

**Gitxsan
Upper Nass Lax Yip
Land Use Plan
2024**

Gitxsan Upper Nass Lax Yip Land Use Plan

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A note on the spelling of Gitxsan words within the Upper Nass LUP:

Gitxsanimx̱, the Gitxsan language, has traditionally (for thousands of years) been a spoken language. The practice of physically documenting Gitxsanimx̱ in English words through written text is relatively new. Additionally, there are two

main dialects of Gitxsanimx̓ (Gyeets - east and Gigeenix - west). Given the vast history of spoken Gitxsanimx̓ combined with the relatively new practice of translation and transcription of the language, there are necessarily many commonly accepted spellings of important terms. The Gitxsan Simgigyet of the Upper Nass Watershed have agreed to the spelling of each Gitxsanimx̓ term used in the Upper Nass LUP as a group, for the purposes of communicating Gitxsan concepts and ways of knowing to readers. Where Gitxsan terms and/or place names were documented in the *Delgamuukw v. British Columbia* Supreme Court of Canada determination¹ the spelling has been retained within this document. The Upper Nass Simgigyet understand that people familiar with the Gitxsan language may be used to seeing words spelled differently than presented here. The Simgigyet appreciate the consideration of readers in understanding that while spelling of Gitxsan words may vary across different written documents, the concepts behind the words (no matter how they are spelled) always hold true to the tenets of Gitxsan Ayookw (laws).

A note on carbon offsets relating to the Upper Nass Land Use Plan:

The Upper Nass LUP has been developed by the Gitxsan Simgigyet of the Upper Nass Watershed and is a statement of the visions and long-term land management objectives of each Simoogit for their respective Wilp. The Upper Nass LUP is based on the Daxgyet (authority) of each Simoogit of each respective Wilp. The plan implements protections and conservation designations over and above what would be realized under the current land management framework of British Columbia. The plan represents an enhanced land management standard that emphasizes the importance of reciprocity (giving back to the land), biological diversity, and preservation of all aspects of Laxyip now and for future generations. Land protections established under the Upper Nass LUP that result in a net decrease in atmospheric carbon as compared to a status-quo protections scenario are predicated on the potential marketability and sale of land-based carbon offsets in the future.

¹ *Delgamuukw v. The Queen* BCSC 843. (Smithers Registry). 1997. <https://scc-csc.lexum.com/scc-csc/scc-csc/en/1569/1/document.do>

Preface

“*Gitxsan Daxgyat* (authority and jurisdiction) manifests within Gitxsan traditional territories located in northwest British Columbia. The aggregate of individual *wilphl Gitxsan* (the most fundamental entity in Gitxsan Society) territories total 30,000 square kilometers.” The whole of Gitxsan territories encompass nine watersheds: Upper Skeena, Sustut, Upper Nass, Middle Skeena, Babine, Suskwa, Kispiox, Gitsegukla, and Lower Skeena.²

We, the Gitxsan Simigyeyet (Hereditary Chiefs) of the Upper Nass Watershed have existed within and been the rightful stewards of Gitxsan Upper Nass Lax Yip for thousands of years. Gitxsan Upper Nass Lax Yip (Traditional Territory) is located in northwestern British Columbia amidst the Coast Mountains and is characterized by vast wilderness landscapes heavily influenced by glaciation and home to abundant populations of fish and wildlife. Gitxsan Upper Nass Simigyeyet and Huwilp members are inextricably linked to their respective Lax Yip (Territories) in both physical and spiritual contexts.

Gitxsan Upper Nass Lax Yip consists of 11 traditional Wilps (House Groups). The eleven Wilps are, by P’deek (Clan) and Lax Yip (Territory):

Lax Seel (Frog) P’deek

Lax Yip (Territory)	Wilp (House)	Simoogit (Chief Name)
Gwin Hagiisdixw	Delgamuukw	Delgamuukw (George Muldoe)
Dam Tuutskwhl Ax	Wii Minosik	Wii Minosik (Larry Skulsh)
Xsi Luu Biiyoosxwit	Djogaslee	Djogaslee (Ted Mowatt)
Xsigalliixawit*	Wiigoobl*	*

Lax Gibuu (Wolf) P’deek

Lax Yip (Territory)	Wilp (House)	Simoogit (Chief Name)
Xsi Luu Wit Wiidit	Niist	Niist (Bill Blackwater Sr.)
Miin Lax Mihl	Xhliiyemlaxha	Xhliiyemlaxha (John Olson)
Xsihl Guugan*	Gyologyet*	*
Xsi Lax Uu Andoo o	Luus	Luus (Roy Wilson)
Taax Tsimihl Denden	Niist	Niist (Bill Blackwater Sr.)
Xsana Loop*	Gyolagyet*	*
Angodjus	Baskelaxha	Baskelaxha (Bill Blackwater Sr.)

*indicates that the Lax Yip, Wilp, and Simoogit are an integral part of the Upper Nass Watershed Unit, but are not participating in the Upper Nass LUP

The overall Upper Nass Lax Yip is bound by the Kispiox River watershed to the south, the Skeena River watershed to the east, the Bell-Irving watershed to the west, and extends into the Upper Bell-Irving and Nass River watersheds, but not fully to their heights of land. The total area of the Upper Nass watershed is approximately 620,815 hectares in size.

Boundary descriptions for each respective Upper Nass Lax Yip taken from affidavits and summaries of evidence under the *Delgamuukw v. British Columbia* (1997) Supreme Court of Canada Case are included in the References section of this document.

Gitxsan Wilp members and Simgigyet are inextricably connected to their respective territories and the health of this connection is integral to the health and wellbeing of Gitxsan people as well as Gitxsan Lax Yip.

Ownership and authority over Gitxsan Lax Yip by Gitxsan Simgigyet is a concept enshrined in Gitxsan Ayookw (laws). Ownership and authority of the Wilp Lax Yip cannot be severed and must be utilized, managed, and inherited in accordance with Gitxsan Ayookw.

A central tenet of Gitxsan teachings: We are the land; the land is us – without our Lax Yip, we are nothing.

Gitxsan Upper Nass values and interests are directly and inextricably connected to, and reliant upon, the sustained presence and quality of ecological systems and resources within Gitxsan Lax Yip. Sustaining and maintaining the health of the Lax Yip is central to sustaining the culture and wellbeing of Gitxsan Upper Nass people. A relationship of reciprocity exists between the Gitxsan people and the Lax Yip, whereby Gitxsan Wilp members and Simgigyet work to maintain the health of the Lax Yip, and in turn the Lax Yip supports our physical, mental, and spiritual wellbeing.

The Upper Nass Simgigyet, manage their Lax Yip in a sustainable manner for the use of current generations and hold the land in trust for the benefit of future generations. Traditional Upper Nass resource management is based on a holistic perspective that plans ahead for the flow of life from Mother Earth and manages for the wellbeing of seven future generations of Upper Nass Wilp members.

Table 1 (p. xi) illustrates the linkage and hierarchies between the land, the natural resources of the land, and the Upper Nass cultural resources that evolved from the Upper Nass people's relationship to our lands.

Upper Nass Huwilp members utilized all the land in our Lax Yip from valley bottom to mountaintop, including swamps, streams, and lakes, to conduct our traditional activities of hunting, fishing, trapping, food and medicinal plant gathering, and spiritual practice which enable sustenance provide the means for cultural customs. A diversity of ecosystem and forest conditions, including aquatic systems (streams, springs, swamps, and lakes), areas of mature and old forest, areas of young forest and new growth, dense forests, and clearings must be represented within Gitxsan Lax Yip in order to support the variety of ecological conditions that have provided the necessities of life for Gitxsan people for thousands of years.

Upper Nass Lax Yip is integral to the heritage and culture of the Upper Nass Gitxsan people. Heritage and culture have been formed from the land and resources of the land and cannot be considered separate from the Lax Yip. The overall Upper Nass Lax Yip is of primary importance to the Upper Nass people; specific sites are focal points of importance but are secondary in importance to the entire Upper Nass Lax Yip.

The continued existence of cultural sites in an undamaged condition is of high importance to Upper Nass members:

- To maintain historic, emotional, and spiritual connections to Upper Nass lands
- As a cultural museum for education of future generations of Upper Nass and othes people regarding Upper Nass history and culture

- As legal proof of Upper Nass historical occupancy and use of our Upper Nass Lax Yip, all sites must remain in existence and undamaged to facilitate cultural investigations that could provide evidence of Upper Nass use of our lands prior to European contact and 1846
- To verify and support Gitksan Adawaak (oral histories) and traditional uses

Territorial Boundaries of the Upper Nass Lax Yip

Boundary descriptions for each respective Upper Nass Wilp Lax Yip have been taken from sworn affidavits presented as evidence under the Supreme Court of Canada *Delgamuukw v. British Columbia* (1997)³ court case. The following boundary descriptions represent the sacred and enduring connection between the Simoogit, the Wilp, and their respective Lax Yip. The Lax Yip boundaries themselves represent sacred cultural knowledge and must be protected over time. The Lax Yip boundary descriptions for each respective Wilp participating in the Upper Nass LUP have been included here as a statement of the ancient and unending ownership that exists between the Simoogit and their respective Wilp Lax Yip, as affirmed through the *Delgamuukw v. British Columbia* SCC court case. Each Simoogit is autonomous in their authority and responsibility over their respective Lax Yip.

Wilps Delgamuukw

Gwin Hagiisdixw Territory

Starting at where Xsl Gwin Hagi isdixw (Kwinageese River) joins Xsitemsem (Nass River), the boundary runs south up the center of Xsi Gwin Hagi isdixw (Kwinageese River) to where it joins Xsi Andap Matx (Saicote Creek), and then east up the south bank of Xsi Andap Matx and continues east to Andap Matx (Mt. Kologet). From here the boundary runs southwest down Wisan Skit (un-named ridge on government maps), and continues west along the height of land between Xsi Gwin Hagi isdixw (Kwinageese River) and Xsi Wisan Skit (upper Kispiox River) to a waterfall on an unnamed creek flowing south into Taam Lax Tsinaasit (Williams Lake), here it crosses the creek and continues west along the height of land separating Xsi Gwin Hagiisdixw (Kwinageese River) and Xsi Wisan Skit (upper Kispiox River) drainages to Tass Lax Wii Yip (unnamed ridge on government maps). From this point the boundary runs north about seven (7) miles to the height of land west of Da'm Laalax Oo'dit (unnamed lake on government maps, immediately east of Bonney Lake, and locally known as East Bonney Lake), here it continues northeast along the height of land to the upper Kwinageese River about one and a half (1.5) miles north of its confluence with Xsan Lagahl Hlii Lo'ot (unnamed creek on government map, is creek outlet of lake incorrectly shown as Kwinageese Lake on government maps). From here the boundary continues north along the east bank of the upper Kwinageese River about eight (8) miles to the height of land at its source, here it continues north along the height of land to the headwaters of Luu Bax Gagat (un-named creek on government maps) it then runs down the east bank of Luu Bax Gagat (un-named creek on government maps) to Xsi Txemsem (Nass River) and up the center of Xsi Txemsem to the starting point.⁴

³ *Delgamuukw v. The Queen* BCSC 843 (Smithers Registry). 1997. <https://scc-csc.lexum.com/scc-csc/scc-csc/en/1569/1/document.do>

⁴ *Delgamuukw v. The Queen* BCSC 843 (Smithers Registry), Ex. 606, Affidavit of Kenneth Muldoe dated 20 June 1988

Wilps Wii Minosik

Dan Tuutskwhl Ax Territory

The boundary of the Dam Tuutskwhl Ax territory can be described as follows: Starting at Wil Skaiyip (Martins Flats), the boundary runs west then south along the height of land to An Damhl (un-named mountain on government maps), here the boundary runs northwest along the height of land north of Xsi Lax Uu (Shi lahou Creek) and continues west along the height of land north of Xsi Lax Uu Ando'o (un-named creek on government maps) to the confluence of an unnamed tributary which flows southwest into Xsi Lax Uu Ando'o from an unnamed lake, the boundary then runs north to the height of land north of Xsi Lax Uu Ando'o then runs southwest to a point on Xsitxemsem (Nass River), this point being about seven miles south of the confluence of Xsi Tuutskwhl Ax (Damdochax Creek) the boundary then runs north up the center of Xsitxemsem to the first creek on the east bank of Xsiltxemsem (Nass River), just north of Xs1 Tuutskwhl Ax, it then runs north east along the east bank of this unnamed creek to Loop Guu Hanak (unnamed mountain on government maps), here it runs northwest along Loop Guu Hanak to the height of land at the head of the Naa Baad Xsi Luu Am Maldit (Yaza Creek), it then runs east along the height of land to Dim Geiss Hanni Jok (Panorama Mountain) here the boundary continues east along the height of land north of Xsi Luu Am Maldit (Slowmaldo Creek) to Tsaphl Gwiikw (Groundhog Mountain), the boundary then runs south along the height of land to the west bank of the un-named tributary of Xsi Miin Anhl Gii (Barker Creek) to Xsi Miin Anhl Gii and crosses the creek here and runs south along the height of land to Miin Anhl Gii (un-named mountain on government maps), the boundary continues southeast along the height of land west of Xsan (Skeena River), to Wil Luu Skkxwit (un-named mountain on government maps), at the head of Foster Creek, and continues southeast along the height of land at the head of Xsan Six Moohl (Sansixmor Creek) to the east end of Wil Luu Skihl Get (un-named mountain on government maps), here the boundary runs west then south along the height of land south of Xsan Six Moohl (Sansixmor Creek) and Xsu Wil Skaiyip (Damshilgwit Creek) and back to Wil Skaiyip. Other Gitxsan Head Chiefs have territories which border on Wii Minosik's territory. To the north is Geel; to the east is Wii Gaak (Ax Moogwasx); to the southeast is Wii gyet; to the south is Gwinin Nitxw; to the southwest is Luus; to the west is Niist; to the northwest is Kliiyem Lax Haa."⁵

Wilps Djogaslee

Xsi Luu Biiyoosxwit Territory

Starting at the confluence of Xsilaadamus (Saladamus Creek) and Xsitxemsem (Nass River), the boundary runs west along the centre of Xsitxemsem (Nass River) to Sto'ot Xsitxemsem (Bell-Irving River), the boundary then runs north up the centre of Sto'ot Xsitxemsem (Bell-Irving River) to Xsi Luu Biiyoosxwit (Irving Creek), then northwest up the west bank of Xsi Luu Biiyoosxwit (Irving Creek) to the height of land at its head, here it runs southeast along the height of land north and east of Xsi laadamus to a point on the east bank of Xsi laadamus (Saladamus Creek), this point being about two miles upstream from the mouth at Xsitxemsem (Nass River), then south along the east bank of Xsi laadamus back to the starting point."⁶

Wilps Niist

Xsi Luu Wit Wiidit Territory

The boundary of Xsi Luu Wit Wiidit and Luu Silgim Baad Txemsem territory can be described as follows: Starting on the north side of Xsitxemsem (Nass River) opposite the mouth of Xsi Galliixawit (Sallysout Creek), the boundary

⁵ *Delgamuukw v. The Queen* BCSC 843 (Smithers Registry), Ex. 605, Affidavit of Walter Blackwater dated 20 June 1988, pp. 6-7

⁶ *Delgamuukw v. The Queen* BCSC 843 (Smithers Registry), Ex. 605, Affidavit of Walter Wilson dated 13 May 1988
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runs north to Lip Sganist (un-named mountain on government maps), the boundary then runs northwest along the height of land west of Xsi Luu Wit Wiidit (Kotsine River) to the height of land at the head of Shanoss Creek, here the boundary runs west along the height of land to Xsihl Guugan (Taylor River) near the confluence of Xsu Wii Luu Dagwigit (Upper Taylor River), then runs north along the height of land west of Xsu Wii Luu Dagwigit, here the boundary runs west along the height of land to Sto'ot Xsitxemsem (Bell Irving River) opposite the mouth of Xsi Guut Gwinuuxs (Owl Creek) here the boundary runs northeast to the height of land west of the Xsi Maxhla Biluust Maawxs, this point being about 20 miles from the mouth of the Xsi Maxhla Biluust Maawxs, the line then runs southeast along the center of Xsi Maxhla Biluust Maawxs (Konigus Creek), to Xsitxemsem (Nass River), here the boundary runs south along the height of land to Wil Maxhla Dox Hla Genx Wii Gwiik (un-named mountain on government maps), the boundary then runs southeast along Wil Maxhla Dox Hla Genx Wii Gwiik and continues southeast along the height of land to the confluence of Luu Silgim Baad Txemsem (Muckaboo Creek) and Xsitxemsem (Nass River), here the boundary crosses Xsitxemsem and runs northeast along the height of land to Loop Guu Hanak (unnamed mountain on government maps), here the boundary runs southeast along Loop Guu Hanak for about eleven miles to the head of an unnamed creek which flows southwest into Xsitxemsem (Nass River), this creek being just north of the confluence of Xsitxemsem and Xsi Tuutsxwhl Ax (Damdochax Creek), the boundary then runs southwest to and down the west bank of this unnamed creek to Xsitxemsem, here it runs south along the center of Xsitxemsem back to the starting point.

Other Gitksan Head Chiefs have territories which border on Xsi Luu Wit Wiidit and Luu Silgim Baad Txemsem territory. Gyolugyet and Skiik'm Lax Ha own territories to the west. Kliiyem Lax Haa and Wii Minosik own territories to the west. Luus and Baskyelaxha own territories to the south-east and south. The Tahltan people own the territories to the north.”⁷

Wilps

Taax Tsinihl Denden Territory

The boundary of the Taax Tsinihl Denden territory described as follows: Starting on the west bank of Xsan (Skeena River), about a mile and a half south of Tsinihl Denden (Canyon Creek), the boundary follows along the center of Xsan north to the height of land immediately south of Xsisga Maldit Angii'l (tally Creek), here the boundary runs northwest along the height of land north of Xsi Tsinihl Denden (Canyon Creek), and Xsi Tsinihl Denden Ando'o (Vile Creek) to the height of land south of Xsi Lax Uu Ando'o (unnamed creek on government maps), here the boundary runs west along this height of land to Xsitxemsem (Nass River), about a quarter of a mile south of the confluence of Xsi Lan Uu Ando'o and Xsitxemsem, here the boundary runs south along the center of Xsitxemsem to the confluence of Xsi Tsinihl Denden Ando'o (Vile Creek). From here the boundary runs south-east along the height of land south of Xsi Tsinihl Ando'o and crosses Xsi Andap Matx (upper Canyon Creek) about seven miles upstream from Taax Tsinihl Denden (Canyon Lake). Here the boundary continues east along the height of land to Xsan at the point of commencement. Other Gitksan Head Chiefs have territories which border on the Taax Tsinihl Denden territory. To the north is another territory owned by Niist, to the northeast is a territory owned by Luus; to the east and south is a territory owned by Gwinin Nitxw; and to the southwest and west is the territory owned by Baskyelaxha.⁸

Wilps Xhliiyemlaxha

Miin Lax Mihl Territory

⁷ *Delgamuukw v. The Queen* BCSC 843 (Smithers Registry). (20 June, 1988). Ex. 605, Affidavit of Walter Blackwater, p.3.

⁸ *Delgamuukw v. The Queen* BCSC 843 (Smithers Registry). (20 June, 1988). Ex. 605, Affidavit of Walter Blackwater, p.4.

“The boundary of the described as follows: Starting at the confluence of Luu Silgim Baad Txemsem (Muckaboo Cree) and Xsltxemsem (Nass River) the boundary runs northwest along the height of land west of Xsitxemsem (Nass River), to Wil Maxhla Dox Hla Genx Wii Gwiik (un-named mountain on government maps), the boundary continues northwest along Wil Maxhla Dox Hla Genx Wii Gwiik then runs north along the height of land to the confluence of Xsi Maxhla Biluust Maawxs (Konigus Creek) and Xsitxemsem (Nass River), the boundary then runs north along the center of Xsitxemsem (Nass River) for about 3 miles to the confluence of the un-named creek flowing west into Xsitxemsem (Nass River), the boundary then runs northeast along the center line of this un-named creek to the height of land at its headwaters, here the boundary runs west and south along the height of land at the head of Naa Baad Xsi Luu Am Maldit (Yaza Creek) to Loop Guu Hanak Cun-named mountain on government maps, the boundary then runs southwest back to the starting point. Other Gitksan Head Chiefs have territories which border on the Miin Lax Mihl territory. To the east lies the territory of Geel, while to the south lies the territory of Wii Minosik. To the west is the territory of Niist. To the north is the territory belonging to the Stikines (Tahltan Nation).”⁹

Wilps Luus

Xsi Lax Uu Andoo o Territory

The boundary of the Xsi Lax Uu Andoo'o territory can be described as follows: Starting at the confluence of Xsi Lax Uu Andoo'o (un-named creek on government maps, runs west to Nass River opposite the head of Shilahou Creek.) and Xsitxemsem (Nass River), the boundary runs north along the center of Xsitxemsem (Nass River) for about one and a half miles, here the boundary runs east along the height of land north of Xsi Lax Uu Andoo'o (un-named creek on government maps) to Blackwater Peak, here the boundary runs southwest and west along the height of land east and south of Xsi Lax Uu Andoo'o to Xsitxemsem, about a quarter mile south of the confluence of Xsi Lax Uu Andoo'o and Xsitxemsem (Nass River), here the boundary runs north along the center of Xsitxemsem (Nass River) back to the starting point. Other Gitksan Head Chiefs have territories which border on Luus' Xsi Lax Uu Andoo'o territory. To the north is Wii Minosik, to the south is Niist, and to the west is another territory of Niist, to the east is the territory of Gwinin Nitxw.¹⁰

Wilps Baskelaxha

Angodjus Territory

“The boundary of the Angodjus territory can be described as follows: Starting on the west bank of the Xsan (Skeena River), about a mile and half north of Xsa'anhlimox (O'Dwyer Creek), the boundary runs west along the height of land north of Xsa'anhlimox to cross Xsi Andap Matx (Canyon Creek upstream of Canyon Lake) about seven miles upstream from Taax Tsinihl Denden (Canyon Lake), the boundary then continues northwest along the height of land south of Xsi Tsinihl Denden Andoo'o (Vile Creek) to Xsitxemsem (Nass River), at its confluence with Xsi Tsinihl Denden Andoo'o, the boundary then runs down the center of Xsitxemsem (Nass River) to Xsa Gallixawit (Sallysout Creek). Here the boundary runs southeast to the height of land south of Xsi Andap Matx (Canyon Creek, west of Canyon Lake) and Xsi Bagaiyt Xsiisigit (Poison Creek), to the Xsan (Skeena River) about a mile south of Xsi Bagaiyt Xsiisigit, and then continues up the center of Xsan (Skeena River) to where this description began. Other Gitksan Head Chiefs have territories which border on Angodjus territory. To the north is Niist; to the east is

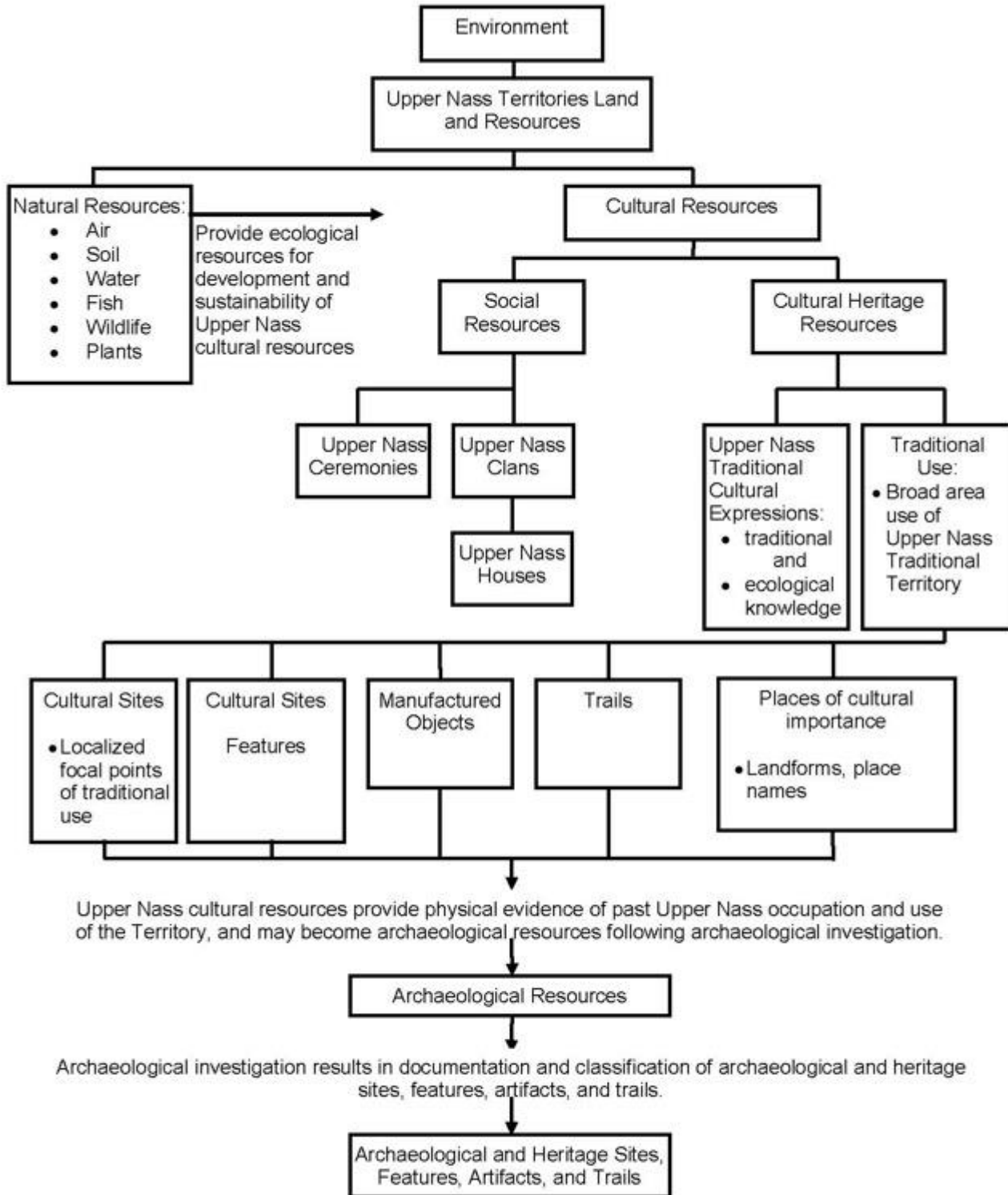
⁹ *Delgamuukw v. The Queen* BCSC 843 (Smithers Registry). (20 June, 1988). Ex. 605, Affidavit of Walter Blackwater.

¹⁰ *Delgamuukw v. The Queen* BCSC 843 (Smithers Registry). (20 June, 1988). Ex. 605, Affidavit of Walter Blackwater, p.10.

another area of Niist's' to the southeast is Gwinin Nitxw; to the south is Wii gyet; to the west is Wii Goob' l."¹¹

¹¹ *Delgamuukw v. The Queen* BCSC 843 (Smithers Registry). (20 June, 1988). Ex. 605, Affidavit of Walter Blackwater, pp. 14-15.

Table 1: Hierarchy of Upper Nass Cultural Resources



adapted from Budhwa (2009a)

Note: • Upper Nass cultural resources are directly dependent on and shaped by the natural resources of Upper Nass Territories; the Upper Nass Territory is the PRIMARY cultural resource.
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**Maps Z1, Z2, Z3, & Z4 show all zonation information at 1:50,000 scale and span different Wilp boundaries*

Map Z1: Map 1 Zonation 1:50,000 scale - Gwin Hagiisdixw / Xsi Luu Biiyoosxwit

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1.0 Introduction

During June 2020, F. Philpot, RPF #481, Philpot Forestry Services (1977) Ltd. and Sarah Railton, RPF #4795, Naiad Stewardship Solutions Inc. were requested by the Gitksan Upper Nass Hereditary Chiefs (herein referred to as the Upper Nass Simgigyet, to work with and assist the Chiefs to complete the following project:

Through a cooperative consultation and planning process with the Upper Nass Simgigyet and Archaeologist Rick Budhwa, Crossroads Resource Management, develop a long-term landscape level Land Use Plan (LUP) for the Gitksan Upper Nass Watershed Unit.

Upper Nass Huwilp (plural of Wilp) participating in the planning process and implementation of the LUP as a united group are as follows: Wilp Delgamuukw, Wilp Wii Minosik, Wilp Djogaslee, Wilp Niist, Wilp Xhliiyemlaxha, Wilp Luus, and Wilp Baskelaxha.

Three additional Huwilp that belong to the Upper Nass Watershed Unit—Wilp Xsana Loop, Wilp Xsihl Guugan, and Wilp Xsigallixwit—decided not to participate as a planning unit in the Upper Nass LUP planning process.

The total area of the Gitksan Upper Nass Lax Yip is 620,815 hectares. Area encompassed by the Huwilp that will participate in the Upper Nass LUP is 453,461 hectares. Area encompassed by the Huwilp not participating in the LUP planning process is 167,354 hectares.

For purposes of this LUP, the Upper Nass Huwilp included in the planning process are considered as a single treatment unit; the Lax Yip boundaries for each respective Wilp are considered as planning sub-units of the Land Use Plan.

The respective boundaries of Huwilp that have decided not to participate are not considered as planning sub-units under the Upper Nass LUP and are omitted from the area subject to the LUP.

Land Use Plan objectives, measures, targets, and management considerations are designed to achieve and/or exceed objectives established under existing higher-level plans and legislation. The LUP is specific to the participating Gitksan Upper Nass Huwilp; objectives, measures, targets, management considerations presented within the LUP are specific to the LUP area and reflect the interests, visions, and desires of the participating Upper Nass Simgigyet (Hereditary Chiefs).

The Land Use Plan is written to clearly describe the desired future conditions of the Upper Nass land base. The intent of the plan is three-fold:

1. To provide long-term sustainability of Upper Nass ecological resources
2. To protect and preserve Upper Nass cultural and heritage values and support Upper Nass interests and plans for future use of Upper Nass Lax Yip
3. To provide for continued resource use and extraction in locations deemed appropriate by the Gitksan Upper Nass Simgigyet and at a rate that will sustain all forest and ecological resources at the landscape level over time

The Land Use Plan has been prepared with the intent that the LUP will be submitted to and received by the following entities:

- BC Ministry of Forests
- BC Ministry of Water, Land, and Resource Stewardship

- BC Ministry of Energy, Mines, and Low Carbon Innovation

The management objectives outlined in the Upper Nass LUP are based on Gitksan Ayookw (laws), therefore these management objectives have always been and continue to be legally binding within Gitksan Upper Nass Lax Yip. Provincial adoption of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP)¹² by way of the British Columbia Declaration on the Rights of Indigenous Peoples Act¹³ combined with legally protected Aboriginal Rights and Title held by the Upper Nass Simigiyet to their respective Wilp Territories, reaffirms the ownership and responsibility of each Simoogit over their respective Lax Yip. It is the expectation of the Upper Nass Simigiyet that government agencies, industrial and commercial Development Proponents, and non-government agencies will:

- Recognize the amount of time, resources, and effort that have gone into development of the Upper Nass LUP
- Become familiar with the contents and intent of the various chapters under the Upper Nass LUP
- Respect the tenets of the Upper Nass LUP when planning and implementing any activity within Upper Nass Lax Yip, regardless of whether land use objectives or constraints are binding under BC legal statutes
- Use the Upper Nass LUP as a starting point for discussions with Simigiyet regarding proposed or existing developments and/or conservation measures
- Use the Upper Nass LUP to guide any industrial, commercial, or research activities that may occur within Upper Nass Lax Yip

Throughout this plan, specific references are made to the forest industry and forest management practices. To date, timber harvesting has been the primary form of industrial development within Upper Nass Lax Yip. Industrial resource extraction potential exists within the Upper Nass watershed relating to forestry, mining, and energy resources. The Upper Nass LUP, while focusing on forestry practices and outcomes, is applicable to the individual and cumulative impacts of all commercial and industrial developments/practices through time, at the local and landscape levels.

Sustaining of the ecological and cultural resources of the Upper Nass Lax Yip is the primary goal of this plan. The results are the important concern, not necessarily the specific industrial practices used to achieve the desired results.

The Upper Nass LUP is held and owned by the Upper Nass Simigiyet. The plan has been developed to provide a statement of Upper Nass Simigiyet desires for the future conditions of the Lax Yip and those values inextricably linked to Lax Yip, including but not limited to water, wildlife, plant communities, and cultural resources.

The Upper Skeena LUP provides a framework for training and education of Upper Nass Wilp members and a strong basis for ongoing consultation in a proactive manner with provincial and federal agencies and Development Proponents that wish to work within Upper Nass Lax Yip.

It is a framework document that will require further actions by the Upper Nass Simigiyet or appointed sub-committees. Further work will be required during consultation, plan implementation, compilation of databases of cultural and ecological resources, and training of Wilp members under and Upper Nass Lax Yip Guardianship program.

Upper Nass LUP values, interests, concerns and objectives are presented under three broad categories:

1. Upper Nass cultural, heritage, and economic resources

¹² United Nations. (2007). Declaration on the Rights of Indigenous Peoples
https://social.desa.un.org/sites/default/files/migrated/19/2018/11/UNDRIP_E_web.pdf

¹³ British Columbia. (2019). Declaration on the Rights of Indigenous Peoples Act (2019).
<https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/19044>

- Traditional Use Areas (cultural and archaeological sites, features, artifacts, and trails)
- Traditional uses
- Interest for future Upper Nass use of our Lax Yip to sustain and develop our culture, heritage, sustenance, and economies

2. Natural resources

These include ecological and economic resources such as biodiversity, water, fisheries, wildlife, timber, views, recreation, tourism, minerals, gas and oil, and agriculture.

Sustaining the health and integrity of the Lax Yip is central to sustaining Upper Nass culture and economies. Upper Nass Huwilp have a holistic view of the land and ecosystems. The vision of the Upper Nass Simgigyet for sustainable land and resource management practices have been incorporated into the objectives for all resources of the Lax Yip and reflect the desire held by the Upper Nass Simgigyet that these objectives provide strategic direction to all resource management planning and activities.

3. Climate Change

Early impacts to the forests and waters of the Upper Nass as a result of Climate Change/global warming are being observed throughout the Lax Yip. Fish, wildlife, and plant resources integral to the sustenance and well-being of Upper Nass Wilp members are being impacted by climatic conditions that are changing at a rate disproportionate to their capacity for adaptation. Scientists predict that over the next several decades, the climate in Canadian forests will shift northward at a rate likely to exceed the ability of individual species to migrate. Climate effects on species will be ongoing and cumulative. The suite of changes will include changes to microclimates, local site conditions, disturbances (e.g. fire, insects, disease, drought, extreme weather), as well as abundance, distribution, and ecosystem dynamics of invasive species. Tree species may become increasingly maladaptive, that is, the local environment to which species are adapted begins to change at a rate beyond which trees can accommodate.¹⁴

Uncertainty about what the eventual on-the-ground results of Climate Change will mean for the composition, stand structure, and age class distributions of the forests of the Upper Nass watershed is of significant concern to the Upper Nass Simgigyet. The magnitude, location, and timing of stand altering events that will result in changed forest conditions is largely unknown, which adds to the perceived risk regarding the Upper Nass forest resource as it relates to Climate Change. In order to minimize the vulnerability of forests to Climate Change, forest management decision-makers must recognize Climate Change as a reality and incorporate a suite of management tactics, based on the best science available, in order to reduce risk and mitigate the effects of changing climate on the forests of the Upper Nass watershed.

The Upper Nass LUP presents a three-pronged approach for reducing risk to forest ecosystems as a result of Climate Change.

1. **Biodiversity Chapter:** Objectives, measures, and targets contribute to the adaptation of forest species to Climate Change and the migration of organisms in response to Climate Change

¹⁴ Johnson, M. (2009). *Vulnerability of Canada's tree species to Climate Change and management options for adaption: an overview for policy makers and practitioners*. Canadian Council of Forest Ministers.

2. **Timber Chapter:** Objectives, measures, and targets to sequester and store carbon and minimize greenhouse gas emissions
3. **Climate Change Chapter:** Objectives, measures, and targets to sequester and store carbon, facilitate assisted species migration, identify and encourage species centered macro refugia as well as site specific micro refugia

2.0 Sustainable Management

The intent of the Upper Nass LUP is to prescribe and provide land management practices that result in long-term sustainability of all Upper Nass cultural and ecological resources.

The Oxford English Dictionary defines sustainability as, “The property of being environmentally sustainable; the degree to which a process or enterprise is able to be maintained or continued while avoiding the long-term depletion of natural resources.”¹⁵ Sustainable forest management is a forest management paradigm that seeks to balance the maintenance of long-term forest ecosystem health with the provision of environmental, social, and cultural opportunities relating to the forest resource as a whole.¹⁶

As defined by the preamble of the Forest Practices Code 1995, sustainable use includes:

- Managing forest to meet present needs without compromising the needs of future generations
- Providing stewardship of forests based on an ethic of respect for the land
- Balancing sustenance, economic, spiritual, ecological, and recreational values of the forest to meet the needs of Upper Nass Simigyet and Wilp members as well as non-indigenous community members
- Conserving biological diversity, soil, water, fish, wildlife, scenic diversity, and other forest resources.
- Restoring damaged ecologies

The Upper Nass LUP will be applicable to the cumulative effects of multiple industries that may exist within the Upper Nass Lax Yip Land Use Plan area.

Defining sustainability through the lens of Gitksan Ayookw illuminates the Gitksan concept of *Gwa lx Yee'nst*. *Gwa lx Yee'nst* is a fundamental concept underlying Gitksan society and dealing with inheritance and the rights and responsibilities to hold, protect, and pass on the Lax Yip in an undiminished manner from generation to generation¹⁷

¹⁵ Oxford English Dictionary.(2003). https://www.oed.com/dictionary/sustainability_n?tab=meaning_and_use#19473065

¹⁶ BC Timber Sales. (2023). Environmental Stewardship and Sustainability. <https://www2.gov.bc.ca/gov/content/industry/forestry/bc-timber-sales/environment-stewardship-sustainability#:~:text=Sustainable%20forest%20management%20includes%20maintaining,economic%2C%20social%20and%20cultural%20opportunities>

¹⁷ Gitanyow Hereditary Chiefs. (2023). <https://www.gitanyowchiefs.com/gwelxyeenst/>

3.0 Guiding Principles for the Development of Objectives, Measures, and Targets for Management of Upper Nass Lax Yip

The following are the main guiding principles upon which objectives, measures, and targets for management and protection of Upper Nass cultural and heritage resources are based. These principles are founded in Gitxsan Ayookxw (Gitxsan law) and are supported by the British Columbia Declaration on the Rights of Indigenous Peoples Act (DRIPA), the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), as well as recent legal decisions, including the *Delgamuukw v. British Columbia* (1997) Supreme Court of Canada ruling.

1. Sbagayt Gan (forests) are a source of life for the planet and all its people.
2. The Gitxsan Upper Nass people are dependent on the resources of the Sbagayt Gan within their Lax Yip (lands) and for the overall wellbeing of the land and forests in their entirety. There is an inherent responsibility to protect the land and ensure the sustainability of biodiversity, clean air, soil, water quality & quantity, fish & wildlife, as well as continued preservation of cultural features and values.
3. All resources of Gitxsan Upper Nass Lax Yip—including the forests, wildlife, lands, water, and air—form part of the collective heritage of the Gitxsan Upper Nass people.
4. Gitxsan Upper Nass lands and forests will be managed for short and long-term objectives to ensure the resources are sustained, restored, and added to for the use of current and future generations.
5. The primary purpose for the Upper Nass Lax Yip Land Use Plan is to maintain, through time and throughout the Lax Yip, the health and sustainability of ecological, cultural, and heritage resources.
6. The plan will focus primarily on land use practices designed to result in sustained presence and health of the ecological, cultural, and heritage resources within Gitxsan Upper Nass Lax Yip. The Land Use Plan will not be inclusive of processes regarding politics, economic profit and loss, or treaty discussions, but may be utilized for informing such processes. The Land Use Plan will form the basis and starting point for meaningful consultation between Development Proponents and Upper Nass Simgigyet regarding industrial proposals that overlap with or may impact Upper Nass Lax Yip.
7. The Upper Nass LUP will include objectives, measures, and targets designed to:
 - Retain old growth forests of representative ecosystems to a degree that will maintain moderate-to-low levels of risk to ecosystem function.
 - Retain significant areas of uncut mature forest in order to retain sequestered and stored carbon over time, to assist in regulation and mitigation of negative effects resulting from Climate Change.
8. Land and resource protections established under the Upper Nass LUP are set out with the preemptive assertion that future economic ventures, by way of land-based carbon offset projects, may be required in order to secure long-term protections over spatially explicit tracts of land within the Upper Nass Lax Yip.
9. The date of 1846, established in the Province of British Columbia *Heritage Conservation Act* as the cut-off date for protection of archaeological resources, has no relevance to the Upper Nass people in determination of Upper Nass cultural values and their importance, including of Gitxsan archaeological resources. The Gitxsan Upper Nass people have the right and responsibility to maintain, protect, preserve, and develop cultural resources; the right and responsibility includes past, present, and future expressions of culture.

4.0 Terms of Reference

1. To prepare a Land Use Plan for the eight participating Huwilp of the Gitxsan Upper Nass watershed that:
 - Documents concerns, interests, values, and desires of the Upper Nass Simigiyet regarding management of cultural and ecological resources of the Upper Nass Lax Yip
 - Presents a written text that provides:
 - A preamble for every chapter (context statement)
 - Objectives (statements of what is required to achieve the desired future condition of the land)
 - Measures and Targets (measurable parameters that demonstrate how the objective will be achieved)
 - Management Considerations (statements that are not measurable but provide strategies that support the objectives, measures & targets, and are intended to guide management practices)
 - Rationale (statement of how the implemented management practice will achieve the objective)
 - Text refers objectives, measures, targets, and management considerations to the LUP map.
 - Provides a map that spatially documents Upper Nass Lax Yip, cultural and ecological resource values, and resource management zones for management of these resources
 - Resource management zones will include:
 - Ecosystem networks (connectivity corridors)
 - Water management units
 - Old growth management areas
 - Upper Nass cultural sites / places of importance / cultural areas
 - High value habitat areas
 - Areas that are considered ecologically not appropriate for timber harvesting or other industrial development
 - Areas that are considered ecologically appropriate for timber harvesting or other industrial development
 - The intent is to develop an Upper Nass LUP for Upper Nass Lax Yip that: (a) will result in sustainability of the cultural and ecological resources of the Lax Yip, and (b) will inform consultation and further planning processes with government agencies and Development Proponents from all industries that wish to work within Upper Nass Lax Yip.
2. To work with the Upper Nass Simigiyet, the Watershed Facilitator, and the consulting archaeologist as a planning team, to jointly and cooperatively develop and review the information that will form the Land Use Plan.
3. To combine western science research and information with Gitxsan Upper Nass traditional knowledge, world views, and ways of knowing to develop a comprehensive plan for long-term sustainable management of Upper Nass cultural and ecological resources.
4. To ensure that, as Registered Professional Foresters, land management practices prescribed in this Upper Nass LUP do not contravene the Association of British Columbia Forest Professionals Code of Ethics or Standards of Practice.

5.0 Methodology of Upper Nass LUP Preparation

The methodology used to prepare the Land Use Plan is as follows, presented as a series of steps listed in the order that the work was conducted.

1. Assembled inventory information from Ministry of Forests, Lands, and Natural Resource Operations (Ministry), Province of British Columbia Data Warehouse, the Upper Nass Watershed Facilitator, and the Hereditary Chiefs, including:

A set of air photographs, 1:15,000 scale, dated 1974 and 1989, that provide photo coverage of the full Upper Nass Lax'yip

A set of Forest Cover Maps at 1:20,000 scale that present:

- Forest inventory data
- Topographic contours
- Planimetric detail of streams, lakes, wetlands, avalanche tracks
- Past road development and harvesting history
- Location of Upper Nass Lax Yip and respective Wilp boundaries
- Established recreation areas and protected area sites

Maps at 1:100,000 scale presenting Ministry of Environment coverage of wildlife habitats for moose, grizzly bear, mountain goats, thin horn (Stone) sheep

Maps of Upper Nass Lax Yip at 1:100,000 scale showing:

- Volumes of Lax Yip forest cover, identifying forest areas supporting:
 - Less than 200 m³/hectare
 - 200 m³/hectare to 250 m³/hectare
 - Greater than 250 m³/hectare
- Site Index (estimated growth potential) of forest cover of the Interior-Cedar-Hemlock (ICH), Mountain hemlock (MH), Englemann spruce-subalpine fir (ESSF), and sub-boreal spruce (SBS) biogeoclimatic zones and sub-zones, identifying forests with Site Index ranked¹⁸ (See Table 2 for Site Indices by Biogeoclimatic Zone, subzone, and variant):
 - a. Very poor site index
 - b. Poor site index
 - c. Moderate site index
 - d. Good and very good site index
 - e. Mapped information showing the Upper Nass Lax Yip, showing boundaries of the respective Huwilp that are participating in the land use planning process and those Huwilp not participating

¹⁸ Banner, A., et al. (1993). *A Field Guide to Identification and Interpretation for the Prince Rupert Forest Region*.

Table 2**Site Index Ranked by Good, Moderate, Poor, Very Poor by BEC Variant and Species²**

Site Index (SI) represents the mean height (m) of trees at 50 years old and the productivity class definition is based on Site Index for each species (Banner et al, 1993)

BEC Variant	SI Good	SI Moderate	SI Poor	SI Very Poor
ICH mc 1	≥ 22 (all species)	14-21.9 (H) 18-21.9 (other species)	10-13.9 (H) 10-17.9 (other species)	<10 (all species)
ESSF wv	≥ 15 (S) ≥ 13 (B)	12-14.9 (S) 10-12.9 (B)	10-11.9 (S) 8-9.9 (B)	< 10 (S) < 8 (B)
SBS mc2	> 20 (all species)	16-18.9 (B) 17-19.9 (pl + S)	10-15.9 (B) 10-16.9 (Pl + S)	< 10 (all species)
MH mm 2	≥ 16 (all species)	12-15.9 (all species)	10-11.9 (all species)	<10 (all species)

2. Interpreted the air photographs and the mapped information and transferred the information onto the 1:20,000 scale Forest Cover Maps to delineate the Land Use Plan zonations of:

- Hydroriparian Zones of the valley bottom rivers and creeks (such as Kwinageese, Nass, Skeena, Bell-Irving, Canyon, Vile, Kotsinta, Damdochax, Muskaboo, Konigus, and Rochester) and the larger tributary streams that provide connections upslope to alpine and higher ground and that are a major source of water to the valley bottom streams and rivers.
- Wetlands, wetland-brush-forest complexes, and other high value fish and wildlife habitats, and map them as High Value Habitat Patches for General Wildlife
- Ecosystem Networks (EN) Core Reserves (corridors along rivers and streams that provide connectivity through the landscape and upslope to alpine areas)
- Ecosystem Network Buffers (that provide a buffer to the EN core reserves)
- Water Management Units (WMU) to be managed for protection of water resources; within these areas a heightened standard for management and protection of all water resources (rivers, streams, lakes, wetlands, groundwater, and associated riparian areas) will be required
- Existing and proposed Old Growth Management Areas, to be reserved from industrial development, to function through time as representative old growth forest ecosystems and provide wildlife habitat, foods, medicines, and cultural resources
- Forest areas to be reserved from industrial development and maintained as standing forests for the purpose of carbon storage to assist in mitigation of negative impacts on the forest relating to Climate Change
- Areas of forest that are considered ecologically not appropriate for road development work and timber harvest
- Areas of forest that are considered ecologically appropriate for development and harvest of timber

3. The criteria used to determine forest and terrain considered as ecologically sensitive and therefore not appropriate for road construction and timber harvest or other industrial development are:
 - Steep slopes exceeding 50% on a continuous basis
 - Slopes showing evidence of historic or potential instability.
 - Slopes broken by numerous rock outcrops
 - Slopes cut by numerous gullies or avalanche tracks
 - Terrain broken by numerous closely spaced watercourses
 - Areas of saturated soils or high-water tables
 - Alluvial fans, flood plains, talus slopes
 - Critical habitats, rare ecosystems
 - Sites of low growth potential; characterized by short, low volume timber stands estimated to be less than 250 cubic meters per hectare. Includes sites of shallow soils, rock knobs, ridges, and outcrops, and high elevation sites of difficult growing conditions
 - Site indices that are ranked as very poor growth potential (see Table 2 for ranking).

The criteria for ecologically sensitive were applied singly or cumulatively, depending on interpretation of the forest cover and terrain information.

Numerous sites throughout the Land Use Plan area are comprised of complexes showing representation of more than one of the above-listed forest and terrain sensitivity criteria.

In particular, there are many sites that are complexes of brush patches, forest patches, numerous closely spaced water courses, springs, and seepages, situated on low-to-moderate elevation toe-slopes receiving ground and surface water from higher elevations. These toe-slope complexes are rich in nutrients relative to surrounding drier forests and provide disproportionately high value habitats for a variety of wildlife, birds, plants, and invertebrates.

The above criteria used to define terrain and forest sensitivity represent areas of heightened caution where detailed assessments outlining (a) baseline data, and (b) potential impacts to resource values within Upper Nass Lax Yip will be required. Some of these areas may not be appropriate for logging or other commercial or industrial development. The Upper Nass Simigiyet require recognition that some ecologically sensitive sites where potential to impact values on the Lax Yip exist should not be subjected to road development, timber harvesting operations, or other industrial activities as a measure to protect soil, water, slope stability, and wildlife habitats. It may be physically possible to remove timber or other ecological resources from these sites, but through the process of meaningful consultation with the impacted Simoogit (Chief) or Simigiyet (Chiefs), it may be the case that certain areas are deemed not appropriate for industrial operations to help ensure adequate environmental protection.

4. The criteria used to identify the hydroriparian zones¹⁹ are:
 - Areas that extend to the edge of the influence of water on land, or land on water, as defined by plant communities (including high bench or dry flood plain communities) or landform (e.g. gullies, immediately

¹⁹ Coast Information Team. (2004). *Hydroriparian Planning Guide*.

adjacent steep unstable terrains), plus one and one-half site-specific tree heights horizontal distance.

Landforms include:

- the stream channel, lake, or wetland, and adjacent riparian ecosystem, where no floodplain exists
- the full width of the floodplain for streams, where floodplains do exist
- adjacent active fluvial units (alluvial fans)
- up to the top of the inner gorge or where slopes become less than 50% for reaches of streams that are gullied, a ravine, or a canyon
- immediately adjacent unstable slopes (Class IV and V terrain) where it is located such that a surcharge of sediment may be delivered to the stream, lake, or wetland

Hydroriparian Zones presented on the Land Use Plan maps have been identified and mapped from air photograph interpretation. The zones as mapped are accurate, but not precise. Field ground-truthing of the Hydroriparian Zone parameters is required at the time of field establishment of the Hydroriparian Zone boundaries.

Within this Land Use Plan and as understood through a Gitksan way of knowing, Ax (water) is considered an intricate system that connects the lands and other aspects of Lax Yip. Water is the universal life force for all creatures and all systems. The watershed is considered a holistic unit; the health and security of the overall watershed is of highest priority when considering the future. All streams and waterbodies are integral to watershed health from the highest mountain tops to valley bottoms.

The individual tributary watersheds selected and mapped for protection as special management zones under this Land Use Plan support multiple hydroriparian functions and ecosystems. These watersheds consist of steep valleys, tributary to the major valley bottom rivers and are primarily U-shaped valleys from their valley mouth at low elevations to their headwaters in the mountainous alpine terrain.

These tributary valleys are subject to many snow, soil, and rock avalanches and constant erosion by flowing water. Valley bottoms are comprised of deep deposits of colluvial and alluvial material from the valley sides and demonstrate the effects of land-on-water and water-on-land interactions throughout the watershed.

Each watershed, as a unit, consists of steep to very steep slopes, some gentle slopes, multiple closely-spaced streams, saturated soils, groundwater seepages, springs, and a deep enduring snow pack. Multiple hydroriparian functions of the watershed occur and are interconnected from mountaintop to valley bottom. Functional hydroriparian ecosystems provide water, nutrients, sediments, and habitats for many wildlife, fish, birds, plants, and invertebrates that exist and move throughout the landscape.

The full area of each watershed selected and mapped for protection under this plan are considered and identified as Hydroriparian Zones.

