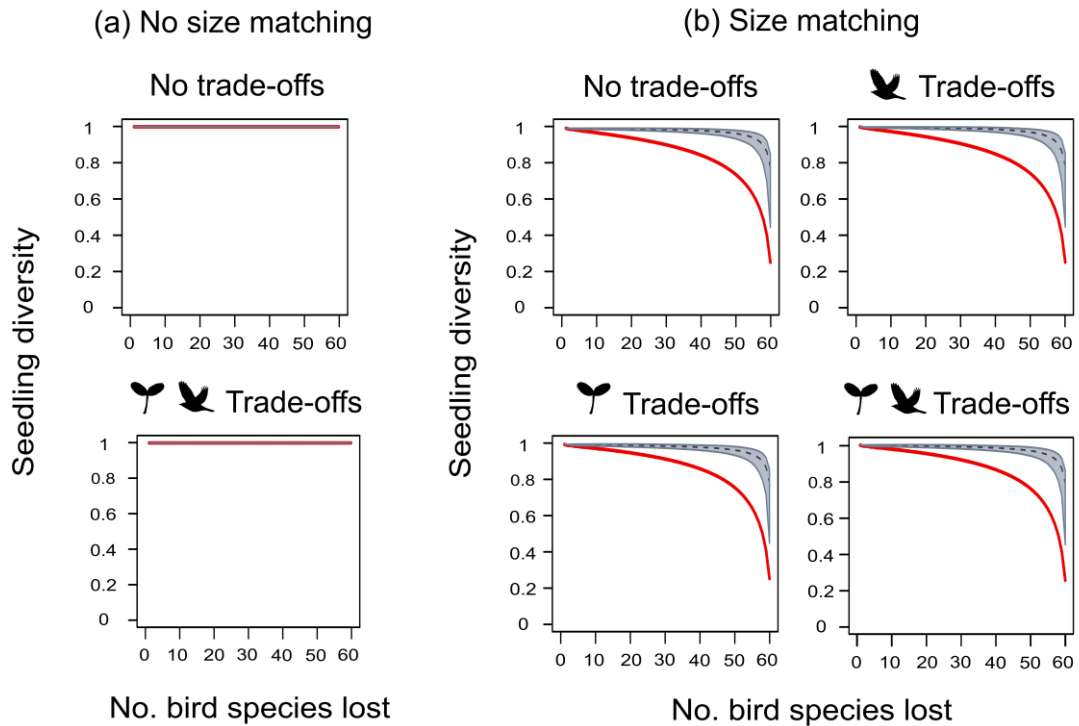
35 *matching* and *size trade-offs* using a **skewed** niche shape, specialization parameter $s=10$

36 and undercompensation parameter β set to **50% of the maximum value** $1/x_j$. We

37 compared consequences of size-structured bird extinction (red line; defaunation) and

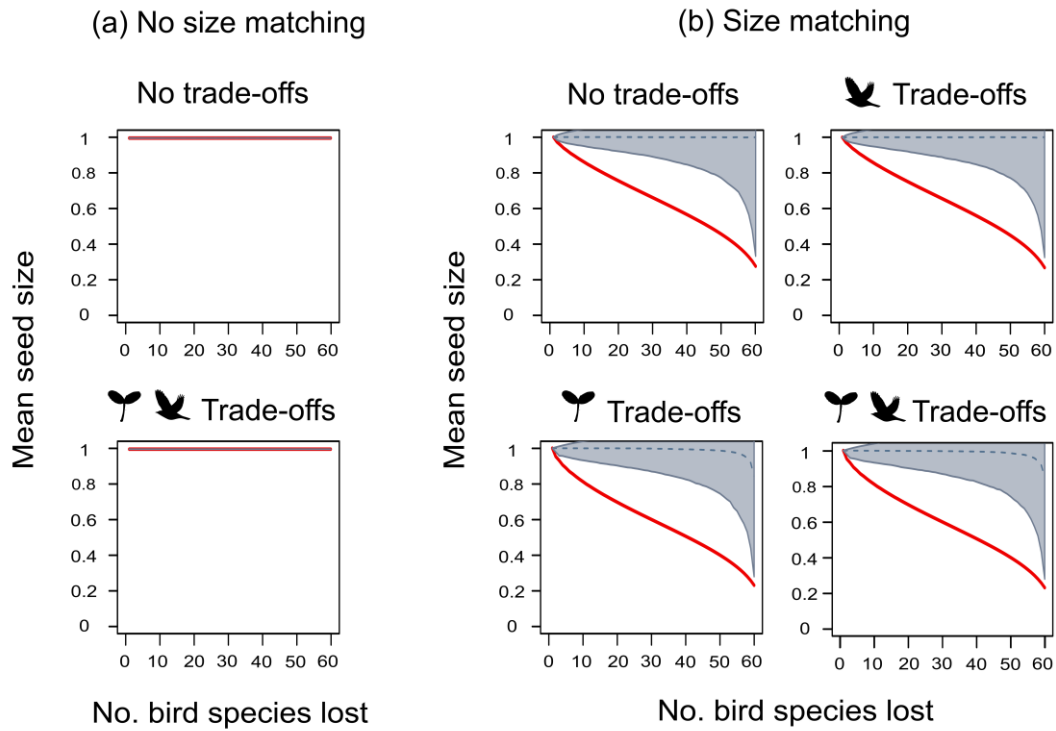
38 random extinction (black dashed line, with grey areas representing the confidence

