

Sharp-tailed Snake Stewardship efforts from April 2005 – March 2015



Habitat Acquisition Trust, Victoria, BC

Background

The Sharp-tailed Snake is listed as endangered (COSEWIC 2009) In Canada, and is on Schedule 1 under the *Species At Risk Act*. The species is Red listed in BC. The species was listed as endangered because it occurs in areas with dense human populations and habitat destruction, fragmentation and degradation are considered major threats. Despite surveys over the past decade which have provided much new information (summarized in COSEWIC 2009), there are still significant data gaps in our knowledge of the distribution and habitat requirements of this small and inconspicuous snake. Identification of new sites, protection of known sites through stewardship activities has a high priority in the Recovery Strategy for the Sharp-tailed Snake (Sharp-tailed Snake Recovery Team 2008).

In 1996, Forestry Renewal British Columbia and the Ministry of Environment funded a three year project that laid the ground for development of survey methods (Engelstoft and Ovaska 1996). We established a search image of habitat, and survey timing and approach. The three step approach was developed during a Sharp-tailed Snake habitat assessment for Parks Canada in 2002 (Engelstoft, Sopuck and Ovaska 2002). The three steps were 1) delineating suitable habitat on air or ortho photos, 2) conducting an on the ground habitat assessment, and 3) using artificial cover objects to determine presence of the snake if suitable habitat is available. By 2010 we had developed an approach to determining areas of occupancy with funding from the Interdepartmental Recovery Fund, Government of Canada (Engelstoft, Sopuck and Ovaska 2011)

The Sharp-tailed Snake Stewardship Program was initiated in 2002 under the auspices of Pender Island Conservation Association with funding from Habitat Stewardship Program, Government of Canada. By 2005 the scope had out-grown Pender Islands and it was necessary to move the project to Habitat Acquisition Trust, a more regional organization, and Salt Spring Island Conservancy. Since then Habitat Acquisition Trust have collaborated and/or provided training to local conservancies on Galiano, Mayne, and Pender Islands.

In the first years (2002 - Mar 2005), outreach consisted mainly of giving talks to gardening clubs, neighbourhood gatherings, conservation organizations and parks managers and engaging news media, and 529 persons attended these presentations. We handed out more than 1900 brochures about Sharp-tailed Snake facts, landscaping, or available resources at these events, and we reached an estimated 18000 persons via the news media. As a result of these efforts we discovered 5 new Sharp-tailed Snake sites (Figure 1). Another activity in these earlier years we enhance sharp-tailed snake habitat on private lands, and we worked on 5 properties on Saltspring and North Pender Islands. Even though volunteers enjoyed building stack walls and hibernacula these activities were dropped because of the difficulties in monitoring the effectiveness of these efforts, and the activities shifted towards protecting habitat.

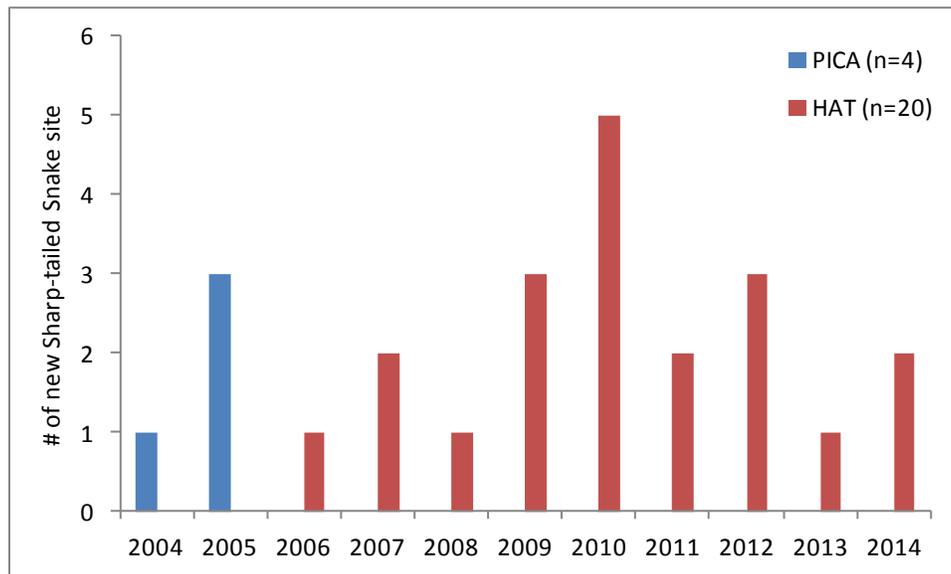


Figure 1. Number of Sharp-tailed Snake site found on Vancouver, North Pender and South Pender Islands since 2004 by Pender Island Conservancy Association (PICA) and Habitat Acquisition Trust (HAT).

