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SR-24-04

Results of Trail Monitoring in the Winter Range of Southern Lakes Caribou (*Rangifer tarandus*)

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Government of Yukon
Fish and Wildlife Branch
SR-24-04

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Executive Summary

- Woodland caribou population recovery remains a priority for wildlife conservation in the Southern Lakes region. Winter recreation was identified by Yukon First Nations as a potential concern for caribou in the Southern Lakes area; however, there were no data to help evaluate this concern. As a result, in 2020, six First Nations (TKC, KDFN, TTC, CAFN, CTFN and TRTFN), the University of Alberta, Yukon University and the Government of Yukon initiated a study to collect data on human use of trails within the Southern Lakes caribou winter range.
- The goal was to determine the spatiotemporal patterns and types of human trail use. These data provide information such as 1) what areas experience frequent human activity, 2) when human activity occurs, and finally, 3) provides a breakdown of different types of trail users (motorized, dog-powered and human-powered).
- We deployed trail cameras at select winter trails from late January to early April during 2020 (n=47) and 2021 (n=41). The trails chosen for this study were known to be used by people and extended into the caribou winter range.
- The total number of human trail users detected was 7,387 users in 2020 and 6,496 in 2021. The results between winters 2020 and 2021 may not be directly comparable because the COVID-19 pandemic started in spring 2020. Human trail use was focused on weekends during both years. The most common trail user group was motorized users (68%), followed by dog-powered (16%) and human-powered trail users (16%). Specifically, snowmobiles were by far the most common trail user category detected each year (4,569), followed by dog sleds (1,057). While the number of snowmobiles detected was similar between the years, the number of dog sleds decreased nearly 60% from 2020 to 2021.
- The most popular trails were located near Fish Lake and Goldenhorn Mountain near the city of Whitehorse, followed by trails near the communities of Tagish, Mt Lorne and Cowley Lake. Snowmobiles were detected by almost all cameras (96%), whereas dog sleds were less widespread (54%) and concentrated in trail networks near Fish Lake, Mt Lorne and Tagish.

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Introduction

The Southern Lakes region is home to the majority of the human population (~80%) in the Yukon. Most people in the region live in the city of Whitehorse (population: ~30,300; Yukon Bureau of Statistics 2021), and in nearby communities of Mt Lorne, Tagish, Carcross and Ibex Valley, forming the main area of infrastructure in the Yukon. The Southern Lakes region is in the Traditional Territory of several Yukon First Nations, including Ta'an Kwäch'än Council (TKC), Kwanlin Dün First Nation (KDFN), Teslin Tlingit Council (TTC), Champagne and Aishihik First Nations (CAFN), Carcross-Tagish First Nation (CTFN) and the Taku River Tlingit First Nation (TRTFN).

Traditional land use activities and outdoor recreation are important winter activities for people living in the Southern Lakes region, and numerous trails provide access to backcountry areas year-round. Most of the backcountry trails are accessible both by motorized (ATV, snowmobile) and non-motorized (mushers, hikers, skiers) users (**Fig. 1**). In addition to recreation by local people, the trail networks in the region are used by fur trappers, First Nations harvesters and the tourism industry for activities such as snowmobile tours, dog sledding tours and hiking trips.

The region is also home to woodland caribou (*Rangifer tarandus*). Southern Lakes caribou had almost vanished by the end of the 20th century, but populations have increased in recent decades (Hegel and Russell 2013), due in large part to the extensive recovery efforts by First Nation and territorial governments. Caribou population recovery remains a priority for wildlife conservation in the region (Southern Lakes Wildlife Coordinating Committee 2012). Current stressors to the caribou populations include habitat loss and fragmentation, traffic mortalities and increasing human disturbance. Caribou in the region typically spend summer months in the alpine areas above tree line, and either travel down to the forested valleys for the winter months or remain in the alpine/sub-alpine all winter (Kuzyk et al. 1999). Because people and infrastructure are concentrated in the valleys, human-caribou conflicts may be more frequent in winter. Additionally, winter recreation in alpine areas has increased, with potential disturbance effects on wildlife (e.g., Powell 2004). Many winter trails extend into the caribou range, and human trail use may impact the behaviour and fitness of caribou, through displacement from preferred foraging areas, increased vigilance, increased energy expense and stress from fleeing from humans in deep snow, and through changes to predator-prey relationships (**Fig. 2**; Duchesne et al. 2000, Droghini and Boutin 2018).

While winter recreation was previously identified by local First Nations as a potential concern for caribou, there were no data on the types and levels of trail use by winter recreationalists to help evaluate this concern. As a first step in evaluating the impact of winter recreation on caribou, six First Nations (TKC, KDFN, TTC, CAFN, CTFN and TRTFN), the University of Alberta, Yukon University and the Government of Yukon (YG) initiated a study to examine human use of winter trails within caribou winter range, and to determine the spatiotemporal patterns and types of trail use. These data will provide information such as 1) what areas experience frequent human activity, 2) when human activity occurs, and finally, 3) provides a breakdown of different types of trail users (motorized, dog-powered, human-powered), which may elicit different reactions by caribou.

Figure 1. Snowmobiles on a trail near Fish Lake.

Figure 2. Caribou struggling to travel in deep snow.

Methods

We deployed trail cameras (Reconyx Hyperfire PC800) at select winter trails from late January to early April during 2020 and 2021(**Fig. 3**). The trails were selected during group discussions among TKC, KDFN, CTFN and YG staff that have knowledge of winter recreation trails. We chose trails that were known to be used by people, and which extended into the known caribou winter range (**Fig. 4**).

Each camera was attached to a tree that was 2-4 m from the trail with a clear view towards the trail. We conducted a walk test at each site to ensure the broadest possible field of view to capture all types of trail users. The cameras were programmed to take three pictures per trigger with no pause between the triggers in order to capture fast-moving targets, such as snowmobiles. Cameras were retrieved in the spring once the trail conditions started to deteriorate.

The images from the cameras were processed in TimeLapse Image Analyzer software (version 2.3.0.0). For each camera detection, we identified the target (the type of human trail user or wildlife species), and populated these data with the date and time of the detection.

We used the following categories for human trail use: snowmobile, other motorized vehicle, dog sled, skijorer, hiker, biker and skier. All human photographs were deleted once the data were enumerated, in order to protect privacy.

Figure 3. Camera set up along a recreational trail in the Southern Lakes area.

