**Supplement**

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| Figue SX. Geographic points considered for each island from which connectivity analysis to all the other points of an archipelago was conducted. We selected a coordinate point on each side of the islands to cover all orientations (North, South, West, East) from which we calculated the current connectivity paths to the rest of the islands of the archipelago. For large islands, we added one connection point every 40km (5 pixels of 8 km) to increase our sampling of points and therefore of potential shortest paths connecting with other islands. The different panels show the currents data for the same day (09-04-2008) in Galapagos (top), Canaries (middle), and Azores (bottom) archipelagos. Black and white color gradient shows values of velocity (left) and direction (right) for each pixel. Pixel resolution is 8 km. | |

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| Figure SX. Sea current speed and direction for one day in the Galapagos. Pixel resolution is 8 km. |

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| Fig SX. Percentage of littoral plants for each island. The numbers at the top of the bars indicates the total number of lowland plants in the island. (A) Galapagos, (B) Canaries, (C) Azores. |

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| Fig SX. Procrustes analysis between floristic and oceanic current connectivity across oceanic archipelagos. Each panel displays the results of Procrustes analysis for (A, B) Galapagos Islands, (C, D) Canary Islands, and (E, F) Azores Islands. Panels A, C, and E show the analysis results for littoral habitats, while panels B, D, and F depict results for non-littoral habitats. Labels show the position of the islands in the first ordination (current connectivity matrix), and arrows point to their positions in the target ordination. Solid black lines represent the rotation between the two ordinations necessary to make them match as closely as possible. |

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| Fig SX. Procrustes analysis between floristic and oceanic current connectivity across oceanic archipelagos. Each panel displays the results of Procrustes analysis for (A, B) Galapagos Islands, (C, D) Canary Islands, and (E, F) Azores Islands. Panels A, C, and E show the analysis results for littoral habitats, while panels B, D, and F depict results for non-littoral habitats. Plots show the residuals for each island. Those with higher residuals have worse fit. The horizontal lines, from bottom to top, are the 25% (dashed), 50% (solid), and 75% (dashed) quantiles of the residuals. |

| Table SX. Percentage of littoral plants from the lowland floras of islands, and their centrality measures in the ocean current connectivity network of their archipelago. | | | | | | |
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| Archipelago | Island | % littoral  plants |  |  |  |  |
| Galapagos | Espanola | 12.04 | 0.017 | 0.028 | 0.181 | 5 |
| Fernandina | 7.86 | 0.017 | **0.012~** | **0.119~** | **0~** |
| Floreana | 8.06 | 0.033 | 0.017 | 0.143 | 4 |
| Genovesa | **15.52\*** | **0.013~** | 0.026 | 0.158 | **0~** |
| Isabela | **7.51~** | 0.040 | 0.025 | 0.147 | 24 |
| Marchena | 12.73 | 0.029 | 0.033 | 0.170 | 18 |
| Pinta | 8.45 | 0.029 | 0.017 | 0.132 | **0~** |
| Pinzon | 10.71 | 0.020 | 0.025 | 0.179 | 0 |
| San Cristobal | 8.56 | 0.013 | 0.029 | 0.231 | 7 |
| Santa Cruz | 8.46 | **0.076\*** | 0.045 | 0.225 | **25\*** |
| Santa Fe | 9.64 | 0.040 | **0.076\*** | **0.235\*** | 21 |
| Santiago | 7.52 | 0.028 | 0.022 | 0.166 | 18 |
| Canaries | El Hierro | 8.82 | 0.005 | **0.002~** | **0.050~** | **0~** |
| Fuerteventura | **24.01\*** | **3.911\*** | 0.017 | 0.112 | 10 |
| Gran Canaria | 16.71 | **0.004~** | 0.004 | 0.108 | 8 |
| La Gomera | 9.17 | 0.007 | 0.006 | 0.091 | 16 |
| La Palma | **7.67~** | 0.004 | 0.004 | 0.068 | **0~** |
| Lanzarote | 22.12 | 0.015 | **3.912\*** | 0.113 | **0~** |
| Tenerife | 14.65 | 0.005 | 0.007 | **0.113\*** | **18\*** |
| Azores | Corvo | 14.77 | 0.009 | 0.009 | 0.044 | 7 |
| Faial | 15.74 | 0.031 | **0.047\*** | 0.072 | 22 |
| Flores | **14.68~** | 0.009 | 0.010 | 0.043 | 7 |
| Graciosa | **18.52\*** | 0.007 | 0.007 | 0.063 | **0~** |
| Pico | 17.39 | **0.049\*** | 0.038 | **0.072\*** | 28 |
| Santa Maria | 17.86 | **0.003~** | **0.002~** | **0.027~** | **0~** |
| Sao Jorge | 15.89 | 0.017 | 0.013 | 0.072 | **30\*** |
| Sao Miguel | 15.52 | 0.003 | 0.003 | 0.035 | 14 |
| Terceira | 18.18 | 0.006 | 0.005 | 0.064 | 14 |
| Values for are re-scaled by x1000 for readability.  Bold indicate \*maximum and ~minimum values for each archipelago. | | | | | | |

| Table SX. Analysis of Deviance Table (Type II Wald Chi-Square Tests) for the Generalized Linear Mixed Models fitted as: | | | |
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| **In-Degree ()** |  |  |  |
| Predictor | Chisq | Df | p value |
| archipelago | 40.96 | 2 | **<0.001** |
|  | 11.67 | 1 | **0.001** |
| archipelago\* | 6.70 | 2 | **0.035** |
| **Closeness ()** |  |  |  |
| Predictor | Chisq | Df | p value |
| archipelago | 26.17 | 2 | **<0.001** |
|  | 4.27 | 1 | **0.039** |
| archipelago\* | 16.41 | 2 | **<0.001** |
| **Betweenness ()** |  |  |  |
| Predictor | Chisq | Df | p value |
| archipelago | 21.76 | 2 | **<0.001** |
|  | 0.12 | 1 | 0.733 |
| archipelago\* | 0.67 | 2 | 0.714 |