

The Wildlife Ambassadors: Co-designing Conservation with Community Members. Part 1: Coexistence Messaging

Executive Summary

This project, funded by Alberta EcoTrust, addressed wildlife conservation by empowering Bow Valley community members to design, deliver, and evaluate tailored human-wildlife coexistence messages together with Biosphere Institute staff.

Biosphere staff worked with new and existing Ambassadors, mostly online due to COVID-19, to develop conservation messages tailored to their peer or recreational user group. Messages were delivered through conversations, video, social media, or a combination. Ambassadors and Biosphere staff used surveys and interviews to evaluate the effectiveness of messages delivered. We assessed target audiences' knowledge and behaviours before and after our communications efforts.

Our goal was to see an increase in trail users' understanding and adoption of the following human-wildlife coexistence behaviours:

- Avoidance of important habitat during certain times of year, e.g., elk calving season, berry season, etc.
- Compliance with trail closures
- Use of designated trails only
- Recreation between dawn and dusk only
- Leashing dogs

Approach

We recruited participants from five different recreation organizations representing different groups:

- Dirtbag Runners of the Bow Valley - trail runners
- Canmore Area Mountain Bike Association (CAMBA)- mountain bikers
- Alpine Club of Canada – Rocky Mountain Section (ACC) – hikers, climbers, mountaineers
- Youth from the Canadian Rockies Youth Network (CRYN)
- Tourism Canmore Kananaskis (TCK)

To ensure our participants were seen as trusted messengers, we hosted three online educational workshops. These workshops provided a deep understanding of human-wildlife coexistence issues so participants felt prepared and confident to talk with their peers. We found this portion of the training to be successful, as evidenced by increased curiosity, understanding and reflection on how actions they had never thought of may impact wildlife, including recreating at night, hiking in groups, and recreating in wildlife corridors.

In one of the workshops, Dr. Jill Bueddefeld provided an overview of the current research on how to most effectively communicate challenging environmental issues to the public. This involved creating meaningful and measurable objectives intended to facilitate behaviour change and the importance of conducting an audience analysis. Participants also watched a pre-recorded webinar on best practices

and how to be a trusted messenger, as well as the difference between awareness, knowledge and behaviour. Afterwards, Dr. Bueddefeld worked with each participant to further develop their objectives and ensure that their messages would be effective for their particular audience and medium.

An individualized approach was taken for each group that suited their audiences:

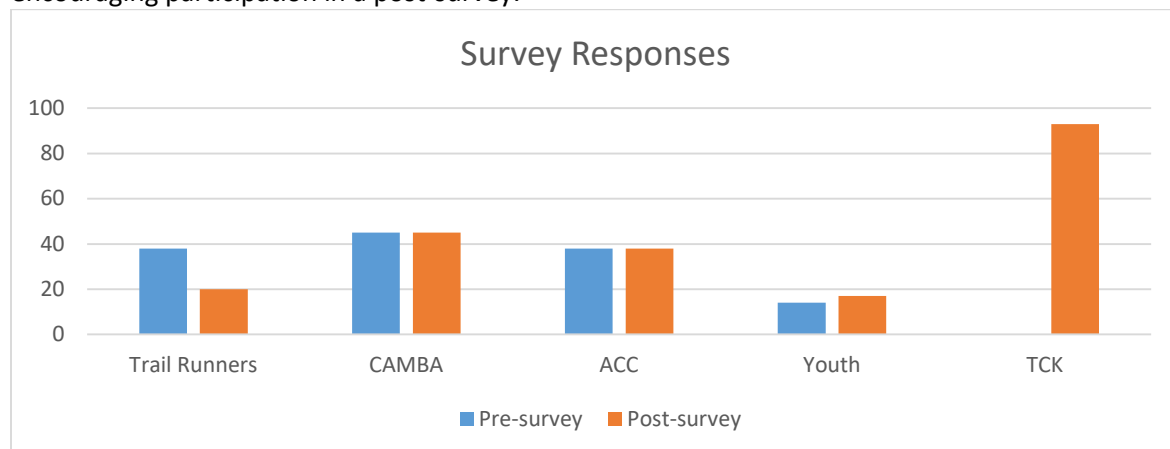
Dirtbag Runners – The audience for this group were identified as being part of the [Dirtbag Runners Bow Valley](#) Facebook group (958 members). Our trusted messenger Josh posted in this group to recruit participants to complete a pre-survey, posted his messages over the following months, then finally recruited participants for the post-survey. The messages were included at the beginning of the post-survey to ensure that everyone completing it had seen them.

CAMBA – The audience for this group was identified as being a member of CAMBA (Canmore and Area Mountain Biking Association), or being part of the [CAMBA](#) Facebook page (3,066 followers). Our trusted messenger Justin emailed all CAMBA members (1200), and posted the survey on the Facebook page. This single survey contained the pre-questions, then showed the participants the messages, then asked follow up questions.

ACC – The audience were members of the ACC (Alpine Club of Canada) or part of the [ACC – Rocky Mountain Section](#) Facebook group (808 members). Participants were invited to complete a pre survey via an email newsletter (2,724 in the section newsletter, and 33, 655 in the National newsletter) and on the Facebook group. Our trusted messenger Diana then posted in the Facebook group, and promoted her messages via the newsletter. Participants were then recruited for the post-survey. The messages were included at the beginning of the post-survey to ensure that everyone completing it had seen them.

