Supplementary S2: Single category optimisation runs

Results of the optimisations of single category models after bootstrapping for four independent optimisation runs can be found in table 1-4 for the complete study and in table 5-8 for the four dune area clusters.

For the complete study area, the four independent optimisation runs confirmed each other and the overall pattern.The *urban* model is the best supported model with a low resistance value (facilitating gene flow). Isolation-by-distance (*Distance* in table S1-S4) is the second best model with a ΔAICc < 2. Although, *beach* and *scrub* models were not stable and swapped between runs to either impeding or facilitating gene flow (table S1-S4). Results regarding those two categories should be considered inconclusive.

For the four dune area clusters, the four independent optimisation runs also confirmed each other and the overall pattern. The most supported model was isolation-by-distance, except for the dune area cluster Doorpanne (table S5-S8). There, *trees* model was the best supported (facilitating gene flow), but had only a ΔAICc between 0.08 and 0.2 with isolation by distance (IBD) so these are competing models. Other models which had ΔAICc < 2 were *agriculture* in Cabour and *open dune* in Doornpanne (3 out of 4 times), both barriers to gene flow. Several of the models with ΔAICc > 2 were not consistent in being either impeding or facilitating to gene flow across independent runs (table S5-S8). Thus, results regarding other categories then the best supported ones should be considered inconclusive on the scale of the four dune area clusters.

Table S2.1: Bootstrap results for the single category model optimisations for the complete study area, run 1.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Model** | **k** | **avg.AICc** | **ΔAICc** | **avg.weight** | **avg.R²m** | **avg.LL** | **n.top** | **Res.value. predictor** | **Res.value. other** |
| urban | 3 | 239681.26 | 0.00 | 0.39 | 0.00011 | -119837.60 | 610 | 1 | 2500 |
| Distance | 2 | 239682.55 | 1.29 | 0.20 | 0.00001 | -119839.26 | 339 | - | - |
| beach | 3 | 239684.58 | 3.32 | 0.07 | 0.00001 | -119839.26 | 0 | 2500 | 1 |
| water | 3 | 239684.61 | 3.35 | 0.07 | 0.00002 | -119839.27 | 0 | 2500 | 1 |
| trees | 3 | 239684.83 | 3.58 | 0.06 | 0.00001 | -119839.39 | 1 | 1 | 2500 |
| agric | 3 | 239684.93 | 3.68 | 0.06 | 0.00007 | -119839.44 | 0 | 2500 | 1 |
| scrub | 3 | 239684.94 | 3.69 | 0.07 | 0.00011 | -119839.44 | 25 | 2500 | 1 |
| opend | 3 | 239684.98 | 3.72 | 0.07 | 0.00010 | -119839.46 | 25 | 2500 | 1 |

Notes: 7 landscape categories compared in bootstrap analysis after optimisation of single category models. Urbanized (urban), beach, water, trees, agriculture (agric), scrub, open dune (opend). Distance is the isolation-by-distance null model: increasing genetic distance with increasing Euclidean geographic distance. Model, landscape category or univariate model; k, number of parameters; avg.AICc, average AICc across all bootstrap iterations; ΔAICc, difference in avg.AICc compared to the lowest avg.AICc (the best supported model); avg.weight, average Akaike weight across iterations; avg.R²m, average marginal R² across iterations; avg.LL, average log-likelihood across iterations; n.top, number of times the model was the top model across iterations; Res.value.predictor, the optimized resistance value for the focal landscape category; Res.value.other, optimized resistance value for all else (combined into one landscape variable). Models which have ΔAICc > 2 are coloured light grey.

Table S2.2: Bootstrap results for the single category model optimisations for the complete study area, run 2.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Model** | **k** | **avg.AICc** | **ΔAICc** | **avg.weight** | **avg.R²m** | **avg.LL** | **n.top** | **Res.value. predictor** | **Res.value. other** |
| urban | 3 | 239692.42 | 0.00 | 0.40 | 0.00011 | -119843.18 | 614 | 2500 | 1 |
| Distance | 2 | 239693.71 | 1.29 | 0.20 | 0.00001 | -119844.84 | 338 | NA | NA |
| beach | 3 | 239695.74 | 3.32 | 0.07 | 0.00001 | -119844.84 | 0 | 1 | 2500 |
| water | 3 | 239695.77 | 3.35 | 0.07 | 0.00002 | -119844.85 | 0 | 1 | 2500 |
| trees | 3 | 239696.00 | 3.59 | 0.06 | 0.00001 | -119844.97 | 2 | 2500 | 1 |
| agric | 3 | 239696.09 | 3.68 | 0.06 | 0.00007 | -119845.02 | 1 | 1 | 2500 |
| scrub | 3 | 239696.15 | 3.73 | 0.07 | 0.00010 | -119845.04 | 24 | 1 | 2500 |
| opend | 3 | 239696.22 | 3.81 | 0.07 | 0.00010 | -119845.08 | 21 | 1 | 2500 |

Notes: see table S1.