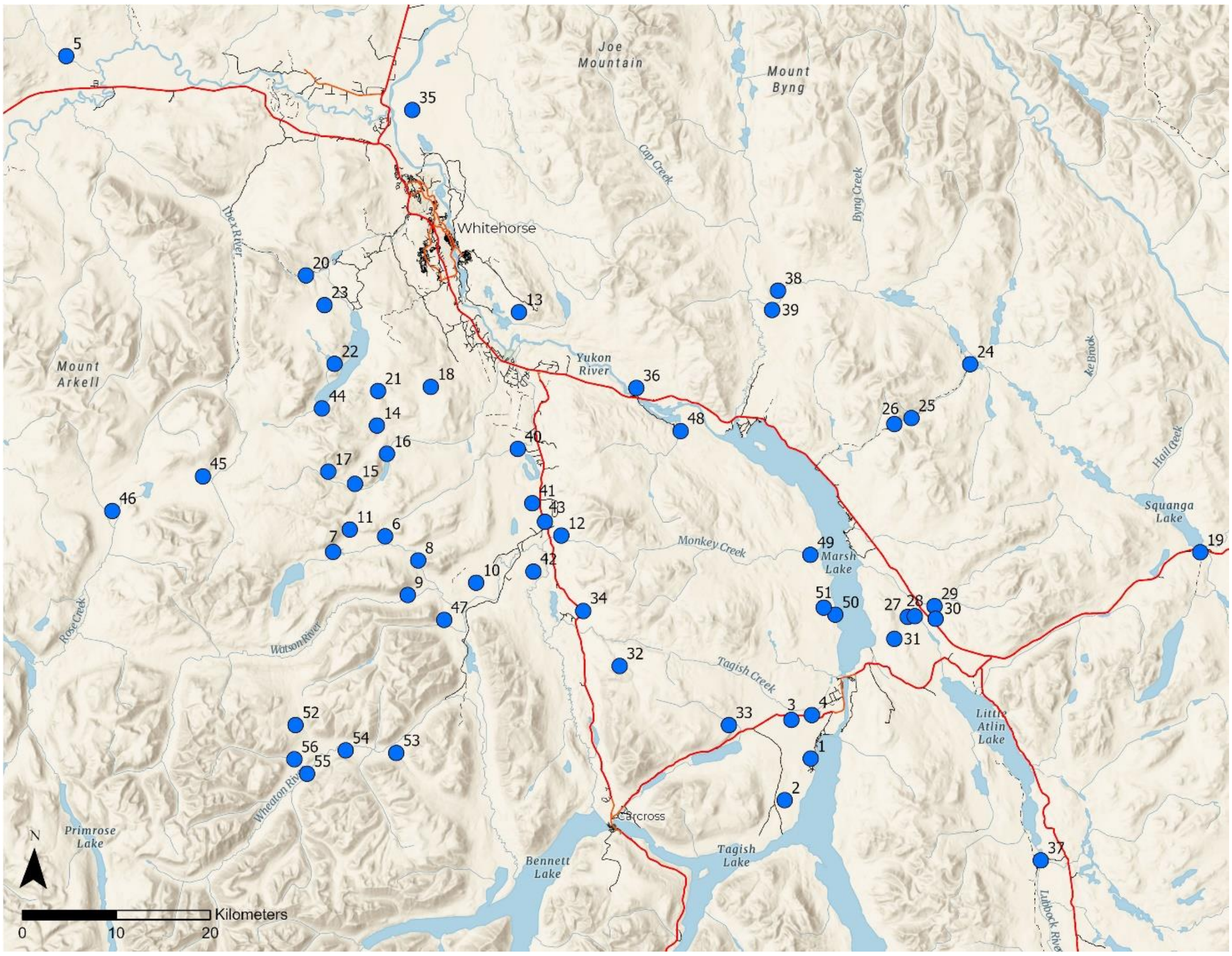

Figure 4. The location of trail cameras in the Southern Lakes area, Yukon, during winters 2020 and/or 2021. See Appendix 1 for location names as referenced by the labels.

Results

Overall

We deployed 47 cameras in 2020 and 41 cameras in 2021, which resulted in 3,470 and 3,305 camera trap nights, respectively. The total number of human trail users recorded was 7,387 in 2020 and 6,496 in 2021. The results between winters 2020 and 2021 were not directly comparable because of the COVID-19 emergency declaration and related advisory to avoid non-essential travel, which came into effect on 20 March 2020. The advisory remained in effect during 2021. Thus, tourism, from outside the Yukon in particular, was substantially reduced during our study period in 2021, and the COVID-19 emergency likely also influenced the activities of local people.

Types of trail users

The most common trail user group was motorized users (68%), followed by dog-powered (16%) and human-powered trail users (16%; **Fig. 5**). Specifically, snowmobiles were by far the most common trail user category detected along the trails each year (average 4,569), followed by dog sleds (average 1,057; **Table 1**). While the number of snowmobiles detected was similar between 2020 and 2021, the number of dog sleds decreased nearly 60% from 2020 to 2021. Human-powered trail user categories were less common than motorized or dog-powered trail user groups, with fat bikers being most common in 2020 (426), and hikers being most common in 2021 (548). Wildlife species detected included, in the order of frequency, caribou, wolf (*Canis lupus*), coyote (*Canis latrans*), moose (*Alces alces*), lynx (*Lynx canadensis*) and red fox (*Vulpes vulpes*) (**Table 1**).

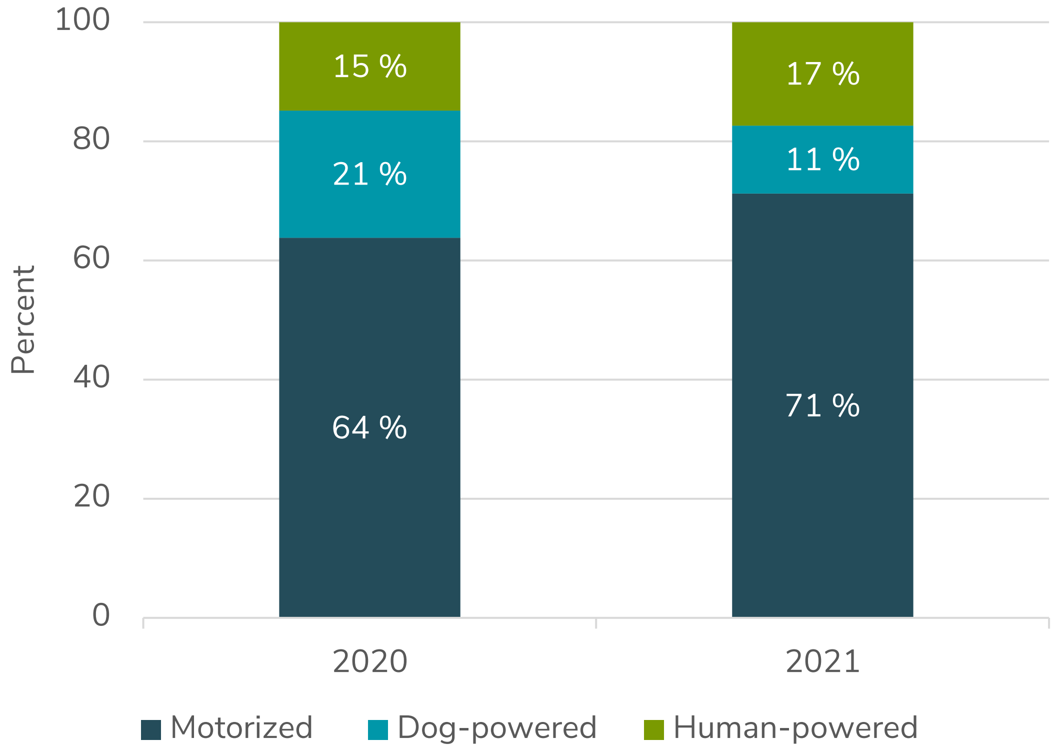

Figure 5. Percent of main trail user groups detected in the Southern Lakes area, Yukon, during late winters in 2020 and 2021.