Youth – During the Canadian Rockies Youth Network (CRYN) Summit participants were encouraged to complete the pre-survey. The messages were then shared on the CRYN TikTok account, and the post-survey was promoted via email and social media channels. At the end of the project the videos had received a total of 2,197 views on TikTok and 158 on YouTube.

TCK - Tourism Canmore Kananaskis has [Facebook](#) (41,000 followers) and [Instagram](#) (62,400 followers) pages, but felt that doing a pre and a post survey would be too much for their audience as there is a less deep connection than the other groups. Instead TCK shared social media stories that included some questions similar to what would have been in a pre-survey. They then shared their messages before encouraging participation in a post-survey.



Key Takeaways

- **Increased knowledge.** Across all groups the messages increased participants' reported knowledge by an average of 9-18%.
- **Reduced barriers to action.** Across all groups the most common barriers to acting in ways that least impact wildlife were: "I don't know what actions would be effective" and "I'm unsure if my actions will make a difference". These items showed the biggest decreases after viewing the messages, demonstrating an increased understanding of how individual actions can be effective.
- **Infographics are a great choice.** All groups that created infographics found that they scored highly in terms of effectiveness and impact. With infographics taking less time and effort to produce than other media forms such as videos or articles, it is recommended that this be leaned on most in future messages.
- **Multiple media forms are best.** Whilst infographics may provide the best balance between impact and effort, survey results showed that some people will prefer other media such as videos or articles. The most powerful approach will include a variety of media, as well as both short to-the-point, and longer in-depth messages, not forgetting that important or larger messages could be reproduced in multiple formats for maximum impact.
- **Curiosity is key.** When the audience is made of experienced trail users, it is more powerful to spark their curiosity as opposed to telling them what to do. Both the ACC and CAMBA had many reflections that indicated that they appreciated the thought provoking tone, which encouraged their reflection on the topic. Having Trusted Messengers deliver this message also helped.
- **Dog owners worry about other dogs.** The biggest motivation to keep dogs on leash was found to be the dog's safety, followed by the safety of wildlife with personal safety ranking lowest. Comments suggested that owners fear other dogs as much as wildlife.

Recommendations

- Focus on what people can do, and why it is effective. The results showed that people have positive views of wildlife, and are willing to adjust their behaviours if they understand why. Determining the relative effectiveness of different co-existence behaviours would enable the Biosphere Institute to focus the most important actions for specific activities.
- Work across organizations to bring clarity to rules, signage and enforcement. The Bow Valley has many different land use zones with different rules, that trails cross back and forth without users' knowledge. The Biosphere Institute can play a crucial role in working with the Town of Canmore, Alberta Parks, and the MD of Bighorn to make it easier for trail user groups to understand what to do where and when.
- When working with different user groups, narrow down a specific message or action and then work with a trusted messenger as to how to communicate that message – e.g. asking CAMBA how to encourage people to use only designated trails as a way to determine how to communicate that to their group.
- Tailor messages for the seasons, as activities, trails and wildlife behaviour varies. Respondents in the ACC, CAMBA and Trail Runners groups brought up questions about the winter use of trails. The different seasons in the Bow Valley pose different risks and disturbances for wildlife that we would like to focus on in future projects.
- Future messages about dogs on leash should focus on keeping dogs safe from other dogs, and keeping wildlife safe.

- This is backed up by an observed post in the [Hike Alberta Facebook group](#) where there were over 100 comments by dog owners that had reactive dogs all agreeing that off leash dogs pose a threat to them and other people on the trails.

Survey Results

Trail Runners

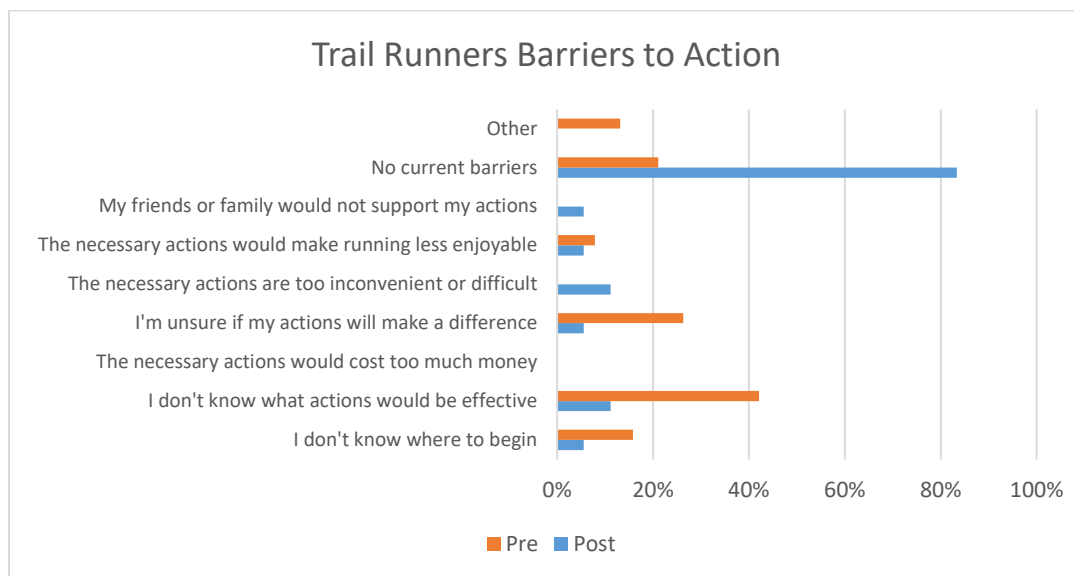
	Rules	Map	Video
Effectiveness (5 is best)	4.1	3.5	3.4
Ranking (1 is most preferred)	1.5	2.2	2.3