5. The criteria used to identify and protect wetlands and wetland-brush-forest complexes, and map them as High Value Habitat Patches for General Wildlife are:

- Identify and map single wetlands and riparian forests, and wetland-brush patch-riparian forest-drier upland forest complex, that were considered to possess habitats, foods, medicines, and cultural values, for general wildlife and for Upper Nass Wilp members, that are disproportionately valuable relative to the surrounding drier upland forest
- Protect the wetlands by retention of the full wetland hydroriparian zone.
- Protect the brush patch component with retention of not less than a 50-metre buffer horizontal distance of the surrounding forest
- Protect the drier upland forest component of the complex with retention of the full mapped forest area of the complex; that is, no industrial disturbance within the mapped complex area
- Where the single wetland or the wetland-brush-forest complex is closely adjacent to the Ecosystem Network core reserve, encompass the full wetland or wetland complex within the Ecosystem Network core reserve to facilitate and improve opportunity for wildlife and vegetative connectivity through the landscape.

6. The criteria used to identify the Ecosystem Network core reserves are:

- The Ecosystem Network core reserve (EN) boundaries overlap and encompass the mapped hydroriparian zones.
- The Ecosystem Network core reserve is comprised of corridors reserved from industrial disturbance along the major valley bottom streams and the larger tributary streams of the Upper Nass Lax Yip and provides connectivity corridors through the Upper Nass landscape and upslope to alpine area.
- Ecosystem Network core reserves along the major valley bottom rivers and streams (including Xsi Gwin Hagiisdixw (Kwinageese), Xsitemsem (Nass), Xsan (Skeena), Sto'ot Xsitemsem (Bell-Irving), Xsi Andap Matx (Canyon), Xsi Tsinihl Denden Ando'o (Vile), Xsi Luu Wit Wiidit (Kotsinta), Xsi Tuutsxwhl Ax (Damdochax), Muskaboo, Naa Baad Xsi Luu Am Maldit (Yaza), Xsi Luu Am Maldit (Slowmaldo), Xsi Maxhla Biluust Maawxs (Konigus), Rochester, and Panorama will be a minimum of 150 meters horizontal distance in width on both sides of the stream, or the full width of the hydroriparian zone, whichever is wider
- The 150-metre reserve width will be horizontal distance, measured from the edge of the stream bank, or the outer edge of the stream floodplain, where the stream has a floodplain
- Ecosystem Network core reserve along the larger tributary streams that drain the upper slopes and provide a major source of water to the valley bottom streams, will be the full width of the hydroriparian zone encompassed
- The Ecosystem Network core reserve will further increase in width in specific locations, as shown on the Land Use Plan Ecological Zonation Map, to encompass and connect specific ecosystems, such as Grizzly Wildlife Habitat Areas, wetlands, wetland-brush-forest complexes, High Value Habitat Patches for General Wildlife, as part of a connected network of ecosystems and habitats
- Ecosystem Network buffers are 200 meters in width, located as mapped along the outside edge of the EN core reserve, in order to permit some small patch cuts or selective harvesting while ensuring that a minimum of 200 meters interior forest conditions exist throughout the combined Ecosystem Network core reserve and Ecosystem Network buffer

7. Concurrent with the air photos and mapping process, numerous meetings with Upper Nass Simigiyet or their assigned representatives were held. The meetings occurred with the Simigiyet as a unit that represented the Upper Nass Lax Yip LUP planning area to discuss the historical and current use of the Upper Nass Lax Yip, determine and record values, interests, concerns, resource uses, and future plans for Upper Nass use of their Territories, and to jointly formulate statements to document the desired future condition of the Upper Nass Lax Yip LUP planning area. Objectives, solutions, and management practices designed to achieve desired outcomes and visions (as well as to address concerns) of the Upper Nass Simigiyet relating to their respective Lax Yip were discussed.
8. Prepared written statements of:
 - Preamble, to introduce the resource and establish context for each resource chapter of interest
 - Objectives
 - Measures and targets, in order that effective implementation of the objective can be measured
 - Management considerations, to provide strategies that support the objectives, measures, and targets and provide direction to management practices
 - Rationales for the objectives, measures, and targets for each chapter. Cumulatively, these chapters form the Land Use Plan with chapters for each resource of interest to the Upper Nass Chiefs.
9. Submitted written draft chapters to the Upper Nass Simigiyet for their review, to ensure that draft chapters completely and accurately reflect the concerns, interests, values, and desires of the Upper Nass Simigiyet.
10. Following Upper Nass Simigiyet review of the draft chapters, workshop meetings were held and the land use planning team (inclusive of the Simigiyet) jointly reviewed each submitted draft chapter and prepared any required additions, deletions, or modifications to the draft chapter preamble, objectives, measures, targets, management considerations, and rationale.
11. Re-submitted the amended chapter to the Upper Nass Simigiyet for review, with the intent that further modifications to that chapter would be brought forward and reviewed in a final review of the full draft LUP.
12. As the Upper Nass LUP draft map was completed, sections of the draft map were submitted and presented to the Simigiyet for their information and review. These maps were reviewed, explained, and discussed at further workshop meetings.
13. Following full completion of the LUP maps and text, the completed Land Use Plan maps and text received a full review at the workshop meetings. Required amendments to maps and text were documented. The documented amendments were incorporated into the draft text and maps to prepare the final Upper Nass LUP. The final plan was submitted to the Upper Nass Chiefs and was then submitted to the archaeological consultant (Crossroads Cultural Resource Management (CCRM)) for final review. Following the final review by the Simigiyet and CCRM, the plan went through one final editing stage and was then considered formally ready for use and distribution.

6.0 The Upper Nass Planning Area

Information presented in this description of the Upper Nass Land Use Planning Area came from two main sources:

- 1) F. Philpot analysis of air photo coverage and maps, and past personal experience in the planning area
- 2) Report entitled, *Conservation Values of the Upper Nass – Skeena Watershed: Beyond Cranberry-Kuldo*, by Jim Pojar [November 12, 2014], prepared for Skeena Watershed Conservation Coalition, Hazelton, BC.

The planning area is situated in northwestern British Columbia within the Upper Nass Watershed Unit of the Gitksan Nation. The area is located within the watershed of the upper Nass River, with a slight overlap into the watershed of the upper Skeena River in the vicinity of Canyon Creek. The planning area is primarily within the Nass Timber Supply Area (TSA) with small overlaps into the Fort St. James and Kispiox Timber Supply Areas along the east boundary of the planning area.

The Upper Nass LUP area encompasses approximately 453,460 hectares across the eight participating Huwilp of the Gitksan Upper Nass watershed.

The planning area includes the watersheds of numerous major valley-bottom rivers, and within those major valley bottom river watersheds are multiple small-to-large tributary streams that provide connectivity from the valley bottoms to the mountain tops.

Major watersheds comprising the planning area include:

- Xsitxemsem (Nass River)
- Xsan (Skeena River)
- Sto'ot Xsitxemsem (Bell-Irving River)
- Xsi Gwin Hagiisdixw (Kwinageese River)
- Xsi Andap Matx (Canyon Creek)/ Xsi Tsinihl Denden Ando'o (Vile Creek)
- Xsi Tuutsxwhl Ax (Damdochax River)/ Xsi Luu Am Maldit (Slomaldo Creek)/ Naa Baad Xsi Luu Am Maldit (Yaza Creek)
- Xsi Luu Wit Wiidit (Kotsinta Creek)
- Muskaboo Creek/Rochester Creek
- Panorama Creek
- Xsi Maxhla Biluust Maawxs (Konigus Creek)
- Upper reaches of Xsihl Guugan (Taylor River)

The majority of these larger river-stream watersheds provide gentle to moderate gradients throughout, and moderate elevation passes through the mountainous terrain, creating effective connectivity for wildlife migration or seasonal movement to adjacent river-stream watersheds.

Terrain within the southwest portion of the planning area was historically heavily glaciated. It currently consists of multiple low rocky ridges and gullies. Further to the north and east, the planning area terrain consists of numerous steep, sharp, rugged mountain ranges – all oriented north-west/south-east – reaching elevations approximately 1,600 to 1,800 meters, separating the major watersheds and controlling the flow direction of valley bottom rivers.

The larger watersheds are comprised of U-shaped valleys. Lower elevations consist of gentle to moderate slopes, few rock outcrops, and moist-to-wet soils that receive moisture from higher elevations. With increasing elevation, the

slopes become steep to very steep, rapidly transitioning to sub-alpine and alpine conditions. The valley sides provide evidence of numerous avalanches, including rock, soil, and snow avalanches, resulting in numerous alluvial fans and colluvial deposits within the valley bottom riparian areas. Numerous small, medium, and large river floodplains have formed within these valley bottoms.

Valleys of the larger tributary streams that connect the major valley bottoms to mountain tops are narrow but also U-shaped with occasional narrow rock canyons. Within these tributary drainage systems, there is evidence of multiple avalanches, snow slides, rock falls, slope instability, water-caused erosion, and multiple closely spaced small streams. The slopes of these tributary drainage systems are generally steep to very steep.

Where slopes become gentle-to-moderate at higher elevations, the soils are permanently saturated by long-lasting melting snowpacks that provide a continuous seepage supply to form small, closely spaced streams that feed the tributary and valley-bottom streams. The mountain snowpack is deep and long-lasting. Throughout these U-shaped valley bottoms, there is evidence of frequent colluvial and alluvial deposition, to the point where valley bottom vegetation is often limited to brush species or no vegetation at all. There is continuous evidence of the widespread effects of land-on-water and water-on-land, and of hydrologic functions from mountain top to valley bottom.

Climate of the planning area is transitional from coastal to interior climate along the south-western edge of the planning area and transitioning to colder, drier climatic conditions to the north and eastward. Biogeoclimatic zones of the planning area are:

- Interior Cedar Hemlock moist cold subzone (ICH mc1)
- Mountain Hemlock moist maritime (MH mm2)
- Sub Boreal Spruce moist cold (SBS mc)
- Englemann Spruce-Subalpine fir (ESSF)
- Boreal Alt-Fescue-Alpine (BAFA)
- Coastal Mountain – Heather Alpine (CMA)
- Alpine Tundra (AT)

The Upper Nass watersheds support three species of salmon, including sockeye, chinook, coho, steelhead (Malit), rainbow trout, bull trout char, whitefish, and other resident fish such as pike minnows, suckers, and sculpin. The salmon and steelhead of Xsi Gwin Hagiisdixw (Kwinageese) and Xsi Tuutsxwhl Ax (Damdochax) watersheds are of particular importance to First Nations and to wildlife.

The Upper Nass planning area provides a wide variety of ecosystems and wildlife habitats and supports wide diversity of wildlife. Wildlife utilizes the plan area from valley bottoms to mountain tops and move or migrate through the watersheds using lower passes. Large mammals in the area include grizzly and black bears, mountain goats, moose, wolves, wolverines, caribou, smaller furbearers, and numerous other small mammals. Many bird species are either residents or use the area during migration.

Of particular importance from a habitat perspective are the floodplain-stream riparian sites, the wetland-brush-forest complexes, and the low elevation seepage-stream-brush-forest patch complexes.

Forest tree species of the planning area are transitional from west to east and also from the valley bottoms upwards with increasing elevation. There is no Western red cedar within the planning area. The valley bottoms and lower slopes in the western portion of the planning area predominantly feature a mix of Western hemlock, Mountain hemlock, and subalpine fir. As elevation increases, the vegetation transitions to Mountain hemlock and subalpine fir, then becomes subalpine and alpine vegetation at higher elevation.

To the north and east part of the planning area, the forest cover transitions from Western hemlock, Mountain hemlock, Subalpine fir to predominantly Subalpine fir with minor components of hybrid spruce species, becoming pure Subalpine fir with increasing elevation, then to become subalpine and alpine vegetation above timberline.

River floodplains support Black cottonwood and hybrid species of spruce mixed with components of Subalpine fir, becoming predominantly Subalpine fir toward the northern and eastern parts of the planning area.

Deciduous forests are mainly limited to the Black cottonwood of the floodplains and to fire history sites that support young stands of Trembling aspen, paper birch, with possible components of immature Lodgepole pine, Western hemlock, Subalpine fir, and hybrid spruce species intermingled with the deciduous species.

The growth potential (SI- Site Index) of the planning area, as described in Section 5.0 Methodology Table 2, is primarily very low to low, with a small proportion of the sites having a moderate ranking. The sites with the highest growth potential are situated within the low elevation river-stream floodplains and riparian sites, riparian sites of the wetland-brush-forest sites, and the low elevation seepage-stream-brush-forest patch complex sites. These sites also support ecosystems that provide the highest wildlife habitat values. Site Index decreases rapidly with elevation increase due to deep long-lasting snow and cold soils.

In the event of natural or industrial disturbance or removal of Upper Nass forests, the predominantly low to very low Site Index (growth potential) means that the time to regenerate and re-establish mature forests with forests of similar characteristics (age, size, species, biodiversity values, wildlife habitat values, carbon storage volumes and values, timber volumes and values) would be long – estimated at 150 years or longer.

Previous investigations of the opportunities for forest management and timber harvesting within the Upper Nass planning area determined that potential for investment in forest management is low as a result of very high access costs, low timber volumes and quality, high operating costs, and low forest growth potential. As a result, the Ministry of Forests in 1998 determined a partition to the Nass Timber Supply Area (TSA) that was attributable to the Upper Nass portion of the TSA. To date, no timber harvest has occurred on the partitioned portion of the Upper Nass planning area. The Nass TSA, including the Upper Nass planning area, is currently undergoing a Timber Supply Review (TSR). The TSR is scheduled to be completed in Year 2023 and may result in future timber harvesting within the currently partitioned section of the Upper Nass planning area.

Major rock types of the Upper Nass planning area are predominantly sedimentary mudstone, siltstone, and shales. Soils derived over time from these rocks by glaciation, weathering, and decomposition are mainly fine textured sands, silts, clays, and loam.

Industrial mining potential is rated as low, excepting the very northern part of the planning area in the vicinity of Konigus Creek, Nass River, and Panorama Creek, which is rated as moderate.²⁰

There is potential for hydrocarbon resources of gas, oil, and coal throughout the Bowser Basin area of northwest British Columbia, including the total area of the Upper Nass planning area. While there is currently no hydrocarbon resource production within the area, the hydrocarbon industry is expanding into northwest BC with pipelines and processing plants. The potential that hydrocarbon exploration may occur within the Upper Nass planning area in the near future is high.

²⁰ Skeena-Stikine Forest District. *Atlas of Resource Values in Gitksan Watersheds. Phase 2 Nass.*

Jim Pojar, in his 2014 report on Upper Nass-Skeena Watersheds²¹ stated,

“the Nass-Skeena River system is one of the few remaining un-dammed, naturally diverse and productive, greater salmonid ecosystems in the world... we still have in Upper Nass-Skeena opportunities to protect large wild landscapes, waterscapes, and their world-class conservation values.”

Throughout the Upper Nass planning area, there are many Gitksan Upper Nass cultural sites, cultural areas, and named places that record Gitksan Upper Nass history over thousands of years of occupation, use, and stewardship. The majority of the Upper Nass planning area is undisturbed by industrial developments and there exists an opportunity to implement sustainable management practices on the land along with strategic protections to ensure that the cultural history and the suite of ecological values within the Upper Nass Lax Yip are preserved over time.

Of note, the historic Dominion Telegraph Trail is located through the Upper Nass planning area, following the valleys of Tuutsxwhl Ax (Damdochax River), Muskaboo Creek, and Rochester Creek. The Telegraph Trail route is not currently protected under the *Heritage Conservation Act* but is recognized as having valuable regional significance²² under the British Columbia Registry of Historic Places and Canadian Registry of Historic Places, and requires adequate protection to preserve and retain the Dominion Telegraph Trail regional significance. Much of the historical and cultural value associated with the Dominion Telegraph Trail traces back to Gitksan cultural values, by way of knowledge sharing and Gitksan involvement during the construction of the Telegraph Trail.

With the exception of the western edge of the Upper Nass planning area within the Xsi Gwin Hagiisdixw (Kwinageese) and Sto’ot Xsitsxemsem (Bell-Irving) watersheds, there are no roads, bridges, industrial infrastructures, or operations. The planning area supports no permanent human habitation. The planning area is predominantly comprised of full, intact watersheds and ecosystems, and undisturbed habitats and biological diversity.

In summary, the description of the Upper Nass planning area points out that:

- 1) The potential for industrial extraction of ecological resources from the Upper Nass area is moderately low, with the exception of exploration for fossil fuels, which is high.
- 2) In its current state the planning area is predominantly untouched by industrial operations, is wild and pristine, and is more intact and less degraded than the majority of North America.
- 3) Currently there is a high potential, while the opportunity still exists, for protection of:
 - Large tracts of wilderness landscapes
 - Globally significant conservation values
 - Representative old-growth ecosystems, habitats, biodiversity, and the suite of values these systems support as well as their own intrinsic values
 - Large areas of forest and soils that currently store sequestered carbon, for purposes of mitigating potential negative effects relating to Climate Change
 - Cultural resources and cultural practices of the Gitksan Upper Nass people
 - Cultural resources and cultural practices of people who have been granted permission to access the Lax Yip from the appropriate Wilp Min Simoogit
 - Opportunities for Upper Nass Wilp members to develop innovative and sustainable economic endeavors

²¹ Pojar, J. (2014, November 12). *Conservation values of the Upper Nass-Stikine Watershed: Beyond Cranberry-Kuldo*.

²² Regional District of Kitimat-Stikine. (2009). *Heritage Register 2009: Yukon Telegraph Trail Statement of Significance*.

- Opportunities for Upper Nass Wilp members to develop commercial industries such as back-country tourism that could serve to preserve wilderness landscapes, ecological resources, biological diversity, cultural heritage values, and areas of significance while educating people about Gitksan culture

Cultural and archaeological terminology²³

The following section is a summary of terms and concepts used in this document, along with general descriptions to provide a common basis for understanding. These definitions and descriptions have been established by balancing principles from Gitxsan Upper Nass culture with standard resource management practices and terminology.

Adaawx	Each Gitxsan Wilp has an oral history. The Adaawx identifies the Wilp as a Gitxsan entity with associated assets. It may include the creation and migration since the ice age, associated animal crests, symbols, limx oo’y (time immemorial songs), limx sinaahl (breath songs), and limx nok nok (spirit songs).
Ant’gela	Gitxsan cremation sites.
Archaeological Impact Assessment (AIA):	A detailed field analysis of an area (generally small and localized), conducted by a professional archaeologist. The analysis is generally based on information from an Archaeological Overview Assessment (AOA) that indicates a moderate to high archaeological potential of the area and is primarily conducted on behalf of a company planning a development. The AIA requires a permit to be issued by the Provincial Archaeology Branch to the archaeologist that will conduct the analysis. A copy of the application for the permit will be sent to Upper Nass by the Archaeology Branch, with a request for Upper Nass comment to be submitted within 30 days.
Archaeological Overview Assessment (AOA)	An office-based exercise, conducted by an archaeologist, that provides mapped overview zonation of an area (Upper Nass Territory) into low, medium, and high potential for the presence of cultural sites, features, and artifacts. Considered in the assessment are criteria such as topographic features, locations of natural resources, traditional knowledge, and cultural heritage. The AOA is utilized to focus the Preliminary Field Reconnaissance (PFR) and Archaeological Impact Analysis (AIA).

²³ Budhwa, R. (n.d.). *Cultural and archaeological terminology: Provided and verified by Crossroads Cultural Resources*. Retrieved from <http://www.crossroadscrm.com>

Gitanyow Huwilp Society. (2009). *Gitanyow Policy Manual for Management of Cultural Heritage Resources* [Unpublished manuscript]

Archaeological Sites	A location that contains physical evidence of past human activity and that delivers its primary documentation and interpretative information through archaeological research techniques. (Archaeology Branch, 2008) An Archaeological Site is a subset of Traditional Use Sites.
Ayookw	Gitxsan Traditional Law
Buffer Zone	An area of land surrounding a cultural resource in order to provide protection to the cultural resource. The buffer zone is restricted from industrial development. Buffer zones can vary in width, depending on Upper Nass cultural importance, category of resource, and site-specific criteria. Dimensions of a buffer zone will be implemented and recorded as horizontal distance, measured from the outside edge of the defined resource. Establishment of buffer zones requires documentation of the cultural and scientific rationale for the buffer zone.
Conservation	Any activity undertaken to protect, preserve, or enhance the heritage value of Upper Nass heritage property. Heritage value is the historical, cultural, aesthetic, scientific, or educational worth, or usefulness of a site or object (<i>Heritage Conservation Act</i> [RSBC 1996] Chapter 187).
Cultural Areas	Any area within Upper Nass Territory that the Upper Nass consider has cultural importance, regardless of the presence or absence of physical remains of activities or beliefs.
Cultural Heritage Resources (also, Cultural Resources)	Those cultural resources considered culturally important to the Upper Nass; resources that provide a connection or linkage between the past, present, and future of Upper Nass, including, but not limited to: <ul style="list-style-type: none"> • Upper Nass Territory and House Territories • Fish, wildlife, plants • Water • Landforms, landmarks, place names • Cultural areas • Upper Nass Traditional Cultural Expressions • Cultural sites and features • Artifacts
Cultural Heritage Resource Field Assessment (CHRFA)	A field reconnaissance of an area (small or large) to assess the existence of or potential for the presence of cultural sites and features. The field reconnaissance does not require a permit from the Provincial Archaeology Branch and does not require a formal Archaeologist Report to be submitted to the Provincial Archaeology Branch. In order to carry out a CHRFA on Upper Nass Lax Yip, the assessing person(s) must meet one of the following three criteria:

1. Is a registered professional in good standing with the Association of B.C. Forestry Professionals and has demonstrated experience in identifying cultural heritage sites and resources received specific training, at the direction of the Upper Nass, on the importance and identification of Gitksan Upper Nass cultural heritage sites and features; developed a consistent mechanism, suitable to Upper Nass and the Development Proponent, for recording and reporting on the assessment of cultural heritage resources, or,
2. Is an individual, Upper Nass or non-Upper Nass, authorized by the Min Simoogit of the impacted Wilp to conduct Cultural Heritage Resources Assessments on Upper Nass Lax Yip, or,
3. Is a qualified professional archaeologist, with experience in field assessments of First Nations cultural heritage resources within the general cultural area of the British Columbia Northwest Coast-Interior Plateau.

Cultural Sites

Any site that is of cultural value to the Upper Nass; places where cultural practices were/are conducted; places that provide significant connections to the heritage/history of a people. Cultural sites include ALL sites of cultural value to Upper Nass, without constraint of historical age or material remains. Cultural sites are integral to the cultural heritage of a people.

Cultural sites (including archaeological sites and designated Heritage Sites) include:

- land forms/landscapes; place names within Upper Nass Territory
- features; land that has been modified by activities or practices of the Upper Nass; cannot be removed from the site without destroying the feature, i.e. an integral part of the landscape within which the feature is situated. Examples of features include house depressions, trails, cache pits, Culturally Modified Trees (CMTs) and grave sites.
- artifacts; objects that have been manufactured by Upper Nass; are within a site but can be removed from the site. The cultural site is the specific location on the land where the artifacts are located; the type of artifact determines the nature of the site and influences the cultural value and significance of the site. Examples of artifacts include totem poles, projectile points, chipped stone flakes, tools, pottery, baskets and boxes

Cultural Value

The cultural value or ethnic significance, of any particular element of Upper Nass heritage reflects the nature of the attachment/connections between the land, object, site, or knowledge, and its original owner/maker or caretaker. Land, objects, sites, or knowledge that were/are most dear to the owner/maker/caretaker are those that hold the highest cultural value.

- All Upper Nass cultural heritage resources have an inherent cultural value.
- Assignment of a “low” cultural value is a ranking of value relative to other cultural heritage resources and should not be considered as a lack of respect for the Upper Nass heritage resource.
- Cultural value can be determined only by the Upper Nass people. Determination of cultural value is the responsibility of the current owner/caretaker of the resources.
- For purposes of preparation of this Upper Nass Landscape Unit Plan, cultural heritage resources are assigned a relative cultural value ranging from very high to low, based on the Upper Nass attachment/connection to the resource.
- The Upper Nass attachment/connection to the resource could include, but not be limited to, one or more of:
 - spiritual
 - historic/heritage
 - emotional
 - practical
 - education
 - economic
 - legal

Integral to and embedded within these attachments/connections is the “sense of place” held by the Upper Nass.

Culture

A shared, learned, system of values, beliefs, and attitudes that shape and influence perception and behaviour. Culture includes all that a people inherit from the past, practice in the present, and protect for future Upper Nass generations; that identifies and defines who and what the people are. The culture is formed by the land, and includes the language, customs, laws, practices, foods, clothing, spirituality, art, songs, dress, appearance, stories, oral histories, and traditional knowledge of the Upper Nass. Culture is an integral part of the heritage of the Upper Nass and cannot be separated from the land and resources where the people lived and developed.

Cultural Expressions²⁴
Upper Nass Traditional
Cultural Expressions

Upper Nass Traditional Cultural Expressions are Upper Nass Intellectual Properties of any form, whether tangible or intangible, in which Upper Nass traditional culture and knowledge (including ecological knowledge) are expressed, appear, or are revealed, and comprise the following forms or combinations of forms of expression:

- verbal expressions, such as Upper Nass Adaawx (see definition above), Gitxsanimx language, Ayookxw (law), stories, epics, legends, poetry, riddles and other narratives; words, signs, names (including geographical place names), and symbols
- musical expressions, such as songs, Limx' ooy (laments) and instrumental music
- spiritual expressions
- expressions by action, such as dances, plays, ceremonies, rituals and other performances

whether or not reduced to a material form; and

- tangible expressions, such as productions of art, in particular, drawings, designs, paintings, carvings, sculptures, woodwork, metalware, jewelry, baskets, needlework, textiles, dress, costumes; handicrafts; musical instruments; Ayuuks (family crests); Git'mgan (totem poles); and architectural forms which are: the products of creative intellectual activity, including individual and collective creativity; characteristic of Upper Nass cultural and social identity and cultural heritage; maintained, used or developed by the Upper Nass community, or by individuals having the right and responsibility to do so in accordance with Upper Nass law and practice.

Upper Nass Traditional Cultural Expressions are properties owned by the Upper Nass who maintain, protect, and develop them primarily as cultural resources. However, these properties may also be economic assets that can be, if Upper Nass wishes, traded or licensed for income generation and economic development. The Upper Nass Traditional Cultural Expressions are Upper Nass intellectual property.

²⁴ The definition/description of Upper Nass Traditional Cultural Expression is adapted from The World Intellectual Property Organization, Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, Tenth Session, 2006; The Protection of Traditional Cultural Expressions/Expressions of Folklore; Draft Objectives and Principles: WIPO/GRTKF/IC/10/4 (2006).

Upper Nass Traditional Cultural Expressions evolved from and were shaped by the surrounding land and the natural resources of the land; they are directly and inextricably connected to and reliant upon the sustained presence and quality of the ecological resources of the land. Traditional Cultural Expressions are expressions of Upper Nass beliefs and values, embodiments of Upper Nass skills and know-how, and reflections of Upper Nass history. Traditional Cultural Expressions are strongly connected to Upper Nass Huwilp members and are of great cultural value to Upper Nass, defining very clearly the identity of the Upper Nass people; who we are and how we connect to our Territories.

Gitxsanimx

Gitxsan language

**Gitxsan Lax Yip
Management Office**

An apolitical agency, established by participating Gitxsan Simgigyet, serving as a hub for lands and resource management planning throughout represented areas of Gitxsan Lax Yip

Gwa lx Yee'nst

A fundamental concept underlying Gitxsan society dealing with inheritance and the rights and responsibilities to hold, protect, and pass on the Lax Yip in an undiminished manner from generation to generation²⁵

Heritage

What a people inherit; the shared, inherited, history and culture of the Upper Nass people, providing connections between the past, present, and future:

- the land and land forms where they lived
- the customs, practices, and laws of the Upper Nass people
- the resources of the land that were utilized
- the oral or written history
- the sites where customs/traditions were conducted
- the traditional knowledge of the people
- spiritual and material realms

²⁵ Gitanyow Hereditary Chiefs. <https://www.gitanyowchiefs.com/gwelxyeenst/> (2023)

Heritage Inspection	<p>A physical examination and other research necessary</p> <ol style="list-style-type: none"> a. to identify the heritage value of a property or a portion of it, and, b. to establish, if the property is a heritage site or heritage object, <ol style="list-style-type: none"> i. the need for protection or conservation, or, ii. conformance with heritage protection requirements (Province of BC, 2009).
Heritage Investigation	<p>An archaeological or other systematic study of heritage property to record its history, and may include the recording, removal, and analysis of artifacts, features, and other material necessary for the purposes of heritage investigations (Province of BC, 2009).</p>
Hloxs	<p>Month</p>
Miin Simoogit	<p>The highest authority of the Wilp; the ultimate head of the Wilp.</p>
Preliminary Field Reconnaissance (PFR)	<p>A preliminary field investigation of an area (small or large) to assess the existence of or potential for the presence of cultural sites and features, and to recommend more detailed archaeological field studies where appropriate. Does not require a permit from the Provincial Archaeology Branch and does not require a formal Archaeology Report to be submitted to the Provincial Archaeology Branch.</p>
Sbagayt Gan	<p>The Wilp Chief (House Chief)</p>
Simoogit	<p>Gitxsanimx word for ‘forests’</p>
Simgigyet	<p>Plural of Simoogit; a group of Chiefs</p>
Sense of Place	<p>A feeling or perception held by Upper Nass to a certain place on the landscape. This “place” on the landscape will possess a strong identity and character, and a high degree of authenticity to which people attribute a special meaning and relationship. The loss of “sense of place” may have significant impact on</p>

individuals and communities with connections to that place; “sense of place” needs to be considered in any management decision regarding cultural resources (adapted from Cresswell, 2005; Budhwa, 2008).

Significance

An overall ranking of the importance or noteworthiness of a particular element of Upper Nass heritage. There are many considerations to evaluating significance: the primary consideration is cultural value. Additional considerations could include educational value, scientific value, historic value, economic value, legal value and rarity.

Determination of the significance of a cultural heritage resource is complex, may be very time consuming, and involves consideration and balance of a number of values that frequently may compete. Significance is generally determined by an archaeologist, following archaeological investigation of the cultural resource.

Determination of significance needs to consider not only the cultural value to the Upper Nass people but the diversity and range of values to the broader community at the local, regional, and Provincial level

Traditional Knowledge

Place-based and specific to Gitxsan Lax Yip, dynamic and cumulative over time, Traditional Knowledge reflects the unique culture, language, values, history, governance, and legal system of the Gitxsan people.

Traditional Use

Any Upper Nass use of any aspect of Upper Nass Traditional Territory.

Traditional Use Area

A broad cultural area, as opposed to a localized, specific site, within which landscape-level cultural activities such as hunting and trapping occur. The traditional use area encompasses the cultural sites, features, artifacts, and cultural trails.

Traditional Use Site

Specific places within the landscape where traditional activities were/are performed. Traditional Use Sites may lack physical evidence of human-made artifacts or structures yet maintain cultural significance to a living community of people. Determination of the importance of a site needs to consider the use of the site in relation to the function of the larger House Territory or entire Upper Nass Territory.

Trails

Paths or corridors used by Upper Nass for trade, travel, or migration; trails often connect the entire landscape, building links between traditional use areas and between different Nations.

Wilp The most fundamental entity in Gitxsan Society; also spelled ‘wilphl’; English ‘House Group’

7.0 Definitions of Land Use Plan Terminology

Adaptive Management	The rigorous combination of management, research, and monitoring so that credible information is gained and management activities can be modified by experience. Adaptive management acknowledges institutional barriers to change and designs means to overcome them.
Allowable Annual Cut	The rate of timber harvest permitted each year from a specified area of land, usually expressed as cubic metres of wood per year. The chief forester sets Annual Allowable Cuts (AACs) for timber supply areas and tree farm licences in accordance with Section 7 and/or Section 170 of the <i>Forest Act</i> . The district manager sets AACs for woodlot licences.
Alluvial	Water-deposited.
Aquifer	A saturated geologic unit that yields water in a useable quantity to wells and springs. Geologic materials can be consolidated or unconsolidated.
Archaeological sites	Locations containing, or with the potential to contain, the physical remains of past human activity. These sites are assessed through archaeological impact assessments.
Biodiversity	The diversity of plants, animals and other living organisms in all their forms and levels of organization, including the diversity of genes, species and ecosystems, as well as the functional processes that link them.
Biogeoclimatic Ecosystem Classification	A system of ecological classification, based primarily on climate, soils, and vegetation, that divides the province into large geographic areas with broadly homogeneous climate and similar dominant tree species. Zones are further broken down into subzones (based on characteristic plant communities occurring on zonal sites) and variants (based on climatic variation within a subzone).
Biogeoclimatic zone	A geographic zone having similar patterns of energy flow, vegetation, and soil as a result of a similar and even macro-climate.
Blue-listed species	List of ecological communities and indigenous species and subspecies of special concern (formerly vulnerable) in British Columbia.
Coarse filter management	An approach to maintaining biodiversity that involves maintaining a diversity of structures within stands and a diversity of ecosystems across the landscape. The intent is to meet most of the habitat requirements of most of the native species.

Colluvial	Gravity-deposited.
Confined Aquifer	An aquifer that is between two impermeable geologic units. Confined aquifers occur at depth. The rate of recharge can be very slow due to the impermeable layers that confine the aquifer.
Connectivity	A qualitative term describing the degree to which late successional (older) ecosystems are linked (connected) to on another to form an interconnected network. The degree of interconnectedness and the characteristics of the linkages vary within natural landscapes based on topography and natural disturbance regimes. Breaking of these linkages results in forest fragmentation and may result in negative impacts to plants, wildlife, invertebrates that require connected older forest conditions to move through the landscape for foraging, dwelling, or migration purposes.
Conservation	Management of the human use of the biosphere so that it may yield the greatest sustainable benefit to present generations while maintain its potential to meet the needs and aspirations of future generations. It includes the preservation, protection, maintenance, sustainable utilization, restoration, and enhancement of the environment.
Critical habitat	Areas considered to be critically important for sustaining a population and where development may cause an unacceptable decline in the population.
Cultural heritage resources	An object, a site or a location of a traditional societal practice that is of historical, cultural or archaeological significance to the province, a community, or an aboriginal people. Cultural heritage resources include archaeological sites, structural features, heritage landscape features, and traditional use sites.
Culturally modified tree	A tree which has been intentionally modified by aboriginal peoples as part of their traditional use of forests (Stryd <i>et al.</i> 1998).
Ecological integrity	The abundance and diversity of organisms at all scales, and the ecological patterns, processes, and structural attributes responsible for that biological diversity and for ecosystem resilience.
Ecology	The branch of biology that deals with the relationship of living organisms to one another and to their environment.
Ecosystem	A functional unit consisting of all the living organisms (plants, animals, microbes) in a given area and all the non-living physical and chemical factors of their environment, linked together by nutrient cycling and energy flow. An ecosystem can be of any size— an armpit, a log, a pond, a forest—but it always functions as a whole unit. Ecosystems are commonly described according to the major type of vegetation.

Ecosystem function	Processes that provide for the integration or interaction of various ecosystem components, the flow of nutrients or energy among those components, or otherwise causes changes through space and time.
Ecosystem-based Management	An adaptive approach to managing human activities, that seeks to ensure the coexistence of healthy, fully functioning ecosystems and human communities. The intent is to maintain those spatial and temporal characteristics of ecosystems such that component species and ecological processes can be sustained, and human well-being is supported and improved.
Edge effects	Habitat conditions such as degree of humidity and exposure to light, wind, temperatures, predations created at or near the more-or-less well-defined boundary between ecosystems as, for example, between open areas (natural or created by industrial disturbance) and adjacent forest.
Equivalent Clear Area (ECA)	An index of potential watershed-level hydrologic impacts (for example, increased peak run-off) due to forest cover removal, expressed as a percentage of the naturally forested area of a watershed; areas where the forest cover has been completely removed by harvesting, fire, or other disturbances are assessed as 100% equivalent clearcut; areas with partial stand removal are pro-rated according to the percentage of crown cover removed (that is, equivalent to clearcut); areas partially recovered through forest regeneration are pro-rated according to the degree of crown closure and tree height.
Equivalent Clearcut Area Threshold (Targets)	The percentage level of Equivalent Clearcut Area beyond which no more removal of forest cover will be permitted without a hydrologic assessment of the identical watershed by a qualified professional hydrologist in order to provide guidance for future operations.
Erodible Soil	A fine textured soil (fine sand, silt and clay) or erodible mineral deposit that water can readily wash into the adjacent stream.
Fine-filter management	An approach to maintaining biodiversity that is directed towards particular habitats or individual species whose habitat requirements are not adequately covered by coarse filter management. These habitats may be critical in some way and the species threatened or endangered.
Floodplains	A level, low-lying area adjacent to streams that is periodically flooded by stream water. It includes land at the same elevation as areas with evidence of moving water, such as active or inactive flood channels, recent fluvial (water-deposited) soils, sediment on the ground surface or in tree bark, and tree scarring.

Forest fragmentation	Occurs when large continuous forest patches are converted into one or more smaller patches surrounded by areas disturbed naturally or by human activities.
Gitxsan Connect	A web-based application managed by the Gitxsan Laxyip Management Office (GLMO) that serves as an interface for information sharing regarding proposed industrial development and other commercial activities planned within Gitxsan Lax Yip.
Green-up	A cutblock that supports a stand of trees that has attained the green-up height specified in a higher-level plan for the area, or in the absence of a higher-level plan for the area, has attained a height that is 3 m or greater. If under a silvicultural prescription, the cutblock also meets the stocking requirements of that prescription; if not under a silviculture prescription, it meets the stocking specifications for that biogeoclimatic ecosystem classification specified by the regional manager.
Habitat suitability	A habitat interpretation that describes the current potential of a habitat to support a species. Habitat potential is reflected by the present habitat condition or successional stages.
Hydrologically Connected	<p>Any bare, erodible soil that can reasonably be expected to reach the riparian area if exposed to rainfall or stream flows. This includes:</p> <ul style="list-style-type: none"> • bare soil on non-vegetated slopes immediately adjacent to the 10 m riparian zone • bare soil on vegetated slopes of 10% gradient or steeper that are immediately adjacent to the riparian area, up to the first topographic break. • bare soil past the topographic break if there is a channel showing a clear connection to the first 10 m of the riparian area • bare soil on active road surfaces within the 10 m riparian area, including the crossing, if there is evidence that fines eroded off the road surface can reach the stream. This includes the road surface, plus all cut-and-fill slopes associated with the road, within the first 10 m of the riparian area • bare soil on active road surfaces beyond the first 10 m of the riparian area if there is evidence that fines eroding off these road surfaces will reach the stream. Evidence of hydrologic linkage should be conspicuous, such as ruts or eroding tracks down the road to a spot at the crossing where water spills directly off the edge of the road into the stream or a ditch that is clearly connected to the riparian feature.

(FREP Protocol for Evaluating the Condition of Streams and Riparian Management Areas, Version 5.0; March 2009, and, FREP Field Supplement to Evaluating the Condition of Streams and Riparian Management Areas, Version 3.0; March 2009).

Hydroriparian Zone

Defined as the area that extends to the edge of the influence of water on land, or land on water, as defined by plant communities (including high bench or dry floodplain communities) or landforms, plus one and one-half site specific tree heights horizontal distance. Landforms include:

- the stream channel, lake or wetland and adjacent riparian ecosystem, where no floodplain exists
- the full width of the floodplain for streams
- adjacent active fluvial units.
- up to the top of the inner gorge or where slopes become less than 50% for reaches of streams that are gullied, or are in a ravine or canyon.
- immediately adjacent unstable slopes (class IV and V terrain) where
- it is located such that a surcharge of sediment may be delivered to the stream, lake or wetland.

Landscape connectivity

A qualitative term describing the degree to which late-successional ecosystems are linked to one another to form an interconnected network. The degree of interconnectedness and the characteristics of the linkages vary in natural landscapes based on topography and natural disturbance regime. Breaking of these linkages may result in fragmentation.

Landscape level

Defined for purposes of this Land Use Plan as the individual watershed of each major valley bottom stream or river of our Upper Nass Lax'yip as listed in Section 6.0 of this Land Use Plan.

Meaningful Consultation

The proponent has provided to the appropriate Simoogit (Wilp Chief), or Simgigyet (Chiefs), all information relevant to a proposed development, including relevant maps, to enable the Upper Nass Simgigyet to determine the potential impact of the development on Upper Nass cultural and natural resources.

The Simoogit (Chief) or Simgigyet (Chiefs), have provided to the proponent all appropriate information relevant to Upper Nass cultural resources, including relevant maps, to enable the proponent to comprehend the Upper Nass values and requirements for conservation of cultural heritage.

The proponent and Simoogit (Chief) or Simgigyet (Chiefs) have met and discussed the above information and have made every reasonable effort to reach agreement on how a development could proceed in a manner that will

achieve Upper Nass requirements for conservation of cultural and natural resources.

The proponent has incorporated measures into plans for the developments that recognize, respect, manage, and conserve Upper Nass cultural and natural resources.

Moisture Regime	Describes the relative amount of soil moisture; can be determined from slope position and gradient, soil depth and texture, coarse fragment content, aspect, and sources of seepage. For purposes of terrestrial site description, soil moisture regimes are ranked in the following order from driest to wettest: very xeric (very dry), xeric (dry), subxeric (moderately dry), submesic (slightly dry), mesic (fresh), subhygric (moist), hygric (very moist), subhydric (wet).
Monitoring	Ongoing assessment of how well the goals and objectives of the Upper Nass LUP are being implemented.
Natural disturbance regime/process	Describes the timing and nature of naturally occurring phenomena, such as fire, windthrow, landslides, and single-tree death that result in changes to ecosystems and landscapes.
Old Growth Management Areas	Areas that contain, or are managed to replace, specific structural old-growth attributes and that are mapped out and treated as special management areas.
Patch Size	In relation to forest harvest, a single cutblock or an aggregation of cutblocks.
Properly Functioning Condition	<p><i>Properly Functioning</i> for a stream, river, wetland, or lake and its riparian area means:</p> <ul style="list-style-type: none">• ability to withstand normal peak flood events without experiencing accelerated soil loss, channel movement or bank movement• ability to filter runoff• ability to store and safely release water• ability of riparian habitat to maintain an adequate root network or large woody debris supply• ability of riparian habitat to provide shade and reduce bank micro Climate Change, and,• fish habitat in streams and riparian areas are fully connected so that fish habitat is not lost or isolated as a result of some management activity.

Protected Area	A designation for areas of land set aside from resource development activities to protect natural heritage, cultural heritage, or recreational values (includes National Park, Provincial Park, Indigenous Protected Area, & Ecological Reserve designations, among others).
Range Of Natural Variation (RONV)	The range of natural dynamic change in natural water systems over historic time periods (example: five years, fifty years, 500 years etc.). RONV is used as a benchmark to assess the degree of past change and to guide future management. Descriptions of RONV are limited by availability of information about past disturbances and landscape change.
Recorded water	Water that is held under an authorization or other enactment giving the right to the diversion of or use of that water. (<i>Water Sustainability Act</i> . December 9, 2020. Queen’s Printer, Victoria, BC Canada)
Red-listed species	List of ecological communities and indigenous species and subspecies that are extirpated, endangered or threatened in British Columbia. Red listed species and sub-species may be legally designated as, or may be considered candidates for legal designations as Extirpated, Endangered or Threatened under the Wildlife Act (see http://www.env.gov.bc.ca/wld/faq.htm#2). Not all Red-listed taxa will necessarily become formally designated. Placing taxa on these lists flags them as being at risk and requiring investigation.
Regeneration Delay	Defined in the <i>Ministry of Forests and Range Glossary of Forestry Terms in British Columbia March 2008</i> : The period of time between harvesting and the date at which an area is occupied by a specified minimum number of acceptable well-spaced trees.
Resilience	Adaptive capacity to absorb disturbance; the amount of disturbance that can be sustained by a system before a change in its control or structure occurs.
Riparian area	Areas of land adjacent to wetlands or bodies of water such as swamps, streams, rivers or lakes, including both the area dominated by continuous high moisture content and the adjacent upland vegetation that exerts an influence on it.
Riparian Management Zone	An area described under Division 3 [<i>Riparian areas</i>] of Part 4 [<i>Practice requirements</i>], that: (a) is a portion of the riparian management area, and (b) is established to: (i) conserve the fish, wildlife habitat, biodiversity and the water values of the riparian management zone, and (ii) protect the riparian reserve zone, if any, within the riparian management area (Ministry of Forests and Range: 2004).
Riparian Reserve Zone	An area described under Division 3 [<i>Riparian areas</i>] of Part 4 [<i>Practice requirements</i>], that: (a) is a portion of a riparian management area, and (b) is established to protect fish, wildlife habitat, biodiversity and the water values of the riparian reserve zone (Ministry of Forests and Range: 2004)

Security cover	Sufficient vegetation cover and/or terrain features that permit an animal to feel secure, comfortable and not threatened despite adjacent activities or predator movement that would otherwise displace the animal.
Seral (forest or stage)	Sequential stages in the development of plant communities [e.g. from young (or early seral) stage to old stage (or old seral)] that successively occupy a site and replace each other over time.
Site series	Describes all growing sites capable of producing the same late seral or climax plant community within a biogeoclimatic sub-zone or variant. Determined primarily by soil nutrition, soil moisture, and topography.
Site series surrogates	Within our Land Use Plan, other than areas that have been harvested under a silviculture prescription that maps the site series of the cutblock, there are no identified site series. The site series surrogates will utilize the site growth potential (Site Index) presented on MFLNRO Forest Cover Maps as a site series surrogate. These site series surrogates are documented in this Land Use Plan Section 5.0, Methodology of Upper Nass LUP Preparation, Table 2, for each biogeoclimatic variant.
Stand-initiating disturbance	A natural disturbance event, such as wildfire, wind, landslides and avalanches that significantly alter an ecosystem. In most cases, there is considerable mortality of plant species, some degree of site disturbance and the initiation of successional processes that will form a new plant community with a different structure and likely a different composition than its predecessor.
Stream	A stream is a watercourse having an alluvial sediment bed, formed when water flows on a perennial or intermittent basis between continual definable streambanks. The key to identifying a stream is evidence of fluvial processes (sand, gravel etc.) that have been deposited by moving water.
Structural forest density	Forest structure is the components of a forest stand—including living and dead trees, canopy make-up and architecture, and fallen, dead trees—which together determine stand structure. Old forests are more complex and diverse than young forests, both in age and in structure.
Structural Stage	The existing dominant stand appearance and structure for an ecosystem unit.
Subhydic	Very wet site
Subhygric	Wet site
Sustainable	A state or process that can be maintained indefinitely. The principles of sustainability integrate three closely interlinked elements — the environment, the economy and the social system — into a system that can be maintained in a healthy state indefinitely.

Sustainable forest management	Management regimes applied to forest land that maintains the productive and renewal capacities as well as the genetic, species, and ecological diversity of forest ecosystems.
Sustained yield	A method of forest management that calls for an approximate balance between net growth and amount harvested.
Thermal cover	Canopy cover that moderates atmospheric temperature/thermo-regulation, resulting in cooling during the summer and reduction of wind chill in the winter
Timber Harvesting Land Base	Forested Crown land that is within a Timber Supply Area and currently considered feasible and economical for timber harvesting.
Timber Supply Area	An integrated resource management unit established in accordance with Section 6 of the <i>Forest Act</i> . Timber Supply Areas (TSAs) were originally defined by an established pattern of wood flow from management units to the primary timber-using industries. They are the primary unit for Allowable Annual Cut determinations. A TSA may be subdivided into a number of Timber Supply Blocks.
Total habitat	The total area of any identified ecosystem (e.g. H leading species and High Site Growth Potential). If $\geq 45\%$ of the ecosystem is retained, the natural disturbance regime (e.g. fire, insects, disease) will lead to a natural age distribution within this habitat. Over time, the amount of old forest on the landscape will approximate the amount of old forest expected naturally, that is, the range of natural variation.
Turbidity	The measure of clarity of liquid due to soil disturbance in the water. Ranging from high (thick, dark) to low (cloudy) turbidity.
Two-zone model	Mineral exploration and mining are addressed in SRM Planning through the use of the two-zone model. This model ensures that mining applications are considered, subject to all applicable law, anywhere but in parks, ecological reserves, protected heritage property or an area under the <i>Environment and Land Use Act</i> .
Unconfined Aquifer	An aquifer in which the water table forms the upper boundary of the aquifer. Unconfined aquifers occur near the ground surface. Examples of an unconfined aquifer include floodplains, alluvial fans, and some glacial-fluvial deposits. Unconfined aquifers have a relatively rapid recharge rate through water infiltration rates of the coarse porous materials.
Unrecorded water	Water in a stream or aquifer that is not held under an authorization or other enactment giving the right to the diversion of or use of that water.

Valued Ecosystem Component	A functional component of an ecosystem that can be identified, monitored, measured, and recorded for the determination of modification, damage to, or loss of that component of the ecosystem, and the result of the impact to the valued ecosystem component on the healthy function of the ecosystem. Provides a measurable indicator to the integrity of the ecosystem.
Viable population	At a population level that will result in reproductive success and maintain persistence through time.
Visual Quality Objectives	A resource management objective established by the district manager, or contained in a higher-level plan, that reflects the desired level of visual quality based on the physical characteristics and social concern for the area. Five categories of VQO are commonly used: preservation, retention; partial retention, modification and maximum modification.
Visually Effective Green-up (VEG)	The stage at which regeneration is seen by the public as newly established forest. When VEG is achieved, the forest cover generally blocks views of tree stumps, logging debris and bare ground. Distinctions in height, colour and texture may remain between a cutblock and adjacent forest but the cutblock will no longer be seen as recently cutover.
Water Chemistry	Chemical composition and content of the water. Sampling of water chemistry can provide information on the habitat and health values of the water body.
Wetland	Sites where the water table is at, near, or above the soil surface; the sites are dominated by hydrophytic (water-loving) vegetation where soils are water-saturated for a sufficient length of time such that excess water and resulting low soil oxygen levels are principle determinants of vegetation and soil development. A general term that includes bogs, fens, marshes, swamps, shallow water, and floodplains.
Wetland complex	Consists of two or more wetland communities occurring in close proximity in the same system and influenced or linked by the same moisture and nutrient regime.
Wildlife tree	A tree or group of trees that has been identified, in an operational plan, to provide present or future wildlife habitat. A wildlife tree is a standing live or dead tree with special characteristics that provide valuable habitat for the conservation or enhancement of wildlife. Characteristics include large diameter and height for the site, current use by wildlife, declining or dead condition, value as a species, valuable location and relative scarcity.
Yellow-listed species	List of ecological communities and indigenous species that are not at risk in British Columbia.

List of Acronyms

AAC	Allowable Annual Cut
AIA	Archaeological Impact Assessment
AOA	Archaeological Overview Assessment
AT	Alpine Tundra
BAFA	Boreal Altai Fescue Alpine
BCTS	BC Timber Sales
BEC	Biogeoclimatic Ecosystem Classification
BEO	Biodiversity Emphasis Option
BMPs	Best Management Practices
CDC	Conservation Data Centre
CHRFA	Cultural Heritage Resource Field Assessment
CMA	Coastal Mountain Heather Alpine
CMT	Culturally Modified Tree
CWH	Coastal Western Hemlock
ECA	Equivalent Clearcut Area
EN	Ecosystem Network
ESSF	Engelmann Spruce – Subalpine Fir
FREP	Forest and Range Evaluation Program
FRPA	Forest and Range Practices Act
GHG	Greenhouse Gases
ICH	Interior Cedar Hemlock
IPP	Independent Power Project
IWMS	Identified Wildlife Management Strategy
JFMC	Joint Fisheries Management Committee
JRC	Joint Resources Council
LRMP	Land and Resource Management Plan
LUP	Land Use Plan
MFLNRO	Ministry of Forests, Lands, Natural Resource Operations and Rural Development
MH	Mountain Hemlock
MOE	Ministry of Environment
NDT	Natural Disturbance Type
OGMA	Old Growth Management Area
PFR	Preliminary Field Reconnaissance
RISC	Resources Inventory Standards Committee
RMZ	Riparian Management Zone
RONV	Range of Natural Variability

RPF	Registered Professional Forester
RRZ	Riparian Reserve Zone
SBS	Sub-Boreal Spruce
SI	Site Index
SRMP	Sustainable Resource Management Plan
SRMZ	Special Resource Management Zone
THLB	Timber Harvesting Land Base
TSA	Timber Supply Area
TSR	Timber Supply Review
TUS	Traditional Use Site
UWR	Ungulate Winter Range
WHA	Wildlife Habitat Area
WRP	Watershed Restoration Plan
WMU	Water Management Unit
WTP	Wildlife Tree Patch

Gitxsan Traditional Land Use by Hlooxs (Month)

Hlo _x sa Gwiineek _{xw}	January (very cold)
Hlo _x sa Guukwaahlo _x s	February (very cold) d north wind)
Hlo _x sa ‘Wiihla _x s	January (very cold) ing the day, cold at night)
Hlo _x sa_Ya	April (time for catching salmon)
Hlo _x sa ‘Yeens	May (time for berry picking)
Hlo _x sa_Maa’y	June (time for berry picking)
Hlo _x sa ‘Wii hun	July (abundance of everything)
Hlo _x sa Lak’insxw	August (the grizzly bears are out in numbers)
Hlo _x sa_gennuu gwiikw	September (the groundhogs are getting ready for winter)
Hlo _x sa_xlaaxw	October (time for trout finshign)
Hlo _x sa Sa’nax	November (time to set the traps)
Hlo _x sa Hmi’mel	December (time for competition)
lasa sinlaaxw	August (the grizzly bears are out in numbers) September (the groundhogs are getting ready for winter) October (time for trout finshign)
lasa ya’a	April (very cold) month. Translation equivalent of lasa ya’a is: <i>Month of the spring salmon</i>
lasa ‘wiigwineek _{xw}	December; the twelfth month. Translation equivalent of lasa ‘wiigwineek _{xw} is: <i>Colder, freezing</i>
lasa ‘wiihun	July; the seventh month. Translation equivalent to lasa ‘wiihun is: <i>Leaves come out</i>
‘wihlax _s or ‘wiihlo _x s	March; the third month Translation equivalent of ‘wihlax _s or ‘wiihlo _x s is: <i>The bears sit around their den before they come out in spring</i>

9.0 Management Direction: Objectives, Measures, Targets, Rationale, Management Considerations

For each resource chapter, Management Direction presents:

A **preamble** that introduces the resource, provides context for the objectives, measures, and targets, states concerns or issues regarding the resource, and states the management intent as broad goals for management of the resource.

