Pollination Methods:
The fertility of 16 Monomorphic populations and 16 polymorphic (6 dimorphic, 10 trimorphic) populations was assessed in a common greenhouse environment. Cuttings and young clonal offspring were collected in the field in 2014 by CGE and in 2015 by MPB + CT. All field collected plants were separated by at least 1 canoe length (16-feet). Plants were potted is 6-inch round pots in ProMix professional potting soil.

Prior to the fertility assay, all plants experienced an artificial winter; they were housed in the dark at 5°C in one of the following locations: coldroom on 3rd floor, growth chamber, or lab fridge. Plants were placed into cold storage in late December 2015 and early February 2016. Over two days, beginning April 20, 2016, all plants were repotted in ProMix professional potting soil and placed into a common greenhouse at Queen's University.

Hand pollinations were performed from 0800 to 1300. Hand pollinations began on June 30, 2016. Michael practiced emasculations on a few plants that were flowering on June 29, 2016. Only newly opened flowers (< 6hrs old) were used as pollen recipients in this study. **Pollen donors were no more than 1 day old?** Flowers were emasculated prior to anther anthesis. Pollen was transferred by rubbing a freshly dehisced donor anther (extracted using fine forceps) to evenly coat a recipient stigma with pollen. Single pollen donors were used for each pollination. A haphazard sample of flowers were emasculated and not pollinated. These served as negative control to assess possible pollen contamination during the experiment.

Populations in GH: 32 pops in GH

Plants were collected in 2014 by CGE and in 2015 by MPB + CT. All populations were taken through cold treatment over the winter of 2015/2016. Plants were placed into GH around April 20 2016.

Table 1 Number of plants from each population alive and growing in the GH.

	PopCode2	n	PopName
1	EO.T6	38	Cow Bay QUBS
2	ON.D2	26	Scugog
3	ON.D5	20	Bewdley A
4	ON.D7	21	Otty Lake
5	ON.D9	17	Pumphouse Marsh
6	ON.M1	15	Horseshoe Lake
7	ON.M10	5	Lac LaPeche
8	ON.M12	6	Holland River
9	ON.M13	35	Barrie
10	ON.M3	34	Mud Lake
11	ON.M8	17	Jock River I
12	ON.T12	29	Loch Garry
13	ON.T14	15	Black River
14	ON.T16	20	Rideau Bird Sanctuary
15	EO.T1	3	Stonehouse Creek
16	EO.T12	2	Cranberry Lake
17	EO.T3	12	NE Sanctuary
18	ON.T10	26	Rice Lake B
19	ON.T15	35	Puslinch Lake
20	ON.D10	32	Samuel de Champlain
21	ON.D8	10	Ardoch
22	ON.M2	14	Jevins
23	ON.M4	15	Caledon
24	ON.M6	40	Hindon bog
25	ON.M7	7	East Silver Lake
26	ON.M11	19	Ferguson
27	ON.M14	32	Lafarce
28	ON.M15	18	Kagawong
29	ON.M16	24	Corry Lake
30	ON.M5	19	Round Lake
31	ON.M9	25	Constance Lake
32	ON.T13	28	Joes Lake

Type of Pops:

Low Fertility (based on seeds/fruit)

ON.D10	Low	1
ON.D8	Low	2
ON.M2	Low	3
ON.M4	Low	4
ON.M6	Low	5
ON.M7	low_no_seed	6
ON.M11	Mid*	7
ON.M14	Mid*	8
ON.M15	Mid*	9
ON.M16	Mid*	10
ON.M5	Mid*	11
ON.M9	Mid*	12
ON.T13	Mid*	13

*These pops produced fewer fruit

High Fertility (based on seeds/fruit)

EO.T6	High	1
ON.D2*	High	2
ON.D5	High	3
ON.D7	High	4
ON.D9	High	5
ON.M1*	High	6
ON.M10	High	7
ON.M12	High	8
ON.M13*	High	9
ON.M3*	High	10
ON.M8	High	11
ON.T12	High	12
ON.T14	High	13
ON.T16	High	14
EO.T1	High_no_seed	15
EO.T12	High_no_seed	16
EO.T3	High_no_seed	17
ON.T10	High_no_seed	18
ON.T15	High_no_seed	19

*These pops produced fewer fruit

Cross type

S: self
W: within pop
BS: between pop cross but same types of pop
BD: between pop cross but with between different types of pops

Crossing Design:

		Low	Low	High	High
		ON.M6	**ON.D10**	**ON.D7**	**EO.T6**
Low	**ON.M6**	Self/out	reciprocal	reciprocal	reciprocal
Low	**ON.D10**	any plant from this pop	Self/out	reciprocal	reciprocal
High	**ON.D7**	any plant from this pop	any plant from this pop	Self/out	reciprocal
High	**EO.T6**	any plant from this pop	any plant from this pop	any plant from this pop	Self/out

Mating Sets:
These will be assembled as plants flower. Populations can be part of multiple sets. For example, EO.T6 should be part of multiple sets because there are 38 plants that are alive in the GH from this population.

Set1:
Low ON.M6
Low ON.D10
High ON.D7
High EO.T6