Knowledge (5 – Extremely knowledgeable, 1 – Not at all knowledgeable)	Pre	Post	Change
What time of year elk calving season occurs	3.3	3.8	10%
Which trails would someone be more likely to encounter an elk during elk calving season	2.8	3.9	22%
What to do if you encounter a mother elk and/or its calf on a run	3.3	4.0	14%
How to prepare for a run during elk calving season	2.8	4.1	25%
Average			18%

Approximately how many meters do you need to stay away from elk? (30m)	Pre	Post
	39.5% Correct	74% correct

Beliefs (5 – Strongly agree, 1 – Strongly disagree)	Pre	Post	Change
I wouldn't care if wildlife were absent in the Bow Valley.	1.1	1.0	-2%
Running where I want to is more important than wildlife having access to their preferred habitat.	1.2	1.4	4%
I believe we can find solutions that work for both humans and wildlife.	4.5	4.3	-4%
Allowing wildlife to have access to their habitat is more important than any sport.	4.4	4.4	0%

Behaviours (5 – Always, 1 – Never)	Pre	Post	Change
Run with bear spray on trails in the Bow Valley all year	3.2	4.1	18%
Run with bear spray on trails in the Bow Valley only during 'bear season'	4.1	3.9	-4%
Check local closures before deciding where to run.	3.6	3.7	2%
Obeys trail closures in the Bow Valley.	4.3	4.7	8%
Plan your run to avoid areas you are more likely to encounter wildlife.	3.4	3.4	0%
In non-pandemic times, run with at least one other person.	2.9	3	2%
Make noise while you run.	3.4	4.2	16%
Try to sneak past an elk instead of giving them a full 30m		1.6	
Average			6%



Trail Runners – Summary

Participants showed a preference for the Infographic “Rules for Runners”, with the map and video scoring equally in second place with good effectiveness. This indicates that all three messages were well received and effective, and that to reach a wide audience a combination of these messages will be most powerful. The infographic however, was less time and resource intensive to create, so it is more effective to use this approach as the primary method of future messages.

Viewing and reading messages appears to have increased participants’ knowledge across all categories. However, this did not translate to a shift in beliefs. This may be because participants already had very strong positive beliefs about wildlife coexistence, but we did not assess specific reasons why beliefs did not change.

The messages had a mixed impact on behavior, with two items showing a greater than 15% increase (“Run with bear spray on trails in the Bow Valley all year”, and “Make noise while you run”). “Obey trail closures in the Bow Valley” showed an 8% increase, with all other behaviour showing relatively no change. While not all behaviours showed an increase, we are buoyed that these critical behaviours were more likely to be adopted by this community when recreating.

A large shift was also seen in the barriers to action, as after viewing the messages participants had far less barriers, in particular “I’m unsure if my actions will make a difference”, and “I don’t know what actions will be effective”. This demonstrates an understanding that participants started to consider how their individual actions could have an impact and mattered, which is a critical component of this education program.

The messages prompted reflections and more consideration of wildlife from participants such as:

“Yes. The map was incredibly helpful for helping decide where to run locally in town here (Canmore)”

“Having lived in the Bow Valley for five years, most of this information is not new to me. However, it is always good to have refreshers as living amongst wildlife can make you complacent.”

“I will consider wildlife interactions more than I had before.”

Eleven strategies were suggested that would be win-win for humans and wildlife, these can broadly be categorized as:

- Support for enforcement,
- Seasonal closures,
- Clearer signage about which trails people should or shouldn’t be on,
- Infrastructure such as wildlife overpasses,
- Education:

“Clearer signage on the trails especially regarding seasonal closures, and enforcement against people using trails when they are supposed to be closed.”

“Seasonal trail closures plus information for runners on where best to go to avoid”

