Alberta Conservation Association

2021/22 Project Summary Report

Project Name: Alberta Volunteer Amphibian Monitoring Program

Wildlife Program Manager: Doug Manzer

Project Leader: Kris Kendell

Primary ACA staff on project: Kris Kendell

Partnerships

Alberta Amphibian & Reptile Conservancy
Alberta Biodiversity Monitoring Institute
Alberta Environment and Parks
Volunteer participants

Key Findings

- We partnered with the Alberta Biodiversity Monitoring Institute (ABMI), trialing their free, NatureLynx mobile application to simplify the way AVAMP participants make and report their observations. 16 amphibian records were submitted through ACA's AVAMP group on ABMI's NatureLynx platform in 2021.
- We partnered with Alberta Amphibian & Reptile Conservancy (AARC), who conducted call surveys for frogs and toads on 29 ACA conservation sites. Records were submitted through AARC's group on the NatureLynx platform in 2021.
- In total, 67 volunteers submitted 71 amphibian and 22 reptile observations to AVAMP, including locations of nine snake hibernacula (dens).

Abstract

Volunteers play a crucial role in wildlife conservation efforts through their involvement in biodiversity-related citizen science projects. The Alberta Volunteer Amphibian Monitoring Program (AVAMP) invites people to engage with nature and to provide unique information on amphibian and reptile distribution and life cycle events. To streamline the way AVAMP

participants make and report their observations, we are partnering with Alberta Biodiversity Monitoring Institute (ABMI) and trialing their free NatureLynx mobile application. The NatureLynx app allows AVAMP participants to complete data entry in the field. Data submissions are accessible by ACA and are organized by the app in an AVAMP community group, which was established in 2019. In 2021/22, 67 participants from AVAMP submitted 71 amphibian and 22 reptile observations, including locations of nine snake hibernacula (dens) directly through AVAMP. An additional 16 amphibian records were submitted through the AVAMP group on ABMI's NatureLynx platform, including from the Alberta Amphibian and Reptile Conservancy. Combined, these data represented 70% of the amphibian and 56% of the reptile species native to the province. Setting appropriate conservation measures for amphibians and reptiles requires a good understanding of species distributions and timing of life cycle events, which are often based on relatively few observation records. AVAMP is an example of how ACA can work with a network of enthusiastic volunteers and partners to fill these data gaps and positively impact conservation.

Introduction

One of Alberta Conservation Association's (ACA) largest wildlife volunteer-based projects is the Alberta Volunteer Amphibian Monitoring Program (AVAMP). Through volunteering, AVAMP participants are provided with opportunities to increase their knowledge of wildlife and conservation issues, use their skills and experiences to contribute to conservation, and network with wildlife professionals. Data collected by AVAMP volunteers increases our knowledge of amphibian and reptile distributions, along with other data, assists in updating their general status (GoA 2017) and provides valuable information for land-use planning efforts.

We chair the Alberta Amphibian and Reptile Specialist Group (AARSG), where we discuss topics and issues related to conservation and research of amphibians and reptiles in Alberta. These meetings also provide a forum to explore opportunities for collaboration. The AARSG has garnered a strong sense of community among professionals, graduate students, and citizen science groups in Alberta that are interested in amphibians and reptiles. In 2017, we became a member of the International Union for Conservation of Nature Species Survival Commission Amphibian Specialist Group, Canada.

Methods

At sites of their own choice, we encourage AVAMP participants to listen for calling frogs and toads in the spring and to search for individual amphibians throughout the spring, summer, and early fall. Volunteers can also report the locations of snake hibernacula (dens) and other reptile sightings, including dead-on-road occurrences. We promote AVAMP through our email newsletter and through social media to increase awareness of amphibians and reptiles and help us maintain relationships with program volunteers and other interested parties. We deliver presentations to target audiences to motivate and engage potential participants and improve awareness about the amphibians and reptiles in their communities. Volunteers self-register and enter their own monitoring data on ACA's website or NatureLynx's mobile app.

We offer volunteers a quick identification guide for Alberta's amphibians (*Amphibian Identifier*) for use in the field as well as a brochure (*Reptiles of Alberta*). These outreach products encourage the reporting of amphibian and reptile observations to the program. We have also developed an online identification key to help volunteers confirm the identity of any amphibians or reptiles observed.

