CITIZEN SCIENCE ALBERTA

Connecting People to Science Workshop Proceedings

OCTOBER 2024

PREPARED BY: BATTLE RIVER WATERSHED ALLIANCE

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Executive Summary

In the fall of 2024, the Steering Committee for the Citizen Science Alberta Community of Practice (CitSci Alberta) hosted *Connecting People to Science*, a webinar series followed by an in-person workshop.

The aim of the initiative was to advance citizen science in Alberta, with direction from the Areas of Focus identified in the *Citizen Science Principles of Good Practice*. The initiative:

- Brought the community together to share expertise and build connections with experts from around the world
- Explored Indigenous-led projects drawing on Indigenous and Western methods
- Launched the new CitSciAlberta.com
- Highlighted key areas where strategic partnerships in citizen science are driving change through policy advancement, community engagement, and stewardship
- Shared strategies and opportunities to mobilize citizen science data

The webinars attracted over 200 participants and featured experts from provincial, Indigenous, national, and international projects. The webinar series culminated in a workshop with over 60 Community of Practice members in attendance at the Bison Lodge in Edmonton on October 30, 2024.

The workshop included a networking session and highlighted citizen science initiatives in the province, spanning topics on water, biodiversity, and climate.

Key themes of the series included the role of citizen science in:

- Evidence-based policy
- Education
- Innovation
- Inclusivity
- Equity

Overall, the initiative supported capacity building and advancement of citizen science in Alberta.

Sponsors

We wish to acknowledge our partners and funders. *Connecting People to Science* would not have been possible without their support. This workshop and the proceedings document was sponsored by the Office of the Chief Scientist, Environment and Protected Areas. The workshop was also sponsored by the City of Edmonton's Change for Climate initiative.

Land Acknowledgement

We acknowledge that the land we know as Alberta resides within Treaties 6, 7, and 8, as well as portions of Treaties 4 and 10. Alberta also resides within the five territories of the Metis Nation of Alberta. We recognize with gratitude that the lands and waters we hold so dear today have been stewarded by First Nations, Inuit, and Métis Peoples for centuries.

Bradley Peter, CitSci Alberta Steering Committee Chair, opening the *Connecting People to Science: Monitoring to Drive Change Workshop* at Bison Lodge, Edmonton, Alberta.

CitSci Alberta

About

CitSci Alberta is open to all who share a passion for citizen science. The Community of Practice is made up of researchers, environmental managers, educators, project coordinators, and volunteers who are fostering the growth of citizen science in Alberta. In 2024, 588 individuals and organization representatives subscribed to the CitSci Alberta distribution list.

CitSci Alberta comes together to:

- Promote and showcase the development and application of good practice in the field of citizen science
- Connect learning to action
- Elevate the profile of citizen science initiatives in Alberta
- Support coordination and collaboration within the citizen science community.

Steering Committee

CitSci Alberta is guided by a Steering Committee of passionate practitioners with representatives from the Alberta Invasive Species Council, Alberta Lake Management Society, Battle River Watershed Alliance, Edmonton and Area Land Trust, Environment and Protected Areas, Miistakis Institute, and Nature Alberta.

The committee was born out of an initiative started in 2015 between Environment and Protected Areas and the Miistakis Institute to guide good practice and appropriate application of citizen science in Alberta. Currently, Government of Alberta staff are compensated for their work with CitSci AB. Each year, the Steering Committee organizes webinars and other events.

CitSci Alberta Collaboration Hub

The Hub was developed by the Miistakis Institute with grant support from Environment and Protected Areas, and input from the CitSci Alberta Steering Committee.

The CitSci Alberta Hub functions as a place to share ideas, information, and resources to advance design, delivery and evaluation of citizen science in Alberta.

To contribute, practitioners can add their contact details in the Directory and share their citizen science projects, events, and successes.

For more information, please go to: CitSciAlberta.com

Connecting People to Science

In the fall of 2024, the CitSci Alberta Steering Committee hosted *Connecting People to Science*, a webinar series followed by an in-person workshop aimed at advancing citizen science in Alberta. The initiative explored the role of citizen science in promoting inclusivity, driving innovation and policy change, and advancing equity in education and community engagement. Speakers shared knowledge and expertise on data management, community partnerships, diverse applications of citizen science, empowering future stewards, and driving change through citizen science. *Connecting People to Science* also promoted a new online platform, CitSciAlberta.com. At the workshop, attendees provided feedback on the hub, discussed how to enable the use of citizen science, and emphasized Alberta's citizen science efforts in areas including water quality, biodiversity, and climate.

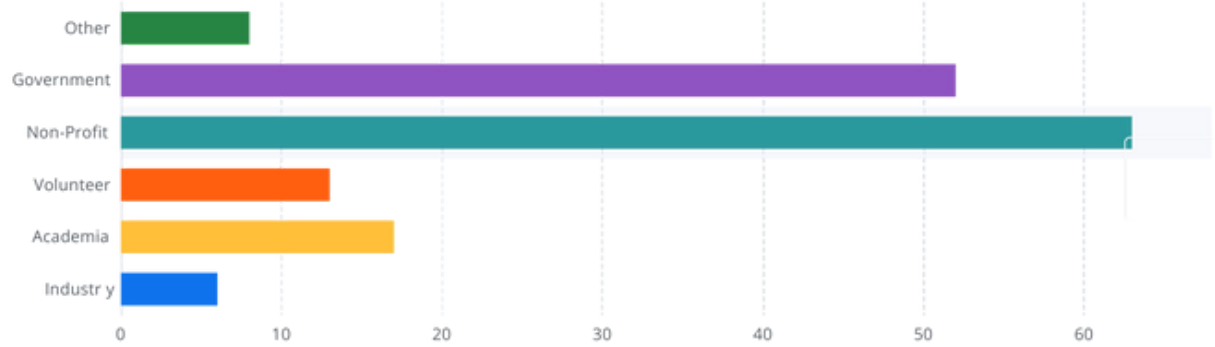
Webinar Series

Four webinars were hosted in the *Connecting People to Science* series, attracting over 200 participants and featuring a range of expert-led discussions. The webinars emphasized the importance of collaboration across communities, universities, industry, and government. Experts also shared insights into the role of citizen science in shaping environmental policy, community efficacy, and stewardship.

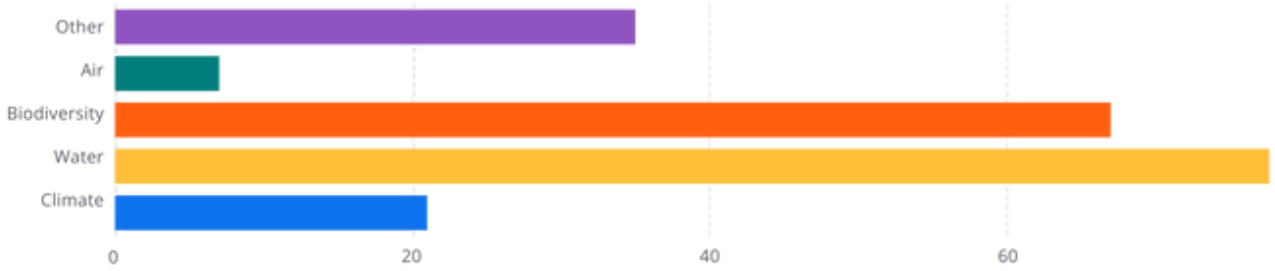
Participants

At each webinar, attendees were polled in order to showcase the demographics. The primary affiliations were government and non-profit, while the primary areas of focus were biodiversity and water.

What is your affiliation?



What is your area of focus?



Presentations

Diverse Applications of Citizen Science Worldwide Webinar

Speaker: Professor Muki Haklay, University College London

Date: September 23, 2024
Number of Registrants: 104

Theme: Professor Muki Haklay discussed the applications of citizen science in the European context and the significance of our perspectives on citizen science.

Speaker Bio: Professor Mordechai (Muki) Haklay FAcSS is a professor of Geographic Information Science at University College London (UCL). He is the co-director of the Extreme Citizen Science group at UCL. He is also the co-founder of Mapping for Change, a social enterprise dedicated to community mapping and citizen science. In addition, he is the citizen science team leader at the Learning Planet Institute, Paris. Muki has over 20 years of experience in participatory science activities.

Webinar Recording

Empowering Future Stewards Webinar

Speaker: Lynn Smith, Peavine Metis Settlement (with Matthew Menzies, Northern Alberta Institute of Technology)

Date: October 2, 2024
Number of Registrants: 85

Theme: Lynn Smith, Matthew Menzies, and moderator Catherine Peirce had a conversation about their work at the Peavine Metis Settlement to leverage ecological knowledge and understanding in the community while empowering young people to take charge.

Speaker Bio: Lynn Smith is a proud member of the Peavine Metis Settlement in Northern Alberta. In her role at the Settlement's Consulting Department she developed a partnership with NAIT (Northern Alberta Institute of Technology) and is leading her community in being stewards of their homeland.