Table S2.3: Bootstrap results for the single category model optimisations for the complete study area, run 3.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Model** | **k** | **avg.AICc** | **ΔAICc** | **avg.weight** | **avg.R²m** | **avg.LL** | **n.top** | **Res.value. predictor** | **Res.value. other** |
| urban | 3 | 239699.10 | 0.00 | 0.39 | 0.00011 | -119846.52 | 616 | 2500 | 1 |
| Distance | 2 | 239700.40 | 1.29 | 0.19 | 0.00001 | -119848.18 | 333 | NA | NA |
| scrub | 3 | 239701.89 | 2.79 | 0.10 | 0.00002 | -119847.92 | 36 | 2500 | 1 |
| beach | 3 | 239702.43 | 3.32 | 0.07 | 0.00001 | -119848.18 | 0 | 1 | 2500 |
| water | 3 | 239702.46 | 3.36 | 0.07 | 0.00002 | -119848.20 | 0 | 1 | 2500 |
| trees | 3 | 239702.69 | 3.58 | 0.06 | 0.00001 | -119848.31 | 1 | 2500 | 1 |
| agric | 3 | 239702.78 | 3.68 | 0.06 | 0.00008 | -119848.36 | 0 | 1 | 2500 |
| opend | 3 | 239703.03 | 3.93 | 0.06 | 0.00009 | -119848.48 | 14 | 1 | 2500 |

Notes: see table S1.

Table S2.4: Bootstrap results for the single category model optimisations for the complete study area, run 4.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Model** | **k** | **avg.AICc** | **ΔAICc** | **avg.weight** | **avg.R²m** | **avg.LL** | **n.top** | **Res.value. predictor** | **Res.value. other** |
| urban | 3 | 239627.75 | 0.00 | 0.32 | 0.00011 | -119810.84 | 446 | 2500 | 1 |
| beach | 3 | 239628.03 | 0.28 | 0.28 | 0.00005 | -119810.98 | 340 | 2500 | 1 |
| Distance | 2 | 239629.18 | 1.43 | 0.15 | 0.00001 | -119812.57 | 176 | NA | NA |
| water | 3 | 239631.24 | 3.49 | 0.05 | 0.00002 | -119812.59 | 0 | 1 | 2500 |
| trees | 3 | 239631.44 | 3.69 | 0.05 | 0.00001 | -119812.69 | 2 | 2500 | 1 |
| opend | 3 | 239631.59 | 3.85 | 0.05 | 0.00010 | -119812.77 | 19 | 1 | 2500 |
| scrub | 3 | 239631.68 | 3.93 | 0.05 | 0.00009 | -119812.81 | 17 | 1 | 2500 |
| agric | 3 | 239631.56 | 3.81 | 0.04 | 0.00007 | -119812.75 | 0 | 1 | 2500 |

Notes: see table S1.