Table 1. The number of trail users detected in cameras deployed along winter recreation during late winter in 2020 and 2021. The total indicates the total number of detections among all cameras (n=47 in 2020; n=41 in 2021). The mean indicates the mean number of detections per camera, with standard deviation (SD).

Type of trail user	2020		2021	
	Total	Mean (SD)	Total	Mean (SD)
Human Recreationists	**7,387**	**154 (186)**	**6,496**	**158 (144)**
Snowmobile	4,585	98 (134)	4,553	111 (117)
Other motorized vehicle	131	3 (10)	75	2 (9)
Dog sled	1,493	32 (51)	620	15 (22)
Skijorer	82	2 (5)	121	3 (6)
Fat biker	426	9 (26)	229	6 (11)
Hiker	384	8 (17)	548	13 (25)
Skier	286	6 (13)	350	9 (16)
Wildlife	**425**	**9 (9)**	**802**	**20 (16)**
Caribou	89	2 (4)	297	7 (11)
Moose	51	1 (2)	84	2 (3)
Wolf	159	3 (6)	285	7 (12)
Coyote	64	1 (3)	89	2 (4)
Red Fox	24	0 (1)	25	1 (1)
Lynx	38	1 (1)	22	1 (2)

Daily movement patterns

The daily human trail activity was substantially higher on weekends and holidays than weekdays during both years of the study. The mean daily number of trail user detections on weekends (Saturday, Sunday or statutory holiday) was 126 ± 70 (SD) and 125 ± 37 in 2020 and 2021, respectively. In contrast, the mean daily number of trail user detections on a weekday (Monday to Friday) was 66 ± 29, and 71 ± 24 in 2020 and 2021, respectively (Fig. 6, Fig. 7). Regardless of when in the week, daily human trail activity was similar in both years of study.

Trail use intensity (i.e., the percent of days with some human activity) ranged from 0-78 % (averaged over both years; Fig. 8). The trails that were most frequently used (>70% of days) were near Whitehorse (areas near Fish Lake and Goldenhorn), Mt Lorne and Tagish. The overland trail connecting Whitehorse to Braeburn (37 Mile trail) was also frequently used. Trails in Wheaton Valley, near Marsh Lake and Carcross were used less frequently (<25% of days).

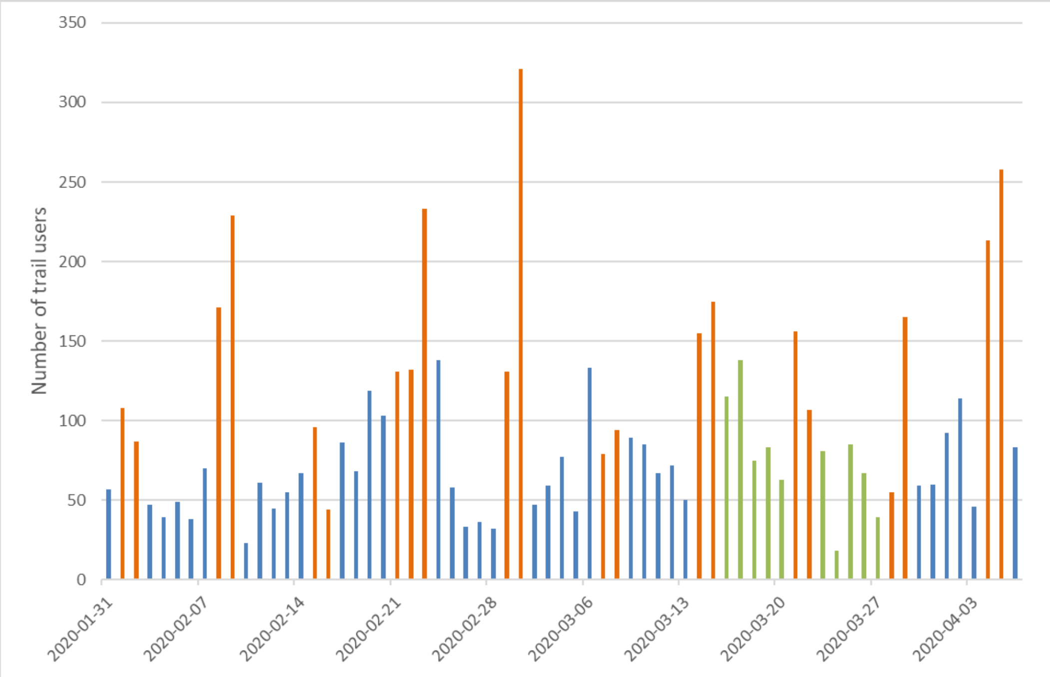

Figure 6. Daily number of recreational trail users in Southern Lakes area during late winter in 2020. Orange color indicates weekends and holidays, and green color indicates the School Spring Break.

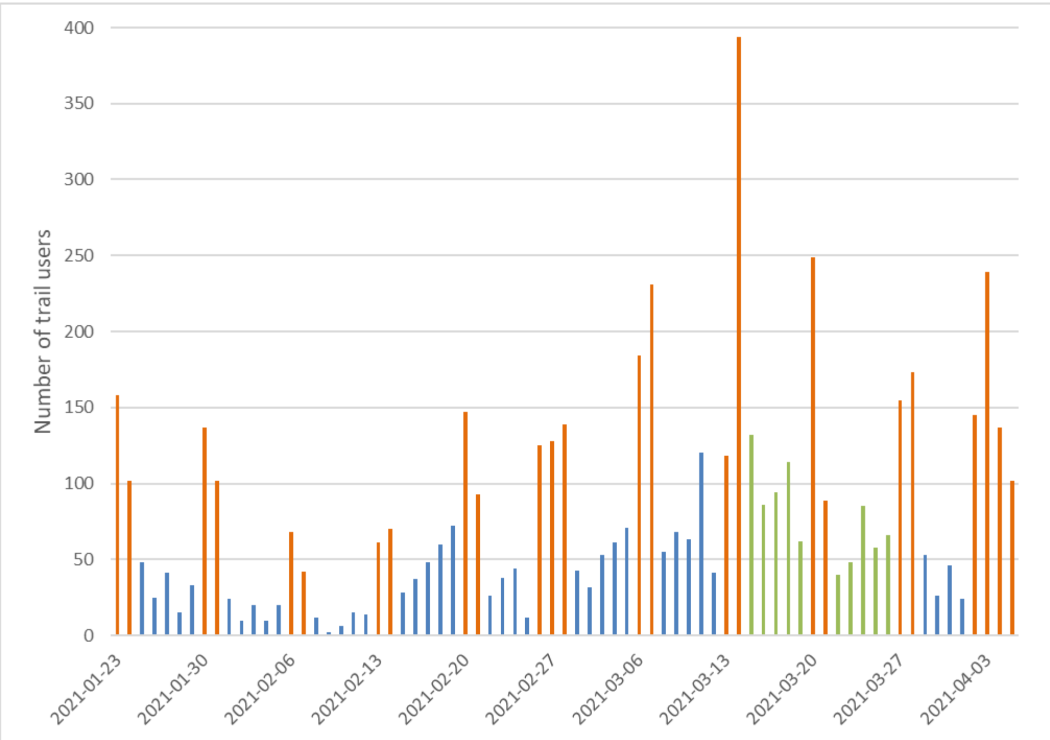

Figure 7. Daily number of trail users in Southern Lakes area during late winter in 2021. Orange color indicates weekends and holidays, and green color indicates the School Spring Break.

