Dawson Regional Planning Commission
Suite 201, 307 Jarvis Street
Whitehorse, Yukon

October 31, 2021

Dear Planning Commission,

It is my pleasure to provide detailed comments on the draft Dawson Regional Land Use Plan on behalf of the Yellowstone to Yukon Conservation Initiative.

I would like to extend my thanks to the Commission members and the Commission's support team for their efforts in producing the draft plan. Your work is greatly appreciated.

Please contact me if you have any questions about the submission. I can be reached by email at mwalton1283@gmail.com or by phone at 807-355-3841. I'd be happy to answer any questions.

Yours truly,

Mike Walton, PhD

Michael Walton Consulting
Whitehorse, Yukon

MWC

Yellowstone to Yukon
Conservation Initiative

Dawson Regional Planning Commission
Suite 201, 307 Jarvis Street
Whitehorse, Yukon

October 31, 2021

Dear Planning Commission,

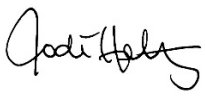
The Yellowstone to Yukon Conservation Initiative (Y2Y) is pleased to provide feedback on the draft Dawson Regional Land Use Plan. The Y2Y vision is an interconnected system of wild lands and waters stretching from Yellowstone to Yukon, harmonizing the needs of people with those of nature. We work toward that vision using a science and knowledge based approach to solve critical challenges and work with partners, now over 470, to progress toward the vision.

The Dawson region is a very important part of the Y2Y region. As such, the long-term plan spells out conservation priorities and conversely areas slated for development directly impacts the Y2Y vision.

Following are comments that reflect suggestions to 1) better ensure that the Dawson Plan would maintain an interconnected system within the region but also connecting to the larger Y2Y region for now and into the future, and 2) address conservation of cultural heritage including lands and wildlife for Indigenous Peoples that have overlapping traditional territories in the planning region as we seek to support their expressed priorities.

Thank you for your efforts to incorporate these suggestions in the next iteration of this plan and for the opportunity to comment.

Sincerely,



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Yellowstone to Yukon Conservation Initiative

Response to request for public input on the draft Dawson Regional Land Use Plan

Prepared by
Michael Walton Consulting
on behalf of the Yellowstone to Yukon Conservation Initiative

October 31, 2021

EXECUTIVE SUMMARY

The boreal forest and taiga in the Dawson planning region are some of the last remaining intact forest and ecosystems in the world. Functioning as a massive carbon sink, the boreal is actively combatting climate change. These natural systems when connected and interlinked gift the human species with all that is needed to survive. That is if they remain intact. When landscapes become broken, the natural systems that sustain human life and livelihoods risk collapse.

Ecological connectivity allows for the flow of life-giving energy between and amongst species. Predator and prey relationships, culture and heritage, outdoor leisure and respite, all rely on the land. Climate change, biodiversity loss, and human caused disturbances, are making brittle the connections that keep natural systems healthy and sustain the fundamentals of life. In the north, these systems disruptions are amplified. Sustainability is no longer so much about sustainable development. Rather, it is about sustainable biodiversity protection in a changing climate that is warming the Yukon.

The land's reduced resiliency, when put into context of the definition for sustainable development, "beneficial socio-economic change that does not undermine the ecological and social systems upon which communities and societies are dependent", found in Tr'ondëk Hwëch'in Final Agreement, highlights the importance of the link between ecological and social systems. This human-environment connection acknowledges and reminds us that the land and the people are one and everything is connected.

The difficulty, challenge and opportunity over the life of the Plan are to mitigate global warming, slow biodiversity loss, and ensure socio-ecological connectivity. To achieve this, bold direction is required that controls and limits development and its infrastructure, in favour of conservation, protection and connectivity. One of the ways to address climate change, biodiversity loss and improve connection to nature is to protect nature.

In the 2021 federal budget $4.1 billion dollars is committed to protecting 25% of Canada's lands and oceans by 2025 and 30% by 2030. These are tremendously important commitments for nature and society. Yet, accepting 25% or 30% land protection in the Yukon would be a net loss to nature and a significant release of carbon now stored. Protecting at least half the land respects the definition of sustainable development, acknowledges the intactness of existing forests and ecosystems, and is necessary for the health and wellbeing of the people who rely on the land for their lives and livelihoods. Protecting half the land in the Dawson planning region is not fanciful and wishful thinking. The results of planning exercises in the North Yukon and the Peel demonstrate successful efforts toward this goal.

The Draft Dawson Regional Land Use Plan lays out important concepts and principles in its attempt to address competing interests across the landscape. To increase the likelihood of creating the necessary network of connected protected areas to ensure species survival and cultural integrity, Y2Y suggests:

SMA Is
There is a need to increase the amount of strictly protected lands (SMA Is). To improve connectivity and socio-ecological processes across the planning region, where there is an absence of active mining claims or few claims in number, assign higher levels of protection. For example, LMU #6, #11 and #21 could be SMA Is.

SMA IIs
In attempting to achieve the Plan's suite of goals, SMA IIs fall short in their contributions due to the amount of land without permanent protection (SMA Is). Key planning opportunities remain to ensure SMA Is are large and connected to other SMA Is, and SMA IIs are connected to SMA Is and other SMA IIs.

Ecological Connectivity
The degree of permitted development within SMA IIs and ISAs will result in less ecosystem health and ecological integrity, particularly when considering climate change factors. Greater emphasis on areas of strict no development and ecological connectivity is required. Ecological corridors will improve the planning region's ability to adapt to climate change and deliver necessary socio-ecological services, cultural resources protection and economic development that is sustainable.

Cumulative Effects
The linear disturbance thresholds are insufficient to achieve sustainability.

Wetlands
Water, and the protection of wetlands is of upmost importance because of the critical role water and wetlands play in delivering ecosystem services to human and non-human species. Given the rarity of wetlands in the planning region, their ecological function, their irreplaceability, and the lack of understanding about wetland hydrology, wetlands are deserving of the highest order of protection throughout the planning region.