Landowner contact

Since Habitat Acquisition Trust took over the Sharp-tailed Snake Stewardship program in the spring of 2005, the scope expanded to cover the entire Capital Regional District, with the exception of Saltspring Island where the local conservancy has continued the project.

The other shift was that outreach focused on engaging landowners situated in areas with potential Sharp-tailed Snake habitat. This was possible because in 2005 HAT worked with the CRD GIS department to delineate suitable Sharp-tailed Snake habitat in area with high resolution ortho-photos existed, and in 2010 habitat was delineated for the remainder on the CRD. Resulting polygon is posted on the CRD Atlas (a web based mapping site for the region), which provided anybody with web access the information. We used this habitat suitability mapping to focus our outreach efforts by targeting neighbourhoods situated in some these areas.

Since 2006 we have visited minimum¹ of 160 private properties on Vancouver, Pender, Saturna, Mayne and Galiano Islands. Most effort was allocated to Vancouver and Pender Islands (approximately 82% of properties) because most of the delineated Sharp-tailed Snake habitat occurs here. There were two reasons that 55 % of the properties were on Pender Island (Figure 2), the first was the abundant habitat and the second was that David Manning, a resident on the island, did a fabulous job of introducing us to landowners. North Pender Island accounted for 82% of the properties visited because properties tend to be smaller and the north island is the most densely populated of the two islands. The relative low percent of properties visited by HAT staff on Galiano and Mayne Islands reflects the fact that local conservations groups have taken over the outreach on these islands. On Vancouver Island there were 42 properties and 72% of properties were in Metchosin (n=15) and Highlands (n= 16) municipalities, these municipalities had the most Sharp-tailed Snake habitat.

¹ The minimum number is because the data available in the landowner database was not up to date so I added the landowners I knew we had visited. I could have missed some, hence minimum.

During landowner visits we assessed the habitat and threats, discussed threat mitigation options, and if the landowner agreed to check artificial cover objects we installed them in suitable micro-habitat patches in an attempt to determine the presence of the snake.

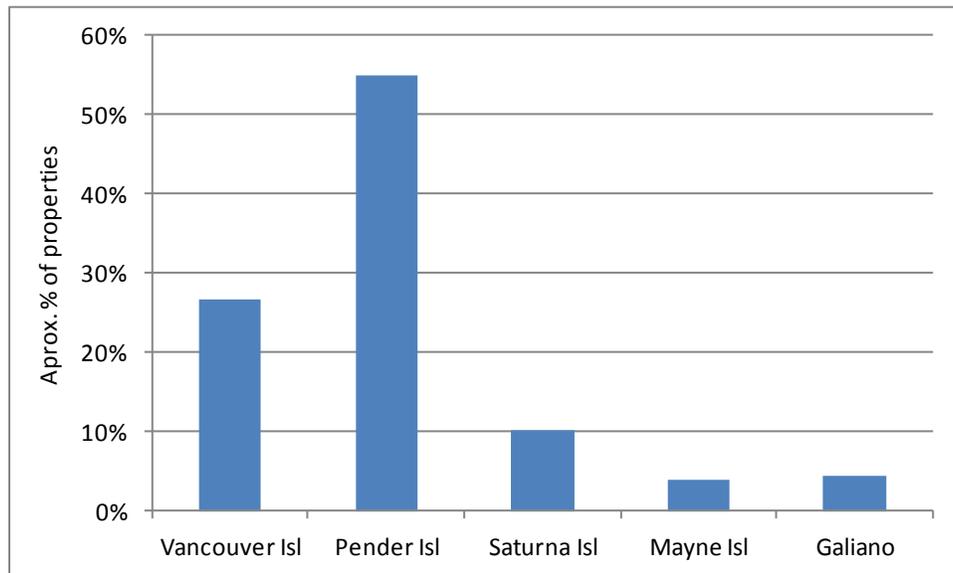


Figure 2. Approximate percent of properties (n=160) visited during Sharp-tailed Snake stewardship visits on Vancouver Islands, Pender, Saturna, Mayne, and Galiano Islands from 2006 to 2015-03-31