Webinar Recording

Transformative Tools: Managing Big Data Webinar

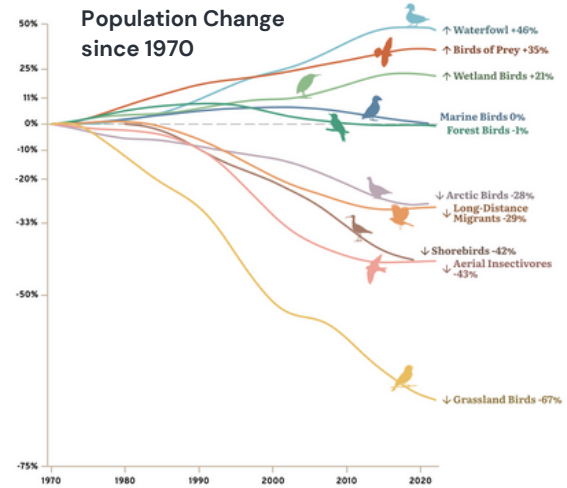
Speaker: Kyle Horner, Birds Canada

Date: October 9, 2024
Number of Registrants: 75

Theme: Kyle Horner discussed the importance of comprehensive and easy-to-use tools in citizen science and how the gathered data can be leveraged to make an impact. The State of Canada's Birds 2024 Report was launched at this webinar.[1]

Speaker Bio: Kyle Horner is a lifelong birdwatcher and science communicator based in Guelph, Ontario. As the NatureCounts Engagement Coordinator at Birds Canada, he works to raise awareness and increase adoption of the NatureCounts data platform and help users make the most of this unique resource. He was a part of a team developing the State of Canada's Birds 2024 Report, a new online resource that will make citizen science bird data accessible, understandable, and meaningful to all Canadians.

Webinar Recording



[1] Birds Canada and Environment and Climate Change Canada. 2024. The State of Canada's Birds Report. Accessed from NatureCounts. DOI: https://doi.org/10.71842/8bab-ks08

Place-Based Partnerships Webinar

Speaker: Dr. Patrick Hanington, University of Alberta

Date: October 23, 2024
Number of Registrants: 99

Theme: Dr. Hanington discussed the positive impacts of participatory science in local communities and how it expanded the range of DNA-based surveillance.

Speaker Bio: Dr. Patrick Hanington, a professor in the School of Public Health at the University of Alberta, talked about his research focused on advancing our understanding of organisms in aquatic ecosystems by connecting DNA-based surveillance with community, school, industry, and government partnerships. Using this participatory research approach, Patrick and his research group have cast an Alberta-wide net to advance our understanding of microbes that impact recreational waters, invasive species, species at risk and aquatic pathogens.

Webinar Recording

Workshop

The *Citizen Science & Policy: Monitoring to Driving Change Workshop* followed the webinar series. It was hosted in Edmonton at the Bison Lodge on October 30, 2024 followed by a networking social. The agenda is included in Appendix I and available on the CitSci Alberta website.

Advancing Citizen Science in Alberta

Speaker: Tracy Lee, Director Conservation Research, Miistakis Institute

The session was opened with a land acknowledgement and thanks to the CitSci Alberta Steering Committee and Battle River Watershed Alliance who organized the event, the event sponsors, Government of Alberta's Office of the Chief Scientist (OCS), and City of Edmonton's Change for Climate, and to the attendees.

The *Citizen Science Principles of Good Practice,* released by the OCS in 2020, was shared to provide context for the discussion and activities planned during the day. The six principles were co-developed in consultation with organizations, researchers, and practitioners. The document outlines three key areas that are essential for advancing citizen science in Alberta, and provides a framework for activities throughout the day:

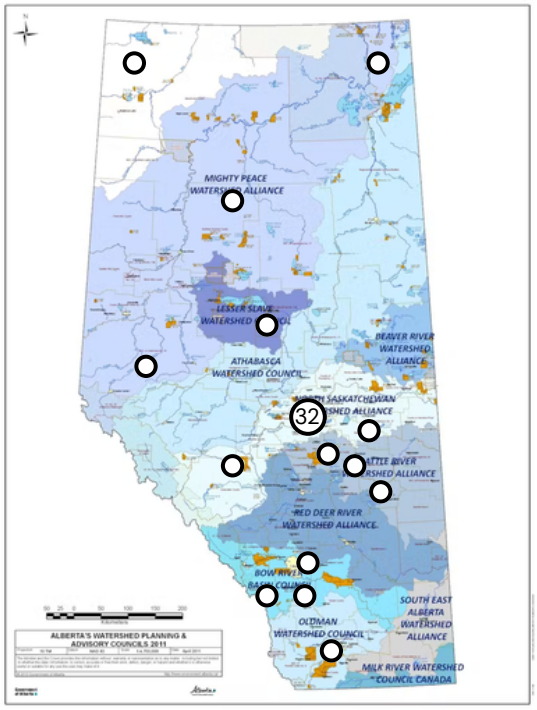
1. Grow a Citizen Science Community of Practice: This area focuses on fostering knowledge sharing, promoting standards, and encouraging innovation through active participation, collaboration, and the creation of a shared resource pool among practitioners and researchers.
2. Build Capacity and Tools: This area aims to strengthen the infrastructure needed for citizen science initiatives, ensuring that both tools and skills are developed to support data collection and analysis.
3. Enable the Use of Citizen Science Data: This area includes identifying where citizen science can address information gaps, sharing best practices for data collection, ensuring data quality standards, and supporting the integration of citizen science data into environmental decision-making processes.

The opening talk revisited the Community of Practice's early goals, highlighted the new CitSci Alberta Hub (officially launched at the workshop), and emphasized the importance of working together to enhance environmental monitoring and decision-making through citizen science in Alberta. Participants were encouraged to contribute to shaping the future direction of the Citizen Science Alberta Community of Practice.

Meet the Community of Practice

Moderator: Bradley Peter, Executive Director, Alberta Lake Management Society

Location of Community of Practice Members by Watershed[2]



Area of Focus		Affiliation	
20	Biodiversity	24	Non-profit
16	Water	13	Government
5	Climate	6	Other
5	Other	2	Academia
1	Air	1	Industry

Participants shared their favourite citizen science projects and experiences, fostering rich conversations and valuable networking. The majority of participants attended as representatives of the non-profit and government sectors. Biodiversity and water were the primary areas of focus. Participants came from 8 of the 12 watersheds spanning from the far north in the Hay River watershed to the Oldman River watershed in the South.

For future events it would be beneficial to identify citizen science volunteers and initiatives in all watersheds, including participants from the Red Deer River, South Saskatchewan, Milk River, and Athabasca watersheds.

[2]"What Is a WPAC?" Oldman Watershed Council. Accessed March 25, 2025. https://oldmanwatershed.ca/wpacs.

Monitoring to Drive Change

Moderator: Zoey Wang, Community-Based Monitoring Program Coordinator, Community-Based Monitoring & Knowledge, Airshed & Watershed Stewardship (AWS), Environment and Protected Areas

This portion of the workshop started with a keynote on Citizen Science & Policy followed by video highlights from the webinars in which each of the speakers shared how their citizen science projects are driving change. In the final portion of the morning agenda, a panel of Community of Practice members provided details about their community monitoring initiatives.

Danah Duke and Krista Tremblett presenting *Using Citizen Science to Drive Change: Moving Beyond Data Collection* at *Connecting People to Science*: Monitoring to Drive Change Workshop

Citizen Science & Policy Presentation

Speakers: Danah Duke, Executive Director, Miistakis Institute & Krista Tremblett, Community-Based Monitoring & Knowledge, AWS, Environment and Protected Areas (See Appendix II for Keynote Speaker Bios)

Danah and Krista's presentation *Using Citizen Science to Drive Change: Moving Beyond Data Collection* highlighted the role citizen science could play in changing policy by going beyond data collection to actively influence policy and societal change. By democratizing science, it empowers diverse communities to participate and share knowledge, fostering inclusivity and collaboration. With advancements in technology and shifts within institutions, citizen science is evolving, creating new opportunities for engagement. Looking ahead, ethical considerations and increased co-creator involvement will shape the future of citizen science, ensuring it continues to drive impactful, positive change. Citizen science plays a crucial role in informing decision-making processes, thereby enhancing public trust in science and policy.

Webinar Wednesday Highlight Reel - How is your Work Driving Change?

The reel captures reflections from Professor Muki Haklay, Lynn Smith, Kyle Horner, and Dr. Patrick Hanington, the speakers from the *Connecting People to Science* webinar series.
Watch the Webinar Wednesday Highlight Reel

Community of Practice Panel - Projects Driving Change

Panelists spoke on five citizen science projects in Alberta. They provided valuable insights into how citizen science is shaping the future of environmental research in Alberta, showcasing the importance of collaboration between researchers, citizens, and local organizations.

Each panellist spoke on the following questions:

- What is your name and the name of the project you are representing?
- As a citizen science project, what is the goal your project is hoping to accomplish?
- Who is involved in your citizen science project?
- How are the results of your project collected?
- Who will use the information gained? Or, who do you hope will use it?
- How can future users access the information gathered by your project (eg. Researchers, municipalities)?

Panellist: *Matt Munson, Technical Consultant, Dene Tha' First Nation*
Matt spoke on a citizen science collaboration between the Dene Tha' First Nation and Canadian Parks and Wilderness Society Northern Alberta Chapter (CPAWS Northern Alberta). This project focused on gathering remote camera monitoring data of caribou and other wildlife. The data from this project confirmed traditional knowledge about the local Bistcho Caribou herd and the ecological significance of the region, supporting increased awareness.