Fortymile Caribou Herd Corridor
The migration corridor for the Fortymile Caribou Herd needs to be larger (extended and widened) to reflect the full range of the herd. It needs to be connected to high conservation areas in all directions. Buffer zones adjacent to the corridor should be considered. Landscape connectivity that accounts for seasonal sensitivity needs to be assured. Its present configuration will not serve the herd's biological needs and in turn risks catastrophic loss to the Tr'ondëk Hwëch'in.

Social, ecological, cultural and economic connectivity
The land provides for the health of the people and nature. Without healthy land and people, the economy fails. The decision-making systems that are in place or contemplated for the planning region require an approach that recognizes the importance of sharing power and decision-making. Through both governance and management, decision-making needs to be collaborative, shared and cooperative. Specific attention needs to be paid to how learning together can be achieved. Indicators that measure the health of the relationships between social and ecological systems require elaboration.

Co-management
The Land Use Plan specifically addresses co-management for LMU #4 Chandindu, Tsey dëk/Tthen dëk, a proposed SMA II. Y2Y unreservedly supports co-management of the land with Indigenous peoples. However, necessary resources (money and staff) should be shared with Indigenous peoples so that participants can effectively engage in co-managing.

IPCAs
Strong indications from negotiated and operating IPCAs in Canada and around the world are that IPCAs represent an approach to land management that has the potential to bridge ways of knowing, address power imbalances and improve health and well-being indicators for Indigenous peoples. Importantly, they offer an alternative to landscape protection that reflects Indigenous leadership, values and priorities. Budget 2021 prominently regards the role of IPCAs in this regard.

Introduction
Yellowstone to Yukon Conservation Initiative (Y2Y) appreciates the opportunity to provide our comments on the Draft Dawson Regional Land Use Plan. We want to acknowledge the efforts by the individual Commissioners and Yukon Planning Council staff who are supporting the region's planning efforts.

For over a quarter of a century, Y2Y has participated in numerous land planning exercises. From Yellowstone to Yukon, Y2Y has been invited to share our thoughts about how land use might be organized to respect the values of local Indigenous and non-Indigenous people.

We have learned from the Traditional Knowledge of Indigenous peoples and the local knowledge of generations of landowners that caring for the land is important to many people. This sense of stewardship is profound, inspirational and crosses generations and cultures.

We have spent lots of time speaking to people about the importance of nature, and how people connected to the land are healthier, and in turn, so is the land. Whether farmers, hunters, fishers, or people who just love to get outside hiking, skiing, snowshoeing, snowmobiling, ORVing or fishing, the land's health is understood to be what supports its enjoyment.

Y2Y is very concerned about the rate of biodiversity loss around the world and climate change. We recognize our social and ecological systems are failing due to human caused pressures. However, we remain optimistic because areas in the world remain where large areas of land, if protected and connect to other large areas of land, create the conditions to address climate change and slow biodiversity loss. The Yukon is one of those places.

Home to one of six remaining wilderness areas left on the earth (Yukon Parks, 2020) and some of the last intact ecosystems (Watson et al., 2018), the Dawson planning region contributes to natural and cultural intactness in ways absent in other jurisdictions in Canada and around the world.

The Dawson planning region remains a place where the debate is not about how to protect what's left. Rather, it is a conversation that starts from the abundance of open space that supports healthy populations of plants, animals and the people of the Region (Vernier et al., 2020).

The Dawson Region, like the North Yukon and the Peel River Watershed, is where cultural, economic, ecological and social values, each and all, can be achieved with caution, respect and learning by doing. The land protected and connected, creates certainty for generations to come.

The dual crises of biodiversity loss and climate change
Forests cover "a total of 40 million km^2 (25%) of Earth's terrestrial surface"(Watson et al., 2018) (p. 599). Startlingly, "of the remaining forests, as much as 82% is now degraded to

some extent as a result of direct human actions such as industrial logging, urbanization, agriculture and infrastructure" (Watson et al., p. 599).

The boreal forest in North America "covers 6.2 million km^2 of which 88% is in Canada and 12% is in Alaska" (Vernier et al., 2020. p. 3). Canada is home to some of the last intact forest ecosystems and carbon sinks in the world. In the Yukon, the boreal forest remains intact albeit with increasing pressure from a growing population, industrial activity, roads, and outdoor recreation.

What many remember to be healthy forests from their youth has changed. Different animals are seen, forest sounds have changed, even the colours of the forest have shifted. Increasing global temperatures and more development over the last 60 years has resulted in fewer different kinds of plants and animals in the forest. In the Yukon that trend is continuing (Yukon Parks, 2020). These declines directly affect the ability of forests to recover from fire, insect infestations, flooding, drought and human caused disturbances.

Yukon forests are less resilient today than they used to be and will become less able to absorb change as the climate warms and more of the forest is taken up for roads, mines, agriculture and development. As Yukon forests become less resilient, so too does Yukon society. The land inspires Yukon's social, ecological, economic and cultural values. Healthy land means healthy people, plants, animals and economies.

To improve and maintain the resilience of the land and ensure the peoples who rely on the land for their culture and livelihoods water needs protecting; large areas of land need to remain undeveloped; and across the landscape, animals need to be able to move without restrictions or barriers. Recognizing "ecological corridors" on the landscape as "clearly defined geographical space that is governed and managed over the long term to maintain or restore effective ecological connectivity" (Hilty et al., 2020, p. 4) will contribute to landscape scale socio-ecological connectivity and wellbeing.

Where development occurs, it needs to be as light as possible with as small a footprint as technology, design and planning can achieve. With these imperatives in mind, there is greater likelihood that the definition of sustainable development, "beneficial socio-economic change that does not undermine the ecological and social systems upon which communities and societies are dependent" found in the Tr'ondëk Hwëch'in Final Agreement will be realized.

The Dawson Regional Land Use Plan identifies a number of ideas and policy directions that will help the land maintain its resilience and sustain economies and societies in the face of rapid change. The following illustrate some of those important ideas.

Community Stewardship

The Plan's recognition of community stewardship over management as a guiding principle significantly influences the direction taken by the Plan. The Commission's thinking about how stewardship, shared by all, can be put into practice reflects needed shifts in approaching responsibility for the land. The idea of "Integrated Stewardship Areas" (ISAs)

as Land Management Unit (LMU) designations further demonstrates the degree to which the Commission applied the idea of community stewardship. It may be necessary to review where in the Plan the term "management" is used so that the distinction between "stewardship" and "management" is maintained.