Objectives for the resource or resource use that state what the end result or desired future conditions are to achieve the broad goals or management intent and provide a reference for the Land Use Plan map to indicate where these

results or conditions are desired. Objectives are intended to be measurable, time specific, geographically specific, and can apply to the whole LUP area or to specified parts of the plan area.

Measures and Targets for each objective, in order that effective implementation of the objective can be measured.

Management considerations provide management strategies that are not measurable but do support the objectives, measures, and targets, and provide direction to the management practices.

Rationale presents the reasoned thinking behind objectives, measures, and targets, and management consideration for each chapter.

The Upper Nass Lax Yip Land Use Plan has been prepared using Gitxsan Upper Nass knowledge and the best available western science information and data, with the understanding that technology and knowledge of ecosystems and ecological resources is constantly increasing and improving. Additionally, knowledge and empowerment of the Gitxsan Upper Nass people regarding their history, Lax Yip, culture, and cultural resources is also increasing over time. Gitxsan ways of knowing are predicated on the interconnectedness of all beings and all systems throughout time. The Upper Nass Lax Yip LUP is intended to be a living document. If in the future a particular LUP objective, measure, or target becomes inadequate or not appropriate, or should an ecological or cultural resource zone be identified as needing revision, the LUP may be revisited and adjusted at specific, periodic dates according to the procedures outlined in Section 10 Plan Implementation, Monitoring, and Amendment.

9.1 Consultation, meaningful discussion, and information exchange

Consultation is defined as “the act of consulting or conferring; a council or conference” (*Webster’s New Collegiate Dictionary*).

Consultation includes meaningful discussion, information exchange, and negotiation between the Upper Nass Simgigyet (Hereditary Chiefs) and any Development Proponent.

For many years throughout the Province of British Columbia there was no consultation between governments, Development Proponents, and First Nations regarding industrial activities on First Nation lands; activity occurred with no notification to or permission requested from the First Nation.

Over time, the process of consultation became a process through which government or Development Proponents would inform a First Nation that industrial activity was going to occur on the First Nation’s Territory. There was no meaningful discussion or negotiation with the First Nation, and no reciprocal exchange of knowledge regarding the First Nation and the resources, interests, values, or plans of the First Nation on their lands. It was “consultation” in name only, with no meaningful discussion or cooperation with the First Nation.

As a result of proceeding with industrial development with no meaningful discussion, cooperation, or agreement, tremendous damage and loss has been inflicted (by multiple industries) to Gitxsan Lax Yip (lands, sustenance foods, medicines, cultural resources, spiritual resources, mental and physical health). For over a century, resources have been liquidated from Gitxsan Lax Yip with no recompense or economic returns to the Gitxsan from the ecological resources that were taken from their Territory.

Within the past 15-20 years in British Columbia, there has been considerable improvement in building working relationships and development of the consultation process and meaningful discussion between governments, Development Proponents and First Nations.

Significant improvements to consultation are still required in order for the consultation process to become a meaningful and effective process between governments, Development Proponents, and the Gitxsan Upper Nass Simgigyet.

Consultation can occur at two levels:

1. Government-to-government consultation; Upper Nass governing bodies, federal government, and/or provincial government. Upper Nass governing bodies are the Upper Nass Hereditary Chiefs. The Upper Nass Chiefs will consult as a group; each Hereditary Chief retains full control for negotiations and decisions regarding their Wilp.
2. Consultation between the Upper Nass Hereditary Chiefs and the Development Proponents, as an integral component of building working relationships and requires meaningful discussion, negotiation, and information exchange.

Government-to-government consultation is conducted at a higher level than preparation of Land Use Plans, deals with deeper and broader topics than Land Use Plans, and is not a component of this Upper Nass LUP. However, this Land Use Plan can be an effective tool to inform and assist meaningful discussion between government and the Gitxsan Upper Nass Simgigyet.

Consultation between the Upper Nass Simgigyet and Development Proponents regarding proposed industrial developments by the Development Proponent is intended to review and address the potential physical impacts to

Upper Nass Lax Yip ecological and cultural resources that may result from the industrial development activities being proposed.

Consultation between Upper Nass Simigiyet and Development Proponents is intended to result in meaningful discussion and information exchange regarding the interests, needs, values, and expectations of the Upper Nass Simigiyet and the interests of the Development Proponent. This level of consultation is best considered and referred to as meaningful discussion and information exchange.

Occasionally, legal and other professional advice may be required to assist Upper Nass Simigiyet with discussions, information exchange, and decision-making regarding potential impacts of proposed industrial disturbances on Upper Nass Lax Yip resources.

The intent of the Upper Nass Simigiyet is to act in accordance with Gitxsan Ayookw (laws) to protect, conserve, and maintain our ecological and cultural resources over time throughout our Lax Yip at a sustainable level, through implementation of our Upper Nass LUP and development of mutual understanding and working relationships between Upper Nass Simigiyet, Development Proponents, and other governments.

Natural resources are integral to the heritage and culture of the Upper Nass people; our heritage and culture have been formed by the land and the resources of the land and cannot be considered separate from the lands. Meaningful consultation regarding cultural resources includes discussion around management of the natural resources from which Upper Nass culture and cultural resources have developed and are reliant upon.

Canadian courts have affirmed that Indigenous peoples in Canada possess the Right to meaningful consultation, a guarantee provided by Section 35 of the Constitution Act (1982). This section acknowledges and upholds Aboriginal rights, including the right of title, serving as the foundation from which all other Gitxsan interests flow.²⁶

The Province of British Columbia is legally required to consult and accommodate First Nations, where required, on land and resource decisions that could impact First Nations' Aboriginal Rights and Title. The Province may involve proponents in procedural aspects of consultation.²⁷

Within this Upper Nass LUP, engagement, discussion, and information-sharing conducted in good faith between Development Proponents and Upper Nass Simigiyet is considered to be meaningful consultation/meaningful discussion and a primary component of sustainable long-term management and conservation of Upper Nass lands, cultural, and ecological resources. Meaningful consultation/meaningful discussion is mutually beneficial to all parties.

Meaningful consultation/meaningful discussion and information exchange with regard to this Upper Nass Lax Yip Land Use Plan may be defined/described as:

- the Development Proponent has requested permission from the Wilp Simoogit for access to the Upper Nass Lax Yip lands to conduct field and aerial reconnaissance of the potential industrial project area
- the Development Proponent has provided to the Wilp Simoogit (or Simigiyet) all information relevant to any development proposal on a given Upper Nass Wilp territory (including relevant maps) to enable Upper Nass to determine the potential impact of the proposed development on Upper Nass cultural and natural resources, well prior to any occurrence of field or development work occurring on the land.

²⁶ CAID. (2008). *ConstAct010208.pdf*. Retrieved from <https://caid.ca/ConstAct010208.pdf>

Province of British Columbia. (n.d.). *Consulting with First Nations*. Retrieved from <https://www2.gov.bc.ca/gov/content/environment/natural-resource-stewardship/consulting-with-first-nations>

- The Wilp Simoogit (or Simgigyet) have provided to the Development Proponent all appropriate information relevant to the Upper Nass Wilp land, ecological, and cultural resources, including relevant maps and the Upper Nass LUP, to enable the proponent to understand the Upper Nass values, interests, and plans in conserving and sustaining our lands, ecological resources, and cultural heritage.
- The Development Proponent and Wilp Simoogit (or Simgigyet) have met and discussed the above information and have made every reasonable effort to reach agreement on how a development could proceed in a manner and location that will achieve Upper Nass values, interests, and future plans for conservation and sustainability of cultural and natural resources.
- The Development Proponent has incorporated measures into plans for the proposed development that will recognize, respect, manage, conserve, and sustain Upper Nass Lax Yip lands, cultural and natural resources.

The optimum timing for initial consultation, meaningful discussion, and information exchange with Development Proponents regarding Upper Nass Lax Yip lands, cultural and natural resources is well prior to commencement of field planning, engineering, and development of the proposed project.

Once there is agreement by the Upper Nass Simoogit (or Simgigyet) that Development Proponent plans and field work may proceed, it is important that the Upper Nass Simgigyet monitor progress and results of the work to ensure that the agreed-upon plan is being followed.

The Upper Nass LUP has been prepared to clearly describe the desired future conditions of the Upper Nass Lax Yip land base. The intent of the plan is three-fold:

1. To provide long-term sustainability of Upper Nass ecological and cultural resources
2. To protect and preserve Upper Nass cultural and heritage values and accommodate Upper Nass interest and plans for future use of Upper Nass Lax Yip
3. To provide for continued resource use and extraction in locations and at a rate that will sustain viable populations of all ecological resources at the landscape level.

The Upper Nass LUP provides a detailed, comprehensive statement of objectives, measures, targets, strategies, and is intended to be the basis for meaningful consultation/meaningful discussion and information exchange with government and Development Proponents regarding Upper Nass Lax Yip lands and resources. The Upper Nass LUP will provide a detailed, comprehensive plan against which proponent and government plans can be compared, assessed, constructively criticized, and accepted, rejected, or amended/modified.

The Upper Nass LUP will enable the Upper Nass Simgigyet to consult as a unit with government or proponents regarding proposals planned within Upper Nass Lax Yip, with the Simoogit (Chief) of each impacted Wilp always being responsible for final decisions regarding their respective Wilp (in accordance with Gitxsan Ayookw). The plan provides statements that are applicable to the full Upper Nass Lax Yip area participating in the LUP process, although the Simoogit of each Wilp will always retain decision-making authority over their respective Wilp Lax Yip.

9.1.1.1 Management Intent (goals) for consultation

To conduct meaningful consultation/meaningful discussion and information exchange with all Development Proponents and governments that propose to conduct or support industrial developments within Upper Nass Lax Yip.

Objectives	Measures/Indicators	Targets
<p>1.0 Conduct meaningful consultation with all Development Proponents that propose to initiate developments on Upper Nass Lax Yip lands</p> <p>Note: all references to consultation within the objective, measures, targets, management considerations, and Appendix 1 means:</p> <ul style="list-style-type: none"> • Meaningful consultation • Meaningful discussion • Information exchange 	<p>1.1 Number of proposed developments where meaningful consultation occurs with Upper Nass Hereditary Chiefs well prior to initiation of any field activities</p>	All
	<p>1.2 Number of decisions where the Upper Nass Hereditary Chiefs of the Upper Nass Wilp affected by the proposed development has the final responsibility for the resource management decision for their Wilp</p>	All
	<p>1.3 Number of proposed developments where the Development Proponent receives the Upper Nass LUP well prior to initiation of any field activities</p>	All
	<p>1.4 Number of proposed developments where meaningful consultation continues following development of detailed maps and field engineering plans, and well prior to initiation of any field development work</p>	All
	<p>Management considerations</p> <p>(i) All proposed developments within Upper Nass Lax Yip will require consultation regarding cultural and natural resources prior to any field work or permitting for field work.</p> <ul style="list-style-type: none"> • Consultation will be conducted in a timely manner, commensurate with the size and complexity of the proposed developments, prior to any fieldwork occurring. • Consultations will require meetings with all relevant persons in attendance. All relevant persons includes representatives of the Development Proponent, Chiefs of the affected Wilps, and the Office of the Upper Nass Hereditary Chiefs. Upper Nass Simgigyet will participate as a group. Simoogit of each respective Wilp have the final responsibility for all resource management decisions for their Wilp. The Gitxsan Laxyip Management Office will facilitate the meetings, assist, and support the Simgigyet during consultation, and will assist the Wilp Simoogit in internal discussions and determination of the final decisions. • Consultation, to the extent possible, will have continuity of persons in attendance, in order to 	

	<p>develop and maintain a continuous level of understanding of information exchanged and working relationships developed. Continuity of persons involved allows for continuous building of information, understanding, confidence, and trust, as opposed to starting over with new faces and personalities.</p> <p>(ii) Consultations will occur at two levels:</p> <ul style="list-style-type: none"> • With the Development Proponent, at the strategic or reconnaissance level, to exchange information, identify concerns, and proactively resolve problems prior to significant financial investment; • With the Archaeologist, at the detailed or operational level, to ensure the inclusion of Upper Nass interest and perspectives in all Site Alteration Permits, Heritage Inspections and Heritage Investigations permits, investigations, reports, and recommendations. • All information regarding the location of cultural resource sites, features, and artifacts resulting from Development Proponent field reconnaissance or archaeological investigations will be provided to Upper Nass, with UTM co-ordinates, for inclusion within a Gitxsan Upper Nass Cultural Resource Database. • Appendix 1 presents a consultation protocol to be followed by Upper Nass and all Development Proponents. <p>(iii) Development Proponent Responsibilities</p> <ul style="list-style-type: none"> • Prior to any implementation of field work, the Development Proponent and Simgigyet of the affected Huwilp will discuss the planned development. The intent is for information exchange: <ul style="list-style-type: none"> ▪ to inform Upper Nass as to the location and potential impact of the development ▪ to inform the proponent of the ecological and cultural sensitivity of the proposed development area and the Upper Nass 	
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	<p>perspective regarding the potential impact to the natural and cultural resources of the area.</p> <p>Discussion means meetings with all relevant persons in attendance. All relevant persons includes representatives of the Development Proponent, Simgigyet of the affected Huwilp, and the Gitxsan Laxyip Management Office (GLMO). The GLMO will facilitate meetings and assist and support as required the Simgigyet of the affected Huwilp throughout the discussion.</p> <p>Discussions between the Development Proponent and the Simgigyet of the affected Huwilp will occur at the strategic or reconnaissance level of the proposed development, prior to any detailed field planning and development. The intent is to proactively exchange information, identify concerns, and resolve potential problems prior to significant investment in a development.</p> <p>(iv) Upper Nass-Archaeologist Relationship</p> <ul style="list-style-type: none"> • One or more Upper Nass Wilp members will be employed by the archaeologist as a cultural representative for any archaeological investigation on Upper Nass Lax Yip. Members of the Wilp on which the investigation will be located will be first offered the employment opportunity. • Prior to any application for a permit for archaeological investigations, the archaeologist that is to conduct the investigation will contact the Simoogit of the affected Wilp for a preliminary discussion, to ensure that the permit application includes the Upper Nass perspective and to notify Upper Nass that the archaeologist plans to work on Upper Nass Lax Yip. • Prior to any field investigation, the archaeologist will meet with the Simoogit of the affected Wilp to present and discuss a detailed work plan for the investigation. At this point, 	
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	<p>Upper Nass interests and values will be integrated into the archaeological planning process.</p> <ul style="list-style-type: none"> • Following completion of the field investigation, the archaeologist will meet with the Simoogit of the affected House Territory to apprise Upper Nass of the work completed and results of the work, and to provide a draft copy of the final report. • The archaeologist will make available sections of the final report to present the Upper Nass cultural perspective regarding the investigation and archaeologist recommendations, provide opportunity for Upper Nass to prepare the written submissions, and include those submissions as an integral part of the final report that will be submitted to the Development Proponent and the Provincial Archaeological Branch. <p>9.1.1.2 Rationale</p> <ul style="list-style-type: none"> • Meaningful consultation/meaningful discussion and information exchange is intended to build co-operative working relationships between Upper Nass Simigiyet and Development Proponents. • Co-operative working relationships will gradually build mutual trust, respect, and confidence in the process. • Mutual trust, respect, and confidence will result in greater understanding of and respect for (a) Upper Nass cultural heritage, (b) connections between Gitksan cultural and natural resources, (c) the cultural importance of Gitksan Upper Nass Lax Yip resources and will lead to more effective and respectful management of Upper Nass Lax Yip resources. 	
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Appendix 1

Upper Nass Consultation Protocol

The following is the Upper Nass Consultation Protocol prepared to assist proponents and Upper Nass in commencement, continuation, and enhancement of meaningful consultation, meaningful discussion, development of positive relationships, and appropriate information exchange.

It is expected that all proponents of industrial, commercial, recreational or government developments will utilize and participate in this protocol. It is also expected that all proponents will submit the required information in the format requested in this protocol.

1.0 Non-forest Industry Consultation

For all non-forest industry developments/projects, the following is required:

Company Information

- Legal name of company and year of incorporation
- Legal name of parent company
- Contact person's name, telephone number and email
- Company mailing and street address
- Company corporate structure
- Internet site address

Maps

- Location map, 1:50,000 scale identifying the project location, rivers, lakes, Highways and resource roads
- Site maps to an appropriate scale (1:5,000 or 1:10,000) with contours, water bodies, roads, boundary of project, structures and infrastructure (existing and planned)

Description of the Project

- Type of project e.g. mining, power, tourism, road etc.
- Size of Project (hectares, kilometers) Capacity (tons, Megawatts) Volume
- Attach any preliminary reports, old report, historical information

Description of the project timelines

- Commencement of each phase
- Planned production
- Longevity of the project (life)

A list of previous projects completed by the proponent

- Attach a list of relevant projects with a summary of information

Environmental protection measures

- List the known or anticipated environmental impacts and planned protection measures

Request for Upper Nass; information the proponent needs from Upper Nass

A list of all contractors and subcontractors that the Development Proponent is expecting to include in the project.

First opportunity for employment must be offered to Gitksan people for work on Upper Nass Lax Yip

Inclusion of greater than 20% Upper Nass employment (if available) for all work on Upper Nass Lax Yip

This consultation protocol is applicable to both first time and continuing consultation with the Upper Nass Simgigyet. Long-term continuing consultation and information sharing requirements may change depending on the progress of the development and interaction between the Upper Nass and the Proponent. It should be noted that consultation does not guarantee consent.

2.0 Forest Industry Consultation

For forest industry projects, the information and format required is provided in Table 3 of this consultation protocol.

Forest industry proponents will use this format for consultation, discussion, and information sharing in regards to harvesting, silviculture, and road building activities.

Tabular information submitted as per Table 3 will be accompanied by relevant maps:

- Location map at 1:50,000 or other appropriate scale identifying, at a minimum, the project location, rivers, lakes, highways, and resource roads.
- Site maps at an appropriate scale (1:5,000 or 1:10,000) with contours and planimetric information.

Table 3

Upper Nass Forest Industry Consultation Form

(to be completed by all forest industry proponents)

Name of Company:	
Contact Person:	
Contact person email:	

Date of submission:	
Wilp :	

Geographic Area	Licence	Block	Area (Ha)	Volume (m3)	New Block (Y/N)	Planning Stage	Planned Harvest or Construction Date	Date of Last Referral	Resource overlap or adjacency to cultural resources

Upper Nass Forest Industry Consultation Form Details:

Blocks and Associated Roads:

Recce: Proposed block or road has been walked but no field work has been completed; first referral to Upper Nass

Layout Started: Proposed blocks or roads have layout partially completed

Layout Complete: All layout and assessments have been completed but not yet tendered or under cutting permit

Permitted: Block has had all assessments completed, licence has been tendered and awarded or cutting permit is issued

Roads Tendered: FSR roads are built but associated blocks are not yet tendered (BCTS)

Roads Permitted: Main roads (outside cut block boundary) have permits issued.

Resource Overlaps or Adjacencies:

This column is used to identify any overlaps between industrial developments and cultural resources identified in the LUP, or Upper Nass Cultural Resources Database. This includes any proposed developments that are within close proximity (300 meters) of any identified cultural site.

3.0 Submission of Consultation Information

All referral and consultation should be sent by mail to:

Gitxsan Laxyip Management Office

c/o Upper Nass Watershed Facilitator

Box 321, 4240 Government St.

Hazelton, B.C.

V0J 1Y0

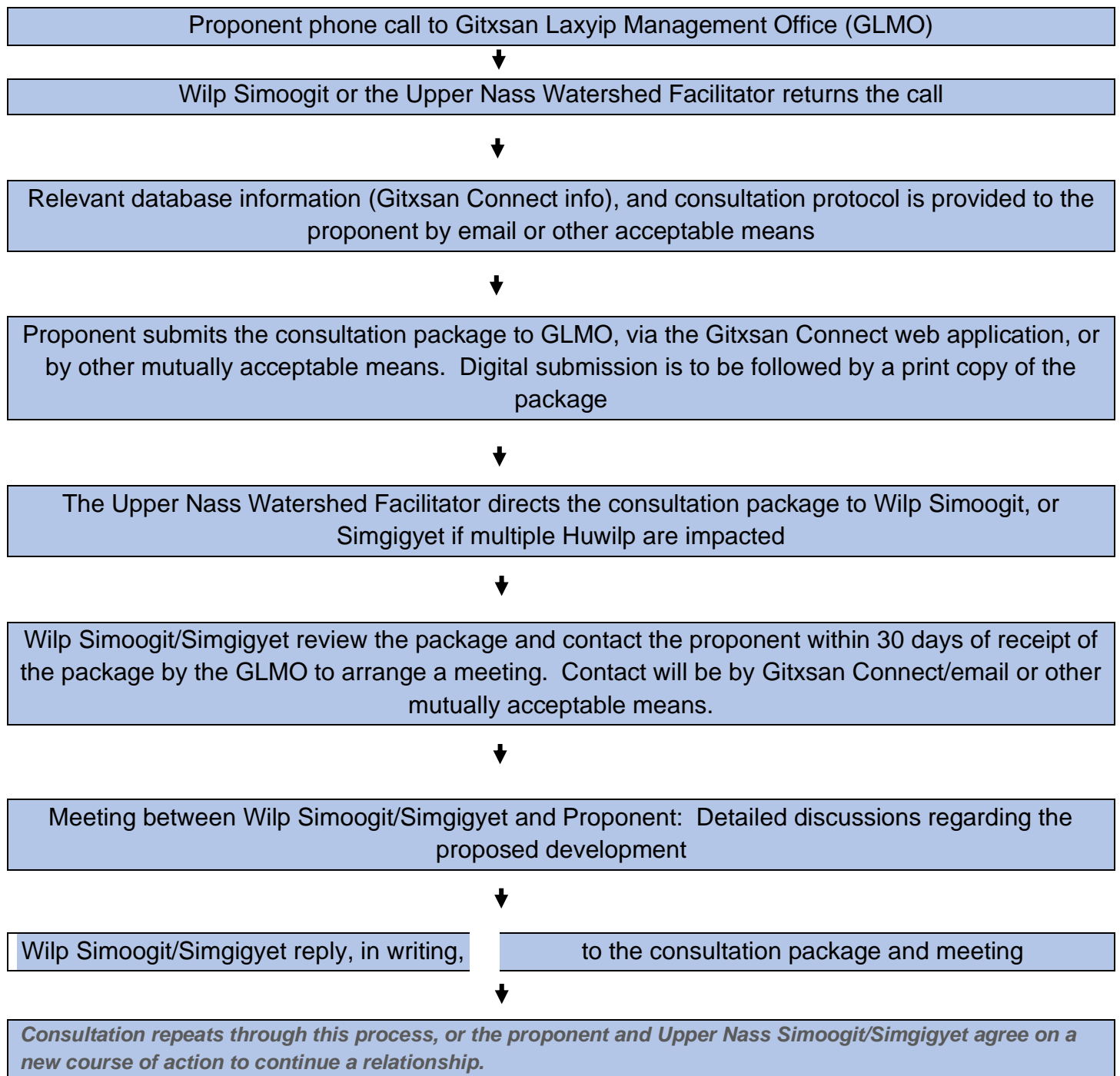
The preferred method of submission of information is through the Gitxsan Connect web application (https://www.gitxsanconnect.com/users/sign_in), followed by a hard copy, to facilitate efficient management, application, and storage of the submitted data.

It is the responsibility of the Upper Nass Watershed Facilitator to direct consultation packages to the appropriate Wilp Simoogit or Simigyeyet. A meeting will be requested with the proponent, to meet with the appropriate Wilp Simoogit or Simigyeyet and the GLMO to review the project in more detail. Following the meeting the Wilp Simoogit or Simigyeyet will respond to the information provided through the consultation process once they have reviewed and assessed the information. Replies to consultation packages and meetings will be in writing although verbal communication is acceptable with written follow-up.

Upper Nass Simigyeyet will generally participate in the meetings as a group. The Simoogit of each Wilp has the final responsibility for all resource management decisions for their respective Wilp Lax Yip. The Gitxsan Laxyip Management Office will facilitate the meeting, assist and support the Wilp Simoogit/Simigyeyet during consultation, and will assist the Wilp Simoogit/Simigyeyet with internal Huwilp discussion (if appropriate) and determination of the final decision (if appropriate).

Upper Nass considers the completion and continuation of this consultation protocol and process as a component of meaningful consultation. Meaningful consultation is a perpetual process in which Upper Nass interests are recognized and the result of the consultation reflects respect toward the Upper Nass Simigyeyet and their stated requirements for consent to operate within Upper Nass Lax Yip.

4.0 Basic Consultation Process



9.2 Cultural Heritage Resources^{28, 29}

Cultural heritage resources of the Upper Nass Lax Yip are defined as:

Those resources considered culturally important to the Upper Nass people; resources that provide a connection or linkage between the past, present, and future of the Upper Nass Lax Yip, including but not limited to:

- Upper Nass Lax Yip, including Wilp boundaries
- Fish, wildlife, plants (i.e. full range of biodiversity)
- Land and water of the Lax Yip
- Landforms, landmarks, place names (including Wilp boundaries)
- Cultural areas
- Upper Nass traditional cultural expressions (Upper Nass intellectual property)
- Gitxsan place names
- Cultural sites and features
- Artifacts

Heritage is defined as:

What a people inherit; the shared, inherited history and culture of the Upper Nass people, affirming connections between past, present, and future, including, but not limited to:

- The land and landforms where Upper Nass people have lived
- the customs, practices, and laws of the Upper Nass people
- the resources of the land that were and are utilized
- the oral and/or written history of the Upper Nass people
- the sites where customs and traditions were and are conducted
- the traditional knowledge of the people
- spiritual and material realms

Culture is an integral part of the heritage of the Gitxsan Upper Nass people and cannot be separated from the land and resources where the people live(d).

The land and water of the Upper Nass Lax Yip are integral to the heritage and culture of the Upper Nass people; heritage and culture were formed from the land and water and cannot be considered separate from the land and water.

Knowledge of the Upper Nass people has developed along with heritage and culture through many centuries of living as an integral part of the land, and through keen awareness and constant observation. Traditional and contemporary knowledge are integral components of Gitxsan Upper Nass heritage and culture and supports, complements, and provides confirmation to western science and the Upper Nass LUP.

²⁸ Crossroads Cultural Resource Management. (2018). *Upper Nass Watershed Interim Land Use Policies* (Draft document)

²⁹ *Gitanyow Cultural Heritage Resource Management Policy*. (September 2009) Retrieved from Section 7.0 Cultural and Archaeological Terminology of this Upper Nass LUP.

Table 1, within the Upper Nass LUP *Preface*, illustrates the linkages and hierarchies (ranking of the order of evolution and development) of the land, the natural resources of the land, and the Upper Nass cultural resources that evolved from the Upper Nass people’s relationship with the Upper Nass Lax Yip.

Upper Nass cultural heritage is directly and inextricably connected to and reliant upon the sustained presence and quality of Upper Nass ecological resources. Sustaining the resources of the land is central to sustaining Upper Nass culture and economies.

Cultural heritage resources include both tangible and intangible resources.

Intangible resources comprise a distinct part of the heritage of the Gitksan Upper Nass people and include oral histories, laws, customs, ceremonies, language, family crests, family names, place names, and traditional knowledge.

Intangible knowledge is highly important to Gitksan Upper Nass culture, but is not discussed within the Upper Nass LUP objectives, measures, and targets.

Tangible cultural resources include ecological resources; geographic features, fish, wildlife, soil, plants of the land, which our ancestors have been stewards of, for the current and future use of Upper Nass people.

Tangible resources include specific locations termed *cultural sites*, and broad land areas, termed *cultural areas*, where activities historically and currently are pursued.

Cultural sites include, but are not limited to this specific list, and can be added to or reduced according to the traditional knowledge of the Gitksan Upper Nass Simgiyet:

- Cabin sites
- Cache pits
- Campsites
- Fishing sites
- Gravesites, burial sites, burial grounds, cremation pits
- “Face” trees
- Village sites
- Culturally modified trees (CMT)
- Wilp boundaries
- Trail blazes
- Trapline blazes
- Medicinal plant sites
- Pictograph and/or petroglyph sites
- Smokehouse sites
- Berry-picking sites

Sites can be effectively protected by wind-firm buffers of forest due to the relatively small sizes of individual sites.

Cultural areas are generally large and widespread and cannot be effectively protected through the use of wind-firm buffers, due to the larger more extensive nature of the area. Cultural areas include, but are not limited to:

- Spiritual areas
- Hunting areas
- Trapping areas
- Fishing areas
- Food gathering areas (including medicinal plants, subsistence plants, berry-picking areas)
- Access trails
- Wilp boundaries (whether marked or unmarked) are places of cultural importance

Archaeological Sites and Heritage Sites as defined by an archaeologist under the *Heritage Conservation Act* are a small subset of Upper Nass cultural resources where archaeological investigations have occurred and located evidence of human activities.

Cultural Sites and Archaeological Sites frequently are located within larger areas considered to be cultural areas.

The continued existence in an undamaged condition of cultural sites, archaeological sites, and artifacts, and the sustainable and continued effective function of cultural areas in the present and into the future is of great importance to Gitxsan Upper Nass Simgiget and Wilp members:

- As a historical, emotional, and spiritual connection to Lax Yip
- As a cultural gallery for education of Upper Nass youth and the general public about Gitxsan Upper Nass history and culture
- As legal proof of Upper Nass occupancy and use of Upper Nass Lax Yip. Cultural sites and cultural areas must remain in existence and in functional condition in order to facilitate archaeological surveys to support and reaffirm Gitxsan Upper Nass ownership of Upper Nass Lax Yip prior to 1846 and colonial contact
- To verify and support Upper Nass Adawaak (oral histories)

Refer to Appendix 2-D for information regarding:

- Archaeological Fieldwork Policy
- Chance Find Policy for Cultural Resources, including Chance Find Management for Human Remains
- Cultural Sensitivity Training

Over the past several decades industrial development including timber harvesting within the western portion of Upper Nass Lax Yip has undoubtedly damaged or destroyed cultural sites and cultural areas, reducing or eliminating opportunities for archaeological investigation of these areas.

Upper Nass Simigyeyet and Wilp members are concerned that continued industrial development of the Upper Nass Lax Yip will further damage or destroy cultural sites, cultural areas, and potential archaeological sites, and will further reduce our abilities and opportunities to:

- Provide archaeological evidence to establish proof of Upper Nass occupancy and use of Upper Nass Lax Yip
- Educate future generations regarding Upper Nass history and culture
- Use the cultural sites and cultural areas in the future to exercise our Aboriginal Rights and continue traditional practices and use on Upper Nass Lax Yip
- Develop Upper Nass economies through cultural tourism and education, among other potential opportunities
- Ensure that Upper Nass Wilp members are employed by any Development Proponent and consulting Archaeologist for every cultural and archaeological assessment implemented on Upper Nass Lax Yip.

9.2.1 Management Intent: Plan Goals for Cultural Heritage Resources

- To recognize and respect the significance and value of the Upper Nass Lax Yip cultural heritage resources to the Upper Nass Simigyeyet and Wilp members
- To preserve, protect, and maintain the cultural heritage resources of the Upper Nass Lax Yip so that the Upper Nass people can continue to exercise legally protected Aboriginal Rights within the Upper Nass Lax Yip
- To recognize that natural/ecological resources are cultural resources in Gitksan worldview and to recognize the inherent interconnectedness of all beings and the responsibility for stewardship that rests with each respective Simoogit.

9.2.1.1 Cultural Sites: Objectives, Measures, Targets, Management Considerations

Cultural Sites are any site that is of cultural importance to the Gitksan Upper Nass people, without constraints of historical age or material remains. It is emphasized that the pre-1846 date contained in the *Heritage Conservation Act* that signifies automatic protection for archaeological resource has no relevance to the Upper Nass Simigyeyet. The Upper Nass Simigyeyet recognize and respect the *Heritage Conservation Act* (HCA) and will not provide less protection than mandated by HCA for archaeological resources. The Upper Nass Simigyeyet definitely require a greater level of protection for specific resources. We, the Upper Nass people, have the right and responsibility to maintain, protect, preserve, and develop our cultural resources; the right and responsibility includes past, present, and future expressions of our culture.

Objectives	Measures/Indicators	Targets
<p>1.0 Preserve Cultural Sites</p>	<p>1.1 Number of commercial or industrial projects (including commercial operations relating to guide outfitting and commercial forage operations) proposed for implementation on the Upper Nass Lax Yip that are subject to meaningful consultation between the Development Proponents and the Upper Nass Hereditary Chiefs regarding the full details of the proposed project and the potential impacts to our Lax Yip and cultural heritage resources prior to any work on the project on Upper Nass Lax Yip. Initial consultation will be conducted by the Upper Nass Simgigyet as a group. Final responsibility for decisions regarding the cultural site and proposed project will be made by the Simoogit (Hereditary Chief) of the applicable Wilp.</p>	<p>All</p>
	<p>1.2 Number of pre-1846 cultural sites that are fully protected from industrial disturbance, except where authorized by applicable legislation and consented to by Upper Nass Simgigyet. Initial consultation will be conducted by the Upper Nass Simgigyet as a group. Final responsibility for decisions regarding the cultural site and proposed project will be made by the Simoogit (Hereditary Chief) of the affected Wilp.</p>	<p>All</p>
	<p>1.3 Number of post-1846 cultural sites that are fully protected from industrial disturbance, except where consented to by Upper Nass Simgigyet</p>	<p>All</p>
	<p>1.4 Percent of recently identified sites that are not currently known that are reported to Upper Nass Simgigyet and the Development Proponent for entry into the Upper Nass Cultural Resources Digital Data Base and recording into the Upper Nass Mapping System</p>	<p>100%</p>
	<p>1.5 Number of cultural sites that have been recorded in an Upper Nass Cultural Resources Digital Data Base, with Global Positioning System (GPS) location recorded and position accurately plotted in the Upper Nass Mapping System</p>	<p>All Known sites mapped and documented and all identified sites currently unknown (not mapped and documented)</p>
	<p>1.6 Number of cultural sites that are fully protected from industrial disturbance by establishment of a wind-firm buffer surrounding the site. Width of the buffer is to be as recommended in Table 4: General Avoidance Buffer Width.</p>	<p>All</p>
<p>2.0 Address Upper Nass interests and concerns regarding access to cultural sites</p>	<p>2.1 Proportion of cultural sites where Upper Nass requirements and concerns regarding access to cultural sites are addressed and honoured</p>	<p>100%</p>

Management Considerations

- Preservation and protection refer to mapped (known) and unmapped (not known) cultural heritage sites.
- Cultural sites may not be site-specific but instead refer to a polygon with a buffer, attributed to the specific site.
- Following consultation with the Development Proponent, Upper Nass requirements will be addressed and honoured regarding access concerns occurring prior to, during, and following industrial development.
- Upper Nass will update the database of cultural sites annually. Continued mapping of cultural sites, including Archaeological Sites, is necessary to ensure protection and preservation of cultural sites and artifacts. Development Proponents will have access only to a portion of the cultural data that is applicable to a specific development, in order to maintain confidentiality of information. Development Proponents will also be required to sign a Confidentiality Agreement with the Upper Nass Simigiyet regarding information and location of cultural heritage resources.
- Cultural sites as defined and identified by Upper Nass, include, but are not limited to, culturally modified trees (CMT), cache pits, gravesites, house pits, fishing sites, pictograph sites, smokehouses, cabins, camping sites, and spiritual sites.
- Archaeological Sites are cultural sites where Archaeological Investigations have been conducted and found physical evidence of past human activity.
- The Simoogit of each Wilp has the final responsibility for all resource management decisions for their Wilp. Any inquiry, notification, or consultation regarding cultural sites should be directed to the Miin Simoogit of the Wilp on which the site is located.
- **All cultural sites are to receive a level of protection that retains the cultural value and function of the site. The level of protection will be based upon:**
 - The cultural importance to Upper Nass of the specific site. Upper Nass cultural importance will be the primary consideration.
 - Specifics of the site, including the type of site, current condition of the site, and major physical characteristics of topography, slope stability, geographic location, vegetation, and potential for windfall.
 - Results of archaeological investigation and recommendations of the archaeologist and the Wilp members accompanying the archaeologist. All archaeology work conducted within the Upper Nass Lax Yip must be conducted in the presence of the designated Wilp member.
- Any archaeologist employed by a Development Proponent to conduct work on the Upper Nass Lax Yip must meet the approval of the Upper Nass Simigiyet. Archaeologists that are not acceptable to the Upper Nass Simigiyet will not be permitted to conduct work on the Upper Nass Lax Yip.
- A primary requirement for an archaeologist to be considered acceptable is that the archaeologist must be experienced with the Northwest BC First Nations culture and how it is represented on the ground.
- An Archaeological Overview Assessment (AOA) will be conducted for the entire Upper Nass Lax Yip, in order to identify areas of high, medium, and low potential for the presence of cultural sites, features, and artifacts, and to focus subsequent Archaeological Impact Analysis (AIA) and Preliminary Field Reconnaissance (PFR).

- **An Archaeological Impact Assessment (AIA) will be conducted for every proposed development on the Upper Nass Lax Yip that is:**
 - Within an area of high potential for cultural heritage sites, as determined by our archaeological overview assessment (AOA) of the Upper Nass Lax Yip
 - Within 300 meters of any cultural site listed in the Upper Nass Cultural Resource Database.
 - Where a preliminary field reconnaissance (PFR) indicates there is a cultural site, or a high potential for a cultural site, that could be impacted by the proposed development.

**Table 4:
General Avoidance Buffer Widths**

Note: Table 4 is applicable to Appendix 2-B and 2-C, but not applicable to Appendix 2-A

Relative Cultural Site Category Importance	Recommended General Buffer Width (metres, measured in horizontal distance from the outer edge of the boundary of the cultural resource to the outer edge of the buffer)
(1) Sites with cultural features above ground (e.g. fishing sites, cabin sites, cache pits): VH H M-H M, M-L L	<p style="text-align: center;">200 100 75 50 25</p>
(2) Sites with NO cultural features above ground (e.g. lithic scatter, buried artifacts). Excluded from this site category are human remains, grave sites, burial sites, burial grounds, Ant’gela (cremation sites). (See section 9.2.1.2 for buffer widths around grave, burial, and cremation sites.)	<p style="text-align: center;">0</p> <p style="text-align: center;">No avoidance buffer distance, but no ground disturbance; no industrial or recreational activity except on frozen soils/snow pack >.75 m depth.</p>

Table 4 provides recommendations for general buffer widths to achieve acceptable avoidance and protection of cultural sites, based on relative cultural value and significance of the sites to Upper Nass Simgigyet and Wilp members of the differing categories of the cultural sites as documented in Appendix 2-B. All sites are important; some sites are of greater relative importance. These are recommendations, not rigidly prescribed buffer widths, and are intended to inform Development Proponents of the expected “ballpark” level of protection for Upper Nass cultural sites. The

intent is that the majority of cultural sites will receive protection that closely approximates the recommended buffer width, but that the implemented widths may be increased or decreased based on site-specific considerations, through proactive and meaningful consultations between Upper Nass Simigiyet and the Development Proponent.

9.2.1.2 Upper Nass Ancestral Human Remains

For purposes of this Land Use Plan, the term **human remains** includes:

- Human remains
- Grave sites
- Burial sites/burial grounds
- Cremation sites
- Mortuary trees

For purposes of this Land Use Plan, the term burial grounds means:

- Three or more sites of human remains (including physical human remains, grave sites, burial sites, cremation pits) that are grouped no further apart than 100 meters from one site to the next site.

Upper Nass ancestral human remains were traditionally cremated in cremation pits that were used multiple times, as a graveyard. This practice was in use until the time of European contact, from which time human remains were interred in grave sites within designated cemeteries, and in graves throughout Upper Nass Lax Yip. Human remains were also buried in unmarked burial sites, the locations of which are generally unknown.

A mortuary tree is not considered as human remains in the manner that physical human remains, grave sites, burial sites, and cremation pits are considered. A mortuary tree is a Culturally Modified Tree and functions as a marker or indicator of the immediate location of human remains, similar to a modern headstone in a cemetery, and **must be** considered for protection as an integral component of the human remains indicated by the mortuary tree.

Interments within designated cemeteries were documented; burial records are maintained by the department of Crown-Indigenous Relations and Northern Affairs Canada. There are no records of burials on the Upper Nass Lax Yip outside of designated cemeteries.

Upper Nass human remains are the ancestry of current and future Upper Nass generations and are strongly connected to and highly respected by Upper Nass Wilp members; grave sites, burial sites, burial grounds, cremation sites, and their human remains are sacred to the Upper Nass people.

The locations of Upper Nass human remains may be known, in grave sites or cremation sites, or may be discovered through archaeological investigations, disturbance of ground by industrial activity, natural events such as stream bank erosion, wind throw of trees, or other incidental means. Upper Nass human remains may also be repatriated to Upper Nass from museums or other sources external to Upper Nass Lax Yip.

Human-caused disturbance to Upper Nass ancestral human remains is considered a serious transgression upon Gitxsan Upper Nass ancestry, and is a very serious offence under Gitxsan Ayookw (law).

When considering sites for archaeological investigation of grave sites, burial sites, cremation sites, and human remains (and/or protection of these sites), the consideration must include not only the individual sites but also the larger landscape, that is, the burial ground surrounding the individual sites, and must include protection for the full burial ground.

Numerous sites of human remains are anticipated to be located within burial grounds and individual sites:

- Adjacent to historic Wilp village sites
- Adjacent to historic main trails that connect historic village sites to each other, with buffers for the purpose of respecting and preserving the remains of cremation that historically took place along the trails

Refer to Appendix 2-D for information regarding:

- Archaeological Field Work Policy
- Chance Find Policy for Cultural Resources, including Chance Find Management for Human Remains
- Cultural Sensitivity Training

Grave sites, burial sites, burial grounds, cremation sites – whether or not they contain actual ancestral human remains – are to be considered and treated with respect as **human remains**.

Objectives	Measures/Indicators	Targets
<p>1.0 Preserve human remains, grave sites, burial sites, burial grounds, and cremation sites in a manner that will retain the integrity, dignity, and respect for the human remains and sites. Grave sites, burial sites, burial grounds, cremation sites, whether or not the sites contain actual human remains, are to be considered as human remains.</p>	<p>1.1 Number of Upper Nass sites of human remains that retain the integrity, dignity of, and respect for the human remains and sites</p>	<p>All</p>
	<p>1.2 Number of Upper Nass sites containing human remains that are discovered by any means that are immediately referred to RCMP</p>	<p>All</p>
	<p>1.3 Number of sites where human remains are discovered by any means, where consultation with the Simoogit of the Upper Nass Wilp on which the remains are located, occurs regarding the exhumation and interment of the remains</p>	<p>All</p>
	<p>1.4 Number of sites of human remains that are disturbed by an industrial development where the cost of exhumation, analysis, reburial, and compensation is paid by the Development Proponent to the Simoogit of the affected Upper Nass Wilp and the affected family. Compensation paid by the Development Proponent will include all costs associated with required protocols and ceremony, including costs associated with holding a feast related to the disturbance and relocation of human remains.</p>	<p>All</p>
	<p>1.5 Percentage of Upper Nass ancestral human remains that are interred on Upper Nass Lax Yip or in Upper Nass cemeteries that receive established Upper Nass rituals and ceremonies</p>	<p>100%</p>
	<p>1.6 Number of sites of human remains that are disturbed by archaeological or industrial development that are accurately mapped and identified, cleared, and protected by a permanent fence and a cleared buffer surrounding the fence</p>	<p>All</p>
	<p>1.7 Width of the cleared buffer surrounding the fence protecting the grave site</p>	<p>Not less than 50 metres on all sides of the protective fence</p>
	<p>1.8 Width of full <u>burial grounds</u> protected as a unit surrounding the individual sites of human remains.</p>	<p>Not less than 50 metres beyond the encompassed sites of human remains</p>

	<p>1.9 Width of protective buffer established along the historic main trails that connect historic village sites; for purposes of protection and respect for the human remains of historic cemeteries</p>	<p>Not less than 50 meters on either side of the trail centre line and greater when required to encompass historic human remains (see Measure and Target 1.8)</p>
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Management Considerations: Policy Statements for Ancestral Human Remains

Disturbance to Upper Nass human remains

- There should be NO human disturbance to Upper Nass ancestral human remains, whether in a designated cemetery, a known grave or cremation site, or discovered incidentally through archaeological investigation, industrial development activity, or other means.
- Where a natural event such as stream bank erosion has exposed or threatens to disturb human remains, the remains may be exhumed and re-buried at another location, according to the directions of the Simoogit of the Wilp on which the site is located.
- It is recognized that some disturbance to a site may occur as a result of archaeological investigation. In the event that archaeological investigation discovers human remains, the archaeologist will immediately cease investigation of that site and request consultation and instruction from the appropriate Upper Nass representative (see Section (iii) “consultation”) regarding further disturbance to the site and the human remains.
- Industrial development will not be accepted as an appropriate reason for disturbing Upper Nass ancestral human remains. In the event of a conflict from a development, either planned or in progress, the highest priority approach will be to relocate the development so that the human remains and the site on which the remains are located are not disturbed. Plans for relocation of the industrial development will be determined by meaningful consultation between the Upper Nass Simgigyet and the Development Proponent such that respect and protection of the human remains is assured. Refer to Appendix 2-D regarding Chance Find Procedure, including Chance Find Management for Human Remains.
- It is the responsibility of every Development Proponent that plans a development on Upper Nass Lax Yip to conduct sufficiently detailed archaeological investigations to locate cultural sites that contain human remains prior to commencing the development, in order that the development may be effectively relocated without further disrespect to the human remains and without a loss of infrastructure investment by the proponent.
- In the event that the development cannot be relocated in a manner and to a location that will protect the human remains from disturbance, or where human remains are incidentally discovered during a development, planning and progress of the development will cease. Representatives of the development company will notify and consult with the appropriate Upper Nass representatives (see Sections (ii) “Notification” and (iii) “Consultation”). The Upper Nass Simgigyet and development representatives will jointly prepare, subject to any RCMP investigation and requirements, a plan regarding management of the cultural site and human remains. The Upper Nass Simgigyet will lead the process to define a plan for

discovered human remains; the Simigiyet may decide that the human remains should be left in place without further disturbance.

Notification of discovery of human remains on Upper Nass Lax Yip

When human remains are discovered by any means, the person or corporation that made the discovery will immediately notify the Gitksan Laxyip Management Office (GLMO) (Upper Nass Watershed Facilitator). The GLMO will direct the notification to the Simoogit of the Wilp on which the human remains were discovered.

Discovery of any human remains, under Canadian law, must be immediately reported to the RCMP in order that the RCMP may investigate and determine whether or not a crime has been committed.

The RCMP will follow established legal and internal procedures, which usually include:

- Maintenance of confidentiality of information regarding location and specifics of reported human remains
- Contact with a Coroner
- Contact with a professional archaeologist to examine the site and remains. Given the sensitive nature of human remains, the archaeologist retained by the RCMP to carry out the examination must meet the approval of the Upper Nass Simigiyet.
- Determine if the human remains need to be exhumed for further forensic analysis. This would be a joint RCMP and Upper Nass decision and must be carried out in a culturally sensitive manner acceptable to the Upper Nass Simigiyet. Upper Nass Simigiyet will support the RCMP in their investigation, and expect that the RCMP will provide allowances for the Simigiyet to perform necessary cultural protocols without impeding an active investigation.
- Any analysis of the exhumed human remains as required to determine ancestry, age, sex, etc., carried out in a culturally sensitive manner acceptable to the Upper Nass Simigiyet.
- Returning the remains to Upper Nass for further analysis or burial as soon as the RCMP have no further need to hold the remains, carried out in a culturally sensitive manner acceptable to the Upper Nass Simigiyet.
- Any information relating to discovery and notification of human remains found within Upper Nass Lax Yip will remain confidential between the RCMP and the Upper Nass Simigiyet; no details or general information will be shared with individuals or agencies outside of the RCMP or Upper Nass Simigiyet.

When the human remains are returned by the RCMP to Upper Nass, the Simoogit of the Wilp on which the remains were discovered, or their designated representative, will receive the remains.

Consultation regarding human remains

Any investigation of a site will cease upon discovery of human remains. The archaeologist or other project leader will consult with the Simoogit of the Upper Nass Wilp on which the remains are located and request instructions, subject to any RCMP investigation, regarding:

- Further site investigations
- Exhumation of the human remains

- Analysis of the remains for ancestry, age, sex to provide Upper Nass with historical data and evidence of occupation of the Lax Yip
- Re-burial of the remains, where required.

Plans for developments that may disturb human remains will not be implemented without meaningful consultation with Upper Nass; any progress on a development that has disturbed human remains will immediately cease operation. Representatives of the development company will consult with all of the following:

- Gitxsan Laxyip Management Office, Upper Nass Facilitator
- Simoogit of the affected Wilp
- Living family members of the remains, if known, regarding the development, whether planned or in progress.

The first consideration, of the highest priority, will be to preserve the human remains where the remains were originally discovered, in order to retain the cultural and archaeological values. The primary method of preservation, of highest priority, will be to relocate the development to avoid disturbance to the human remains. Where the development cannot be relocated to protect the remains, Upper Nass and the company representatives will jointly prepare a plan, subject to any RCMP investigation, that provides measures for:

- Methodology of exhuming the human remains in a culturally sensitive manner appropriate to the Upper Nass Simgigyet
- Designated person or entity responsible for conducting the exhumation of remains
- Required analysis of the remains for ancestry, age, sex, etc. to provide data for Upper Nass historical records and evidence of occupation
- Location and procedure for re-burial of the remains
- The re-burial ceremony that will be conducted, including the ceremony feast
- Compensation, including feast expenses, to the Wilp or family members for the disrespect to Upper Nass ancestors.

The Development Proponent will be responsible for the cost of exhumation, analysis, and re-burial of the remains, and for Upper Nass compensation, including feast expenses.

- The GLMO Upper Nass Watershed Facilitator will receive any notifications of developments that may disturb human remains, and will direct the requests to the Simoogit of the relevant Wilp for consultation and decisions regarding the human remains.

Repatriation of Upper Nass Human Remains

In the event that human remains of Upper Nass ancestors outside the Upper Nass Lax Yip become known, the GLMO will pursue repatriation of these remains to Upper Nass Lax Yip, at the direction of the appropriate Wilp Simoogit.

Upper Nass human remains that are repatriated to Upper Nass will be received by the Simoogit of the Wilp from which the remains were taken, if known. Otherwise, the remains will be received by a designated representative determined by the Upper Nass Simgigyet.

The repatriated human remains will be buried on the Wilp from which they were taken. If the Wilp of origin is unknown, the remains will be interred in the Upper Nass cemetery.

