

Citizen Science and Snakes: An Investigation of Common Sharp-tailed Snakes (*Contia tenuis*) in the San Juan Islands

Kwiaht

This report summarizes the 2025 Kwiaht activities funded by the Sierra Club's Washington State Chapter and Mount Baker Group to develop a citizen science program aimed at engaging members of the public within San Juan County in conducting cover board surveys for Sharp-tailed Snakes (*Contia tenuis*) to further ongoing phylogenetic, dietary, habitat, and seasonal activity research and to promote public education and private lands conservation for this rare Species of Greatest Conservation Need and candidate for state Endangered Species listing, as well as other native wildlife and herpetofauna. This report also includes the disposition of additional funding obtained from other sources for the project during 2025 and context for a relatively sparse Sharp-tailed Snake sampling year in the San Juan Islands.

Additional Fundraising

During the process of outreach and participant engagement, it became evident that we would reach capacity for the project with the funding granted and that we would be unable to ultimately meet the expressed level of interest from the community. To address this, directed fundraising was employed to raise additional funds to support Kwiaht's Sharp-tailed Snake projects in the islands, including this particular citizen science program. This additional funding has allowed us to build out project capacity and further develop participant engagement tools beyond the original planned scope and is projected to fund continuation of the project through at least the spring of 2026.

We found that additional field time for site visits and deployments scheduled with the presence and direct involvement of participants allowed us to best engage volunteers and that these individual in-person engagements allowed us to specifically discuss the particular landscape ecology of sites on an individual basis, as well as addressing specific questions and concerns that participants may have had regarding their sites. We also determined that observation and photographic reporting was more readily accomplished through email as a system that is more easily used due to general widespread familiarity; in contrast to development of and training on a novel reporting system using Epicollect5. Emails also facilitated direct responses to participants, including the sharing of identifications of observed wildlife. Additional Kwiaht staff field time on San Juan and Orcas Islands was allocated as needed to conduct surveys as homeowners were, at times, not present or otherwise unable to check cover boards.

Sierra Club Funds Budget (\$2458.04 granted):

Sterile HydraFlock Flocked Swab, Mini-Tip, 50/box x 1: \$27.09
Ackers 25pcs 2.0ml Lab Test Tubes x 2: \$12.99
1/2 in. Plywood Sheets (4 ft x 8 ft) x 25 (makes 100 boards): \$622.06
Inter-island Ferry (5 ride pass): \$112.90
Herpetologist Programs x 2 (9 hours at \$33/hr): \$297.00
Herpetologist field time (13 hours at \$33/hr): \$429.00

Orcas Island staff time (4 hours at \$33/hr): \$132.00
San Juan Island staff time (20 hours at \$33/hr): \$660.00
Lopez Island staff time (5 hours at \$33/hr): \$165.00
Expenditures: \$2458.04

Additional Budget:

½ in. Plywood (4 ft x 8 ft): \$114.62
Inter-island Ferry: \$69.20
Website and outreach material design and development (13.16 hours at \$33/hr): \$434.28
Herpetologist field time (23.5 hours at \$33/hr): \$775.50
Administrative support for project (18 hours at \$33/hr): \$594.00
Expenditures: \$1987.60

Total project expenditures as of November 30, 2025: \$4445.63

Deployments

Between April and June of 2025, we were successful in deploying 71 boards across 11 transects on seven parcels on Orcas, San Juan, and Shaw Islands. Subsequent deployments have increased these figures to 123 boards deployed across 19 transects on 12 parcels across these same islands (Figure 1). We currently have 38 boards prepared that we expect to nearly fully deploy during scheduled visits to four new parcels in December of 2025. We expect that planned outreach efforts prior to and during the beginning of spring 2026 will yield additional sites, with the goal of increasing coverage on San Juan Island, in particular.