Panellist: *Bradley Peter, Executive Director, Alberta Lake Management Society*
Bradley shared information about the Alberta Lake Management Society citizen science projects, emphasizing the importance of partnering with individuals and communities across Alberta. The LakeKeepers program is one example of the projects highlighted that enables volunteers to independently monitor lakes or reservoirs for parameters important to ecological health. The data informs lake management practices in specific regions.

Panellist: *Frank Potter, President, Stewards of Alberta's Protected Areas Association (SAPAA)*
Frank shared that shifting the focus of Citizen Science to Citizen Stewardship would allow for more flexibility. This would promote citizen involvement in monitoring and protecting public lands, which is the aim of SAPAA. The data collected by SAPAA citizen stewards is utilized to maintain and enhance the ecological integrity of protected areas for the benefit of present and future generations.

Panellist: Tara Russell, Program Director, CPAWS Northern Alberta
Tara spoke on the citizen science BioBlitz project hosted by the Cardinal Divide Conservation Coalition in 2023. The BioBlitz took place in the Whitehorse Wildland Provincial Park and aimed at gathering information on species that live within the park. The project strengthened the voice of conservation and directly contributed to the land use plan for the region.

Panellist: Stephanie Weizenbach, Executive Director, Nature Alberta
Stephanie shared information on a citizen science project partnership between Nature Alberta and MacEwan University, involving the data-deficient Franklin's Ground Squirrel (*Poliocitellus franklinii*). This project seeks to reduce the knowledge gap on the Franklin's Ground Squirrel and promote the conservation of this species.

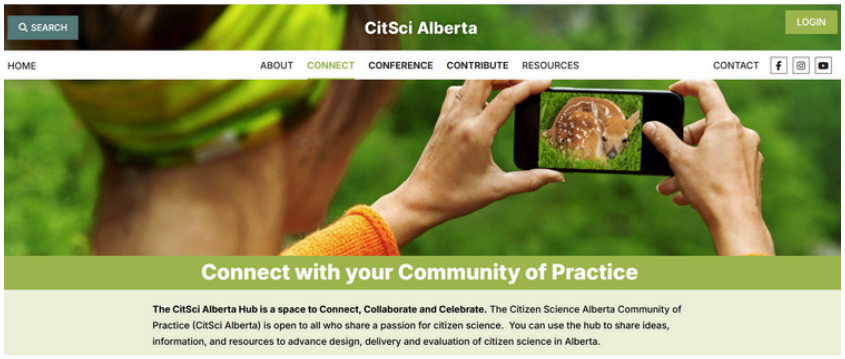
Highlighting Community of Practice Projects Video

Moderator: Meghan Jacklin, Conservation Team Lead, Edmonton & Area Land Trust

The video captures the work of local citizen science projects and how they are driving change. Projects led by the Alberta Biodiversity Monitoring Institute, CPAWS Northern Alberta, Edmonton & Area Land Trust, Nature Alberta, and Stewards of Alberta's Protected Areas Association are featured.
Check out the Video

Introducing the CitSci Alberta Hub

Moderator: Holly Kinas, Conservation Analyst, Miistakis Institute



This marked the official launch of CitSciAlberta.com. This new resource was funded by a grant from Alberta Environment and Protected Areas. A walkthrough of the Hub was provided and reactions and feedback were gathered from participants.
The collaborative platform is designed for the Community of Practice to connect, collaborate, and celebrate the diverse community of individuals passionate about citizen science in Alberta. Resources on the site support the design, delivery, and evaluation of citizen science initiatives. Workshop participants were encouraged to register on the site and join the directory, where they can add projects, share event details, upload post-event resources, and showcase success stories.

The creation of the CitSci Alberta Hub aligns with the Citizen Science Principles of Good Practice. The Hub allows contributors to:

- share best practices, practitioner guides, and supporting documents to help those involved in citizen science,
- learn about open-source tools that prioritize accessibility, collaboration, and usability, enabling broader participation in citizen science initiatives,
- find guidance documents to assist in testing equipment accuracy, and calibrating tools
- connect with other practitioners to share equipment and resources, and
- provide information on training opportunities such as conventional environmental monitoring techniques for water sampling.

The CitSci Alberta Hub will play a key role in building capacity for community-based projects by helping to improve collaboration, and promote meaningful environmental engagement in the province. Check out the Hub, join the CitSci Alberta Directory, and contribute to the community.

https://citscialberta.com/contribute/

Enabling the Use of Citizen Science Data

Moderator: Kristyn Mayner, Executive Advisor and Panel Secretariat, OCS, Environment and Protected Areas

Participants were engaged in a brainstorming activity to explore strategies to enable the use of citizen science data. Participants provided input on four guiding questions to enhance and support the use of citizen science data as practitioners but also collectively as a Community of Practice. In addition, participants offered suggestions on how the CitSci Alberta Steering Committee could best provide leadership to advance the use of citizen science data. For this exercise it was helpful to distinguish the difference between the role of a practitioner, our

collective efforts as a Community of Practice, and the role of the CitSci Alberta Steering Committee, which are defined as:

Practitioner: A member of the public, who uses their knowledge and skills, to volunteer to collect data, analyze observations, or contribute to other aspects of a science-based research project.
Community of Practice: The CitSci Alberta Community of Practice is the group of practitioners who come together to discuss and share knowledge, resources, and strategies that collectively support the advancement of citizen science in Alberta.
Steering Committee: A select group of practitioners who lead activities for the CitSci Alberta Community of Practice. The Steering Committee aspires to represent a cross-section of the individuals and organizations demonstrating interest and involvement in any capacity in citizen science in the province. The committee initiates strategic planning, organizes conferences and workshops, and develops web-based mechanisms for sharing information and ideas to help the Community of Practice attain its goals.

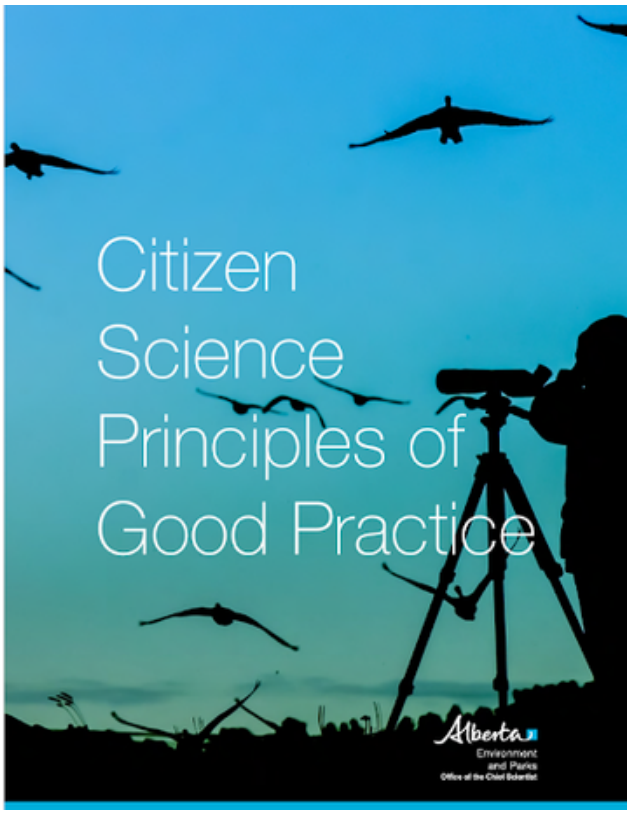
Workshop Exercise

- Question #1: In your field, what key environmental questions or knowledge gaps could citizen science address?
- Question #2: Are there any protocols or standards that you can share with the Community of Practice?
- Question #3: As practitioners, how can we build trust with data users that our data are of sufficient quality?
- Question #4: How can we further elevate the value of citizen science as a viable option to decision makers?

The final exercise was a voting exercise, where participants reviewed ideas for enabling the use of citizen science data and placed colored dots to indicate the strategies they supported.

To support future work of the Steering Committee, the strategies put forward during the workshop were recorded and ranked based on the voting exercise results and compared to the six principles laid out in the Principles of Good Practice.[3]

The input from participants showed considerable alignment with the principles. This reinforces the foundational work of the Community of Practice but also provides the Steering Committee with more granular direction to guide short and long-term priorities for CitSci Alberta. A summary of the input is categorized by theme on the next page and the detailed input from participants is included in Appendix I.