Burial ceremonies for repatriated remains will be the same as for all other Upper Nass reburial ceremonies.

Procedures for Exhumation and Reburial of Upper Nass Human Remains

Any Upper Nass ancestral human remains that have been exhumed or repatriated should be reburied on Upper Nass Lax Yip. When remains are exhumed and reburied, the interment site chosen will be as close to the original site as possible.

The closest living relative, and/or the Wilp, will:

- Select the site for re-burial
- Supervise the exhumation of the remains
- Arrange for the casket
- Re-enact the burial ceremony in the chosen location
- Hold a feast to inform Upper Nass Wilp members what has been done and to pay for the work. Feast expenses will be the responsibility of the Development Proponent responsible for the disturbance of the ancestral human remains.

When the remains are re-buried on the original site, for example on the site of an archaeological investigation, Upper Nass Wilp members will hold a ceremony to pay respect and to witness that the process was completed to Gitksan Upper Nass standards.

When remains are exhumed from within a cemetery with records of the original burial, documentation that the remains were exhumed and reburied in another part of the cemetery will be submitted by the Gitksan Laxyip Management Office to the department of Crown-Indigenous Relations and Northern Affairs Canada.

Reburial of human remains on the Lax Yip will have the same reburial ceremonies as held within an Upper Nass cemetery. Repatriated remains will have the same ceremonies as for any other Upper Nass ancestral human remains.

Upper Nass Internal Reburial Ceremonies

The procedure for reburial is no different from current day practices. The Upper Nass Wilp must be notified by the archaeologist as to when the return of remains is to occur. Remains are to be placed in a Bent Box or casket.

The Wilp Simoogit and members shall be present upon the arrival and shall conduct the traditional ceremonies required for proper burial.

In preparation for burial of remains, the Wilp members must plan and then invite others to attend and witness the event. Upon the arrival of the remains, the chiefs will then proceed with the ceremony; singing of Llmx oo'y (lament songs).

The remains shall be brought to its original site, if possible, or taken to the Upper Nass interment site for burial. (Members of a Chief's father clan shall be appointed to dig the grave prior to burial and place an "Outer protector box" within the grave.)

Once the remains are buried, the Simoogit shall announce a feast to follow, where all workers selected shall be paid for jobs completed.

This feast reflects that all business has been conducted and is re-affirmed by the giving of gifts and by speeches made by the Guest Simgigyet.

Documentation and recording of the day's event are kept and shall be placed in the Upper Nass database and/or at the selected Upper Nass repository.

Management of Upper Nass grave sites, cremation sites, burial sites, and burial grounds

Grave sites, cremation sites, burial sites, and burial grounds contain the remains of Upper Nass ancestors and must be treated with respect and protected against human disturbance.

Management of these sites to provide identification and protection will be at the discretion of the Wilp Simoogit and may include the following:

- Record the site location with GPS co-ordinates
- Retain the original marker or provide a new and permanent marker
- Establish a sign to mark the site
- Clear any bush or trees from the site
- Provide a highly visible permanent boundary marker or permanent protective fence around the site, at the discretion of the appropriate Wilp Chief
- Provide a buffer zone to the interment site. The buffer zone will be cleared of forest for a distance of not less than 50 metres in all directions around the fence. The intent of the buffer is to prevent any falling trees from damaging the fence and site features. The buffer can initially be cleared by mechanical means as long as no disturbance to the human remains occurs; following clearing operations, the buffer zone will remain a machine-free zone.

Clearing and boundary markers or fencing will occur following consultation between the appropriate Wilp Simoogit and the Development Proponent. Responsibility for clearing will lie with the Development Proponent; the fencing or boundary marker will be the responsibility of the affected Upper Nass Wilp.

Outside the cleared buffer, the forest can remain intact, or can be harvested or otherwise developed, subject to constraints for other cultural and land management values, as set by the Upper Nass Simgigyet.

There will be no cleared buffers where the site is within a protected area under the Land Use Plan, including but not limited to:

- Old Growth Management Areas
- Ecosystem Network core reserves
- Ecosystem Network buffers
- rare ecosystems
- Water Management Units
- Wildlife Management Areas designated for protection
- Protected trail buffers

Clearing will be restricted to trees whose roots will directly affect the burial site.

9.2.1.3 Culturally Modified Trees (CMT)

A Culturally Modified Tree (CMT) is a tree that has been altered by aboriginal people as part of their traditional use of the forest. Non-aboriginal people also have altered trees, and it is sometimes difficult to determine if an alteration (modification) is of aboriginal or non-aboriginal origin. There are no reasons why the term CMT could not be applied to a tree altered by non-aboriginal people. However, the term is commonly used to refer to trees modified by aboriginal people in the course of traditional tree utilization. (Defined by: Culturally Modified Trees of British Columbia; Archaeology Branch, BC Ministry of Small Business, Tourism, and Culture [March 2001].)

Culturally Modified Trees are included in this Upper Nass LUP separately from cultural sites because:

- CMTs are numerous, situated in many broad locations throughout the Upper Nass Lax Yip
- CMTs have been made throughout millennia of time by aboriginal people

- CMTs are cultural site features and may be considered as a single cultural site or an integral component of a larger site
- A CMT is easy to overlook or be unrecognized as having cultural significance.

Gitxsan Upper Nass people throughout time have created Culturally Modified Trees. These trees are cultural features throughout the Upper Nass Lax Yip and are one physical on-the-ground proof that Gitxsan Upper Nass Wilp members occupied and used their Lax Yip, and exercised their Aboriginal Rights throughout time. CMTs range in date from well before 1846 through to modern times, are evidence of Upper Nass cultural continuity, and provide strong evidence of cultural practices that have survived and continued after contact with non-aboriginal people.

CMTs include a diversity of tree species, and include but are not limited to:

- Bark-stripped trees
- Aboriginally-logged trees; test holes, undercut, felled, sectioned, notched, planked trees
- Canoe trees
- Pitch and kindling collection, delimbed trees, message trees
- Aborglyph, aborgraphy, blazed, cambium collection trees
- Trees that have traps placed within the tree by Upper Nass Wilp members during trapping activities
- Mortuary trees: trees marked as a reference to indicate location of human remains

Road construction and industrial development has occurred along the western side of our Upper Nass Lax Yip and may have removed or damaged CMTs without research, sampling, or documentation.

Objectives	Measures/Indicators	Targets
1.0 Identify and record locations of all CMTs; minimize damage or removal of these trees, to the extent possible	1.1 Percentage of trees identified as CMTs of any historical date that are researched, recorded, and data preserved in the Upper Nass Cultural Resource Data Base	100%
	1.2 Number of trees identified as CMTs of any historical date that are protected within wind-firm buffers, through meaningful consultation with Development Proponents.	As many as possible

Management Considerations

All management considerations presented in Section 9.2.1.1 Cultural Sites are equally applicable to Section 9.2.1.3 Culturally Modified Trees (CMTs)

All CMTs will be recorded to a standard of information not less than the Level 1 Site Recording Form and preferably to the standard of the BC Archaeological Site Inventory Form³⁰

- within a proposed development area
- within a 100-meter radius surrounding a proposed development

³⁰ Arnaud H. Stryd, Areas Consulting Archaeologists Ltd., Ministry of Forests. (1997). *Culturally Modified Trees of British Columbia: A Handbook for the identification and recording of Culturally Modified Trees*. Vancouver Forest Region.

- within the area between a proposed development and any cultural site recorded in the Upper Nass Cultural Resource Data Base when the proposed development is located within 300 meters of the cultural site

Where uncertainty exists regarding whether or not a tree is a CMT, apply the precautionary principle and accept and manage the tree as a CMT.

The highest priority will be protection of CMTs through:

- avoidance of CMT sites by redesign of the proposed development (higher priority)
- by retention of a wind-firm buffer surrounding the CMT (secondary priority)
- the wind-firm buffer must adequately protect the above-ground and below-ground portions of the CMT, that is, protect the integrity and health of the CMT root system.

Every CMT examined by the Archaeologist will be:

- Photographed
- have GPS location coordinates recorded
- analyzed and described on the Level 1 or Level 2 BC Archaeological Site Inventory Form

The Archaeologist will record all historical information, additional cultural features that are present, interpret the pattern of CMT distribution in relation to other CMT and other cultural sites, and will provide recommendations for management and protection of the CMTs. V Where CMT will be removed or damaged to facilitate the proposed development, the Archaeological Impact Assessment (AIA) will record all information regarding these CMT to the standards of the BC Archaeological Site Inventory Form, regardless of the date of the CMT.

All information recorded and reported by the archaeologist conducting the AIA will be submitted to:

- The GLMO for recording in the Upper Nass Cultural Resource Data Base
- The Provincial Archaeology Branch for recording in the Archaeology Branch Heritage Resource Inventory to a standard that can be used as legal evidence regarding Upper Nass occupation and traditional use of Upper Nass Lax Yip.

The archaeologist who conducts the AIA will include within the archaeological report that is submitted to the Provincial Archaeology Branch, the perspective and comments of the Upper Nass Simoogit or Simgigyet of the Wilp where the CMT are located regarding the proposed development, and the archaeologist recommendations for management and protection of the CMT affected by the proposed development.

Disk or wedge samples of every CMT that will be removed or damaged are not necessarily required. However, based on meaningful consultation between the archaeologist and the Simoogit of the affected Wilp, and at the discretion of the Chief, the archaeologist will remove and analyze cross-sections from selected CMT. Information resulting from cross-section analysis will be submitted to the GLMO Upper Nass Watershed Facilitator and the BC Archaeology Branch for recording in the Upper Nass and the BC Cultural Resource Data Base.

The Development Proponent will not proceed with any development work prior to meaningful consultation with the Simoogit of the affected Wilp regarding the CMT within and/or adjacent to the proposed development area.

Rationale

It is of great importance to Upper Nass Simgigyet and Wilp members that Culturally Modified Trees continue to exist undamaged throughout Upper Nass Lax Yip:

- As physical proof that Upper Nass Wilp members exercised, and continue to exercise, their Aboriginal Rights and Title throughout Gitxsan Lax Yip over time

- As a symbol of historic and cultural connection between the Upper Nass people and Upper Nass Lax Yip
- As part of a living cultural museum for education of present and future generations of Upper Nass members and all other people.

9.2.1.3 Artifacts and Features

Artifacts and **features** are integral components of cultural sites; they determine the nature of the sites and influence the cultural value and significance of the sites.

Artifacts are objects that have been manufactured by Upper Nass people and are portable objects. Whether remaining on the site or removed from the site, artifacts have a very high cultural value to Upper Nass Simgiyet and Wilp members.

Features are infrastructures on a site, or modifications to the land by Upper Nass cultural activities or practices, and cannot be removed from the site without destruction of the feature. In other words, they are not considered to be portable and are to be protected in-situ as an integral part of protection of the cultural site to which they belong.

The British Columbia *Heritage Conservation Act* (HCA), which states that archaeological resources are protected if they date prior to 1846, is superseded by the Upper Nass LUP and the protocols/protections pertaining to various cultural and heritage values. Further, the date of 1846 (pre or post) has no relevance to the Upper Nass cultural values of artifacts and features. All Upper Nass artifacts and features have cultural value to the Upper Nass Simgiyet and Wilp members regardless of date of origin.

Artifacts and features are integral to Upper Nass cultural empowerment and continuity:

- to retain cultural values and connections between people and the Upper Nass Lax Yip
- to provide evidence of Upper Nass occupation and continued use of Upper Nass Lax Yip
- to provide context to Upper Nass use of the land
- to contribute to education of current and future generations of Upper Nass and non-Upper Nass people regarding Gitxsan Upper Nass culture
- to verify and support Gitxsan Upper Nass oral histories

Objectives	Measures/Indicators	Targets
1.0 Preserve all artifacts and features in a pristine and undamaged 2.0 condition	2.1 Number of artifacts that are preserved in a pristine and undamaged condition, either on site or removed and protected under safe conditions (such as in museum, universities)	All
	2.2 Number of cultural site <u>features</u> on site that have been preserved and protected in a pristine and undamaged condition	All

Management Considerations

Smaller artifacts will be removed from the site to protect the artifacts from theft and potential damage. Any removal from a site will be performed in the presence of a Qualified Archaeologist and an Upper Nass representative. At a minimum, the archaeological site investigations will record:

- The GPS artifact location coordinates
- Historical information
- Interpretations
- Context of the use of the artifacts before removal of the artifacts from the site.
- Recorded information will be stored in the Upper Nass Cultural Resources Data Base.

All artifacts removed from a site must be presented to the Wilp Simoogit on whose Wilp the artifact was found. The Wilp Simoogit will determine where the artifact will be stored, protected, and determine which repository will be selected such that the repository stores and protects the artifacts as a Custodian but also respects ownership of the artifacts by the Upper Nass Simoogit on whose Wilp the artifact was found.

Artifacts that are too large to move shall remain on site. Archaeological site investigation will record data regarding the artifacts by photographs, GPS co-ordinates of location, historical interpretation, and context of use of the artifact.

Recorded information will be stored in the Upper Nass Cultural Resources Database.

Artifacts removed from the site are to be returned to Upper Nass and stored in the Upper Nass museum, or stored/displayed in a reputable museum or university under formal curatorial agreements with Upper Nass Simigiyet. Ownership of these artifacts will belong to the Upper Nass; these artifacts are not to be retained by anyone but Upper Nass or reputable organizations that have formal curatorial agreements with Upper Nass Simigiyet. Artifacts removed from the site that are perishable should be stored/displayed under controlled conditions of temperature, moisture, and light that will protect the artifacts. Curation of these artifacts will be by a reputable museum or university under a formal agreement with Upper Nass Simigiyet.

Artifacts may be discovered incidentally on the Upper Nass Lax Yip by persons other than archaeologists conducting archaeological investigations. Written instructions will be prepared from the GLMO that will outline procedures and policies to be followed in the event of such artifact discoveries on Upper Nass Lax Yip.

It is recognized that archaeological investigation may result in some damage to a cultural site feature. Archaeological investigations are instructed to minimize the resulting damage to the feature. Industrial damage is not accepted as an appropriate reason for damage to a cultural site feature; the first and highest priority approach will be to relocate the development around or away from the feature. |

In the event that the development cannot be relocated to avoid damage to a feature, planning and progress of the development will cease; representatives of the development corporation will consult with the Simoogit of the Wilp on which the feature is located to determine measures for management of the feature.

Rationale

- Artifacts and features are integral components of cultural sites and are integral to Upper Nass cultural empowerment and continuity
- Artifacts are designated by the Upper Nass Simigiyet to possess very high cultural values

- It is of great importance to the Upper Nass Simgigyet and Wilp members that artifacts and cultural features are preserved in a pristine and undamaged condition

9.2.1.5 Cultural Areas: Objectives, measures, targets, management considerations

Cultural areas are any area within the Upper Nass Lax Yip that the Upper Nass Simgigyet and Wilp members consider to have cultural importance, regardless of the presence or absence of physical remains of activities or beliefs. For the purposes of this Land Use Plan, small, specific locations are termed as cultural sites, with broader areas being termed and discussed as cultural areas.

Cultural areas are large and widespread in nature, they are connected throughout the landscape through valley bottoms, and from valley bottom to mountain-top. Generally cultural areas cannot be effectively protected by use of wind-firm buffers.

Cultural areas include, but are not limited to:

- Spiritual areas
- Hunting areas
- Trapping areas
- Fishing areas
- Food gathering areas
- Access trails to connect the Lax Yip cultural sites and areas, including the main trails that throughout time have connected the historic village sites of the Upper Nass Lax Yip
- The areas that comprise the territorial boundaries between each Upper Nass Wilp

Cultural areas cannot be fully and effectively protected by wind-firm buffers, in contrast to most cultural sites. Rather, cultural areas will be managed and maintained to achieve the future conditions of the Upper Nass Lax Yip desired by the Upper Nass Simgigyet. The intention underlying the management of cultural areas under the Upper Nass Lax Yip Land Use Plan has three main themes:

1. To provide long-term landscape-level sustainability of Upper Nass ecological resources
2. To preserve, protect, and maintain Upper Nass cultural heritage values and ensure the Lax Yip is maintained in a condition that supports and empowers the vision of the Upper Nass Simgigyet for current and future use of the Upper Nass Lax Yip
3. To provide for continued resource use and extraction in locations and at a rate that will sustain viable populations of all ecological resources of the Upper Nass Lax Yip, at the landscape level

For purposes of the Land Use Plan:

- **Viable** means at a population level that will result in reproductive success and maintain persistence through time throughout the land where they naturally occur.
- **Landscape level** means for the watershed of each major valley bottom river and stream as listed in Section 6.0 The Upper Nass Planning Area.

Objectives	Measures/Indicators	Targets
1.0 <i>Maintain and restore cultural areas to ensure the opportunity for exercise of Aboriginal Rights and traditional use for present and future generations</i>	1.1 Percentage of commercial or industrial developments where applicable Upper Nass LUP chapters, objectives, measures, and targets have been discussed through meaningful consultation, implemented, and monitored for implementation and effectiveness	100%
	1.2 Proportion of commercial or industrial developments where water, soils, and forest resources have been damaged and have been restored by natural or by financial investment means	100%

Management Considerations

Upper Nass cultural areas will be managed and/or restored through:

- Meaningful consultation between Upper Nass Simgiyet and Development Proponents
- Implementation of all appropriate Upper Nass LUP chapters, objectives, measures, and targets.
- Implementation of legally established management plans, such as *Forest and Range Practices Act (FRPA)* and Forest Planning and Practices Regulations (FPPR)
- Monitoring of the implemented objectives, measures, and targets to ensure that the desired practices were effective for management and maintenance/restoration of the ecological resources and cultural areas.

The primary intent of the Upper Nass LUP is to preserve, protect, manage, and sustain the cultural heritage resources of the Upper Nass Lax Yip. All chapters of the Land Use Plan are focused to this purpose.

Appendix 2

Upper Nass Connection to Cultural Resources and their Relative Cultural Values

Appendix 2-A: Natural Resources; Land and resources of the land

Appendix 2-B: Cultural Sites

Appendix 2-C: Artifacts and Features

Appendix 2-D: Archaeological Fieldwork Policy, Chance Find Policy, Chance Find Management for Human Remains

The Gitksan Simigyeyet of the Upper Nass Watershed and Upper Nass Wilp members are profoundly connected to the landscape of the Upper Nass Lax Yip. Lax Yip represents everything we are, everything we have been, and everything we will become; thus the natural and cultural resources of the area are inherently connected to the people. This connection reflects the historic, current, and future use of the Upper Nass Lax Yip by Gitksan Upper Nass people and includes:

Spiritual connections (S)

- Connections from the heart and soul; feelings and beliefs, as opposed to academic or intellectual knowledge; an internal, intangible, but real, belief that the resource is “part of you.”

Historic connections (H)

- Connections through knowledge of Upper Nass historic use of a resource.

Practical connections (P)

- Connections through Upper Nass historic, current, and future use of the resources for the practicalities of food, shelter, protection, and transportation, that is, subsistence.

Legal connections (L)

- Connections through Gitksan Ayookw (Traditional Law)
- Connections through provincial and federal law; cultural resources provide legal evidence of Gitksan Upper Nass historical occupancy and use of Upper Nass Lax Yip.

Education connections (Ed)

- Connections through the use of resources to educate past, present, and future Upper Nass and non-Upper Nass generations about Upper Nass history and culture.

Emotional connections (Em)

- Connections through feelings such as pride, satisfaction, fear, awe, spirituality, happiness, etc. generated by the sight or thought of the resource.

Economic connections (Ec)

- Connections related to use of a resource in historic, current, and future economies, for example, barter, trade etc. of cedar, fur, fish and other resources.

These connections are listed separately for discussion and description; however, are in fact closely intertwined; they are closely interconnected and collectively define the connections of Upper Nass members to our cultural heritage.

Cultural values as discussed in Table 4 and Appendix 2 are considered to be the value of each resource relative to the other resources. All cultural resources are important and have value to Upper Nass people; “low” value is a relative designation, not a term of disrespect or lack of importance to Upper Nass. For example, the relative values of a grave site or burial ground to a single CMT. Both are important to Upper Nass people, but the burial site may have a very high cultural value while the CMT may have a lower relative value.

Appendices 2-A, 2-B, and 2-C list a diversity of cultural resources organized by general resource type, and present the Upper Nass connection to each resource along with the Upper Nass relative cultural value of each resource. The intent is to provide information to Table 4 of this Land Use Plan Chapter 9.2 that will assist the Land Use Plan to provide protection for differing Upper Nass cultural heritage resources without over-protecting or under-protecting the range of the cultural resource sites.

Appendix 2-A
 Natural Resources; Land & Resources of the Lax Yip

Table 4 is not applicable to Appendix 2-A

Natural resources are ecological resources; the land of Upper Nass Lax Yip and the resources of the Lax Yip. Natural resources are also cultural resources, inextricably linked to the Upper Nass people. These include geographic features, soil, water, fish, wildlife, and plants of the land. These are tangible resources that provided for Upper Nass sustenance and economies and which have shaped the evolution of Gitksan Upper Nass culture. These resources are directly and inextricably linked to the Upper Nass Simgigyet and Wilp members. Upper Nass culture and cultural resources have always been and will continue to be directly dependent on the sustainable management of the ecological resources of the Upper Nass Lax Yip.

The natural resources of the land will be sustained through preparation and implementation of the Upper Nass Lax Yip Land Use Plan and legally established land management plans such as *Forest and Range Practices Act (FRPA)* and *Forest Planning and Practices Regulations (FPPR)*.

Scarcity/abundance/rarity can impact the relative value of a resource. This list is a general guideline and scarcity/abundance may impact the relative value and procedures related to a given resource.

Natural Resources: Upper Nass Connection to the Resource, and Upper Nass Relative Cultural Value of the Resource			
Cultural Resource: Tangible Resources	Upper Nass Connection to the Resource:	Upper Nass Relative Cultural Value:	
	Historic (H)	Very High (VH)	
	Spiritual (S)	High (H)	
	Practical (P)	Moderate (M)	
	Legal (L)	Low (L)	
	Educational (Ed), Emotional (Em), Economic (Ec)		
		Relative Value	Comments
Upper Nass Lax Yip	H-S-P-L-Ed-Em-Ec	VH	Upper Nass Lax Yip represents everything (all that we are, all that we will be, all that is around us) and has the highest value of all cultural resources

Wilp	H-S-P-L-Ed-Em-Ec	VH	Wilps have the second highest value of all cultural resources. Wilp boundaries and the landforms that mark them are of very high importance.
Fish	H-S-P-L-Ed-Em-Ec	VH	—
Wildlife (animals)	H-S-P-L-Ed-Em-Ec	H	—
Wildlife (birds)	H-S-P-L-Ed	M	—
Plants: Herbs, shrub	H-S-P-L-Ed-Ec	VH-H	Medicinal plants are VH, other plants are H; There is an important connection between Wildlife (animals), Wildlife (birds), and Plants, as well as between these values and Upper Nass Wilp members.
Trees: Am Hat'al (Cedar) *cedar is currently rare within Upper Nass Lax Yip	H-S-P-L-Ed-Ec	VH	Cedar has many important uses historically, currently, and in the future. Cedar is considered to be "The Tree of Life." Cedar is currently rare within the Upper Nass Lax Yip; the occurrence of cedar within the Upper Nass Lax Yip may increase over time with Climate Change.
Trees: Other species	H-S-P-L-Ed-Ec	H	Other tree species have been and are used historically and currently, and are of significant cultural importance.

Appendix 2-B
Cultural Sites

Table 4 is applicable to Appendix 2-B

Cultural sites are specific locations in the landscape where cultural practices were and are conducted, and are defined and named by the features and/or artifacts present on the site, or, by the traditional use(s) of the site.

The sites of human remains will be managed through measures specified in Section 9.2.1.2 Upper Nass Ancestral Human Remains. All other cultural sites will be conserved through site-specific measures as outlined in Section 9.2.1.1 Upper Nass Cultural Sites, Table 4, and Appendix 2-B.

Cultural Sites: Upper Nass Connection to the Resource, and Upper Nass Relative Cultural Value of the Resource; applicable to Table 4			
Cultural Resource:	Upper Nass Connection to the Resource:	Upper Nass Relative Cultural Value:	
Tangible Resources	Historic (H) Spiritual (S) Practical (P) Legal (L) Educational (Ed), Emotional (Em), Economic (Ec)	Very High (VH) High (H) Moderate (M) Low (L)	
		Relative Value	Comments
Historic Village Site of each Wilp	H-S-P-L-Ed	VH	Each Wilp has a primary historic village site; industrial activity or exploration of any kind is not appropriate within the boundaries of a historic village site.

**Cultural Sites: Upper Nass Connection to the Resource, and
Upper Nass Relative Cultural Value of the Resource; applicable to Table 4**

Cultural Resource: Tangible Resources	Upper Nass Connection to the Resource: Historic (H) Spiritual (S) Practical (P) Legal (L) Educational (Ed), Emotional (Em), Economic (Ec)	Upper Nass Relative Cultural Value: Very High (VH) High (H) Moderate (M) Low (L)	
		Relative Value	Comments
Temporary Dwelling Site	H-P-Ed-L	H-M	Temporary shelters
Sacred Sites	H-S-P-L-Ed-Em	VH	Sacred ground that should never be disturbed. The location of sacred sites may; not be shared with Development Proponents but early engagement and consultation will allow the Simoogit to note specific areas where development activities would be inappropriate.

**Cultural Sites: Upper Nass Connection to the Resource, and
Upper Nass Relative Cultural Value of the Resource; applicable to Table 4**

Cultural Resource: Tangible Resources	Upper Nass Connection to the Resource: Historic (H) Spiritual (S) Practical (P) Legal (L) Educational (Ed), Emotional (Em), Economic (Ec)	Upper Nass Relative Cultural Value: Very High (VH) High (H) Moderate (M) Low (L)	
		Relative Value	Comments
Human Remains: Grave sites Cremation sites Burial sites Burial grounds	H-S-P-L-Ed-Em H-S-P-L-Ed-Em H-S-P-L-Ed-Em H-S-P-L-Ed-Em	VH VH VH VH	Grave sites, cremation pits, burial sites, burial grounds, and associated human remains are valued equally; they are sacred to Simgigyet and Wilp members.
Battle sites	H-S-L-Ed-Em	M-H	—
Archaeological Sites	H-S-P-L-Ed-Em	VH	Archaeological sites are documented proof of historical Upper Nass use and ownership. Definitions and protocols associated with archaeological sites are set at the discretion of the Upper Nass Simgigyet, not at the discretion of the Province of BC.
Petroglyph and Pictograph Sites	H-P-S-L-Ed-Em	H	Petroglyph and Pictograph sites can be easily damaged if not cared for properly.

Mo'se (Fishing Sites)	H-P-S-L-Ed-Em-Ec	H	In order for fishing sites to retain their cultural value, high quality fish habitat must be maintained (i.e. spawning habitat, rearing habitat, migration routes).
Cabin Sites	H-P-S-L-Ed	H	Cabin sites used by Simgigyet and Wilp members throughout the Lax Yip and along Wilp boundaries
Cache pit Sites (food)	H-P-L-Ed-Ec	H	Cache pit sites help supply Simgigyet and Wilp members with what they need and what they harvest from the Lax Yip; that is, our sustenance.
Cultural Sites: Upper Nass Connection to the Resource, and Upper Nass Relative Cultural Value of the Resource; applicable to Table 4			
Cultural Resource: Tangible Resources	Upper Nass Connection to the Resource: Historic (H) Spiritual (S) Practical (P) Legal (L) Educational (Ed) Emotional (Em) Economic (Ec)	Upper Nass Relative Cultural Value: Very High (VH) High (H) Moderate (M) Low (L)	
		Relative Value	Comments
Smokehouse Sites	H-P-Ed-Ec	H	Smokehouse often close to the rivers near fishing sites. Recommend 5 ha buffer around historic and current smokehouse sites.
Medicinal Plant Sites	H-S-P-L-Ed-Em-Ec	VH-M	Medicinal plants historically and currently are highly important to Upper Nass. Sites may shift location over time due to dynamic nature of forest development. Medicinal plants are comprised of many plant species, requiring many varied growing sites, and may range from single and well-spaced plants to densely spaced.

			Specific sites will require different buffer sizes or protection through management of biodiversity values.
Culturally Modified Tree Sites	H-L-Ed	H	High as widespread legal evidence of Upper Nass use of Lax Yip.
Boundary Markers & Face Trees	H-P-L-Ed	H	High as a legal boundary between Upper Nass Wilps or between Upper Nass and other First Nations territory; can also be trail markers.
Trail blazes, Footpaths	H-P-L-Ed-Ec	H-M	Similar to Culturally Modified Trees
Trapline blazes	H-P-Ed-Ec	H-M	
Geographic features of place names	H-S-P-L-Ed	H	A place of cultural importance, marked by a geographical feature or landmark.
Cultural Sites: Upper Nass Connection to the Resource, and Upper Nass Relative Cultural Value of the Resource; applicable to Table 4			
Cultural Resource: Tangible Resources	Upper Nass Connection to the Resource: Historic (H) Spiritual (S) Practical (P) Legal (L) Educational (Ed) Emotional (Em) Economic (Ec)	Upper Nass Relative Cultural Value: Very High (VH) High (H) Moderate (M) Low (L)	
		Relative Value	Comments
Wilp Boundaries	H-S-P-L-Ed-Em	VH	Wilp boundaries primarily consist of <u>natural</u> boundaries such as rivers, tributary streams, and main heights of land dividing stream systems and positioned primarily through alpine terrain. Wilp boundaries are major cultural resources of <u>very high</u> cultural value to the respective Upper Nass Wilp located on either side of the boundary.

			<p>Protective buffers of untouched land, not less than 200 meters in width either side of each respective Wilp boundary, will be implemented under this Land Use Plan. The respective Miin Simoogit (head Chief) of each Wilp must agree on the physical location of the Wilp boundary.</p>
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Appendix 2-C Artifacts and Features

Artifacts and features are property of Upper Nass, created by Upper Nass skill and ingenuity. They are a tangible cultural resource to which Upper Nass Wilp members are connected in many ways. Artifacts and features determine the category of a site and influence the cultural value and significance of the site.

Artifacts and features will be managed through measures specified in Section 9.2.1.4 Artifacts and Features.

Artifacts and Features: Upper Nass Connection to the Resource, and Upper Nass Relative Cultural Value of the Resource			
Cultural Resource:	Upper Nass Connection to the Resource:	Upper Nass Relative Cultural Value:	
Tangible Resources	Historic (H) Spiritual (S) Practical (P) Legal (L) Educational (Ed), Emotional (Em), Economic (Ec)	Very High (VH) High (H) Moderate (M) Low (L)	
		Relative Value	Comments
Artifacts	H-S-P-L-Ed-Ec-Em	VH	Manufactured by Upper Nass; evidence of skill, ingenuity, cultural development. Strong connections. Any economic benefit derived from Upper Nass artifacts is to be paid to the appropriate Simoogit on whose Lax Yip the artifact was found and ownership of the artifact will be retained by the Simoogit on whose Lax Yip the artifact was found.

**Artifacts and Features: Upper Nass Connection to the Resource, and
Upper Nass Relative Cultural Value of the Resource**

Features	Features are stationary and remain <i>in situ</i> . Features of a site determine the nature and category of the site. Upper Nass connection and relative cultural value of the feature vary depending on the type of feature, and are considered to be the same as for the site named for the feature, as documented in Appendix 2-B: CULTURAL SITES.
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Appendix 2-D

Archaeological Fieldwork Policy, Chance Find Policy, Chance Find Management for Human Remains

- Upper Nass Archaeological Fieldwork Policy
- Upper Nass Chance Find Policy for Cultural Resources
- Upper Nass Chance Find Management for Human Remains

Archaeological Fieldwork Policy

The Gitxsan people of the Upper Nass watershed experience regular and ongoing archaeological studies. Often these are conducted by industry during planning processes for proposed developments. These studies are important, not only for supporting Gitxsan Upper Nass Aboriginal Rights and Title, but are also one avenue the Upper Nass people have for input into development decisions. For these reasons, it is important for the Gitxsan Upper Nass Simgigyet to participate in heritage referrals and take part in heritage and archaeological studies.

All natural and cultural resources located within the Upper Nass Watershed Lax Yip are the property of the Gitxsan and the respective Wilp on which they are located.

As part of Gitxsan Ayookw (law), land use planning processes, development proposal evaluations, internal policy development, and treaty negotiations, the Upper Nass Simgigyet continue to work to protect Upper Nass cultural and archaeological resources. In conjunction with professional archaeologists, the Upper Nass Simgigyet participate in and monitor archaeological assessments of proposed development sites.

The Gitxsan Upper Nass Simgigyet are the authority for archaeological assets within the Upper Nass Lax Yip. If an agency is interested in finding out more about Gitxsan Upper Nass archaeology or engaging in field assessments within Upper Nass Lax Yip, please contact the Upper Nass Watershed Facilitator through the Gitxsan Laxyip Management Office (GLMO).

Expectations for archaeological consultants

Archaeologists should contact the Upper Nass Watershed Facilitator through the Gitksan Laxyip Management Office while developing the archaeological project, drafting the budget, and writing the Archaeology Branch permit application, in order to include the requirements of the Upper Nass Simgigyet and associated costs into their archaeological plan.

Archaeologists should make all attempts to include Gitksan members in archaeological fieldwork. Traditional knowledge must be consulted and reflected in reporting.

Artifact collection and storage

If an archaeological site is identified during field assessment, the archaeologist must inform the Upper Nass Watershed Facilitator through the GLMO of the find, including location, site type, and photographs. Copies of site forms should be sent to the Upper Nass Watershed Facilitator.

A preferred repository will be selected by the Simoogit of the Wilp on which the archaeological site is situated.

Chance Find Policy for Cultural Resources

The Gitksan Upper Nass Simigiyet require that all consultants, contractors, corporations, or other agencies working within the Upper Nass Lax Yip be made aware of the Interim Chance Find Policy for Cultural Resources. This interim policy provides the necessary steps if there is unexpected impact to an archaeological site or artifact. Should you require further information on archaeological site types, location, or etc., please see the Archaeological Fieldwork Policy and/or contact the Upper Nass Watershed Facilitator through the GLMO.

Individuals and companies operating within Gitksan Upper Nass Lax Yip are required to familiarize themselves with this policy and adhere to the interim measures. The Upper Nass Simigiyet are currently working towards a comprehensive chance find policy and upon completion will distribute the policy to those currently operating within Upper Nass Lax Yip.

The purpose of the Chance Find Policy is to:

- 1) Address the possibility of encountering intact or disturbed archaeological artifacts and/or sites, as well as intangible aspects of culture, during construction
- 2) Provide the archaeologist, the Upper Nass Simigiyet, and the Development Proponent doing the work with guidelines to form an appropriate plan of action if item (1) above should occur.

Following the protocols herein will ensure that archaeological and cultural resources are properly collected and recorded as required by the *Heritage Conservation Act*, while minimizing impacts on construction scheduling. All personnel working on the project should familiarize themselves with and follow the guidelines contained in this document.

Chance Find Management Guidelines

The necessary steps to follow should an unexpected archaeological site or artifact be uncovered are:

Initial Actions:

1. Stop Action
2. Create protective buffer zone
3. Record and GPS
4. Inform Project Manager
5. Project Manager to inform the Upper Nass Watershed Facilitator
6. The Upper Nass Watershed Facilitator will inform the archaeologist approved by the Upper Nass Simigiyet

Possible Responses:

1. Work may continue if there are no further concerns.
2. A Stop Work Order may be issued until a field visit by a representative from Upper Nass Simigiyet and (if necessary) the archaeologist approved by the Upper Nass Simigiyet can take place.

Chance Find Management for Human Remains

The necessary steps to follow should human remains be uncovered.

Initial Actions:

1. Immediately stop all forms of ground disturbance in the vicinity of the disturbance.
2. Do not disturb any human or other archaeological remains.
3. Create a protective buffer not less than 50 meters in radius.
4. Contact Upper Nass Watershed Facilitator.
5. Upper Nass Watershed Facilitator to contact RCMP.
6. Upper Nass Watershed Facilitator to contact the archaeologist approved by the Upper Nass Simigiyet.

Possible Responses:

1. RCMP and Coroner to investigate remains.
2. If remains are determined to be archaeological, the Upper Nass Simigiyet and the Gitksan Nation will determine how to proceed, including:
 - a. Site avoidance
 - b. Emergency excavation

Intangible Cultural Heritage

The Upper Nass Simigiyet are responsible for the safeguarding of intangible heritage, including all intellectual property, in order to ensure that it continues to be relevant and can be transmitted from one generation to the next.

It is possible that workers may have some sort of interaction with immaterial or intangible aspects of culture while working within Upper Nass Lax Yip.

It is the responsibility of those operating within Upper Nass Lax Yip to be informed of Upper Nass cultural heritage and intangible aspects of Gitksan culture in order to avoid impacting areas that have cultural significance to Gitksan people.

Cultural Sensitivity Training Policy

Cultural Sensitivity Training (or Gitksan 101) is required of all individuals working in Upper Nass Lax Yip.

9.3 Water Quality and Hydrology; Surface Water and Groundwater

Preamble - overview of water resources

Water quality and hydrology (including peak flows, low flows, turbidity, temperature, and chemistry) are of primary importance to the Upper Nass Simigiyet. Water is the giver of life for virtually all lifeforms; it is the most important resource on earth. No individual stream, lake, wetland, or groundwater flow is more important than another; they are all an integral part of a holistic system connected from mountaintop to the sea, and all require protection from the alpine to the ocean.

The Upper Nass LUP is situated within the *Xsitxemsem* (Nass River), *Xsan* (Skeena River), *Sto'ot Xsitxemsem* (Bell-Irving River), *Xsi Gwin Hagiisdixw* (Kwinageese River), *Xsi Andap Matx* (Canyon Creek), *Xsi Tsinihl Denden Ando'o* (Vile Creek), *Xsi Tuutsxwhl Ax* (Damdochax River), *Xsi Luu Am Maldit* (Slowmaldo Creek), *Naa Baad Xsi Luu Am Maldit* (Yaza Creek), *Xsi Luu Wit Wiidit* (Kotsinta), Muskaboo, Rochester, *Xsi Maxhla Biluust Maawxs* (Konigus Creek), and Panorama watersheds, and the upper reaches of the *Xsihl Guugan* (Taylor) watershed. Those main streams and many of the tributary streams and lakes provide productive habitat for both migratory and resident fish. Traditionally and currently, the lakes and streams provide water of high quality for Upper Nass Wilp members' consumption and that of the plant and animals that Upper Nass people rely on for sustenance. Riparian areas of streams, lakes, wetlands, and groundwater flows contribute significantly to high value habitats for various species of birds, wildlife, and invertebrates.

Currently there are no permanent communities within the Upper Nass Lax Yip LUP area; there are no designated community watersheds or registered water licenses.

To date, there has been little industrial activity within the majority of the LUP area. Along the western edge of the plan area there has been considerable timber harvesting which has included extensive road development, skid trails, and clearcut harvesting systems. Removal of riparian vegetation and harvesting across small streams has resulted in accelerated run-off, stream bank damage, erosion, and downstream siltation of streams, lakes, and wetlands within Upper Nass Lax Yip which has negative implications for fish and their habitats. Forest development activities continue to take place within portions of the Upper Nass Lax Yip. In cases where relationships between Simigiyet and Development Proponents are based in respect and recognition of Gitxsan Rights and Title, meaningful consultation has become standard practice and some Simigiyet have entered into mutually beneficial agreements with Development Proponents with the commitment that development activities will take place under direction of the applicable Simoogit or Simigiyet. There has been minor mineral exploration in the northeast portion of the planning area, but currently no mining operations are active. Gas and oil exploration have not yet occurred, but the potential for exploration is considered high.

Minimal stream and watershed restoration has taken place within the plan area, due to a scarcity of watershed hydrology and water quality assessments for restoration projects.

New industries such as exploration for and removal of minerals, gas, and oil are anticipated to commence in the near future. Electrical power generation and construction of power transmission lines and additional new industries are likely to follow. There may be heightened pressures for road construction and resource extraction to occur on increasingly steep, broken, gullied terrain from low to high elevations, and further upstream within the valleys of the primary and tributary streams. With development activities occurring in increasingly sensitive terrain, the amount of soil exposure and potential for erosion and siltation will increase as well as the potential for slope failures and the subsequent catastrophic impacts on fish populations. The potential for toxic chemicals to enter groundwater and

surface water may increase in the future. In the absence of proactive planning, management, and monitoring of all industrial development activities the foreseeable results of unfettered development could include negative impacts on water quality and quantity, hydrologic stability, fish and wildlife habitat, and possibly human health.

The Upper Nass Simigyet concerns for our Lax Yip regarding water include:

- Lack of respect by Development Proponents for the value of water to all lifeforms
- Poorly located and constructed roads, bridges, and culverts on industrial roads which could lead to aquatic habitat fragmentation blocking migratory fish access to vital spawning areas
- Lack of protection for confined and unconfined aquifers³¹, groundwater seepages, springs, wetlands, and streams. A **confined aquifer** is an aquifer that is between two impermeable geologic units. Confined aquifers occur at depth. The rate of recharge can be very slow due to the impermeable layers that confine the aquifer. An **unconfined** aquifer is an aquifer in which the water table forms the upper boundary of the aquifer. Unconfined aquifers occur near the ground surface. Examples of an unconfined aquifer include floodplains, alluvial fans, and some glacial-fluvial deposits. Unconfined aquifers have a relatively rapid recharge rate through water infiltration rates of the coarse, porous materials.
- Potential future scarcity of water for human, animal, fish, and plant sustainability
- That continued industrial development will result in increasing negative impacts to water quality, watershed hydrology, fish stocks, wildlife habitats, and human habitats of the Upper Nass Lax Yip.
- The potential for new industries operating on Upper Nass Lax Yip, including mineral, gas, and oil exploration, excavation, utilization and disposal of toxic chemicals into the soil and water, independent power projects and transmission lines, pipeline development, and the resulting negative impacts on water quality and hydrology
- The probability that government regulating agencies and the legislation that provides regulations for practices will be applied to individual industries and will not consider the long-term, cumulative impacts of multiple industries working at the same time within Upper Nass Lax Yip
- Potential for uncontrolled, unregulated pumping of surface water from rivers and lakes, and groundwater from unconfined and confined aquifers for commercial and industrial purposes
- The demonstrated lack of accountability for restoration of historic damage to water and watersheds, and that past and future damage will be ignored and not restored going forward

Ongoing monitoring of water quality and hydrologic integrity of watersheds impacted by development throughout the Upper Nass Lax Yip is of primary importance to the Upper Nass Simigyet and Wilp members. It is our responsibility under Gitksan Ayookw (laws) to monitor, protect, maintain, and restore the streams, lakes, wetlands, and groundwater resources of the Upper Nass Lax Yip to a state of properly functioning condition.

The Forest and Range Evaluation Program has developed two protocols related to water management:

- 1) Protocol for Evaluating the Potential Impact of Forestry and Range Use on Water Quality. (Water Quality Management Routine Effectiveness Evaluations. Version 3.0; March 2009)
- 2) Protocol for Evaluating the Condition of Streams and Riparian Management Areas. (Riparian Management Routine Effectiveness Evaluation. Version 5.0; March 2009).

³¹ Virtual Campus in Hydrology and Water Resources. (n.d.). *VICAIRE*. Retrieved from <http://echo2.epfl.ch/VICAIRE/mod.3/chapt3/main.htm>

The Upper Nass Simigiyet support the use of these protocols as a tool for monitoring and evaluating the effectiveness of water management practices within the Upper Nass Lax Yip, and to develop information that could be used to modify and improve existing practices. The Upper Nass Simigiyet reserve the right to adopt alternate evaluation protocols to be used in place of or in addition to the two FREP protocols listed above.

Management Intent: Plan Goal for Water Resources

The Land Use Plan goal for water resources is:

- To protect and maintain surface and groundwater hydrologic integrity, especially given impacts relating to Climate Change
- To provide a safe and sufficient water supply to support healthy human, wildlife, fish, invertebrate, and plant communities
- To maintain water quality, quantity, peak and low flows within the range of natural variability in all rivers, streams, lakes, wetlands, and groundwater sources and to protect the hydrologic integrity of all watersheds; water quality includes temperature, turbidity, and chemistry

Achievement of this goal is necessary to maintain Upper Nass water resources in the desired properly functioning condition in perpetuity.

9.3.2 Objectives, Measures, Targets, and Rationales

Objectives	Measures/Indicators	Targets
1.0 Limit the potential for soil surface erosion	Number of occurrences of exposed erodible soil ³² >1.0 m ² , caused by industrial activities: <ul style="list-style-type: none"> • that are within the first 10 metres of the riparian area past the edge of the stream, river, lake, or wetland, or, • that are hydrologically connected¹⁴ to a river, stream, lake or wetland, except: active, seasonally or temporarily de-activated haul roads. • Where no practicable alternative exists and timely mitigating measures are implemented to prevent siltation of water bodies. 	0

An **exposed erodible soil** is a fine textured soil (fine sand, silt and clay) or erodible mineral deposit that water can readily wash into the adjacent stream. **Hydrologically connected** means any bare, erodible soil that can reasonably be expected to reach the riparian area if exposed to rainfall or stream flows. This includes:

- bare soil on non-vegetated slopes immediately adjacent to the 10 m riparian zone
- bare soil on vegetated slopes of 10% gradient or steeper that are immediately adjacent to the riparian area, up to the first topographic break.
- bare soil past the topographic break if there is a channel showing a clear connection to the first 10 m of the riparian area
- bare soil on active road surfaces within the 10 m riparian area, including the crossing, if there is evidence that fines eroded off the road surface can reach the stream. This includes the road surface, plus all cut-and- fill slopes associated with the road, within the first 10 m of the riparian area

- bare soil on active road surfaces beyond the first 10 m of the riparian area if there is evidence that fines eroding off these road surfaces will reach the stream. Evidence of hydrologic linkage should be conspicuous, such as ruts or eroding tracks down the road to a spot at the crossing where water spills directly off the edge of the road into the stream or a ditch that is clearly connected to the riparian feature. (FREP *Protocol for Evaluating the Condition of Streams and Riparian Management Areas*, Version 5.0; March 2009, and, FREP *Field Supplement to Evaluating the Condition of Streams and Riparian Management Areas*, Version 3.0; March 2009).

Objectives	Measures/Indicators	Targets
	<p>1.1 Percent of stream crossings on new roads that have appropriate mitigating measures implemented to prevent soil deposition into the stream in accordance with a professionally- conducted risk assessment.</p>	100%
	<p>1.2 Management Considerations for Objective 1.0</p> <p>The intent of this measure is that there should be no erodible soil exposure. The maximum area is intended to provide flexibility to licensees for occasional small, dispersed incidental occurrences. The intent is that construction of new roads and future deactivation of existing roads will be completed to a standard, using Best Management Practices that will result in no roads being hydrologically connected to any stream, river, lake, or wetland.</p> <p>Best Management Practices (BMP) should be established for minimizing soil surface erosion within the plan area. BMPs should consider road density, road proximity to water courses and number of stream crossings.</p> <p>Application of best available information to be applied in managing soil surface erosion prior to the development of BMPs.</p> <p>Hydrologically connected is not intended to be applied to active, seasonally, and temporarily de-activated roads; these roads will be managed by implementation of Best Management Practices and Measure 1.2.</p> <p>Monitoring should be done over time to determine if the 1.0 m² area is a reasonable figure. This figure may be increased or decreased as appropriate.</p>	
	<p>1.3 Rationale</p> <p>Exposed erodible soil that is hydrologically connected to a stream, river, lake, or wetland potentially can result in negative impacts to fish and wildlife habitat as well as human health and well-being.</p>	

Objectives	Measures/Indicators	Targets
<p>2.0 Manage human activities to maintain the hydrologic stability of watersheds</p>	<p>2.1 Number of watersheds identified on the Upper Nass Ecological Resource Zonation Map – ECA Threshold Watersheds where a hydrologic assessment is completed prior to any industrial development that would cause the thresholds identified in Table 2: Equivalent Clearcut Area³² (ECA) Thresholds³³ for Watersheds to be exceeded, except for cut blocks that:</p> <ul style="list-style-type: none"> • are approved under section 196(1) of the <i>Forest and Range Practices Act</i>; • are declared areas under section 14(4) of the <i>Forest Planning and Practices Regulation</i>; or • have a cutting permit in place; • other industrial projects that have been approved under their application legal Acts and that have approved Legal Permits in place. 	<p>All</p>
	<p>Management Considerations for Objective 2.0</p> <p>The ECA Threshold watersheds were mapped by the Skeena Sustainability Forum. The forum is a collaboration between Lake Babine Nation, Office of the Wet’suwet’en, Gitxsan Nation, Gitanyow Hereditary Chiefs, Wet’suwet’en First Nation, Witset (Moricetown), Nee-Tahi-Buhn, Skin Tyee, Hagwilget Village, Gitwangak, and the Province of British Columbia.</p> <p>These calculations were done as part of an assessment of fish and fish habitat throughout the Skeena Sustainability Forum area. The Forum was brought together to collaboratively create assessment and monitoring data that all organizations involved could use and trust.</p> <p>The mapped ECA watersheds and their current Equivalent Clearcut Areas were determined by a qualified professional employed by the Forum; <u>no</u> maximum <u>target thresholds</u> were determined to provide a limit to permitted Equivalent Clearcut Area for the mapped watersheds.</p> <p>For purposes of the Upper Nass Lax Yip Land Use Plan, we have established a target threshold ECA for each mapped ECA watershed within the Lax Yip, beyond which no further removal of forest cover will be permitted without a hydrologic assessment of the watershed by a qualified hydrologist, in order to provide guidance for future operations.</p> <p>The intent is to permit the harvest of existing approved cutblocks, or other approved industrial projects, but to require hydrologic assessments prior to any further harvesting</p>	

³² Equivalent Clearcut Area (ECA): As defined by Coast Information Team; Ecosystem-based Management Planning Handbook; Draft for Review, October 1, 2003, an index of potential watershed-level hydrologic impacts (for example, increased peak run-off) due to forest cover removal, expressed as a percentage of the naturally forested area of a watershed; areas where the forest cover has been completely removed by harvesting, fire, or other disturbances are assessed as 100% equivalent clearcut; areas with partial stand removal are pro-rated according to the percentage of crown cover removed (that is, equivalent to clearcut); areas partially recovered through forest regeneration are pro-rated according to the degree of crown closure and tree height.

³³ ECA Thresholds (targets): the percentage level of Equivalent Clearcut Area beyond which no more removal of forest cover will be permitted without a hydrologic assessment of the identical watershed by a qualified professional hydrologist in order to provide guidance for future operations.

	<p>that would cause the thresholds to be exceeded.</p> <p>Hydrologic assessments should be conducted by a qualified professional who will use the assessment to provide guidance for future operations. The assessment does not necessarily have to be a complete Coastal or Interior Watershed Assessment.</p>	
<p>3.0 Protect hydrologic integrity and manage risk to ecosystem function at a low level for all areas that are mapped as Water Management Units</p>	<p>3.1 Watershed areas identified on the Upper Nass Ecological Resource Zonation Maps – Hydroriparian Zone³⁴ and Ecosystem Network Core Reserve, within which no industrial development is permitted to occur, excluding traditional cultural use, to be managed for water quality, quantity, and hydrologic integrity, biodiversity, habitat values, and cultural heritage values and use</p>	100%
	<p>3.2 Within the area identified on the Upper Nass Ecological Resource Zonation Maps as Water Management Units, outside the watersheds referenced in Measure and Target 3.1 above</p> <ul style="list-style-type: none"> Proportion of rivers, streams, lakes, wetlands, springs, seepages that have retention of the forested area of their hydroriparian zone in accordance with Table 6 (excluding traditional cultural use), within the area identified on the Upper Nass Ecological Resource Zonation Maps as Water Management Units, outside the watersheds referenced in 3.1 above 	100%
	<p>3.3 Variance by which industrial developments may extend into a Water Management Unit following (a) completion of a hydrologic assessment by a Qualified Resource Professional, (b) engaging in meaningful consultation with the Upper Nass Simgiget as a group as well as with the Miin Simoogit of the impacted Wilp, and (c) obtaining consent from the Miin Simoogit of the impacted Wilp to operate within the Water Management Unit in question</p>	To be determined
	<p>3.4 Functioning condition as defined by the <i>Protocol for Evaluating the Condition of Stream and Riparian Areas</i>, for each local and downstream stream receiving water from within the Water Management Unit</p>	Properly Functioning Condition ³⁵

³⁴ The hydroriparian zone is defined as the area that extends to the edge of the influence of water on land, or land on water, as defined by plant communities (including high bench or dry flood plain communities) or landforms, plus one and one-half site-specific tree heights horizontal distance (Hydroriparian Planning Guide, Coast Information Team, Jan. 30, 2004). Landforms include:

- The stream channel, lake, or wetland and adjacent riparian ecosystem, where no floodplain exists
- The full width of the floodplain for streams
- Adjacent active fluvial units (alluvial fans)
- Up to the top of the inner gorge or where slopes become less than 50% for reaches of streams that are gullied, or are in a ravine or canyon
- Immediately adjacent unstable slopes (class IV and V terrain) where it is located such that a surcharge of sediment may be delivered to the stream, lake, or wetland.