Alpine Club of Canada

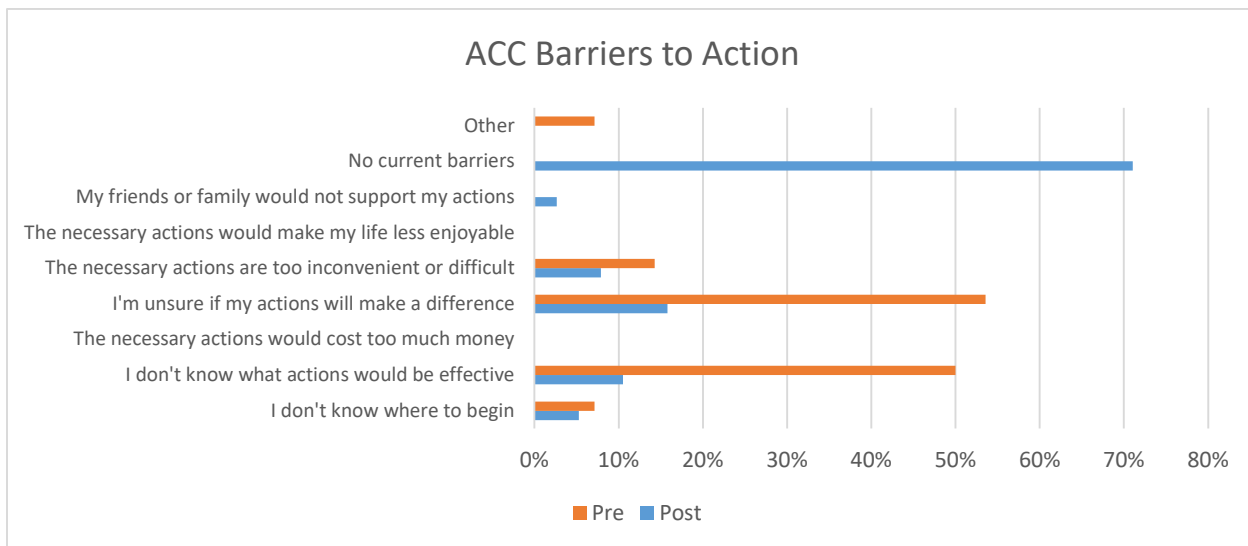
	Blog Article	Planning a Hike?	Rough Morning	Leave the night for the animals	"Times have changed..."
Effectiveness (5 is best)	3.6	3.4	2.8	3.6	3.4
Ranking (1 is best)	2.8	2.9	3.7	2.7	2.9

Knowledge (5 – Extremely knowledgeable, 1 – Not at all knowledgeable)	Pre	Post	Change
How recreating at different times of the day impacts wildlife	2.9	3.9	19%
How recreating on versus off trail impacts wildlife	3.4	3.7	7%
How to avoid negative wildlife interactions	3.8	3.9	2%
Average	3.3	3.8	9%

Interest (5 – Extremely, 1 – Not at all)	Pre	Post	Change
How to recreate whilst ensuring wildlife safety	4.2	4.4	4%
How to recreate whilst keeping yourself safe from wildlife	4.1	4.3	3%
How to avoid negative wildlife interactions		3.9	
The importance for wildlife of predictable human behaviours		3.9	

Beliefs (5 – Strongly Agree, 1 – Strongly disagree)	Pre
I wouldn't care if there were no wildlife in the mountains	1.2
Recreating where I want to is more important than wildlife having access to their preferred habitat	1.4
I believe we can find solutions that work for both humans and wildlife	4.0

Behaviour (5 – Always, 1 – Never)	Pre	Post	Change
Recreate at night in Alberta Parks	1.6	1.4	4%
Use only official designated trails (e.g. has an entry on Alberta Parks website)	3.6	3.8	4%
Use un-official trails or travel off trail	2.1	2.1	1%
Obey trail closures in Alberta Parks	4.9	4.8	-3%
Plan your recreation to avoid prime wildlife habitat (e.g. berry bushes during summer)	3.6	3.9	6%
Keep your dog on leash (not counting off-leash dog parks)	4.8	4.5	-5%
Average			1%



Alpine Club of Canada – Summary

ACC participants showed a split response to which message was the most effective, with both the blog article and the “Leave the night for the animals” poster scoring the highest in effectiveness and ranking. The humorous “Rough Morning” meme scored the lowest. This was explained in some of the comments with some people preferring shorter messages:

“I like the info with the images, but I would also do some that are just short and punchy for those that won’t take the time to read.” Whilst others valued the more detailed blog article *“I appreciated the review of some of the scientific journals on this important topic in Diana’s blog... The blog post written by Diana is excellent and the tone is friendly and supportive of careful critical thinking on this topic!”*.

This emphasizes the value of having different forms of messages to reach people with different preferences.

The ACC audience was the oldest, most educated, and frequented parks the most out of all the groups. This along with the strong positive beliefs reported about wildlife coexistence indicated a high degree of experience and expertise. This group benefits from well researched and logical presentations that demonstrate how behaviour change is beneficial, rather than telling them what to do.

Whilst there were no reported large shifts in behavior, participants demonstrated consideration of behaviour change in their comments. Part of this group’s main way of recreating often involves travelling on unofficial trails (e.g. for scrambling, climbing or mountaineering), or being on trails when it is dark (due to large mountain objectives taking longer than there is daylight for). Participants reported new considerations of the impact their behavior has on wildlife:

“I had never thought about what evening activities would stress wildlife”

“It has enhanced my consideration for wildlife”

"I've gained a better appreciation of the importance of timing in assessing the impact of backcountry recreation on wildlife."

"I would say my awareness of their increased nocturnal activity in order to avoid humans has increased."

"I think more about the consequences of being out at dusk or dawn, and about the way my presence influences the behaviour of the wildlife that I'm largely unaware of."

This shift to considering the impact recreation may have on wildlife is exactly what we were hoping to see. Participants are more likely to be paying attention to, and positively influenced by information they see in the future now this shift has occurred.