We reviewed, verified, and compiled all volunteer amphibian and reptile observations and then forwarded them to the Government of Alberta for entry into its *Fisheries and Wildlife Management Information System* database.

Results

In 2021/22, 42 new members joined ACA's AVAMP platform. In all, 67 AVAMP participants submitted a total of 71 amphibian and 22 reptile observations, including nine snake hibernaculum (den) locations, through ACA's data submission portal. An additional 22 amphibian records were submitted through the AVAMP group on ABMI's NatureLynx platform, including submissions from the 29 conservation sites visited by Alberta Amphibian and Reptile Conservancy (AARC). Combined, data submitted by volunteers represented 70% of the amphibian and 56% of the reptile species native to the province (Table 1).

Table 1. Records of amphibian and reptile species observed by AVAMP participants in 2021/22.

Species	Taxonomic name	Number of records	
		ACA[1]	NatureLynx[2]
boreal chorus frog	*Pseudacris maculata*	12	4
boreal toad	*Anaxyrus boreas*	15	3
bullsnake	*Pituophis catenifer*	-	-
Canadian toad	*Anaxyrus hemiophrys*	2	-
Columbia spotted frog	*Rana luteiventris*	-	-
Great Plains toad	*Anaxyrus cognatus*	-	-
long-toed salamander	*Ambystoma macrodactylum*	2	-
mountain short-horned lizard	*Phrynosoma hernandesi*	-	-
northern leopard frog	*Lithobates pipiens*	1	1
Plains gartersnake	*Thamnophis radix*	9	-
Plains hog-nosed snake	*Heterodon nasicus*	-	-
Plains spadefoot	*Spea bombifrons*	-	-
prairie rattlesnake	*Crotalus viridis*	-	-
red-sided gartersnake	*Thamnophis sirtalis*	10	-
tiger salamander	*Ambystoma mavortium*	20	2
wandering gartersnake	*Thamnophis elegans*	1	-
western painted turtle	*Chrysemys picta*	1	-
wood frog	*Lithobates sylvaticus*	19	12
yellow-bellied racer	*Coluber constrictor*	1	-
Total		93	22

[1]ACA online data submission portal; [2]ABMI's NatureLynx AVAMP and AARC Group

Through public presentations and interactions with volunteers, we have shared expertise and information about amphibian and reptile identification, ecology, mitigation translocation, stewardship, citizen science, data collection protocols, and survey methodologies.

Conclusions

Data from AVAMP volunteers will provide a better understanding of the distribution and status of Alberta's amphibians and reptiles in the province. AVAMP is an example how ACA can work with a network of enthusiastic volunteers and partners to positively impact conservation.

AVAMP connects people to nature and generates valuable data from these encounters that support the conservation and management of Alberta's amphibian and reptile species.

Communications

Oral presentations

- InnoTech Alberta (virtual). September 17, 2021.
- City of Fort Saskatchewan, Enviro Event. Fort Saskatchewan, AB. September 11, 2021.
- 2021 BiodiverCity Challenge-Webinar Series. May 13, 2021.
- Buffalo Lake Naturalist Club (virtual). April 15, 2021.
- Ritchie Community League, Urban Stewardship Seminars (virtual). April 13, 2021.

Publications

- Lee, T.S., N.L. Kahal, H.L. Kinas, L.A. Randall, T.M. Baker, V.A. Carney, K. Kendell, K. Sanderson, and D. Duke. 2021. Advancing amphibian conservation through citizen science in urban municipalities. *Diversity* 13(5): 211.

Literature Cited

Government of Alberta (GoA). 2017. *Alberta Wild Species General Status Listing – 2015.* Edmonton, Alberta, Canada. 24 pp. Available online: https://open.alberta.ca/publications/alberta-wild-species-general-status-listing-2015

Photos

Photo 1. The Alberta Volunteer Amphibian Monitoring Program logo. Photo: ACA

Photo 2. The wood frog (*Lithobates sylvaticus*) is one of the most popular submissions from volunteers to AVAMP. The species is a well-studied freeze-tolerant amphibian that uses glucose and urea as cryoprotectants in physiological response to sub-zero winter temperatures during hibernation, at minima several degrees below freezing. Photo: Kris Kendell