39 intervals). Model scenarios were defined as explained in Fig. 2 of the main text.



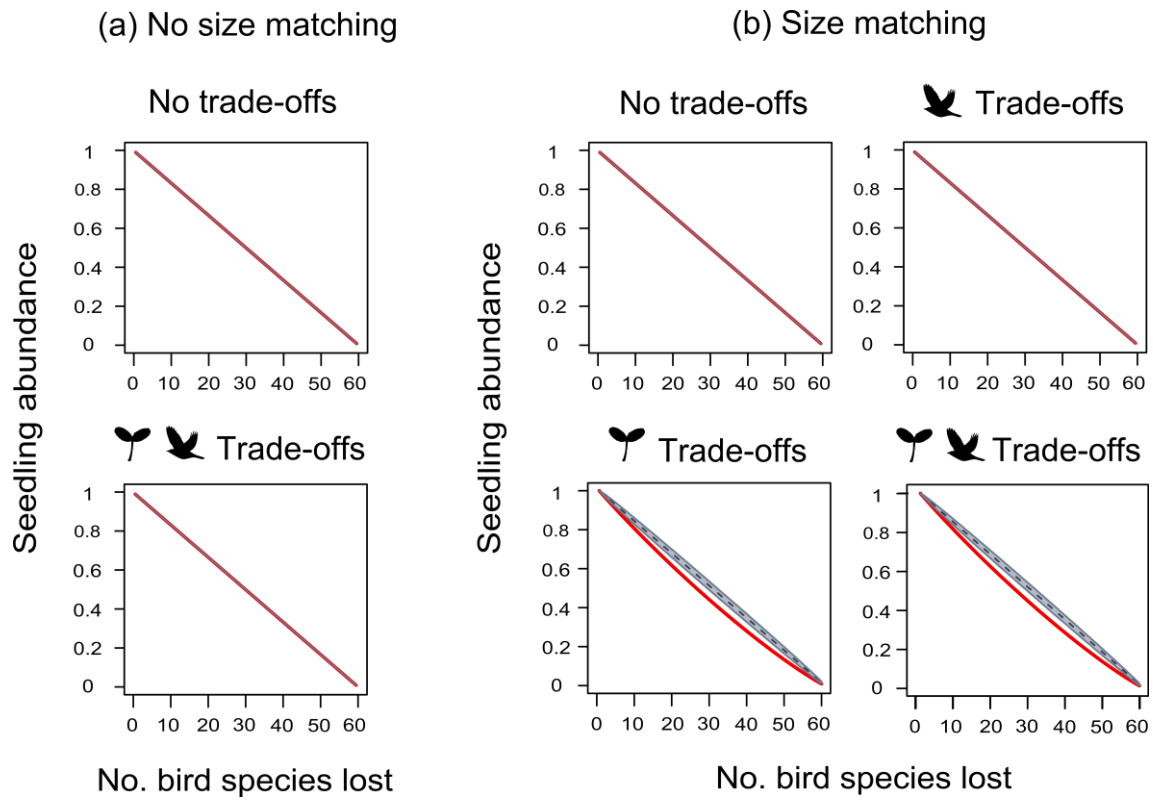
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41 **Figure S5.** Defaunation effects on seedling **diversity** under different scenarios of *size*
 42 *matching* and *size trade-offs* using a **skewed** niche shape, specialization parameter $s=10$
 43 and undercompensation parameter β set to **50% of the maximum value** $1/x_j$. We
 44 compared consequences of size-structured bird extinction (red line; defaunation) and
 45 random extinction (black dashed line, with grey areas representing the confidence
 46 intervals). Model scenarios were defined as explained in Fig. 2 of the main text.