Table S2.5: Bootstrap results for the single category model optimisations for the dune area clusters, run 1.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Dune area** | **Model** | **k** | **avg.AICc** | **ΔAICc** | **avg.weight** | **avg.R2m** | **avg.LL** | **n.top** | **Res.value. predictor** | **Res.value. other** |
| Westhoek | Distance | 2 | 29842.52 | 0.00 | 0.50 | 0.00025 | -14919.21 | 901 | NA | NA |
| beach | 3 | 29844.61 | 2.09 | 0.17 | 0.00025 | -14919.21 | 0 | 2500 | 1 |
| urban | 3 | 29845.76 | 3.25 | 0.11 | 0.00025 | -14919.79 | 15 | 1 | 2500 |
| scrub | 3 | 29847.22 | 4.70 | 0.07 | 0.00596 | -14920.52 | 5 | 2500 | 1 |
| trees | 3 | 29847.75 | 5.24 | 0.07 | 0.00074 | -14920.79 | 35 | 2500 | 1 |
| opend | 3 | 29847.98 | 5.47 | 0.07 | 0.00014 | -14920.90 | 44 | 1 | 2500 |
| Cabour | Distance | 2 | 1496.39 | 0.00 | 0.31 | 0.00049 | -745.97 | 661 | NA | NA |
| agric | 3 | 1497.41 | 1.02 | 0.22 | 0.02727 | -745.24 | 312 | 2500 | 1 |
| opend | 3 | 1498.77 | 2.38 | 0.10 | 0.00175 | -745.92 | 15 | 2500 | 1 |
| trees | 3 | 1498.83 | 2.44 | 0.10 | 0.00085 | -745.95 | 12 | 2500 | 1 |
| water | 3 | 1498.87 | 2.48 | 0.09 | 0.00049 | -745.97 | 0 | 2500 | 1 |
| urban | 3 | 1498.87 | 2.48 | 0.09 | 0.00049 | -745.97 | 0 | 2500 | 1 |
| scrub | 3 | 1498.87 | 2.48 | 0.09 | 0.00049 | -745.97 | 0 | 2500 | 1 |
| Doornpanne | trees | 3 | 9930.23 | 0.00 | 0.27 | 0.00089 | -4961.95 | 447 | 1 | 2500 |
| Distance | 2 | 9930.37 | 0.13 | 0.23 | 0.00018 | -4963.10 | 415 | NA | NA |
| opend | 3 | 9931.99 | 1.76 | 0.13 | 0.00135 | -4962.83 | 126 | 2500 | 1 |
| agric | 3 | 9932.53 | 2.30 | 0.08 | 0.00018 | -4963.10 | 0 | 2500 | 1 |
| beach | 3 | 9932.53 | 2.30 | 0.08 | 0.00018 | -4963.10 | 0 | 2500 | 1 |
| water | 3 | 9932.54 | 2.31 | 0.08 | 0.00017 | -4963.11 | 0 | 2500 | 1 |
| urban | 3 | 9933.01 | 2.78 | 0.07 | 0.00015 | -4963.35 | 12 | 2500 | 1 |
| scrub | 3 | 9933.11 | 2.87 | 0.06 | 0.00013 | -4963.39 | 0 | 1 | 2500 |
| Teryde | Distance | 2 | 16499.84 | 0.00 | 0.31 | 0.00010 | -8247.86 | 953 | NA | NA |
| water | 3 | 16501.96 | 2.12 | 0.11 | 0.00010 | -8247.86 | 0 | 2500 | 1 |
| beach | 3 | 16501.96 | 2.12 | 0.11 | 0.00010 | -8247.86 | 0 | 2500 | 1 |
| agric | 3 | 16501.96 | 2.12 | 0.11 | 0.00010 | -8247.86 | 0 | 2500 | 1 |
| scrub | 3 | 16502.34 | 2.51 | 0.10 | 0.00056 | -8248.05 | 20 | 2500 | 1 |
| opend | 3 | 16502.35 | 2.51 | 0.09 | 0.00011 | -8248.05 | 3 | 1 | 2500 |
| trees | 3 | 16502.39 | 2.55 | 0.10 | 0.00050 | -8248.07 | 20 | 2500 | 1 |
| urban | 3 | 16502.50 | 2.67 | 0.09 | 0.00009 | -8248.13 | 4 | 1 | 2500 |

Notes: 7 landscape categories compared in bootstrap analysis after optimisation of single category models. Urbanized (urban), beach, water, trees, agriculture (agric), scrub, open dune (opend). Distance is the isolation-by-distance null model: increasing genetic distance with increasing Euclidean geographic distance. Dune area, name of dune area cluster (Fig. 1); Predictor, landscape category or univariate model; k, number of parameters; avg.AICc, average AICc across all bootstrap iterations; ΔAICc, difference in avg.AICc compared to the lowest avg.AICc (the best supported model); avg.weight, average weight across iterations; avg.R²m, average marginal R² across iterations; avg.LL, average log-likelihood across iterations; n.top, number of times the model was the top model across iterations; Res.value.predictor, the optimized resistance value for the focal landscape category; Res.value.other, optimized resistance value for all else (combined into one landscape variable). Models which have ΔAICc > 2 are coloured light grey.