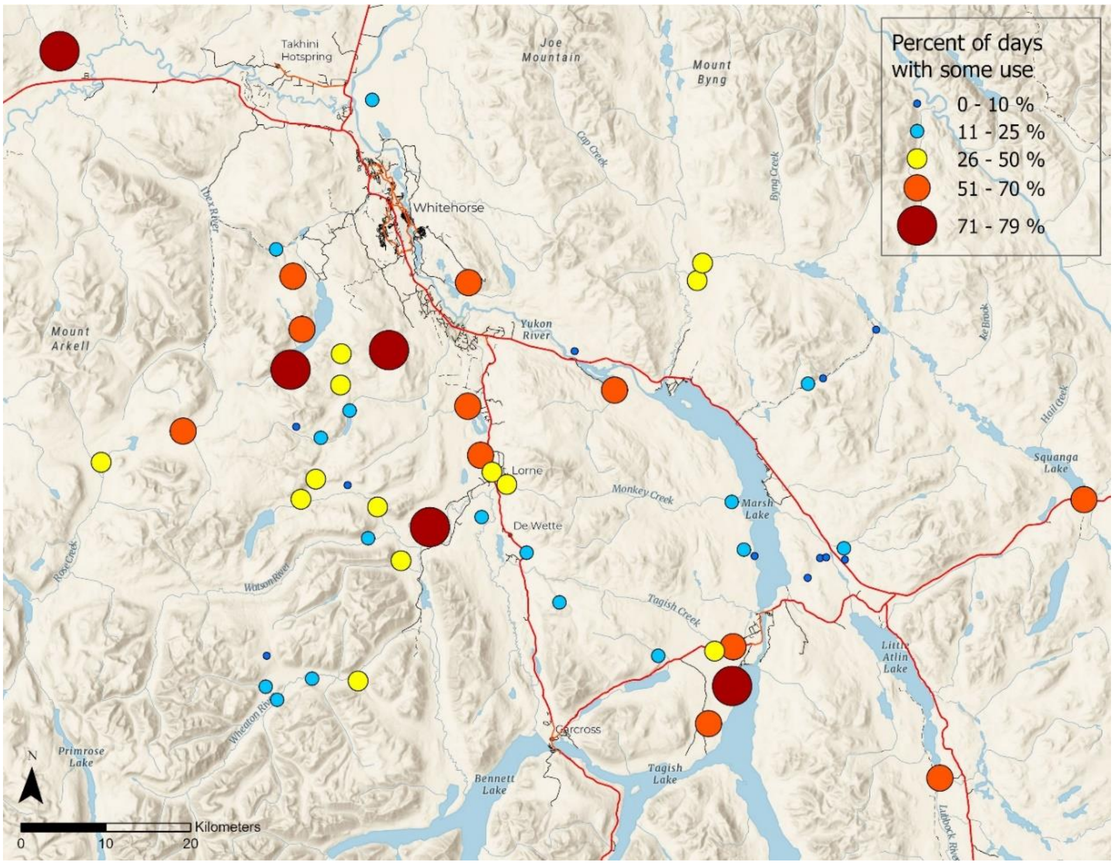

Figure 8. Trail use intensity in the Southern Lakes area, Yukon, during late winters in 2020 and 2021.

Hourly movement patterns

Human activity on trails was the highest during mid-day and early afternoon, and none or very few people were on the trails between 10 pm and 7 am (Fig. 9). Ungulate use of trails also occurred mostly during the day. In contrast, wolves used the trails mostly at night. However, wildlife detections by our cameras were relatively few (Fig. 10).

Spatial Patterns

Snowmobiles were detected on almost all recreational trails (96%) that were monitored during 2020 and 2021. Trails west and south of Whitehorse, including Fish Lake, Goldenhorn, Cowley Lake, Annie Lake, Wheaton Valley and Tagish were popular areas for snowmobilers. Snowmobiles were regularly detected in cameras located far in the backcountry, such as Mud Lake and Alligator Lake trails (Fig. 11).

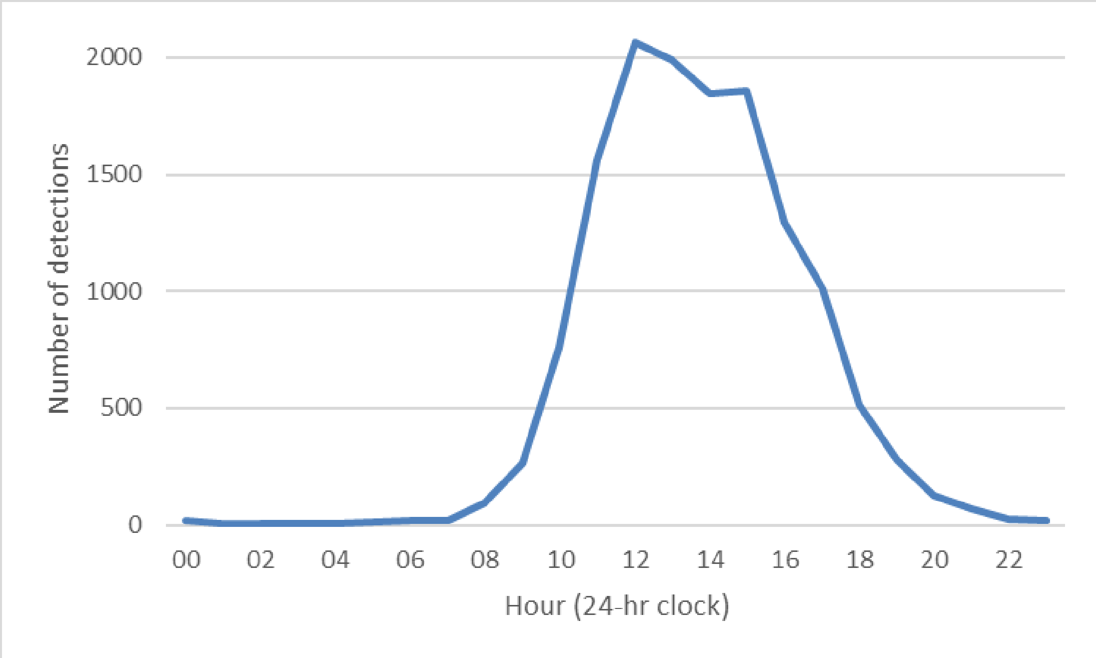

Figure 9. Hourly human activity on recreational trails in Southern Lakes area during late winters 2020 and 2021 (years combined).