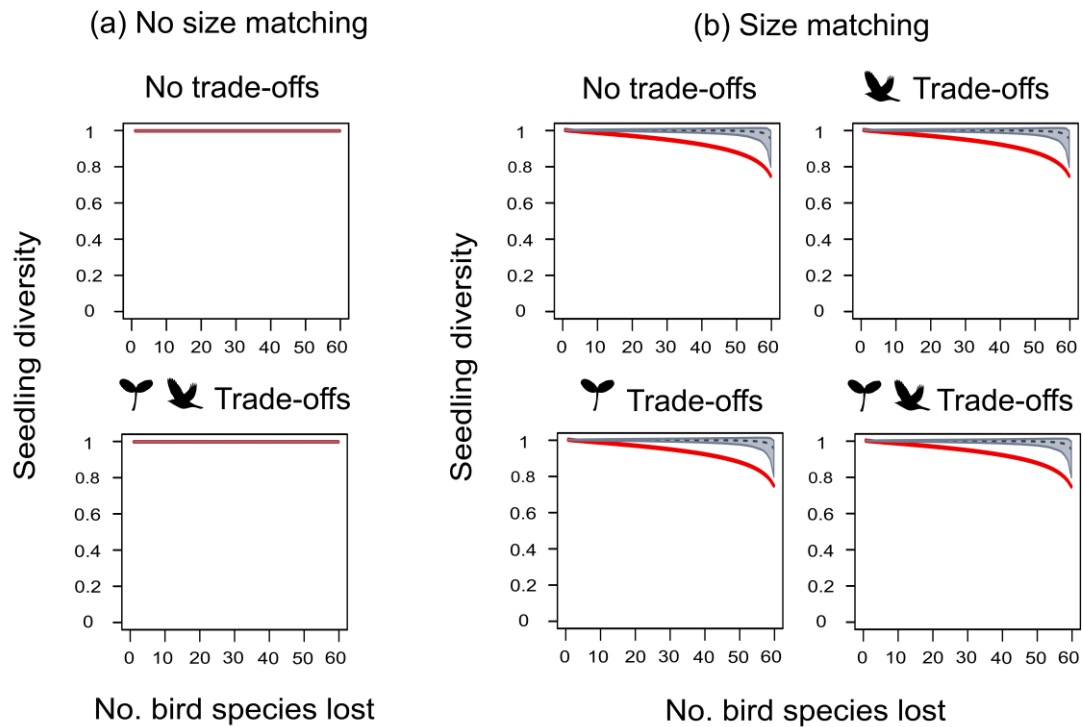
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48 **Figure S6.** Defaunation effects on **mean seed size** of recruited seedlings under different
 49 scenarios of *size matching* and *size trade-offs* using a **skewed** niche shape,
 50 specialization parameter $s=10$ and undercompensation parameter β set to **50% of the**
 51 **maximum value $1/x_j$** . We compared consequences of size-structured bird extinction
 52 (red line; defaunation) and random extinction (black dashed line; grey areas
 53 representing the confidence intervals, which extend to outside the plotting area). Model
 54 scenarios were defined as explained in Fig. 2 of the main text.