Table S2.6: Bootstrap results for the single category model optimisations for the dune area clusters, run 2.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Dune area** | **Model** | **k** | **avg.AICc** | **ΔAICc** | **avg.weight** | **avg.R2m** | **avg.LL** | **n.top** | **Res.value. predictor** | **Res.value. other** |
| Westhoek | Distance | 2 | 29846.00 | 0.00 | 0.48 | 0.00024 | -14920.96 | 894 | NA | NA |
| beach | 3 | 29848.09 | 2.09 | 0.17 | 0.00024 | -14920.96 | 0 | 1 | 2500 |
| urban | 3 | 29849.22 | 3.22 | 0.11 | 0.00024 | -14921.52 | 10 | 2500 | 1 |
| trees | 3 | 29850.00 | 3.99 | 0.10 | 0.00032 | -14921.91 | 37 | 2500 | 1 |
| scrub | 3 | 29850.48 | 4.47 | 0.07 | 0.00634 | -14922.15 | 13 | 1 | 2500 |
| opend | 3 | 29851.26 | 5.25 | 0.08 | 0.00014 | -14922.54 | 46 | 2500 | 1 |
| Cabour | Distance | 2 | 1496.64 | 0.00 | 0.31 | 0.00051 | -746.10 | 647 | NA | NA |
| agric | 3 | 1497.68 | 1.03 | 0.21 | 0.02757 | -745.38 | 311 | 1 | 2500 |
| opend | 3 | 1498.97 | 2.33 | 0.10 | 0.00196 | -746.02 | 28 | 1 | 2500 |
| trees | 3 | 1499.06 | 2.42 | 0.10 | 0.00091 | -746.07 | 14 | 1 | 2500 |
| water | 3 | 1499.12 | 2.48 | 0.09 | 0.00051 | -746.10 | 0 | 1 | 2500 |
| scrub | 3 | 1499.13 | 2.48 | 0.09 | 0.00051 | -746.10 | 0 | 1 | 2500 |
| urban | 3 | 1499.12 | 2.48 | 0.09 | 0.00051 | -746.10 | 0 | 1 | 2500 |
| Doornpanne | trees | 3 | 9932.44 | 0.00 | 0.28 | 0.00090 | -4963.06 | 470 | 2500 | 1 |
| Distance | 2 | 9932.55 | 0.11 | 0.23 | 0.00018 | -4964.19 | 424 | NA | NA |
| opend | 3 | 9934.44 | 2.00 | 0.12 | 0.00113 | -4964.06 | 94 | 1 | 2500 |
| agric | 3 | 9934.71 | 2.27 | 0.08 | 0.00018 | -4964.19 | 0 | 1 | 2500 |
| beach | 3 | 9934.71 | 2.27 | 0.08 | 0.00018 | -4964.19 | 0 | 1 | 2500 |
| water | 3 | 9934.72 | 2.29 | 0.08 | 0.00018 | -4964.20 | 0 | 1 | 2500 |
| urban | 3 | 9935.24 | 2.80 | 0.07 | 0.00014 | -4964.46 | 12 | 1 | 2500 |
| scrub | 3 | 9935.33 | 2.89 | 0.06 | 0.00013 | -4964.50 | 0 | 2500 | 1 |
| Teryde | Distance | 2 | 16505.96 | 0.00 | 0.30 | 0.00011 | -8250.92 | 945 | NA | NA |
| scrub | 3 | 16508.05 | 2.09 | 0.11 | 0.00009 | -8250.90 | 14 | 2500 | 1 |
| agric | 3 | 16508.08 | 2.12 | 0.10 | 0.00011 | -8250.92 | 0 | 1 | 2500 |
| beach | 3 | 16508.08 | 2.12 | 0.10 | 0.00011 | -8250.92 | 0 | 1 | 2500 |
| water | 3 | 16508.08 | 2.12 | 0.10 | 0.00011 | -8250.92 | 0 | 1 | 2500 |
| trees | 3 | 16508.50 | 2.54 | 0.10 | 0.00052 | -8251.13 | 27 | 1 | 2500 |
| opend | 3 | 16508.47 | 2.51 | 0.09 | 0.00012 | -8251.11 | 6 | 2500 | 1 |
| urban | 3 | 16508.60 | 2.64 | 0.09 | 0.00010 | -8251.18 | 8 | 2500 | 1 |

Notes: see table S2.5.