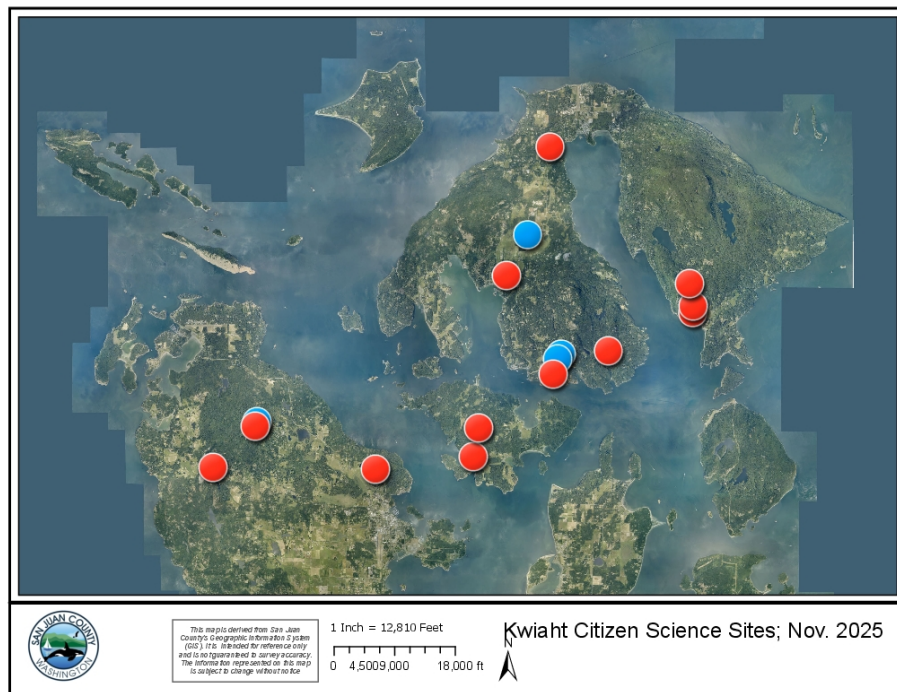


Figure 1: Red circles indicate locations of boards deployed prior to November 30, 2025. Blue circles indicate planned deployments in December, 2025.

Observations

The 2025 field season was characterized by a reduction in Sharp-tailed Snake observations throughout the islands; particularly noted at reference sites of (typically) relatively high abundance. None of the sites that received cover boards in 2025 have to-date yielded confirmed Sharp-tailed Snake observations. As of the end of November, 2025, we have received credible reports of past Sharp-tailed Snake observations across two separate parcels in the Tuttleback-Westsound area on Orcas Island where the species has not previously been formally documented. Sharp-tailed Snake occupancy at both locations has yet to be confirmed with cover board surveys and photographs. One of these locations received cover boards during the fall of 2025 and the other location is scheduled to receive cover boards in December of 2025, in advance of the anticipated spring emergence of snakes in 2026.

Elsewhere, participants reported observations of other vertebrates encountered under and in the vicinity of cover boards during 2025. This data is valuable in expanding our knowledge of the islands' distribution of herpetofauna, in particular. Of significant note, Northern Alligator Lizards (*Elgaria coerulea*) were observed and verified with photographs in Olga, Orcas Island and the Hillview Terrace neighborhood north of Friday Harbor, San Juan Island; both parts of larger areas (East Orcas and Friday Harbor, respectively) from where we have little documentation of non-anuran herpetofauna occupancy. Additionally, the Hillview Terrace location was observed to be a relatively significant site of Northern Alligator Lizard reproduction, due to the relative abundance of young-of-the-year observed. Also of note with regard to herpetofauna, we received observations of native Gartersnake species (*Thamnophis spp.*) across the majority of deployed cover board locations, providing further support for our data that suggest widespread abundance in the islands of these three snake species; Northwestern Gartersnake (*Thamnophis ordinoides*), Wandering Gartersnake (*Thamnophis elegans vagrans*), and Puget Sound Gartersnake (*Thamnophis sirtalis pickeringii*). Other vertebrates encountered with some regularity by participants included Pacific Treefrogs (*Pseudacris regilla*), Townsend's Voles (*Micrurus townsendii*), and White-footed Deermice (*Peromyscus leucopus*).

Both the spring and fall seasons during 2025 were atypical from a weather perspective, to which we attribute the lack of Sharp-tailed Snake observations. The spring season became abbreviated, as compared with previous sampling seasons at Kwiaht's reference sites on Young Hill (San Juan Island) and Turtleback (Orcas Island), with regular rainfall declining mid-May. We believe that this early end to regular precipitation resulted in Sharp-tailed Snakes retreating underground early; following their preferred prey of slugs and worms. Observations of Sharp-tailed Snakes at reference sites ended on May 18 and May 17, respectively. This contrasts with previous seasons in which snakes have regularly been observed into mid-June. The fall season was entirely absent Sharp-tailed Snakes across all reference sites; when regular rainfall resumed in the autumn, overnight temperatures were already below the threshold where generally expect to see snakes under cover objects on the surface (Sharp-tailed Snakes appear to be nocturnal). One outlier observation at Young Hill was made in August, following an out-of-the-ordinary mid-summer precipitation event. Altogether, we collected fewer snake observations at reference sites than we typically would expect during more normal conditions. We expect weather conditions to return to a more normal pattern in 2026, producing more typical Sharp-tailed Snake activity levels and, thus, more availability for sampling, including, potentially, sites where cover boards have been deployed as part of this project.

