

Vagrant birds as a dispersal vector in transoceanic range expansion of vascular plants

Supplementary Information

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Supplementary Table S1. Checklist of birds on the Prince Edward Islands including their occurrence status following Chown and Froneman ¹, and whether the respective species is present in Chile (<https://www.avesdechile.cl/>) or Argentina ².

Supplementary Table S2. Sources of DNA material used from Aagesen, et al. ³, Burge, et al. ⁴ Kellermann and Udovicic ⁵, and Richardson, et al. ⁶. Genbank numbers are listed for the *trnL* intron and the *trnL-F* spacer. Where the same number is listed for both DNA regions, this indicates that the full *trnL-F* region is deposited in GenBank. New sequences are indicated in bold and their voucher specimens listed.

References

- 1 Chown, S. L. & Froneman, P. W. *The Prince Edwards Islands. Land-sea interactions in a changing ecosystem*. 1st edn, i-470 (Sun Press, 2008).
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- 3 Aagesen, L., Medan, D., Kellermann, J. & Hilger, H. H. Phylogeny of the tribe Colletieae (Rhamnaceae) — a sensitivity analysis of the plastid region *trnL-trnF* combined with morphology. *Plant Syst. Evol.* **250**, 197-214, doi:10.1007/s00606-004-0204-5 (2005).
- 4 Burge, D. O. *et al.* Diversification of *Ceanothus* (Rhamnaceae) in the California Floristic Province. *Int. J. Plant Sci.* **172**, 1137-1164, doi:10.1086/662028 (2011).
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- 6 Richardson, J. E., Fay, M. F., Cronk, Q. C. B., Bowman, D. & Chase, M. W. A phylogenetic analysis of Rhamnaceae using *rbcL* and *trnL-F* plastid DNA sequences. *Am. J. Bot.* **87**, 1309-1324, doi:10.2307/2656724 (2000).