³⁵ *Properly Functioning* for a stream, river, wetland, or lake and its riparian area means:

- ability to withstand normal peak flood events without experiencing accelerated soil loss, channel movement or bank movement;
- ability to filter runoff;
- ability to store and safely release water;
- ability of riparian habitat to maintain an adequate root network or large woody debris supply;

	3.5 Number of roads permitted within a Water Management Unit for industrial development purposes, following (a) completion of a hydrologic assessment by a Qualified Resource Professional for the Water Management Unit in question, and (b) obtaining consent from the min Simoogit of the impacted Wilp to operate within the Water Management Unit in question	To be determined
4.0 Maintain ecological functioning of streams, rivers, wetland complexes and lakes, including those that do not support populations	4.1 Number of rivers and streams where industrial activity has caused significant consequences for fish habitat or human water consumption by the following disturbances to channel beds or banks: <ul style="list-style-type: none"> • channel bank erosion; • channel aggradation, degradation or dewatering; or • change in channel morphology. 	0
	4.2 Number of rivers, streams, lakes, and wetlands that maintain riparian reserves and resource management zones around riparian features as outlined in Table 6.	100%

-
- ability of riparian habitat to provide shade and reduce bank microClimate Change; and,
 - Fish habitat in streams and riparian areas are fully connected so that fish habitat is not lost or isolated as a result of some management activity.

<p><i>of fish.</i></p>	<p>Management Considerations</p> <ul style="list-style-type: none"> • “Significant” relates not to the level of disturbance but to the consequence of disturbance. A small disturbance could have a large consequence and a large disturbance could have a small consequence. • Industrial developments include, but are not limited to; timber harvesting, road construction, building of permanent facilities, mining, gas and oil extraction, linear development (power lines, pipelines etc.) • Operations should consider larger Riparian Reserve Zones (RRZ) than specified under the <i>Forest and Range Practices Act</i> for retention where possible. • Where economically and operationally feasible, selectively remove only the high value trees within the Riparian Management Zones (RMZ). • Where feasible, concentrate wildlife tree retention areas around riparian ecosystems. • Consider preservation of riparian habitat values, water quality, rare ecosystems and windthrow susceptibility when assessing and designing RMZs. • Consider retention levels of 70% to 100% basal area on all streams of Riparian Class S4. Monitoring of retention levels to consider: <ul style="list-style-type: none"> ▪ Level of retention; ▪ Incidence of windfall; ▪ Changes in stream temperature, turbidity, and chemistry; ▪ Effectiveness of small-scale connectivity habitats through cutblocks. • Apply adaptive management principles in management of riparian features. • Establish water monitoring stations on selected water bodies for long term evaluation of water quality and quantity attributes (water quality includes temperature, turbidity and chemistry). • Terrain stability to be considered in relation to its impact on water quality and quantity before logging or other industrial development. Baseline information should be gathered for watershed sub-basins prior to development. Information to consider: <ul style="list-style-type: none"> • Equivalent Clearcut Area • Road densities in high elevations • Road densities for the entire sub-basin 	
	<p>4.3 Number of rivers, streams, lakes and wetlands where blowdown within the RRZ and RMZ is retained as large woody debris.</p>	<p>All</p>
	<p>4.4 Number of rivers and streams in riparian classes S1 to S5 where industrial activity has either:</p> <ul style="list-style-type: none"> • added large woody debris that would not naturally be in the channel; or • removed naturally deposited large woody debris; <p>Except where necessary to satisfy safety considerations.</p>	<p>0</p>
	<p>4.5 Number of rivers, streams, lakes, wetlands that are maintained in a properly functioning condition</p>	<p>All</p>
	<p>4.6 Number of new roads and trails that prevent ground water from reaching natural ground water receiving sites.</p>	<p>0</p>
	<p>Management Considerations</p> <ul style="list-style-type: none"> • Natural groundwater drainage patterns can be maintained with adequate cross drains in roads and trails. 	

5.0 Maintain the functional integrity of floodplains and alluvial fans	5.1 Proportion of floodplains and alluvial fans where functional integrity is maintained.	100%
	Management Considerations <ul style="list-style-type: none"> • Timber harvesting is generally not recommended on floodplains and alluvial fans. • Road building on fans and floodplains is potentially high risk and requires the advice of a qualified professional. • Access across floodplains and alluvial fans is permitted to access timber beyond these features. 	
6.0 Maintain the water quality (chemistry, turbidity, temperature), quantity, and hydrologic stability of rivers, streams, lakes, wetlands, unconfined and confined aquifers, including water that is recorded or unrecorded ³⁶ , to provide a flow rate, volume, and quality within the range of natural variability that will sustain hydriparian habitats, valued ecosystem	6.1 Percentage of commercial or industrial projects, proposed for implementation in the Upper Nass Lax Yip, that are subject to meaningful consultation between the Province of British Columbia, the development proponents, and the Upper Nass Simigiyet regarding the full details of the proposed project and the potential impacts to Upper Nass Lax Yip, prior to any work or field examination of the Upper Nass Lax Yip	100%
	6.2 Number of commercial or industrial developments that modify the water quality, quantity, or hydrologic stability beyond the range of natural variability	0
	6.3 Number of commercial or industrial developments that dam or otherwise impound, drain, or change the channel course of any rivers, streams, lakes, or wetlands within the Upper Nass Lax Yip. ³⁷	0
	6.4 Number of commercial or industrial developments that utilize toxic chemicals in their development practices and, <ul style="list-style-type: none"> • Fail to neutralize, recover, and remove the toxic chemicals from the Upper Nass Lax Yip • Utilize and release toxic chemicals into the Upper Nass Lax Yip as part of the industrial practice • Accidentally or intentionally abandon toxic chemicals within the Upper Nass Lax Yip 	0
	6.5 Number of commercial or industrial developments that implement practices that fragment the rock and result in leaching and seeping of toxic chemical and acid rock drainage into the Upper Nass Lax Yip rivers, streams, lakes, wetlands, unconfined and confined aquifers such that water quality (ground or surface) is altered beyond the range of natural variation.	0

³⁶ Recorded water means water, the right to the diversion of or use of which is held under an authorization or other enactment
Unrecorded water means water in a stream or aquifer that is not held under an authorization or other enactment
Water Sustainability Act. December 9, 2020. Queen’s Printer, Victoria, BC Canada

³⁷ Where such physical activities are required as part of development activities mutually agreed upon by a development proponent and the Upper Nass Simigiyet (or Simoogit of the impacted Wilp), and exemption to Measure 6.3 will be required. Exemptions will be based on reviews conducted by Qualified Resource Professionals working at the direction of a joint committee comprised of representatives of the impacted Upper Nass Simigiyet as well as representatives of the applicable development proponent. Expenses relating to professional reviews and meetings for the purposes of Exemptions to the Upper Nass LUP will be the responsibility of the development proponent.

<i>components, ecosystem functions, and water supplies for human consumption</i>	6.6 Percentage of proposed commercial or industrial developments where the range of natural variability (RONV) of water quality, quantity, flow rate, and hydrologic stability of the surface water and unconfined aquifers, and the size, capacity, water volume, and infiltration recharge rate of confined aquifers is determined and specified by a qualified professional hydrologist or hydro-geologist.	100%
	6.7 Minimum length of time over which the RONV of the water body must be calculated and averaged by the qualified professional hydrologist or hydro-geologist prior to commencement of the commercial or industrial operations	<ul style="list-style-type: none"> • Not less than 5 years • Updated and averaged annually
	6.8 Percentage of commercial and industrial developments where the proponent abides by the RONV of water quality, quantity, flow rate and hydrologic stability determined and specified by the qualified professional hydrologist or hydro-geologist	100%
	6.9 Percentage of commercial and industrial developments where the water body quality, quantity, flow rate, and hydrologic stability is reduced below the five-year average RONV low flow rate and volume	0%
	6.10 Percentage loss of or damage to hydriparian habitats, ecosystems, ecosystem components, or ecosystem functions resulting from the removal of water from the water body	0%
	<p>Management Considerations:</p> <ul style="list-style-type: none"> • Water removal from an unconfined aquifer is considered to be removed from the surface water body into which the unconfined aquifer flows. The range of natural variability and specified rate and water volume appropriate for removal for that surface water body will be applicable to water removal from the unconfined aquifer. 	
	6.11 Percentage of the naturally occurring maximum components, including water volume, of any confined aquifer that must remain in the confined aquifer following any commercial or industrial development	≥80%
	6.12 Rate at which additional water may be removed from the confined aquifer following drawdown of the volume to 80% of the naturally occurring maximum aquifer capacity	Not exceed rate of infiltration recharge
	6.13 Number of proposed commercial or industrial developments required to be licensed and the volume and rate of water that is authorized to be removed or otherwise utilized	All
<i>7.0 Restore the water quality and hydrologic integrity of damaged</i>	7.1 Proportion of watersheds with damaged water quality or hydrological integrity where primary causes of watershed damage have been adequately addressed by: <ul style="list-style-type: none"> • natural processes; or, • operationally and financially feasible activities that do not cause 	100%

<i>watersheds throughout the plan area</i>	further damage or interfere with natural restoration processes, where funding is available.	
	<p>Management Considerations</p> <ul style="list-style-type: none"> • Intent is to pursue funding to conduct watershed restoration work, but recognize that funding is not guaranteed. • A Watershed Restoration Plan (WRP) should be developed that includes: <ul style="list-style-type: none"> • Identification of damaged or threatened watersheds; • A cost benefit analysis to prioritize watershed restoration opportunities with respect to conserving, restoring and improving fisheries values in the plan area; • Prioritization of WRP projects should be based on vulnerability of fish stocks, social and economic value of fish stocks, level of negative impact, and ecological and economic feasibility; • A risk assessment should be undertaken to prioritize road deactivation work with respect to water quality and fisheries impacts; 	

Table 5
Equivalent Clearcut Area (ECA) Threshold Targets for Watersheds of the Upper Nass Lax Yip
(not to exceed target % of watershed area)

Watershed Name or Number (as identified on the Upper Nass Ecological Resource Zonation Map – Equivalent Clearcut Area Watersheds)	ECA Threshold (as a percentage of total sub-basin area)
All identified ECA watersheds	25%
<p>Note:</p> <p>Currently, there are no Equivalent Clearcut Area Threshold Targets determined by a qualified professional hydrologist established within the Upper Nass Lax Yip area.</p> <p>The above-stated 25% threshold is an interim threshold number to be adhered to by all industrial Development Proponents for every identified ECA watershed. The threshold targets will apply to all commercial and industrial Development Proponents, singly and cumulatively, for the watersheds. The interim 25% threshold target will remain in effect for every watershed until such time as a qualified professional hydrologist has determined a threshold number based on a professional hydrologic assessment of that specific ECA watershed.</p>	

**Table 6
Retention Targets in Riparian Reserve Zones (RRZ) and Riparian Management Zones (RMZ)**

Riparian Class	Reserve Zone Width Minimum (m)	Retention Minimum (%)	Management Zone Width – Minimum (m)	Retention Minimum (%)
Streams				
S1 to S6 (specific streams) W1 to W5 (specific wetlands) L1 to L4 (specific lakes)	See Biodiversity Objective 4.0 and General Wildlife Objective and Water Management Unit 3.0 Objectives, Measures, Targets and Management Considerations for specific rivers, streams, wetlands, and lakes.			
S1 (except large and specific rivers)	50	100	20	50
S2	30	100	20	50
S3	20	100	20	50
S4	15	100	15	50
S5	15	100	15	50
S6	15	100	15	Discretionary
Wetlands				
W1	10	100	40	50
W2	Not applicable: no W2s in the plan area			
W3	10	100	20	50
W4	Not applicable: no W4s in the plan area			
W5	10	100	40	50
Lakes				
L1	10	100	20	0
L2	Not applicable: no L2s in the plan area			
L3	n/a	n/a	30	0
L4	Not applicable: no L4s in the plan area			

Note:

Reserve and Management Zone percentage means the percentage of naturally occurring pre-harvest forest basal area and structure of mature and old forest that occupies (or historically occupied) the site.

Reserves and Management Zones around all riparian features may be increased in size and % retention to meet management objectives for other resources.

Where rivers, streams, wetlands, and lakes are included within Forest Ecosystems Networks or Water Management Units, the reserves and buffers will be as specified in Biodiversity Objectives and Water Management Unit Objective 3.0.

Where rivers, streams, wetlands, and lakes are not included within Forest Ecosystems Networks or Water Management Units, and are designed as an Upper Nass High Value Habitat, the reserves and buffers will include the full hydriparian zone.

Where the High Value Habitat area to be protected by a riparian reserve is a wetland complex of wetland, brush, drier upland forest, as mapped on the Upper Nass Wildlife Habitat map, the reserve area will consist of the full hydriparian zone, plus the mapped brush zone and the excluded drier upland zone as a fully connected complex of wetland, brush, and upland forest patch as outlined in Section 5.0 Methodology and General Wildlife Objective.

Riparian Management Zone (RMZ) retention levels are not intended to apply equally to every cutblock, but are intended to be the average RMZ retention within the total harvested RMZ area adjacent to each river, stream, lake, or wetland, of each specified riparian class not otherwise protected by biodiversity, wildlife, or Water Management Unit objectives. The purpose of the RMZ retention is to:

- Provide “feathering” and protection of the RMZ
- Contribute to small-scale connectivity through the landscape

Within the Upper Nass LUP Lax Yip, measurements to determine on-the-ground boundaries of the Riparian Reserve Zone, Riparian Management Zone, and Riparian Management Area will be calculated using horizontal distance for all rivers, streams, lakes, and wetlands.

The Upper Nass Simgigyet responsibility is to protect and manage non-classified streams, rivers, lakes, and wetlands as well as classified riparian features, as an integral part of a holistic water system that will ensure properly functioning hydrologic condition for all rivers, streams, lakes, and wetlands within the Upper Nass Lax Yip.

9.4 Biodiversity

Biological diversity (biodiversity) is defined as “the diversity of plants, animals, and other living organisms in all their forms and levels of organization and includes the diversity of genes, species, ecosystems, and the evolutionary and functional processes that link them” (Forest Practices Code Biodiversity Guide Book 1995).

Climate, geology, ecology, and land uses are major influences on biological diversity. Within the planning area of the Upper Nass Lax Yip Land Use Plan, there are seven distinct Biogeoclimatic zones and associated variants represented:

- Interior Cedar-Hemlock Zone; Moist Cold Subzone (ICHmc1)
- Mountain Hemlock Zone; Moist Maritime Subzone (MHmm2)
- Sub-Boreal Spruce Zone; Moist cold Subzone (SBSmc2)
- Englemann Spruce-Subalpine Fir Zone; Wet Very Cold Subzone (ESSFwv)
- Boreal Alt Fescue (BAFA)
- Coastal Mountain – Heather Alpine (CMA)
- Alpine Tundra (AT)

The first four listed are forested ecosystems. The final three listed are sub-alpine and alpine ecosystems.

The ESSFwv and MHmm2 Subzones are classed as Natural Disturbance Type 1 (NDT1): ecosystems with rare stand initiating events. Historically, NDT1 ecosystems were usually uneven-aged or multi-storied even-aged, with regeneration occurring in gaps created by death of individual trees or small patches of trees. When natural disturbances such as wind, fire, and landslides occurred they were generally of small size. The average return interval for these disturbances is generally about 350 years for the ESSFwv and MHmm2 Subzones.

The ICHmc1 zone is classed as Natural disturbance Type 2 (NDT2); ecosystems with infrequent stand initiating events. Historically these forest ecosystems were usually even-aged, but extended post-fire regeneration periods produced stands with uneven-aged characteristics such as multi-storied forest canopies. The predominant natural disturbance mechanism was wildfire, generally of moderate size (20 ha. to 1000 ha.), with occasional very large fires. The landscape was dominated by extensive areas of mature forest surrounding patches of younger forest. The average return interval for these natural disturbances is about 200 years within this biogeoclimatic zone.

The SBSmc2 subzone is classed as Natural Disturbance Type 3 (NDT3): ecosystems with frequent stand-initiating events. The predominant natural disturbance mechanism is wildfire. Historically, these forest ecosystems experience frequent wildfires that ranged from small spot fires to very large fires covering tens of thousands of hectares. These fires produced a landscape mosaic of even-aged stands ranging in size from a few hectares to thousands of hectares, and usually containing residual patches of mature forest. Within the SBSmc2 Subzone, the average return interval for stand-replacing fires is about 125 years.

Within all the listed Biogeoclimatic subzones, in addition to the stand-replacing events, there were occurrences of insect infestations and root disease within mature and regenerating forests that also resulted in dead trees, decaying logs, and canopy gaps that provide a variety of habitats for a variety of organisms. Riparian areas within the landscape provide special habitats not found in the upland areas.

Return intervals presented above for the NDT 1, 2, and 3 were based on expert opinion during preparation of *The Biodiversity Guidebook*, 1995. Subsequent data-based research indicates return intervals considerably longer than presented within *The Biodiversity Guidebook*, to >3000 years for some NDT 1 BEC variants, and 500 to > 1000 years for some NDT 2 variants.³⁸

Biodiversity objectives for the planning area are presented by natural disturbance type, to reflect the differences in climate and the differences in size and scale of the natural disturbance events that create the diversity of forest ecosystems.

³⁸ Price, Karen (2010) personal communication.

Biodiversity objectives for the planning area are based on an intermediate biodiversity emphasis throughout every Wilp, in order to treat biodiversity for every Wilp equitably.

Attempting to manage for every individual species is an impossible task. Management for biodiversity is based on an ecosystem management approach that assumes the habitat needs of most species will be met by managing forests in a way that maintains structural features and resembles natural disturbance processes such as fire, wind, insects, and disease, thus maintaining a range of habitats across the landscape. Where special management practices are required for individual species known to be at risk (e.g. Grizzly bear, fisher, and Bull trout), additional objectives and strategies for these species are included in the Section 9.6 Wildlife and Section 9.5 Fisheries.

Climate Change will result in changes to forest ecosystems and biodiversity of the plan area. The magnitude of change is uncertain, but change will occur. Natural Disturbance Types may change, occurrence of fires, major storms, insect infestations, pathogen infections, and competition from invasive species are predicted to increase. Forest ecosystems and organisms will adapt, migrate, or be extirpated from the landscape in response to Climate Change.

Planning and management for maintenance of biodiversity occurs at all levels and is connected from one level to the next; provincial, sub regional, landscape, and stand levels. This Land Use Plan sets forth objectives, measures, targets and management considerations (strategies) to guide management at the landscape (planning area) and stand (site) level, and includes objectives, measures, targets, and management considerations for:

- Old growth retention
- Seral stage distribution
- Diversity of patch sizes
- Landscape connectivity
- Stand structure and full cycle retention trees (wildlife tree retention)
- Conservation of rare ecosystems
- Deciduous ecosystems
- Tree species diversity
- Representative forest ecosystem retention.

Upper Nass Simigyey concerns are that continued timber harvesting will rapidly convert large areas of the Upper Nass Lax Yip to large clear cuts and young regenerating forests. Additional and cumulative removal of forests will also occur through clearing for agriculture, livestock grazing, mineral exploration and mining, gas and oil exploration and resource removal, power projects, pipeline installation, and other industrial developments. Resulting impacts to the basic elements of the natural biodiversity of the Upper Nass Lax Yip are:

- Forests are being progressively and rapidly converted from complex mature-old forest to simplified young forests of even age and single canopy lacking snags, large decadent trees, canopy gaps, and large woody debris. The current forest management plan is to harvest forests on short rotations that will perpetrate the simplified forest conditions.
- Forest landscapes that have historically been characterized by high levels of connectivity between old forests will become increasingly fragmented by roads, young forests, and cleared lands

The results of current forest practices do not closely resemble or mimic the results of the natural disturbance mechanisms that historically disturbed and replaced forest stands within the Upper Nass Lax Yip.

Upper Nass Simigiyet and Wilp members are concerned that habitats required to support the birds, plants, mammals, and fish they have traditionally used and currently use for subsistence and cultural purposes will be damaged or destroyed for many decades. The continued existence and persistence of the suite of ecological resources found within the Upper Nass Lax Yip is essential for Upper Nass people to exercise legally protected Aboriginal Rights. Gitksan Upper Nass culture and sustenance are inextricably connected to and reliant upon the natural biodiversity of the Upper Nass Lax Yip.

Upper Nass Simigiyet and Wilp member concerns regarding biodiversity and habitats include the predicted effects of Climate Change and the potential impacts that Climate Change might have on the natural resources of the Upper Nass Lax Yip that are required for sustainability of Upper Nass culture and sustenance.

Upper Nass Simigiyet and Wilp members are also concerned by the lack of consultation, communication, and education regarding proposed developments within Upper Nass Lax Yip and the resulting cumulative impacts over time that developments may have on the biodiversity of our lands. Upper Nass Simigiyet are concerned about the lack of meaningful consultation and long-range landscape planning for managing, restoring and sustaining the natural biodiversity of the Upper Nass Lax Yip.

The Gitksan people of the Upper Nass watershed have for centuries practiced holistic ecosystem-based land management within the Upper Nass Lax Yip. Upper Nass use of the land has been based on the principles of sustainable management. The Upper Nass Simigiyet require management for restoration and maintenance of biodiversity throughout the Upper Nass Lax Yip and require biodiversity to be maintained within each Wilp Lax Yip, to ensure long-term self-sufficiency of each Wilp.

Upper Nass interests for management of biodiversity within the Upper Nass Lax Yip include:

- Retention of old and near-old forest ecosystems at a level that will achieve a moderate or lower risk to the biodiversity and ecological function of these ecosystems. Where required, this includes restoration of damaged ecosystems.
- Restoration and maintenance of landscape level connectivity throughout valley bottoms, valley bottoms to alpine, and connecting to territories beyond the Upper Nass Lax Yip.
- To sustain viable populations of all naturally occurring biodiversity species and communities. *Viable* means at a population level that will result in reproductive success and maintain persistence through time in the landscape.
- To preserve and maintain rare ecosystems, and environmentally sensitive areas such as wetlands, alluvial fans, floodplains, and riparian areas.
- To maintain deciduous ecosystems, where they exist naturally.
- To retain stand level structural diversity and connectivity within and surrounding harvested cut blocks and other industrial disturbances.
- To maintain rare, endangered, or threatened plant and animal species and communities.
- To recognize Climate Change as a reality, and to cooperatively work with Province of BC and Development Proponents to assist forest ecosystems and forest organisms to adapt to Climate Change, or to migrate in response to Climate Change, recognizing that future forests may be different than forests historically and currently established within the Upper Nass Lax Yip.
- To manage biodiversity values within the full Upper Nass Lax Yip LUP area at an Intermediate Biodiversity Emphasis, in order that all participating Upper Nass Huwilp will receive equal consideration regarding

management and protection of resources, as opposed to having high, intermediate, and low biodiversity values that will create a differential effect at an individual Wilp level.

9.4.1 Management Plan Goals for Biodiversity

- Ensure ecosystem function across the range of Biogeoclimatic zones, subzones, and ecosystem types reflective of the historic natural disturbance regime of the landscape stand level over time
- Provide connectivity of all areas designated for management as Old Growth forests, including areas formally identified for management as Old Growth Management Areas (OGMA)
- Facilitate movement and dispersal of organisms across the landscape by providing core habitat areas and dispersal corridors that will assist a variety of organisms to again inhabit their historic range
- Protect and maintain effectiveness of riparian habitats; all riparian habitats have disproportionately high biodiversity values relative to their proportional occupancy of the landscape

9.4.2 Objectives, Measures, Targets, Management Considerations, and Rationales

A. Old Growth Management Areas (OGMA)

Old Growth Management Areas are areas that contain, or are managed to replace, specific structural old-growth attributes and which are mapped out and treated as special management areas (*Forest Practices Code Biodiversity Guide Book*; 1995).

Connectivity of old growth ecosystems along the western edge of the Upper Nass Lax Yip where timber harvesting and road development has occurred within the past 25 years is diminished in comparison to other more pristine areas of the Upper Nass Lax Yip. The majority of land within the Upper Nass Lax Yip LUP area remains primarily untouched by industrial development but contains natural resources that could potentially be developed within the foreseeable future for purposes of natural resource extraction. Valley bottom ecosystems that provide the richest growing sites and lowest harvesting costs for the timber industry and the most favourable access and development costs for industrial projects generally are at the greatest risk of damage or losses due to industrial development.

Currently there are Old Growth Management Areas formally identified and mapped by the Province of BC adjacent to the western edge of the Upper Nass Lax Yip, but no designated OGMAs within the Upper Nass LUP area, excepting immediately adjacent to the Skeena River in the vicinity of Canyon Creek.

Identification, mapping, and designation of areas to be managed as old growth forest ecosystems, as well as numerous other values, is an integral part of the Upper Nass LUP. These areas are currently presented on our Ecological Resource Zonation Map and our Wildlife Habitat Map, and include the map designations:

- Old Growth Management Areas currently designated
- Hydroriparian Zones
- High Value Habitats for General Wildlife
- Ecosystem Network Core Reserve
- Ecosystem Network Buffer

- Water Management Unit

The above-listed designations within the Upper Nass Lax Yip LUP area are considered not appropriate for industrial development, with the exception of areas designated as ‘Ecosystem Network Buffer’ and ‘Water Management Unit’ in which development could potentially take place under special management following fulfillment of a number of criteria, consent of the min Simoogit of the impacted Wilp being primary.

All areas considered to be not appropriate for industrial development are to be retained and reserved through time for:

- Protection and management of biodiversity values
- Carbon sequestration and storage for purposes of mitigating potential harmful impacts relating to Climate Change

Objectives	Measures/Indicators		Targets
1.0 Maintain representative structural connectivity throughout the forested matrix of Upper Nass Lax Yip at a level that will result in a moderate or lower risk to ecosystem function and resilience of the old growth forests	1.1 Percentage of old (age class 9) and almost old (age class 8) forest retained within representative site series or site series surrogates ³⁹	$\geq 45\%$ of total habitat ⁴⁰	
	1.2 Percentage of area mapped on the Upper Nass LUP map as not appropriate for timber harvesting or other industrial disturbance, and intended for dedication as Old Growth ecosystems and carbon storage and sequestration, where timber harvesting or other industrial disturbance is permitted	0%	
	1.3 Gap analysis completed to determine the level of risk to the function of representative ecosystems and determine where additional retention is required to achieve the objective of moderate to low risk to ecosystem function and resilience.	Within one year of completion of the Upper Nass LUP and approval by the Upper Nass Simgigyet	
	1.4 Additional retention required, spatially identified through gap analysis and incorporated into the Upper Nass LUP	Within one year of completion of the gap analysis	

³⁹ Site series surrogates: Within our Land Use Plan, other than areas that have been harvested under a silviculture prescription that maps the site series of the cutblock, there are no identified site series. The site series surrogates will utilize the site growth potential (Site Index) presented on MOF Forest Cover Maps as a site series surrogate. These site series surrogates are documented in this Land Use Plan Section 5.0, Methodology of Upper Nass LUP Preparation, Table 2, for each biogeoclimatic variant.

⁴⁰ **Total Habitat** is the total area of any identified ecosystem (e.g. H leading species and High Site Growth Potential). If $\geq 45\%$ of the ecosystem is retained, the natural disturbance regime (e.g. fire, insects, disease) will lead to a natural age distribution within this habitat. Over time, the amount of old forest on the landscape will approximate the amount of old forest expected naturally, that is, the range of natural variation.

Management Considerations

Valley bottom and low slope ecosystems are most at risk from industrial developments; these are the ecosystems that are most productive for:

- Habitats of most species
- Upper Nass Lax Yip traditional use and cultural resources
- Timber for harvesting and milling operations, and access for other industrial developments
- Retention at the landscape level to contribute to the specified targets will include all forest land considered not appropriate for industrial development, including OGMAs, Ecosystem Network core reserves and buffers, Hydroriparian Zones, Water Management Areas, High Value Wildlife Patches
- Target retention level contributing forest ecosystems does not include low levels (e.g. <15%) of stand level within cutblocks retention due to unfavourable habitats produced by the surrounding clearcuts and adjacent areas. Higher levels (e.g. >40%) of retention may partially contribute toward the landscape level targets
- Allow natural process (e.g. fire, insects, disease) to occur within the retained forest, except when these processes threaten values or resource adjacent to the retained forest.
- Age class 9 forests (old growth) are preferred for retention over age class 8 (mature) to provide old growth habitats
- Landscape level retention needs to be spatially mapped in order to identify, retain, and protect sufficient representation of the range of ecosystems to achieve the target
- Where additional retention is required to achieve the retention target, situate additional retention adjacent to the Ecosystem Network core reserve and Hydroriparian Zones to further aggregate habitat, protect water values, and increase connectivity throughout the landscape
- Representation should be within each biogeoclimatic subzone as required; subzones are not to be combined

Rationale

- The forests of the Upper Nass Lax Yip were and are primarily old and mature forests.
- The intent is not to reduce the area of ecologically appropriate timber harvesting land base or other potential industrial developments, but to utilize forest area that is considered ecologically not appropriate for industrial development, for maintenance of old growth biodiversity and to contribute to carbon storage and sequestration goals.
- Old forest provides forest structural complexity and habitats that do not exist in younger, more simplified forests, and supports species of animals, birds, plants, and invertebrates that require or do best in old growth forest habitats.
- Old forests provide critical sustenance foods, medicines, and cultural resources that are not present within younger forests.
- Upper Nass values and interests are directly and inextricably connected to and reliant upon the sustained presence and quality of the ecological resources of the Upper Nass Lax Yip. Sustaining the natural resources of the land is central to sustaining Upper Nass culture, economies, and subsistence for present and future generations. Retention of large areas of old growth forest, connected throughout the landscape and upland to the mountaintops is an integral component of maintaining the physical and mental health and culture of Gitxsan Upper Nass people and the health and function of the Upper Nass Lax Yip.
- A comprehensive review of the science literature as provided in *Representative Forest Targets: Informing threshold refinement with science* by Karen Price, Rachel Holt, and Louse Kremsater [June 7, 2007] indicates that:

- Maintaining habitat at greater than 60% of total habitat⁴¹ equates to low risk to ecological function, that is, a high probability that ecological integrity⁴² will be maintained
- Maintaining habitat at equal or less than 30% of total habitat equates to high risk to ecological function, that is, a high probability that ecological integrity will not be maintained.
- Ecological function of ecosystems/site series/site series surrogates is necessary to maintain the ecological function of habitats for the full range of species of the land, that is – biodiversity.
- Long-term ecosystem integrity, function, and resilience is necessary to sustain biodiversity, thus sustaining human communities, production of forest commodity products, and Upper Nass culture, economics, subsistence and medicinal plants.
- In consideration of Climate Change, maintaining ecological function, integrity, resilience, and landscape connectivity is essential to assist organisms and ecosystems to adapt to changing climates, or to migrate in response to change.
- Upper Nass Simgigyet do not wish to manage the land at a level that will result in a high risk to ecological integrity, ecosystem function, and resilience.
- Upper Nass Simgigyet do wish to manage the land at a level that will result in a moderate to low risk to ecological integrity, ecosystem function, and resilience, in order to sustain the natural resources of the Lax Yip for future generations of Upper Nass and non-Upper Nass people.

Upper Nass Simgigyet do believe that maintaining and managing the ecosystems of the Upper Nass at ≥45% of the total habitat of each ecosystem as undisturbed will maintain the risk to ecological integrity, ecosystem function, and resilience at a level of moderate to low.

⁴¹ See footnote 42 for definition of **Total Habitat**.

⁴² **Ecological Integrity** is the abundance and diversity of organisms at all scales, and the ecological patterns, processes, and structural attributes responsible for that biological diversity and for ecosystem resilience.

A. Seral Stage Distribution

Seral stages are the stages of ecological succession of a plant community, for example, from the young stage to the old stage. The characteristic sequence of biotic communities that successively occupy and replace each other, altering in the process some components of the physical environment over time. (*Forest Practices Code Biodiversity Guidebook*; 1995). A diversity of seral stages creates a diversity of habitat types across the landscape.

Targets for management of seral stages of the Upper Nass Lax Yip are as follow, intended to maintain a natural disturbance regime across the landscape, and are presented as Tables 7, 8, and 9.

Table 7
Old Seral Stage Targets (*Biodiversity Guidebook*; 1995)

Landscape Unit: Upper Nass Lax Yip Full Upper Nass LUP Area		
Biogeoclimatic Zone Variant NDT Type	Age (Years; not less than)	Target % of Crown Forested Land base (Not less than) %
NDT 1:		
ESSF wv	250	45
MH mm 2	250	45
NDT 2:		
ICH mc 1	250	45
NDT 3:		
SBS mc 2	140	45

TABLE 8

Combined Mature and Old Seral Stage Targets (*Biodiversity Guidebook*; 1995)

Landscape Unit: Upper Nass Lax Yip Full Upper Nass LUP Area		
Biogeoclimatic Zone Variant NDT Type	Age (Years; not less than)	Target % of Crown Forested Land base (Not less than) %
NDT 1:		
ESSF wv	120	45
MH mm 2	120	45
NDT 2:		
ICH mc 1	100	45
NDT 3:		
SBS mc 2	100	45

Table 9

Early Seral Stage Targets (*Biodiversity Guidebook*; 1995)

Landscape Unit: Upper Nass Lax Yip Full Upper Nass LUP Area		
Biogeoclimatic Zone Variant NDT Type	Age (Years; not greater than)	Target % of Crown Forested Land base (Not greater than) %
NDT 1:		
ESSF wv	40	22
MH mm 2	40	22
NDT 2:		
ICH mc 1	40	30
NDT 3:		
SBS mc 2	40	54
Based on intermediate biodiversity emphasis for the full Land Use Plan area.		

Objectives	Measures/Indicators		Targets
<p>2.0 Maintain a distribution across the landscape of old, mature, and early forest seral stages that reflect the natural disturbance regime</p>	<p>2.1 Percentage of old, mature, and early seral forest retained within the Upper Nass Lax Yip Land Use Plan area by Biodiversity Emphasis Option (BEC) variant</p>	<p>Refer to Upper Nass LUP Tables 7, 8, and 9 for old, mature, and early seral stage targets</p>	
	<p>Management Considerations</p> <p>For purposes of designation and retention of old seral forests, age class 9 forests are preferred over age class 8 forests.</p> <p>Primary considerations to determine the location of old seral forests for retention include:</p> <ul style="list-style-type: none"> • Age class 9 forests, before age class 8, before age class 7 forests • Biogeoclimatic variant representation • Areas considered not appropriate for industrial development wherever possible • Areas already constrained from industrial development for other purposes such as Ecosystem Networks, Grizzly Wildlife Habitat Areas, Moose Wintering Areas, Mountain Goat Winter Range, Upper Nass cultural sites, interior forest and connectivity values etc. • Areas not otherwise constrained from industrial development <p>Rationale</p> <p>The Upper Nass Lax Yip Land Use Planning Area is considered as a single landscape unit with an Intermediate Biodiversity Emphasis Option (BEO) applied to the full planning area. The rationale is that each Upper Nass Wilp has historically been and currently remains as self-sufficient. The intent and desire of Upper Nass Simigiyet is to retain the self-sufficiency of each Upper Nass Wilp. A low BEO applied to one Wilp and a high BEO applied to another Wilp will differentially impact each Wilp in terms of biodiversity and therefore Wilp sustainability, and negatively impact one Wilp relative to another.</p> <p>Application of an Intermediate Biodiversity Emphasis management regime to each Wilp will result in equitable treatment for each Wilp. Biodiversity values will be considered, evaluated, and managed equitably for all Wilps collectively, and will not favour one Wilp over another.</p>		

B. Patch Size Distribution

A patch is described as a stand of similar aged forest that differs in age from adjacent patches by more than 20 years. When used in the design of landscape patterns, the term refers to the size of either a natural disturbance (fire, wind, insects) opening that led to even aged forests, or an opening created by forest harvest cut blocks (*Biodiversity Guidebook*; 1995).

The historic Natural Disturbance Type mechanisms of the Upper Nass Lax Yip resulted in a wide range of canopy gap and patch sizes, ranging from single tree gaps and small patches <1.0 ha (very common) and grading up to very large 5000+ ha (uncommon to rare). The wetter forests (NDT 1 and 2) most frequently had very small to small/moderate size patches; drier forests (NDT 3) more commonly had moderate to large size patches.

Different patch sizes and shapes create a diversity of habitats, thus contributing to the maintenance of biodiversity.

Objectives	Measures/Indicators	Targets
<p>3.0 Maintain a diversity of patch sizes and habitats throughout the landscape, that over the long term reflects natural disturbance patterns</p>	<p>3.1 Distribution and range of patch sizes by natural disturbance type within the forested area of each landscape unit, that is, the full Land Use Planning Area of the Upper Nass Lax Yip</p> <p>Management Considerations The small patch sizes (<40 ha) will include a range of openings from 0.10 ha canopy gaps to 40.0 ha openings. Utilize the smaller canopy gaps' patch sizes (e.g. 0.1 ha to 10.0 ha) to achieve objectives for visual quality, conservation of wildlife habitat, tourism, etc., and simulate small-scale disturbance that naturally occurs in NDT 1 and NDT 2.</p> <p>Large patches to be cut to form the large openings (80 ha to 250 ha). In order to achieve the large patches through time, large patches to be also identified within Forest Stewardship Plans and other landscape level development plans as leave areas, and retained to provide future opportunities for large patches for harvest.</p> <p>Patches larger than 250 ha have historically been cut. Patch size analysis will include existing patches >250 ha but no new openings are to develop patches >250 ha.</p> <p>Small patches should be focused on NDT 1 disturbances. Small to medium size patches should focused on NDT 2 disturbances. Medium to large patches should be focused on NDT 3 disturbances. A range of all patch sizes (small to large) should be distributed across the landscape through all NDT types to achieve a variety of values to conserve and manage a range of ecological and cultural resources, including biodiversity.</p> <p>Rationale A diversity of canopy gaps and patch sizes will provide a diversity of habitats, contribute to protection of sensitive zones, and contribute to maintenance of biodiversity across the landscape.</p>	<p>Refer to Table 10 Patch Size Distribution</p>

	<p>Natural disturbance patterns will not be achieved by patch size targets of Table 10 for two reasons:⁴³</p> <ul style="list-style-type: none"> • Harvesting and other industrial disturbance occurs at a faster rate than natural disturbance (i.e. harvest rotations are planned for 100± years; natural disturbance rates range from NDT 3 of 125 years to NDT 1 rates of 350 to 3,000+ year rotation intervals). • Cut block size does not predict old forest patch size. <p>In essence, the patch size distribution of old forest is largely determined by harvest rate, not by the harvest patch size. Therefore, the cut block patch sizes of Table 10 are intended to provide a diversity of patch sizes, resulting in a diversity of habitat types, but are not intended to mimic the pattern of natural disturbance type mechanisms.</p>
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Table 10
Recommended Distribution of Patch Sizes (Harvest Units and Leave Areas)
(Biodiversity Guidebook; 1995)

Landscape Unit: Upper Nass Lax Yip Full Upper Nass LUP Area			
Biogeoclimatic Zone Variant NDT Type	Percent forest area within the landscape unit		
	Small Patches (<40 ha) %	Medium Patches (40 to 80 ha) %	Large Patches (80 to 250 ha) %
NDT 1:			
ESSF wv	30-40	30-40	20-40
MH mm 2	30-40	30-40	20-40
NDT 2:			
ICH mc 1	30-40	30-40	20-40
NDT 3:			
SBS mc2	20-30	25-40	30-50
Patch size means a single cut block or aggregate of several cut blocks.			

⁴³ Daust, D. (2008). Spatial distribution of mature and old forests Phase 1: Uncertainty related to pattern. Prepared for The Babine Watershed Monitoring Trust. <http://www.babinetrust.ca>.

c. Landscape Connectivity

The *Biodiversity Guidebook* defines connectivity as

“a qualitative term that describes the degree to which late successional ecosystems (old forests) are linked to one another to form an interconnected network ...Breaking of these linkages results in forest fragmentation. Fragmentation due to forest harvesting should be viewed and managed to mimic fragmentation resulting from natural disturbance.”

The Upper Nass LUP directs the maintenance of habitat connectivity by:

- “managing the matrix”
- maintaining stand level structural retention⁴⁴ (see also Section E; Full Cycle Retention Trees)
- maintaining habitat patches (see Section B; Seral Stage Distribution, and Section C; Patch Size Distribution)
- maintaining Old Growth Management Areas (see Section A; Old Growth Management Areas)
- maintaining Ecosystem Networks (see Section D; Ecosystem Networks)
- maintaining at the landscape level, retention of a proportion of the total habitat within representative ecosystems (see Section A; Old Growth Management Areas; Representative Ecosystems)

Connectivity includes:

- riparian connectivity throughout valley bottoms
- upland to upland connectivity
- upland to stream connectivity
- upland to wetland connectivity
- cross-elevational connectivity
- wetland complex connectivity
- stream riparian connectivity
- island remnant connectivity.

Ecosystem networks (EN) of the Upper Nass LUP are landscape corridors focused primarily around streams, lakes, and wetlands. They consist of:

- the EN core reserves, which encompass the full hydroriparian zone reserve established in Section 9.3 Water, Objective 3.0, and associated Strategies, and presented on the Upper Nass Ecological Resource Zonation Maps – Hydroriparian Zone and Ecosystem Network Core Reserve
- the EN buffer established on each side of the EN core reserve, around specific streams, lakes, and wetlands.

Ecosystem networks protect hydroriparian ecosystems, capture biodiversity “hotspots,” high habitat values, old growth management areas, important wildlife movement corridors, and Upper Nass cultural features, facilitate movement and migrations of plant and animal species and gene pools through the landscape, and serve to connect landscapes across all elevations. Ecosystem networks also contribute to achievement of mature-old seral stage and patch size targets (see Objectives 9.4.1, 9.4.2, and 9.4.3), and serve to shift the focus of forestry activities from timber to be removed, to forests to be left standing, such that a portion of the landscape has less emphasis on intensive industrial development activities that alter natural stand structure, and seral and patch size distribution.

⁴⁴ Natural disturbances rarely kill all the living trees within the patch that the disturbance affects, and rarely remove trees from the site. Residual and downed trees provide habitat that would otherwise be missing while the young forest regenerates, thus providing connectivity between the old and newly regenerating forests.

Additionally, ecosystem networks contribute to species adaptation to Climate Change and migrations in response to Climate Change, through maintenance of ecosystem functions, resilience, and landscape connectivity.

Representative forest ecosystem retention is retention of a proportion of the total habitat within broad representative ecosystems (site series surrogates) of each biogeoclimatic variant. These ecosystems are identified using data from Province of BC Forest Cover maps and are defined:

- Primarily by ecosystem site productivity
- Secondarily by tree species of the forest timber type polygon map.

Old forests are most at risk from timber harvesting; conservation concerns focus on representative old seral forest ecosystems. The intent is to retain a target level of old forest within representative broad ecosystems, by BEC variant, that will approximate the area of old forest expected under natural disturbance regimes. The purpose of such retention is to maintain sufficient old forest within each representative ecosystem to achieve a moderate to low level of risk to ecological function and biodiversity. The establishment and retention of Ecosystem Network core reserves and buffers contributes significantly to representative forest ecosystem retention.

Objectives	Measures/Indicators		Targets
<p>4.0 Maintain structural connectivity in the Ecosystem Network identified on the Upper Nass LUP Ecological Resources Zonations Map</p>	<p>4.1 Percentage of the Ecosystem Network core reserve where industrial development occurs for reasons other than those listed in Table 12 Rationale for Amending the Ecosystem Network</p>		<p>0%</p>
	<p>Management Considerations</p> <p>The Ecosystem Network core reserve (EN) boundaries overlap and encompass the mapped hydroriparian zones.</p> <p>The Ecosystem Network core reserve is comprised of corridors reserved from industrial disturbance along the major valley bottom streams and the larger tributary streams of the Upper Nass Lax Yip and provides connectivity corridors through the Upper Nass landscape and upslope to alpine area.</p> <p>Ecosystem Network core reserves along the major valley bottom rivers and streams (including Kwinageese, Nass, Skeena, Bell-Irving, Canyon-Vile, Kotsinta, Damdochax, Muskaboo, Yaza-Slowmaldo, Konigus, Rochester) will be a minimum of 150 meters horizontal distance in width on both sides of the stream, or the full width of the hydroriparian zone, whichever is wider.</p> <p>The 150-meter reserve width will be the horizontal distance, measuring from The edge of the stream bank or the outer edge of the stream floodplain where the stream has a floodplain</p>		

	<p>Ecosystem Network core reserve along the larger tributary streams that drain the upper slopes and provide a major source of water to the valley bottom streams, will be the full width of the hydroriparian zone encompassed.</p> <p>The Ecosystem Network core reserve will further increase in width in specific locations, as shown on the Land Use Plan Ecological Zonation Map, to encompass and connect specific ecosystems, such as Grizzly Wildlife Habitat Areas, wetlands, wetland-brush-forest complexes, High Value Habitat Patches for General Wildlife, as part of a connected network of ecosystems and habitats.</p> <p>Ecosystem Network <u>buffers</u> are 200 meters in width, located as mapped along the outside edge of the EN core reserve, in order to permit some small patch cuts or selective harvesting while ensuring that a minimum of 200 meters interior forest conditions exist throughout the combined Ecosystem Network core reserve and Ecosystem Network buffer.</p>	
	<p>4.2 Road length through the Ecosystem Network core reserve and buffer, other than roads constructed:</p> <ul style="list-style-type: none"> • To access timber or other resources that would otherwise be isolated from extraction beyond the EN • Where terrain conditions such as slope gradient or terrain stability constrain road locations and dictate that sections of road enter and leave the EN to access timber or other resources that would otherwise be isolated from harvest • Where no practicable alternative exists 	<p>0 metres</p>
	<p>4.3 Percentage of the 200-meter width Ecosystem Network buffer identified on the Upper Nass LUP that meets the forest condition in Table 11 Forest Conditions Within Ecosystem Network Buffer</p>	<p>100%</p>

Table 11
Forest Conditions Within Ecosystem Network Buffers

- Immediately adjacent to the EN core reserve and 200-meter minimum width
- Continuous forest cover
- Small, discontinuous canopy gaps ≤ 0.5 hectares in size, separated by undamaged forest patches not smaller in size than the adjacent canopy gap
- $\geq 70\%$ structure and function⁴⁵ retained, including large old trees, snags, and coarse woody debris
- Multiple canopy levels, multi-aged forest
- In conjunction with the EN core reserve, maintain interior old forest conditions ≥ 200 meters in width
- 0% permanent road access except where, for ecological or economic conditions, no other alternative is possible

⁴⁵ Any harvest unit within the buffer portions of the EN will, within the buffer, retain $\geq 70\%$ of the naturally occurring mature and old forest structure (live trees, range of diameter classes, snags, coarse woody debris, tree species etc.) of the harvest unit measured either as basal area (M^2) or forest area (hectares). No further harvesting may occur within the harvest unit (within the EN buffer area) until such time as the harvested portion has returned to a mature or older condition (i.e. ICH and SBS 100 years, ESSF and MH 120 years).

Table 12
Rationale for Amending the Ecosystem Network

Gitxsan Upper Nass values and interests are directly and inextricably connected to and reliant upon the sustained presence and quality of our cultural resources. Sustaining the land is central to sustaining Upper Nass culture, and maintaining the health of Upper Nass Lax Yip, providing for our economies, and contributing to the mental, physical, emotional, and spiritual health of Wilp members.

The Ecosystem Network is a key and invaluable component of the Upper Nass Lax Yip Land Use Plan and encompasses many vital Gitxsan values throughout the landscape of the Upper Nass Lax Yip.

Acceptable Rationale for amendment of the Ecosystem Network	Major or Minor Amendment	Allowable Amendment
1 Access issues that were overlooked or unknown during the initial Ecosystem Network designation, where no practicable alternative exists (refer to Biodiversity Measure 4.2)	Minor: but requires consultation with Upper Nass Lax'yips prior to implementation and approval of the amendment	To establish an appropriate road location and width to cross through the Ecosystem Network
2 To account for cutblocks in place prior to the establishment of the Ecosystem Network, including those: <ul style="list-style-type: none"> • Approved under Section 196 (1) of the <i>Forest and Range Practices Act</i> • As declared areas under Section 14 (4) of the Forest Planning and Protection Regulations, or, • That have a Cutting Permit in place 	Minor	<ul style="list-style-type: none"> • To the edge of the cutblock, temporarily, to allow timber harvest • Return to original location following completion of timber harvest and silviculture responsibilities
3 To address a compelling forest health issue (for example, a forest pest or disease is established in the Ecosystem Network and spreads to the point where it threatens adjacent values and resources outside the Ecosystem Network)	Minor	To the extent necessary to eliminate the threat to the land and/or water adjacent to the Ecosystem Network

4	<p>New data or information, such as ground truthing of the Hydroriparian Zone, new resource inventories, Upper Nass Cultural Sites, cultural, medicinal, and subsistence/sustenance resources, and updated wildlife mapping.</p> <p>Notwithstanding the exceptions detailed under items 1-3 above, in no case will the Ecosystem Network be smaller than the Hydroriparian Zone</p>	<p>Major for the following rivers, including the High Value Habitat for General Wildlife patches included in the EN adjacent to these rivers:</p> <ul style="list-style-type: none"> • Nass • Skeena • Bell-Irving • Kwinageese <p>and creeks:</p> <ul style="list-style-type: none"> • Canyon • Vile • Damdochax • Slomaldo • Yaza • Kotsinta • Muskaboo • Rochester • Konigus <p>and upper reaches of the Taylor River.</p> <p>Minor for the large watersheds tributary to the above major valley-bottom rivers, <u>but requiring</u> consultation with the Upper Nass Huwilp <u>prior to</u> approval and implementation of the amendment.</p>	<p>To improve the degree to which the EN captures values for the Upper Nass Huwilp, provides habitat for wildlife, or generally benefits biodiversity</p> <p>To increase the accuracy of the EN in terms of how it maps the Hydroriparian Zone</p>
<p>The amendment process for Ecosystem Networks is to follow the current approved policy: Old Growth Management Area (OGMA) Amendment Policy – Skeena Region; August 2010.</p>			

Rationale for the Ecosystem Network Core Reserve and the EN Buffer

This rationale was originally prepared for the Gitanyow Sustainable Resource Management Plan (Gitanyow Huwilp Society) 2008 and 2010, and has been amended to be applicable to the Upper Nass Lax Yip Land Use Plan.

References cited and reviewed that support the rationale or Biodiversity Objective 4.0 include:

- Canadian Council of Forest Ministers (2009). *Vulnerability of Canada's tree species to Climate Change and management options for adaptation*.
- Dystra, P.R. (2004). *Thresholds in habitat supply: A review of the literature*. Province of BC in Wildlife Report No. R-27; Ministry of Sustainable Resource Management, Ecosystem Conservation Section, and Ministry of Water, Land, and Air Protection, Biodiversity Branch.
- Price, K., Holt, R., Kremsater, L. (2007). *Representative forest targets: Informing threshold refinement with science*.

The Upper Nass Lax Yip Land Use Plan has proposed Ecosystem Networks consisting of:

- A core reserve that includes the hydroriparian zone of the main valley-bottom streams of the Upper Nass Lax Yip, numerous high value wildlife habitats and valuable Upper Nass cultural, medicinal, and subsistence resources, and numerous large tributary streams that connect the valley bottom streams to the mountaintops
- A buffer to the core reserve that is intended, in conjunction with the core reserve, to provide interior old forest conditions and habitats along the riparian features

The core area is a full reserve; the buffer is available for limited timber harvesting, with $\geq 70\%$ retention at any harvest entry and re-entry periods of approximately 100-120 years (age of maturity).