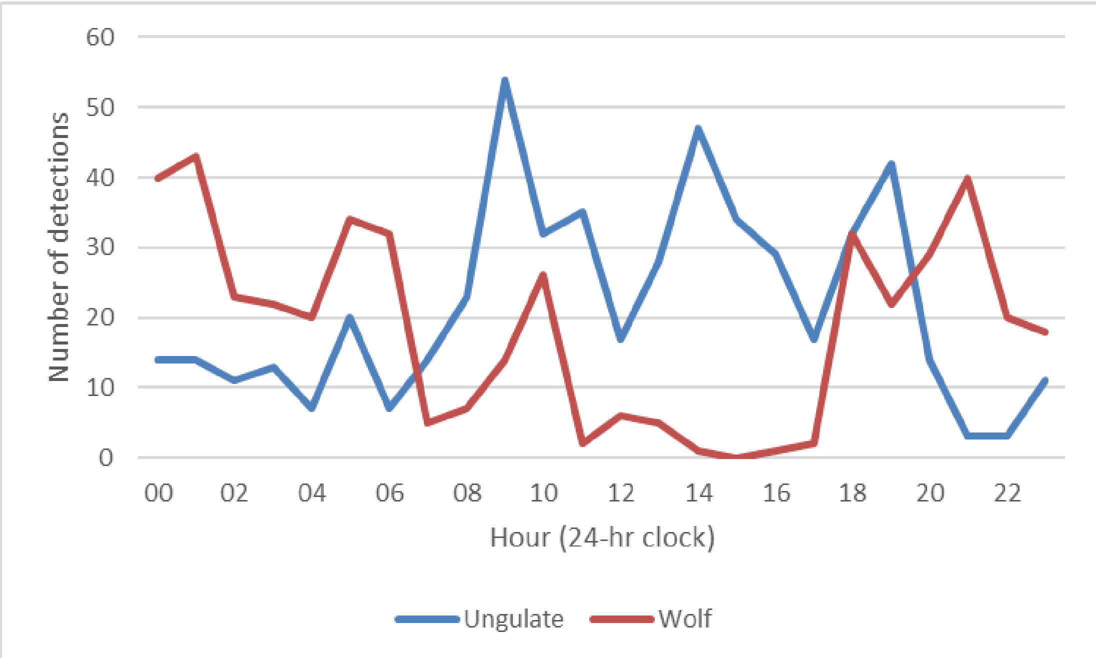

Figure 10. Hourly trail use by ungulates (moose and caribou), and wolves, in Southern Lakes area during late winters 2020 and 2021 (years combined).

Dog sleds were detected in 54% of the recreational trails monitored during 2020 and 2021. Dog sledding activity was focused on trails west and south of Whitehorse, particularly along trails near Fish Lake and Tagish, followed by Mt Lorne and backcountry trails towards Mud Lake, Coal Lake and Alligator Lake southwest of Whitehorse. Dog sled detections in Marsh

Lake, Carcross and Wheaton Valley areas were few or none. Despite a substantial decrease in dog sled activity in 2021, the spatial distribution remained similar between the years (**Fig. 12**).

Human-powered trail users (i.e. hikers, skiers and bikers) were detected on 70% of the trails monitored in 2020, and on 88% of the trails monitored in 2021. Both the number of human-powered trail user detections, and their spatial distribution, increased in 2021 (**Fig. 13**). While Fish Lake, Goldenhorn and Mt Lorne were the most popular areas during both years, human-powered trail users were detected on more trails and farther in the backcountry (e.g. Wheaton Valley, Mud Lake and Mitchie Lakes areas) during 2021.

Discussion

We studied the spatiotemporal patterns of human activity on recreation trails during late winter (late January to early April) in 2020 and 2021. Our original goal was to gain comparable information during the two years of our study; however, the COVID-19 pandemic likely influenced human behaviour in the latter part of our study period. As a result, our results roughly reflect the human trail activity pre-pandemic in 2020 and during the pandemic in 2021.

Human activity on trails decreased overall during the second year of the study. In particular, the number of dog sled detections decreased nearly 60%. The reduction in dog sleds on trails is likely explained by the reduction of tourism from outside the Yukon during the pandemic, resulting in a decrease in dog sled tour operations. However, for other trail user groups, the pandemic did not appear to have a strong effect. The number of snowmobiles detected remained similar before and during pandemic, suggesting that most snowmobilers were local people unaffected by the pandemic travel restrictions. Our data showed a small increase during the pandemic in some human-powered trail user groups, such as hikers, which may be explained by Yukoners recreating near home during weekends and holidays that may have otherwise been traveling elsewhere. Increased human activity on recreational trails and in parks during the pandemic has been reported in other places globally (e.g. Beiler et al. 2023). However, the overall change in human activity on trails in our study was negligible between the two years.

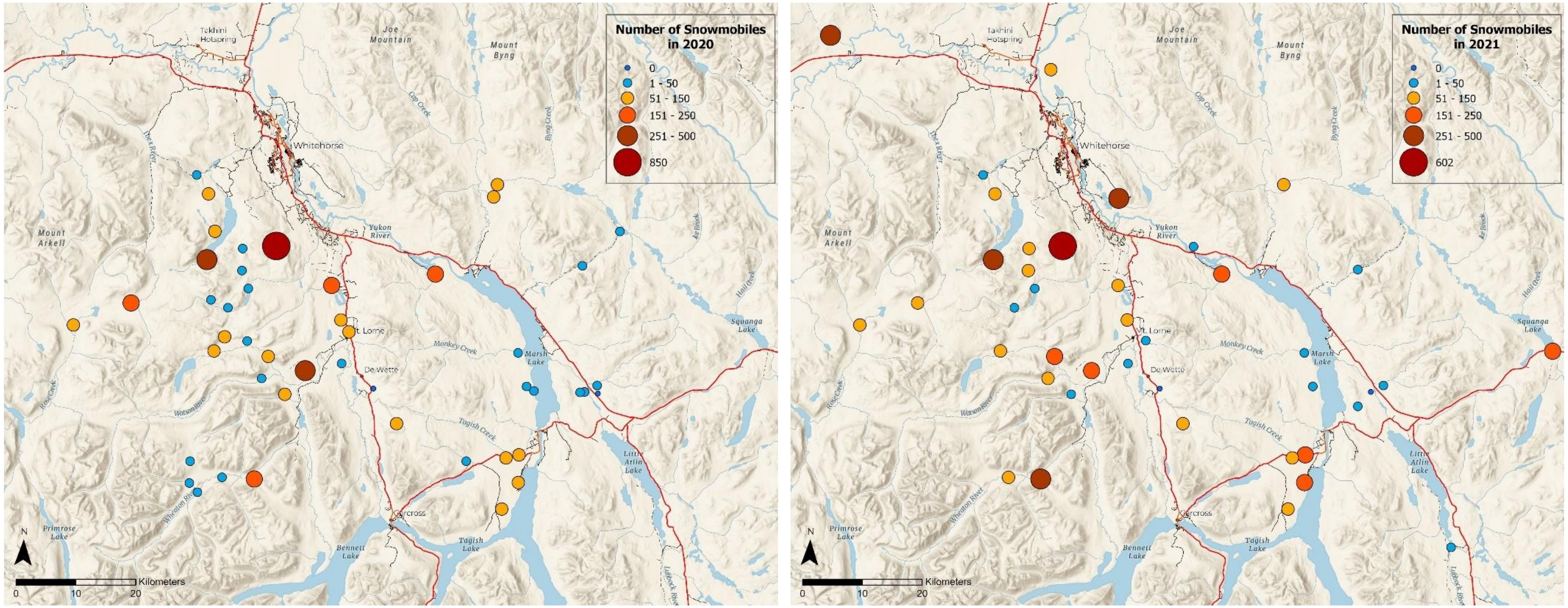

Figure 11. Distribution of snowmobile detections along recreational trails in the Southern Lakes area during late winter in 2020 (left) and 2021 (right).