[3]Government of Alberta, Ministry of Environment and Parks. 2020. Citizen Science Principles of Good Practice. ISBN 978-1-4601-4651-4. Available at: https://open.alberta.ca/publications/9781460146514

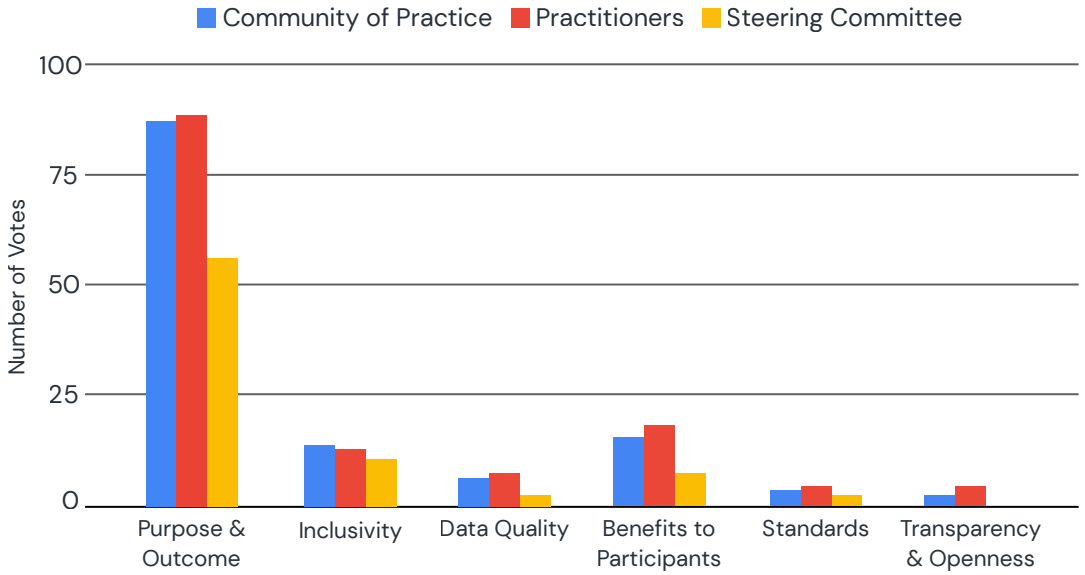
Citizen Science Principles of Good Practice

1. ***Purpose & Outcome:*** Citizen science programs include a stated purpose and/or scientific outcome, such as generating new knowledge or informing conservation action, environmental management decisions or environmental policy.
2. ***Data Quality:*** Citizen science data is fit to function, collected using standards and protocols appropriate to the intended purpose and/or scientific outcome, and follows scientific practices in design, implementation, data quality assurance, data management and evaluation.
3. ***Transparency & Openness:*** Citizen science programs operate in an open and transparent manner and, where appropriate, project data, applications and technologies are shared to encourage a culture of sharing and rapid innovation.
4. ***Inclusivity:*** Citizen science programs are inclusive and encourage active, meaningful and productive citizen participation.
5. ***Benefit to Participants:*** Citizen science programs are designed to provide benefit to all participants, including citizens, practitioners and researchers. Benefits may include the publication of research outputs, learning opportunities, personal enjoyment, social benefit and contributing to scientific evidence. Whenever possible, with permissions given, participants should be acknowledged in project results and publications.
6. ***Standards:*** Citizen science programs take into consideration safety, legal and ethical standards and guidelines surrounding copyright, intellectual property, confidentiality, data sharing agreements and the environmental impact of any activities.

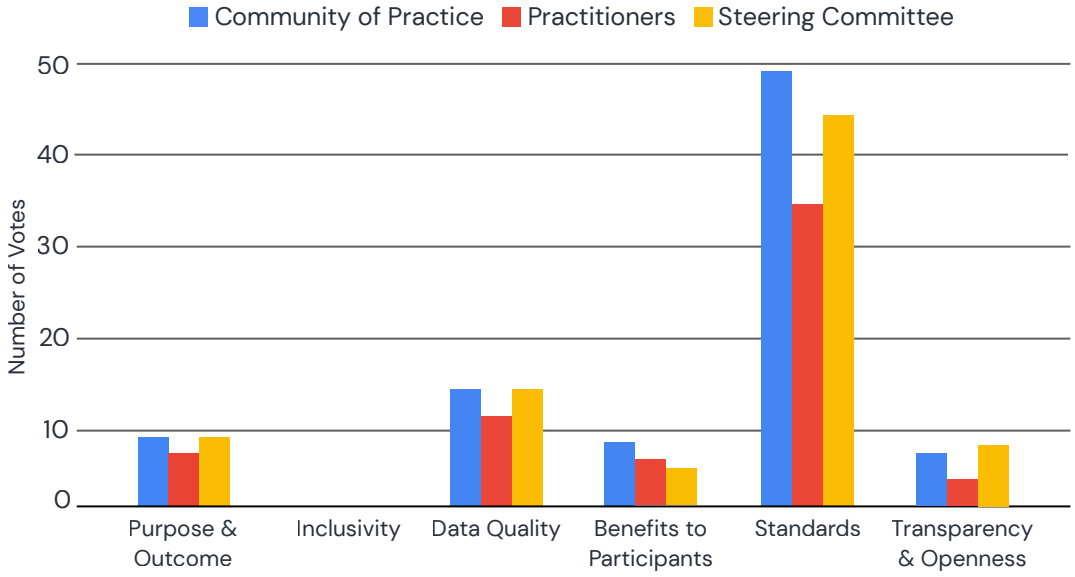
Workshop Input

Based on the four questions, participants provided suggestions specific for the Community of Practice, Practitioners, and the Steering Committee. The input was further categorized based on the six Citizen Science Principles of Good Practice: purpose/outcome, inclusivity, data quality, benefits to participants, standards, and transparency & openness. In addition, participants also shared resources and shed light on gaps, and opportunities for citizen science in Alberta. (For a record of participant responses, see Appendix III)

Question #1: : In your field, what key environmental questions or knowledge gaps could citizen science address?



Question #2: Are there any protocols or standards that you can share with the Community of Practice?



Question #2 Continued: Protocols, Guidelines, and Standards

Members of the Community of Practice shared resources for citizen science projects. While categorized as tools for Practitioners, the Community of Practice, or Steering Committee, these protocols, guidelines, and standards may be relevant for other roles.

Practitioners

- Competency in species identification
- Bumble bee survey protocol
- Remote camera monitoring protocol
- How to create an iNaturalist project
- CABIN collection protocols - invertebrate sampling
- NA BAT ARU deployments data management
- Wildlife monitoring (bird strikes) FLAP
- May plant count protocol and datasheets
- Neighbouring for climate toolkit
- Ice and snow monitoring on lakes and rivers protocol
- Environmental sensor training project (ABMI + GNWT)
- MacKenzie Datastream water quality
- ABMI. Remote camera protocols
- Fish and Wildlife Information system - Data sharing, extraction, collection standards
- Stream temperature monitoring SOP's & QAQC process

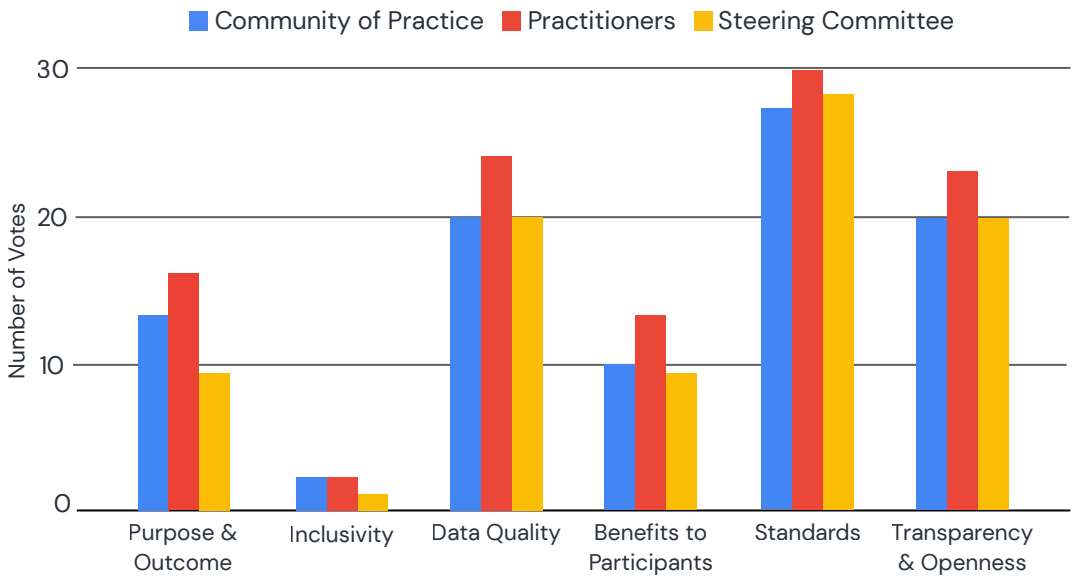
Community of Practice

- Guidelines for images of plants
- NA BAT ARU deployments data management
- North American Banding Council
- Beaverhill Bird Observatory Field Manual | BBO training manuals
- Wildlife monitoring (bird strikes) FLAP

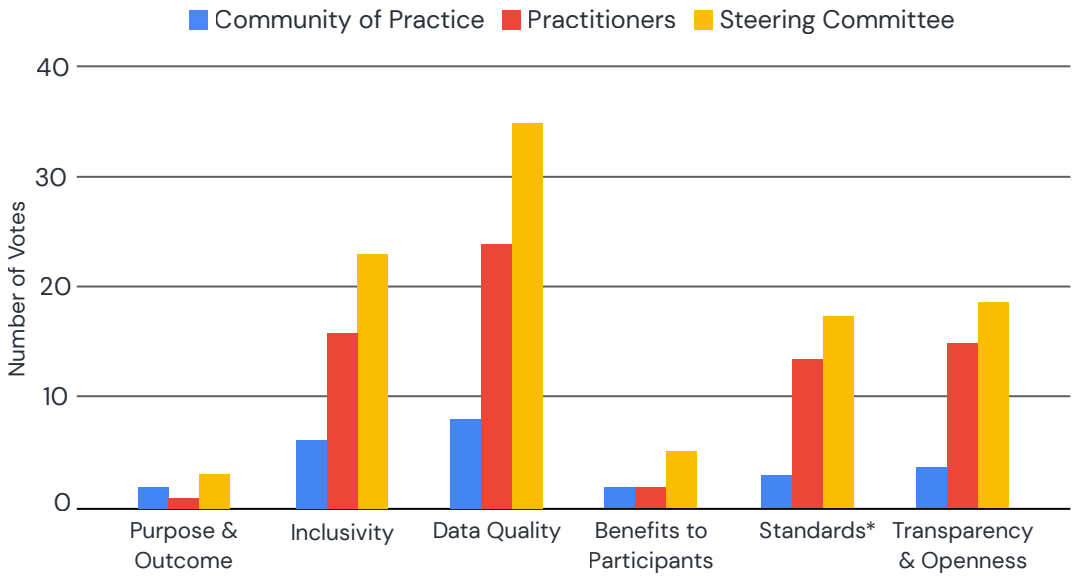
Steering Committee

- Grant writing
- Wildlife monitoring (bird strikes) FLAP
- Provincial Amb. Air monitoring directive - SOP for Purple Air
- Ice thickness
- MSDS Standards
- Ontario benthic biomonitoring network

Question #3: As practitioners, how can we build trust with data users that our data is of sufficient quality?