| Family | Vernacular Name | Scientific Name | Marion Status | Argentina | Chile | Overlap O.trinervis | Habitat | Distribution (GBIF) | GBIF Link |
|---------------------|----------------------------|------------------------------------|-----------------|-----------|----------|---------------------|---------------|-------------------------------|---|
| Anatidae | Kerguelen Pintail | Anas eatoni | Vagrant* | 0 | 0 | 0 | Coastal | Kerguelen | https://www.gbif.org/species/2498098 |
| Apodidae | Common Swift | Apus apus | Vagrant* | 0 | 0 | 0 | Inland | Europa, Africa | https://www.gbif.org/species/5228676 |
| Ardeidae | Cattle Egret | Bubulcus ibis | Vagrant* | 1 | 1 | 1 | Inland | Cosmopolitan | https://www.gbif.org/species/2480830 |
| Ardeidae | Yellow-billed Egret | Mesophoyx intermedia brachyrhyncha | Vagrant* | 0 | 0 | 0 | Inland | Australia | https://www.gbif.org/species/2480915 |
| Charadriidae | Common Ringed Plover | Charadrius hiaticula | Vagrant* | 0 | 0 | 0 | Coastal | mostly Africa and Europe | https://www.gbif.org/species/9566659 |
| Charadriidae | Three-banded Plover | Charadrius tricollaris | Vagrant* | 0 | 0 | 0 | Inland | Africa | https://www.gbif.org/species/2480325 |
| Charadriidae | Blacksmith Lapwing | Vanellus armatus | Vagrant* | 0 | 0 | 0 | Inland | Africa | https://www.gbif.org/species/5229136 |
| Chionidae | Lesser Sheathbill | Chionis minor marionensis | 4000 | 0 | 0 | 0 | Marine | Prince Edward Islands endemi | https://www.gbif.org/species/4352353 |
| Ciconiidae | White Stork | Ciconia ciconia | Vagrant* | 0 | 0 | 0 | Inland | Africa, Europe, Asia | https://www.gbif.org/species/2481912 |
| Columbidae | Cape Turtle Dove | Streptopelia capicola | Vagrant* | 0 | 0 | 0 | Inland | Africa | https://www.gbif.org/species/2495667 |
| Columbidae | Laughing Dove | Streptopelia senegalensis | Vagrant* | 0 | 0 | 0 | Inland | Africa, Asia, Australia | https://www.gbif.org/species/2495659 |
| Columbidae | European Turtle Dove | Streptopelia turtur | Vagrant* | 0 | 0 | 0 | Inland | Europa, Africa | https://www.gbif.org/species/2495708 |
| Cuculidae | Common Cuckoo | Cuculus canorus | Vagrant* | 0 | 0 | 0 | Inland | Europa, Africa | https://www.gbif.org/species/9372661 |
| Diomedidae | Kerguelen Petrel | Aphrodroma brevirostris | 40000 | 1 | 1 | 0 | Marine | Southern Ocean | https://www.gbif.org/species/2481439 |
| Diomedidae | Pintado Petrel | Daption capense | Common | 1 | 1 | 0 | Marine | Southern Ocean | https://www.gbif.org/species/2481545 |
| Diomedidae | Southern Royal Albatross | Diomedea epomophora | Regular | 1 | 1 | 0 | Marine | Southern Ocean | https://www.gbif.org/species/5229299 |
| Diomedidae | Northern Royal Albatross | Diomedea epomophora sanfordi | Rare | 0 | 1 | 0 | Marine | New Zealand | https://www.gbif.org/species/5229301 |
| Diomedidae | Wandering Albatross | Diomedea exulans | 7300 | 1 | 1 | 0 | Marine | Southern Ocean | https://www.gbif.org/species/5229302 |
| Diomedidae | Southern Fulmar | Fulmarus glacialisoides | Fairly common | 1 | 1 | 0 | Marine | Southern Ocean | https://www.gbif.org/species/2481432 |
| Diomedidae | Blue Petrel | Halobaena caerulea | 300000 | 1 | 1 | 0 | Marine | Southern Ocean | https://www.gbif.org/species/2481597 |
| Diomedidae | Southern Giant Petrel | Macronectes giganteus | 5500 | 1 | 1 | 0 | Marine | Southern Ocean | https://www.gbif.org/species/2481515 |
| Diomedidae | Northern Giant Petrel | Macronectes halli | 1300 | 1 | 1 | 0 | Marine | Southern Ocean | https://www.gbif.org/species/2481516 |
| Diomedidae | Dark-mantled Sooty Albat | Phoebastria fusca | 4400 | 1 | 1 | 0 | Marine | Southern Ocean | https://www.gbif.org/species/2481376 |
| Diomedidae | Light-mantled Sooty Albat | Phoebastria palpebrata | 700 | 1 | 1 | 0 | Marine | Southern Ocean | https://www.gbif.org/species/2481374 |