The intent of the Ecosystem Network is to provide connectivity in order to facilitate movement and dispersal of organisms through the landscape. The intent of interior forest conditions is to provide habitat conditions suitable for the persistence and movement of organisms that:

- i. Require the specialized habitats of old forest interior
- ii. Move very slowly through the landscape
- iii. Recover very slowly from disturbance (decades to centuries)
- iv. Are rare species or in rare ecosystems

1.0 Landscape Connectivity Function

- (i) Historically and currently, natural connectivity throughout the Plan area is high; forests are predominantly contiguous old forests providing large connected areas of interior forest conditions. The current methodology of timber harvest, with a management regime of short rotational (80-120 years) clear-cutting will greatly alter the character of the forest; the resulting forest will not resemble the naturally occurring pre-harvest forest; connectivity characteristics will be greatly reduced wherever timber harvesting occurs.
- (ii) Climate Change is a reality. Although the duration and effects of Climate Change are not known, modeling of forest responses indicate that forests will change; there will be species migrating within and through landscapes in order to adjust to changing climates and habitats. Species survival will depend on their ability to

adapt to new climates or migrate to favourable climates; ecosystem resiliency is necessary. Ecosystem Networks contribute to ecosystem resilience, and function to facilitate adaptation to Climate Change and migration in response to Climate Change.

- (iii) The proposed Ecosystem Networks are intended to maintain connectivity through the landscape:
- along main movement and dispersal routes of valley bottom streams
 - along main tributary streams that connect low elevations to high elevations

to provide favourable conditions for movement and dispersal for organisms that require or prefer old forest interior habitats. Retaining the ENs as proposed will reduce the risk and will increase the certainty that organisms that require old interior forest conditions, that move very slowly through the landscape, and that recover very slowly from disturbances (i.e. timber harvesting) will be able to persist and disperse through the landscape.

- (iv) Ecosystem Networks providing connected interior old forest habitat will assist in mitigating loss of interior old forest habitat conditions.
- (v) Habitat aggregation appears to mitigate some of the effects of habitat loss, particularly at high levels of habitat loss. Ecosystem network core reserves and buffers result in aggregation of interior old forest habitat.
- (vi) Species vary in their tolerance of edge habitat. Similar to its influence on poor dispersers, the aggregation of habitat lowers the amount of habitat loss at which edge-sensitive species experience threshold decline. Ecosystem network core reserves and buffers aggregate connected interior old forest habitats, reducing the effect of fragmentation of habitat on edge-sensitive species.
- (vii) The current provincial management regime of timber harvesting is a large-scale experiment in habitat manipulation; there are no precedents and long-term results are unknown. Although the management regime does address connectivity, there is no plan in place to specifically address connectivity of old forest interior habitats through the landscape. Maintaining the Ecosystem Networks, including the core reserve and the buffers is specifically intended to provide for connectivity of old forest interior habitats in order to reduce risk and increase certainty of sustainability at the landscape level of organisms and their gene pools that require or favour such habitats.

The Ecosystem Networks as proposed are not intended to replace other measures for connectivity; they are supplementary and complementary to other measures and are intended to be part of a landscape-wide system for maintenance and management of biodiversity.

- (viii) In many forest management jurisdictions across North America, variable retention forest harvesting is being considered as a means of retaining connectivity throughout the forested landscapes. Variable retention provides a variety of retention levels and patterns across the landscape, ranging from a minimum of $\pm 5\%$ to a high of $\pm 70\%$. A good summary of variable retention harvesting is provided in the publication *Variable retention forest harvesting: Research, synthesis, and implementation guidelines* (Robert Serrouya and Robert D'Eon; April, 2004).

In the context of variable retention harvesting, the proposed buffer of the Ecosystem Network would be considered a high retention area applied to a small but disproportionately valuable part of the landscape, and would meet the intent of variable retention harvesting.

- (ix) The Ecosystem Network and buffers also contribute to the retention of total habitat within low elevation, richer ecosystems that are historically heavily impacted by timber harvesting. These are the ecosystems that are the most productive habitats for biodiversity, for Gitksan Upper Nass cultural and sustenance use, as well as commodity timber production and access for other industrial developments.
- (x) The Canadian Council of Forest Ministers 2009⁴⁶, in order to conserve genetic diversity in response to Climate Change, state that options include, “creating and maintaining corridors that facilitate the migration of tree species and genotypes (as well as other plant and animal species).” Ecosystem Networks of the Upper Nass Lax Yip incorporate this option into the Landscape Unit Plan.

2.0 Other Functions:

The Ecosystem Network provides functions in addition to the functions of connectivity:

- (i) The buffers will provide protection from wind damage to the core reserve.
- (ii) The ENs will provide a significant contribution to Goshawk foraging habitat.
- (iii) The ENs overlap numerous Grizzly wildlife habitat area polygons and several Moose winter range polygons and will provide many of the habitat attributes that are recommended for Grizzly and Moose management.
- (iv) Furbearer habitat (wolverine, fisher, marten, wolf etc.) is enhanced by the ENs through improved connectivity along riparian features and retention of valuable habitat features.
- (v) The EN will contribute to protection of Upper Nass cultural sites and continuance of traditional uses.
- (vi) The EN contributes to the area of mature and old forest required to achieve biodiversity seral stage targets.

⁴⁶ Canadian Council of Forest Ministers 2009. *Vulnerability of Canada’s tree species to Climate Change and management options for adaptation: An Overview for policymakers and practitioners*. Available at ISBN-1-100-13845-9; Cat. No; F04-28/2009E.pdf.

D. Stand Structure and Full Cycle Retention Trees (Wildlife Trees)

Stand structure is: the distribution of trees in a stand, which can be described by species, vertical or horizontal patterns of trees, size of trees or tree parts, age, or a combination of these (Ministry of Forests Glossary of Terms). Stand structure includes living and dead trees and fallen dead trees.

A diversity of stand structure provides a diversity of habitats; large old trees, decadent trees with cavities, snags, and downed trees provide habitats not found in young forests of sound small trees. Deciduous forests provide habitats not found in coniferous forests.

Natural disturbances rarely kill all the living trees within the patch that the disturbance affects, and rarely remove trees from the site. As the young forest regenerates around the residual standing (and down) trees in the patch, these residual trees and downed trees provide habitat that otherwise would be missing from the young forest, thus providing connectivity between the regenerating forest and the previous old forest.

Full cycle retention trees are trees deliberately left standing within harvested cut blocks, with the intention that they will never be harvested; they will remain as standing live trees, become snags (dead trees), fall to the ground and become coarse woody debris, and eventually decay and decompose, and complete their full cycle back into soil. Retained trees are referred to in Forest Stewardship Plans and the Forest and Range Practices Regulations as “Wildlife Trees” and “Wildlife Tree Patches (WTP)”.

Full cycle retention trees may be retained in patches of various sizes in specific locations on the cut block, or as single trees dispersed more or less evenly across the cut block, or in combinations of patches and single trees. Patch retention appears to be the more suitable system to provide wildlife habitat; single tree retention provides a better dispersion of large coarse woody debris across the cut block for soil and water conservation and nutrient cycling.

Throughout the harvested landscape, full cycle retention trees provide a linkage between the regenerating young forest and the original old forest, and contribute to the health and sustainability of the forest by providing an array of ecological services including:

- As standing trees, they provide critical habitat (for denning, shelter, roosting, and foraging) for a wide variety of organisms such as birds, small mammals, insects, mosses, and lichens.
- As standing trees, they provide silvicultural values such as a seed source, genetically adapted to site conditions, for natural regeneration of the harvested land, and partial shade and shelter for the developing regeneration.
- As fallen trees, they provide protective cover, favorable microclimates, and breeding habitat for a wide variety of organisms including plants, vertebrates, and invertebrates.
- As decaying coarse woody debris, they provide a long-term source of nutrients to contribute to soil fertility, and act as a sponge for the absorption of water during wet seasons, for storage, then for slow release of water into the soil during the dry seasons.

Objectives	Measures/Indicators		Targets
5.0 To retain unlogged through time a proportion of the existing forest within every cutblock, to retain or recruit the range the structural attributes of old forests to support stand-level biodiversity	5.1 Percentage of representative wildlife tree retention within cutblocks	Refer to Table 13 Full Cycle Retention Trees (Wildlife Trees) Targets	
	Management Considerations <ul style="list-style-type: none"> • Refer to Appendix A – General Wildlife Management Guidelines • Monitor and document the retention of wildlife tree areas in an appropriate record system to ensure target is achieved • Where practicable, promote partial cutting systems in stands conducive to shade tolerant species management 		

Rationale

A review of the scientific literature, as provided in:

- Kremsater, L, et al (2008). *Accounting for stand level retention: background material*. Prepared for the Ecosystem Based Management Working Group, North and Central BC Coast.
- Price, K, Holt, R., and L Kremsater. (2007). *Representative forest targets: informing threshold refinement with science: A Review paper written for RSP and CFCI*. Prepared for the Ecosystem-based Management Working Group, North and Central BC Coast indicates that
 - A ≥15% stand level retention within harvested cutblocks is recommended, in order to avoid large changes in community and rapid reductions in species.
 - A <20% stand level retention should not count toward landscape level retention due to unfavourable habitats produced by the surrounding cutblock and adjacent clearcuts.
- Different organisms have differing responses to stand level retention; some respond positively to low levels of retention, others have a low threshold to disturbance and respond negatively to even high levels of retention. Variable retention across the landscape appears to be most appropriate, ranging from very low (3.5%) in some cutblocks up to 70% for other cutblocks, averaging ≥15% across all cutblocks.

Stand level retention provides ecological functions and services within the regenerating stand, including:

- providing structural legacies (large trees, snags, downed trees etc.) that create complexity in the developing stands, and provide habitats that otherwise would be lost from the stands
- providing “life-boating” refuges for some species and processes that otherwise would be absent from the developing stand, allowing them to persist within the developing stand
- providing connectivity between the developing stand and the original old forest, that can act as “stepping stones” for some organisms, allowing the organisms to achieve small scale movement within the stand and over time achieve landscape level movement
- providing protection for specific small habitat features or ecosystems, such as wetlands, dens, nest trees, rare ecosystems or organisms, etc.

Stand level retention contributes to ecosystem resilience within the developing stand and thus may contribute to adaptation to Climate Change or migration in response to Climate Change.

Table 13
Full Cycle Retention Tree (Wildlife Trees) Targets

Landscape Unit:	% area of any individual cut block to be retained as full cycle retention trees (not less than) %	% area of total harvested cut blocks (annual harvest) to be retained as full cycle retention trees (not less than) %
Full Upper Nass Lax Yip Land Use Plan Area	3.5	≥ 15% average: Variable within individual cut blocks
Applies through all biogeoclimatic zones, subzone, and variants.		

Appendix A: General Wildlife Tree Management Guidelines

1. Where practicable, disperse wildlife trees across harvested areas as a combination of patches and individual trees. It is recognized that dispersed retention can work on most ground-based logging systems, but is not operationally always feasible for cable systems.
2. The practicability of retaining wildlife trees, in small patches and through dispersed individual trees, is to be determined on a block-by-block basis.
3. Make best efforts to retain greater than the minimum percentage of within-block wildlife trees.
4. Wildlife tree features:
 - Deciduous and coniferous trees
 - Large, well-branched, wind-firm
 - Decadent, i.e. low commercial value
 - Pine mushroom host trees
 - Trees and snags that show current use by wildlife (e.g. denning or nesting trees, feeding stations)
 - Trees or snags that provide special wildlife values (e.g. large, well-branched trees, large snags, veteran trees)
 - Safe to leave standing (i.e. comply with Workers Compensation Board standards and regulations)
 - Located with more or less even spacing across the harvested area to provide nutrients, and water absorption and release, across the harvested block
5. Wildlife tree retention area features:
 - Mineral licks, wetlands, springs, brush patches, small streams
 - Medicinal plants for Upper Nass traditional use
 - Pine mushroom habitat
6. Designate and retain wildlife trees within all silvicultural systems, including selection and clearcutting systems.
7. Wildlife trees to be retained at least until other suitable trees can offer equivalent replacement values. This will take at least one rotation (at least 100 years).
8. Retain high densities (30 percent or greater) of wildlife trees:
 - within the large cutblocks (retention densities to increase as size of cutblocks increase),
 - throughout the harvestable portion of ecosystem networks, and
 - throughout all harvested blocks within High value grizzly bear habitat and moose wintering habitat.
9. Wildlife tree retention areas are allowed to be located on the edge of cutblocks. Best efforts are to be made to limit the location of wildlife tree retention areas on edges. It is recognized that even though a wildlife tree retention area is on the edge upon harvesting the cutblock, it will not be on the second or third pass. A wildlife tree retention area is a recognized exclusion from the cutblock and must be maintained.
10. Allow natural processes to occur within retention patches unless infestations, infection or fire threaten resources outside the patch.
11. Where intervention in wildlife tree retention areas is required, best efforts will be made to retain a diversity of structural attributes, or a replacement retention patch will be located.
12. Document the contribution to wildlife tree retention targets in an appropriate information system.

E. Rare Ecosystems

Rare ecosystems are ecosystems (site series or surrogate) that make up less than 2% of a landscape unit and are not common in adjacent landscape units (Biodiversity Guidebook 1995).

Ecosystems classified by the B.C. Conservation Data Centre as red listed (extirpated, endangered, or threatened) or blue listed (at risk) are considered as rare ecosystems.

Classification of rare ecosystems is periodically updated through time by the B.C. Conservation Data Centre. The intent of this Land Use Plan is that the most recently updated classifications and listings through time of rare ecosystems will be utilized to identify and protect rare ecosystems within the Upper Nass Lax Yip.

Blue or red listed plant communities potentially occur within the Upper Nass Lax Yip LUP area. Their locations, extent, and classifications are not fully known due to lack of field examinations and mapping.

Objectives	Measures/Indicators	Targets
6.0 Preserve red-listed (endangered or threatened) ecosystems, as classified by the BC Conservation Data Centre	6.1 Hectares of red-listed plant communities ⁴⁷ harvested, except: <ul style="list-style-type: none"> • where required to access timber that would otherwise be isolated from harvest beyond the protected area • where terrain conditions such as slope gradient or terrain stability constraint road locations and dictate that sections of road enter and leave red-listed plant communities to access timber that would otherwise be isolated from harvest • where no practicable alternative exists 	0 hectares
	6.2 Percentage of red-listed plant communities having their ecological integrity ⁴⁸ maintained, except: <ul style="list-style-type: none"> • to access timber that would otherwise be isolated from harvest beyond the core area • where terrain conditions such as slope gradient or terrain stability constraint road locations and dictate that sections of road enter and leave red-listed plant communities to access timber that would otherwise be isolated from harvest • where no practicable alternative exists 	100%
	Management Considerations <ul style="list-style-type: none"> • For the most up-to-date list of at-risk ecosystems, refer to the Conservation Data Centre rare and endangered plant communities list online at http://www.env.gov.bc.ca/cdc/index.html • Red-listed plant communities encountered during field operations are to be accurately mapped and preserved from disturbance. • No red-listed plant communities smaller than the stated minimum size are 	

⁴⁷ The minimum size of red-listed plant community to be preserved is 0.25 ha. Where the red-listed plant community exists as the dominant component of a complex, the minimum size of the complex to be preserved is 1.0 ha.

⁴⁸ Ecological Integrity is the abundance and diversity of organisms at all scales and the ecological patterns, processes, and structural attributes responsible for that biological diversity and ecosystem resilience.

	<p>required to be preserved; however, it is desirable to preserve them by including them within wildlife tree retention areas or other forms of stand level retention.</p> <ul style="list-style-type: none"> • Best efforts will be made to establish wind-firm buffers around red-listed plant communities to protect their ecological integrity from industrial development. The intent of the buffer is to maintain conditions of soil chemistry, moisture, light and temperature that are necessary to sustain the ecological integrity of the rare ecosystem. • A valid management consideration also includes <u>not extending a road</u> through the rare ecosystem but to forego timber harvesting and to protect the rare ecosystem. 	
<p>7.0 Conserve, and wherever possible fully preserve, blue-listed (at risk) plant communities as listed by the BC Conservation Data Centre</p>	<p>7.1 Proportion of each blue-listed plant community⁴⁹ within a cutblock to be retained.</p>	<p>100% Whenever practicable Minimum of 70% by area or basal area where 100% retention is not practicable</p>
<p>Management Considerations</p> <p>For the most up-to-date list of at- risk ecosystems, refer to the Conservation Data Centre rare and endangered plant communities list online at http://www.env.gov.bc.ca/cdc/index.html</p> <p>Although blue-listed plant communities smaller than the stated minimum size are not required to be preserved, it is desirable to preserve them by including them in wildlife tree retention areas or other forms of stand level retention.</p> <p>Best efforts will be made to establish wind-firm buffers around blue-listed plant communities to protect their ecological integrity from industrial development. The intent of the buffer is to maintain conditions of soil chemistry, moisture, light and temperature that are necessary to sustain the ecological integrity of the rare ecosystem.</p>		
<p>Rationale</p> <p>Red and Blue Listed ecosystems are rare within the landscape, and are disproportionately valuable to biodiversity, as they support unique organisms and communities not readily found elsewhere on the landscape.</p>		

⁴⁹ The minimum size of blue-listed plant community to be preserved is 0.25 ha. Where the blue-listed plant community exists as the dominant component of a complex, the minimum size of complex to be preserved is 1.0 ha.

	<p>Because of their rarity, Red and Blue ecosystems are increasingly endangered by industrial resource extraction and require focused, special measures for their preservation to maintain their persistence and value within the landscape.</p> <p>Blue Listed ecosystems are less rare than Red Listed ecosystems but are increasingly threatened by timber harvesting and other industrial developments as, frequently, they exist in moist to wet, rich growing sites that support the highest volume, most valuable timber stands and species, and are targeted for harvesting for their economic value.</p> <p>The number, location, and full extent of Red and Blue Listed ecosystems are not presently known within the Upper Nass Lax Yip.</p> <p>Current methods of protecting Blue Listed ecosystems is to harvest a proportion of the total number of ecosystems, or alternatively to harvest a proportion of each individual ecosystem. Neither approach is appropriate; both approaches will result in Blue Listed ecosystems being reduced in number and/or effectiveness of ecological function, increasingly pushing them into the Red Listed category.</p> <ul style="list-style-type: none">• Harvesting a proportion of the total number is not appropriate because the total number, location, and extent of Blue Listed ecosystems are not currently known; there is no accurate means of determining when the target proportion has been reached.• Harvesting a proportion of each individual ecosystem is not appropriate as the effective function of the ecosystem will be reduced or lost. <p>Reduction and loss of rare ecosystems will reduce biodiversity and effective ecological function, integrity, and resilience across the landscape.</p> <p>Rare ecosystems frequently support species that provide cultural, medicinal, and subsistence resources to Upper Nass Huwilp members; loss of these ecosystems will negatively impact Upper Nass ability to exercise Aboriginal Rights and utilize their Territories to sustain their culture and provide for their subsistence.</p> <p>Loss of ecosystem effective function, integrity, and resilience will reduce the ability of organisms to adapt to Climate Change or migrate in response to Climate Change.</p>
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Table 14

BC Conservation Data Centre Red and Blue-listed Plant Communities (Feb. 3, 2021)

Listed for: Coast Mountain Resource District Skeena-Stikine Resource District

	Plant Community Name (Latin and common names)	Biogeoclimatic Classification	Classification Listing (Red, Blue, or Yellow)
1	<p>ESSFwv subzone</p> <ul style="list-style-type: none"> • <i>Amelanchier alnifolia-Elymus trachycaulus</i> • Saskatoon-slender wheatgrass 	<p>ESSFwv: (ESSFmc) (ESSFmc1) (ICHmc1) (ICHmc2) (SBSdk/81) (SBSmc2)</p>	Red
2	<p>MHmm2 subzone There are no Red or Blue-listed ecological communities within the MHmm2 zone; subzone, variant as of February 3, 2021</p>		
3	<p>ICHmc1 subzone</p> <ul style="list-style-type: none"> • <i>Amelanchier alnifolia-Elymus trachycaulus</i> • Saskatoon-slender wheatgrass 	<p>ICHmc1: (ESSFmc) (ESSFwv) (ICHmc2) (SBSdk/81) (SBSmc2)</p>	Red
	<ul style="list-style-type: none"> • <i>Carex lasiocarpa – Drepanocladus</i> • Slender sedge – common hook moss 	<p>ICHmc1/wf05: (SBSdk/wf05) (SBSmc2/wf05) (ICHmc2/wf05)</p>	Blue
	<ul style="list-style-type: none"> • <i>Carex limosa – Menyanthes/ sphagnum</i> species • Shore sedge-buckbean/peat moss 	<p>ICHmc1/wb13 (CWHws1/wb13) (CWHws2/wb13) (ICHvc/wb13)</p>	Blue
	<ul style="list-style-type: none"> • <i>Populus trichocarpa – Abies lasiocarpa/ Oplopanox horridus</i> • Black cottonwood – subalpine fir/ devil’s club 	<p>ICHmc1/fm03 (ICHmc2/fm03) (ICHvc/fm03) (ICHwc/06) (ICHwc/fm03)</p>	Blue
	<ul style="list-style-type: none"> • <i>Tsuga heterophylla – Arctostaphylus uva ursi – Cladonia</i> species • Western hemlock – kinnikinnik – clad lichens 	<p>ICHmc1/02 (ICHmc2/02)</p>	Blue
4	<p>SBSmc2 subzone</p> <ul style="list-style-type: none"> • <i>Amelanchier alnifolia-Elymus trachycaulus</i> • Saskatoon-slender wheatgrass 	<p>SBSmc2 (ESSFmc) (ESSFwv) (ICHmc1) (ICHmc2) (SBSdk/81)</p>	Red

<ul style="list-style-type: none"> • <i>Betula nana</i> – <i>Carex aquatilis</i> • Scrub birch – water sedge 	SBSmc2/wf02 (ESSFmv/wf02) (ICHmc2/wf02) (SBPSmc/wf02) (SBSdk/wf02) (SBSwk1/wf02) (SBSwk2/wf02)	Blue
<ul style="list-style-type: none"> • <i>Carex lasiocarpa</i> – <i>Drepanocladus</i> – <i>aduncus</i> • Slender sedge – common hook moss 	SBSmc2/wf05 (ICHmc1/wf05) (ICHmc2/wf05) (SBSdk/wf05) (SBSwk1/wf05)	Blue
<ul style="list-style-type: none"> • <i>Carex limosa</i> – <i>Menyanthes trifoliata</i> / <i>Drepanocladus</i> • Shore sedge – buckbean - hook moss 	SBSmc2/wf08 (SBSdk/wf08) (SBSwk1/wf08)	Blue
<ul style="list-style-type: none"> • <i>Eleocharis quinqueflora</i> – <i>Drepanocladus</i> • Fewflower spikerush – hook moss 	SPSmc2/wf09 (ESSFms/wf09)	Red
<ul style="list-style-type: none"> • <i>Picea mariana</i> – <i>Menyanthes trifoliata</i> – <i>sphagnum</i> spp • Black spruce – buckbean – peat moss 	SBSmc2/wb11 (ICHmc2/wb11) (SBSwk1/wb11)	Blue
<ul style="list-style-type: none"> • <i>Pinus contorta</i> – <i>Carex pauciflora</i> – <i>sphagnum</i> spp • Lodgepole pine – few-flowered sedge – peat moss 	SBSmc2/wb10 (ESSFmc/wb10)	Blue
<ul style="list-style-type: none"> • <i>Poa secunda</i> spp – <i>Elymus trachycaulus</i> • Sandbergs bluegrass – slender wheatgrass 	SBSmc2 (ESSFmc) (SBSdk/82)	Red
<ul style="list-style-type: none"> • <i>Scheuchzeria pauciflora</i> – <i>sphagnum</i> spp • Pod-grass – peat moss 	SBSmc2/wb12 (ICHmc2/wb12)	Blue
<ul style="list-style-type: none"> • <i>Trichophorum alpinum</i> – <i>scorpidium revolvens</i> • Hudson Bay clubrush – rusty hook moss 	SBSmc02/wf10	Red
<p>Note:</p> <ul style="list-style-type: none"> • () indicates biogeoclimatic zones and subzones that do contain the rare plant communities, are <u>not</u> the BGC zones and subzones of the Upper Nass Lax'yip but which are reasonably adjacent to the Upper Nass BGC zones and subzones • <u>Lack of</u> () indicates that the listed plant community <u>is</u> present within the <u>identical</u> biogeoclimatic zone and subzone that is situated within the Upper Nass area, and is a good indicator that the rare plant community <u>may</u> be within the Upper Nass Lax'yip. 		

Table 13 presents a listing of rare (red and blue listed) plant communities that are found within the Coast Mountain Resource District and Skeena-Stikine Resource District biogeoclimatic zones and subzones. It is not known the number, location, and full extent of rare plant communities within the Upper Nass Lax Yip. Therefore, Table 13 presents a listing of rare plant communities that are known to be within the same ecosystem zones and subzones as are located within the Upper Nass Lax Yip, and which may be present within the Upper Nass LUP area.

F. Deciduous Ecosystems

Deciduous ecosystems are located throughout the planning area

- within riparian flood plains
- within sites of natural disturbance such as occasional small-to-large forest fires, blowdown, flood events, avalanche and slide tracks

and are generally small and localized relative to the surrounding conifer forest. The deciduous forests are comprised of “pioneer” species that follow disturbance, provide high wildlife and biodiversity values, and require periodic disturbance (fire, flooding, blowdown) to maintain the deciduous forest cover.

To date, deciduous forests have been generally considered as having little commercial value. Currently, there is increasing interest in developing and utilizing deciduous forests as a commercial commodity, including biomass and pellet fuels.

G. Tree Species Diversity

The forests of the planning area include a variety of tree species: coniferous species of western hemlock, subalpine fir, lodgepole pine, hybrid spruce; deciduous species of paper birch, trembling aspen, black cottonwood, willow, and slide alder.

Following natural disturbances, the forests regenerate to a variety of species—mainly coniferous, but also deciduous—depending on the moisture and nutrient regime, elevation and aspect of the site, and the nature of the disturbance.

Species and genetic diversity contribute to ecosystem resilience, the ability of forest ecosystems to combat, recover from, or adjust to disease, insect infestations, climate variations, and other disturbances. Additionally, the potential of forests to produce a variety of ecological resources and commercial timber products is enhanced through the availability of a diversity of species.

Objectives	Measures/Indicators		Targets
8.0 Maintain a diversity of coniferous and deciduous species that represent the natural species composition of the landscape and stand levels	8.1 Percentage of cutblocks at the free-growing stage with a diversity of species that are ecologically appropriate for the sites		100%
	8.2 Net loss of area, other than for infrastructure, of areas greater than one contiguous hectare, having more than 50% deciduous trees by basal area		
	Management Considerations Wherever practicable, site prescriptions should accept and retain advanced regeneration, poles, and saplings of suitable quality to contribute to regeneration of the site. Incremental silviculture (stand tending) is to consider maintaining all existing ecologically acceptable (including deciduous) species in the developing stands. On ecologically suitable sites where hemlock, pine, balsam, and spruce are not		

planted, facilitate natural regeneration by maintaining these species as a component of full cycle retention trees dispersed throughout cutblocks.

It is recognized that natural loss of deciduous trees occurs. Best efforts are to be made to minimize the loss of deciduous stands resulting from primary forest activities and other industrial developments.

Management of deciduous stands will require stocking standards that allow for deciduous species as preferred and acceptable species.

Consider the above objectives, measures, targets, and management considerations in the context of ongoing Climate Change. While continuing to maintain tree species and genetic diversity as outlined above, consider the following strategies for reforestation of industrial and natural disturbance within the Upper Nass Lax Yip and implement as appropriate.

Use assisted migration; movement of populations within a species range to improve productivity, adaptation, and health in new climates; or move populations northward or upward in elevations beyond the species normal range to account for changes in site conditions (e.g. moisture becoming limiting, or Climate Change becomes warmer).

Increase genetic and species diversity when planting forests to increase capacity and ecosystem resilience to buffer climate uncertainty.

In co-operation with Province and Licensees, implement long-term multi-species provenance field trials to assess the climatic tolerance and suitability of seed sources in order to optimize assisted migration strategies.

Regenerate forests with species and/or genotypes that have increased tolerance to changed moisture and temperature conditions, relative to the species that originally occupied the site.

Rationale

Deciduous species have high wildlife and biodiversity values.

Deciduous species have commercial values and will provide alternative crop tree species that can contribute to niche and specialized markets.

Deciduous trees have characteristics that will contribute to adaption to Climate Change or migration in response to Climate Change, and may contribute positively to short-term carbon sequestration and storage.

- Deciduous trees have wind-dispersed seeds that travel long distances and rapidly invade recently burned areas.
- Deciduous trees re-sprout from roots and stumps following fires.
- Deciduous trees are relatively fast-growing, short-lived species, allowing shortened rotation ages and replacement with more robust genotypes.

	<ul style="list-style-type: none"> Deciduous trees are denser than conifers, and therefore store more carbon. Because they grow faster and proportionately store more carbon, possibly they may be a valuable tool in carbon sequestration and storage over the short term. <p>Tree species and genetic diversity contribute to ecosystem resilience and health, maintenance of biodiversity, and provide for a diversity of commercially valuable forest products.</p> <p>Tree species and genetic diversity can contribute to ability of the forest organisms and ecosystems to adapt to Climate Change or to migrate in response to Climate Change. Climate Change may be so rapid that the tree species of the Land Use Plan area may not be able to adapt or migrate rapidly enough to survive; assisted migration and introduction of species new to the planning area may contribute to adaptation and resilience of the Upper Nass Lax Yip Sbagayt Gan (forests).</p>
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9.5 Fisheries

The watersheds of the Upper Nass Lax Yip have high fisheries values and support three species of migrating salmon (sockeye, chinook, and coho), steelhead, and resident fish including rainbow trout, Bull trout char, Dolly Varden char, whitefish, pike minnow, suckers, and sculpin. The salmon and steelhead of Kwinageese and Damdochax watersheds are of primary importance to the Upper Nass Simgigyet and Wilp members along with wildlife throughout the full length of the Nass River and Nass River tributaries. The fisheries of the Upper Nass watershed have been and continue to be treasured as subsistence, sustenance, and cultural resources of the Upper Nass Lax Yip.

As a keystone species, the migrating salmon bring valuable marine nutrients inland to feed a vast array of vegetation species, birds, animals, trout, and invertebrates throughout the Upper Nass watersheds, contributing to rich, healthy, resilient, and diverse ecosystems. Annual salmon migrations are regarded as one of the important nutrient and life-energy flows that occur throughout the Nass River watershed. The interconnectedness of salmonids, their habitat, and the surrounding landscape is well established.

Management for salmon within the Upper Nass LUP area is to be consistent with the intent of the Wild Salmon Policy.⁵⁰ The Wild Salmon Policy is founded on six commitments including:

1. Safeguarding the genetic diversity of wild salmon populations
2. Maintaining habitat and ecosystem integrity
3. Managing fisheries for sustainable benefits
4. Making decisions through open and accountable public processes
5. Ensuring accountable management and evaluation of progress
6. Forging partnerships between First Nations and stakeholders.

⁵⁰ Fisheries and Oceans Canada. 2005. Canada's Policy for Conservation of Wild Pacific Salmon. Available at: [Wild Salmon Policy | Pacific Region | Fisheries and Oceans Canada \(dfo-mpo.gc.ca\)](https://www.dfo-mpo.gc.ca/wild-salmon-policy-pacifique-region-fisheries-oceans-canada-dfo-mpo.gc.ca)

Within the Upper Nass watershed, it is the responsibility of the Upper Nass Simigiyet under Gitxsan Ayookw (laws) to ensure, to the greatest extent possible, that salmon habitat and ecosystem integrity are maintained (and restored as required). Additionally, the Upper Nass Simigiyet are interested in forming partnerships with Canada, British Columbia, and Development Proponents to ensure protection and sustainable management of water quality and salmon habitat.

Bull trout (char) are resident fish species that inhabit the Upper Nass watersheds. They are a key predator in the aquatic food chain. Historically and currently, they were and are a valuable food fish to Upper Nass people.

Bull trout are classified by the BC Conservation Data Centre as a blue-listed (vulnerable; of special concern) species due to population decline throughout its global range. The decline is attributed primarily to habitat degradation, disruption of migration patterns, and over-fishing.

Forest health and maintenance of riparian forests are very important in maintaining the integrity of all fish habitats. Bull trout are cold water specialists and have more specific habitat requirements than other salmonid species. Five habitat features that consistently influence Bull trout distribution and abundance are:

1. Channel and hydraulic stability (stream gradient)
2. Substrate (gravels, sands, silts, clays etc.)
3. Cover (shade, protection; logs, undercut banks)
4. Temperature
5. Presence of migration corridors

Factors that negatively impact Bull trout habitats, and fish habitats generally—including all species of salmon—are industrial disturbances that impact water; water quality (including turbidity, temperature, and chemistry), and water quantity.

Within the Upper Nass LUP area, industrial disturbance, primarily timber harvesting and road development, has occurred and negatively affected fish habitat along the western edge of the Upper Nass Lax Yip. The majority of Upper Nass Lax Yip lands are currently not yet developed or affected by industrial development. However, the potential for a variety of industries to commence development in the future is high.

The opportunity and ability to harvest fish, both resident and migratory, is of high importance to the Upper Nass Simigiyet and Wilp members; fish traditionally have been and still are a staple source of Upper Nass subsistence and sustenance. All fish, resident or migratory, are considered important for subsistence, sustenance, and cultural purposes.

Concerns of the Upper Nass Simigiyet regarding fisheries of the Upper Nass Lax Yip include concerns that industrial development will continue and new developments will commence, resulting in increased negative impacts to water quality, water quantity, and to fish habitats throughout the Upper Nass LUP area.

Management Intent (goals) for Fisheries

Protect fish populations by preserving, maintaining, and restoring fish habitat throughout the Upper Nass Lax Yip.

Objectives	Measures/Indicators	Targets
1.0 Maintain habitat for indigenous fish populations	1.1 Number of fish-bearing streams, rivers, and lakes significantly adversely ⁵¹ impacted by industrial development	Zero
	1.2 Number of non-fish-bearing streams, rivers, and lakes that are tributary to fish-bearing streams, rivers, and lakes that are significantly negatively ⁵² impacted by industrial development	Zero
2.0 Restore habitat for indigenous fish populations	2.1 Percentage of damaged fish-bearing streams, rivers, and lakes where pre-damage functionality is restored by operationally and financially feasible activities that do not cause further damage or interfere with natural restorative processes	100%
	2.2 Percentage of non-fish-bearing streams, rivers, and lakes that are tributary to fish-bearing streams, rivers, and lakes where pre-damage functionality is restored by operationally and financially feasible activities that do not cause further damage or interfere with natural restorative processes	100%
<p>Management Considerations</p> <p>Restoration of salmon habitat consistent with, or exceeding, Canada’s Wild Salmon Policy is a high priority. (see footnote for reference to <i>Canada’s Policy for Conservation of Wild Pacific Salmon</i>)</p> <p>Inventories need to be conducted to identify all fish-bearing streams, rivers, lakes and all water sources that are <u>tributary</u> to the fish-bearing streams, rivers, and lakes for the entire Upper Nass LUP area, with emphasis on salmon, steelhead, bull trout (char), Dolly Varden (char), and rainbow trout. Areas most likely to be affected by industrial development or having vulnerable fish stocks should have first funding priority.</p> <p>Based on the inventory of fish-bearing waters and non-fish-bearing water</p>		

⁵¹ Definition of significant adverse impacts to be established by the Simoogit/Simgigyet of the impacted Wilp/Huwilp during the consultation phase of a project

⁵² Definition of significant negative impacts to be established by the Simoogit/Simgigyet of the impacted Wilp/Huwilp during the consultation phase of a project

	<p>bodies tributary to the fish-bearing water bodies, restoration plans for damaged fish habitats should be developed and funding priorities determined.</p> <p>As integral components of this Upper Nass LUP, Chapter 9.3 Water, Objectives 1.0, 2.0, 3.0, 4.0, 5.0, 6.0 and 7.0, and Chapter 9.4 Biodiversity, Objectives 1.0, and 4.0 function directly to contribute to achieving the objectives of this Chapter 9.5 Fisheries.</p> <p>Rationale</p> <p>Everything is connected. A healthy fishery is dependent on properly functioning streams, rivers, and lakes, whether or not they are fish-bearing or non-fish-bearing and tributary to the fish-bearing waters. Water quality and quantity are directly dependent on healthy functioning forests and soils, through which the water seeps and flows and is protected and nourished by the surrounding forest and land. Water is in turn an integral and functional component of the forest and earth.</p> <p>Water (that eventually becomes fish-bearing water), starts as rainfall, snowmelt, and seepage from mountaintops and flows or seeps downslope until arriving at the ocean. Water is connected to everything and should be considered valuable whether it is fish-bearing or non-fish-bearing.</p> <p>All chapters within this Land Use Plan are directly or indirectly intended to cumulatively provide for sustainable management of the ecological and cultural resources of the Upper Nass Lax Yip including water, and thus are intended to contribute to maintenance and protection of Upper Nass Lax Yip fish habitats and fisheries health/productivity.</p>
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9.6 Wildlife

The Upper Nass Lax Yip Land Use Plan area provides a variety of ecosystems that support a wide diversity of wildlife species. Large mammals include grizzly and black bears, wolves, moose, mountain goats and canyon-dwelling goats, caribou, and stone sheep. A variety of bird species such as woodpeckers, hawks, owls, eagles, songbirds, grouse, and ptarmigan, and numerous species of water fowl are present on a seasonal basis within the Upper Nass Lax Yip. Also present are a diversity of small mammals such as marten, beaver, vole, shrew, weasel, fisher, wolverine, groundhog, and fox, as well as species of bats and amphibians.

The Upper Nass Simgigyet and Wilp members traditionally utilized a wide range of wildlife for sustenance/subsistence, cultural, and ceremonial purposes and continue these sacred practices today. The range of

wildlife and their associated habitats must be sustained in order for the Upper Nass people to continue to exercise their legally protected Aboriginal Rights. In order to sustain wildlife populations of the Upper Nass Lax Yip, a full range of intact, functional and healthy habitats must be maintained throughout the entirety of the Upper Nass Lax Yip area.

Grizzly bear and wolverine are each classed by the BC Conservation Data Centre as blue-listed (of special concern) species. Fisher is a red-listed (endangered) species. Northern goshawk is either red-listed (endangered or threatened) or blue-listed (of special concern – at risk), depending on the sub-species. Mountain goat is blue-listed. Caribou and stone sheep are also blue-listed. Moose are classified as yellow-listed (apparently secure; not at risk, but of management concern). Grizzly bear, fisher, and wolverine are species inhabiting the plan area listed under the Identified Wildlife Management Strategy (BC Ministry of Water, Land, and Air Protection and BC Ministry of Forests, 2004).

Traditionally, under Gitxsan Ayookw (law), the Simoogit of each Wilp (house territory) was the primary conservation regulator/steward and monitor of wildlife harvest for that Wilp. Gitxsan Ayookw requires consent from the Simoogit of each respective Wilp to access or hunt on the Lax Yip; consent is required by law.

Due to road access as a result of industrial timber harvest operations along the western edge of the Upper Nass Lax Yip, there is currently active hunting within that part of the Lax Yip, frequently without requesting and receiving permission from the Simoogit of the Wilp.

Upper Nass Simigiyet concerns regarding wildlife are:

- Currently, Upper Nass Lax Yip has industrial activity occurring only along and within the western edge. However, the Upper Nass Simigiyet are concerned regarding the industrial interest and potential for imminent commercial and industrial development for exploration/extraction of the ecological resources of the Upper Nass Lax Yip
- Continuing fragmentation of forests and disruption to wildlife movement and migratory routes throughout the Upper Nass Lax Yip
- Continuing loss of old forests that provide habitat for species that are dependent on old forest conditions, or that are associated primarily with old forests
- Increased and unregulated hunting pressure (legal and illegal) and increased disturbance from human and machine traffic resulting from increased access throughout the Upper Nass Lax Yip area
- Potential for depletion of fur-bearers to unsustainable population levels through trapping, compounded by increased access by resource development roads to previously remote habitats, particularly for threatened and endangered species such as fishers and wolverine
- The potential for chemical pollution of the environment and the resulting contamination of human, fish, wildlife habitats from mining, mineral/gas/oil exploration and extraction, hydro-electric projects, pesticide applications, pipeline constructions, and timber harvesting operations
- People (Indigenous and non-indigenous) are not following Gitxsan Ayookw regarding requests for Simoogit consent for access and hunting on their Lax Yip
- Observed lack of monitoring and enforcement of traditional and provincial law regarding wildlife
- There is no direct involvement of Upper Nass youth in management of wildlife on Upper Nass Lax Yip. In the future there must be funding, training, and capacity-building to assist and motivate youth to become involved in wildlife management within the Upper Nass Lax Yip

Management Intent (Goals) for Wildlife:

- To maintain natural, functional ecosystems and habitat to sustain viable populations of all indigenous species of wildlife within their natural range
- To sustain or enhance habitats of rare, endangered, threatened, and regionally significant species
- To provide for Upper Nass Simigiyet and Wilp members' continued use of wildlife resources
- To provide for sustainable harvest of big game species and fur-bearers
- To provide opportunity for viewing, study, and appreciation of wildlife in their natural habitats

Within the Upper Nass Lax Yip Land Use Plan, objectives, measures, and targets are presented for:

- General wildlife practices that are applicable to all wildlife
- Specific wildlife management practices for:
 - Grizzly bear, fisher, wolverine species that are required by government under the Identified Wildlife Management Strategy (2004) to be addressed in higher level plans
 - Mountain goat and Northern goshawk; listed by the BC Conservation Data Centre as blue-listed, or species of management concern
 - Ungulate Winter Range: mountain goat/canyon goat, moose, stone sheep, caribou; species that are not yet endangered but may quickly become endangered with increasing access, industrial development, and hunting pressure (legal and illegal)

9.6 A High Value Habitat for General Wildlife

General wildlife includes an immense number of varied species of very small to large mammals, birds, fish, amphibians, insects, invertebrates etc. It is not possible to manage for every individual species of wildlife in their specific habitats.

The majority of protection and maintenance of functional habitats for general wildlife is provided within this Land Use Plan at a landscape level through implementation of the objectives, measures, and targets for:

- Water and fish
- Biodiversity
- Cultural values
- Specific species protected through the Identified Wildlife Management Strategy and act as “umbrella” species for habitats for general wildlife

Specific habitats, that are intended to manage for a variety of values including water, biodiversity, cultural values and high value habitats for general wildlife, are presented in this Land Use Plan and include:

- Individual wetlands and surrounding riparian forests
- Wetland-brush patch-riparian forest-drier upland forest complexes

Wetlands is a general term that includes numerous different types of wetlands and wetland ecosystems. Broad classes of wetland⁵³ that may exist within the Upper Nass Lax Yip include:

- Bog wetland
- Fen wetland
- Marsh wetland
- Swamp wetland
- Shallow-water (aquatic) wetland
- Low, medium, high-bench floodplains

Wetlands and related ecosystems have variable wildlife values. Some basic features that may influence a wetland’s wildlife habitat value include:

- Presence of water
- Structural diversity and cover
- Abundant forage
- High prey densities
- Unique habitat
- Rarity in the landscape

All of these habitat characteristics are vital for wetland-dependent species and important for upland species that use wetlands and their associated riparian areas for food, water, and cover (see footnote).

⁵³ MacKenzie, W. H., & Moran, J. R. (2004). *Wetlands of British Columbia – A Guide to Identification*. Ministry of Forests, Forest Science Program.

Objectives	Measures/Indicators	Targets
1.0 Maintain the effectiveness ⁵⁴ of:	1.1 Number of industrial or commercial practices that divert water into or away from the wetland	0
Water habitats Riparian habitats	1.2 Number of industrial or commercial practices that affect the water volume, hydrologic function, or quality (turbidity, temperature, chemistry) of the wetland	0
Brush patch habitats	1.3 Percentage of the forested area of the hydroriparian zone ⁵⁵ retained for each wetland and connecting stream	100%
Upland forest habitats identified on the Upper Nass LUP	1.4 Width of the retained forested area surrounding each identified brush patch that comprises a portion of the wetland-forest brush patch complex	Not less than 50 meters
Ecological Resource Zonation Map and the Wildlife Habitat Map as High Value Habitats for General Wildlife	1.5 Percentage of the identified upland forest area retained within the mapped polygon of the wetland complex	100%
<p>Management Considerations</p> <p>The wetlands and wetland complexes are of disproportionately high value for wildlife habitats and other values. There is to be no commercial or industrial disturbance within the mapped polygons without meaningful consultation between Development Proponents and the Gitxsan Upper Nass Simigiyet.</p> <p>Wherever possible, include the High Value Habitat polygons within a forest Ecosystem Network Core Reserve or an Old Growth Management Area.</p>		
<p>Rationale</p> <p>Wetlands and the surrounding riparian forests and upland forests provide disproportionately high value wildlife habitats, biodiversity values, and cultural values.</p> <p>Clearing of upland and riparian forests, and construction of roads remove valuable habitat, may interfere with water inflow or outflow, and affect watershed hydrology.</p>		

⁵⁴ *Effectiveness* means the continued use of a habitat by the species that historically utilized it.

⁵⁵ The hydroriparian zone is defined as the area that extends to the edge of the influence of water on land, or land on water, as defined by plant communities (including high bench or dry flood plain communities) or landforms, plus one and one-half site-specific tree heights horizontal distance (Hydroriparian Planning Guide, Coast Information Team, Jan. 30, 2004). Landforms include:

- The stream channel, lake, or wetland and adjacent riparian ecosystem, where no floodplain exists
- The full width of the floodplain for streams
- Adjacent active fluvial units (alluvial fans)
- Up to the top of the inner gorge or where slopes become less than 50% for reaches of streams that are gullied, or are in a ravine or canyon
- Immediately adjacent unstable slopes (class IV and V terrain) where it is located such that a surcharge of sediment may be delivered to the stream, lake, or wetland.

Clearing of the upland and riparian forests may result in higher water table, saturate soils, and make reforestation or construction on the cleared lands very difficult, expensive, and with negative impacts on plant communities throughout the wetland area.

Additionally, wetlands and wetland complexes provide natural, effective routes for connectivity through the landscape. Disturbing the forest and soils of wetlands and wetland complexes can fragment the natural connectivity of the land into small refugia and inhibit the ability of some wildlife to move freely through the landscape and maintain biological diversity in a number of plants, invertebrates, and vertebrate species.

The presence of natural, healthy, properly functioning wetland is of a high level of importance to the Upper Nass Simigyet.

9.6 B: Identified Wildlife Management Strategy Species (2004)

British Columbia has a rich diversity of native wildlife and habitats. The conservation of biological diversity continues to be a goal under the *Forest and Range Practices Act* (FRPA). It is intended that FRPA, in combination with the network of protected areas, will maintain ecosystem processes and habitat for the majority of wildlife, including plant communities. This is known as “coarse filter management.” Some wildlife require additional, or specific management; the Identified Wildlife Management Strategy (IWMS) is the mechanism for addressing the habitat requirements for these wildlife species.

The IWMS includes wildlife species that are considered under the FRPA to be species at risk or regionally important wildlife, threatened (red-listed), or vulnerable (blue-listed) vertebrates and invertebrates. These management strategies are applicable to specific habitats, applicable to specific species, and are known as “fine filter management.”

Specific species discussed in this Upper Nass LUP under the Identified Wildlife Management Strategy that utilize habitats of the Land Use Plan area include the red or blue-listed species of grizzly, fisher, wolverine, moose (yellow-listed, but of management concern), caribou, stone sheep, mountain goat/canyon goat, and goshawk. Known areas of these habitats are shown on the Upper Nass Lax Yip Land Use Plan Wildlife Habitat Map.

9.6 B-1: Grizzly Bear

The Upper Nass planning area contains high value habitat for grizzly bear. Three broad categories of high value habitats are identified: mountainous terrain containing herb-dominated avalanche tracks and sub-alpine parkland meadows, valley bottom areas along salmon-bearing streams and rivers, and riparian forest-meadow-wetland-brush patch forest complexes throughout the lower slopes of the Upper Nass Lax Yip.

Small localized areas of high value for grizzly bear that have not been identified and mapped are located throughout the plan area and include rich water-receiving forested sites, skunk cabbage or horsetail associations, and productive berry sites.

Sites identified on the Land Use Plan maps as High Value Habitat for General Wildlife provide high habitat values for grizzly bear and for a diversity of other species. These have been mapped to provide known information to assist in resource management planning and consist primarily of wetland-riparian forest-brush patch-meadow-forest complexes.

Critical habitat are areas that are considered essential for bear survival. These areas have high forage, bedding, or denning value and are used repeatedly by one or more bears.

Critical areas are relatively small—one to five hectares in size—and include sites such as:

- Salmon fishing sites (for example, Kwinageese River, Damdochax Creek)
- Old burns; openings dominated by blueberry and huckleberry bushes
- Herb-dominated avalanche tracks with adjacent forest
- Skunk cabbage swamps
- Early seral and riparian deciduous forest
- Wetland complexes and seepage sites
- Alder brush patches
- Non-forested swamps
- Herbaceous riparian meadows
- Devil's club patches

Maintenance of the quality and effectiveness of critical habitats depend on maintaining the sites in an undamaged condition and maintaining thermal security cover surrounding the sites. The quality and effectiveness of critical habitats should be maintained or restored wherever in the landscape the critical habitats appear, except near communities and high use recreational areas.

Forested buffers surrounding these sites are important habitat components that contribute to thermal and security cover for grizzly bear. Forested buffers also protect high use grizzly trails and bedding areas.

For the purposes of this Upper Nass Lax Yip Land Use Plan, the critical and high value habitats to which reserves, buffers, and special management measures apply are:

- Provincially mapped high value habitat complexes identified on the Land Use Plan Wildlife Habitat Map
- Upper Nass mapped High Value Habitat for General Wildlife patches shown on the Upper Nass LUP Ecological Resource Zonation Map and the LUP Wildlife Habitat Map.

It is anticipated that additional high value or critical habitats will be identified by forest licensees and other industrial Development Proponents during their planning work. It is expected that industrial planners will use the services of experienced habitat biologists to determine the values of these habitats and measures required to maintain the quality and effectiveness of these habitats.

Upper Nass Simgigyet encourage and support the Ministry of Environment to identify and field verify valued habitats and designate legally protected Grizzly Bear Wildlife Habitat Areas (WHA, also termed “specified areas”).

Upper Nass concerns regarding grizzly bear are two-fold:

- 1) Negative impacts on grizzly bear resulting from:
 - road access through or close to grizzly habitat
 - mortality from legal and illegal hunting
 - displacement due to disturbance from human contact and machine traffic

- 2) Reduction in the quality and effectiveness of habitat due to habitat destruction or damage from road construction, timber harvesting, and other land-clearing and construction processes:
- removal of forest within and immediately adjacent to grizzly habitat sites
 - loss of thermal cover
 - loss of visual screening
 - development of re-generating forest; clearcuts “close canopy” at about 30-50 years, forming a dense coniferous canopy that shades out herbaceous and shrub-berry growth, thus eliminating food sources for bears

Note: Information used to develop objectives, measures, targets, and management considerations for management of grizzly bear was provided by several reference sources:

- Turney, L. and Blume, R. March 2002.
- Blume, R. and Turney, L. June 2002.
- Mahon, T. February 2003.
- Kalum Land and Resource Management Plan. May 2002.
- Identified Wildlife Management Strategy: Accounts and measures for managing identified wildlife, Northern Interior Forest Region. 2004.

9.6 B-1.1: Management Goal for Grizzly Bear

- Provide adequate grizzly bear habitat to ensure a healthy population of grizzly through time and across the landscape area.

Objectives	Measures / Indicators	Targets
<p>1.0 Preserve the highest value grizzly bear habitat within the Upper Nass LUP area identified on the Upper Nass Wildlife Map as Grizzly Bear Wildlife Habitat Areas (also termed “specified areas)</p>	<p>1.1 Proportion of the forested area of each polygon identified on the Upper Nass Wildlife Map as Grizzly Bear Wildlife Habitat Areas retained as functional thermal or security cover in mature and old growth condition, except for the following cases, where the minimum retention of forested area in each polygon will be not less than 90%:</p> <ul style="list-style-type: none"> • Access requirements; • operational safety considerations; or • to minimize impacts on adjacent environmental values. 	<p>100%</p>

<p>2.0 Preserve the highest value grizzly bear habitat, not previously identified as Grizzly Bear WHA within Upper Nass Lax Yip and currently identified as:</p> <ul style="list-style-type: none"> • RISC class 1 • RISC class 2 • RISC class 3 <p>by a Qualified Professional</p>	<p>2.1 Width of functional forest cover surrounding non-forested wetlands greater than one hectare identified as very high grizzly bear habitats⁵⁶</p>	<p>Full hydroriparian zone, plus additional ≥ 50 m</p>
	<p>2.2 Width of functional forest cover surrounding non-forested wetland ≥ 1.0 hectare identified as high value habitat⁵⁷</p>	<p>Not less than the full hydroriparian zone</p>

⁵⁶ **Very high** corresponds to British Columbia Resource Inventory Standards Committee (RISC) Class 1 habitats.