Question #4: How can we further elevate the value of citizen science as a viable option to decision makers?

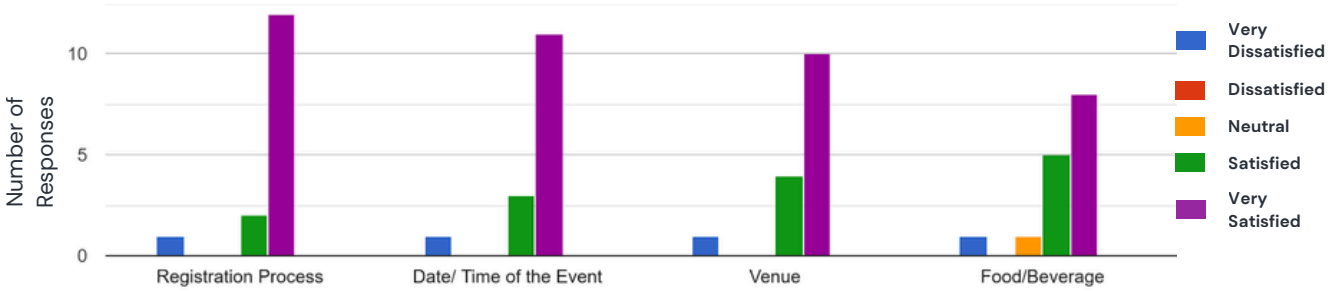


Evaluation

An evaluation of the workshop was distributed after the workshop. Twenty-four percent of attendees (15 of 63) provided an evaluation with positive feedback.

- 100% would attend another Alberta gathering on citizen science
- 93% believed that the information presented was relevant to them
- 100% of respondents were satisfied with the opportunities to ask questions and provide feedback

How satisfied were you with the logistics?



Feedback for Planning Future Events

- 47% learned about the event through email invitations, 33% through word of mouth
- 60% of respondents attended the event to learn more about CitSci Alberta
- 80% felt the workshop fulfilled their reason for attending, while 20% said yes, it fulfilled their reason for attending but not to the full extent
- 96% of respondents were at least somewhat satisfied with the logistics of the event

Additional Comments on Logistics

- Good location, just don't miss the parking lot turn!
- Great gluten free and other allergy requirements covered - thank you!! Maybe announcing next time that there are food accommodations available before everyone gets up to eat would be helpful to prevent people taking them by mistake.
- Exceptional organization; audio was problematic. May have been avoided by doing a sound check prior to the event.

Program Comments

What stood out to you most from the workshop (i.e. content, process, new learnings)? Why?

- Meeting Community of Practice members in person
- Learning from my table
- Great CitSCi happening in Alberta
- The new CitSci hub
- Community of Practice Panel. First hand information from Community of Practice project managers/techs of Community of Practice challenges/successes & questions
- The keynote presentation
- Presentations
- Better understanding what is Citizen Science and networking.
- Venue exceeded expectation. Flow of the day was very smooth.
- Watching the CitSci community connect and discuss relevant concerns and strategies!
- The quality of expertise
- The new platform to connect, the table discussions
- Navigation of the new Hub and interesting mix of people to meet
- I really liked the discussions shared with other attendees, and being able to share experiences and knowledge with each other
- The value of face to face networking

Future Topics

- Ethics
- Apps that already exist (relating to Citizen Science projects)
- How to set up a CitSci project with examples on how existing projects got started
- Similar successful CitSci projects
- Feature projects from across Alberta - new, successful, open to collaboration, etc.
- Sources of funding for CitSci projects; more examples of CitSci projects in Alberta
- Citizen science to drive change at different scales
- Sharing data
- How to build a wilderness trail to do citizen science
- More qualitative programs/KPIs/involvement
- Monitoring with low cost tech
- More on funding and how we can help each other. Keep building and maintaining momentum

Additional Comments

- I think a little more focus on actually getting CitSci projects started would be great information
- Well organized and schedule kept on time - much appreciated

APPENDIX I - WORKSHOP AGENDA

CONNECTING PEOPLE TO SCIENCE

Citizen Science & Policy: Monitoring to Drive Change In-person Workshop

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Bison Lodge, 9430 Scona Rd NW, Edmonton, AB T6E 3W2
October 30, 2024, 9 am - 5 pm

AGENDA

9:00 – 9:25 am	**ADVANCING CITIZEN SCIENCE IN ALBERTA** • Opening Remarks & Land Acknowledgement • Areas of Focus Citizen Science Principles of Good Practice	Tracy Lee, Miistakis Institute
9:25 – 10:00 am	**MEETING THE COMMUNITY OF PRACTICE** Activities: CitSci Speed Dating and Survey (Menti.com)	Bradley Peter, ALMS
10:00 – 10:15 am	15 Minute Break	
10:15 – 11:00 am 11:00 – 11:10 am 11:10 – 11:55 am Group Photo If Time	**MONITORING TO DRIVE CHANGE** • *Citizen Science & Policy, Keynote Speakers* ***(45 min)*** ○ Danah Duke, Miistakis Institute ○ Krista Tremblett, Environment and Protected Areas • *Webinar Wednesday Highlight Reel* ***(8 min)*** • *CoP Panel - Projects Driving Change* ***(32 min plus 15 min for Question)*** ○ Matt Munson, Dene Tha' First Nation ○ Bradley Peter, Alberta Lake Management Society ○ Frank Potter, Stewards of Alberta's Protected Areas Association ○ Tara Russell, Canadian Parks and Wilderness Society ○ Stephanie Weizenbach, Nature Alberta	Zoey Wang, EPA
12:00 pm	50 Minute Lunch	
12:50 – 12:55 pm	**HIGHLIGHTING CoP PROJECTS – Video**	Meghan Jacklin, EALT
12:55 – 1:40 pm	**INTRODUCING THE NEW CITSCI ALBERTA HUB** Presentation and Feedback Poll	Holly Kinas, Miistakis Institute
1:40 – 3:20	**ENABLING THE USE OF CITIZEN SCIENCE DATA** • Breakout Session Citizen Science Principles of Good Practice	Kristyn Mayner, EPA
	15 Minute Break	
	ENABLING THE USE OF CITIZEN SCIENCE DATA • Aspirations - Dot Voting and Poll	Kristyn Mayner, EPA
3:20 pm	**CLOSING REMARKS**	Bradley Peter, ALMS
3:30 pm - 5:00 pm **NETWORKING SOCIAL**		

APPENDIX II - KEYNOTE SPEAKER BIOS

Citizen Science & Policy, Keynote Speakers

Danah Duke, Executive Director, Miistakis Institute

The Miistakis Institute, a not-for-profit charitable environmental research institute affiliated with Mount Royal University, brings people and ideas together to promote healthy communities and landscapes. Danah's role as the Executive Director of Miistakis puts her at the interface between academia, policy and decision-making and community conservation. Through her tenure at Miistakis, Danah has developed skills in various conservation related disciplines that include ecological connectivity, biodiversity conservation, human wildlife coexistence and citizen science. Her experience also includes non-profit management and governance, facilitation and collaboration and community engagement. Danah holds a M.Sc. in Environmental Biology and Ecology at the University of Alberta and a B.Sc. in Biology from McMaster University.

Krista Tremblett, Senior Manager, Community-Based Monitoring & Knowledge, AWS, Environment and Protectd Areas

Krista Tremblett is a Senior Manager with the Community-Based Monitoring and Knowledge Unit, Airshed and Watershed Stewardship Branch, Environment and Protected Areas. Her current work focuses on advancing environmental stewardship through community-based monitoring, citizen science, and knowledge sharing. In her 18 years as an Alberta public servant, Krista's professional experience has ranged from planning and implementing environmental education initiatives to exploring collaborative approaches to environmental monitoring, which has given her a unique perspective on the interface between science, policy, and community involvement. Born and raised on Canada's east coast in the province of Newfoundland.

Krista moved to Alberta in 2001 to study at the University of Calgary. She has since put down roots in Edmonton with her family.