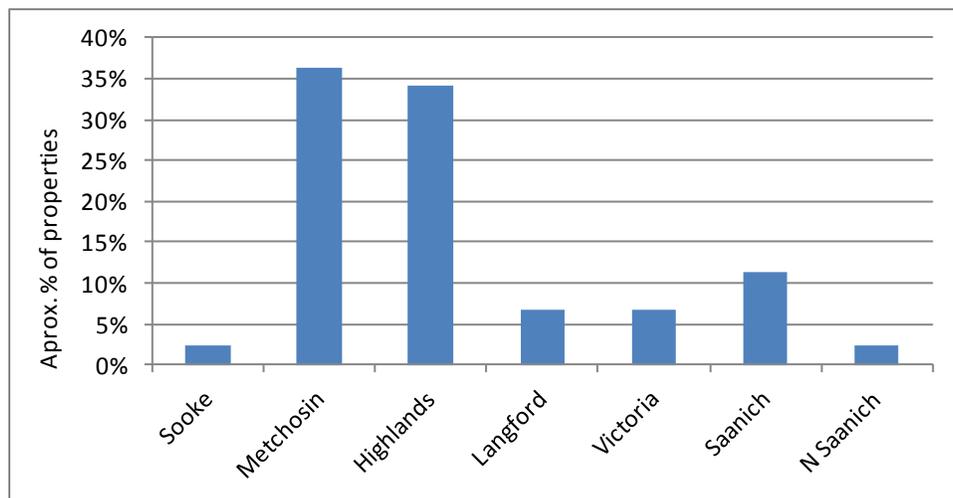


Figure 3. Approximate percent of properties (n=44) visited during Sharp-tailed Snake stewardship visits in municipalities on Vancouver Islands, from 2006 to 2015-03-31

Since the inception in 2004 the HSP funded projects have discovered 24 new Sharp-tailed Snake sites on Vancouver Island and North and South Pender Island (Figure 4). The number of sites discovered per year varied from 1 to 5 sites a year with a peak in 2010 when 5 sites were found (Figure 1).

