

Prince Edward Island Spiders Experts and Citizen Scientists Collaborate

Canadian Council on Invasive Species
Community Science Workshop

Ottawa Conference and Event Centre, March 4, 2020

Bowden, J.J., K.M. Knysh, G.A. Blagoev, R. Bennett, M.A. Arsenault, C.F. Harding, R.W. Harding, and R. Curley. 2018. **The spiders of Prince Edward Island: experts and citizen scientists collaborate for faunistics.** Canadian Field-Naturalist 132(4): 330–349. <https://doi.org/10.22621/cfn.v132i4.2017>

Purpose– increase list for PEI

Canada: 1413 species

Nova Scotia (NS):

437

New Brunswick

(NB): 379

Prince Edward

Island (PEI): 38

Paquin et al. (2010)

The image shows the cover of a manual titled "Capture and Preservation of Prince Edward Island Spiders" published by Nature PEI. The cover features the Nature PEI logo and the text "Nature PEI: The Natural History Society of Prince Edward Island" and "NaturePEI.ca". Below the title, it says "A Manual for the Nature PEI Spider Project, 2015".

Overlaid on the bottom right of the manual cover is a "PEI Spider Survey– Site Data Card" form. The form is titled "PEI Spider Survey– Site Data Card" and includes the following fields:

PEI Spider Survey– Site Data Card			
Observer:		# of sample containers associated with card:	
		Site Name:	County:
Date: (Format: 24 May 2010)	Sample Codes:	Site Location:	MBA Square #:
Time Start:	Time Stop:	Coordinate System (if not NAD 83):	
Sample Type: <input type="radio"/> Pitfall <input type="radio"/> Sweep <input type="radio"/> Other		Lat:	Long:
# of specimens:		RETURN TO Rosemary Curley Nature PEI Po Box 2346 Charlottetown PE C1A 8C1 rcurleypei@eastlink.ca (902) 569-1209	
Comments:			
Pitfall Time (Days):	Sweep Length (m/feet):		

Consulted Local Experts

2015 Got to Work

Spider identification

- ▶ Colours disappear in alcohol
- ▶ Need microscope, look at adult genitalia
- ▶ Photographs mostly useless
- ▶ Where to find an expert to identify them?



10 Steps–Citizen Science Work

- ▶ Build team
- ▶ Identify key audiences
- ▶ Secure funding
- ▶ Develop and maintain information technology (IT) infrastructure



PRINCE EDWARD ISLAND
WILDLIFE
CONSERVATION FUND

Locke, Christina M., et al. "Managing a large citizen science project to monitor wildlife." *Wildlife Society Bulletin* 43.1 (2019): 4-10.

■ BIOLOGY

Shake the bushes for P.E.I. spiders

Spiders and other invertebrates exist in 'black hole of ignorance'

Islanders are being asked to shake the bushes in an effort to learn more about spiders.

Nature P.E.I. says 437 species of spider have been recorded in Nova Scotia and 382 species tallied in New Brunswick, but the Island list is a scant 38 species, with a few additional species located recently.

The landscape of species distributions is altering rapidly with climate change and it will be valuable to have a baseline of spider information against which future change can be measured.

Rosemary Curley, president of Nature P.E.I.

■ At a glance

- ◆ Anyone who wishes to help improve the knowledge of Island spiders by collecting, preserving and submitting them for identification can attend a Nature P.E.I. workshop today, 9:30 a.m. to noon, at the Forests, Fish and Wildlife office at 183 Upton Rd., Charlottetown.
- ◆ Local spider whiz Kyle Knysh will be on hand to share his experience with eight-leggers, supported by collectors Caleb and Bob Harding.
- ◆ For more information Rosemary Curley 902-569-1209 or rcurlypei@east-link.ca

Steps 5-7

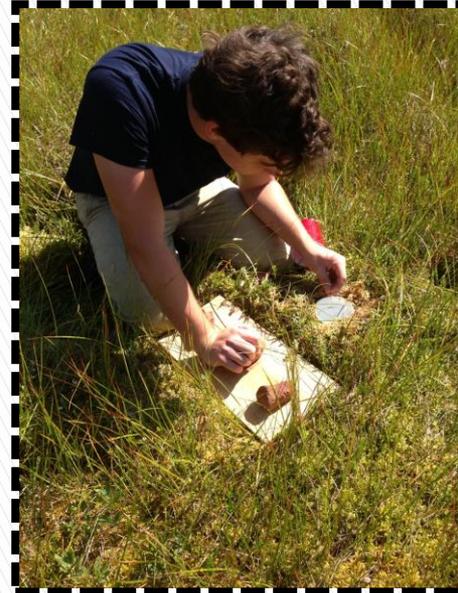
- ▶ Recruit volunteers –23
- ▶ Manage volunteers
- ▶ Retain volunteers