The Precautionary Principle
The application of the precautionary principle invites humility into decision-making by registering with decision-makers the magnitude of getting it wrong. Recognition by the Commission of the limited understanding within which decision-making about the land, its resources and the consequences of such decisions on the people most affected by those decisions is an important contribution to the Plan's approach.

Adaptive Management
In the face of uncertainty, and such threats as climate change and biodiversity loss, the Plan's acknowledgment of the need for "a structured, iterative process to decision-making" (p. 18) is critical for learning and improvement. Learning by doing, requires a commitment to research and monitoring without which sets the planning region up for failure and missing warnings of catastrophic effects on ecosystems and societies.

Landscape Connectivity
One of the most important and far-reaching concepts presented in the Plan is landscape connectivity. Broken landscapes interrupt the gene flow of wild species, impede their natural movement, and stress plant communities that require regeneration that comes from connectivity. In describing the importance of ecological connectivity, the IUCN reports that "without connectivity, ecosystems cannot function properly, and without well-functioning ecosystems, biodiversity and other fundamentals of life are at risk" (Hilty et al., 2020)(p. 2). The Commission's recognition of the adjacency of existing or proposed protected areas in the Yukon and Alaska is as important for connectivity as is the Commission's efforts to ensure connectivity across the planning region for caribou and salmon. The identification of the Fortymile Caribou Corridor and attention to salmon and their spawning, rearing and migration routes, reflect the Commission's attention to this critical planning issue.

Special Management Areas (SMA) I designations
The Commission's support for areas of "maximum conservation" and where "no new industrial land use or surface access is allowed" (p. 30) marks an important tool to ensure the continue health of the land and protection for cultural values. SMAIs are critical to achieve the Commission's vision for the planning region.

Sub-regional Planning
The idea of sub-regional planning for the Yukon River and Klondike River is supported by Y2Y. Until sub-regional planning is undertaken, strong interim management direction is required.

Cumulative Effects Framework
The Commission's recognition of the importance of establishing indicators and thresholds are key contributions to the Plan. Addressing cumulative effects is central to determining

how much risk to ecosystems and socio-ecological integrity can be tolerated given uncertainty.

With the above in mind, Y2Y recognizes and suggests the following:

1. Achieving Good Land resilience – SMA Is and SMA IIs

Key to addressing the dual threats of biodiversity loss and climate change is maintaining intact forests. The boreal forest that lies over the Dawson Region blankets the landscape with countless interwoven threads that when unbroken connect grizzlies, caribou, water, salmon, wolves, and wolverine to each other and other animals. Each thread conducts the energy necessary for the species' life, health and existence. All things are connected and when the connections are healthy and unbroken the land is well. Breaking the threads results in the land increasingly unable to provide the energy necessary for species survival, essential ecosystem services and impairs the land's ability to recover. Plants, animals and people are at risk because of the land's decline.

If maintaining the boreal forest is key to keeping the land healthy, then significant threats to the land are, development, its fragmentation, and increased access to it by humans in numbers and ways that don't respect how much change the land can tolerate before it becomes unhealthy. It is known that development activities and its infrastructure result in "habitat loss and fragmentation for forest-dependent species" (Martinis-Olveira et al., 2021. ¶2).

SMA Is

There is a need to increase the amount of strictly protected lands (SMA Is). For example, LMUs #6, #11 and #21 could be SMA Is due to their contributions to landscape connectivity, and ecological and cultural importance. To improve connectivity and socio-ecological processes across the planning region, where there is an absence of active mining claims or few claims in number, assign higher levels of protection.

SMA Is can use existing Federal and Territorial protected area designations. Some may work better for what is intended than others. Alternatively, stepping outside of existing classifications is another option if that makes it stronger. For example, under the Yukon's Parks and Land Certainty Act, there is room for the creation of a Territorial Park described as "other". In the case of SMA Is where concerns exist about setting aside lands as a "park", it may be worth considering with the support of the Tr'ondëk Hwëch'in, describing the lands as "Cultural Landscapes" intended to meet both the protection of high value conservation lands and the protection of cultural values associated with the landscape. Implemented through a collaborative management approach, already supported by Yukon Parks, SMA I Cultural Landscapes can, through jointly prepared management plans with the Tr'ondëk Hwëch'in, direct the access and use of the area to maximize ecological and cultural integrity.

Similarly, existing categories of protected lands within the Yukon Government's authority such as Ecological Reserves, Wilderness Preserves, Territorial Parks, Habitat Protection Areas, and Wildlife Sanctuaries, can through collaborative approaches achieve management plan direction that addresses access, traditional use and cultural values. Federal protection

such as National Parks, National Historic Sites, and National Wildlife Areas, also can achieve jointly managed landscapes that address access, traditional use and protection.

Protected area management planning involving local people achieves both strict protection and distributed visitor access. In this way, local access and traditional use are not displaced and local knowledge serves to support the long-term sustainability of the area. Co-management of Parks and Protected Areas is an effective tool to increase the amount of protected lands and socio-ecological systems.

Chandindu, Tsey dëk/Tthen dëk (LMU #4 SMA II) is recognized for its intact ecosystems and priority for Tr'ondëk Hwëch'in to "retain co-management responsibilities, including the consideration of establishing an Indigenous Protected and Conserved Area (IPCA)" (p. 120). Y2Y strongly supports the Special Management Directions for this LMU and encourages its re-designation as an SMA I.

Ideally, other LMUs that may not have the highest protection employ a gradient to sustainability where the areas closest to the high conservation values have the least amount of development allowed. Development increases in intensity as one moves away from the SMA I. The use of buffer zones around SMA Is to assist in achieving a gradient of sustainability and protect high value conservation areas will be useful.