Appendix III Enabling the Use of Citizen Science Data Results

Question #1: In your field, what key environmental questions or knowledge gaps could citizen science address?

Community of Practice			Practitioners			Steering Committee		
Theme	Question or knowledge gap in CitSci*	Votes**	Theme	Question or knowledge gap in CitSci	Votes	Theme	Question or knowledge gap in CitSci	Votes
Purpose & Outcome	Tracking change [over time]	10	Purpose & Outcome	Tracking change	10	Purpose & Outcome	Tracking change	10
Purpose & Outcome	Groundwater levels and storage	8	Purpose & Outcome	Cumulative effects	7	Purpose & Outcome	Health related metrics assoc. with Air quality	7
Purpose & Outcome	Cumulative effects	7	Purpose & Outcome	Health related metrics assoc. with Air quality	7	Inclusivity	Social and cultural dimensions related to the environment	6
Purpose & Outcome	Mental health issues related to environment	6	Inclusivity	Social and cultural dimensions related to env. Change	6	Benefit to Participants	^(resources) Meet people where they are, use familiar language, find common ground	5
Inclusivity	Social and cultural dimensions related to enviro. change	6	Purpose & Outcome	1. Myth of recycling 2. The lifetime of single use products 3. Household vs corporate waste	5	Purpose & Outcome	Social citizen science - What perspectives are missing?	5
Inclusivity	Expand existing tools to include oral history and observation	6	Purpose & Outcome	Changes in climate -> plants, foods, medicines not growing how they used to	5	Standards	What is a province wide sustainable funding model for CitSci porjects?	4
Purpose & Outcome	Non-motorized watercraft recreationalists + eDNA	6	Purpose & Outcome	Tributary Monitoring Program- data	5	Purpose & Outcome	Geographic +Northwest +Water quality	4
Purpose & Outcome	Odour/ Air Q. - See wood buffalo odour app	5	Purpose & Outcome	Water distribution on landscape	4	Data Quaity	Understanding reproductive cycles of vegetation +better management	4
Purpose & Outcome	Change overtime (ie. environmental changes) of local areas	4	Purpose & Outcome	... change overtime (ie. water quality, environmental changes) of local areas	4	Transparency & Openness	How good are Government regulations where [biodiversity] is considered?	3
Purpose & Outcome	SAR [species at Risk]	4	Purpose & Outcome	SAR	4	Standards	Funding for more CitSci projects	3
Purpose & Outcome	Geographic +Northwest +Water quality	4	Purpose & Outcome	Expansion of Magpie habitat range - data from citsci?	4	Data Quaity	The best practices on climate literacy	3
Data Quaity	Knowledge about baseline water quality in remote areas	3	Purpose & Outcome	Geographic +Northwest +Water quality	4	Inclusivity	Understanding/ accessibility of technology	2
Purpose & Outcome	Impacts and benefits of OHV use	3	Data Quaity	Understanding reproductive cycles of vegetation +better management	4	Benefit to Participants	Support for existing programs Skilled volunteers	2
Purpose & Outcome	Breeding Bird Atlas of AB#3	3	Purpose & Outcome	Winter lake data collection	4	Standards	Heat Isand Effect -> who whould implement?	2
Purpose & Outcome	Urban naturalization => tree coverage in cities - locations -people planting	3	Purpose & Outcome	Impact of modified seasonality/ climate change on harvested plants	4	Benefit to Participants	Engage public in stewardship	2
Purpose & Outcome	Beaver Dam Analogs for native trout restoration	3	Data Quaity	Knowledge about baseline water quality in remote areas	3	Standards	Resources on how to facilitate science or stewardship projects	2
Inclusivity	Understanding/ accessibility of technology	2	Purpose & Outcome	Impacts of natural disturbance	3	Inclusivity	Connecting others operating in the same scope of practice	2
Benefit to Participants	Health of the land - edible and medicinal species harvest	2	Data Quaity	Water quality and quantity in individual water bodies + source point pollution	3	Standards	ABMI protocals - Landowner wilding	2
Standards	How to mitigate urban heat island effect	2	Purpose & Outcome	Backcountry campers for snowpack or quantity +alpine club	3	Inclusivity	Methods of data sharing that fall outside of the westernized "norm" (qualitative data)	2
Benefit to Participants	health of key Metis cultural species (individuals and population)	2	Purpose & Outcome	Winter "bug" diversity in Alberta (winter bug count)	3	Transparency & Openness	Awareness of projects	2
Purpose & Outcome	Identifying and protecting rare / sensitive species habitats	2	Purpose & Outcome	research on small fish	2	Purpose & Outcome	AEP Lake level readings Done by volunteer	2
Benefit to Participants	Medincial plants distribution and quality -> collector information	2	Purpose & Outcome	Hanging culverts	2	Benefit to Participants	Volunteer Recruitment	2
Data Quaity	How do heat events effect air quality?	2	Purpose & Outcome	Noise and Light Pollution	2	Transparency & Openness	Knowledge. Alberta Nature Plan (Presentation / on the value of CitSci)	1
Purpose & Outcome	What are the positives and negatives of OHV use to access nature?	2	Benefit to Participants	Support for existing programs Skilled volunteers	2	Transparency & Openness	Communication about existing data/ CitSci programs	1
Benefit to Participants	Harvesting ability and availability for citizens to utilize	2	Standards	Heat Isand Effect -> who whould implement?	2	Transparency & Openness	Funding List on Hub	1
Benefit to Participants	Public health info (Realtime) related to water quality in water bodies	2	Benefit to Participants	Health of the land - edible and medicinal species harvest	2	Standards	Asking for tenures to connect projects with funds (ex. Beaver dam analogs)	1
Benefit to Participants	Providing monitoring kits	2	Transparency & Openness	Outreach - ask the community!	2			
Purpose & Outcome	Discovering new species - better biodiversity knowledge	2	Purpose & Outcome	Environmental and social change related to climate	2			
Purpose & Outcome	Paleolimnology - collection of eDNA & sediment samples	2	Benefit to Participants	Harvesting ability and availability for citizens to utilize	2			

Legend	Votes
Top Priority	14
Moderate Pri	7
Low Priority	1

Purpose & Outcome	Drought Monitoring (location, time of year = dry)	2
Purpose & Outcome	AEP Lake level readings Done by volunteer	2
Data Quaity	Ecosystem health using multiple factors	2
Benefit to Participants	Volunteer Recruitment	2
Transparency & Openness	Understanding of importance of naturalization	1
Transparency & Openness	Technology library ...	1
Purpose & Outcome	Climate action for communities	1
Benefit to Participants	Barriers or challenges to local climate action as a neighbourhood	1
Standards	What toolkit are neighbours using most?	1
Purpose & Outcome	... wage/results and new energy efficiency technologies (eg. Solar PV systems, Electric vehicles, heat pumps)	1
Purpose & Outcome	Range expansion and abundance of Ab native bees	1
Purpose & Outcome	key ... of concerns of Metis Albertans	1
Benefit to Participants	Harvest information to fill gaps in mammal abundance and distribution	1
Purpose & Outcome	Species Existance	1
Purpose & Outcome	Fish health in the Battle	1
Purpose & Outcome	Bio-haven Floating Islands	1
Purpose & Outcome	Plant Species	1
Purpose & Outcome	Ice in - Ice out (Dackto 1976)	1
Transparency & Openness	Funding and research	1
Standards	Supporting current gov monitoring projects with people power (current low capacity water monitoring)	1

Benefit to Participants	Decentralized training	2
Purpose & Outcome	Hunters +chronic wasting disease	2
Purpose & Outcome	Paleolimnology - collection of eDNA & sediment samples	2
Purpose & Outcome	Drought Monitoring (location, time of year = dry)	2
Purpose & Outcome	AEP Lake level readings Done by volunteer	2
Purpose & Outcome	Impact of Pesticides on insects - heavy metals	2
Standards	Beaver dam analogs - potential location by identifying dry river beds & channelized streams	2
Purpose & Outcome	Franklin's groundsquirrel distribution & abundance (data gap for potential species at risk)	2
Purpose & Outcome	Invasive Species	1
Purpose & Outcome	Monitoring of habitat threats	1
Benefit to Participants	Barriers or challenges to local climate action as a neighbourhood	1
Standards	What toolkit are neighbours using most?	1
Purpose & Outcome	... wage/results and new energy efficiency technologies (eg. Solar PV systems, Electric vehicles, heat pumps)	1
Purpose & Outcome	Range expansion and abundance of Ab native bees	1
Purpose & Outcome	Species Existance	1
Purpose & Outcome	Fish health in the Battle	1
Data Quaity	Routine ongoing monitoring	1
Standards	Better invest. of online tools for inv. spp.	1
Inclusivity	Education opportunities to provide experiences in nature	1
Purpose & Outcome	#Reducing Food Wastage and ensuring food security	1

Question #2: Are there any protocols or standards that you can share with the Community of Practice?

