

APPENDIX S2. Realistic parameter values, obtained from the literature where possible, and otherwise estimated by the authors.

Parameter	Bryophyte: monoicous	Bryophyte: dioicous	Pteridophyte: homosporous	Pteridophyte: heterosporous	Angiosperm: monoecious	Angiosperm: Dioecious ^k
recomb_rate	6.08e-9 ^a	6.08e-9 ^a	6.08e-9 ^a	6.08e-9 ^a	6.08e-9 ^a	6.08e-9 ^a
spo_pop_size	<1000 ^b	<1000 ^b	100s–10,000s	100s–1000s	100s–1000s ⁱ	100s–1000s
gam_pop_size	<500 ^b	<500 ^b	100s–10,000s	100s–1000s	100s–1000s	100s–1000s
spo_mutation_rate	5e-8	5e-8	5e-8	5e-8	1-e7	1-e7
gam_mutation_rate	5e-8	5e-8	5e-8	5e-8	0.0	0.0
spo_female_to_male_ratio	N/A	N/A	N/A	N/A	N/A	33:17
gam_female_to_male_ratio	N/A	2:1 ^c	8:2	1:100 ^g	N/A	N/A
spo_clone_rate	N/A	N/A	0.3	0.1	0.1	0.1
spo_clone_number	N/A	N/A	20 ^c	3	3	3
gam_clone_rate	0.8	0.8 ^d	0.8	N/A	N/A	N/A
gam_clone_number	250	250 ^d	15	N/A	N/A	N/A
spo_self_rate_per_egg	0.88 ^e	0.40 ^e	0.01 ^f	0.5	0.15 ⁱ	N/A
gam_self_rate_per_egg	0.88 ^e	N/A	0.01 ^f	N/A	N/A	N/A
spo_maternal_effect	N/A	N/A	0.5	0.5	0.5	0.5
gam_maternal_effect	0.5	0.5	0.5	N/A	N/A	N/A
spo_spores_per	100	100	100	N/A	N/A	N/A
gam_archegonia_per	24	24	10	1 ^h	N/A	N/A
spo_flowers_per	N/A	N/A	N/A	N/A	20 ^j	4
flower_ovules_per	N/A	N/A	N/A	N/A	8 ^j	852
flower_anthers_per	N/A	N/A	N/A	N/A	8	8
anther_pollen_per	N/A	N/A	N/A	N/A	>120	>1e6
pollen_comp	N/A	N/A	N/A	N/A	True	True
pollen_comp_stigma_pollen_per	N/A	N/A	N/A	N/A	20 [*]	>2000

Note: N/A = the parameter is not applicable to the specific life cycle model.

^aGeneral recombination rate reported for green plants (Stapley et al., 2017).

^bA population of thousands of sporophytes and gametophytes has been recorded, but is unusually large for *Funaria hygrometrica* (Shaw, 1991).

^cBischler and Jovet-Ast (1981)

^dBased on values in *Marchantia inflexa* reported by McLetchie and Puterbaugh (2000).

^eReported Wright's F_{IS} values (Wright, 1965) approximate an amalgamation of inter- and intra-gametophytic selfing in monoicous species, and intergametophytic selfing rate in dioicous species (Eppley et al., 2007). To force the rate in a *shadie* model, both parameters relating to selfing can be set to the desired F_{IS} value: spo_self_rate_per_egg and gam_self_rate_per_egg.

^fHooper and Haufler (1997) report Wright's F_{IS} value approaches zero in epiphytic *Pleopeltis*.

^gSchultz et al. (2010)

^hKumar (2001)

ⁱFenster (1991)

^jFrazee et al. (1994)

^kValues based on *Silene alba* (Taylor et al., 1999).

^{*}This number can vary dramatically, there is no consensus in the literature. *shadie* uses a conservative value of 20 to allow the simulation to run efficiently.

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