IPCAs

Strong indications from negotiated and operating IPCAs are that IPCAs represent an approach to land management that has the potential to bridge ways of knowing and that improve health and well-being indicators for Indigenous peoples. IPCAs are proving useful to address complicated preexisting land arrangements where mineral potential and development are present. Importantly, they offer an alternative to known landscape protection that reflects Indigenous leadership, values and priorities. Canada's Federal Budget 2021 prominently regards the role of IPCAs in this regard (Government of Canada, 2021). IPCA designation is an important option for use in the Dawson Region as well as elsewhere in the Yukon.

SMA IIs

The intent of SMA IIs as described in the Plan is "an area managed for high conservation of ecological and cultural values" and importantly, "long-term maintenance of wilderness character" (p. 30) is laudable. However, two qualifying requirements: (1) the areas will not receive legal designation as protected areas and (2) existing mineral and other land use rights within the area will be allowed, are of concern. It is not clear how disallowing legal designation and allowing continued development meets the intent of the designation.

To meet the Plan's intent for SMA IIs, it is conceivable that by increasing the size and number of SMA Is and decreasing the number and size of SMA IIs, their definitions would work.

Key planning opportunities remain to ensure SMA Is are large and connected to other SMA Is, and SMA IIs are connected to SMA Is and other SMA IIs. Ideally, other Land Management

Units that may not have the highest protection employ a gradient to sustainability where the areas closest to high conservation values have the least amount of development allowed. Development should increase in intensity as one moves away from the SMA I. The use of buffer zones around SMA Is will assist in achieving the aforementioned gradient to sustainability. An explanation about the utility of buffers is presented below.

Changes to the Land Use Plan For Improved Resilience

Increasing the amount of strictly protected lands (SMA Is) with legislated protection to ensure socio-ecological and economic sustainability in the region requires the Commissions attention. Specifically, where SMA IIs are identified in the Plan, consider re-designating them as SMA Is. Where LMUs have few or no active mining claims, assign SMA I designations with adjacent LMUs designated as ISA Is and gradually increase ISA designation moving away from the SMA to reflect development values. For example, LMU #11 could be an SMA I with ISA I designation moving south toward the Upper Indian River Wetlands (LMU #19).

The ISA categories presented in the Plan reflect a gradient of use. This is an important concept to retain. The application of least intense land uses adjacent to areas of conservation value helps achieve landscape scale connectivity and socio-ecological resilience.

If SMA II zoning is continued, more definition about what is allowed where, when, by whom and how often, is needed to create certainty for both conservation and development.

Y2Y encourages Commissioners to recognize the significance of achieving co-management with the Tr'ondëk Hwëch'in for those areas of high cultural and ecological importance. Y2Y further recognizes the importance of IPCA designations initiated by Tr'ondëk Hwëch'in as critical spaces for Indigenous leadership. Plainly put, "alternatives to colonial conservation perspectives" (Marshall et al., 2021. p. 842) are necessary to address the biodiversity crisis.

2. Achieving Landscape Scale Ecological Connectivity

Increasing the number of Land Management Units that attend to strict conservation measures and delineating more ecological corridors will increase the likelihood of the planning region's ability to adapt to climate change and deliver necessary socio-ecological services, cultural resources protection and economic development, that is sustainable. Ecological corridors serve landscape scale socio-ecological connectivity and resilience by ensuring species have the space necessary to move and because of the special relationship Indigenous peoples have with the land, ecological corridors also respect Tr'ondëk Hwëch'in cultural priorities described in the Plan.

The perception of a wild Yukon where animals roam free, unhindered by human presence and development rings true to many. Unfortunately, the romantic perception of "the wild Yukon" runs directly into the contradiction inherent with the concept of "balance". If balance is to be achieved and wilderness is to remain, it will be through shifts in understanding how what is perceived as boundless is in fact bounded. Roads, trails, development, the presence of people, land use planning, and planning zones all create

boundaries on the land that are both visible and invisible. It is evident that the LMUs and Zoning are attempting to address the need for unbroken landscapes. It is also understood from a conservation perspective that; bigger is better and connected is best. Meaning, bigger protected areas (e.g. SMA Is) are better than smaller ones and ensuring they are connected across the landscape is best.

The identification of the Fortymile Caribou Corridor (LMU #23) is an important step to ensuring the ongoing protection of the herd and serves as an example of the importance of attending to the lifecycle needs of this iconic and culturally important species. However, two issues are of concern are noted. First, splitting the LMU into two zones in an attempt to allow development and protect migration routes creates a circumstance where the likelihood of impaired movement remains due to the proximity of human-caused disturbances to the herd. Second, and related, is wherever the "edge" or boundary of a protected area (e.g. SMA I or "buffer" or ecological corridor) exists the edge is permeable. Encroachments, such as noise, smells, and human presence into the protected area, buffer or ecological corridor reduces the area available for the herd to move and thrive.

Changes to the Land Use Plan For Landscape Scale Ecological Connectivity
To achieve landscape scale ecological connectivity Y2Y proposes:

LMU #18 Matson Uplands, proposed as an SMA I should also be identified as an Off-road Vehicle Management Area (ORVMA).

LMU # 1, #4, #6, #7, #8, #11, #19, #21 and #22 be converted to SMA Is. The LMUs North of the Yukon River, North of the Klondike River and between the Klondike River and the Klondike Highway, together create landscape connectivity for areas of high conservation values. Off-road vehicle Management Area designations should be considered for use in these areas. LMU #21 White, Tädzan dëk includes unique beringia ecosystems that if developed are irrecoverable. The LMU also has few mineral claims and remains relatively pristine. The area was part of the historic range of the Fortymile Caribou herd. Due to its low level of development activity, the land is well suited for the herd to return if connectivity to the north is improved.

Increase the width and extent of the Fortymile Caribou herd corridor (LMU #23) by converting it to an SMA I that includes portions of White, Tädzan dëk (LMU #21), Fortymile River Chëdähdëk (LMU #15), Swede Creek (LMU #16) and the Northern portion of the Sixtymile Khel dëk (LMU #17).

Resolve the isolation of LMU #19 through the application of ecological corridors to ensure landscape connectivity or combine LMU #19 with LMU #11 (Flat Creek Wetlands) and LMU #10 (Upper Klondike an SMA I) and organize the management direction within the larger LMU to protect the cultural and ecological resources of these high value areas.