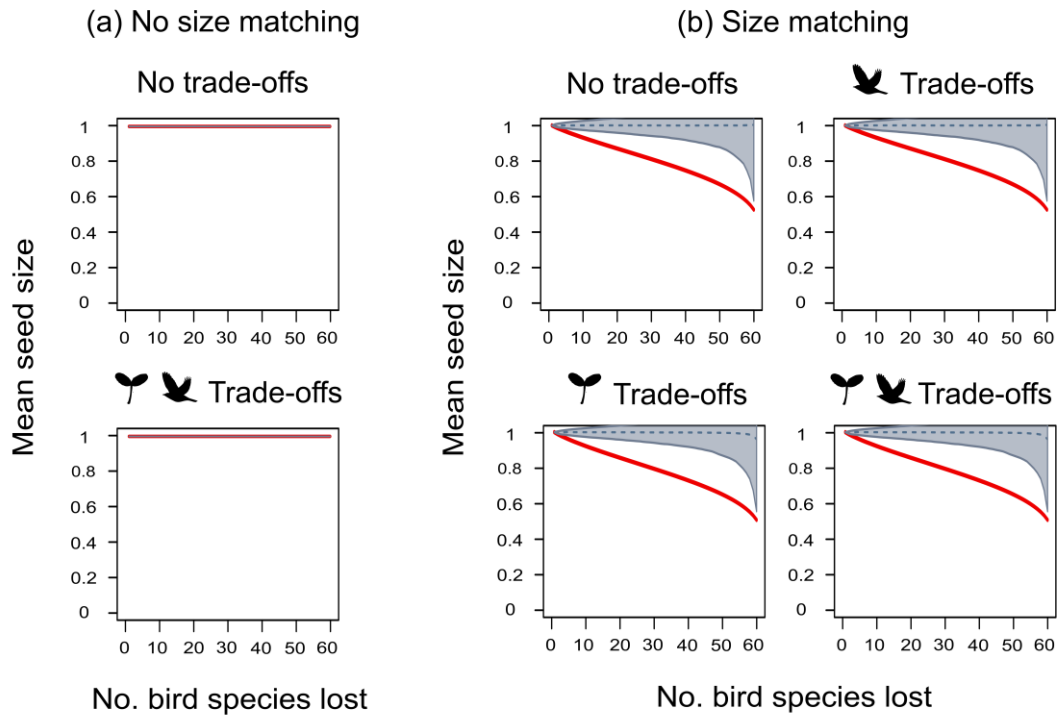
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57 **Figure S7.** Defaunation effects on seedling **abundance** under different scenarios of *size*
 58 *matching* and *size trade-offs* using a **skewed** niche shape, specialization parameter $s=2$
 59 and undercompensation parameter β set to **10% of the maximum value** $1/x_j$. We
 60 compared consequences of size-structured bird extinction (red line; defaunation) and
 61 random extinction (black dashed line, with grey areas representing the confidence
 62 intervals). Model scenarios were defined as explained in Fig. 2 of the main text.



63

64 **Figure S8.** Defaunation effects on seedling **diversity** under different scenarios of *size*
65 *matching* and *size trade-offs* using a **skewed** niche shape, specialization parameter $s=2$
66 and undercompensation parameter β set to **10% of the maximum value** $1/x_j$. We
67 compared consequences of size-structured bird extinction (red line; defaunation) and
68 random extinction (black dashed line, with grey areas representing the confidence
69 intervals). Model scenarios were defined as explained in Fig. 2 of the main text.



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71 **Figure S9.** Defaunation effects on **mean seed size** of recruited seedlings under different

72 scenarios of *size matching* and *size trade-offs* using a **skewed** niche shape,

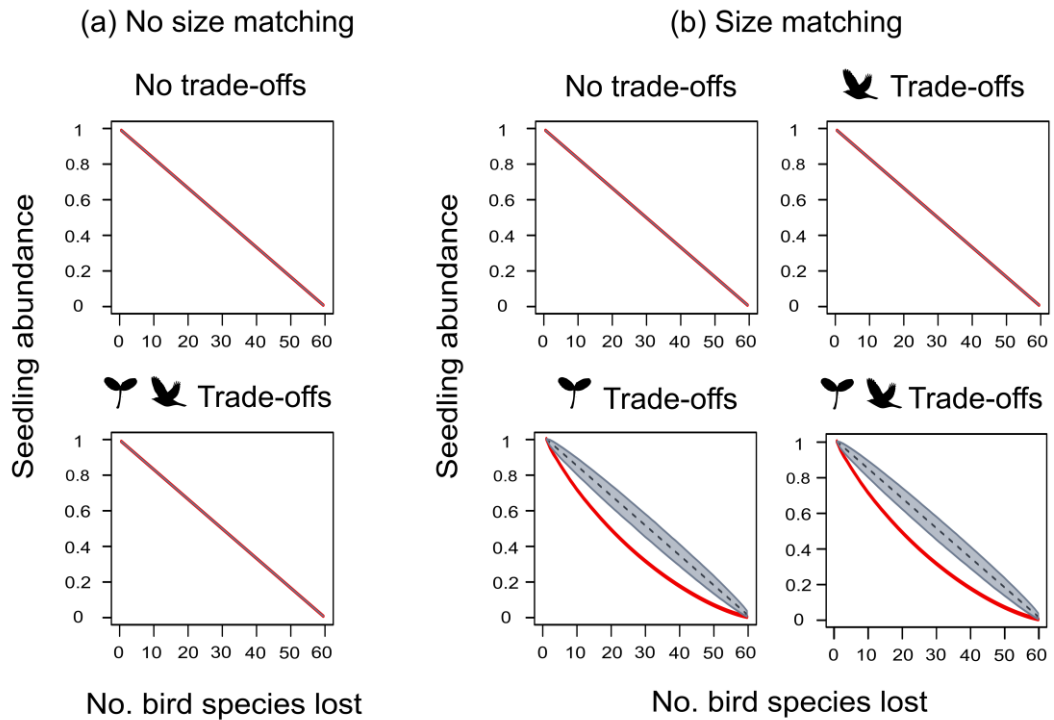
73 specialization parameter $s=2$ and undercompensation parameter β set to **10% of the**