Community of Practice	
Protocols or Standards	Votes
Guidelines for volunteer engagement	7
Connecting analysts with the projects	7
Template data sharing/ use agreements	6
Reporting processes qualitative & quantitative	5
Summer & Winter Lakekeepers field manuals	5
Honoraria - culturaly appropriate engagement	5
Advice for including QA/QC into monitoring	4
Establish strong connections with communities	4
Need for procedures to implement a citsci program	4
Logistics -training required - experts - certifications required	3
Training [provide training on protocols]	3
Communication tools - newsletters - social media	3
Data use agreements	3
FOIP standards - data collected is only used for stated purposes	3
Data quality & evidence based processes	2
Guidance for police record checks	2
Guidelines for images of plants + Univ. of AB Herb [https://www.wildflower.org/collections/collection.php?collection=AB]	2
NA BAT ARU deployments data management (WildTrax) [Autonomous Recording Unit Deployment Protocol]	2
Indigenous Guardians Toolkit	2
When best to use citscience to address a data gap - guidelines	2
Providing honorariums to indigenous community members you are sharing their skills or knowledge (guidelines for this funding available, implementation)	2

	Practitioners	
Theme	Protocols or Standards	Votes
Purpose & Outcome	Connecting analysts with the projects	7
Data Quality	Reporting processes qualitative & quantitative	5
Benefit to Participants	Logistics -training required - experts - certifications required	3
Standards	Competency in species identification https://cieem.net/wp-content/uploads/2019/07/Appendix-A-LANENC33-NOS.pdf	3
Standards	FOIP standards - data collected is only used for stated purposes	3
Standards	Bumble bee survey protocol	3
Standards	Remote camera monitoring protocol https://wildtrax.ca/resources/methods-protocols/field-protocols-and-datasheets/	3
Standards	How to create an iNaturalist project (Calgary plants and pollinators)	3
Standards	CABIN collection protocols - invertabrates https://publications.gc.ca/collections/collection_2018/eccc/CW66-571-2018-eng.pdf	3
Data Quality	Data quality & evidence based processes	2
Benefit to Participants	Volunteer recruitment, training, communications, impact	2
Standards	NA BAT ARU deployments data management (WildTrax) [Autonomous Recording Unit Deployment Protocol]	2
Standards	Writing standards of what to ask for	2
Transparency & Openness	Non-wholist protocols and standards -> more protocol transparency	2
Standards	Providing honorariums to indigenous community members you are sharing their skills or knowledge (guidelines for this funding available, implementation)	2
Benefit to Participants	Volunteer/ practitioner safety & liability process	1
Data Quality	Quality assurance + Quality control	1
Standards	Wildlife monitoring (bird strikes) FLAP Canada	1
Purpose & Outcome	Dependent on research question -> standards and protocols change	1
Benefit to Participants	Transfering observation skills to cit scientists	1
Standards	May plant count protocol and datasheets [https://naturealberta.ca/may-plant-count/]	1

	Steering Committee	
Theme	Protocols or Standards	Votes
Standards	Guide to compensation/ recognition/ incentives for participants	14
Standards	Terminology Glossary + Acronyms	8
Standards	Guidelines for volunteer engagement	7
Purpose & Outcome	Connecting analysts with the projects	7
Inclusivity	Indigenous representation on committee	7
Data Quality	Advice for including QA/QC into monitoring	4
Standards	Logistics -training required - experts - certifications required	3
Standards	Photo release forms	3
Standards	Traditional knowledge sharing policy	3
Benefits to Participants	Volunteer recruitment, training, communications, impact	2
Benefits to Participants	Celebrate success stories	2
Standards	Where to buy safety supplies. Recommended safety supplies	2
Standards	Ontario benthic biomonitoring network. +Protocols	2
Standards	Provincial design manual	2
Standards	Water quality parameter preservation	2
Benefits to Participants	Volunteer/ practitioner safety & liability process	1
Data Quality	Quality assurance + Quality control	1
Standards	Safety - ice thickness + quiz - MSDS website	1
Standards	Provincial Amb. Air monitoring directive - SOP for Purple Air https://ccme.ca/en/res/ambientairmonitoringandqa-qcguidelines_ensecure.pdf	1
Standards	Wildlife monitoring (bird strikes) FLAP Canada	1
Transparency & Openness	Private/ Gov orgs & balancing sharing international property	1

Legend	Votes
Top Priority	14
Moderate Priority	7
Low Priority	1

North American Banding Council [https://nabanding.net/wp-content/uploads/2021/07/Banders-Study-Guide-2001.pdf] Beaverhill Bird Observatory Field Manual BBO training manuals [https://beaverhillbirds.com/publications/papers-reports-manuals/] safety	1
Quality assurance + Quality control	1
Wildlife monitoring (bird strikes) FLAP Canada	1
Dependent on research question -> standards and protocols change	1
GIS - stupid easy - others - ARC GIS	1
4 C's org. (Comm, Coord, Commend, Control)	1
Volunteer agreements	1
Consent - photo releases - data - etc.	1
OHS Compliance	1
H&S Manuals	1

Standards	Neighbouring for climate toolkit (materials + online resources)	1
Standards	ice and snow monitoring on lakes and rivers protocol -> to be conilituated[?] across the prov. (Maclean et al 2021 CRIPE)	1
Standards	Environmental sensor training project (ABMI + GNWT) / includes protocols for placement of remote cameras + ARUs for blood monitoring	1
Standards	MacKenzie Datastream water quality standards for data + videos - how to protocols https://mackenziedatastream.ca/en/article/ccme-canadian-water-quality-guidelines-for-the-protection-of-aquatic-life	1
Standards	ABMI. Remote camera protocols [Field Protocols and Datasheets : WildTrax]	1
Standards	Fish and Wildlife Information system - Data sharing and extraction - Data collection standards https://www.alberta.ca/system/files/custom_downloaded_images/ep-fwmis-data-sharing-agreement.pdf	1
Standards	Stream temperature monitoring SOP's & QAQC process https://pubs.usgs.gov/tm/03/a25/tm3a25.pdf	1

Standards	Log Frame - grant writing - project design	1
Purpose & Outcome	What data needs are ther for various orgs to be able to use citsci data	1

Question #3: As practitioners, how can we build trust with data users that our data is of sufficient quality?

	Community of Practice	
Theme	Building Trust Re:Data Quality	Votes
Benefit to Participants	Build trust through relationships - need to know community cultural protocol	8
Data Quality	Collaboration, peer-review by academia or equivalent (subject matter exports)	8
Transparency & Openness	Transparency - collected - used - stored	7
Standards	Traditional knowledge of what can't be shared	6
Transparency & Openness	Be transparent about the intended use of data	6
Standards	Procedure + training document written	5
Data Quality	Processes such as iNaturalist "research grade" validation	5
Standards	Indigenous and cultural (species that we protect)	4
Data Quality	Third party review of data	4
Standards	Data collection standards	4
Benefit to Participants	Celebration of victories	3
Standards	Develop & share protocols	3
Purpose & Outcome	Work w/ user from the start of project	3
Standards	Work w/ user to develop SOP (ex. GOA)	3
Purpose & Outcome	Build evaluation into the programs	3
Transparency & Openness	Transparency on who is using shared data	3
Data Quality	Understandning implications of AI when sharing data on a platform (eg. Canva agreement)	3
Data Quality	Promote + replicate validation studies	3
Purpose & Outcome	Involve early	3
Benefit to Participants	Usable resources for practitioners (species ID, etc)	2
Transparency & Openness	Providing annual or semi-annual reports to see the data being used	2
Data Quality	Do actual comparison of the CitSci vs. Academ	2
Benefit to Participants	Incentivized training for data collection	2
Transparency & Openness	Data interoptibility (compatibility) between programs this is ASAP	2
Benefit to Participants	Build knowledge in community eg. workshops, guidebooks, education, forums	2
Inclusivity	Clear understanding of what data quality is needed?	2

	Practitioners	
Theme	Building Trust Re:Data Quality	Votes
Benefit to Participants	Training	10
Data Quality	Integrate validation to cit sci methodologies	9
Data Quality	Build trust through relationships - need to know community cultural protocol	8
Standards	Protocols on data credibility for legal/ regulatory reqs.	6
Benefit to Participants	Hub Success Stories	6
Data Quality	Peer reviewed (data verification)	5
Data Quality	Coupling data loggers w/ cit sci observations	5
Data Quality	Processes such as iNaturalist "research grade" validation	5
Benefit to Participants	Ongoing educational community & social education citsci	5
Standards	Data collection standards	4
Transparency & Openness	Transparency - QAQC - methodology - data quality can be indepently assessed	4
Inclusivity	Data should be meaningful. Intentional.	4
Standards	Metadata standards	4
Standards	Develop & share protocols	3
Standards	Standardized evidence-based data collection process	3
Inclusivity	Inclusive participation	3
Transparency & Openness	Transparency on who is using shared data	3
Standards	Understandning implications of AI when sharing data on a platform (eg. Canva agreement)	3
Data Quality	Promote + replicate validation studies	3
Standards	Trigger point (->protocols) for analysis for data credibility	3
Purpose & Outcome	Involve early	3
Data Quality	Repeatability (do a different group using the same methods to get the same result?)	3
Purpose & Outcome	Adaptive management cycle = work with data users & check in's on possible improvements on data collection	3
Standards	Follow establishing procedures - how demonstrate this?	3
Benefit to Participar	Do people trust the orgs collecting, presenting the data	2
Benefit to Participants	Usable resources for practitioners (species ID, etc)	2

