***APPENDICES***

**Specialist shorebird respond to prey and habitat availability through trophic plasticity**

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**Table A.1**

Univariate differences in carbon and nitrogen isotopic values of American oystercatchers (Haematopus palliatus) among breeding sites in southern Brazil, assessed with nonparametric Kruskal-Wallis test and a Dunn’s test as a post hoc with a Benjamini-Hochberg procedure.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Breeding Sites |  | Carbon |  |  | Nitrogen |  |
|  | *Z* | *P* unadjusted | *P* adjusted | *Z* | *P* unadjusted | *P* adjusted |
| Itapeva – Lagoa do Peixe | -3.52 | <0.001 | 0.001 | 5.38 | <0.001 | <0.001 |
| Itapeva – Passo de Torres | -4.39 | <0.001 | 0.000 | 1.51 | <0.001 | <0.001 |
| Lagoa do Peixe – Passo de Torres | -1.78 | <0.001 | 0.125 | -2.71 | <0.001 | <0.001 |
| Itapeva – Praia das Cabras | -1.27 | <0.001 | 0.292 | 1.78 | <0.001 | <0.001 |
| Lagoa do Peixe – Praia das Cabras | 1.24 | <0.001 | 0.269 | -2.06 | <0.001 | <0.001 |
| Passo de Torres – Praia das Cabras | 2.44 | <0.001 | 0.030 | 0.35 | <0.001 | <0.001 |
| Itapeva – Praia Grande | -1.12 | <0.001 | 0.290 | 3.93 | <0.001 | <0.001 |
| Lagoa do Peixe – Praia Grande | 3.05 | <0.001 | 0.006 | -2.22 | <0.001 | <0.001 |
| Passo de Torres – Praia Grande | 4.02 | <0.001 | 0.000 | 1.34 | <0.001 | <0.001 |
| Praia das Cabras – Praia Grande | 0.61 | <0.001 | 0.542 | 0.77 | <0.001 | <0.001 |

**Table A.2**

Univariate differences in carbon and nitrogen isotopic values between American oystercatchers of different sex at different breeding sites in southern Brazil, assessed with a nonparametric Kruskal-Wallis test.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Breeding sites | Passo de Torres | | Praia Grande | | Itapeva | | Praia das Cabras | | Lagoa do Peixe | |
|  | Carbon | Nitrogen | Carbon | Nitrogen | Carbon | Nitrogen | Carbon | Nitrogen | Carbon | Nitrogen |
| Chi-squared | 0.240 | 0.960 | 0.551 | 2.316 | 0.789 | 0.639 | 0.600 | 0.600 | 1.192 | 0.124 |
| df | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *P*-value | 0.624 | 0.327 | 0.458 | 0.128 | 0.374 | 0.424 | 0.437 | 0.437 | 0.275 | 0.725 |

**Table A.3**

Univariate differences in carbon and nitrogen isotopic values of American oystercatchers among years in Praia Grande, southern Brazil, assessed with nonparametric Kruskal-Wallis test and a Dunn’s test as a post hoc with a Benjamini-Hochberg procedure.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Praia Grande | Carbon | | | Nitrogen | | |
| Years | *Z* | *P* unadjusted | *P* adjusted | *Z* | *P* unadjusted | *P* adjusted |
| 2018 – 2019 | -2.90 | <0.001 | <0.001 | -2.88 | 0.004 | 0.024 |
| 2018 – 2020 | 1.02 | <0.001 | <0.001 | -1.25 | 0.212 | 0.318 |
| 2019 – 2020 | 4.98 | <0.001 | <0.001 | 2.05 | 0.040 | 0.121 |
| 2018 – 2021 | 0.27 | <0.001 | <0.001 | -1.86 | 0.062 | 0.124 |
| 2019 – 2021 | 3.65 | <0.001 | <0.001 | 0.99 | 0.323 | 0.387 |
| 2020 – 2021 | -0.82 | <0.001 | <0.001 | -0.85 | 0.397 | 0.397 |