Outreach and Engagement

Two outreach programs were scheduled and conducted on Orcas Island in June; one in collaboration with the Orcas Island Garden Club, and one in collaboration with the Orcas Island Library. The Garden Club program focused specifically on the ecology of the Sharp-tailed Snake, a brief history of past research and surveys, current Kwiaht surveys and research objectives, and a description of this citizen science project and goals. Following the presentation of material, Garden Club members were engaged with a prepared display and an open session with Kwiaht's herpetologist to highlight the citizen science project, discuss landscape conservation strategies, and to collect contact information for follow-up to carry out site assessments and board deployments for interested homeowners. The library program focused on engaging families and members of the public with the ecology of the islands' resident snakes, including Sharp-tailed Snakes and an after-presentation Q&A/engagement session with Kwiaht's herpetologist to promote interest in the citizen science project and general conservation practices.

Social media posts were made during the spring of 2025 to promote the project and the library program. A webpage was developed and is hosted on the Kwiaht website located at www.kwiaht.org/snakesaco.htm (Figure 2). This webpage includes information on Sharp-tailed Snakes and Kwiaht's research interests, as well as a description of the citizen science project and a solicitation for volunteers/participants. Also featured is a map of study sites (generalized to avoid dissemination of participants' personally identifying information) and a photo gallery of wildlife observed under project cover boards.

Physical outreach materials were produced in the forms of: 1) a bookmark featuring snake species in the islands and directing readers to the Kwiaht website and Sharp-tailed Snake webpage links (Figure 3) and 2) a card for distribution at Kwiaht events and to homeowners that includes a QR code and URL directing readers directly to the citizen science project webpage, as well as contact information for Kwiaht's herpetologist and a Sharp-tailed Snake photograph as an offline identification aide (Figure 4).

A Sharp-tailed snake program highlighting the citizen science program to drive further engagement on San Juan Island is being developed for presentation to the San Juan Island Library for approval for scheduling during March of 2026, prior to the anticipated emergence of snakes. This program is designed for the general public; we also plan to invite the membership of the local Garden Club. Social media posts highlighting the project and Kwiaht's work with snakes are expected at the beginning of spring 2026 and as photographs of snakes in the field are collected. Two articles have been prepared for publication in local newspapers and newsletters that were intended to coincide with the emergence of snakes in the fall of 2025, which was not observed; as such, the pieces have been revised for spring of 2026 and are expected to be submitted for publication near the expected beginning of snake emergence for the season.