Table S2.7: Bootstrap results for the single category model optimisations for the dune area clusters, run 3.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Dune area** | **Model** | **k** | **avg.AICc** | **ΔAICc** | **avg.weight** | **avg.R2m** | **avg.LL** | **n.top** | **Res.value. predictor** | **Res.value. other** |
| Westhoek | Distance | 2 | 29844.56 | 0.00 | 0.47 | 0.00024 | -14920.24 | 915 | NA | NA |
| beach | 3 | 29846.65 | 2.09 | 0.17 | 0.00024 | -14920.24 | 0 | 1 | 2500 |
| urban | 3 | 29846.98 | 2.41 | 0.14 | 0.00023 | -14920.40 | 0 | 1 | 2500 |
| scrub | 3 | 29849.17 | 4.60 | 0.07 | 0.00623 | -14921.49 | 13 | 1 | 2500 |
| opend | 3 | 29850.05 | 5.48 | 0.07 | 0.00013 | -14921.93 | 37 | 2500 | 1 |
| trees | 3 | 29849.76 | 5.20 | 0.07 | 0.00075 | -14921.79 | 35 | 1 | 2500 |
| Cabour | Distance | 2 | 1496.92 | 0.00 | 0.31 | 0.00051 | -746.24 | 641 | NA | NA |
| agric | 3 | 1497.90 | 0.98 | 0.22 | 0.02905 | -745.49 | 325 | 1 | 2500 |
| opend | 3 | 1499.33 | 2.41 | 0.10 | 0.00168 | -746.21 | 19 | 1 | 2500 |
| trees | 3 | 1499.36 | 2.44 | 0.10 | 0.00088 | -746.22 | 15 | 1 | 2500 |
| water | 3 | 1499.40 | 2.48 | 0.09 | 0.00051 | -746.24 | 0 | 1 | 2500 |
| scrub | 3 | 1499.40 | 2.48 | 0.09 | 0.00052 | -746.24 | 0 | 1 | 2500 |
| urban | 3 | 1499.40 | 2.48 | 0.09 | 0.00051 | -746.24 | 0 | 1 | 2500 |
| Doornpanne | trees | 3 | 9929.87 | 0.00 | 0.28 | 0.00089 | -4961.77 | 470 | 2500 | 1 |
| Distance | 2 | 9929.95 | 0.08 | 0.23 | 0.00019 | -4962.90 | 410 | NA | NA |
| opend | 3 | 9931.73 | 1.86 | 0.12 | 0.00123 | -4962.70 | 106 | 1 | 2500 |
| agric | 3 | 9932.12 | 2.25 | 0.08 | 0.00019 | -4962.90 | 0 | 1 | 2500 |
| beach | 3 | 9932.12 | 2.25 | 0.08 | 0.00019 | -4962.90 | 0 | 1 | 2500 |
| water | 3 | 9932.13 | 2.26 | 0.08 | 0.00018 | -4962.90 | 0 | 1 | 2500 |
| urban | 3 | 9932.64 | 2.77 | 0.07 | 0.00016 | -4963.16 | 14 | 1 | 2500 |
| scrub | 3 | 9933.06 | 3.19 | 0.06 | 0.00048 | -4963.37 | 0 | 1 | 2500 |
| Teryde | Distance | 2 | 16501.49 | 0.00 | 0.30 | 0.00010 | -8248.69 | 935 | NA | NA |
| agric | 3 | 16503.62 | 2.12 | 0.10 | 0.00010 | -8248.69 | 0 | 1 | 2500 |
| water | 3 | 16503.62 | 2.12 | 0.10 | 0.00010 | -8248.69 | 0 | 1 | 2500 |
| beach | 3 | 16503.62 | 2.12 | 0.10 | 0.00010 | -8248.69 | 0 | 1 | 2500 |
| trees | 3 | 16504.01 | 2.51 | 0.10 | 0.00052 | -8248.88 | 20 | 1 | 2500 |
| scrub | 3 | 16503.93 | 2.44 | 0.10 | 0.00064 | -8248.84 | 26 | 1 | 2500 |
| opend | 3 | 16503.97 | 2.47 | 0.09 | 0.00012 | -8248.86 | 9 | 2500 | 1 |
| urban | 3 | 16504.15 | 2.66 | 0.09 | 0.00009 | -8248.95 | 10 | 2500 | 1 |

Notes: see table S2.5.