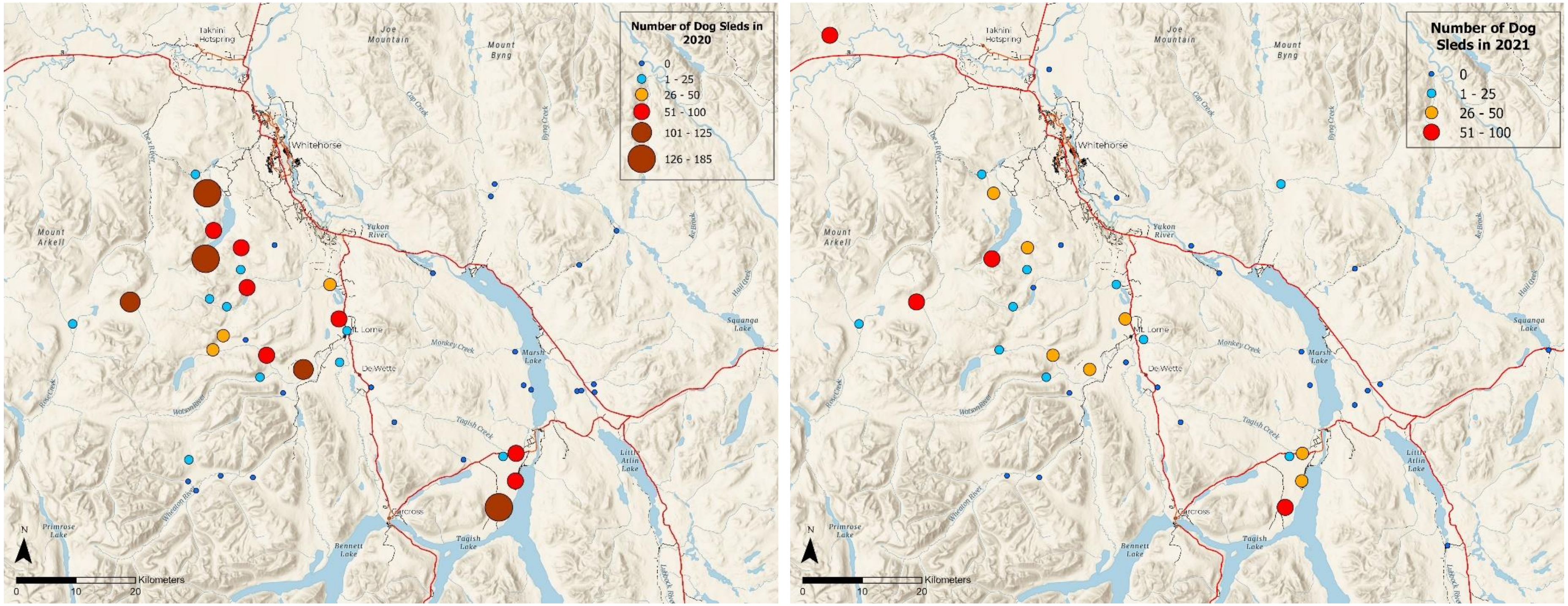

Figure 12. Distribution of dog sled detections along recreational trails in the Southern Lakes area during late winter in 2020 (left) and 2021 (right).

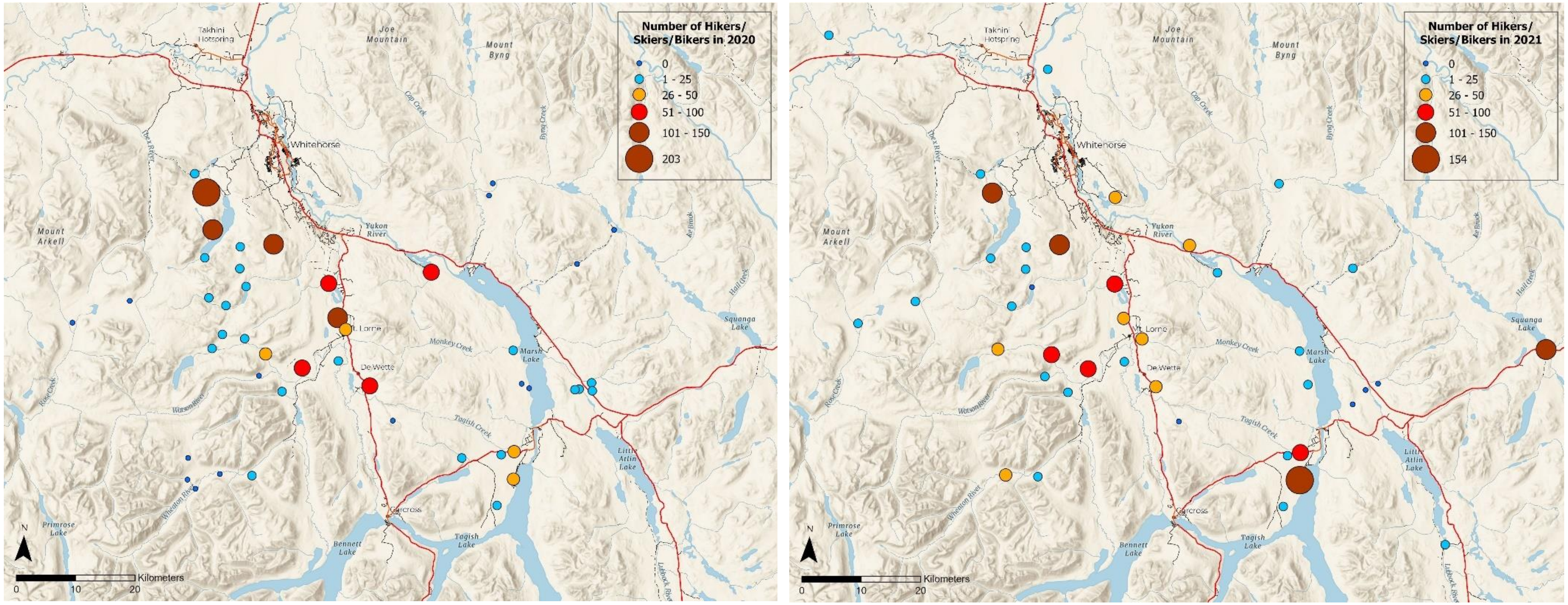

Figure 13. Distribution of human-powered trail user detections along recreational trails in the Southern Lakes area during late winter 2020 (left) and 2021 (right).