Recognize edge effects associated with landscape boundaries and apply buffer zones as a way to absorb negative effects of human behaviours.

Confirm with the Tr'ondëk Hwëch'in priorities for co-management of LMUs.

3. Socio-ecological, cultural and economic connectivity

The land provides for people and nature. People and nature are not separate; people are in nature. Without healthy land, the health of Yukon Indigenous and non-Indigenous peoples suffer. Without healthy land and people, the economy suffers. The economy relies on healthy people in healthy nature. Sustainability is no longer so much about sustainable development; it is about sustainable biodiversity protection in a changing climate that is warming the Yukon.

In Yukon's recent past, the Yukon was considered a frontier. It was a place of abundance: Abundance of resources, abundance of opportunity and abundance of plants and animals. Abundance as an idea functioned well in the absence of climate change and rates of biodiversity loss. Now, what is available to support nature and people in nature will not be sustainable without vigorous focus on: (1) minimizing and limiting the footprint and intensity of development to where development takes place. (2) Increasing the amount of land and water that is strictly protected and connected to other lands and waters that are strictly protected. (3) Returning and/or maintaining strong human connections to nature and natural connections within nature to secure the health of ecosystems, cultures, and social systems that support economies.

Changes to the Land Use Plan to protect socio-ecological connectivity

A significant challenge to land use planning in the Yukon is addressing the mythology of abundance. The land is no longer abundantly unbroken. Roads and other linear features associated with industrial development, tourism and outdoor recreation crisscross the landscape. It is necessary that the Planning Commission confirm with the Tr'ondëk Hwëch'in and White River First Nation that LMUs and their zoning are sufficiently unbroken and of a size to protect Indigenous languages, cultures, and support the continuation of traditional harvesting and ceremonial activities.

Consideration should be given to increasing the amount of strictly protected lands (SMA Is) with legislated protection to ensure socio-ecological connectivity. Presently, where SMA IIs are identified in the Plan, re-designate them as SMA Is with legislated protection.

Clarification of the types of strictly protected areas that are available in legislation by the federal and territorial governments and their management approaches would be helpful for SMA discussions. Advancing IPCA designation, led by the Tr'ondëk Hwëch'in reveals an opportunity to take advantage of Budget 2021's commitment of $2.3 billion over five years to increase the amount of conserved lands, including IPCAs (Government of Canada, 2021).

The social values associated with caribou, grizzly bears and salmon, along with their sensitivity to human caused disturbances make them excellent candidates for further exploration and confirmation of indicators to include in cumulative effects management of socio-ecological connectivity.

4. Cumulative Effects Framework and Cumulative Effects Indicators (Linear Density and Surface Area) and Surface Disturbance and Measurement and Recovery

Given the preponderance of evidence that increasing densities of linear disturbances negatively affects sensitive and culturally important species like caribou and grizzly bears, avoiding such increases is critical. What is clear in the Dawson Region is that caribou, whether barren ground, mountain or woodland, are species that require large areas of unbroken landscape, free of disturbances in order to complete their life cycle requirements and continue to exist (Environment Canada, 2012). The present configuration of landscape zoning will not achieve species persistence over time. For example, studies about disturbance effects on woodland caribou (NCASI, 2020) report avoidance behaviours ranging from 2kms to 6kms away from mine sites; studies into linear features such as roads, revealed avoidance ranges between 250 metres and 10 kms; and forestry roads at 750 metres. Avoidance behaviours also relate to time of year and the location of the herd studied. In the instance of barren-ground caribou, avoidance behaviour was reported at 30 kms from a diamond mine site in the NWT. Researchers concluded, understatedly that, "disturbance responses of caribou are complex and variable and depend on the season and specific landscape features within a particular range" (NCASI, 2020, p. 59).

To strengthen the Plan, and improve protection for caribou, more no development zones are needed in the form of SMA Is; increased buffering is required to account for climate change; and landscape connectivity that accounts for seasonal sensitivity needs to be enlarged.

Research into grizzly bear movement warns of negative effects on bear movement at high road densities of 1.6 km/km^2 (Proctor et al. 2018). Later, Proctor et al. (2020) further caution that "low female survival also resulted in local population declines when road densities exceeded 0.75 km/km^2" (p. 19). Worryingly, Parsons, et al., (2021) found that more grizzly bears died in areas visible to roads and that "most grizzly bear mortality results from interactions with humans, typically near roads" (p. 162). Increasing road densities will have significant effects on the grizzly bear population in the Yukon.

Should a decision be made that no other options are available except to build a road or cause a different kind of linear disturbance, then robust wildlife mitigation and monitoring is needed to warn of adverse effects and ensure species survival. Clearly though, the evidence communicates the need to avoid building more roads and other linear features.

The Plan's cumulative effects indicators and thresholds remain a fundamentally important determination. In its present form it is unclear how the thresholds for the cumulative effects indicators were arrived at. The sources for this decision should be provided.

There is also an absence of any indicator related to changes to the health and integrity of social and cultural systems as a result of ecological change due to zoning. Correcting this is important, as social and cultural values are core values the Plan intended to address.

In regard to specific feedback on Surface Disturbance and Measurement and Recovery
Y2Y supports each of the three measures identified equally. Because "all things are connected" each of the identified possible calculations for surface disturbance and cumulative effects recovery reflect necessary returns to ecosystem function.

Changes to the Land Use Plan to address Cumulative Effects Framework and Cumulative Effects Indicators (Linear Density and Surface Area) and Surface Disturbance and Measurement and Recovery
The Commission has asked for specific comment on two options for measurement related to linear disturbance. Option 1 is preferable noting even finer resolution of linear disturbance recording is emerging through the use of drone technology. Fragmentation of the landscape is not only the result of linear features greater than 1.5 metres in width. Hiking trails, cross-country ski trails, fencing and footpaths can result in changes to animal movement and serve as pathways for invasive species. The cumulative effects of all forms of linear disturbance are important to keep in mind and all forms of linear disturbance are necessary to monitor, measure, and track.

It is also necessary to confirm the proposed indicators are the best for such key species as grizzly bear, black bear, wolves, wolverine, caribou and salmon. Referencing original sources would be helpful.