Thirty-four strategies were mentioned that would be a win-win for humans and wildlife. The two biggest groups of comments were about enforcement or closures to areas, and education for recreationalists e.g.:

"Official closures, and fines for ignoring orders"

"Ban nocturnal activities in wildlife corridors"

"Continued education, signage, outreach, enforcement of closures"

"Continued education for new people visiting areas"

CAMBA

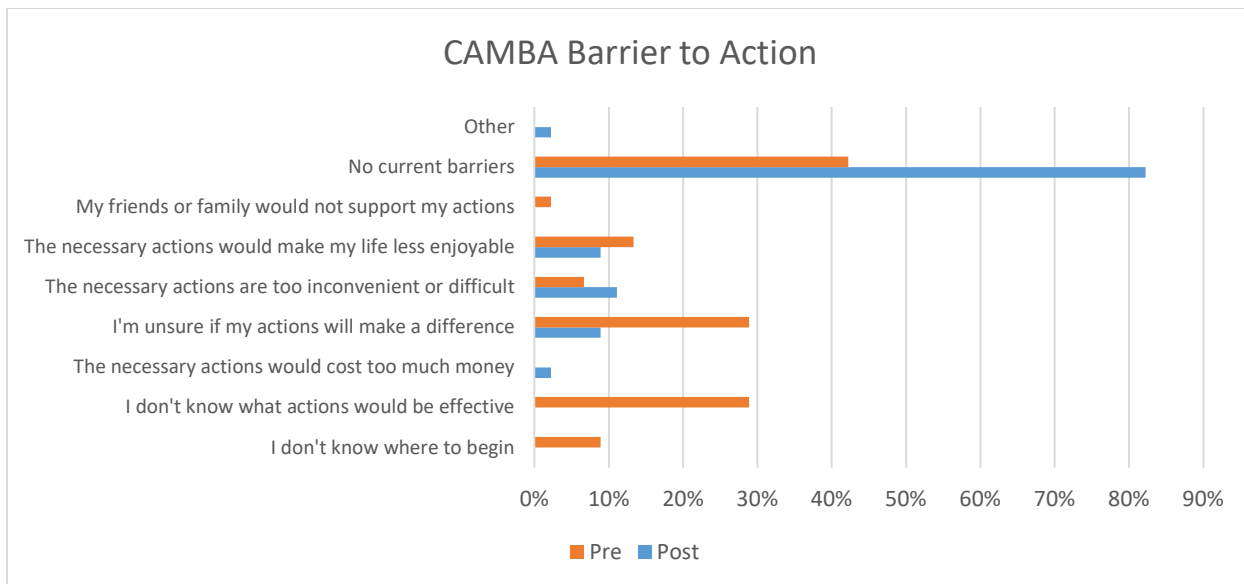
	Blog article	Infographic	Video
Effectiveness (5 is best)	3.6	3.8	3.7

Knowledge (5 – Extremely knowledgeable, 1 – Not at all knowledgeable)	Pre	Post	Change
How riding at different times of the day impacts wildlife	3.3	3.9	13%
How riding on official versus unofficial/unsanctioned trails impacts wildlife	3.5	4	9%
How mountain biking is similar or different to other forms of recreation (e.g. hiking) in terms of impact on wildlife	3.3	3.9	11%
Average	3.4	3.9	11%

Interest (5 – Extremely, 1 – Not at all)	Pre
How to mountain bike whilst ensuring wildlife safety	3.9
How to mountain bike whilst keeping yourself safe from wildlife	3.8

Beliefs (5 – Strongly Agree, 1 – Strongly disagree)	Pre	Post	Change
I wouldn't care if there were no wildlife in the mountains	1.2	1.2	1%
Recreating where I want to is more important than wildlife having access to their preferred habitat	1.7	1.6	3%
I believe we can find solutions that work for both humans and wildlife	4.4	4.3	-2%

Behaviour (5 – Always, 1 – Never)	Pre	Post	Change
Mountain bike at night in the Bow Valley	1.4	1.3	1%
Use only official designated trails	4.3	4.5	4%
Use un-official or unsanctioned trails	1.8	1.6	3%
Obey trail closures in the Bow Valley	4.8	4.8	0%
Plan your riding to avoid prime wildlife habitat (e.g. berry bushes during summer)	2.9	4.0	21%
Carry bear spray when biking	4.6	4.8	3%
Bear call while riding	4.0	4.4	8%
Average			5%



CAMBA – Summary

Results for the CAMBA participants are particularly interesting as the same people completed the pre survey as the post survey. This makes the comparisons potentially more powerful as the main thing that changed between the pre and post was that participants viewed the messages. All three messages were ranked fairly evenly in terms of effectiveness, with the infographic being slightly preferred. Similar to the previous groups, this indicates that a mix of message formats will be most effective in reaching the widest audience, which is highlighted in the comments:

“I would not go with just one educational format - people have vastly different learning styles. I can't sit still through a 5-minute video, but will read a long article if it's interesting.”

“I believe that the general public would be more willing to learn this information via the video or the infographic. In this day and age, people tend to want to digest their learning options visually. The article is a bit long for today's reader's level of focus”

The messages were effective at increasing peoples’ knowledge, with an average increase of 11% seen in the three knowledge questions. Beliefs were positive and consistent throughout the pre and post survey. Two interesting items came from the behaviour questions, with “Plan your riding to avoid prime wildlife habitat (e.g. berry bushes during summer)” increasing by 21% and “Bear call whilst riding” increasing by 8%. This could be a result of the messages reducing the barriers to these behaviours or participants’ increased knowledge influencing their decision making. CAMBA could follow up on these results by creating more messages that help members to plan their rides to avoid prime wildlife habitat like berry bushes in summer.