| Diomedidae | White-headed Petrel | Pterodroma lessonii | Fairly common* | 1 | 1 | 0 | Marine | Southern Ocean | https://www.gbif.org/species/2481480 |
| Diomedidae | Great-winged Petrel | Pterodroma macroptera | 40000 | 0 | 1 | 0 | Marine | Southern Ocean | https://www.gbif.org/species/2481481 |
| Diomedidae | Soft-plumaged Petrel | Pterodroma mollis | 30000 | 1 | 1 | 0 | Marine | Southern Ocean | https://www.gbif.org/species/2481457 |
| Diomedidae | Shy Albatross | Thalassarche cauta | Fairly common | 1 | 1 | 0 | Marine | Southern Ocean | https://www.gbif.org/species/2481401 |
| Diomedidae | Yellow-nosed Albatross | Thalassarche chlororhynchos | 15000 | 1 | 1 | 0 | Marine | Southern Ocean | https://www.gbif.org/species/2481399 |
| Diomedidae | Grey-headed Albatross | Thalassarche chrysostoma | 21800 | 1 | 1 | 0 | Marine | Southern Ocean | https://www.gbif.org/species/2481408 |
| Diomedidae | Black-browed Albatross | Thalassarche melanophris | Common* | 1 | 1 | 0 | Marine | Southern Ocean | https://www.gbif.org/species/2481410 |
| Diomedidae | Salvin's Albatross | Thalassarche salvini | Rare | 0 | 1 | 0 | Marine | Australia, New Zealand, Chile | https://www.gbif.org/species/4847291 |
| Diomedidae | Antarctic Petrel | Thalassoica antarctica | Vagrant* | 1 | 1 | 0 | Marine | Southern Ocean | https://www.gbif.org/species/2481513 |
| Falconidae | Unidentified falcon | Falco sp. | Vagrant* | 0 | 0 | 0 | | | |
| Hirundinidae | Common House Martin | Delichon urbicum | Vagrant* | 0 | 0 | 0 | Inland | Africa, Europe, Asia | https://www.gbif.org/species/2489214 |
| Hirundinidae | Barn Swallow | Hirundo rustica | Vagrant* | 1 | 1 | 1 | Inland | Cosmopolitan | https://www.gbif.org/species/9515886 |
| Hirundinidae | Brown-throated Martin | Riparia paludicola | Vagrant* | 0 | 0 | 0 | Inland | Africa, Asia | https://www.gbif.org/species/5230750 |
| Hydrobatidae | Black-bellied Storm Petrel | Fregetta tropica | 10000 | 1 | 1 | 0 | Marine | Southern Ocean | https://www.gbif.org/species/2481979 |
| Hydrobatidae | Grey-backed Storm Petrel | Garrodia nereis | 2000 | 1 | 1 | 0 | Marine | Southern Ocean | https://www.gbif.org/species/2481988 |
| Hydrobatidae | Wilson's Storm Petrel | Oceanites oceanicus | Common | 1 | 1 | 0 | Marine | Cosmopolitan | https://www.gbif.org/species/5229419 |
| Laniidae | Red-backed Shrike | Lanius collurio | Vagrant* | 0 | 0 | 0 | Inland | Africa, Europe, Asia | https://www.gbif.org/species/7745240 |
| Laridae | Kelp Gull | Larus dominicanus | 260 | 1 | 1 | 0 | Coastal | S Hemisphere | https://www.gbif.org/species/2481173 |
| Laridae | Lesser Black-backed Gull | Larus fuscus | Vagrant* | 1 | 0 | 0 | Coastal | Primarily northern hemisphere | https://www.gbif.org/species/2481174 |
| Laridae | Franklin's Gull | Leucophaeus pipixcan | Vagrant* | 1 | 1 | 0 | Coastal | N and S America mostly | https://www.gbif.org/species/5846430 |
| Laridae | Sub-Antarctic Skua | Stercorarius antarcticus lonnbergi | 1700 | 0 | 0 | 0 | Marine | Southern Ocean | https://www.gbif.org/species/2481624 |
| Laridae | Parasitic Jaeger | Stercorarius parasiticus | Rare | 1 | 1 | 0 | Coastal | Cosmopolitan | https://www.gbif.org/species/2481621 |
| Laridae | Arctic Tern | Sterna paradisaea | Rare* | 1 | 1 | 0 | Coastal | mostly N Hemisphere | https://www.gbif.org/species/5229230 |
| Laridae | Kerguelen Tern | Sterna virgata | 110 | 0 | 0 | 0 | Coastal | Kerguelen | https://www.gbif.org/species/5229219 |
| Laridae | Antarctic Tern | Sterna vittata | 60 | 1 | 1 | 0 | Marine | mostly Southern Ocean | https://www.gbif.org/species/9606968 |
| Laridae | Sabine's Gull | Xema sabini | Rare | 0 | 1 | 0 | Coastal | mostly N Hemisphere | https://www.gbif.org/species/2481221 |