⁵⁷ **High** corresponds to British Columbia Resource Inventory Standards Committee (RISC) Class 2 and 3 habitats.

	<p>Management Considerations</p> <p>The term, Specified Areas is replacing the term, Wildlife Habitat Areas, in some regions. The meaning is the same and provides the same legal authority.</p> <ul style="list-style-type: none"> • The high value grizzly bear habitats identified on the Upper Nass LUP Wildlife Habitat Maps – Wildlife Habitat Areas, have been established to capture bedding and foraging areas as well as to provide thermal and security cover. • The target in Objective 1.0 of 100% is based on the need for operational flexibility where necessary. If harvesting must occur within a WHA, it should occur only along the edges of the mapped WHA polygons. • Where practicable, from a harvest block layout and forest operation perspective, major grizzly bear trails leading to or connecting grizzly bear WHAs, as noted by bite and marked trees, shall have their integrity maintained in terms of existing natural stand structure. • High use grizzly bear trails should be mapped and managed to maintain their integrity for travel and communication. <p>Following the establishment of WHAs, where harvesting may occur within or adjacent to the valued grizzly habitats, considerations include the following Best Management Practices:</p> <ul style="list-style-type: none"> • Selection and small patch cut systems that create canopy gaps and openings less than 10 hectares and preferably less than 5 hectares adjacent to the valued habitats • Cutting unit opening sizes that reflect the adjacent habitat values and are smaller than 2 hectares immediately adjacent to the highest value habitats, and larger with increasing distance from the higher valued habitats • Variable levels of retention within cutblocks (for example, 10% to 30%) that minimize line-of-sight distance • Timing of operations within or adjacent to valued grizzly habitats preferably during winter or during times of low or no bear use. 	
<p>3.0 Maintain the quality and effectiveness of grizzly bear foraging habitat</p>	<p>3.1 Proportion of foraging habitat listed in Table 15: High Value Grizzly Bear Habitat in the Upper Nass LUP Area, occupying greater than 1 ha within a cutblock, that maintains herbaceous and woody forage supply for grizzly bears through to stand rotation, as assessed at the achievement of free-growing status for regenerated stands.</p>	<p>100%</p>

	<p>Management Considerations</p> <ul style="list-style-type: none"> Vegetation management practices, within high value grizzly bear forage habitat to maximize retention of valuable forage species. Practices may include: <ul style="list-style-type: none"> reduced stocking standards in wetter or richer sites, targeting up to 600 stems/ha at free-to-grow pruning, spacing or thinning. 	
	<p>3.2 Proportion of non-forested forage areas greater than 2 ha in size, identified in Table 15: High Value Grizzly Bear Habitat in the Upper Nass LUP Area, with directly adjacent functional thermal and security cover.</p>	<p>100%</p>
	<p>Management Considerations</p> <ul style="list-style-type: none"> Adjacent areas should be approximately 100 metres in width and fully surround the forage area where possible. Thermal cover includes habitat conditions that afford for a dry place when it is cool and wet, and a cool place when it is hot and dry; these conditions are generally provided in old-growth settings utilizing full canopy mature and veteran trees. Security cover provides visual screening, especially from roads, and exists when vegetation obscures a person’s view of a grizzly bear. High-use grizzly bear trails should be mapped and managed to maintain their integrity for travel and communication. 	
<p>4.0 Minimize human-bear conflicts</p>	<p>4.1 Proportion of grizzly bears killed or relocated as a result of human-bear conflicts</p>	<p>Reduction year over year</p>
	<p>Management Considerations</p> <ul style="list-style-type: none"> For expert resources on minimizing bear-human conflict, see Appendix B: Minimizing Bear-Human Conflicts. Until replaced by alternative programs, use BMP’s as described by the provincial Conservation Officer Service and the B.C. Conservation Foundation Bear Aware program: http://bearaware.bc.ca/ Proponents of industrial development should account for impacts to grizzly bear habitat and the potential interactions between humans and grizzly bear. This Land Use Plan supports continuation of the provincial Bear Aware program, or similar efforts to increase public awareness of bear/human 	

	<p>interactions and reduce bear mortalities.</p> <ul style="list-style-type: none">• It is recognized that grizzly bear mortality cannot be eliminated entirely in areas heavily developed for settlement or agriculture, and that grizzly bears attracted by habitat or human-provided food are likely to be killed as a result of conflicts with humans.	
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Objectives	Measures / Indicators	Targets
5.0 Minimize long-term displacement of grizzly bears from industrial access development	5.1 Minimum distance of permanent roads from high value grizzly bear habitat identified on the Upper Nass LUP Wildlife Habitat Map – Wildlife Habitat Areas	150 m (where practicable)
	Management Considerations <ul style="list-style-type: none"> Access restrictions could be used to minimize motorized access within selected portions of grizzly bear winter habitat areas for periods of time. This can be achieved through the identification and use of control points, where access restrictions such as bridge removal or gating can be employed. Industrial development within or adjacent to valuable grizzly bear habitat should be planned for short periods of time, followed by long periods (10 to 25 years) of no development. 	

Table 15
High Value Grizzly Bear Habitat in the Upper Nass Land Use Area

BEC variant	Site Series #	Site Series Name
SBS mc2	09	Sxw - Devil's club
SBS mc2	10	Sxw - Horsetail
ESSF wv	06	Bl - Devil's club - Lady fern
ESSF wv	07	Bl - Valerian - Sickle moss
ESSF wv	08	Bl - Horsetail - Glow moss
ESSF wv	09	Bl - Lady fern - Horsetail
ICH mc1	04	HwBl - Devil's club
ICH mc1	05	ActSx - Dogwood
ICH mc1	06	Hw- Azalea - skunk cabbage
MH mm2	05	BaHm - Twistedstalk
MH mm2	08	HmYc - Sphagnum
MH mm2	09	YcHm - Skunk cabbage

Note: In situations where competing vegetation (silviculturally) that is considered to be grizzly bear forage makes achievement of a target stocking standard difficult, then reduced stocking standards should be acceptable to prevent aggressive control of such competing vegetation.

Rationale

- Grizzly bear are classed as blue-listed by the BC Conservation Data Centre for Identified Wildlife.
- Grizzly bear is a species of concern and of significance to the Upper Nass Simigiyet and to the Province of British Columbia. The Upper Nass Simigiyet wish to ensure a viable, sustainable population of grizzly bear throughout the Upper Nass Lax Yip and adjacent lands.
- The objectives, measures, targets are designed to achieve the intent of the Provincial Grizzly Bear Conservation Strategy.
- Achieving the objectives for protection and management of grizzly habitat also contributes to protecting moose winter range habitats and goshawk nesting, breeding, and foraging habitats.

Appendix B

Minimizing Human-Bear Conflicts

The following information has been excerpted with permission from a March 25, 2007 letter from Debbie Wellwood, R.P.Bio., Raven Ecological Services, Smithers, B.C. to Len Vanderstar, R.P. Bio and R.P.F, Ministry of Environment, Skeena Region, Smithers, B.C.

Outline for strategies, targets and measures or indicators for the Nass South SRMP objectives to minimize negative bear-human interactions.

General Principles

- Risk of bear-human interactions is influenced by natural features such as habitat suitability, travel concerns (e.g., topographic features or trails that may funnel bears through an area), visibility concerns and other sensory concerns (e.g., loud creeks, winds). Availability of non-natural foods or other attractants will increase this risk. Focus should be on minimizing human activities in higher risk areas when and where possible.
- Human behaviour and types of activity also influence risk of bear-human interactions. Allowing bears to become food-conditioned greatly increases their risk of mortality and risk to the public, most commonly property damage and, rarely, serious human injury or death. Bear-proofing of non-natural foods and other attractants must be a high priority. A common problem is that many people are misinformed or do not understand the motivation, strength and abilities of bears. Frequently, people think they have a solution for storing non-natural foods and other attractants that is bear-proof and it is not. Living with Wildlife Foundation has a bear-resistant product testing program at <http://www.lwwf.org>. Expert input should be solicited where required to prevent bear access to non-natural foods and other attractants.
- Risk of bear mortality associated with bear-human conflicts will be strongly influenced by whether or not the activity is conducted with guns available for use.
- Risk of bear mortality associated with bear-human conflicts will also strongly be influenced by the level of appreciation for bears and knowledge and understanding about bears, including ways to prevent conflicts with bears.
- The level and intensity of bear-human conflicts can be reduced through bear-human conflict management programs where the following components may be applicable to reducing risk associated with a specific land use or activity:
 - Bear-human interactions risk assessment to identify bear-human conflict issues and provide recommendations for prevention of conflicts or risk reduction
 - Bear awareness and safety education program
 - Bear-proof waste and attractant management
 - Green-space management (e.g., in some situations it may be appropriate maintain green spaces to allow bears to move around an area and in others it may be appropriate to remove brush to increase visibility and remove bear foods)
 - Specific rules or regulations to ensure compliance may be required
 - Land use planning to minimize bear-human conflict will be most effective when land use and human activities are considered in the context of land uses and human activities in the surrounding landscape
 - Bear-human conflict management plan
 - Monitoring for bear-human conflict
 - Adaptive management as required

Table D-1

Strategies, targets and measures or indicators to prevent bear mortality resulting from bear-human interactions

Objective	Indicators	Targets	Strategies
<p>1. Minimize negative bear-human interactions (e.g., incidents or conflicts with bears, displacement or mortality of bears).</p>	<p>Number of reports of negative bear-human interactions⁵⁸ Indicators may be further defined as follows:</p> <ul style="list-style-type: none"> • Number and severity of bear-human conflicts or incidents • Number of conflicts or incidents where bears access non-natural foods or other attractants • Number and severity of defensive encounters with bears • Number and severity of non-defensive encounters with bears • Number and severity of problem wildlife occurrence reports received by the Conservation Officer Service for bears • Number of reported kills (e.g., COS, Fish and Wildlife) • Number of defence-of-life or property kills • Number of bears poached • Estimated unreported mortality 	<p>Reduction in number of interactions over time⁶⁰ Targets may be further defined as follows:</p> <ul style="list-style-type: none"> • Ideal: No reported or unreported grizzly bear mortality as a result of negative bear-human interactions • Realistically: Low number reported or unreported grizzly bear human-caused mortality for entire SRMP area as a result of bear-human conflicts or incidents (i.e., no mortality associated with most land uses and human use activities) 	<p>Where possible, initiate programs to educate members of the public and visitors re low impact garbage and food handling methods⁶⁰</p> <p>Educate public regarding alternatives to shooting to reduce bear-human conflicts e.g., waste management strategies, trail closures etc.⁶⁰</p> <p>Strategies may be further defined as</p> <ul style="list-style-type: none"> • Educate people about bear awareness and safety. Include proactive (user group and activity specific) measures that can be taken to minimize negative bear-human

⁵⁸ Taken from North Coast Land and Resource Management Plan (2005).
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			<p>interactions.⁵⁹</p> <ul style="list-style-type: none"> • Implement bear-human conflict prevention programs designed to minimize negative bear-human interactions (e.g., preliminary risk assessment, bear awareness and safety, bear-proof management of non-natural foods and other attractants, best practices or requirements, green space management and planning to prevent bear-human conflicts). If appropriate, develop and deliver program on site, area or activity specific basis. <p>Conduct regular monitoring of bear-human conflict prevention programs to detect successes or failures and revise as required to achieve objective.</p> <ul style="list-style-type: none"> • Enforce non-compliance with rules or regulations to ensure that non-natural foods and attractants are stored or secured using a bear-proof method (e.g., Park Regulation, COS Dangerous Wildlife Protection Order)
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⁵⁹ Bear-human interactions will be avoided in most management situations to minimize bear-human conflicts. For some specialized management situations, some types of bear-human interactions may be considered appropriate (e.g., bear viewing).
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Table D-2

Strategies or BMPs recommended for consideration for various land uses and types of human activities

Objective	Land Use/Activity	Example Target Groups	Strategies/Best Management Practices
<p>1. Minimize negative bear-human interactions (e.g., incidents or conflicts with bears, displacement of bears, mortality of bears).</p>	<p>Major Travel Routes</p>	<ul style="list-style-type: none"> • Ministry of Transportation and Infrastructure • Highways maintenance contractors 	<ul style="list-style-type: none"> • Install, monitor and maintain bear proof dumpsters • Scheduled garbage pick-up
	<p>Landfill/Dumps</p>	<ul style="list-style-type: none"> • Regional District • Industrial camps • Commercial recreation camps 	<ul style="list-style-type: none"> • Install, monitor and maintain electric fence to exclude bears.
	<p>Industrial Camps – permanent and semi-permanent</p>	<ul style="list-style-type: none"> • Exploration, mining and forestry companies • Government agencies (e.g., FLNRO, MOE, MEM) • Natural resources research and management consultants 	<ul style="list-style-type: none"> • Implement bear-human conflict prevention program such as preliminary risk assessment to avoid higher risk (i.e. selection of low and moderately low risk locations), camp locations, bear awareness and safety program, bear-proof management of non- natural foods and other attractants, best practices or requirements, green space management and planning to prevent bear-human conflicts). Recommend input from expert in bear-human conflict prevention.
	<p>Commercial recreation camps – permanent and semi-permanent</p>	<ul style="list-style-type: none"> • Guide Outfitters • Angling operations • Non-consumptive recreation (e.g., hiking, wildlife viewing etc.) 	<ul style="list-style-type: none"> • Same as per Industrial Camps.

	Industrial – camping, hiking and working in bear country	<ul style="list-style-type: none"> • Exploration, mining and forestry companies • Government agencies (e.g., FLNRO, MOE, MEM) • Natural resources research and management consultants. 	<ul style="list-style-type: none"> • Provide bear awareness and safety training to minimize bear-human interactions while working, recreating and camping in bear country. Contractors and personnel should clearly understand how to prevent interactions with bears. • Ensure bears do not have access to non-natural foods and other attractants.
	Commercial Recreation - camping, hiking and working in bear country	<ul style="list-style-type: none"> • Guide Outfitters • Angling operations Non-consumptive recreation (e.g., hiking, wildlife viewing etc.) 	Same as per Industrial
	Bear Viewing Activities	<ul style="list-style-type: none"> • Commercial operations • Provincial government (e.g., wildlife viewing promotion etc.) 	<ul style="list-style-type: none"> • Conduct a bear-human conflict risk assessment to evaluate appropriateness and feasibility on an operation-specific basis and in the context of the surrounding landscape. • Evaluate cumulative effects of land use activities (e.g., other bear viewing activities, types of bear viewing activities, hunting and refugia for bears) • If the bear viewing operation is considered an appropriate activity, prepare a bear-human conflict risk management plan that identifies bear-human conflict issues and strategies to prevent bear-human conflicts. Note water-based viewing is generally considered to pose lower risk to bears and people. Viewing from non- motorized boats will generally have lower risk of impacts to bears than from motorized boats. • Do not promote wildlife areas for non-guided bear viewing

	Other commercial or recreational activities	<ul style="list-style-type: none"> • Mushroom pickers • Various recreation (e.g., hikers, backpackers, horse packing, All Terrain Vehicle users) 	<ul style="list-style-type: none"> • Promote bear awareness and safety training to minimize bear-human interactions while working, recreating and camping in bear country. Audience should clearly understand how to prevent interactions with bears
	Fisheries Operational Activities	<ul style="list-style-type: none"> • Fisheries and Oceans Canada (e.g., fish counting i.e. Meziadin Fishway; spawning facilities) 	<ul style="list-style-type: none"> • Prepare, implement and monitor a facility specific Bear-human Conflict Management Plan. Adaptive management approach required.
	Fish Harvest and Preparation Activities	<ul style="list-style-type: none"> • First Nations (e.g., food fishery, individual sales, commercial fishery) 	<ul style="list-style-type: none"> • Promote bear awareness and safety training to minimize bear-human interactions while harvesting and preparing fish in bear country. Audience should clearly understand how to prevent interactions with bears • For site-specific commercial fish harvest or fish preparation (e.g., smokehouses) operations prepare, implement and monitor a site-specific Bear-human Conflict Management Plan. Adaptive management approach required.
	Park Lands (e.g., Provincial Parks)	<ul style="list-style-type: none"> • BC Parks 	<ul style="list-style-type: none"> • Prepare, implement and monitor a Park specific or SRMP area specific Bear-human Conflict Management Plan. Adaptive management approach required.

	<p>Other recreation lands (e.g., recreation sites, trails, recreation reserves)¹</p>	<ul style="list-style-type: none"> • FLNRO - Recreation Sites and Trails BC 	<ul style="list-style-type: none"> • Prepare, implement and monitor a Recreation Site specific or SRMP area specific Bear-human Conflict Management Plan. Adaptive management approach required. Note: some Recreation Sites will not be suitable for use as a user-maintained site based on risks of bear-human interactions.
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9.6 B-2: Moose

The Upper Nass Lax Yip area supports moose throughout, but at a relatively low density. Snows are deep and heavy, a factor that limits the abundance of moose winter range. Good winter range does exist, primarily in elongated strips and patches along streams and floodplains with mature bordering forests of dense canopies that provide good snow interception. The abundance and quality of winter habitats are key factors that influence over-winter survival of moose. The best habitats provide abundant accessible forage, coniferous canopies that intercept snow and act as thermal and security cover, large trees that help ward off predators, and opportunities for escape from predators. Winter range is critical for moose populations of the area.

Moose winter range within the plan area consists primarily of low-elevation wetland-timber complexes, floodplains of main rivers and large tributary streams adjacent to mature coniferous stands. Forest harvesting along the western edge of the Upper Nass Lax Yip and occasional wildfires have resulted in some interim moose winter range by providing early seral forage in areas where mature and old forest canopy interrupts snowfall and thus reduces snow depths.

Moose use a variety of habitats throughout the year, ranging from shrublands, forests, wetland complexes, logged areas, and burned areas, that are located from valley bottoms to high elevation mountainous terrain. Moose typically migrate between winter and summer ranges, but some remain in valley bottoms year-round.

Moose spring range is generally an extension of their winter range, with an emphasis on calving grounds typically located near streams, lakes, and wetlands. During summer and fall, moose utilize all habitat types and forage heavily on aquatic and wetland vegetation, upland shrubs, and subalpine vegetation. During winter, they retreat to the valley bottom floodplains, wetlands, stream riparian habitats, and heavy mature and old coniferous forests⁶⁰

Main predators of moose, particularly moose calves, are wolves and grizzly bear. Where industrial access has provided roads, human activity—through legal and illegal hunting—results in high mortality of adult moose.

Currently, only the western edge of the Upper Nass Lax Yip has been subjected to heavy industrial disturbance. The majority of the Upper Nass Lax Yip is undisturbed by industrial development and provides undisturbed ecosystems and connectivity throughout the landscape.

Upper Nass Simigyet and Wilp members have the following concerns regarding moose:

- That industrial development will occur throughout the Upper Nass Lax Yip and will provide road access throughout the territory, resulting in increased legal and illegal hunting pressure on moose populations
- That industrial development will result in damage and loss of the critical wintering moose habitats throughout the Upper Nass Lax Yip, particularly in valley bottoms

The Upper Nass Lax Yip Land Use Plan – Wildlife Habitat Map identifies *moose winter range* and *medium to high value forage areas* for moose along the western edge of the Upper Nass Lax Yip but not for the Upper Nass Lax Yip.

Examination of aerial photographs indicates that moose winter range occurs throughout the valley bottoms-floodplains-low elevation-wetlands that characterize the central and eastern majority of the Upper Nass Lax Yip.

This Upper Nass Lax Yip Land Use Plan supports official designation by the Province of British Columbia of Ungulate Winter Range under the *Forest and Range Practices Act*.

⁶⁰ Pojar, J. (2014, December 11). *Conservation values of the Upper Nass-Skeena watersheds beyond Cranberry-Kuldo*. Report prepared for Skeena Watershed Conservation Coalition. Hazelton, BC.

9.6 B-2.1: Management Goals for Moose

- Manage **moose winter range** to help ensure a healthy moose population throughout and adjacent to Gitxsan Upper Nass Lax Yip.
- Minimize pressure on the moose population from legal and illegal harvest through human access management.

Objective	Measures / Indicators	Targets
1.0 Maintain, enhance or restore the moose winter range habitats identified on the Upper Nass LUP Wildlife Habitat Map as Wildlife Habitat Areas	1.1 Number of subhygric to subhydric sites, large enough to be considered a silvicultural treatable unit ³ , where moose forage production is facilitated post timber harvest.	All
	1.2 Percent of mature forest retained as thermal cover within 100 m of mapped forage areas.	>10%
	1.3 Percent of mature - old forest canopy retained for snow interception in each winter range outside of mapped forage areas.	>30%
	1.4 Security cover within or adjacent to cut blocks must be provided.	80% of the security cover shall be separated by no greater than 200 m

For definitions of “subhygric” and “subhydric”, see “moisture regime” in the definitions of land use terminology.

The minimum size for a treatable unit is:

- One hectare for pure subhygric to subhydric sites;
- Two hectares of non-contiguous subhygric to subhydric sites within ecosystem complexes where the individual sites are greater than 0.25 ha and such sites comprise 20% or more of the ecosystem complex area.

Thermal Cover is defined as canopy cover that moderates atmospheric temperature – thermoregulation resulting in cooling during the summer and reduction of wind chill in the winter.

Security Cover is defined as sufficient vegetation cover and/or terrain features that permit a moose to feel secure, comfortable and not threatened despite adjacent activities or predator movement that would otherwise displace the animal.

Objective	Measures / Indicators	Targets
	1.5 Percent of security cover retained directly adjacent to moderate, high and very high value mapped forage areas.	100%
	1.6 Amount of timber harvesting within moderate, high and very high value mapped forage areas.	None
	1.7 Percentage of the area of any given cutblock that is more than 100 m away from adjacent mature forest cover for snow interception.	<20%
	<p>Management Considerations</p> <p>Within identified moose winter range, harvest using silviculture systems, block configurations, patch sizing and patch distribution that will provide forage, visual screening, thermal and security cover, and snow interception while integrating timber and silvicultural management objectives.</p> <p>Emphasis for thermal cover, snow interception and security cover management adjacent to mapped forage areas is applicable. A forested buffer of 50 to 100 m wide is recommended, depending on topography. Also recommended that forest types be retained adjacent to moderate, high and very high value mapped forage areas.</p> <p>Moose forage production can be facilitated post timber harvest by promoting gap openings through reduced stocking standards, cluster planting, spacing and pruning at the silvicultural treatment unit level.</p> <p>Achieve or exceed General Wildlife Measures for managing moose winter range as set forth in the Legal Order #U-6-018 Ungulate Winter Range: Moose – Nass TSA – September 17, 2014.</p> <p>Moose winter range management plans to be prepared for winter ranges that are subject to forest development. These plans should include a monitoring component to ensure adaptive management can correct any errors or omissions, should they be found, in moose winter range placement or the management regime.</p> <p>Refer to Appendix C: Moose Habitat Attributes for Life Requisites and Appendix D: Best Management Practices for Moose Winter Range for supporting information.</p>	
2.0 Retain the areas identified on the Upper Nass LUP – Ecological	2.1 Retention and implementation of resource zonations: <ul style="list-style-type: none"> • Ecosystem Network Core Reserve • Ecosystem Network Buffer <p>as prescribed in this Land Use Plan text, Chapter 9.4, Section D: Landscape Connectivity objectives, measures, indicators, targets, and management considerations.</p>	100%

Resource Zonation Map as <ul style="list-style-type: none"> • Ecosystem Network Core Reserve • Ecosystem Network Buffer (≥ 70% retention) • High Value Habitat for General Wildlife to encompass currently unidentified Moose Winter Range	2.2 Retention and implementation of resource zonation: <ul style="list-style-type: none"> • High Value Habitat for General Wildlife as prescribed in this Land Use Plan text, Chapter 9.6 A, objectives, measures, targets, and management considerations 	100%
	Management Considerations <p>Within moose winter range contained within the Ecosystem Network Core Reserves and Ecosystem Network Buffers, presented within this Land Use Plan, there will be no timber harvesting excepting minimal partial cutting within the EN buffer as prescribed within this LUP text, Chapter 9.4, Section D: Landscape Connectivity.</p> <p>Within the Moose Winter Range contained within the High Value Habitat for General Wildlife areas, there will be no harvesting, as prescribed in this Land Use Plan text, Chapter 9.6 A.</p>	
3.0 Through access management, minimize mortality and disturbance to moose within and adjacent to the moose winter ranges presented in the Upper Nass LUP – Wildlife Habitat Map – Ecological Resources Zonation Map	3.1 Number of roads, excluding mainlines, within 500 m of a moose winter range, where access is controlled following achievement of regeneration delay to effectively reduce motorized accessibility to the winter range.	All
	3.2 Number of roads within moose winter range to be deactivated, or have motorized vehicle access restricted following achievement of regeneration delay or within 1 year if roads are inactive.	All
	Management Considerations <p>Access control includes road deactivation, restrictions that attempt to prevent access by 4WD and off-road vehicles, and legislative authorities for vehicle closure.</p> <p>Within a moose winter range, primary forest activities to focus within a short time frame, followed by a long phase of inactivity to reduce access related impacts to wintering moose.</p> <p>Moose winter range management plans should address both the risk of disturbance and methods for limiting access to moose winter ranges during their wintering period (November 1 to May 1).</p> <p>Moose winter range management plans should be prepared by all industries that plan developments within the plan area, prior to any development clearing or construction activities, as a condition to receiving a license or permit from the Province of B.C. to proceed with a project.</p> Rationale <p>Moose are considered as a yellow-listed species (not endangered, but of management concern) by the BC Conservation Data Centre.</p>	

	<p>Moose are a species of significance and concern to the Upper Nass Simigiyet. The Upper Nass Simigiyet wish to ensure a viable and sustainable population of moose throughout the Upper Nass Lax Yip and adjacent lands.</p> <p>The abundance and quality of winter habitats are key factors that influence over-winter survival of moose. Winter range is <u>critical</u> for moose populations of the Upper Nass Lax Yip.</p> <p>Management for protection of moose winter habitats also contributes to conservation management of grizzly and goshawk habitats.</p>
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Appendix C

Moose Habitat Attributes for Life Requisites

Compiled by Len Vanderstar, R.P. Bio, R.P.F., Ministry of Environment: Skeena Region, from surveys and published species accounts.

Life Requisite	Habitat Attribute and Description
Snow Interception	<p>Canopy Cover</p> <ul style="list-style-type: none"> In areas of high snowfall, moose movement is facilitated by forests with crown closure of exceeding 50%. <p>Area Coverage</p> <ul style="list-style-type: none"> No literature is available; however, given snow depths associated with the Nass South SRMP area, industry best practices recommend more than 30% of winter range should have favourable snow interception canopy cover.
Security Cover	<p>Visual Screening</p> <ul style="list-style-type: none"> Stem density that obscures 90% of the moose at 60 m provides optimum visual screening, thus enhancing the animals' sense of security. A diverse understory that obscures a moose at close range also provides effective security cover. Gullied terrain may offer security opportunities, and could be considered good security habitat. <p>Structural Stage</p> <ul style="list-style-type: none"> Suitable security cover could occur in structural stages 3, 4, 5, 6 and 7; however, the best security cover will likely occur in structural stages 3, 4 and 5 (5 being young forests).
Calving	<p>Landscape Position</p> <ul style="list-style-type: none"> Forested patches with good security cover, surrounded by extensive wetland complexes, forested peninsulas (water or wetland), and islands, are primary calving sites. <p>Adjacency</p> <ul style="list-style-type: none"> Isolation or seclusion of calving sites is critical.

Rutting Areas	Landscape Position <ul style="list-style-type: none">• Optimum rutting areas include subalpine meadow complexes, wetland complexes, extensive floodplains, early to mid-seral natural wildfire burned areas, and deciduous stands adjacent to high forage areas. Adjacency <ul style="list-style-type: none">• Isolation or seclusion of rutting areas ensures minimal disturbance to moose activity, and thus more successful mating behaviour.
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Appendix D

Best Management Practices for Moose Winter Range

Within moose winter range designated Ungulate Winter Range:

The forest management focus of the slope adjacent to the floodplain is to provide for security cover.

Forests within moose winter range will have a forage management emphasis when the site series (subhygric to hydric) that produce deciduous browse species such as willow (*Salix* spp.) dogwood (*Cornus stolonifera*), and cottonwood (*Populus trichocarpa*) become the predominant (more than 50%) site series from a stand-level perspective (e.g. cutblock or overview mapping perspective at 1:20 000 scale). Stand spacing, pruning, reduced conifer-stocking standards and varied conifer spacing will assist in promoting the duration of early seral stage conditions.

Incorporate moose winter ranges in the design and application of forest connectivity.

Retain willow and dogwood browse, particularly along island and floodplain channels.

Retain security and thermal cover in proximity to useable forage areas appropriate to the size of the habitat unit. Retain a proportion of mature and old-growth conifer stands with canopy structures which will trap snow and provide bedding sites, particularly adjacent to foraging areas.

Retain a percentage of large spruce and fir trees within deciduous leading stands, for thermal cover and bedding microsites.

In regenerating areas and plantations where security and thermal cover are lacking, identify conifer stands or large patches suitable for future cover. Manage these for cover attributes that mimic natural forests in terms of visual screening and large, well-formed branchy veteran trees capable of snow interception and provision for thermoregulation.

Encourage rotational forest stand development (i.e. harvest at early stand maturity) on sites conducive to both early seral forage and conifer production, while considering visual screening and snow interception.

Provide adequate security cover within 100 metres line-of-sight in any given direction. Mature and old stands, stand retention or wildlife tree retention areas should be in the range of 200 metres apart, to provide the combination of thermal and security cover.

Preference will be given to ground-based vegetation management.

Maintain the natural deciduous/conifer mix of tree species and shrubs as expected for early seral conditions in prime forage potential sites.

Allow for natural establishment of willows along decommissioned road rights-of-way.

Limit road development and recreational use within moose winter ranges. Where road avoidance is not practicable, use measures to maintain security, such as maintaining dense coniferous visual screens, deactivating/closing roads before November, building temporary roads and/or rehabilitation road rights-of-way.

Where practicable, minimize moose disturbance in winter by using measures such as: geographically focusing roads and operations within a given winter range, restricted access and timing of activities.

Where practicable, retain, enhance or plant visual screens to obscure the winter ranges from high-use transportation corridors.

Leave a proportion of large old-growth trees for moose predator-response behaviour.

9.6 B-3: Mountain Goat (mountain goats and canyon-dwelling goats)

Approximately 60 to 70 percent of North America's population of mountain goats are found in B.C. The B.C. population of mountain goats is roughly estimated at 35 000 to 63 000 goats, of which approximately 16 000 to 35 000 reside within the Skeena Region. Although the mountain goat population has not been specifically estimated for the Upper Nass Lax Yip area, numbers are believed to be relatively high.

Through time, mountain goats have been a highly valued subsistence and cultural resource for the Gitksan Upper Nass people.

Within British Columbia, the mountain goat is blue-listed (of special concern – at risk – vulnerable), an indication that the species' welfare is of immediate conservation concern.

Mountain goat populations, to a greater extent than any other ungulate population, are more susceptible to population decline due to their relatively low rate of population recruitment. They are particularly sensitive to anthropogenic disturbances and habitat alienation from resource development.

For mountain goats, the winter season (usually between December and mid-April) is a critical time for survival. Female goats often use winter range as natal habitats, and therefore select winter ranges favourable for both survival and reproductive strategies. For these reasons, mountain goats can be especially vulnerable to losses of winter habitats⁶¹.

Within the Upper Nass Lax Yip Land Use Plan area, the majority of goat winter range is at relatively high elevation where the wind blows away the snow to expose forage and escape terrain. There are a few localized canyons where the goat winter range is within low-elevation canyons. Within this Land Use Plan, these low-elevation habitats are termed Canyon Goat Winter Range, to differentiate their habitats from the habitats and relatively lower vulnerability of the upper slope mountain goats, and resulting vulnerability to negative impacts resulting from industrial development.

Canyon goats within the Upper Nass Lax Yip are mountain goats that utilize low-elevation canyons as winter

⁶¹ Keim, J. *Analyzing aerial survey observations for predicting mountain goat habitat suitability*. Edmonton, AB.

habitat for escape terrain, and forage within and above the canyons for food supply. It is believed that the canyon goat populations may be resident in these canyons throughout the year with little migration to and from high elevation habitats. However, this has not been well researched to substantiate this belief.

Canyon goats reside within canyons at low elevation in close proximity to areas that may host potential industrial development in the future (including road building) and considered vulnerable to the following relating to industrial development:

- legal and illegal hunting
- industrial disturbance
- loss of forage supply
- loss of thermal and snow interception cover

The canyon goat habitats of the Upper Nass Lax Yip are located in two general areas: within the Kwinageese/Nass valley areas and within the lower part of Kotsinta Creek. These are shown on the Upper Nass LUP – Wildlife Habitat Map.

Within the Upper Nass Lax Yip area, most mountain goats utilize old forests on steep south- to west-facing slopes for winter range, generally within 300-500 metres of escape terrain. High- and moderate-value goat winter habitat is present at localized canyon sites and throughout the mountains of the plan area. Most goat wintering sites are within areas considered to be inoperable for timber harvesting.

Canyon goat winter sites are also generally within areas that are considered to be not appropriate for industrial development, but are within close proximity to potential industrial development terrain, access by development roads, potential legal and illegal hunting activity, and disturbance by human and mechanical activity and noise.

The Upper Nass Lax Yip area provides important habitat for mountain goat and canyon-dwelling goat. The abundance and quality of winter habitats are key factors that influence over-winter survival of goats. The best habitats provide abundant accessible forage, coniferous canopies that intercept snow and act as thermal and security cover, and opportunities for escape or defence against predators. Winter range habitat is considered critical for all mountain goat populations in the plan area. Summer habitat for goats mostly consists of alpine ridges and alpine meadows with nearby cliffs that provide escape terrain.

Within the plan area, mountain goats use alpine habitats in summer, and usually winter in subalpine and subalpine parkland areas nearby, primarily on southerly aspects.

The specific diet chosen by goats is dictated by what is available locally. Winter diets in interior areas are predominantly grasses, sedges and subalpine fir. Arboreal lichens are consumed when available. Summer diets vary, but usually include a mixture of succulent herbs, newly growing grass and sedges, and woody browse.

The use of helicopters in commercial recreation and industrial activity and exploration must be carefully regulated and monitored given the disturbance risk to mountain goats. Adherence to the Wildlife Guidelines for Commercial Backcountry Recreation largely addresses concerns associated with mountain goat disturbance in their winter ranges. Heli-logging is addressed within this section of the Upper Nass Lax Yip Land Use Plan.

Legal Orders under FRPA entitled Order-Ungulate Winter Range (mountain goat) #U-6-002, Nass Timber Supply Area, have been issued by authority of the Government Actions Regulations (GAR) BC Reg. 582/2004, to provide for management and protection of mountain and canyon goats. The intent of this Land Use Plan is to achieve or exceed the Legal Orders regarding mountain goats and canyon goats.

Concerns of the Upper Nass Simigiyet and Wilp members regarding mountain and canyon goats include:

- that industrial and commercial access will be developed throughout the Upper Nass Lax Yip area with no access restrictions, which will result in access in close proximity to mountain/canyon goat habitats, legal and illegal hunting, damage to habitats, and human and mechanical disturbance to goat populations
- potential loss of valued sustenance/subsistence and cultural resources
- that Legal Order #U-6-002 Nass Timber Supply Area will be applied only to the forest industry and not applied to other industries planning to operate on the Upper Nass LUP area

Management Intent (Goals) for Mountain Goat:

- Manage mountain goat winter range to help ensure a healthy mountain goat population.
- Avoid disturbance and displacement of mountain goats during vulnerable periods.
- Minimize pressure on the mountain goat population from legal and illegal harvest through human access management.

Objectives	Measures / Indicators	Targets
1.0 Minimize adverse disturbance to goats within mountain goat winter range identified on Upper Nass LUP – Wildlife Habitat Map	1.1 Area within mountain goat winter range harvested without approved exemptions.	0 ha
	1.2 Number of industrial activities, within 500 m horizontal distance of a mountain goat winter range, that cause adverse disturbance to mountain goats.	0
	1.3 Percentage of industrial activities, within 500 metres of mountain goat winter range and 1,000 metres of canyon goat winter range, that have not been exempted, that takes place between November 1 and June 15.	0%
	1.4 Number of industrial activities within 500 metres of canyon-dwelling goat winter range.	0
	1.5 Number of industrial activities within 1,000 metres horizontal distance of canyon-dwelling goat winter range that causes adverse disturbance to canyon-dwelling goats.	0

Objectives	Measures / Indicators	Targets
	<p>Management Considerations</p> <p>Operators will, as per Ungulate Winter Range (UWR) regulations, refrain from felling trees within mountain goat winter range.</p> <p>Felling of single trees, such as danger-trees, guy-line anchor, or tail-hold trees, is permitted within a mountain goat winter range when it is required to address worker safety. Trees felled for these purposes will be left on site to provide coarse woody debris for other animals.</p> <p>Adverse disturbance is to be determined by a qualified professional biologist.</p> <p>Retention of forest cover is required to deliver habitat attributes critical to the survival of this species. These attributes include mature/old forest, in areas close to escape terrain, and provide winter forage production, snow interception, and thermal/security cover.</p> <p>Retained forest cover (see above) is intended, under Government Actions Order (GAR) U-6-002, to provide a greater than 500 metre width no-industrial-disturbance forested buffer surrounding the canyon goat winter range escape terrain. Verification or design of the retained forest buffer is to be determined by a Qualified Professional biologist to ensure adequate forage, shelter, and snow interception exists in immediate proximity to the escape terrain.</p> <p>Where forests within mountain goat winter range have been disturbed by fire or industrial activity, and where habitat is limited, these areas should be silviculturally treated to accelerate their restoration and rehabilitation, to achieve mature and old forest habitat attributes (snow interception, security and thermal cover, and forage production).</p> <p>Treatments should be based on the recommendations of a qualified professional forester and a qualified professional biologist.</p>	
<p>2.0 Minimize the number of roads within 500 m of mountain goat winter range and 1000 m of canyon- dwelling goat winter range</p>	<p>2.1 Percentage of roads within 500 m of mountain goat winter range and roads within 1000 m of canyon-dwelling mountain goat winter range that have not been exempted, deactivated within one year following the completion of industrial activities.</p>	<p>100%</p>
	<p>2.2 Percentage of existing roads within 500 m of mountain goat winter range and 1000 m of canyon dwelling mountain goat winter range that are deactivated or managed to mitigate adverse disturbance.</p>	<p>100%</p>

Objectives	Measures / Indicators	Targets
	<p>Management Considerations</p> <p>Access roads within 500 m of mountain goat winter range and 1000 m of canyon-dwelling mountain goat winter range are to be constructed in a manner that facilitates effective deactivation.</p> <p>Where no practicable alternatives to building roads within these buffer areas exist, roads and trails should employ strategies to protect goats and their habitats from disturbance. These strategies may include:</p> <ul style="list-style-type: none"> • placing adequate timber buffers around mountain goat winter ranges; • locating roads and trails no closer to mountain goat winter range than made necessary by operational site constraints; or • other suitable techniques. <p>When demonstrated by a qualified professional wildlife biologist that there is a low level of risk to goats, exemptions may be considered for:</p> <ul style="list-style-type: none"> • construction of roads or trails in mountain goat winter range where no other access options exist; or • construction of semi-permanent mainline roads within 500 m of mountain goat winter range to access timber beyond a specific mountain goat winter range; and <p>Existing roads and trails within 500 m of a mountain goat winter range, and within 1,000 m of canyon dwelling goat winter range, should be assessed for disturbance risk to mountain goat populations. Mitigation plans should be developed accordingly.</p> <p>Where road access has a potential impact on identified mountain goats, a risk assessment should be conducted and appropriate measures be taken to help ensure population viability.</p>	
<p>3.0 Minimize adverse disturbance to mountain goat and canyon goat winter range from helicopter logging activities</p>	<p>3.1 Percentage of helicopter logging occurring within 2,000 m line of sight of a mountain goat winter range or canyon goat winter range, that have not been exempted, that takes place between November 1 and June 15.</p>	<p>0%</p>

9.6 B-3.1 Rationale

- Mountain goat are species of significance to the Upper Nass Simigyet and Wilp members and to the people of British Columbia.
- Upper Nass Simigyet and Wilp members utilize mountain goat for sustenance/subsistence purposes and for cultural heritage purposes. Mountain goat traditionally and currently are a valued cultural and sustenance/subsistence resource.
- Winter range habitat is **critical** for winter survival of mountain goat and canyon goat. Effective winter

habitats provide forage, thermal and protective cover, snow interception cover, and opportunities for defence or escape from predators.

- Canyon goat winter ranges are considered more vulnerable due to close proximity to industrial disturbance and human activity than are the higher elevation mountain goat winter ranges. Therefore, the low elevation canyon goat winter range will receive a greater level of buffering and protection through this Upper Nass LUP than the higher elevation mountain goat winter range.

9.6: B-4: Northern Goshawk

Goshawks are forest raptors that inhabit forested landscapes throughout circumpolar North America, Europe, and Russia. Two sub-species of goshawks are found in British Columbia.

The coastal species *Accipiter gentilis laingi* is found on Vancouver Island, Haida Gwaii, and along the mainland coast, with the most recent genetic analysis indicating a genetically unique and isolated population on Haida Gwaii. The larger subspecies *Accipiter gentilis atricapillus* occurs in the remainder of British Columbia. The split between the two subspecies is roughly at the Coast Mountains divide, although an area of potential overlap occurs where long valleys originate on the coast and extend into interior forests, such as the Nass and Skeena river valleys.

The Upper Nass Lax Yip includes Biogeoclimatic zones, subzones, and variants that provide favourable habitats for both subspecies. The BC Conservation Data Centre species classification for Identified Wildlife (March 2021) classifies goshawk subspecies:

Accipiter gentilis laingi as red-listed; endangered species and ecological communities that are facing imminent extirpation or extinction and federal Committee of Status of Endangered Wildlife in Canada (COSEWIC) classifies as threatened (a species that is likely to become endangered if limiting factors are not reversed)

Accipiter gentilis atricapillus as blue-listed; at risk of declining towards extinction.

Currently, the status of both species of goshawks is unknown within the Upper Nass Lax Yip due to lack of on-the-ground scientific studies. Industrial development within the Upper Nass Lax Yip has been limited to the western edge of the Lax Yip through the Kwinageese and Bell-Irving valleys (Wilps Delgamuukw Gwin Hagiisdixw Lax Yip). Within the Upper Nass Lax Yip, although little knowledge of goshawk subspecies and populations has been gathered, it is assumed that the goshawk populations and habitats are essentially in their natural condition, as very little industrial disturbance has occurred to date.

Notes: The greatest majority of the information contained herein regarding goshawks has been cited or interpreted from the following publications:^{62 63 64 65}

⁶² Stuart-Smith, A.K., W.L. Harrower, T. Mahon, E.L. McClaren, & F. I. Doyle. (2012). A scientific basis for managing northern goshawk breeding areas in the Interior of British Columbia: Best management practices. *FORREX Forum for Research and Extension in Natural Resources, Kamloops, B.C. FORREX Series 29. Comprehensive Reports*. [Comprehensive Reports \(gov.bc.ca\)](http://www.gov.bc.ca/comprehensive-reports)

⁶³ Doyle, F.I. (2015). Occupancy and status of northern goshawk breeding areas in the Coast Mountains (Kalum), Nadina, and Skeena-Stikine Resource Districts. *Wildlife Dynamics consulting*.

⁶⁴ Doyle, F. I., M. Buirs, and B. Ells. (2020). *Northern Goshawks of the Skeena Region: Analysis of forest age class, area and distribution associated with active versus potentially abandoned territories*.

⁶⁵ Doyle, F.I. and B. Ells. (2021). *Northern Goshawks of the Skeena Region: Updated analysis of forest age class, area, and distribution associated with active territories*.

Goshawks are a forest raptor associated with mature-old forests for both nest sites/breeding territories and for foraging. Goshawks are very territorial and are faithful to their territories, generally returning year after year to conduct breeding and foraging within their established territories. The goshawk is usually a year-round resident throughout most of its range.

Throughout British Columbia, goshawk populations have suffered serious decline due to clearcut logging of the mature and old forests used by goshawks for breeding and foraging (Doyle et. al 2020).

For the purposes of this Upper Nass LUP, both subspecies of goshawks will be considered and referred to as “goshawks” with no distinction between subspecies. Key components of a goshawk territory and their approximate areas are as stated within Table 18.

Table 18:
Key components of a goshawk territory and their approximate scale

Territorial Component	Description	Approximate Scale (size)
Nest tree	Individual tree containing a goshawk stick nest. Most territories contain multiple nest sites. Sometimes termed “alternative nest trees,” that are relatively close to each other and that are used in different years.	Tree
Breeding area	This is the primary ecological unit for all goshawk breeding activities, including courtship, nesting, fledging, and movements of fledglings before dispersal. This area includes nest trees (historic, current, and potential), plucking posts, roosts, and post-fledging areas associated with each nest tree over multiple years.	≥ 100 hectares, ⁶⁶ and preferably ≥ 150 hectares ⁶⁷
Breeding home range	Area used by a pair of goshawks during the breeding season, and encompasses both the breeding and foraging areas. This area is smaller than the non-breeding home range because of central place foraging constraints related to supporting young at nests during this time of year. There is less overlap between adjacent <u>breeding</u> home ranges than for adjacent <u>annual</u> home ranges.	≥ 2,400 hectares in British Columbia
Annual home range	Area that includes the annual movements of a breeding pair of goshawks, with an established territory, during all seasons. Adjacent goshawk pair’s annual home ranges may have varying degrees of overlap.	3,500 to 8,400 hectares

The goshawk is a raven-sized bird of prey with short rounded wings, long tail, and powerful flying action that makes it an effective direct-pursuit hunter. The goshawk takes a variety of mid-sized forest prey ranging from small mammals and birds to snowshoe hares.

⁶⁶ See footnote 4.

⁶⁷ See footnote 4.

Goshawk foraging activities reduce mammals that have historically had a negative economic impact on the forest industry through browsing damage and loss of seedling trees. Goshawks do act as a natural control to the browsing damage.

Goshawks typically nest in mature and old-growth stands (≥ 100 years) with a closed canopy and open understory. Goshawks build large (approximately 80 cm diameter) stick nests beneath the forest canopy, often in one of the largest trees in the stand. In landscape with suitable forests for nesting and foraging, goshawk nest areas are relatively evenly distributed, typically spaced at four to six kilometers. Goshawks prefer moderate to gentle slopes (<40% slope) for breeding habitat. Within the Upper Nass Lax Yip, spruce, pine, and hemlock are most suitable for nesting trees; subalpine fir is not favoured for goshawk nesting due to higher elevation of location, deeper and longer-lasting snowpack, and lack of support of branches as nest sites. Biogeoclimatic zones within the Upper Nass Lax Yip most appropriate for goshawk nesting are the interior cedar-hemlock zone (ICHmc1) and the sub-boreal spruce zone (SBSmc2). The mountain hemlock zone, Englemann spruce-subalpine fir zone, and alpine zones are not appropriate for goshawk nesting sites.

The majority of area within the Upper Nass Lax Yip has not been impacted by industrial disturbance. However, along the western boundary of the Lax Yip, through the Kwinageese and Bell-Irving valleys (Wilps Delgamuukw Gwin Hagiisdixw Lax Yip) and adjacent to the western edge of the Upper Nass Lax Yip throughout the Xsitxemsem (Nass) valley, timber harvesting has been intense. Undoubtedly damage to goshawk habitat has occurred. Little or no field research has occurred within the Upper Nass Lax Yip to document historic damage or to determine requirements for restoration of goshawk habitats and to manage the Upper Nass Lax Yip with practices that will maintain goshawk habitats.

Concerns of the Upper Nass Simigiyet and Wilp members regarding Northern Goshawk are that:

- Commercial and industrial Development Proponents will individually and cumulatively ignore the habitat requirements of goshawks;
- Commercial and industrial proponents will place the value of extraction of resources ahead of the value of the forests, habitats, and biodiversity of the Upper Nass Lax Yip.
- There is insufficient scientific knowledge developed through field studies within the Upper Nass Lax Yip to influence Development Proponents to seriously manage for the long-term landscape-level sustainability of goshawks.
- Commercial and industrial development will implement clearcut harvest systems that will remove and fragment large contiguous areas of mature and old forest that currently provide the essential conditions for goshawk nesting, breeding, and foraging.

Current Best Management Practices (BMP) and the latest goshawk management tools (Skeena Region Northern Goshawk Population Management Planning Initiative) will be implemented through this Upper Nass LUP and will provide direction for restoration of damaged goshawk habitat, for example, extended rotation lengths to develop old growth forest structure, use of future harvesting systems such as small patch sizes, and selective cutting. Restoration of compromised goshawk habitat will require field study and identification of location and extent of goshawk habitat that has been negatively impacted by timber harvesting and other industrial disturbances. Targets for management and conservation of currently untouched goshawk habitat will be prescribed as BMP within this Land Use Plan.

The Upper Nass Simigiyet wish to maintain goshawk habitats and populations at a viable and sustainable level throughout the Upper Nass Lax Yip and wish to manage goshawk habitat as a functional part of our Land Use Plan.

9.6: B-4. (1) Management Intent (goals) for northern goshawk

Maintain though time a viable and sustainable population of northern goshawk across the Upper Nass Lax Yip Land Use Plan area.

Objectives	Measures/Indicators	Targets
<p>1.0 Maintain meaningful consultation with all Development Proponents regarding conservation of potential northern goshawk habitats delineated on the Upper Nass LUP Wildlife Map, prior to commencing any work on site.</p>	<p>1.1 Number of Development Proponents planning to implement developments on the Upper Nass Lax Yip that receive the Upper Nass LUP</p>	All
	<p>1.2 Number of Development Proponents that receive the Land Use Plan and engage in meaningful consultation with the Upper Nass Simgigyet regarding management practices within areas of goshawk habitat</p>	All
	<p>1.3 Number of Development Proponents that abide by and successfully implement required Land Use Plan management objectives, measures, and targets</p>	All
	<p>1.4 Number of Development Proponents that utilize the services of a qualified professional to assist in location of goshawk nests, breeding areas and breeding home range <u>prior to</u> implementation of any field work.</p>	All
<p>2.0 Determine, for all <u>potential</u> goshawk territories within the Upper Nass Lax Yip as illustrated on the Upper Nass LUP Wildlife Habitat Map <u>by a Qualified Professional</u>, the presence or absence of goshawks within each potential goshawk territory, prior to commencement of any industrial development work within that potential goshawk territory.</p>	<p>2.1 Number of mapped potential goshawk territories that have been field examined by a qualified professional raptor biologist and the presence or absence of resident goshawks determined, <u>prior to</u> commencement of any industrial development within that potential goshawk territory</p>	All
<p>Management Considerations:</p> <p>In order to identify and locate nest sites, and breeding territories, the experience and assistance of a qualified professional (QP) is <u>essential</u>. Without utilizing a QP to locate the goshawk habitat that must be protected to ensure effective breeding and survival of the goshawk populations over time, the majority of goshawk habitats will be damaged or destroyed by industrial developments. This loss to industrial disturbance has occurred throughout British Columbia, despite good intentions of Development Proponents. Early location and identification are a necessity, prior to any industrial development.</p>		

<p>3.0 Maintain nests, breeding area, and breeding territory habitat at <u>known</u> goshawk nest areas, to support continued use and reproduction in those areas</p>	<p>3.1 Number of goshawk sightings that are reported to the Upper Nass Watershed Facilitator via the Gitxsan Laxyip Management Office, the Ministry of Forests, British Columbia Conservation Data Centre</p> <p>in order to ensure that goshawk presence in an area becomes known</p>	All
	<p>3.2 Number of known goshawk nest and breeding areas that are retained and managed</p>	All
<p>4.0 Identify and maintain:</p> <p>Nest sites</p> <p>Breeding area</p> <p>Breeding home range (breeding and foraging area)</p> <p>surrounding all nest areas (known nest areas and recently identified nest areas) to support continued use and reproduction in these areas⁶⁸</p>	<p>4.1 Number of goshawk sightings where a QP raptor biologist is utilized to survey the area of sightings to locate and identify all nest sites, characterize the type of forest at nest sites, and design the breeding area and breeding home range that require reserves for protection of critical habitat.</p>	All
	<p>4.2 Mature and old forest structure and function retained within determined breeding area around known and recently identified goshawk nests.</p>	<p>100% retained</p> <p>≥ 100 ha retained, and</p> <p>where possible</p> <p>≥ 150 ha retained</p>
	<p>4.3 Mature and old forest structure and function retained between nests and well-defined stand edges of forest openings to provide a breeding area buffer</p>	<p>Not less than 1,000 meters radius, comprised of not less than 80% mature-old (≥100 yrs) and no harvesting within 1,000 meters of active nest sites</p>

⁶⁸ Doyle, F.I. and B. Ells. July 2021. Northern Goshawks of the Skeena Region. Upper Nass Lax Yip Land Use Plan – January 2024

	4.4 Forest area identified, designated, and managed as the goshawk territory breeding home range	Not less than 2400 ha
	4.5 Amount of mechanized activity ⁶⁹ within 1 kilometre of active goshawk nest(s) between February 15 th and August 15 th (very high likelihood of noise and vibration impacts, including repeated low elevation (<300 m) helicopter overflights, blasting, continuously operating drill rigs, or well flaring).	No activity
	4.6 Amount of mechanized activity ⁷⁰ within 500 metres of active goshawk nest(s) between February 15 th and August 15 th (high likelihood of noise and vibration impacts, including road building without blasting, logging, pipeline, and well construction, detonation of seismic charges, wind tower construction, mechanical seismic line-butting).	No activity
	4.7 Amount of human activity ⁷¹ within 200 metres of active goshawk nest(s) between February 15 th and August 15 th (low to moderate likelihood of noise and vibration impacts, including silviculture planting and site preparation, hauling logs and equipment, road maintenance, seismic line handcutting, industrial and public traffic).	No activity, unless no practicable alternative exists and activity is kept away as far as possible
5.0 <i>Maintain foraging habitat around breeding area within the breeding home range</i>	5.1 Forest area identified, designated and managed as the goshawk <u>breeding home range</u>	Not less than 2400 ha
	5.2 Mature and old forest structure and function retained within determined <u>breeding home range</u> surrounding goshawk nesting, post-fledging, and <u>breeding area</u>	Average ≥77%. No territory less than 70%
	5.3 Mature and old forest structure and function retained within determined annual home range surrounding goshawk breeding home range.	Average ≥77%. No territory less than 70%

⁶⁹ *Mechanized activity* has a very high likelihood of negative impact and includes repeated low elevation (<300 m) helicopter overflights, blasting, continuously operating drilling rig or well flaring.