Most participants commented that their consideration for wildlife was changed by the messages, which is significant considering their consideration was already ranked high. Fourteen strategies were suggested that could be a win for both humans and wildlife. These included following the behaviours suggested in the messages, seasonal or temporal closures, education, and trail design, signage and maintenance.

“More education and signage in general and fines for those that do not follow trail and riding rules and disrespect wildlife. Would like to see more permanent and temporary trail closures in cases where there are environmental concerns (erosion, damage, species protection, etc) and wildlife concerns (habitat, food supply, birthing, etc). Messaging that promotes a bike culture change. Less about ‘bagging and conquering trails and peaks’ and exploring wherever one wants, and more about respectful, environmentally friendly, and sustainable riding.”

“The more purpose built and maintained trails for humans, with effective signage, the more likely people are to follow those trails. That would make us more predictable for wildlife. People will end up on the wrong trails if they are lost, and unsure what trail signage means (it isn't always obvious, especially if you don't live in the bow valley). I don't think you can stop people from wanting to go out and recreate, so make the trails on purpose.”

“People need crystal clear rules with enforcement to back them up before they will change their behaviour.”

There was an additional sentiment in some of the comments that the unofficial trails were more fun/interesting/challenging, and that as they knew other people were riding them, they wanted to ride them too. It is recommended that CAMBA work towards correcting this perception by riding responsibly and making this visible to the mountain bike community.

“If 90% of my friends and the CAMBA board are riding the pirate trails I am going to as well.”

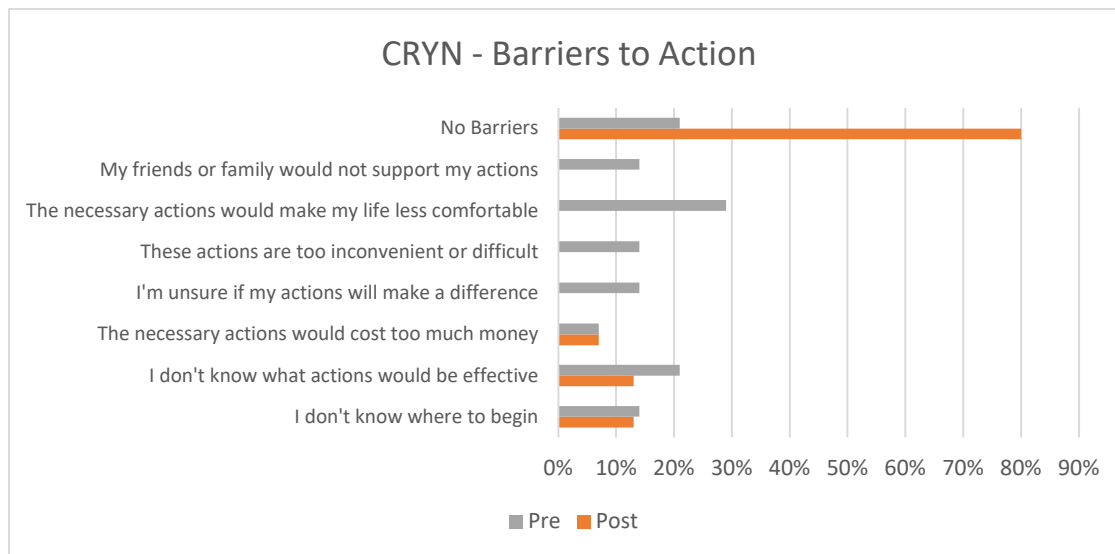
Youth – CRYN

	Trash takes away from the beauty of nature	Keep trash off the trails	Pack out what you pack in	The invasive doggy poop bag	Thumbs up for wildlife
Effectiveness (5 is best)	3.5	3.6	3.6	4.4	4.2
Ranking (1 is best)	3.6	3.3	2.9	2.4	2.9

Appropriateness of Behaviours (8 – Absolutely, 1- Not at all)	Pre	Post	Change
Having a campfire without a designated campfire ring	2.0	2.3	3%
Traveling on established trails	6.1	7.2	14%
Keeping your garbage with you (e.g. apple cores) when there are no trash cans nearby	6.1	7.8	21%
Picking up and packing out any litter you see	6.0	7.8	23%
Feeding wildlife (including animals like birds, deer and squirrels)	1.4	1.6	2%
Burning your leftover food in your fire	3.6	2.9	9%
Respecting fire bans and restrictions	6.1	7.9	22%
Letting fire wood burn completely prior to leaving the site	5.7	7.5	23%
Using twigs and brush for small fires	3.8	4.7	11%
Placing a tent in an undisturbed spot, when camping in heavily used areas	2.6	2.4	3%
Leaving biodegradable waste in the forest	2.9	1.9	13%
Average			13%