74 **maximum value $1/x_j$** . We compared consequences of size-structured bird extinction

75 (red line; defaunation) and random extinction (black dashed line; grey areas

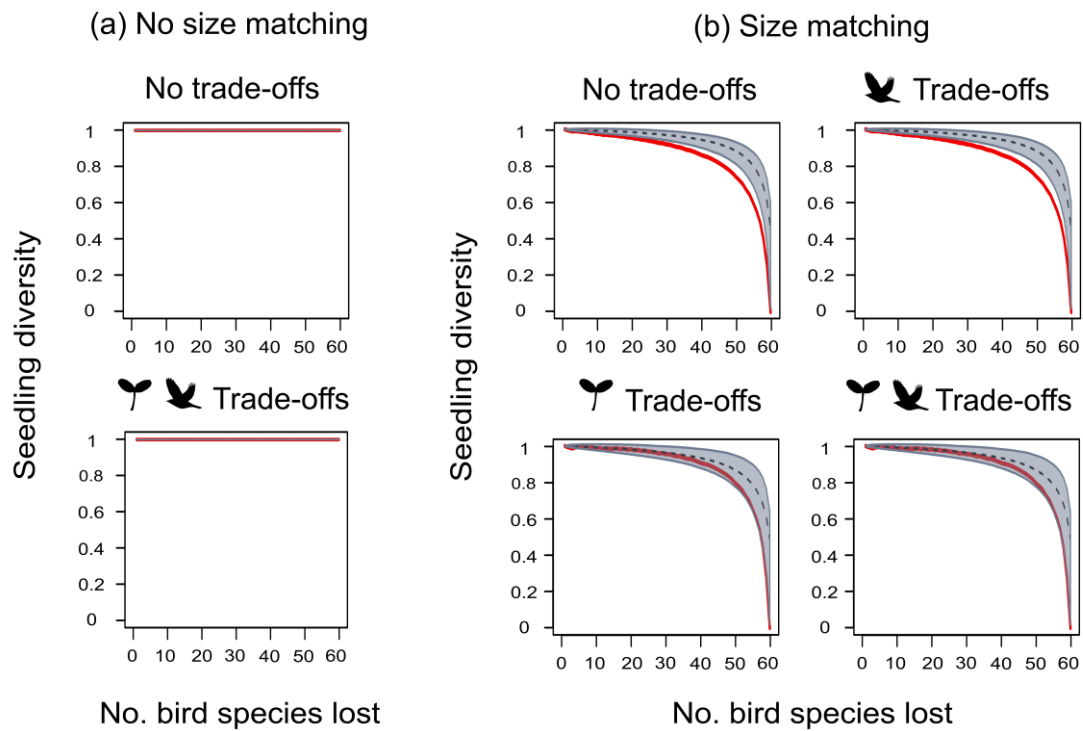
76 representing the confidence intervals, which extend to outside the plotting area). Model

77 scenarios were defined as explained in Fig. 2 of the main text.