To address the absence of social indicators, the Commission may wish to convene discussions with appropriate bodies to determine appropriate indicators. The areas of shared-decision making, ethical space, co-governance, co-management, and adaptive management, hold value for the exploration of suitable socio-ecological, socio-cultural, and cultural indicators.

Specific changes to LMUs to address caribou persistence include:
Increasing the size of the Caribou Corridor by widening it and lengthening it is necessary to improve the likelihood of species survival. Addressing barriers to the herd's movement i.e. mineral claims, calls for increased restrictions on lands adjacent to the Caribou Corridor. Additionally, increased understanding of cumulative effects and tolerances for disturbance by Northern Mountain caribou are needed to ensure the herd's health. LMUs #15, #16, #17, #18 and #23 require specific cumulative effects studies that include involvement from traditional knowledge holders.

Specific changes to LMUs to address grizzly bear populations include:
Like caribou, increased understanding of cumulative effects and tolerances for disturbance by grizzly bears based on sex, habitat quality, proximity to linear disturbances (including roads), climate change and human presence is required. Critical baseline information needs to be collected per LMU in order to confirm management options.

5. Roads, Off Road Vehicle Use and ORV Trails
The Plan reads convincingly that there will be more roads and Off-road Vehicle trails (ORV) and uncertain capacity to address their effects. As the Plan points out, "the Commission

acknowledges that there is a limited understanding of the current level of linear disturbance within the planning region" (p. 58). To this point the Commission offers the following "Research Recommendation" (p. 58) to the Parties:

The Parties should conduct a baseline linear disturbance study with priority given to areas experiencing increased pressure from linear development. In the order of their priority to be researched, these LMUs include #12 (East – Nächo dëk), #17 (Sixtymile – Khel dëk), #9 (Clear Creek), and #20 (Coffee – Tthatryàn).

Without debating the listed priorities, Y2Y strongly supports the need to increase understanding about the amount of linear disturbance in the planning region. This knowledge is critical to inform decision-makers about the choices available to meet the Plan's goals and sustainable development, as defined in the Tr'ondëk Hwëch'in Final Agreement.

The Klondike Highway, The Dempster Highway and the Top of The World Highway each are linear disturbances that require particular attention paid to controlling access and egress from and to these transportation corridors. Whether by ORV or other, a significant threat to the planning region's socio-ecological integrity and the Plan's goals is the proliferation of roads and ORV trails.

The Plan asks for specific comment as to whether or not there are any areas that should be considered for special management area status under the Off-Road Vehicle Management Area Regulations. Generally, Y2Y recognizes wetland areas, and critical habitat for caribou including migration routes, as areas of concern in regard to ORV disturbances. Therefore, Y2Y suggests the Commission work with other experts and knowledgeable sources to examine all or portions of the following LMUs for possible designation:
LMU #10 (Upper Klondike)
LMU #11 (Flat Creek Wetlands)
LMU #18 (Matson Uplands)
LMU #19 (Upper Indian River Wetlands)
LMU #21 (White Tädzan dëk)
LMU #22 (Scottie Creek Wetlands)
LMU #23 (Fortymile Caribou Corridor)

Y2Y recognizes road ecology as a significant body of knowledge available for the Commission's use to determine policy and to inform access management planning. The recommended management practices, policy direction and recommended action related to all-season surface roads (p. 55-58) are instructive.

The information addressing Off-Road Vehicle Access is of limited value because no management practices are recommended, and the policy recommendations are limited to supporting the Dawson District Renewable Resource Council's role in identifying ORVMAs under the ORVMA Regulations. It is advisable that the Commission commits to specific management actions and de-couple its policy recommendations from ORMVA regulations. It may be that Off-Road Vehicle Access is discussing ORVMAs, which tend to take on a

recreation value when this section of the Plan is addressing the larger issue of transportation and access.

Changes to the Land Use Plan to account for Off Road Vehicle Use
Consider addressing ORVMAs separately as an outdoor recreation value.

Identifying areas for ORVMA designation in conjunction with ecological connectivity priorities and SMA I designations will prove beneficial to achieving the goals of the planning process.

6. Terrestrial and Aquatic Ecological Buffers
It may be worth considering the utility of buffers as a land designation. The idea of a buffer is to absorb the pressure of development against conservation. This is done by inserting space – a buffer – between areas of high conservation value and development. A buffer is a tool that anticipates human encroachment into areas of high conservation value from adjacent lands that are of lower conservation value. The buffer allows land managers to reduce negative impacts on high value conservation lands by moving behaviours to an edge (i.e. a border or boundary) that is away from lands of high conservation value. Buffers can vary in size, but their intent is to create the space where human activity is managed so that areas of high conservation value remain unimpaired.

Buffers should be applied with increasing restrictions on development closest to areas of high conservation value. Areas of high conservation value include SMA Is, Migratory Corridors, and Wetlands. Implied is a gradient where increasing restrictions on development occur the closer one gets to areas of high conservation value. The gradient can be achieved through the application of ISA categories within the buffer and could include restricting access as an additional measure.

Changes to the Land Use Plan to account for Buffers
Apply terrestrial and aquatic buffer zones against and around areas where the effects of human caused disturbances are anticipated to be high and the development is in proximity to areas of high conservation value.

7. Wetlands and Fens
The application of the precautionary principle as it relates to wetlands, and specifically fens, is required. Water, and the protection of wetlands is of upmost importance because of the critical role water and wetlands play in delivering ecosystem services to human and non-human species. Understanding water quality, rates of flow and associated hydrological systems, is far from complete across the Yukon and the interactions between climate change, permafrost melt, water movement and changing water chemistry are too uncertain to risk irreversible harm.

Changes to the Land Use Plan related to Wetlands and Fens
The Commission has asked for specific comment on development thresholds for fens. Y2Y recommends that until more is known, little should be done that could compromise the ecological integrity of fens and more broadly wetlands. It is critical to ensure hydrological

connectivity and related biological integrity within wetland complexes are protected so that nutrient capture and flow remain uninterrupted or impoverished.