How often do you currently do the following? (5 – Always, 1 – Never)	Pre	Post	Change
Having a campfire without a designated campfire ring	1.6	1.7	2%
Traveling on established trails	4	4.4	9%
Keeping your garbage with you (e.g. apple cores) when there are no trash cans nearby	4.7	4.9	5%
Picking up and packing out any litter you see	3.4	4.4	20%
Feeding wildlife (including animals like birds, deer and squirrels)	1.2	1.0	4%
Burning your leftover food in your fire	2.5	1.7	16%
Respecting fire bans and restrictions	4.9	4.9	1%
Letting fire wood burn completely prior to leaving the site	4.3	4.7	7%
Using twigs and brush for small fires	3.1	2.9	4%
Placing a tent in an undisturbed spot, when camping in heavily used areas	3.1	1.8	26%
Leaving biodegradable waste in the forest	1.8		
Average			9%

Beliefs (5 – Strongly Agree, 1 – Strongly disagree)	Pre
I wouldn't care if wildlife were absent in the Bow Valley	1.1
I believe we can find solutions that work for both humans and wildlife	4.6
Allowing wildlife to have access to their habitat is more important than my access to areas	4.8



Youth – CRYN – Summary

TikTok video views – 2197 (+158 on YouTube)

- Trash takes away from the beauty of nature - 407
- Keep trash off the trails - 380
- Pack out what you pack in - 439
- The Invasive Doggy Poop Bag - 362
- Thumbs Up for wildlife – 609

Results from the CRYN group show a preference for the two videos “Invasive doggy poop bag” and “Thumbs up for wildlife”. These videos strike a balance between being humorous whilst also delivering a key fact.

The scale for appropriateness and behaviour were taken from other studies using Leave No Trace behaviours (e.g. <https://doi.org/10.1080/1533015X.2017.1411217>). They show an average increase in knowledge of 13% and an average increase across behaviours of 9%. Interestingly there were big shifts in both knowledge and behaviour for actions that the videos focused on (e.g. picking up and packing out any litter you see), as well as actions that were not addressed (e.g. placing a tent in an undisturbed spot). This casts some doubts on the validity of these results as the improvements between pre and post could have been due to differences in the pre-existing knowledge of the participants instead of due to the impact of the videos.

The CRYN group was the only group that reported “The necessary actions would make my life less comfortable” as the most common barrier to action. Interestingly no respondents selected this in the post survey. Other barriers to action were also reduced in the post survey.

Participants were split in whether the videos impacted their consideration for wildlife, with some feeling the videos reinforced their positive habits, whilst others having new revelations on their behaviour, or committing to more positive behaviour in the future:

"I'm doing the right things"

"I realize the impact that leaving waste and not packing it out, and why I should"

"I didn't realize how much impact little things could have on an ecosystem like doggie bags for example"

"When I go out in the backcountry I will pack out all trash"

Eleven strategies were submitted that respondents thought would be a win-win for wildlife and humans. These included support for creating spaces that humans wouldn't go into, personal behaviours, and education programs:

"Education for those who are new to recreating out here"

"Always pack out what you pack in"

"Creating a space for humans and leaving the rest untouched and sage for the wildlife"

TCK

Effectiveness	Post
Blog post	3.1
Wildlife Chase Dogs	3.3
This leash keeps me safe	3.6
Hitting the trails	3.5

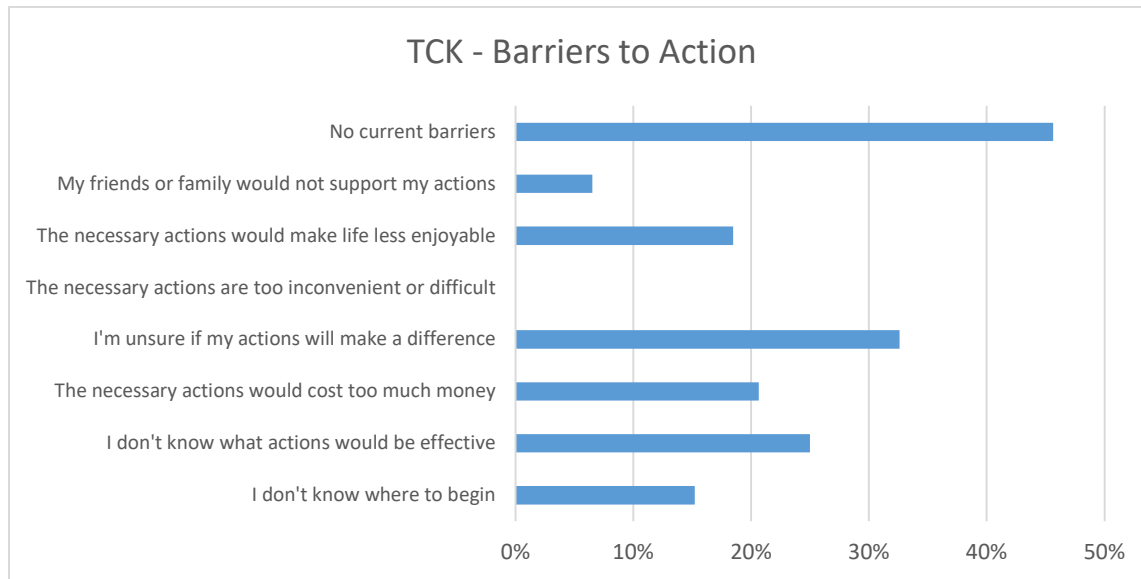
Interest (5 – Strongly Agree, 1 – Strongly disagree)	
Recreating whilst ensuring the safety of wildlife	4.2
Recreating whilst keeping yourself safe from wildlife	3.9