On a finer temporal scale (daily and hourly), human activity on trails was highest mid-day and in the afternoon on weekends and holidays during both years of our study. This result is similar to studies on winter recreation (McCahon et al. 2023, Miller et al. 2024).

Interestingly, the number of wildlife detected on trails increased during the second year of the study; however, it is not clear if the increase of wildlife on trails is related to changes in human activity patterns, including those related to COVID-19 (Gill et al. 2023). That said, the increase in wildlife use of trails in 2021 was associated with a sharp decrease in use of trails by dog sleds. Increased wildlife use of trails in 2021 may also be explained by the exceptionally deep snow depth (Department of Environment 2020, 2021), which may have a significant effect on wildlife movement and feeding patterns (Fig. 2, Droghini and Boutin 2018, Pedersen et al. 2021), with easier travel on trails.

The spatial pattern of human trail activity remained relatively similar between the two years. The most popular trails were located near Fish Lake and Goldenhorn Mountain near the city of Whitehorse. Because the majority of the human population in the Southern Lakes region lives in Whitehorse, it was not surprising that trails that are convenient to access from the city were most often used. The trails surrounding the communities of Tagish, Mt Lorne and Cowley Lake were also frequently used, likely because of easy access. Cameras on trails far from trailheads or roads mostly detected snowmobilers and dogsledders, which can travel far with less effort than people on foot or skis. Indeed, human-powered trail users were infrequently detected in cameras that were deployed far from access points.

Our data provide information for evaluating the effect of winter recreation on the Southern Lakes caribou. Studies on human-caribou interactions have shown that winter recreation is potentially detrimental when it is unpredictable, spans large areas, is long in duration and when animals are displaced to poor quality habitats (Harris et al. 2014). Recreational activity that is focused on weekends and mid-days may have a short-lived effect on wildlife, because animals may return to the areas during no/low periods of human use during weekdays, and early or late in the day (Longshore et al. 2013). Motorized and dog-powered trail use may have bigger impact on wildlife, because they typically travel farther into the backcountry, and thus have a larger spatial footprint of disturbance than non-motorized users (e.g. Squires et al. 2019). However, human-powered trail use lasts longer because it is slower, and animal displacement distance may be larger (Harris et al. 2014). While it is possible that some species of wildlife habituate to frequent human activity on trails, factors that decrease predictability, such as recreationists off trail, or people stopping to view or approach wildlife, may increase flight response. In general, outdoor recreationists may underestimate their disturbance effect on wildlife (Taylor and Knight 2003). Additionally, dogs may increase the distress response of wildlife, particularly when off leash (Miller et al. 2001, Parsons et al. 2016). In our study, off leash dogs were regularly detected, with all types of human trail user groups.

In general, the duration of human disturbance has been found to be a more important than the number of humans, be it motorized or non-motorized (Cassirer et al. 1992; Dorrance et al. 1975; Colescott and Gillingham 1998). Our examination of trail use intensity (i.e. the percent of days with some human activity) approximates the disturbance frequency that wildlife may experience. Trail use intensity patterns appeared to correlate with the number of users, with most intensively used trails being near Whitehorse, and the communities of Tagish, Cowley Lake and Mt Lorne. Some other intensively used trails outside these communities included 37 Mile, Dalayee Lake, Sawmill Rd and Lubbock.

The results presented herein was work requested by the Southern Lakes First Nations Caribou Working Group as part of a small suite of studies on the impact of winter recreation on caribou. Our data on trail use by winter recreationalists are of inherent interest in understanding spatial and temporal patterns of human activity and may relate to impacts to caribou. These data will inform results on subsequent analyses to evaluate the potential influence of winter recreation on stress, nutritional condition and space use by caribou.

Literature Cited

Beiler, M.R. 2023.The impact of covid-19 pandemic on trail usage: Application of a ten-year trail counting methodology. International Journal of Sustainable Transportation 18: 134–145.

Cassirer, E.F., Freddy, D.J., and Ables, E.D. 1992. Elk Responses to Disturbance by Cross-Country Skiers in Yellowstone National Park. Wildlife Society Bulletin 20: 375–381.

Colescott, J.H. and Gillingham, M.P. 1998. Reaction of moose (*Alces alces*) to snowmobile traffic in the Greys River valley, Wyoming. Alces 34: 329–338.

Department of Environment (Water Resources Branch). 2020. Yukon snow survey bulletin and water supply forecast, April 1, 2020. Yukon Government.

Department of Environment (Water Resources Branch). 2021. Yukon snow survey bulletin and water supply forecast, April 1, 2021. Yukon Government.

Dorrance, M.J., Savage, P.J., and Huff, D.E. 1975. Effects of snowmobiles on white-tailed deer. The Journal of Wildlife Management 39: 563–569.

Droghini, A., Boutin, S. 2018. Snow conditions influence grey wolf (*Canis lupus*) travel paths: the effect of human-created linear features. Can. J. Zool. 96: 39–47.

Duchesne, M., Cote, S.D., Barnette, C. 2000. Responses of woodland caribou to winter ecotourism in the Charlevoix Biosphere Reserve, Canada. Biological Conservation 96: 311–317.

Gill, R., Serrouya, R., Calvert, A.M., Ford, A., Steenweg, R. and Noonan, M.J. 2023. Movement ecology of endangered caribou during a COVID-19 mediated pause in winter recreation. Animal Conservation doi:10.1111/acv.12912.

Harris, G., Nielson, R.M., Rinaldi, T., Lohuis, T. 2014. Effects of winter recreation on northern ungulates with focus on moose (*Alces alces*) and snowmobiles. European Journal of Wildlife Research 60: 45–58.

Hegel, T.M., Russell, K. 2013. Status of northern mountain caribou (*Rangifer tarandus caribou*) in Yukon, Canada. Rangifer 33: 59–70.

Kuzyk, G.W., Dehn, M.M., Farnell, R.S. 1999. Body-size comparisons of alpine- and forest-wintering woodland caribou herds in the Yukon. Canadian Journal of Zoology 77: 1017–1024.

Longshore, K., Lowrey, C., Thompson, D.B. 2013. Detecting short-term responses to weekend recreation activity: Desert bighorn sheep avoidance of hiking trails. Wildlife Society Bulletin 37: 698–706.

McCahon, S., Brinkman, T., Klimstra, R. 2023. Estimating encounter probabilities among recreational trail user groups. Journal of outdoor recreation and tourism 42: 100614.

Miller, H.A., Peers, M.J.L., Jung, T.S. 2024. Snow depth influences harvest of a boreal ungulate more than socio-economic factors: implications for food security in a changing climate. Science of the Total Environment 912: 169095.

Miller, S.G., Knight, R.L., Miller, C.K. 2001. Wildlife response to pedestrians and dogs. Wildlife Society Bulletin 29: 124–132.