Table S2.8: Bootstrap results for the single category model optimisations for the dune area clusters, run 4.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Dune area** | **Model** | **k** | **avg.AICc** | **ΔAICc** | **avg.weight** | **avg.R2m** | **avg.LL** | **n.top** | **Res.value. predictor** | **Res.value. other** |
| Westhoek | Distance | 2 | 29850.13 | 0.00 | 0.46 | 0.00025 | -14923.02 | 914 | NA | NA |
| beach | 3 | 29852.22 | 2.09 | 0.16 | 0.00025 | -14923.02 | 0 | 1 | 2500 |
| urban | 3 | 29852.57 | 2.44 | 0.14 | 0.00024 | -14923.19 | 1 | 1 | 2500 |
| trees | 3 | 29854.25 | 4.12 | 0.09 | 0.00033 | -14924.03 | 34 | 2500 | 1 |
| scrub | 3 | 29854.87 | 4.74 | 0.07 | 0.00604 | -14924.34 | 6 | 1 | 2500 |
| opend | 3 | 29855.62 | 5.49 | 0.08 | 0.00014 | -14924.72 | 45 | 2500 | 1 |
| Cabour | Distance | 2 | 1496.18 | 0.00 | 0.31 | 0.00055 | -745.87 | 628 | NA | NA |
| agric | 3 | 1497.15 | 0.96 | 0.22 | 0.02881 | -745.11 | 328 | 1 | 2500 |
| opend | 3 | 1498.54 | 2.36 | 0.10 | 0.00199 | -745.81 | 27 | 1 | 2500 |
| trees | 3 | 1498.60 | 2.42 | 0.10 | 0.00095 | -745.84 | 17 | 1 | 2500 |
| water | 3 | 1498.66 | 2.48 | 0.09 | 0.00055 | -745.87 | 0 | 1 | 2500 |
| scrub | 3 | 1498.67 | 2.48 | 0.09 | 0.00055 | -745.87 | 0 | 1 | 2500 |
| urban | 3 | 1498.67 | 2.48 | 0.09 | 0.00054 | -745.87 | 0 | 1 | 2500 |
| Doornpanne | trees | 3 | 9929.32 | 0.00 | 0.29 | 0.00092 | -4961.50 | 480 | 2500 | 1 |
| Distance | 2 | 9929.52 | 0.20 | 0.23 | 0.00018 | -4962.68 | 403 | NA | NA |
| opend | 3 | 9931.30 | 1.99 | 0.12 | 0.00123 | -4962.49 | 107 | 1 | 2500 |
| agric | 3 | 9931.68 | 2.37 | 0.08 | 0.00018 | -4962.68 | 0 | 1 | 2500 |
| beach | 3 | 9931.68 | 2.37 | 0.08 | 0.00018 | -4962.68 | 0 | 1 | 2500 |
| water | 3 | 9931.70 | 2.38 | 0.08 | 0.00018 | -4962.69 | 0 | 1 | 2500 |
| urban | 3 | 9932.21 | 2.89 | 0.07 | 0.00015 | -4962.94 | 10 | 1 | 2500 |
| scrub | 3 | 9932.28 | 2.96 | 0.06 | 0.00013 | -4962.98 | 0 | 2500 | 1 |
| Teryde | Distance | 2 | 16508.31 | 0.00 | 0.30 | 0.00010 | -8252.09 | 943 | NA | NA |
| beach | 3 | 16510.43 | 2.12 | 0.11 | 0.00010 | -8252.09 | 0 | 1 | 2500 |
| water | 3 | 16510.43 | 2.12 | 0.11 | 0.00010 | -8252.09 | 0 | 1 | 2500 |
| agric | 3 | 16510.43 | 2.12 | 0.11 | 0.00010 | -8252.09 | 0 | 1 | 2500 |
| trees | 3 | 16510.85 | 2.55 | 0.10 | 0.00049 | -8252.30 | 16 | 1 | 2500 |
| scrub | 3 | 16510.81 | 2.51 | 0.10 | 0.00057 | -8252.28 | 27 | 1 | 2500 |
| opend | 3 | 16510.78 | 2.48 | 0.09 | 0.00012 | -8252.27 | 5 | 2500 | 1 |
| urban | 3 | 16510.95 | 2.65 | 0.09 | 0.00010 | -8252.35 | 9 | 2500 | 1 |

Notes: see table S2.5.