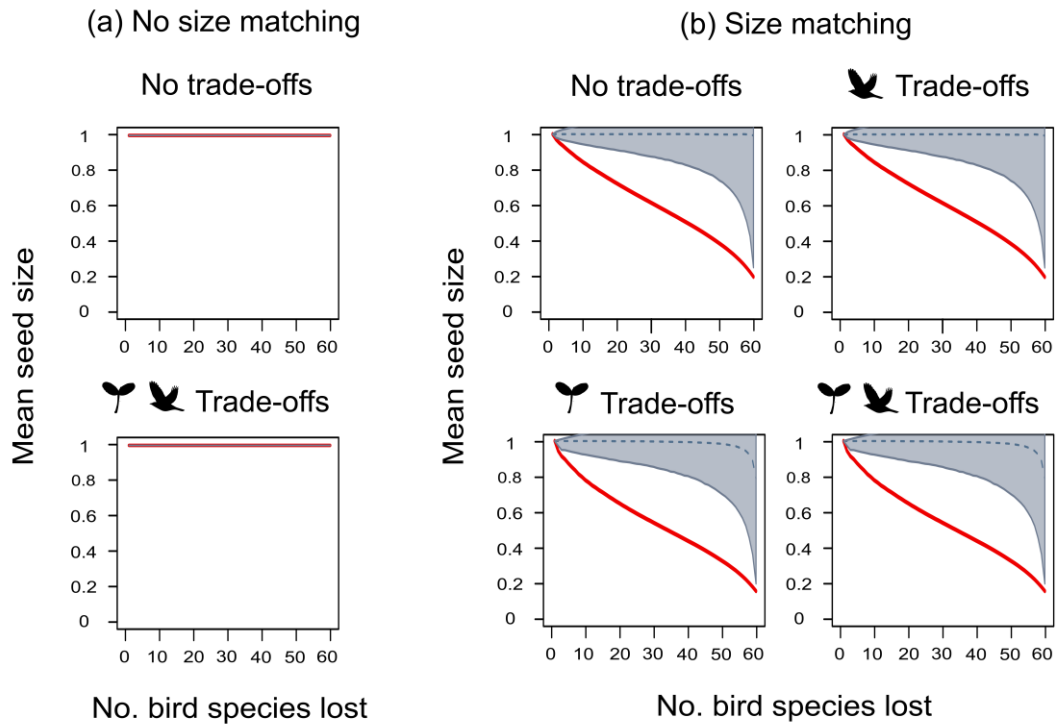
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79 **Figure S10.** Defaunation effects on seedling **abundance** under different scenarios of
80 *size matching* and *size trade-offs* using a **skewed** niche shape, specialization parameter
81 $s=50$ and undercompensation parameter β set to **10% of the maximum value $1/x_j$** . We
82 compared consequences of size-structured bird extinction (red line; defaunation) and
83 random extinction (black dashed line, with grey areas representing the confidence
84 intervals). Model scenarios were defined as explained in Fig. 2 of the main text.



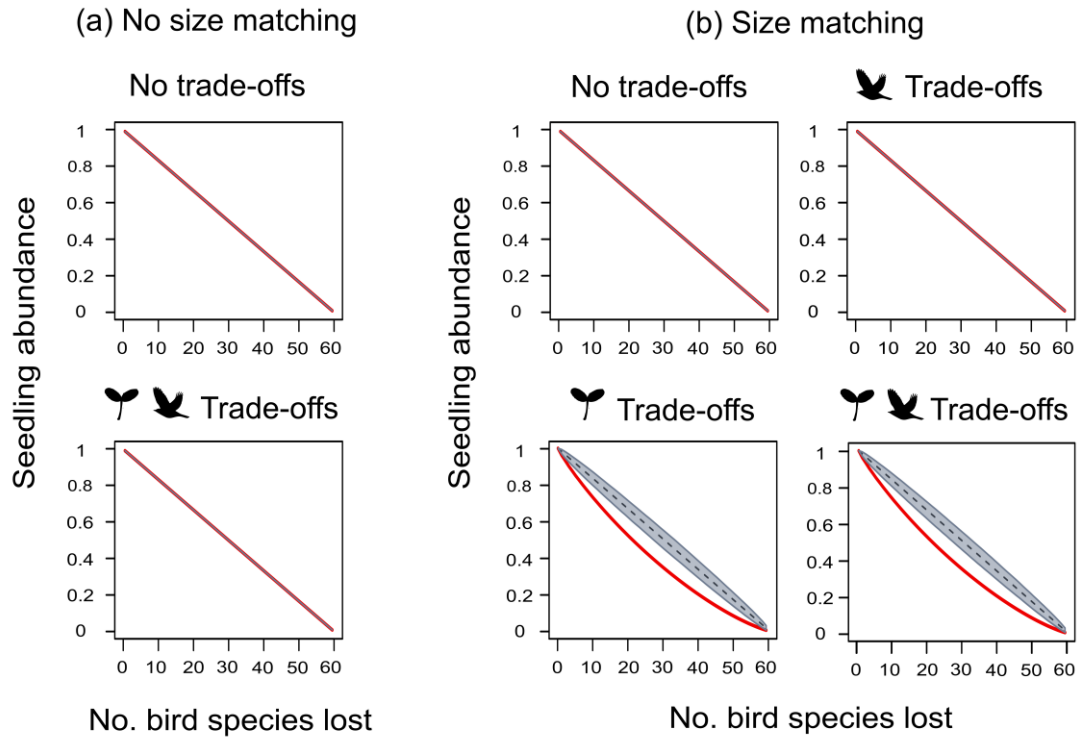
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86 **Figure S11.** Defaunation effects on seedling **diversity** under different scenarios of *size*
87 *matching* and *size trade-offs* using a **skewed** niche shape, specialization parameter $s=50$
88 and undercompensation parameter β set to **10% of the maximum value** $1/x_j$. We
89 compared consequences of size-structured bird extinction (red line; defaunation) and
90 random extinction (black dashed line, with grey areas representing the confidence
91 intervals). Model scenarios were defined as explained in Fig. 2 of the main text.