Through the precautionary principle, Y2Y encourages the immediate application of buffers around wetlands to reduce the possibility of sudden shocks to wetlands and wetland complexes. Buffers should restrict development (e.g. placer mining) to existing footprints until scientific direction is confirmed and thresholds identified.

Significant attention will need to be paid to the monitoring program required to ensure thresholds and disturbances are observed and tracked.

Many of the suggestions Y2Y is making relates to creating more SMA Is. Moving to more permanent protection for the LMUs identified increases the permanent protection of wetland ecosystems. For example, White, Tädzan dëk (LMU #21). Given the rarity of wetlands in the planning region, moving to permanent protection of wetlands should be considered an ecological and cultural priority.

8. Sub-regional Planning

Y2Y supports the need for some areas to have sub-regional plans (LMU #3 Yukon River Corridor, Chu kon dëk; LMU #13 Klondike Valley.

Changes to the Land Use Plan related to sub-regional planning

Sub-regional planning timelines for starting and completion should be identified in the Plan. As these are active corridors, absent strong management direction, socio-ecological values are at risk of impairment.

9. Protect the significant cultural and ecological values of the Upper Indian River Wetlands (Land Management Unit #19 Proposed SMA II)

The conflicting values of conservation and development are starkly evident in this LMU. The area is both "the most important placer gold producing watershed in Yukon" (p. 161) and a wetland complex that is ecologically significant and culturally significant. In this location the application of the precautionary principle cannot be overstated. So little is known about northern wetland hydrology in and of itself and what little is known about northern wetlands and climate change, warrant deep concern over the irreversibility of the consequences of development. The LMU is clearly deserving of higher order protection because of its ecological and cultural values.

Changes to the Land Use Plan to protect significant cultural and ecological values of the Upper Indian River Wetlands

The suite of changes necessary to achieve both protection and development goals for the LMU involve, higher order protection for cultural and conservation values; resolving its disconnection from other conservation zones; recognizing the high degree of uncertainty about how ecological factors interact with each other; and acknowledging that climate change and its effects on wetland complexes is unknown thereby creating more uncertainty.

Ideally, the LMU should be recognized as an SMA I to reflect the importance of this portion of the more extensive wetland complex of which it is a part. Resolving its isolation from other areas of conservation values, regardless of SMA designation, is through the application of ecological corridors. For example, connecting LMU #19 with LMU #11 (Flat Creek Wetlands). When connected with LMU #19 and if its zoning remains an SMA II then its cumulative effects threshold should be the lowest possible (i.e. ISA Zone I). The recommendation in the Plan is the cumulative threshold is that of ISA II. This is inconsistent with the conservation and cultural values associated with the LMU.

An easier resolution is to the challenge of connectivity is to combine LMU #19 with LMU #11 (Flat Creek Wetlands) and LMU #10 (Upper Klondike an SMA I) and organize the management direction within the larger LMU to protect the cultural and ecological resources of these high value areas.

10. Concluding Key Messages

SMA Is

There is a need to increase the amount of strictly protected lands (SMA Is). SMA Is must be large and connected to other SMA Is. Therefore, to improve connectivity and socio-ecological processes across the planning region, where there is an absence of active mining claims or few claims in number, assign higher levels of protection.

SMA IIs

In attempting to achieve the Plan's suite of goals, SMA IIs fall short in their contributions due to the amount of land without permanent protection (SMA Is). It is not clear how disallowing legal designation and allowing continued development meets the intent of the zoning. Key planning opportunities remain to ensure SMA Is are large and connected to other SMA Is, and SMA IIs are connected to SMA Is and other SMA IIs.

Ecological Connectivity

The degree of permitted development within SMA IIs and ISAs will likely result in a reduction of ecosystem health and ecological integrity, particularly when considering climate change factors. Greater emphasis on areas of strict no development and ecological connectivity is required.

Cumulative Effects, Linear Disturbance Thresholds are insufficient to achieve sustainability

Thresholds related to surface area and linear disturbances found in the Plan are insufficient to ensure that the evolutionary processes that have sustained the boreal forest, and species dependent on the boreal are not overwhelmed resulting in collapse.

Buffers

Apply terrestrial and aquatic buffer zones against and around areas where the effects of human caused disturbances are anticipated to be high and the development is in proximity to areas of high conservation value. Buffers can increase the tolerance of lands and waters to sudden and long-term change.

Fen Threshold
Y2Y is of the opinion that without additional research into the question of how much and what types of change caused by human development (e.g. placer) can a fen and its associated hydrology accept, the least amount of development should occur in or around them.

Fortymile Caribou Herd Corridor
The migration corridor for the Fortymile Caribou Herd needs to be larger (extended and widened). It needs to be connected to high conservation areas in all directions. Buffer zones adjacent to the corridor should be considered. Landscape connectivity that accounts for seasonal sensitivity needs to be assured.

Roads and Off-Road Vehicle Use
A significant contribution to increasing landscape connectivity and protecting ecosystems is managing the amount of linear disturbance attributable to roads and ORV use. Critical is limiting the building of any new all-season surface roads and applying necessary wildlife mitigations to any new roads. Whether by ORV or other, a serious threat to the planning region's socio-ecological integrity is the proliferation of roads and trails.

Monitoring and Tracking
The Plan advances the concepts of cumulative effects and adaptive management. Both contribute to ecosystem management. A great deal of what is central to the Plan relies on monitoring and tracking. Clearly, the amount of monitoring and tracking required to make the Plan implementable is not currently available to all of the governments and others that can assist. The Plan is absent comment on the resources needed for monitoring and tracking. To estimate costing, it will be useful for the Commission to describe monitoring programs including tracking frequency, and identify lead responsibilities (e.g. Canada, Yukon, First Nations governments, non-government organizations).

Co-management
The Land Use Plan specifically addresses co-management for LMU #4 Chandindu, Tsey dëk/Tthen dëk, a proposed SMA II. Y2Y unreservedly supports co-management of the land with Indigenous peoples. However, necessary resources (money and staff) should be shared with Indigenous peoples so that participants can effectively engage in co-managing. Without these investments the balance of power remains fixed and no change to the status quo occurs.