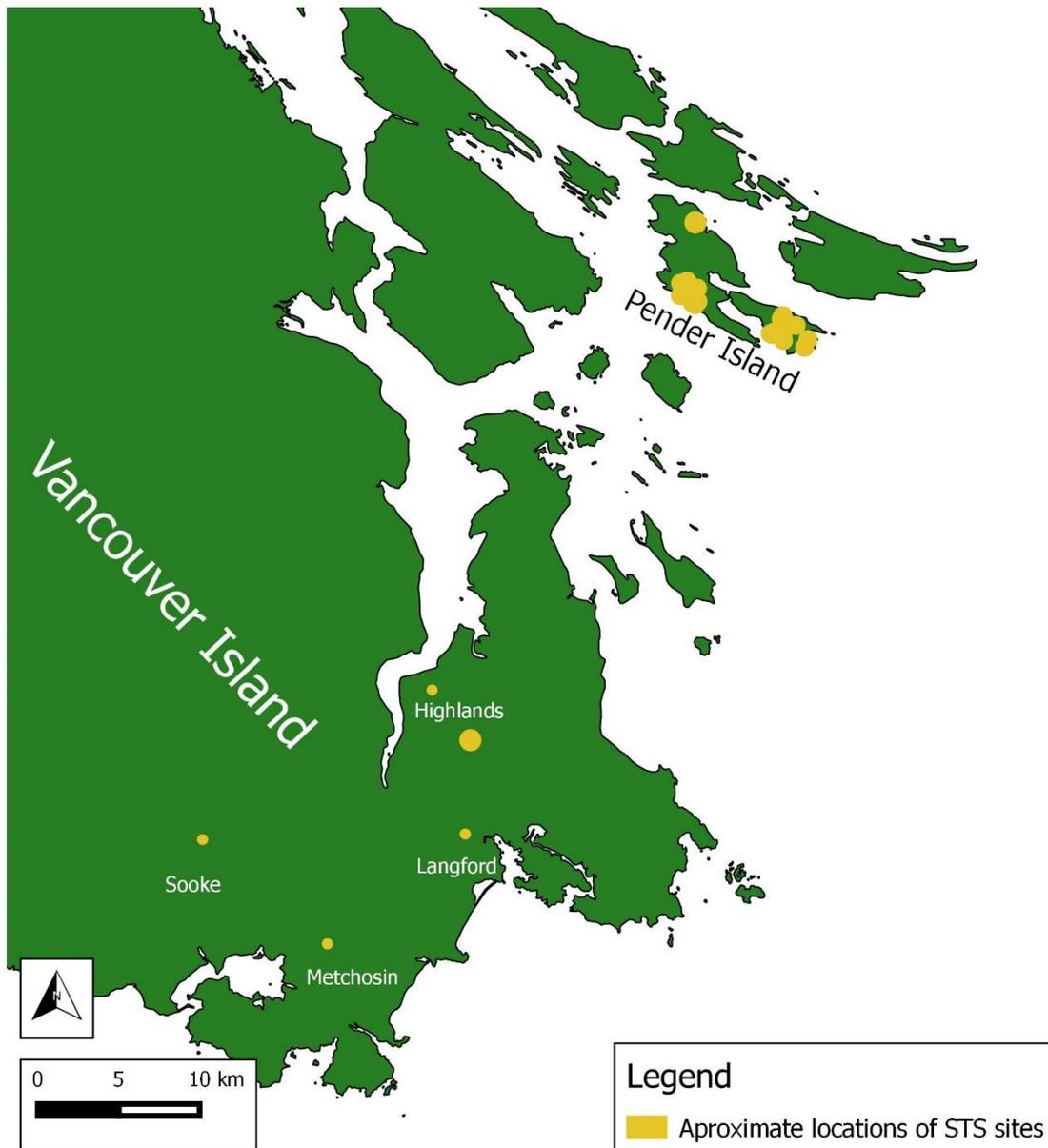


Figure 4. Approximate locations of known Sharp-tailed Snake observations on private landsfound bewteen 2006 and 2015 in the Captial Region Diostric, Vancouver Island.

Pender Island ACO monitoring project

From 2004 to 2012 we had visited landowners and installed 247 artificial cover objects (ACO) in good micro habitat patches on 77 properties on North and South Pender Islands. The number of ACOs on these properties varied between 1 and 7, except for one large property where we installed 24 ACOs. At the time of installation landowners agreed to check the ACOs and we provided them with instruction of when to do that, but we found that many participants forgot. The STS has an activity period in the spring and depending on weather one in the fall, so because the checking regime that was not easy to remember. In order to increase the number of checks we changed our approach to the checking in 2012.

The spring peak activity is generally in April and May, so to create a specific artificial cover object checking program we asked landowners to check their ACOs once a week in the afternoon in the month of May. We contacted all the landowners on Pender Islands that had ACOs on their land in late April of 2012, 2013, and 2014, to initiate checking in May and again in early June to collected the data. Over the three years 71 landowners (72 properties) participated in the project. Some were involved in all the three years (10) and others two (25) or one (31) depending availability and when they were recruited. In both 2013 and 2014 we added 5 new landowners. We saw the largest number of participating landowners in 2013 (Figure 5). The majority of the participants (62%) did the four checks requested but 26% did only one. In 2013 a relative large number of participants only did one survey (32%) suggesting that they had lost interest (**Error! Reference source not found.**), so in 2014 we only contacted landowners that had shown interest which caused the drop in the number of participants in that year (Figure 5). There were 23879 ACOs flipped during the three years with 54% taking place in 2013, the year with the most landowner involvement (Figure 6).

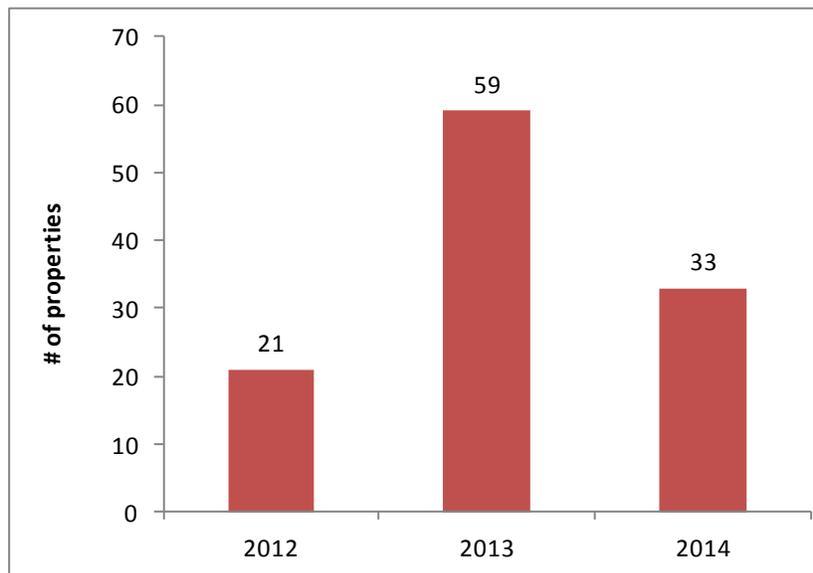


Figure 5. Number of properties participating in checking artificial cover objects in May of 2012, 2013, and 2014 on North and South Pender Islands