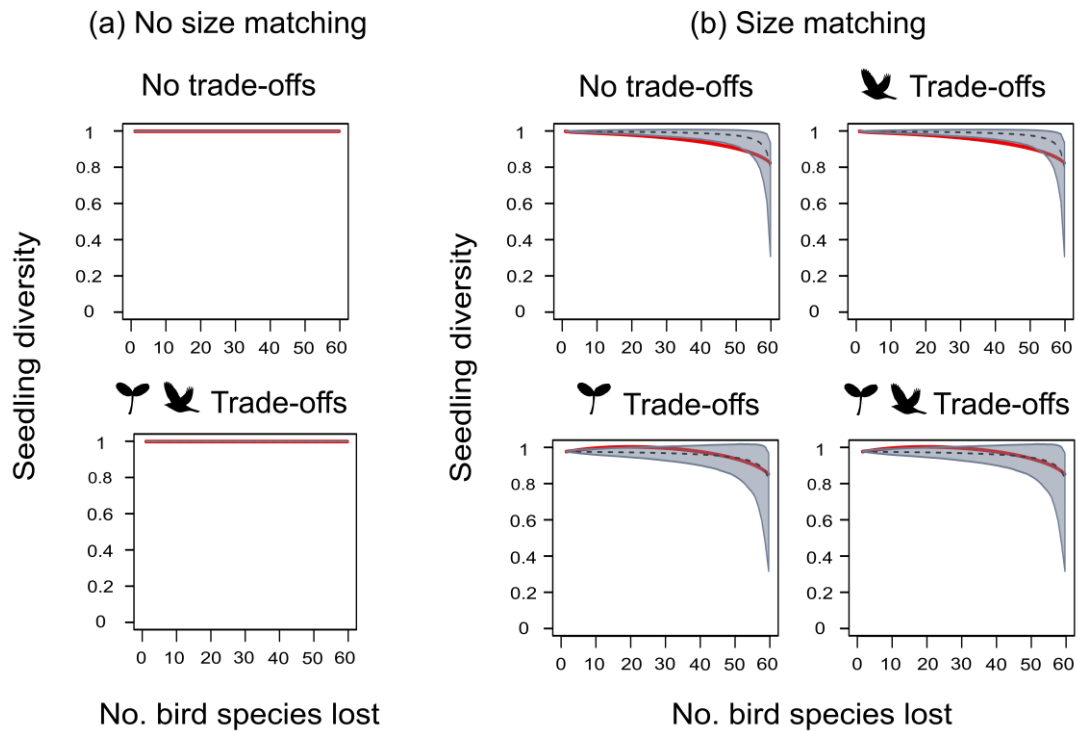
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93 **Figure S12.** Defaunation effects on **mean seed size** of recruited seedlings under
 94 different scenarios of *size matching* and *size trade-offs* using a **skewed** niche shape,
 95 specialization parameter $s=50$ and undercompensation parameter β set to **10% of the**
 96 **maximum value $1/x_j$** . We compared consequences of size-structured bird extinction
 97 (red line; defaunation) and random extinction (black dashed line; grey areas
 98 representing the confidence intervals, which extend to outside the plotting area). Model
 99 scenarios were defined as explained in Fig. 2 of the main text.