Knowledge (5 – Extremely knowledgeable, 1 – Not at all)	
How to hike safely with your pets	4
The importance of keeping dogs on leash	4.1
How to avoid negative wildlife interactions	3.9
The importance for wildlife of predictable human behaviours	3.9

Are dogs allowed in Kananaskis?	
Only on a leash (2m of less) – correct answer	73%

Motivations to keep you dog on a leash	
Your safety	3.9
Safety of others	4.1
Your pet's safety	4.4
Safety of wildlife	4.3

Behaviour (5 – Always, 1 – Never)	
Recreate at night in Alberta parks	2.9
Use only official designated trails (e.g. has an entry on Alberta Parks website)	4.1
Use un-official trails or travel off trail	2.4
Avoid wildlife closures and nearby areas	4.2
Plan your recreation to avoid prime wildlife habitat (e.g. berry bushes during summer)	3.9
Keep your dog on leash (not counting off-leash dog parks)	4.4
Make a lot of noise whilst hiking, biking or recreating	3.7



TCK – Summary

The TCK Facebook messages were ranked higher in effectiveness than the blog post. The “This leash keeps me safe message” scored highest, a message that highlights the dangers to an off-leash dog. This is supported by the fact the motivation for keeping a dog on-leash that scored the highest was for the safety of the dog.

There were thirty-six different strategies suggested that would be a win for both humans and wildlife. These focused on:

- Education and signage
- Enforcement and for people to follow the rules
- Close areas off for humans
- More off-leash areas

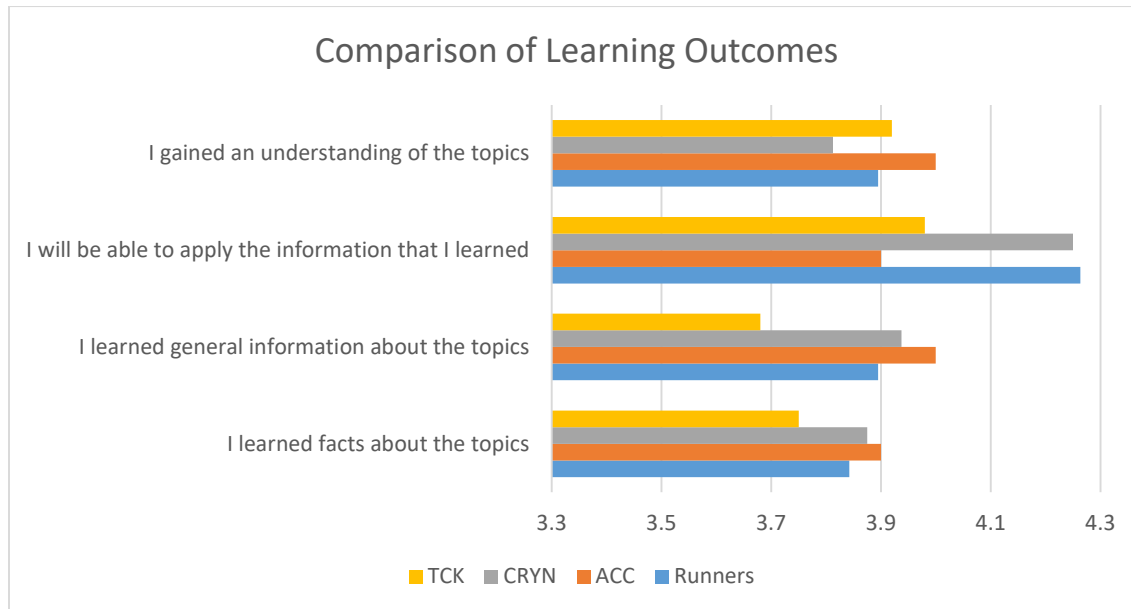
“Have more off leash trails rather than so many rules. Most dog lovers want a balance of letting our dogs off leash but also protect and respect wildlife”

“Dogs on leash in the wild. There are many other places and times to let dogs off leash.”

“Enforcement. We've told people to leash their off leash dogs but unless there is a consequence like being fined they won't”

“Enforcement of rules for people that break them”

“Educating people as much as possible”



Challenges and lessons

Conducting this project during a global pandemic was particularly challenging. Whilst we were able to adapt to online technology like Zoom, and share the messages broadly through social media, there were some drawbacks. The additional stress of living through a pandemic, and looking after kids when schools were closed reduced participants' capacity to create their messages. There was also 'Zoom fatigue', and a feeling from participants they had to go off by themselves to work on the project whereas we would have preferred to run in person workshops to collaborate together.

Finding the best balance between choice and direction is difficult. A fundamental goal of the Biosphere Institute is to empower community members to take action. In this project participants were encouraged to decide from potentially endless options of what they wanted to create that related to the five target behaviours. In future projects, it may be easier to direct participants to a narrower focus initially, as this much choice can become overwhelming. This may have contributed to participants spending more time than needed in the early phases of the project, and required Biosphere staff to spend multiple sessions with each group to individually work on their messages. It also resulted in a need for a tailored evaluation plan for each group, making it more difficult to compare results across the groups.