

On the inference of spatial population structure from population genetics data. Supporting Material

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A RESULTS OF THE RE-ANALYSIS OF SIMULATED FIVE-ISLAND DATA

Table A. Results of inferences using Tess on simulated five-island data when the interaction parameter ψ is treated as an unknown parameter. $\hat{\psi}^{(L)}$: estimated value of the interaction parameter; $\hat{K}_{\text{off}}^{(L)}$: estimated number of populations officially reported by Tess; $\hat{K}_{\text{eff}}^{(L)}$: estimated number of populations obtained by counting the number of non empty clusters inferred by Tess; $\text{Err}^{(L)}$: percentage of miss-assigned individuals. $\text{xxx}^{(L)}$ run that maximizes the likelihood, $\text{xxx}^{(DIC)}$ run that minimizes the Deviance Information Criterion.

F_{ST}	replicate	$\hat{\psi}^{(L)}$	$\hat{K}_{\text{off}}^{(L)}$	$\hat{K}_{\text{eff}}^{(L)}$	$\text{Err}^{(L)}$	$\hat{\psi}^{(DIC)}$	$\hat{K}_{\text{off}}^{(DIC)}$	$\hat{K}_{\text{eff}}^{(DIC)}$	$\text{Err}^{(DIC)}$
0.01	1	0.15	10	10	74	0.15	10	10	74
0.01	2	0.15	10	10	71.4	0.3	10	10	70.8
0.01	3	0.3	10	10	70.8	0.15	10	10	76.2
0.01	4	0.15	10	10	76	0.15	10	10	74.6
0.01	5	0.15	10	10	75	0.15	10	10	75
0.02	1	0.15	10	10	51.8	0.3	10	10	40.6
0.02	2	0.15	10	10	51.4	0.6	10	10	24
0.02	3	0.3	10	10	42	0.3	10	10	35.6
0.02	4	0.15	10	10	50.8	0.3	10	10	40.8
0.02	5	0.3	10	10	44.2	0.15	10	10	49.2
0.03	1	0.15	10	10	41.8	0.6	10	10	7.2
0.03	2	0.15	10	10	39.6	0.15	10	10	31.8
0.03	3	0.15	10	10	44.8	0.3	10	10	25.8
0.03	4	0.15	10	10	32.8	0.15	10	10	29.6
0.03	5	0.15	10	10	38.2	0.3	10	10	19.6
0.04	1	0.15	10	10	31.4	0.15	10	10	20.4
0.04	2	0.15	10	10	28.4	0.15	10	10	28.4
0.04	3	0.15	10	10	27	0.3	10	9	16.6
0.04	4	0.15	10	10	27.2	0.3	10	10	11.4
0.04	5	0.15	10	10	31.8	0.15	10	10	33.4
0.05	1	0.15	10	10	16.6	0.15	10	9	9.8
0.05	2	0.15	10	10	31	0.3	10	8	7.2
0.05	3	0.15	10	10	26.2	0.3	10	9	6.2
0.05	4	0.15	10	10	16.2	0.15	10	10	16.2
0.05	5	0.15	10	10	35.6	0.3	10	10	14.2

Table B. Results of inferences using Tess on simulated five-island data when the interaction parameter ψ is set to 0.6. $\hat{K}_{\text{off}}^{(\cdot)}$: estimated number of populations officially reported by Tess; $\hat{K}_{\text{eff}}^{(\cdot)}$: estimated number of populations obtained by counting the number of non empty clusters inferred by Tess; $\text{Err}^{(\cdot)}$: percentage of miss-assigned individuals. $\text{xxx}^{(L)}$ run that maximizes the likelihood, $\text{xxx}^{(DIC)}$ run that minimizes the Deviance Information Criterion.

F_{ST}	replicate	ψ	$\hat{K}_{\text{off}}^{(L)}$	$\hat{K}_{\text{eff}}^{(L)}$	$\text{Err}^{(L)}$	ψ	$\hat{K}_{\text{off}}^{(DIC)}$	$\hat{K}_{\text{eff}}^{(DIC)}$	$\text{Err}^{(DIC)}$
0.01	1	0.6	10	10	54.2	0.6	10	10	54.6
0.01	2	0.6	10	10	56.4	0.6	10	10	56.6
0.01	3	0.6	10	10	56.2	0.6	10	10	54.8
0.01	4	0.6	10	10	64	0.6	10	10	64.4
0.01	5	0.6	10	10	60.4	0.6	10	10	58.8
0.02	1	0.6	10	10	27.6	0.6	10	10	23.2
0.02	2	0.6	10	10	27.8	0.6	10	10	24
0.02	3	0.6	10	10	23.4	0.6	10	10	18.8
0.02	4	0.6	10	10	26.6	0.6	10	10	24.2
0.02	5	0.6	10	10	27.4	0.6	10	10	23
0.03	1	0.6	10	10	7.2	0.6	10	10	7.2
0.03	2	0.6	10	10	10.4	0.6	10	10	10
0.03	3	0.6	10	9	7.6	0.6	10	9	7
0.03	4	0.6	10	10	11.2	0.6	10	10	8.8
0.03	5	0.6	10	9	8.2	0.6	10	9	8.2
0.04	1	0.6	9	9	2.8	0.6	9	9	2.8
0.04	2	0.6	10	9	8.2	0.6	8	7	2.8
0.04	3	0.6	6	9	2	0.6	6	9	2
0.04	4	0.6	10	9	4.4	0.6	10	9	4.2
0.04	5	0.6	6	8	2.8	0.6	5	9	2.4
0.05	1	0.6	5	8	0.8	0.6	5	8	0.8
0.05	2	0.6	5	6	0.4	0.6	5	6	0.4
0.05	3	0.6	5	7	1	0.6	5	7	1
0.05	4	0.6	5	5	0.8	0.6	5	5	0.8
0.05	5	0.6	5	8	1	0.6	5	8	1