Parsons, A.W., Bland, C., Forrester, T., Baker-Whatton, M.C., Schuttler, S.G., McShea, W.J., Costello, R. and Kays, R. 2016. The ecological impact of humans and dogs on wildlife in protected areas in eastern North America. Biological Conservation 203: 75–88.

Pedersen, S.H., et al. 2021. Quantifying effects of snow depth on caribou winter range selection and movement in Arctic Alaska. Movement Ecology 9: 48.

Powell, T. 2004. Behavioural response of woodland caribou (*Rangifer tarandus caribou*) to snowmobile disturbance in an alpine environment. MSc thesis, University of Sherbrook, Canada.

Southern Lakes Wildlife Coordinating Committee. 2012. Regional Assessment of Wildlife in the Yukon Southern Lakes Region: Volume 1: Context and Recommendations. Environment Yukon, Whitehorse, Yukon.

Squires, J.R., Olson, L.E., Roberts, E.K., Ivan, J.S. and Hebblewhite, M. 2019. Winter recreation and Canada lynx: reducing conflict through niche partitioning. Ecosphere 10: p.e02876.

Taylor, A.R. and Knight, R.L. 2003. Wildlife responses to recreation and associated visitor perceptions. Ecological applications 13: 951–963.

Appendix 1. Trail camera locations and the number of trail user detections by each camera in 2020 and 2021. ID refers to the location labeled in the map shown in Figure 3.

ID	Trail/Area Name	Latitude	Longitude	Number of trail users in 2020			Number of trail users in 2021		
				Snowmobile	Dog Sled / Skijorer	Hiker/Biker /Skier	Snowmobile	Dog Sled / Skijorer	Hiker/Biker /Skier
1	Tagish area: near community	60.23704	-134.32672	103	75	20	161	42	142
2	Tagish area: near 10 Mile	60.19652	-134.37428	134	183	2	126	58	13
3	Tagish area: near Tagish Rd	60.27352	-134.36555	116	19	5	112	11	7
4	Tagish area: near Tagish Rd	60.27890	-134.32680	144	107	15	208	72	23
5	37 Mile Trail	60.87975	-135.82416	NA	NA	NA	315	73	2
6	Alligator Lake trail	60.43525	-135.16025	2	0	1	NA	NA	NA
7	Alligator Lake trail	60.41814	-135.25920	140	46	16	140	16	33
8	Alligator Lake trail	60.41358	-135.09453	133	90	43	158	27	60
9	Watson River area	60.38021	-135.11200	29	11	0	93	12	0
10	Alligator Lake trail: near the trail head	60.39451	-134.98099	270	128	81	211	56	78
11	Alligator Lake trail	60.44038	-135.22946	60	39	3	NA	NA	NA
12	Bear Creek: trail to Mt Lorne	60.44250	-134.82042	NA	NA	NA	12	16	49
13	Cantlie Lake trail	60.65471	-134.91858	NA	NA	NA	269	3	43
14	Coal Lake trail: East of Mt Granger	60.54083	-135.18497	46	15	5	88	6	6

15	Coal Lake area	60.48437	-135.22258	25	10	3	17	7	6
16	Coal Lake area	60.51421	-135.16321	44	72	8	5	0	0
17	Coal Lake area: West of Wolf Creek wetlands	60.49479	-135.27588	12	6	0	NA	NA	NA
18	Coal Lake trail: near Golden Horn	60.58013	-135.08423	850	0	140	602	1	118
19	Dalayee Lake trail	60.44294	-133.58614	NA	NA	NA	157	1	131
20	Franklin Lake trail: near Jackson Lake	60.68132	-135.33599	15	10	4	29	4	12
21	Fish Lake area: connector to Coal Lake trail	60.57383	-135.18591	27	53	0	99	26	25
22	Bonnyville Lakes	60.59809	-135.27238	150	90	136	NA	NA	NA
23	Fish Creek: Fish Lake-Jackson Lake connector	60.65396	-135.29713	148	176	203	62	49	115
24	Grayling Creek trail	60.61829	-134.03906	18	0	0	NA	NA	NA
25	Grayling Creek trail	60.56551	-134.15030	29	0	0	NA	NA	NA
26	Grayling Creek trail	60.55950	-134.18277	NA	NA	NA	43	0	5
27	Judas Creek area: near Judas Lake	60.37510	-134.14711	9	0	1	NA	NA	NA
28	Judas Creek area: near Judas Lake	60.37621	-134.13376	23	0	4	0	0	0
29	Judas Creek area: North side of Alaska Highway	60.38607	-134.09669	20	0	4	7	0	0

30	Judas Creek area: North side of Alaska Highway	60.37400	-134.09340	0	0	4	NA	NA	NA
31	Judas Creek area: near Marsh Lake	60.35387	-134.17244	NA	NA	NA	18	0	0
32	Lewes Creek trail	60.31990	-134.69890	82	0	0	99	0	0
33	Twelve Mile Creek trail: near Crag Lake	60.26666	-134.48560	40	0	2	NA	NA	NA
34	Lewes Lake area: West side of Carcross Road	60.37144	-134.77272	0	0	71	0	0	36
35	Livingstone trail	60.84378	-135.14218	NA	NA	NA	60	0	4
36	Lewes Marsh area: North of Lewes bridge	60.58623	-134.68544	NA	NA	NA	21	0	26
37	Lubbock River	60.14520	-133.88090	NA	NA	NA	22	0	4
38	Mitchie Lake trail	60.68364	-134.41628	93	0	0	130	8	4
39	Mitchie Lake trail	60.66521	-134.42659	132	0	0	NA	NA	NA
40	Cowley Lake area north	60.52378	-134.91046	229	42	72	66	29	59
41	Cowley Lake area south	60.47257	-134.87907	131	72	127	51	41	38
42	Mt Lorne community south	60.40735	-134.87195	25	19	1	5	0	18
43	Mt Lorne community north	60.45511	-134.85291	54	8	28	NA	NA	NA
44	Fish Lake south	60.55493	-135.29306	276	171	5	263	81	1
45	Mud Lake trail	60.48485	-135.51715	156	118	0	144	68	1
46	Mud Lake trail	60.44757	-135.68910	111	12	0	122	25	4

47	Red Ridge trail	60.35769	-135.04022	96	0	22	39	4	19
48	Lewes Marsh area: Sawmill	60.54665	-134.59685	184	0	52	166	3	8
49	Monkey Creek trail	60.43188	-134.33830	30	0	10	35	1	0
50	Monkey Creek trail	60.37549	-134.28696	2	0	0	NA	NA	NA
51	Monkey Creek trail	60.38173	-134.30959	42	0	0	27	1	0
52	Wheaton Valley area	60.25108	-135.31683	2	3	0	NA	NA	NA
53	Wheaton Valley area: Tally-Ho	60.22854	-135.12134	211	0	8	306	0	9
54	Wheaton Valley area	60.22891	-135.21896	50	0	0	65	0	28
55	Wheaton Valley area	60.20504	-135.29106	42	0	0	NA	NA	NA
56	Wheaton Valley area	60.21830	-135.31624	50	0	0	NA	NA	NA