| Family | Vernacular Name | Scientific Name | Marion Status | Argentina | Chile | Overlap O.trinervis | Habitat | Distribution (GBIF) | GBIF Link |
|---------------------|---------------------------|-----------------------------|-----------------------|-----------|----------|---------------------|---------------|-------------------------------------|---|
| Motacillidae | Yellow Wagtail | Motacilla flava | Vagrant* | 0 | 0 | 0 | Inland | Africa, Europe, Asia, Alaska | https://www.gbif.org/species/9441286 |
| Muscicapidae | Unidentified flycatcher | Muscicapa (striata?) | Vagrant* | 0 | 0 | 0 | Inland | Africa, Europe, Asia | https://www.gbif.org/species/2492576 |
| Muscicapidae | Mountain Wheatear | Oenanthe monticola | Vagrant* | 0 | 0 | 0 | Inland | Africa | https://www.gbif.org/species/5231248 |
| Passeridae | House Sparrow | Passer domesticus | Ship-assisted* | 1 | 1 | 1 | Inland | Cosmopolitan | https://www.gbif.org/species/5231190 |
| Phalacrocoracidae | Crozet Shag | Phalacrocorax melanogenis | 640 | 0 | 0 | 0 | Coastal | Crozet and PEI endemic | https://www.gbif.org/species/6095258 |
| Procellariidae | Great Shearwater | Ardena gravis | Rare | 1 | 1 | 0 | Marine | Atlantic Ocean mostly | https://www.gbif.org/species/8596590 |
| Procellariidae | Sooty Shearwater | Ardena grisea | Fairly common | 1 | 1 | 0 | Marine | Cosmopolitan | https://www.gbif.org/species/8249990 |
| Procellariidae | Cory's Shearwater | Calonectris diomedea | Rare | 1 | 0 | 0 | Marine | Atlantic | https://www.gbif.org/species/2481521 |
| Procellariidae | Slender-billed Prion | Pachyptila belcheri | Fairly common | 1 | 1 | 0 | Marine | Southern Ocean | https://www.gbif.org/species/5229320 |
| Procellariidae | Antarctic Prion | Pachyptila desolata | Fairly common | 1 | 1 | 0 | Marine | Southern Ocean | https://www.gbif.org/species/5229327 |
| Procellariidae | Salvin's Prion | Pachyptila salvini | 700000 | 0 | 1 | 0 | Marine | Southern Ocean | https://www.gbif.org/species/5229328 |
| Procellariidae | Fairy Prion | Pachyptila turtur | 4000 | 1 | 1 | 0 | Marine | Southern Ocean | https://www.gbif.org/species/5229332 |
| Procellariidae | South Georgian Diving Pe | Pelecanoides georgicus | 11000 | 1 | 0 | 0 | Marine | Southern Ocean | https://www.gbif.org/species/2481429 |
| Procellariidae | Common Diving Petrel | Pelecanoides urinatrix | 20000 | 1 | 1 | 0 | Marine | Southern Ocean | https://www.gbif.org/species/2481418 |
| Procellariidae | White-chinned Petrel | Procellaria aequinoctialis | 30000 | 1 | 1 | 0 | Marine | mostly Southern Ocean | https://www.gbif.org/species/2481495 |
| Procellariidae | Grey Petrel | Procellaria cinerea | 12000 | 1 | 1 | 0 | Marine | Southern Ocean | https://www.gbif.org/species/2481500 |
| Procellariidae | Little Shearwater | Puffinus assimilis | Fairly common | 1 | 1 | 0 | Marine | Southern Ocean | https://www.gbif.org/species/5739275 |
| Rallidae | Corncrake | Crex crex | Vagrant* | 0 | 0 | 0 | Inland | Europa, Africa | https://www.gbif.org/species/4408498 |
| Scolopacidae | Common Sandpiper | Actitis hypoleucos | Vagrant* | 0 | 0 | 0 | Inland | Africa, Europe, Asia, Australia | https://www.gbif.org/species/2481800 |
| Scolopacidae | Ruddy Turnstone | Arenaria interpres | Vagrant* | 1 | 1 | 0 | Coastal | Cosmopolitan | https://www.gbif.org/species/2481776 |
| Scolopacidae | Curlew Sandpiper | Calidris ferruginea | Vagrant* | 0 | 1 | 0 | Inland | South Africa, Europe, Australia | https://www.gbif.org/species/2481741 |
| Scolopacidae | Pectoral Sandpiper | Calidris melanotos | Vagrant* | 1 | 1 | 1 | Inland | mostly N and S America, Euro | https://www.gbif.org/species/2481744 |
| Scolopacidae | Little Stint | Calidris minuta | Vagrant* | 1 | 0 | 0 | Inland | South Africa | https://www.gbif.org/species/2481749 |
| Scolopacidae | Whimbrel | Numenius phaeopus | Vagrant* | 1 | 1 | 0 | Coastal | Cosmopolitan | https://www.gbif.org/species/2481784 |
| Scolopacidae | Red Phalarope | Phalaropus fulicarius | Rare | 1 | 1 | 0 | Marine | N Hemisphere breeder, S Hen | https://www.gbif.org/species/5229390 |
| Scolopacidae | Wood Sandpiper | Tringa glareola | Vagrant* | 0 | 0 | 0 | Inland | Africa, Europe, Asia, Australia | https://www.gbif.org/species/2481713 |
| Scolopacidae | Common Greenshank | Tringa nebularia | Vagrant* | 0 | 0 | 0 | Inland | Africa, Europe, Asia, Australia | https://www.gbif.org/species/2481726 |
| Scolopacidae | Terek Sandpiper | Xenus cinereus | Vagrant* | 1 | 0 | 0 | Coastal | Africa, Europe, Asia, Australia | https://www.gbif.org/species/2481703 |
| Spheniscidae | King Penguin | Aptenodytes patagonicus | 446000 | 1 | 1 | 0 | Coastal | Southern Ocean | https://www.gbif.org/species/2481660 |
| Spheniscidae | Southern Rockhopper Per | Eudyptes chrysocome filholi | 224000 | 0 | 0 | 0 | Coastal | Southern Ocean | https://www.gbif.org/species/6178307 |
| Spheniscidae | Macaroni Penguin | Eudyptes chrysolophus | 750000 | 1 | 1 | 0 | Coastal | Southern Ocean | https://www.gbif.org/species/2481643 |
| Spheniscidae | Chinstrap Penguin | Pygoscelis antarcticus | Vagrant* | 1 | 1 | 0 | Coastal | Southern Ocean | https://www.gbif.org/species/2481664 |
| Spheniscidae | Gentoo Penguin | Pygoscelis papua | 3000 | 1 | 1 | 0 | Coastal | Southern Ocean | https://www.gbif.org/species/2481666 |
| Sulidae | Australasian Gannet | Morus serrator | Vagrant* | 0 | 0 | 0 | Coastal | Australia, New Zealand | https://www.gbif.org/species/5229212 |
| Sylviidae | Willow Warbler | Phylloscopus trochilus | Vagrant* | 0 | 0 | 0 | Inland | Africa, Europe, Asia | https://www.gbif.org/species/2493052 |
| Sylviidae | Common Whitethroat | Sylvia communis | Vagrant* | 0 | 0 | 0 | Inland | Africa, Europe, Asia | https://www.gbif.org/species/2492943 |