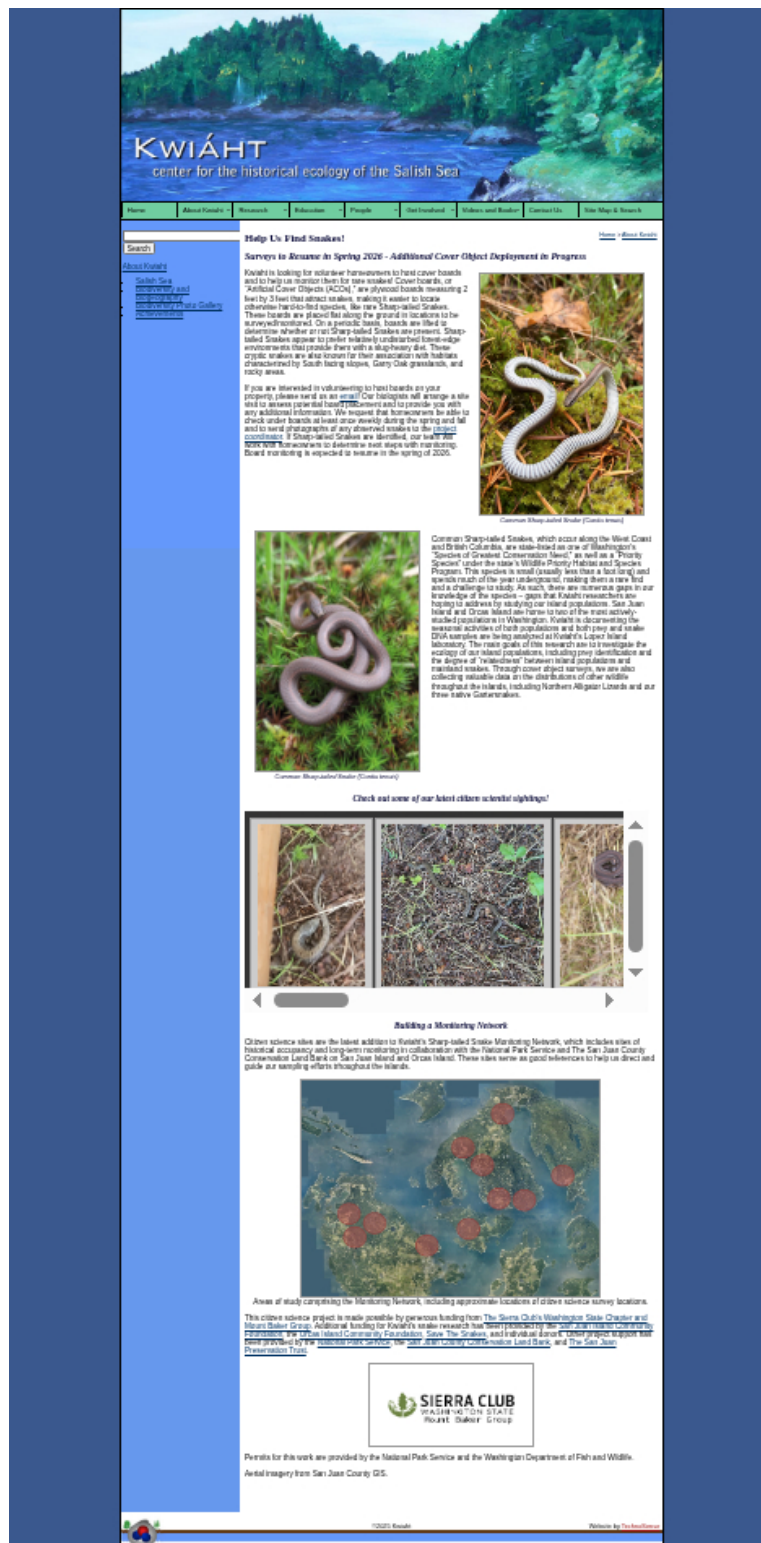


Figure 2: Project webpage where participants and the public can learn about citizen science volunteering and ongoing work.



Figure 3: Bookmark highlighting native snakes.

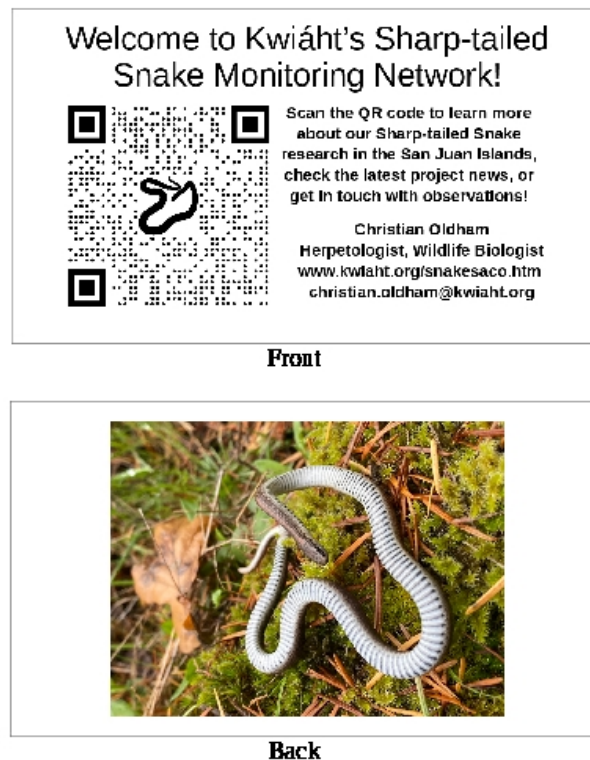


Figure 4: Card featuring information about the citizen science project.