

## ONLINE APPENDICES

**Appendix S1:** Sampling locations and numbers of threespine stickleback included in the analysis.

Watershed	Population	Code	<i>N</i>	Latitude (N)	Longitude (W)
Misty	Lake	ML	40	50°36'16"	127°15'42"
	Inlet	MI	36	50°36'8"	127°15'5"
Beaver	Lake	Bel	40	50°35'59"	127°19'11"
	Outlet	BeO	37	50°36'	127°19'33"
Roberts	Lake	RL	37	50°13'37"	125°33'13"
	Outlet	RO	40	50°13'40"	125°33'24"
Pye	Lake	PL	40	50°18'9"	125°35'27"
	Outlet	PO	40	50°18'11"	125°35'23"
Village Bay	Lake	VL	40	50°8'32"	125°11'36"
	Inlet	VI	40	50°8'31"	125°11'42"
Boot	Lake	BL	40	50°3'	125°32'27"
	Outlet	BO	40	50°2'54"	125°32'45"

**Appendix S2:** Numbers of individuals from each population classified into the population of origin, parapatric populations in a different habitat, and allopatric populations in similar or different habitat.

Traits	Focal population	Origin	Parapatric	Allopatric		N
			Different habitat	Similar habitat	Divergent habitat	
<b>Armor traits</b>	Mistv lake	9	4	18	9	40
	Misty stream	9	3	6	18	36
	Beaver Lake	31	3	0	6	40
	Beaver stream	2	8	9	18	37
	Roberts lake	8	2	14	13	37
	Roberts stream	7	0	11	22	40
	Pye Lake	10	0	21	8	40
	Pye stream	3	7	12	18	40
	Village bay lake	7	1	18	14	40
	Village bay stream	5	1	11	23	40
	Boot lake	15	2	16	6	40
	Boot stream	17	0	8	15	40
	<b>Foraging traits</b>	Misty lake	5	2	27	6
Misty stream		14	2	11	9	36
Beaver Lake		8	0	6	26	40
Beaver stream		1	4	26	6	37
Roberts lake		1	5	22	9	37
Roberts stream		7	5	15	13	40
Pye Lake		15	1	18	5	40
Pye stream		15	0	14	11	40
Village bay lake		13	1	22	4	40
Village bay stream		6	2	25	7	40
Boot lake		12	0	21	6	40
Boot stream		11	0	19	10	40
<b>Ecological measures</b>		Misty lake	17	1	11	11
	Misty stream	19	0	13	4	36
	Beaver Lake	29	0	9	2	40
	Beaver stream	27	1	7	2	37
	Roberts lake	14	0	19	4	37
	Roberts stream	8	0	10	22	40
	Pye Lake	28	0	11	0	40
	Pye stream	17	1	2	20	40
	Village bay lake	18	1	4	17	40
	Village bay stream	32	1	7	0	40
	Boot lake	8	0	25	6	40
	Boot stream	24	0	11	5	40
	<b>Neutral markers</b>	Misty lake	33	0	5	1
Misty stream		36	0	0	0	36
Beaver Lake		40	0	0	0	40
Beaver stream		35	0	0	2	37
Roberts lake		30	2	4	1	37
Roberts stream		33	5	0	2	40
Pye Lake		34	3	2	0	40
Pye stream		32	4	0	4	40
Village bay lake		24	7	7	2	40
Village bay stream		35	5	0	0	40
Boot lake		38	0	1	0	40
Boot stream		40	0	0	0	40
<b>Non-neutral markers</b>		Misty lake	33	1	4	1
	Misty stream	35	0	1	0	36
	Beaver Lake	40	0	0	0	40
	Beaver stream	36	0	0	1	37
	Roberts lake	29	1	6	1	37
	Roberts stream	32	6	1	1	40
	Pye Lake	38	0	1	0	40
	Pye stream	40	0	0	0	40
	Village bay lake	31	8	1	0	40
	Village bay stream	37	3	0	0	40
	Boot lake	37	0	1	1	40
	Boot stream	40	0	0	0	40

**Appendix S3:** Numbers of individuals cross-classified into each category (parapatric different, allopatric similar, and allopatric different) and the total number cross-classified. This total number is sometimes less than the number of individuals classified (Appendix S2) because in some cases the probability of classification to the population of origin was 100%.

Traits	Parapatric		Allopatric		N
	Different habitat	Similar habitat	Different habitat		
<b>Armor traits</b>	4	19	17		40
	3	11	22		36
	3	1	36		40
	8	11	18		37
	2	16	19		37
	0	11	29		40
	0	28	12		40
	7	14	19		40
	1	20	19		40
	1	12	27		40
	2	26	12		40
	0	9	31		40
	<b>Foraging traits</b>	2	31	7	
2		18	16		36
0		6	34		40
4		27	6		37
5		22	10		37
5		15	20		40
1		34	5		40
0		17	23		40
1		33	6		40
2		31	7		40
<b>Ecological measures</b>	0	33	7		40
	0	30	10		40
	1	20	19		40
	0	31	5		36
	0	16	24		40
	2	20	15		37
	0	33	4		37
	0	11	29		40
	0	40	0		40
	1	6	33		40
<b>Neutral markers</b>	1	5	34		40
	1	38	1		40
	0	27	13		40
	0	34	6		40
	1	11	9		21
	3	0	1		4
	0	0	0		0
	1	0	21		22
	10	13	7		30
	14	0	7		21
<b>Non-neutral markers</b>	13	9	0		22
	13	1	6		20
	15	19	4		38
	26	0	0		26
	8	2	1		11
	11	0	1		12
	1	11	2		14
	0	1	0		1
	0	1	0		1
	0	0	1		1
3	15	1		19	
10	5	1		16	
0	9	0		9	
0	0	0		0	
15	2	0		17	
9	0	0		9	
0	2	1		3	
0	0	0		0	