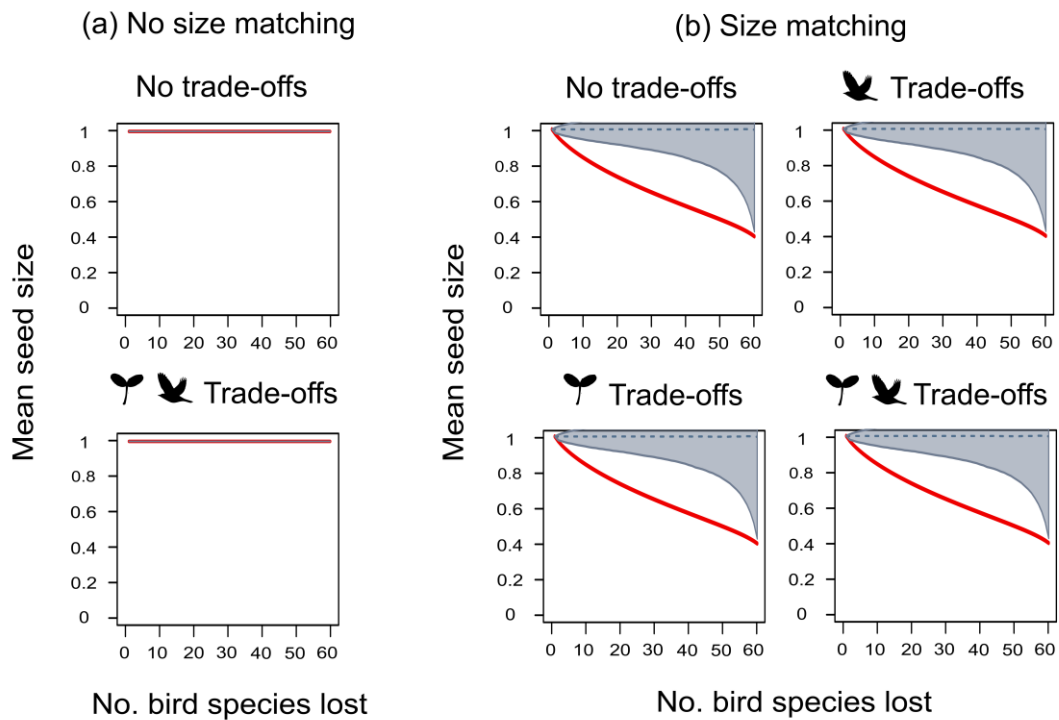
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101 **Figure S13.** Defaunation effects on seedling **abundance** under different scenarios of
 102 *size matching* and *size trade-offs* using a symmetric (**Gaussian**) niche shape,
 103 specialization parameter $s=10$ and undercompensation parameter β set to **10% of the**
 104 **maximum value** $1/x_j$. We compared consequences of size-structured bird extinction
 105 (red line; defaunation) and random extinction (black dashed line, with grey areas
 106 representing the confidence intervals). Model scenarios were defined as explained in
 107 Fig. 2 of the main text.



108

109 **Figure S14.** Defaunation effects on seedling **diversity** under different scenarios of *size*
 110 *matching* and *size trade-offs* using a symmetric (**Gaussian**) niche shape, specialization
 111 parameter $s=10$ and undercompensation parameter β set to **10% of the maximum**
 112 **value $1/x_j$** . We compared consequences of size-structured bird extinction (red line;
 113 defaunation) and random extinction (black dashed line, with grey areas representing the
 114 confidence intervals). Model scenarios were defined as explained in Fig. 2 of the main
 115 text.



116

117 **Fig S15.** Defaunation effects on **mean seed size** of recruited seedlings under different
 118 scenarios of *size matching* and *size trade-offs* using a symmetric (**Gaussian**) niche
 119 shape, specialization parameter $s=10$ and undercompensation parameter β set to **10% of**
 120 **the maximum value $1/x_j$** . We compared consequences of size-structured bird
 121 extinction (red line; defaunation) and random extinction (black dashed line; grey areas
 122 representing the confidence intervals, which extend to outside the plotting area). Model
 123 scenarios were defined as explained in Fig. 2 of the main text.