

Supplemental Material

19 April 2017

Markle, C.E., Gillingwater, S.D., Levick, R., and Chow-Fraser, P. 2017. The true cost of partial fencing: Evaluating strategies to reduce reptile road mortality. *Wildlife Society Bulletin*.

**Table S1.** Ashley and Robinson (1996) divided the causeway in our study area in southwestern Ontario, Canada into 5 sections (A–E). We described habitat from 2008 to 2015.

Section	Habitat to west	Habitat to east	Exclusion fencing
A	Dominated by cattails and phragmites, large open pool about 40 m from road.	Marina and trailer park development; no natural habitat.	Partial fencing
B	Dominated by cattails and phragmites.	Dominated by cattails and phragmites.	Complete fencing
C	Dominated by cattails and phragmites. A ditch and dyke system are located about 40 m from road.	Dominated by cattails and phragmites.	Complete fencing
D	Dominated by cattails and phragmites. A ditch and dyke system are located about 40 m from road and are parallel to southern portion of this section.	Cottage, marina, trailer park development; some areas dominated by cattails and phragmites.	Partial fencing
E	Dominated by cattails and phragmites.	Boat houses; area dominated by cattails and phragmites.	No fencing

**Table S2.** The dimensions (length  $\times$  span  $\times$  rise), model, and provider for the 7 culverts along the causeway in our study area in southwestern Ontario, Canada.

Culvert	Dimensions (m)	Model	Provider	Installation date
1 and 2 (Terrestrial open-grate)	$12.00 \times 0.50 \times 0.48$	AT500	ACO Systems	Fall 2014
3 (Hydraulic concrete box)	$18.30 \times 3.00 \times 2.10$	Reinforced non-standard concrete box culvert	M-CON Pipe and Products	Fall 2012
4 (Terrestrial concrete box)	$16.30 \times 1.80 \times 0.90$	Reinforced non-standard concrete box culvert	M-CON Pipe and Products	Fall 2012
5 (Terrestrial concrete box)	$16.20 \times 0.50 \times 0.48$	AT500	ACO Systems	Fall 2012
6 (Terrestrial concrete box)	$17.00 \times 1.80 \times 0.90$	Reinforced non-standard concrete box culvert	M-CON Pipe and Products	Fall 2014
7 (Terrestrial open-grate)	$13.00 \times 0.50 \times 0.48$	AT500	ACO Systems	Fall 2014

**Table S3.** Time period and method(s) used to monitor each culvert in our study area in southwestern Ontario, Canada.

Culvert	Monitoring start	Monitoring end	Monitored	Monitored
			with camera	with antenna
1	11 May 2015	27 Aug 2015	✓	
2	11 May 2015	27 Aug 2015	✓	
3	1 May 2014	29 Aug 2014	✓	✓
	11 May 2015	28 Jun 2015		✓
4	22 Jun 2014	29 Aug 2014	✓	✓
	11 May 2015	27 Aug 2015	✓	
5	22 Jun 2014	29 Aug 2014	✓	✓
	11 May 2015	27 Aug 2015		✓
6	11 May 2015	27 Aug 2015		✓
7	11 May 2015	27 Aug 2015	✓	

**Table S4.** Culvert use by turtles during 2014 and 2015 in southwestern Ontario, Canada.

Species	Sex	Culvert	Method	Confirm use?	Used culvert to move east	Used culvert to move west	Total days in bay
<i>Graptemys geographica</i>	N/A	1	Camera	Yes	N/A	N/A	N/A
<i>Chelydra serpentina</i>	N/A	1	Camera	Yes	N/A	N/A	N/A
<i>Chrysemys picta marginata</i>	N/A	1	Camera	Yes	N/A	N/A	N/A
<i>Chelydra serpentina</i>	N/A	2	Camera	Yes	N/A	N/A	N/A
<i>Emydoidea blandingii</i>	Male	3	PIT tag–antenna	Yes	2 Jun 2014	5 Jul 2014	34 days
<i>Emydoidea blandingii</i>	Male	3	PIT tag–antenna	Yes	23 Jul 2014	30 Jul 2014	7 days
<i>Emydoidea blandingii</i>	Male	3	PIT tag–antenna	Yes	N/A	23 May 2015	5 days
<i>Emydoidea blandingii</i>	N/A	5	Camera	No, only investigation on 25 Jun 2014	N/A	N/A	N/A
<i>Chelydra serpentina</i>	N/A	7	Camera	Yes	N/A	N/A	N/A
<i>Chrysemys picta marginata</i>	N/A	7	Camera	Yes	N/A	N/A	N/A

**Table S5.** Comparison of methods to monitor culvert use (in CAD dollars) by reptiles.

	Camera	PIT tag	PIT tag and radio tracking
Resulting data	Identifies investigation of culvert  Minor chance of identifying usage  Animal must be above water	Identifies usage of culvert regardless of above or under water  Identify species and sex	Identify habitat use and movement patterns before and after culvert use  Determine home range to guide future conservation efforts
Cost	\$700/camera (including security enclosure)  \$150/camera for rechargeable batteries, charger, and memory cards to switch out	\$4,000/setup plus batteries and installation supplies  \$10/PIT tag	\$4,000/setup plus batteries and installation supplies  \$10/PIT tag  \$250/radio tag  \$600 tracking equipment
Time processing	10 hr/week	30 min/culvert/week	30 min/culvert/week; up to 40 hr/week
Potential to inform management	Low	Medium	High