**Table A.4**

Convex hull Total Area (TA), Siber Ellipse Area (SEA), and SIBER Ellipse Area corrected for small sample sizes (SEAc) values for American oystercatchers at Praia Grande in 2018, 2019, 2020 and 2020, and at Lagoa do Peixe in 2020 and 2021.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Praia Grande | | | | | Lagoa do Peixe |
|  | **2018** | **2019** | **2020** | **2021** | **2020** | **2021** |
| TA | 2.51 | 1.19 | 3.93 | 0.93 | 0.92 | 0.21 |
| SEA | 1.88 | 0.51 | 1.69 | 0.49 | 0.31 | 0.11 |
| SEAc | 2.36 | 0.55 | 1.84 | 0.56 | 0.34 | 0.12 |

**Table A.5**

Univariate differences in carbon and nitrogen isotopic values of American oystercatchers among years in Passo de Torres, Itapeva and Lagoa do Peixe, in southern Brazil, assessed with a nonparametric Kruskal-Wallis test.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Passo de Torres | | Itapeva | | Lagoa do Peixe | |
|  | 2019 – 2020 | | 2019 – 2020 | | 2020 – 2021 | |
|  | Carbon | Nitrogen | Carbon | Nitrogen | Carbon | Nitrogen |
| Chi-squared | 4.200 | 4.200 | 7.105 | 0.593 | 7.364 | 15.724 |
| df | 1 | 1 | 1 | 1 | 1 | 1 |
| *p*-value | 0.040 | 0.040 | 0.008 | 0.441 | 0.007 | <0.001 |

**Table A.6**

Convex hull Total Area (TA), Siber Ellipse Area (SEA), and SIBER Ellipse Area corrected for small sample sizes (SEAc) values for each of the breeding sites of American oystercatchers sampled in southern Brazil.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Passo de Torres** | **Praia Grande** | **Itapeva** | **Praia das Cabras** | **Lagoa do Peixe** |
| **TA** | 1.22 | 9.79 | 3.09 | 0.93 | 1.32 |
| **SEA** | 0.67 | 2.73 | 1.23 | 0.62 | 0.44 |
| **SEAc** | 0.77 | 2.80 | 1.31 | 0.75 | 0.46 |

**Table A.7**

Results of PERMANOVA run with macroinvertebrate abundance data of 2019, pairs at different breeding sites of American oystercatchers in southern Brazil, df = degrees of freedom, SumOfSqs = Sum of squares, F. Model, R2, P value, P adjusted. \* = significant. PG = Praia Grande, ITA = Itapeva, PC = Praia das Cabras, LP = Lagoa do Peixe.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **pairs** | ***df*** | **SumOfSqs** | **F Model** | ***R*2** | ***P* value** | ***P* adjusted** |
| **PG vs. ITA** | 1 | 0.235 | 1.106 | 0.058 | 0.337 | 1.000 |
| **PG vs. PC** | 1 | 1.016 | 5.527 | 0.235 | 0.001 | 0.006\* |
| **PG vs. LP** | 1 | 1.911 | 10.074 | 0.359 | 0.001 | 0.006\* |
| **ITA vs. PC** | 1 | 0.997 | 5.992 | 0.250 | 0.001 | 0.006\* |
| **ITA vs. LP** | 1 | 1.581 | 9.181 | 0.338 | 0.001 | 0.006\* |
| **PC vs. LP** | 1 | 0.949 | 6.599 | 0.268 | 0.001 | 0.006\* |

**Table A.8**

Results of PERMANOVA run with macroinvertebrate abundance data of 2020, pairs at different breeding sites of American oystercatchers in southern Brazil, df = degrees of freedom, SumOfSqs = Sum of squares, F. Model, R2, P value, P adjusted. \* = significant. PG = Praia Grande, ITA = Itapeva, LP = Lagoa do Peixe.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Pairs** | ***df*** | **SumOfSqs** | **F.Model** | ***R*2** | ***P* value** | ***P* adjusted** |
| **PG vs. ITA** | 1 | 0.413 | 2.563 | 0.125 | 0.040 | 0.120 |
| **PG vs. LP** | 1 | 1.243 | 13.616 | 0.430 | 0.001 | 0.003\* |
| **ITA vs. LP** | 1 | 0.500 | 3.622 | 0.168 | 0.009 | 0.027 |