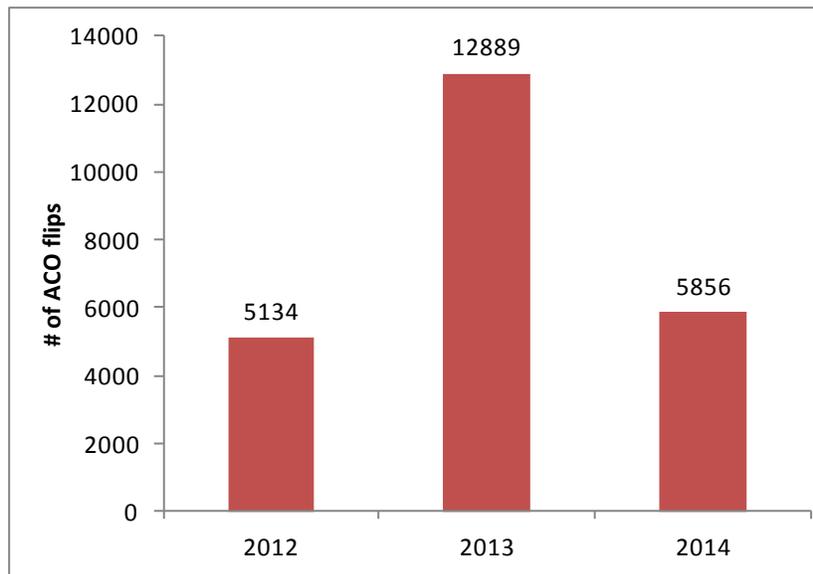


Figure 6. Search effort measured a number of flipped artificial cover objects in May of 2012, 2013 and 2014 on Pender Islands.

Landowners found 5 Sharp-tailed Snakes all on properties where the snake was observed prior to this initiative. One of the participating landowners found a new Sharp-tailed Snake site in June 2012, and we like to believe that was at least partly a result of participating in the search in May that year.

Summary of Surveys in Capital Region Parks

The first CRD Park with a known Sharp-tailed Snake population was the Galloping Goose Regional Trail where the snake was found before it was established (Spalding 1993). The snake is now known from 8 parks (Table 1). In four cases the discoveries were opportunistic observation by visitors, and in four cases the discoveries were a result of surveys (Table 1). Due to funding cuts to the sharp-tailed surveys in CRD parks there have been no surveys in any of the parks after 2012. There are still several parks where survey needs to be conducted to verify the presence of the Sharp-tailed Snake.

Table 1. Summary of Sharp-tailed Snake discovery, surveys and information in Capital Regional Parks on Vancouver Island

Regional Park	Year of discovery	Reports or Comments
Bear Hill		Engelstoft 2006 Engelstoft 2009 Engelstoft 2011
Brooks Point	2012	Engelstoft 2006 Engelstoft 2007 Engelstoft and Mogensen 2008 Engelstoft 2009 Engelstoft 2011 - Sharp-tailed snake observed in park 10 Mar 2012
Devonian		Engelstoft 2006
Galloping Goose	1980	Spalding 1993 Engelstoft 2002

Regional Park	Year of discovery	Reports or Comments
Horth Hill		Engelstoft 2006
Lone Tree Hill	2007	- One snake found by visitor 2007 Engelstoft 2006 Engelstoft 2007
Mill Hill	2006	- One snake found by visiting biologist in 2006 Engelstoft 2006 Engelstoft 2007 Engelstoft and Mogensen 2008
Mt MacDonald (Sooke Wilderness)	2011	Engelstoft 2012 - A Sharp-tailed snake was reported on 25 Mar 2014
Mt. Wells		Engelstoft 2006 Engelstoft 2009 Engelstoft 2011 Engelstoft 2012
Mt. Work	2006	Engelstoft 2005 Engelstoft 2006 Engelstoft 2007 Engelstoft and Mogensen 2008
Sea to Sea (Mt Peden)	2009	- One snake found by visitor in 2010 Engelstoft 2011
Thetis Lake and Francis King	2008	Engelstoft 2006 Engelstoft and Mogensen 2008 Engelstoft 2009

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