IPCAs
Strong indications from negotiated and operating IPCAs are that IPCAs represent an approach to land management that has the potential to bridge ways of knowing and that improve health and well-being indicators for Indigenous peoples. IPCA designation is an important option for use in the Dawson Region as well as elsewhere in the Yukon.

Social, ecological, cultural and economic connectivity
The land provides for the health of the people and nature. Without healthy land in the Yukon, the health of Yukon Indigenous and non-Indigenous peoples suffer. Without healthy

land and people, the economy suffers. Sustainability is no longer so much about sustainable development. It is about sustainable biodiversity protection in a changing climate that is warming the Yukon.

What is meant by balance?
The Plan explains that it attempts to "strike a balance within the planning region between sustainable economic development and ecological conservation and socio-cultural preservation" (p. 14). The Plan assumes that economy, ecology and society are equally weighted. Two questions flow from this assumption: Firstly, what is out of balance? Secondly, should the environment, society and economy be equal in weighting?

Assuming the Plan regards economy, ecology, and society as equally weighted, scientific evidence clearly and strongly supports the conclusion that nature has been negatively affected by human-caused disturbances, putting nature out of balance with the economy and society. Consequently, in the equally weighted model, more attention is needed to bring nature into balance. Practically, this would suggest the Plan's overall zoning approach is one that attends to the necessary rebalancing through greater protection for land and water and less permissions for access and development.

The second question challenges the assumption of equal weighting. Contemporary scientific inquiry suggests that humans are part of nature. Inclusively, "the land" is what societies and economies rely on. Given the plethora of evidence, both scientific and Traditional Knowledge, that warn of the land's declining health, Commissioners may wish to examine how best to respond to these warnings. A key consideration is landing on an appropriate cumulative effects model with correctly calibrated indicators and confirming what is meant by balance.

What's at Risk Without Bold Direction
Scientists from around the world tell us that 1 million species of plants and animals are likely to go extinct in a short few decades (Hiss, 2021). Despite progressive intent, the Plan falls short of achieving landscape scale protection and in this failing are consequential effects for all Yukoners and particularly the Tr'ondëk Hwëch'in.

The boreal forest is a significant contribution to the world through biodiversity and carbon sequestration. It's fragmentation results in less carbon storage and increased loss of biodiversity. Fragmentation of the boreal also leads to higher fire susceptibility, which then releases more carbon. Keeping carbon in the forest and in the ground can result in carbon offset payments, an alternative to resource extraction choices that meets the Plan's definition of sustainable development.

What is needed to fulfill the vision and intent of the Plan is a willingness to step outside of current constraints and see the land for what it is: our home, or "ecos" (as in ecosystem, ecology, and economy) and recognize the kinship relationships we have with other living and non-living things. "All things are connected", is a truism better understood now than ever before as the world responds to COVID 19. "All my relations", is understood by Indigenous peoples around the world as a way of knowing and responsibility for all living

and non-living things. Indigenous ways of knowing and non-Indigenous ways of knowing about the land are remedies to biodiversity loss and climate change.

Transformative change has been called for by leading scientists from around the world in order to reverse global warming and biodiversity loss. Bold direction that controls and limits development and its infrastructure in favour of conservation, protection and connectivity is required. Achieving at least 50% land protection is not fanciful and wishful thinking. It is a necessary target for the health and wellbeing of our home. The results of planning exercises in the North Yukon and the Peel demonstrate successful efforts toward this goal.

The Dawson Land Use Plan presents a number of critically important concepts that lay the groundwork to achieve sustainability of nature and support development. The Plan needs to increase the amount of land that is strictly protected and ensure these areas are connected to other large protected areas through ecological corridors. This all can be achieved by recalibrating from where "balance" is found, sharing power and decision-making with First Nations, and learning together.

Yukon's unique governance arrangements as described in the Tr'ondëk Hwëch'in Final Agreement requires that sustainable development "does not undermine the ecological and social systems upon which communities and societies are dependent". To honour this commitment it is absolutely essential that the Dawson Regional Land Use Plan's first priority be conservation. This is because development is important and without healthy land, societies and economies will not succeed.

Reconciliation

Given that the Plan is about the land, and the land and Indigenous peoples have a special relationship, the Plan's silence about reconciliation is curious. If the Plan intends to be silent on reconciliation it should state so early in the document and explain why. If the Plan intends to address reconciliation, it will be helpful to address it in relation to the principles and concepts presented.

Plan Implementation

Y2Y supports the Parties jointly establishing an implementation committee within one year of Plan approval. Y2Y particularly recognizes the importance of continuing efforts toward shared stewardship for the lands. The recommended action, "continued work on the Tr'ondëk Hwëch'in Ninä'nkäk Hozo Wëk'ä'tr'ë'no'hcha Land Stewardship Framework should be encouraged and supported as a means of informing the Plan implementation process and future land use planning initiatives in TH Traditional Territory" (p. 177) is extremely important to identifying and improving social indicators for inclusion in a cumulative effects framework. Table 6-2 "Recommended considerations in future plan reviews" contains actions that demonstrate the importance of an adaptive management approach to land use planning. The identification of social carrying capacity and community well-being as an action requiring attention is welcomed by Y2Y. Improving social science inputs to the plan and accounting for social science input to plan revisions are necessary to ensure the Plan's success.

Conclusion

The draft Dawson Regional Land Use Plan admirably considers the many competing interests in the planning region and describes a possible future for the Dawson region. The Commission's consideration of what has been presented in this submission will we hope, embolden the Commission's commitment to community stewardship, shared responsibility for the land and its strict protection.

Generally, Y2Y observes that increasing the number of LMUs that include SMA Is, strictly protecting wetlands, and delineating ecological corridors, will strengthen the Plan. We also believe that reviewing cumulative effects management will prove central to addressing ecological connectivity and socio-ecological systems.

Y2Y strongly supports the Commission's efforts to protect the Fortymile Caribou Herd and encourages the Commission to carefully examine what increased protections might be made to ensure the health of the herd. Protecting the Fortymile caribou herd is a critical goal that must be achieved.

Lastly, an important consideration for the Commission is to re-examine what balance and sustainability mean given climate change, biodiversity loss and the sacred cultural connections to the land held by the Tr'ondëk Hwëch'in.

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