Supplementary Table S2. Sources of DNA material used from Aagesen, et al.³, Burge, et al.⁴, Kellermann and Udovicic⁵, and Richardson, et al.⁶. Genbank numbers are listed for the *trnL* intron and the *trnL*-F spacer. Where the same number is listed for both DNA regions, this indicates that the full *trnL*-F region is deposited in GenBank. New sequences are indicated in bold and their voucher specimens listed.

| Taxon | <i>trnL</i> intron (cd) | <i>trnL</i>-F spacer (ef) |
|-----------------------------------|--|----------------------------------|
| <i>Noltea africana</i> | AJ390357 | AJ390357 |
| <i>Adolphia infesta</i> | AY460408 | AY642142 |
| <i>Alphitonia excelsa</i> | HQ325600 | HQ325600 |
| <i>Colletia hystrix</i> | AY409409 | MH263726 |
| | Argentina: Neuquén, <i>D.Medan</i> 774 (BAA) | |
| <i>Colletia paradoxa</i> | AY460410 | AY642143 |
| <i>Colletia ulicina</i> | AJ390364 | AJ390364 |
| <i>Discaria americana</i> | AY460413 | AY642144 |
| <i>Discaria articulata</i> | AY460414 | AY642145 |
| <i>Discaria chacaye</i> | AY460415 | AY642146 |
| <i>Discaria nitida</i> | AY460418 | AY642148 |
| <i>Discaria pubescens</i> | AY460419 | AY642149 |
| <i>Discaria toumatou</i> | AY460420 | AY642149 |
| <i>Ochetophila nana</i> | AY460416 | AY642147 |
| <i>Ochetophila trinervis</i> | AY460421 | AY642150 |
| sp. Marion Island | MH263730 | MH263727 |
| | Sub-Antarctica: Marion Island, Western side of Black Lava, <i>W.A.Haddad</i> 1024 (PRU 121568) | |
| <i>Kentrothamnus weddellianus</i> | AY460422 | AY642152 |
| <i>Retanilla ephedra</i> | AY460423 | MH263728 |
| | Argentina: Buenos Aires, <i>D.Medan</i> s.n. (BAA) | |
| <i>Retanilla patagonica</i> | AY460424 | AY642153 |
| <i>Retanilla stricta</i> | AY460425 | MH263729 |
| | Chile: Colchagua, <i>D.Medan</i> 790 (BAA) | |
| <i>Retanilla trinervia</i> | AY460426 | AY642154 |
| <i>Schistocarpea johnsonii</i> | AJ390349 | AJ390349 |
| <i>Spyridium parvifolium</i> | EF528526 | EF528526 |
| <i>Trevoa quinquenervia</i> | AY460427 | AY642155 |