WORKSHOP—catch them

FEEDBACK

In the Field



Spider Love Fest

Step 8 Collect, manage, and analyze data (SURPRISE, SURPRISE)

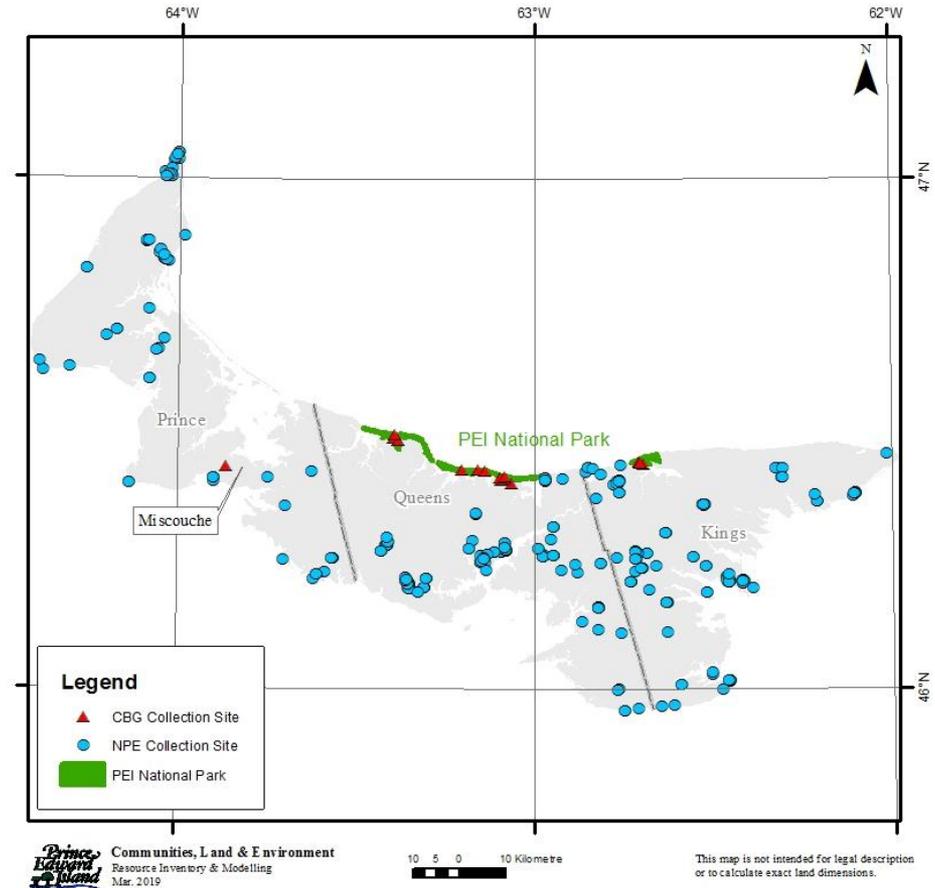


- ▶ Aimed for 1000 but over 4300 collected
- ▶ Student project to sort
- ▶ Another spider project had already begun in PEI
- ▶ Solution: combine results

Blagoev, Gergin A., et al. 2016. Untangling taxonomy: a DNA barcode reference library for Canadian spiders." *Molecular Ecology Resources* 16: 325–341. <https://doi.org/10.1111/1755-0998.12444>

Step 9 Communicate Results

- Upped the spider total to 198 from 44 (*vs.* 38)
- 130 species from 737 adult specimens (NPE)
- 82 species from PEINP barcode, additional 69 as work continues (CBG)
- 19 introduced species.



Step 10 Evaluate Program outcome

- ▶ A record of PEI spiders written by 8 authors
- ▶ Increased public interest in spiders
- ▶ We know many remain to be found

Would we do it differently a 2nd time? Get more \$\$\$



Off to the NB Museum

Another way to look at our effort

- ▶ **Opportunistic collecting , not suitable for estimating abundance, density or long-term monitoring**
- ▶ **Result was presence-only observational data (location, occurrence of species)**
- ▶ **Some variation in data quality, very low cost**
- ▶ **Public engagement was spectacular**



Brown, Eleanor D., and Byron K. Williams. "The potential for citizen science to produce reliable and useful information in ecology." *Conservation Biology* 33.3 (2019): 561–569.

- ▶ Thank you to all our citizen scientists
- ▶ To all our authors with special thanks to Joe Bowden
- ▶ To the Centre for Biodiversity Genomics at University of Guelph and G Blagoev

Thank you for listening