	Steering Committee	
Theme	Building Trust Re:Data Quality	Votes
Benefit to Participants	Program design - training - consistency - competency exam	7
Transparency & Openness	Transparency - collected - used - stored	7
Data Quality	Elevate the value/ quality of Indigenous knowledge	7
Data Quality	Be prepared to advocate whenever government or new policy makers enter this space -> what is citsci? How can it be used?	7
Data Quality	Influence Acadenics perception of cit sci data	7
Transparency & Openness	Be transparent about the intended use of data	6
Benefit to Participants	Hub Success Stories	6
Benefit to Participants	Ongoing educational community & social education citsci	5
Data Quality	QA/QC in programs	4
Standards	Calibration protocols	4
Benefit to Participants	Celebration of victories	3
Standards	Develop & share protocols	3
Inclusivity	Inclusive participation	3
Purpose & Outcome	Work w/ user to develop SOP (ex. GOA)	3
Data Quality	Involve academics	3
Data Quality	External review process	3
Data Quality	Be collaborative - accessbility between participant + practitioners	3
Standards	Understandning implications of AI when sharing data on a platform (eg. Canva agreement)	3
Data Quality	Promote + replicate validation studies	3
Standards	Code of conduct / Ethical standards - practitioners/h	3
Data Quality	Do actual comparison of the CitSci vs. Academ	2
Inclusivity	Build knowledge in community eg. workshops, guidebooks, education, forums	2
Inclusivity	Clear understanding of what data quality is needed?	2
Transparency & Openness	Setting the expectations or agreements of data management for the project from the beginning (transparency)	1
Purpose & Outcome	Data users invovled in data collection	1
Data Quality	Legitimacy through relationships	1

Legend	Votes
Top Priority	14
Moderate Priority	7
Low Priority	1

Data Quality	Collaboration (confidence built by connections w/ other orgs)	1
Data Quality	QC/QA (Repeatedly)	1
Standards	Setting the expectations or agreements of data management for the project from the beginning (transparency)	1
Purpose & Outcome	Data users invovled in data collection	1
Purpose & Outcome	Include practitioners into the results +follow up w/ change	1
Benefit to Participants	Finding motivated participants	1
Purpose & Outcome	Aske the end user	1
Data Quality	Promote case studies to show value	1
Standards	Data sharing rules	1
Purpose & Outcome	Value of proactivity - establish research early on	1

Benefit to Participants	Incentivized training for data collection	2
Data Quality	Have you assessed the quality of your data (compared to 'reputable' sources?	2
Data Quality	Adequate sample size?	2
Benefit to Participants	training + certifications to be "qualified"	2
Standards	use of standardized protocols?	2
Data Quality	Collaboration (confidence built by connections w/ other orgs)	1
Standards	Setting the expectations or agreements of data management for the project from the beginning (transparency)	1
Purpose & Outcome	Data users invovled in data collection	1
Data Quality	Screening of observations	1
Benefit to Participants	Finding motivated participants	1
Purpose & Outcome	Aske the end user	1
Data Quality	Show how it supplements "expert" data	1
Purpose & Outcome	Value of proactivity - establish research early on	1

Data Quality	Data Collection "Report Card"	1
Benefit to Participants	eg/ Storytelling	1

Question #4: How can we further elevate the value of citizen science as a viable option to decision makers?

Community of Practice

Theme	Elevate CitSci's Value	Votes
Inclusivity	Storytelling - adding the human component/connection	12
Transparency & Openness	Build relationships with gov to connect projects with mgmt decisions	9
Inclusivity	Monthly story profile on the Hub - Humanize the work	9
Inclusivity / Data Quality	Recognition of work/ linking to citations of projects	9
Inclusivity	Tell better stories!	8
Data Quality	Report your data in a way that can be leveraged by your audience	8
Data Quality	Lobby: Connect with your MLAs municipalities	7
Inclusivity	Use short videos to tell stories (Emerald Awards)!	7
Inclusivity	Celebrate section can help motivate volunteers	7
Benefit to Participants	How are we paying our volunteers to do the work? (purpose vs. actual money)	7
Data Quality	Convert to political currency: votes	6
Data Quality	Knowledge mobilization/ science communication	4
Data Quality	- Build brand credibility - build capacity - trusted experts - partnerships	4
Transparency & Openness	Myth Buster fact sheet	4
Data Quality	Advocating to municipalities about the value of cit sci briefing	4
Benefit to Participants	Common problems, common language, common solutions, come together to solve problems	4
Data Quality	Peer Review	4
Data Quality	Encourage gov use of citizen science data in gov objectives or monitoring	3
Inclusivity	Connect cit sci to social values	3
Inclusivity	Break down barriers	2
Data Quality	Utilizing connection/ networks	2
Inclusivity	Having an active community of practice	2
Benefit to Participants	- More visuals - summarized	2
Data Quality	Compare CitSci Profiles to profess. programs	2
Inclusivity	Hub	2
Inclusivity	Communication/ -news - scicomm: factsheets, webinars	2

Practitioners

Theme	Elevate CitSci's Value	Votes
Transparency & Openness	Build relationships with gov to connect projects with mgmt decisions	9
Data Quality	Recognition of work/ linking to citations of projects	9
Purpose & Outcome	Report your data in a way that can be leveraged by your audience	8
Benefit to Participants	How are we paying our volunteers to do the work? (purpose vs. actual money)	7
Benefit to Participants	Raise awareness at the individual level => create a culture of caring for nature	7
Inclusivity	Use short videos to tell stories (Emerald Awards)!	7
Transparency & Openness	Open source data + metadata + awareness of data available	6
Data Quality	Advocacy for citizen science	5
Inclusivity	Novel ways to share wins es//storytelling	5
Data Quality	On the ground data validation	5
Data Quality	- Build brand credibility - build capacity - trusted experts - partnerships	4
Data Quality	Showcasing the expansive network's knowledge citsci community has - valuable resource to tap into	4
Data Quality	Peer Review	4
Data Quality	Utilizing connection/ networks	2
Benefit to Participants	Volunteer hours Vehicle Use	2
Inclusivity	Hub	2
Transparency & Openness	Lines of communication	1
Benefit to Participants	Build business case/ cost effectiveness	1
Purpose & Outcome	Cumulative effects (predictive model)	1
Purpose & Outcome	Model your entire project to address a pressing issue -> WIll provide returns if designed to address policy gaps	1

Steering Committee

Theme	Elevate CitSci's Value	Votes
Transparency & Openness	Build relationships with gov to connect projects with mgmt decisions	9
Purpose & Outcome	Encourage go to advance citizen science as an ongoing goal	9
Transparency & Openness	Monthly story profile on the Hub - Humanize the work	9
Safety, Legal, & Ethical Standards	Show the value $ of citizen science	9
Transparency & Openness	Tell better stories!	8
Standards	Hub functioning Push notifications from hub based on user's interests	8
Data Quality	Lobby: Connect with your MLAs municipalities	7
Data Quality	Build early connections with decision makers	7
Inclusivity	Celebrate section can help motivate volunteers	7
Inclusivity	Use short videos to tell stories (Emerald Awards)!	7
Data Quality	Presentations to decision makers/ community on the use of citizen science + its value (fed!, cities, province, biodiversity strategy)	6
Data Quality	Showcasing the expansive network's knowledge citsci community has - valuable resource to tap into	4
Inclusivity	Celebration the collectiove impact of citizen science	4
Data Quality	Advocating to municipalities about the value of cit sci briefing	4
Benefit to Participants	Common problems, common language, common solutions, come together to solve problems	4
Data Quality	Encourage gov use of citizen science data in gov objectives or monitoring	3
Purpose & Outcome	Determine value of ecosystem goods and services ex. mussels!	2
Data Quality	"This project was used in..." " this project references..."	2
Inclusivity	Hub	2
Inclusivity	Hub functioning Space for - Microcredentials (standards) - Links to references - Links to results eg. report	2
Data Quality	Presentations to decision makers/ community on the us	2
Benefit to Participants	Build business case/ cost effectiveness	1
Inclusivity	Collaboration hub	1
Transparency & Openness	Hub functioning Push prompt to collaborators to see if there are updates	1
Standards	Hub functioning Check mark or space for identifying standards or protocol eg. Training credentials or protocol eg. CABIN w/ links to protocol	1
Transparency & Openness	Tagging/ categorizing data so people can filter items	1

Scale	Votes
Top Priority	14
Moderate Priority	7
Low Priority	1

Data Quality	Convert to academic currency: papers	2
Transparency & Openness	Decentralization/ transfer of p... to org	1
Benefit to Participants	Science/ eco tourism	1
Benefit to Participants	create opportunities -career to job opp.	1
Data Quality	Build trust of the CoP as a whole	1
Data Quality	Build business case/ cost effectiveness	1
Standards	Data samples - obscured if needed	1
Transparency & Openness	Group Newsletters	1
Purpose & Outcome	Cumulative effects (predictive model)	1
Data Quality	Convert to non-profit currency: money & volunteers	1
Purpose & Outcome	Solution based ->otherwise may face resistance "just causing more work"	1

Purpose & Outcome	Solution based ->otherwise may face resistance "just causing more work"	1

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"For citizen science to be a trusted and credible source of data in environmental policy and program development, adherence to the Citizen Science Principles of Good Practice is essential. By upholding standards of data quality, transparency and collaboration, we can ensure that citizen science can make meaningful contributions to evidence-based decision-making and help protect Alberta's environment."

~ Dr. Jonathan Thompson, Chief Scientist, Environment and Protected Areas, 2025

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