Table C. Results of inferences using Tess on simulated one-island data when the interaction parameter ψ is set to 0.6. In contrast with data analyzed in Tables A and B, each sub-dataset is here globally in HWLE. The F_{ST} values refer to the original dataset from which each sub-dataset has been taken. These values are meaningless here and given to identify the various replicates only. $\hat{K}_{\text{off}}^{(\cdot)}$: estimated number of populations officially reported by Tess; $\hat{K}_{\text{eff}}^{(\cdot)}$: estimated number of populations obtained by counting the number of non empty clusters inferred by Tess; $\text{Err}^{(\cdot)}$: percentage of miss-assigned individuals. $\text{xxx}^{(L)}$ run that maximizes the likelihood, $\text{xxx}^{(DIC)}$ run that minimizes the Deviance Information Criterion.

F_{ST}	replicate	ψ	$\hat{K}_{\text{off}}^{(L)}$	$\hat{K}_{\text{eff}}^{(L)}$	$\text{Err}^{(L)}$	ψ	$\hat{K}_{\text{off}}^{(DIC)}$	$\hat{K}_{\text{eff}}^{(DIC)}$	$\text{Err}^{(DIC)}$
0.01	1	0.6	10	9	81	0.6	10	10	73
0.01	2	0.6	10	10	79	0.6	10	10	79
0.01	3	0.6	10	10	86	0.6	10	10	86
0.01	4	0.6	10	10	80	0.6	10	9	79
0.01	5	0.6	10	10	78	0.6	10	10	78
0.02	1	0.6	10	10	57	0.6	10	10	57
0.02	2	0.6	10	10	82	0.6	10	10	83
0.02	3	0.6	10	9	60	0.6	10	10	57
0.02	4	0.6	10	10	79	0.6	10	10	79
0.02	5	0.6	10	9	76	0.6	10	9	62
0.03	1	0.6	10	10	66	0.6	10	10	77
0.03	2	0.6	10	10	82	0.6	10	10	73
0.03	3	0.6	10	7	58	0.6	10	8	23
0.03	4	0.6	10	9	47	0.6	10	9	47
0.03	5	0.6	10	10	64	0.6	10	10	35
0.04	1	0.6	10	10	82	0.6	10	10	82
0.04	2	0.6	10	10	38	0.6	10	10	37
0.04	3	0.6	10	10	59	0.6	10	10	61
0.04	4	0.6	10	10	80	0.6	10	10	68
0.04	5	0.6	10	6	14	0.6	10	6	14
0.05	1	0.6	10	9	79	0.6	10	9	79
0.05	2	0.6	10	9	78	0.6	10	10	74
0.05	3	0.6	10	10	63	0.6	10	10	63
0.05	4	0.6	10	9	70	0.6	10	9	83
0.05	5	0.6	10	10	74	0.6	10	10	74

B RESULTS OF THE ANALYSIS OF DATA SIMULATED UNDER A SCENARIO OF ISOLATION-BY-DISTANCE AT MUTATION-MIGRATION-DRIFT EQUILIBRIUM UNDER AN ISOTROPIC DISPERSAL PROCESS

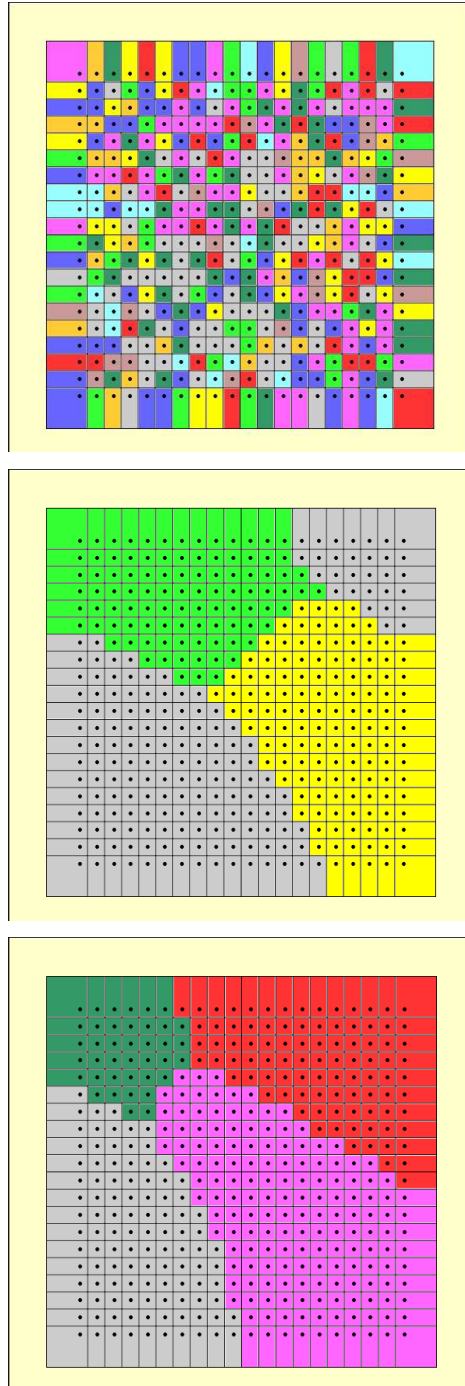


Fig. A. Examples of spatial pattern of population membership obtained with Tess on data simulated with a model of isolation-by-distance at migration-mutation-drift equilibrium under an isotropic dispersal process. The three figures are obtained from Tess analysis on the same dataset but with three values of the interaction parameter ψ . From top to bottom : $\psi = 0.15, 0.6, 1.2$.