⁷⁰ *Mechanized activity* has a high likelihood of negative impact and includes road-building (without blasting), logging, pipeline and well-site construction, detonation of seismic charges, windtower construction, mechanical seismic line-cutting.

⁷¹ *Human activity* includes silviculture activities (planting and site preparation), hauling (logs and equipment), road maintenance, seismic line hand cutting, industrial and public traffic.

<p>6.0 Monitor known and recently identified Breeding Areas to determine whether or not the Breeding Areas have remained active have not been abandoned</p>	<p>6.1 Number of known and recently identified goshawk Breeding Areas that are monitored by a Qualified Professional to determine whether or not the Breeding Areas remained active following commencement of industrial disturbance</p>	<p>All</p>
	<p>6.2 Length of time over which monitoring may be conducted</p>	<p>Not less than a five-year period</p>
	<p>Management considerations</p> <ul style="list-style-type: none"> • The Breeding Area reserve is the primary ecological unit for all goshawk breeding. The size of the Breeding Area is crucial to the function of the Breeding Area. Breeding Areas smaller than 100 hectares are at risk of abandonment. The smaller the Breeding Area, the higher the risk of abandonment. The risk of abandonment of the Breeding Area becomes increasingly lower with reserves greater than 100 hectares. • Maximize the amount of forest suitable for nesting within the breeding reserve; focus on The closed canopy mature and old stands (greater than 100 years) with an open understory. • Minimize edge effects by designing reserves to be circular, rather than linear in shape. • Connect the reserve to adjacent forest to increase the effective size of the reserve and provide linkage to foraging habitat beyond the breeding area. • Throughout British Columbia, as a result of clearcut timber harvesting, Climate Change, and blackfly predation on goshawk nestling and fledgling, goshawk populations appear to be rapidly depleting. In order to maintain the possibility of a viable goshawk population within the Upper Nass Lax Yip, Best Management Practices must be applied to management of goshawks, to ensure that adequate ecologically-based reserves are identified and protected. <ul style="list-style-type: none"> • This means that forest practices should work above the minimum threshold of habitat requirements. • Recommended silvicultural systems that should be considered for implementation within the Upper Nass Lax 	

	<p>Yip for goshawk management include:</p> <ul style="list-style-type: none"> • Long rotation periods between re-entry periods for harvesting, to allow trees to achieve mature size and structure. Rotation lengths within the Upper Nass Lax Yip are estimated to be not less than 150 years for all goshawk territories. • Patch cuts with the following forest conditions: <ul style="list-style-type: none"> ▪ Small, discontinuous, variable sized canopy gaps ≤ 1.0 ha ▪ Continuous forest cover between canopy gaps as large or larger than the adjacent canopy gap and retaining full forest structure, ensuring that no less than 77% of the forest canopy cover is retained within the full cutblock area. ▪ Within the canopy gaps, 20% or greater structure and function retained, including large old trees, snags, and coarse woody debris to provide perching sites for goshawks and habitat for prey species ▪ Multi-canopy levels; multi-aged forests ▪ 0% permanent road access, except where for ecological or economic reasons no other alternative is possible. • Selection systems; to retain mature forest cover for goshawk foraging activities and goshawk prey cover, and to retain larger trees to provide $\geq 77\%$ basal area retention • Commercial thinning; removal not to exceed 40% basal area. Retention of larger trees to provide future volume growth and value. Re-entry periods not prior to 30 years from the present commercial thinning cut. • Goshawk habitats identified under this Upper Nass LUP for the Upper Nass Lax Yip have been identified at the landscape level. The Upper Nass Lax Yip Land Use Plan presents objectives, measures, and targets relating to broad strategies for management of goshawk territories and are not specific to <u>individual</u> goshawk territories or specific cutblocks, silvicultural systems, or other industrial developments. 	
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	<ul style="list-style-type: none"> Following on-ground determination of presence or absence of goshawks by a Qualified Professional, a detailed plan for protection of the specific goshawk habitat will be developed through early meaningful consultation with the QP and the Development Proponent. Determination of practices regarding the specific proposed industrial disturbance and forest clearing will be developed, mapped, and submitted to the Upper Nass Simigiyet for review and comment, then presented to the Development Proponent for implementation. 	
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9.6.B-4.2 Rationale for objectives 1.0, 2.0, 3.0, 4.0, 5.0, 6.0

Currently, within the Upper Nass Lax Yip, the northern goshawk species appears secure; there is little or no industrial disturbance occurring within the Lax Yip and goshawk habitat appears functionally intact throughout the Upper Nass Lax Yip. However, increased industrial disturbance throughout the Lax Yip – without adequate planning and regulation for management of goshawk habitat – will result in negative impacts to goshawk populations and sustainability.

Monitoring of known nest sites in recent years indicates a declining number of active goshawk territories throughout northwest British Columbia. Reasons for the decline are not conclusive, but appear to be related to industrial development (primarily clearcut logging) and Climate Change. Maintenance of a favourable environment (habitat and prey) is necessary to prevent stress and loss of goshawk from the Upper Nass Lax Yip. This means that industrial development practices must operate at a higher standard than the minimum habitat requirements.

Additionally, the potential exists for development of other industries within the Upper Nass Lax Yip, such as energy exploration and extraction, mining, pipelines, hydro-electric development etc. – all of which can have negative impacts on goshawk habitat. The potential is high for the loss of goshawk habitat and prey from each of these industries, both individually and cumulatively.

Goshawks are an umbrella species. They are an indicator of forest ecosystem health; effective management for goshawks results in effective management for many species.

The time to manage for a species is while there are still healthy populations of the species. Once a population has declined to an endangered status and required habitats have been destroyed, it is much harder, more expensive, and more time consuming to restore the species to sustainable levels.

Upper Nass Simigiyet believe that effective management for the northern goshawk will benefit many other species, and will contribute to maintenance of healthy functioning ecosystems and sustainability of the natural resources of the Upper Nass Lax Yip. The Upper Nass Simigiyet desire to effectively manage for the long-term restoration and sustainability of the northern goshawk within Upper Nass Lax Yip.

Attached are Appendix E-1 and E-2, as supplemental information to support Chapter 9.6 B-4 Northern Goshawk objectives, measures, targets, management considerations, and rationale.

Appendix E-1

Northern Goshawks of the Skeena Region: Analysis of forest age class, area and distribution associated with active versus potentially abandoned territories

F. I. Doyle, M. Buirs, and B. Ells. July 2020

Executive Summary:

Goshawks in the Skeena Region are year-round residents, with both Breeding and Annual home ranges centered on their nest areas.

Active goshawk territories in the Skeena Region have, on average, 74% mature – old forest within their Breeding Home Ranges (“BHR,” ~2,400ha), and all have >60% mature –old growth. Analysis of all known BHRs has shown that where conventional harvesting takes >40%⁷², mature – old growth, abandonment of the territory occurs.

Active goshawk territories in the Skeena Region have, on average, 77% mature – old forest within their Annual Home Ranges (“AHR”, ~ 6,000ha). (From Radio Telemetry: 90% Fixed Kernal Home Range Analysis of 28 Birds over 5 years. Mahon 2008)

Active goshawk territories have <20% harvest within the 100ha Breeding Area (“BA”). Harvest within the BA will normally result in territory abandonment (as per the existing BMP, Stuart Smith et al. 2012).

Within Active goshawk territories, BAs are consistently >400m from hard clearcut harvest edges; on average, conventional harvesting within 1000m (Buffer) of the nests results in territory abandonment.

⁷² *Within each territory the area required to support breeding - habitat s understood to be unique, and potentially can change annually, with fluctuations in available prey (Doyle and Smith 1994). Specifically in the context of earlier management direction, an April 2020 analysis shows no supporting evidence that simply retaining 60% of the mature-old forest while clearcut harvesting the remaining area will result in the continued use of the area by breeding goshawks.*

Components of a Goshawk Territory:

Based on the spacing of territories and telemetry of goshawks within the Skeena Region (see Mahon 2008 and Stuart-Smith et. al. 2012) a goshawk territory is centered on the nest area throughout the year. This territory consists of a core Breeding Area (Table 1, Figure 1), a Breeding Area harvest buffer (this study), a spring-summer foraging “Breeding” Home Range and a larger “Annual” foraging Home Range.

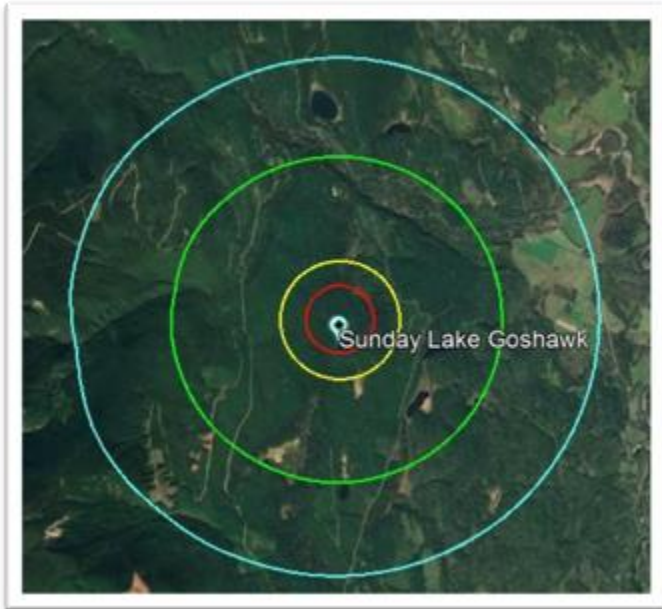


Figure 1. Schematic of Goshawk Territory Components.

**Table 18
Key Components of a Goshawk Territory**

Zone	Radius from center point (m)	Interior Area (ha)	Description
A	560	100	Core Breeding Area (BA)
B	1000	350	Breeding Area Buffer
C	2787	2440	Breeding Home Range (Spring - Summer foraging) (BHR)
D	4371	6000	Annual Home Range (Winter and Summer foraging) (AHR)

Analysis:

Since 1995, goshawks in the Skeena Region have been a focal research and management species, and a total of 144 Known BAs have now been located in the Skeena Region. Monitoring BAs during the breeding season has shown that many have not been active for >5 years, and are therefore considered abandoned. Of the regularly-monitored Known territories located prior to 2015, only 5% (3 of 62) are known to still be Active.

In the analysis presented below, we used VRI and up-to-date harvest history (verified by the latest satellite imagery) to determine if there was a marked difference between the landscape habitat attributes of Known Active territories (i.e. documented occupancy within the past five years) and those of apparently abandoned territories (no occupancy documented >5 years).

As per a field-verified assessment of goshawk habitat suitability in this region (Kistowska 2019), mature forest (Age Class ≥ 5) was used as a minimum allowable age for analysis of Breeding Home Range (BHR) outside of the BA (this age class applies to the minimum age when our forests start to provide suitable foraging conditions—but not yet Breeding Area habitat conditions).

In this analysis, we compared Active versus potentially abandoned territories at three scales: the Breeding Area/nesting area (100ha), Breeding Home Range/foraging area (2,400ha), and Annual Home Range Area (6,000ha).

Attributes of Known Active Territories⁷³

Active territories (Table 1) have, on average, 74% mature and/or old forest (Age Class ≥ 5) within the 2,400ha BHR area centered on the BA (n = 18), and on average 77% at the Annual Home Range Scale.

Within Active territories, an average 91% of the 100ha BA is comprised of forest >120 years; all BAs have >80% forest >120 years (n = 12)⁷⁴.

Within Active territories, nests are all >400m from clearcut harvest edges (<~20 years); on average, this distance is closer to one kilometer (80% of areas >590m, Mean = 950m and Median = 830m; n = 12).

⁷³ Three active, but atypical, territories were excluded from the analysis, as each has unique landscape attributes that do not represent the typical landscape condition found around the 144 known goshawk territories.

⁷⁴ Territories where the nest sites have been located, and where no harvest has taken place in the breeding area since it was first located.

Table 19**Landscape scale forest attributes associated with Active Territories in the Skeena Region**

Active Territory Attributes	Observed Parameters	Number of Territories
Within 2,400ha BHR % Mature-old Growth	Average =74% (All have >60%)	18
Within 6,000ha AHR % Mature-old Growth	Average =77% (All have >60%)	18
Within the 100 ha BA % Mature-old Growth	Average = 91% (All have >80%)	12
Location of Active nests from clearcut harvest edge (<~20 years)	Average = 930m (All are ≥400m)	12

Attributes of all other known territories:

Excluding the Known Active territories described above, of the remaining 119 Known territories, 61 (51%) have <60% mature and old forest within the 2,400ha Breeding Home Range, and are therefore unlikely to support breeding goshawks.

Of the remaining 58 territories, 42 (72%) have >20% recent harvest within the 100ha nesting area, and are therefore unlikely to support breeding birds.

Based on 1 and 2 above, only 16 (13%) ($119 - (61 + 42) = 16$) of the remaining Known territories can be expected to support breeding.

Status of All Known Goshawk Territories:

Table 20**Status of All Known Goshawk Territories in the Skeena Region**

Status of all known Territories	Number of Territories
Number of Known Territories Located since 1995	144
Number of Territories still Supporting Breeding (Active in the past 5 years)	21
Number of Monitored territories located prior to 2015 that still support Breeding	3 of 62 (5%)
<u>Excluding Active territories</u> the Number of other known Territories that have attributes that may still support breeding	16

Appendix E-2

Northern Goshawks of the Skeena Region: Updated Analysis of Forest Age Class, Area and Distribution Associated With Active Territories

F. I. Doyle, and B. Ells. July 2021

In July 2020, we provided an analysis of all active and abandoned goshawk territories within the Skeena Region, and since that analysis several new territories have been located by biologists and contractors across the region. The below analysis uses the latest VRI, and includes all the new areas located in the past 2 years.

As per the earlier analysis we conducted a simple buffered area analysis approach consistent with the life requisites of the birds, and supported by goshawk research conducted within the Skeena Region and BC over the past 27 years.

As long as suitable habitat is in place the territory is capable of supporting birds.

Executive Summary:

Goshawks in the Skeena Region are year round residents, with both Breeding and Annual home ranges centered on long-term Breeding Areas (nest areas).

Individual pairs of Goshawks typically don't breed every year. Therefore as per Mahon (2010), monitoring of the known Breeding Area over a 5 year period, may be required before it can be determined if the territory is abandoned.

Habitat within a ~100ha area surrounding the active nests, "core Breeding Area", as per the BMP (Stuart-Smith et al. 2012) is comprised an average 91% (SD 10.41, Median 94.5%, n = 19) mature forest (>100 years).

In addition, habitat within a 1km radius (~314ha) of the active nests is comprised an average 80% (SD 9.7, Median 79.7%, n = 20) mature forest (>100 years).

Habitat within the goshawk Breeding Home Ranges (~2,400ha), are comprised on average 76% (SD 15.08, Median 79.9%, n = 23) mature (>80 years) – old forest (Kistowska, 2019). All have >60% mature –old growth.

Active goshawk territories in the Skeena Region have, on average, 77% mature – old forest within their larger annual Annual Home Ranges ("AHR", ~ 6,000ha. Inc. Breeding Home Range). (From Radio Telemetry : 90% Fixed Kernel Home Range Analysis of 28 Birds over 5 years. Mahon 2008)

Analysis of all known Breeding Home Ranges has shown that where conventional harvesting takes >40%⁷⁵, mature (>Age Class 5 = 80 years) – old growth, abandonment of all territories will occur.

Components of a Goshawk Territory:

Based on the spacing of territories and telemetry of goshawks within the Skeena Region (see Mahon 2008 and Stuart-Smith et. al. 2012) a goshawk territory is centered on the nest area throughout the year. This territory consists of a

⁷⁵ *Within each territory the area required to support breeding - habitat s understood to be unique, and potentially can change annually, with fluctuations in available prey (Doyle and Smith 1994). Specifically in the context of earlier management direction, an April 2020 analysis shows no supporting evidence that simply retaining 60% of the mature-old forest while clearcut harvesting the remaining area will result in the continued use of the area by breeding goshawks.*

core Breeding Area (Table 1, Figure 1), a Breeding Area harvest buffer (this study), a spring-summer foraging “Breeding” Home Range and a larger “Annual” foraging Home Range.

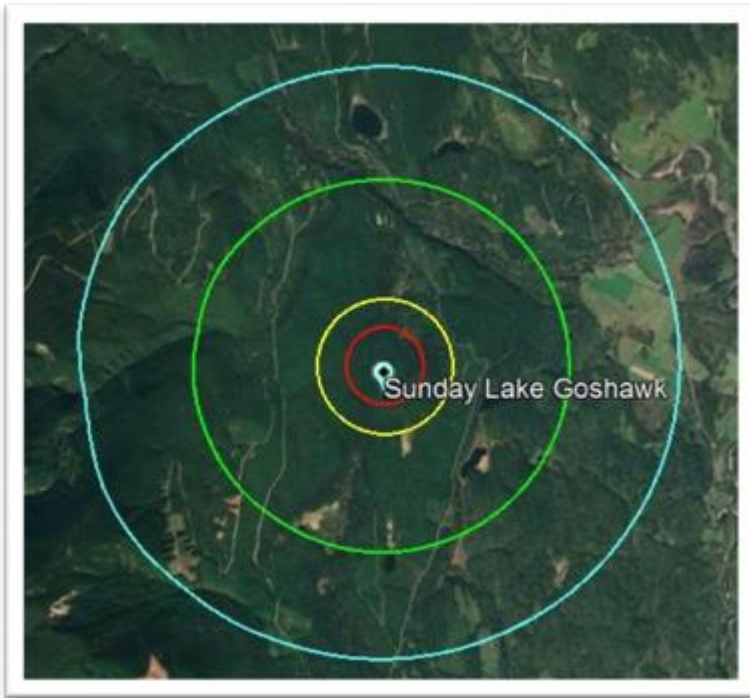


Figure 1. Schematic of Goshawk Territory Components.

Table 21
Components of a Goshawk Territory

Zone	Radius from center point [m]	Interior Area (ha)	Description
A	560	100	Core Breeding Area (BA)
B	1000	314	Breeding Area Buffer
C	2787	2400	Breeding Home Range (Spring - Summer foraging) (BHR)
D	4371	6000	Annual Home Range (Winter and Summer foraging) (AHR)

9.6 B-5: Furbearers (fisher and wolverine)

Note: The majority of this information regarding furbearers has been cited or interpreted from publications noted.^{76, 77}

A number of fur bearers reside within the Upper Nass LUP area including marten, fisher, wolverine, ermine (weasel), mink, lynx, fox, coyote, wolf, muskrat and beaver. Historic trapping of these species has been more intense than that of the present day, but many traplines continue to be held and utilized.

Gitksan people of the Upper Nass Lax Yip trapped and harvested furbearers for thousands of years and currently still utilize their traplines to harvest fur. Fur has traditionally been and still is harvested for sustenance/subsistence, economic, and cultural purposes.

Healthy populations of fur bearers are reflective of healthy, functional landscapes. Species such as marten, fisher and wolverine are often referred to as indicator species – if their populations are viable, then generally the ecosystems in which they reside are biologically functional.

Marten are the most abundant of the three indicator fur bearer species with noted population fluxes depending on food supplies. Marten are highly reliant on the presence of coarse woody debris protruding from the snow to permit access to the forest floor in their pursuit of prey. They are also dependent on good forest structure for a variety of life requisites as well as undisturbed meadow complexes in their pursuit of voles. Although marten are generally found in and among forests, they will venture into natural burns provided standing and fallen forest structure remains on site. Clearcutting without consideration of stand structure retention, recruitment or debris pile management effectively eliminates marten habitat suitability well beyond the timelines of rotational forestry. Stand level considerations are essential in maintaining marten habitat within developed landscapes.

Fisher is a relatively rare animal and is red-listed (endangered or threatened under the *Identified Wildlife*

⁷⁶ Identified Wildlife Management Strategy. Accounts for Measures for Managing Identified Wildlife: Northern Interior Forest Region (Version 2004).

⁷⁷ Nass South Sustainable Resource Management Plan (SRMP). Ministry of Forests, Lands, and Natural Resource Operations. February 3, 2012.

Management Strategy Version 2004) species in British Columbia. Currently under the BC Conservation Data Centre Species Classification for Identified Wildlife (March 4, 2021), fisher is classed as No Status.

Under the *Identified Wildlife Management Strategy Version 2004*, fisher is a species that requires additional or specific management practices to sustain viable populations.

To date, little industrial disturbance has occurred within the majority of the Upper Nass Lax Yip; the forests, watersheds, and habitats are primarily in their natural state, with a natural distribution of both fisher and wolverine habitats and prey species.

Fishers are solitary animals, other than during mating and territorial defense. They have relatively large home ranges, ranging up to 80 km² and averaging approximately 35 km² for males and 15 km² for females.

Fishers utilize a range of habitats for foraging purposes and can be found from valley bottoms to treeline in search of prey (porcupine is frequently the prey, or snowshoe hare). Preferred habitats for fisher are mature and old forests and specifically riparian and dense wetland forest habitat within the mature and old forests. Decadent large trees with cavities are of particular importance to fishers. Larger openings are avoided due to exposure and vulnerability to predators on these larger sites. Landscape connectivity is of great importance to fisher movement through the landscape of the territories.

The long-term threat to sustainability of fisher population is loss of forested habitat with suitable structure through industrial disturbance, primarily forest clearcut harvesting and land clearing. A second major threat to fisher is direct mortality rates associated with their vulnerability to trapping. The long-term maintenance of extensive riparian and wetland, mature and old forest lands will be instrumental to the sustainability of fisher populations.

Wolverine is a rare, solitary animal, except at mating season. Within mainland British Columbia, wolverine has been blue-listed (of special concern) under the *Identified Wildlife Management Strategy Version 2004*. Currently, under the BC Conservation Data Centre Species Classification for Identified Wildlife [March 4, 2021], wolverine is classed as No Status.

The wolverine has a large home range, similar but significantly greater than the fisher, ranging for males up to about 1,300 km² with smaller home ranges for females at about 300 km² to 400 km².

Wolverine utilize a range of habitats to forage for a variety of foods. Mature and old forests are used predominantly; little use appears to be made of middle age forest stands. Wolverines range from valley bottoms to and into the alpine tundra. A variety of foods are utilized, including carrion, particularly around avalanche tracks.

The major habitat threat to wolverine is the large-scale conversion of mature and old forests into cleared lands and young forests by various forms of industrial disturbance. Logging of high elevation forests may also affect rearing success. Additionally, a major threat is the mortality resulting from trapping for fur harvesting. The increased access following road construction to develop industrial projects provides easier admission to trappers in previously inaccessible areas.

Fishers and wolverine require:

- Refugia: large areas of undeveloped natural ecosystems that contain the required habitats for shelter, denning, and foraging

- Landscape connectivity: primarily mature and old forest, preferably floodplains and valley bottom riparian ecosystems that provide undeveloped connecting linkages between the refugia and throughout their territories

Concerns of the Upper Nass Simigiyet and Wilp members include:

- That clearcut harvesting and other forms of industrial development and industrial road construction will occur in the near future throughout the Upper Nass Lax Yip and will destroy or render useless current furbearer habitat, particularly fisher and wolverine habitats and migratory routes;
- That increasing industrial road development will result in improved access to previously inaccessible areas and will result in increased human activity, disturbance, and trapping mortality.

The Gitxsan Simigiyet of the Upper Nass Watershed wish to maintain the fisher, wolverine, and other furbearer habitats and populations at viable and sustainable levels throughout the landscape, and wish to maintain all furbearer habitat as a functional part of the Upper Nass Lax Yip Land Use Plan.

Management Intent (goals) for furbearers

- Maintain high value habitat and landscape connectivity for identified furbearing species to help ensure healthy viable populations of the furbearers.

Objective	Measures / Indicators	Targets
<p>1.0 Minimize impact to known high value fisher and wolverine habitat</p>	<p>1.1 Percentage of known fisher and wolverine denning sites impacted by industrial development.</p> <p>Management Considerations</p> <ul style="list-style-type: none"> • Habitat capability/suitability mapping should be completed concurrently for fisher and wolverine. • Fisher denning habitats are currently identified as large veteran cottonwood trees which tend to grow on floodplains, but not exclusively. • Minimizing the duration of active roads and their conduciveness for human use, in proximity to mountains in the ESSF and MH Biogeoclimatic classification zones (BC, will reduce risk to wolverine den site disturbance. • Continued protection of zones mapped on the Upper Nass LUP – Ecological Resource Zonation Maps as: <ul style="list-style-type: none"> ▪ Water Management zone ▪ Ecosystem Network Core Reserve ▪ Ecosystem Network Buffer ▪ High Value Habitat for General Wildlife will contribute to maintenance of fisher, wolverine, and other furbearer habitat throughout the plan area. • Development of Best Management Practices (BMP) for management of 	<p>0%</p>



fisher and wolverine habitat should be one component of completing habitat capability/suitability mapping.

9.6 B-5 Rationale

Little research or investigative exploration has been completed to provide detailed ecological knowledge of the flora and fauna of the Upper Nass area. It is doubtful that any specific ecological resources (such as dens, nests, rare ecosystems, etc.) have been identified and location-mapped to enable them to be classed as known and thus eligible to be protected.

Protection of relatively large areas of forests for purposes of:

- carbon storage
- old growth forest preservation
- water quality
- hydrologic stability of watersheds
- habitats of animals and birds with large territories such as grizzly bear, fisher, wolverine, and goshawks

all act as **umbrella features** that provide for viability and sustainability of a wide range of habitats and species of plants, animals, birds, and invertebrates while still allowing implementation of industrial practices to an acceptable standard to harvest ecological resources from lands determined to be appropriate for industrial operations.

- Large areas of undisturbed land connected by corridors of undisturbed forest are **required** to provide refugia and landscape connectivity for fishers and wolverine, while also providing habitats and protection for a wide range of biodiversity flora and fauna.

9.7 Botanical Forest Products

Botanical forest products encompass a wide array of vegetation or fungi-based non-timber products gathered from forest lands. Upper Nass Simgiyet and Wilp members have utilized these aspects of the Upper Nass Lax Yip for centuries and continue the practices today of utilizing botanical forest products for cultural, ceremonial, medicinal, sustenance/subsistence, crafting, building purposes and for economic benefit. A partial list of botanical forest products historically and currently used by Gitxsan Upper Nass people includes:

- Pine mushrooms, and other mushrooms
- Medicinal plants, particularly Devil’s Club and Indian hellebore
- Lily pond roots
- Tree sap; foods and medicines
- Ferns and lilies; rhizomes
- Berries
- Fireweed
- Sphagnum moss, and other mosses

- Chaga (fungus on birch trees)

All plants used by Upper Nass Simigiyet and Wilp members are culturally important and are used at different times for different purposes. There are many plant species that are utilized as botanical forest products, too numerous to be managed as individual species.

Most botanical forest products will be maintained in the Upper Nass Lax Yip through application of the stated objectives, measures, and targets of the Upper Nass Lax Yip Land Use Plan.

Specific objectives, measures, and targets for sustainable management of pine mushroom are presented within this Land Use Plan Chapter 9.7 Botanical Forest Products.

Pine mushroom (*Tricholoma magnivelare*) is a commercially important wild mushroom species that grows in coniferous forests throughout British Columbia, Oregon, Washington and northern California. Within the Upper Nass Lax Yip, it is found primarily within the ICHmc1 Biogeoclimatic zone. It is not known to grow within the SBSmc2 Biogeoclimatic zone, and it does not grow with the higher elevation MHmc2 and ESSFwv Biogeoclimatic zones.

Characteristics of productive pine mushroom habitat are:

- Subxeric to submesic (dry, well-drained) submesotrophic (nutrient poor) coarse-textured soils, generally with high coarse fragment content
- Located on upper slopes, ridge crests, or tops of knolls, with primarily morainal and colluvial veneer surficial materials, and also on gravel benches of coarse glaciofluvial outwash
- Classified as ICHmc1o1b site series. Mesic (slightly moister) sites transitional to this site series are also productive for pine mushrooms
- Generally, each productive pine mushroom (PPM) site is of limited size within the larger, moister surrounding forest, averaging three to four hectares per site, ranging from less than one hectare up to around fifty hectares (infrequent)
- Associated with host tree species of western hemlock and lodgepole pine; in general, hemlock is the dominant species in the stand, often in mixtures with lodgepole pine. Stands containing spruce, birch, aspen, cottonwood, and balsam are not very productive for pine mushrooms
- Age of 80 to 200 years appears to be the most productive stand age for pine mushroom habitat
- Primarily grows in a high forest floor coverage of mosses; sparse herb and shrub vegetation layer
- Mainly at elevations less than 800 meters

Pine mushroom is dependent on the presence of host trees, with which it forms a symbiotic relationship. Removal of the host tree results in death of the pine mushrooms. Recolonization of a cleared area by pine mushrooms is dependent on reforestation of the site with the required host tree, generally western hemlock. The pine mushroom can then re-establish the symbiotic relationship with the host tree by:

- Dissemination of pine mushroom spores from adjacent colonies of mushrooms in the surrounding forest
- Root contact of the regenerated host tree with an established host tree in the adjacent stand that has a colony of pine mushrooms attached to its roots.

Research indicates that, for a regenerated forest to become productive pine mushroom habitat, it needs to reach the age of approximately 80 years in order to achieve the vigor required to support the pine mushroom in a symbiotic relationship.

During the past several decades, along the western edge of the Upper Nass Lax Yip, timber harvesting using clearcutting systems has cleared numerous sites within the ICHmc1 Biogeoclimatic zone that were potentially

productive pine mushroom habitat. The remaining pine mushroom sites are threatened by future timber harvesting activities and other industrial developments.

Concerns of the Upper Nass Simigiyet and Wilp members regarding pine mushrooms specifically:

- That timber harvesting and other industrial developments will continue to clearcut or otherwise damage productive pine mushroom sites
- That an opportunity to utilize the Upper Nass Lax Yip to provide economic benefit to Upper Nass Simigiyet and Wilp members will be lost for many decades
- That currently there has been no mapping within the Upper Nass Lax Yip to identify potential pine mushroom sites and facilitate planning to protect, manage, and sustain through time sustainable populations of pine mushroom
- That currently there are no plans for management and maintenance of productive pine mushroom sites, regeneration of harvested sites with pine mushroom host trees, or retention of adjacent pine mushroom colonies for re-colonization of pine mushrooms on the sites
- That there is unregulated mushroom harvesting—no controls over amounts of harvesting, methods of harvesting, or length of harvesting season; the result will likely be a progressive decline in mushroom site productivity over time
- There are no controls or standards regarding mushroom picker camps, garbage, pollution, health issues, and garbage left by pickers throughout the forest
- That there has been no research into the effect on pine mushroom sites of selective silvicultural systems or small patch cut systems within the Upper Nass Lax Yip

9.7.1 Management Plan Goals for Botanical Forest Products

- Maintain pine mushroom resources and provide opportunities for sustainable mushroom harvest
- Maintain habitats across the landscape for sustainability of a full range of botanical forest products

Objectives	Measures / Indicators	Targets
1.0 <i>Maintain productive pine mushroom sites</i>	1.1 Percentage of productive pine mushroom sites ⁷⁸ maintained in an age range from 80 to 200 years. ⁷⁹	not less than 50%

⁷⁸ “Productive pine mushroom” (PPM) sites means those sites that can best produce pine mushrooms. i.e., sites that currently produce pine mushrooms and those sites undisturbed, previously logged or burned that can produce pine mushrooms. These sites are generally pine or hemlock leading stands below 800 m elevation in the ecological site series ICMmc1/01b. The minimum size of area to be considered is 0.3 ha for homogenous site series and 1.0 ha for site series complexes.

⁷⁹ If research shows that silviculture systems (other than clearcut harvesting) can perpetuate pine mushroom production, the areas having these silviculture systems will contribute to meeting the target.

<p><i>across the Upper Nass LUP area</i></p>	<p>Management Considerations</p> <ul style="list-style-type: none"> • Pine mushrooms usually grow in forests with an age of 80 to 200 years. The intent is to have at least 50 percent of the productive area in an age range that can grow mushrooms, recognizing that mushrooms may not grow every year in a particular location. The entire age range does not have to be represented to achieve this target. • Best efforts are to be made to map all highly productive pine mushroom sites in the Upper Nass LUP area. • Best efforts are to be made to research the effects of various harvesting and silvicultural regimes in the re-colonization and maintenance of productive pine mushroom sites. (See footnote 2) <p>Currently, there has been no mapping within the Upper Nass LUP area to identify the location of Potential Pine Mushroom sites in order to provide a specific numerical target of the magnitude of the $\geq 50\%$ required PPM site retention.</p> <p>Therefore, until such time that accurate mapping of PPM sites has taken place:</p> <ul style="list-style-type: none"> • Every forest licensee that harvests timber on the Upper Nass LUP area, at the time of cutblock engineering and assessment, will be responsible for achieving the $\geq 50\%$ retention target on an annual basis to the extent possible, and fully achieving the target on a two-year periodic basis, on all cutblocks containing PPM sites harvested by that licensee. • Record in a database and provide the recorded information to the Upper Nass Simgigyet the annual areas of harvested and retained PPM sites, in order that the cumulative area of PPM sites retained and harvested PPM will be known annually by the Upper Nass Simgigyet.
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9.7.2 Rationale

- Pine mushroom is a commercially valuable wild mushroom species and can provide an important source of economic income to Upper Nass Wilp members, First Nations, and non-First Nations members of surrounding communities. The Upper Nass Simgigyet desire sustainable management of the pine mushroom in order to uphold the sacred responsibility of stewarding the Lax Yip, as per Gitxsan Ayookw, and also to maintain opportunities for economic benefits for Upper Nass Wilp members.
- Numerous PPM sites have been clearcut; many more sites are threatened by potential future timber harvest activities and other potential industrial developments. Once harvested by clearcut systems, the habitat will not be productive for pine mushroom for many years. For a regenerating forest to regain pine mushroom productivity, the forest needs to be retained for extended periods of time in an age class ranging from 80 to 200 years.

- In order to maintain opportunities for continued harvest of pine mushrooms, it is crucial that:
 - The spiritual, recreational, and commercial importance of pine mushroom harvesting be recognized
 - PPM sites be identified and mapped
 - An objective be established that provides specific target levels of retention and protection for management of pine mushroom sites
 - A management regime be applied that retains PPM sites in an unlogged condition for extended periods of time and restores and retains harvested habitats to forested age class that is productive for pine mushrooms

9.8 Timber

Note: Statements regarding timber quality and volumes are based on air photograph interpretation. No field analysis has been done for purposes of the Upper Nass LUP. Estimated area and volume of potentially commercial valuable timber are presented in Table 19. Four forested Biogeoclimatic ecosystems characterize the Upper Nass Lax Yip Land Use Plan area that result from coastal influences along the western boundary and interior influences along the eastern boundary. The prevailing climate and resulting forests transition from south to north, from west to east, and from lower elevation to higher elevation.

The four ecosystems of our Lax Yip include:

1) **Interior Cedar Hemlock; moist cold subzone (ICHmc1)**

The ICHmc1 ecosystem is situated at lower elevations and is located primarily along the western edge of the Lax Yip, inland to the east along the valley bottoms of the Nass River, Vile-Canyon and Kotsinta creeks approximately to the confluence of Nass River and Damdochax Creek. The major timber species are dominated by western hemlock with lesser amounts of mountain hemlock and subalpine fir (balsam). There is virtually no western red cedar within the Upper Nass Lax Yip at this time, but this may change with changing climate conditions.

2) **Mountain hemlock; moist maritime (MHmm2)**

Mountain hemlock is situated at higher elevations above the ICHmc1 ecosystems along the western edge of the Upper Nass Lax Yip and transitions to the Englemann spruce-subalpine fir ecosystems to the north and east. The timber species include mountain hemlock, western hemlock, hybrid spruce, and subalpine fir.

3) **Sub-boreal spruce; moist cold (SBSmc2)**

The SBSmc2 subzone occupies the low elevations of the valleys of the eastern portion of the Upper Nass Lax Yip, from the Nass Valley at approximately Damdochax and Nass River confluence and towards the north, south, and east along the Nass River, Damdochax River, Muskaboo Creek and transitions with increasing elevation to the Englemann spruce-subalpine fir (ESSF) zone. Timber species within the SBSmc2 zone are a mixture of subalpine fir, hybrid spruce, and lodgepole pine.

4) **Englemann spruce- subalpine fir; wet very cold (ESSFwv)**

The ESSF zone dominates the higher elevations of the majority of the Upper Nass Lax Yip from approximately 900-1000 metre elevation to 1200-1500 metres where it transitions into alpine tundra. Timber species of the ESSF zone include subalpine fir and hybrid spruce, becoming pure subalpine fir as elevation increases.

The hemlock species of the Upper Nass timber resource are highly defective, producing a high percentage of pulp quality or waste wood and a low percentage of sawlog quality timber. The subalpine fir-hybrid spruce-lodgepole pine species are relatively small in height and diameter but contain moderate to high percentage of sawlog quality timber.

Site Index (growth potential) of the Upper Nass Lax Yip forests is primarily poor to very poor with some moderate growth sites within the riparian areas of the valley bottoms. Description and ranking of good, moderate, poor, and very poor Site Indices, organized by Biogeoclimatic zone, subzone, and variant are presented in Table 2, Section 5.0 Methodology of the Land Use Plan.

As a result of decreased growth productivity, smaller size and lower volume per hectare of timber, and more broken, difficult terrain for harvesting, the majority of the timber considered ecologically appropriate for timber harvest operations grows on the lower elevations, less than 40% slope, and are economically appropriate only for timber harvesting operations that are conducted with ground-based harvesting systems (Philpot personal opinion).

Due to the predominance of poor to very poor Site Indices, deep snow packs, and cold climate, the length of time to regenerate a harvested cutblock will be very long. It is estimated that growth from time of harvest to become a replacement forest of similar values will be not less than 150 years, and possibly in excess of 200 years.

Currently, there are no sawmills or other infrastructure for processing harvested timber within or closely adjacent to the Upper Nass Lax Yip. Trucking distances to current markets are long and the road conditions tend to be slow. Additionally, current marketing of harvested timber focuses on overseas exports of sawlogs; lower value products are abandoned or burned as waste, contributing to Climate Change.

Climate Change/global warming is a reality. Increasingly, scientific research is providing evidence that the global climate is warming, caused at least in part by the release of greenhouse gases (GHG) as a result of human activities. A real potential exists for global warming to increase to levels that will have catastrophic consequences for all life on our planet. An increasing number of scientists worldwide agree that greenhouse gas emissions must be controlled and reduced by 2050 in order to avert worldwide catastrophe. Carbon in the forest is stored in three separate pools; living biomass, deadwood and organic forest floor, and the forest soils. Carbon is released into the atmosphere through decomposition of forest organic matter and release of stored carbon gas from disturbed forest soils.

Natural disturbances such as wildfire, windthrow, insects and disease, and human disturbance such as timber harvesting, result in death of trees, decomposition of organic matter, exposure and disturbance of forest soils, and release of greenhouse gases into the atmosphere.

The forests of the Upper Nass LUP area are classed to a large extent as Natural Disturbances Types 1 and 2; stands with rare or infrequent natural events that result in death of large areas of forest. The lower elevations in the drier eastern part of the Upper Nass Lax Yip are classed as Natural Disturbance Type 3; stands with frequent natural events that do result in death of large areas of forest. Additionally, the majority of the plan area forests are comprised of relatively long-lived species such as hemlock, balsam, and spruce. Thus, the forests of the Upper Nass Lax Yip have great potential for carbon uptake and storage.

The choices that are made regarding forest management and utilization of harvested forest products can have positive or negative effects on the amount of carbon sequestration and storage by our forests. Properly done, management techniques that maximize carbon storage both in the forests and in forest products, can significantly contribute to counteracting greenhouse gases elsewhere in society.⁸⁰

⁸⁰ Information provided in the preamble, objectives, and strategies regarding Climate Change has been adapted from: Hansen, J. (2009). *Storms of my grandchildren*. New York, USA.

Parfitt, B. (2010). *Managing BCs forests for a cooler planet*. Canadian Centre for Policy Alternatives: Vancouver.

Table 20**Estimated Total Area and Volume of Timber Within Land Use Plan Area Ecologically Appropriate for Harvest Operations**

Lax Yip (Territory)	Wilp (House)	Area (Hectare)	Estimated Merchantable Volume per Hectare	Total m³
Gwin Hagiisdixw	Delgamuukw	12,314.4	275	3,386,460
Dam Tuutskwhl Ax	Wii Minosik	5,703.5	275	1,568,462
Xsi Luu Biiyoosxwit	Djogaslee	5,407.3	275	1,487,007
Xsi Luu Wit Wiidit	Niist	8,050.1	275	2,213,778
Miin Lax Mihl	Xhliiyemlaxha	4,014.8	275	1,104,070
Xsi Lax Uu Andoo o	Luus	724.4	275	199,210
Taax Tsimihl Denden	Niist	2,288.8	275	659,945
Angodjus	Baskelaxha	1,810.8	275	497,970
Total		40,425.2	275	11,116,930

Note: These figures are estimates, based on air photograph interpretation, and are included here to provide an overview of the potentially available timber resource within the Upper Nass LUP planning area.

To date, there has been timber harvesting only along the western edge of the Upper Nass LUP area. The remainder of the plan area has been considered several times for timber harvest potential, but always rejected as a potential operational area due to high cost of difficult access, long distances from markets, and low growth potential; insufficient incentives to justify investment in sustainable forest management.

Upper Nass Simigyey and Wilp member concerns relating to timber include:

- That the operable land base area of the Upper Nass Lax Yip will be based primarily on economic criteria, not on ecologic considerations, and will be over-estimated, resulting in an over-estimated Allowable Annual Cut determination by Ministry of Forests that will not be ecologically sustainable over time
- The concern that the Allowable Annual Cut determination will be based on the full timber profile within the area considered ecologically appropriate for timber harvest, but the actual harvest will be concentrated in the highest quality and lowest operating cost stands, with the result that the remaining forest will become progressively of lower quality and higher harvesting cost, and lower economic viability. This approach does not maintain a sustainable forest industry, and will be detrimental to the long-term economic and social health and stability of local communities
- That harvesting of the timber resource will be economically marginal, resulting in poor forestry harvesting practices implemented in an attempt to maximize profits and inadequate long-term silviculture practices failing to ensure sustainability of the timber resource

- The rate at which timber harvesting could occur within the Upper Nass Lax Yip that would result in severe negative impacts to water quality, fish and wildlife habitat, Upper Nass cultural resources, and Upper Nass ability to exercise Aboriginal Rights for hunting and harvest of sacred foods and medicines
- The lack of consultation with the Upper Nass Simigiyet by the Province and forest licensees regarding timber harvesting within the Upper Nass Lax Yip
- The lack of opportunity for involvement of Upper Nass Simigiyet and Wilp members in the forest industry
- Long-term loss of large areas of mature and old forest and conversion to deforested lands or to slow-growing young forests that will not replace the forgone carbon storage or the old-growth ecological values for an extended time frame (150+ years)

Management intent (goals) for the Upper Nass Lax Yip timber resource:

- To provide a secure forested land base and a sustainable supply of timber to ensure the long-term viability of the Upper Nass Lax Yip timber resource
- To maintain the economic viability of the forest products industry
- To maintain the health and productivity of forest resources from fire, insects, and disease, and through effective reforestation of harvested areas

Objectives	Measures / Indicators	Targets
<p>1.0 Dedicate and maintain a productive timber-harvesting land base, that promotes an economically sustainable forest industry</p>	<p>1.1 Net area of timber available for harvest.</p> <p>Management Consideration</p> <ul style="list-style-type: none"> • Management of the timber harvesting land base is to consider and respect non-timber resources and maintain Wilp sustainability. • Net area of timber mapped as ecologically appropriate for harvest and the resulting Allowable Annual Cut (AAC) is to apply to the completed Upper Nass LUP; that is, the determined AAC is not to be based on a timber harvesting land base larger than the Land Use Plan area mapped as ecologically appropriate for timber harvest. • There needs to be a thorough economic and ecological analysis completed prior to investment in an Upper Nass Lax Yip Timber Supply Review and AAC determination. 	<p>Identify and maintain</p>
<p>2.0 Manage the forest harvest to represent the timber quality and terrain</p>	<p>2.1 Stands harvested with age greater than 250 years.</p>	<p>Proportionate to occurrence within the area mapped as ecologically appropriate for</p>

profile		harvest, on each individual Wilp
	2.2 Stands harvested on slopes greater than 35%.	Proportionate to occurrence within the area mapped as ecologically appropriate for harvest, on each individual Wilp
	<p>Management Considerations</p> <ul style="list-style-type: none"> For purposes of harvesting the timber profile, the area considered to be ecologically appropriate for harvest will be as presented on the Upper Nass LUP Ecological Resource Zonation map. Timber harvest will represent the timber quality and terrain profile of each individual Wilp to the extent possible, as determined by timber type and quality, market prices and operational costs, and remain at the discretion of the licensee. The intent is to harvest the profile, while retaining opportunities for the economic viability of the licensee. Monitor the terrain and timber profile harvested. Performance in harvesting the profile as averaged over a five- year period should be submitted to the Chief Forester together with a recommendation that the harvesting performance be considered in future AAC determinations. Where multiple licensees operate on the same land base, monitoring and reporting should be co-ordinated to cumulatively achieve the harvest of the timber profile of the individual Wilps. Consider utilizing silviculture systems of selection and small patch cuts/group selection, of variable size openings 0.1 hectare to 5 hectare, that most closely resemble natural opening sizes within the forest ecosystems. Consider long rotations (for example, 150+ years) that will more closely conform to the low growth potential of the Upper Nass forest sites and climates. 	
Objectives	Measures / Indicators	Targets
3.0 Maintain the long-term health and site productivity of	3.1 Long-run sustained yield.	Maintain or increase over time
	3.2 Mean annual increment.	Maintain or increase over time

<p>the timber harvesting land base</p>	<p>Management Considerations</p> <ul style="list-style-type: none"> • Implement silvicultural systems and treatments to realize overall productivity within the timber-harvesting land base. • Consider local forest pests and diseases (e.g. lodgepole pine vulnerability to dothistroma needle blight, subalpine fir vulnerability to balsam bark beetles, and spruce vulnerability to spruce leader weevils) when restocking sites. • Consider the effects of Climate Change on forest health and site productivity. 	
<p>4.0 Limit conversion of the available productive forest land base for non-timber purposes.</p>	<p>4.1 Area permanently removed from the productive forest, for purposes other than timber harvesting.</p>	<p>Minimize</p>
<p>Management Considerations</p> <p>It is recognized that some conversion will occur; this will be addressed on a case-by-case basis. Examples of conversion include, but are not limited to, agriculture, the establishment of utility corridors, establishment of industries that clear forest land for short-term resource extraction and then leave the land in a condition that cannot be effectively reforested.</p> <p>Efforts should focus on minimizing duplication of access by other resource sectors (e.g. shared use of logging roads by the mining sector).</p> <p>Rationale for 3.0 and 4.0</p> <p>A sustainable forest industry is dependent upon a sustainable timber supply, which in turn is dependent upon maintenance of the health, functions, and land base of the ecosystems that support the timber resource; long-term site productivity to grow timber products requires a land base of healthy, functioning ecosystems.</p>		

Objectives	Measures / Indicators	Targets
<p>5.0 Dedicate forest land reserved from timber harvest to store and sequester carbon for mitigation of Climate Change and to contribute towards old growth forest retention of biodiversity values</p>	<p>5.1 Percentage of forest reserved from timber harvest that is applied to mitigation of Climate Change and management of old growth biodiversity values</p>	<p>100%</p>
	<p>Management Consideration</p> <p>The intent of the objective and measure is not to reduce the ecologically appropriate timber harvesting land base, but to dedicate and utilize forest area that is reserved or constrained from timber harvest to contribute to carbon sequestration and storage goals, to contribute to retention of old growth forests, and to generate revenue to local economies through generation of carbon credits.</p> <p>Rationale for Objective 5.0</p> <p>The intent is not to reduce the ecologically appropriate timber harvesting land base but to utilize the forest area that is reserved or constrained from timber harvest and other industrial developments, to contribute to carbon sequestration and storage goals, and to protect old growth forests and maintain old growth forest biodiversity at a medium or lower risk to ecosystem integrity and function.</p>	

Appendix F

Recommended Management Strategies to Achieve the Target for Retained Productive Pine Mushroom Habitat

Currently, there is no mapping that clearly identifies the location and total hectares of pine mushroom habitat within the Upper Nass Lax Yip Land Use Plan area. Therefore, until mapping and identification of location and area (hectares) of Productive Pine Mushroom (PPM) habitat occurs, no definitive target area of PPM habitat can reasonably be established.

In order to achieve the stated target objective of “not less than 50% PPM retained habitat,” the Upper Nass LUP presents the following stand-level strategies to be implemented by all forest licensees that desire to harvest timber within the Upper Nass Lax Yip.

Stand-level Strategies⁸¹

Every forest licensee that harvests timber within the Upper Nass Lax Yip will be individually responsible to identify, map, and record in a database, the presence of Productive Pine Mushroom sites within every cutblock where PPM exist that the Licensee harvests.

Retention or harvest of PPM polygons will be designed at the stand level within every proposed cutblock that contains PPM sites, at the time of cutblock engineering and assessment, utilizing the following criteria. The results of the designed pine mushroom retention and harvesting within the cutblock will be provided to the Upper Nass Simgiyet and will be a subject for meaningful consultation between the Upper Nass Simgiyet and the forest licensee.

- The “50% or greater PPM site retention” objective will be implemented through time on an annual basis, achieving the 50% or greater retention target annually to the extent possible.
- The “50% or greater PPM site retention” will be achieved on a two-year periodic basis.
- If the cumulative percentage of PPM site area retention drops below 50% by the end of any two-year period, no further harvest of PPM sites may occur until the level of mapped retention is greater than 50%.
- Every forest licensee that harvests timber from PPM sites will be considered individually responsible to achieve the “50% or greater PPM site retention” within the two-year period, on all cutblocks that the licensee harvests.
- Design of PPM polygon retention within individual cutblocks will focus on retention of full PPM polygons in one cutblock and harvest of full polygons in another block, to the extent possible. The intent is to retain larger polygons to maintain ecological function of the ecosystem, as opposed to fragmenting the PPM polygons by harvesting 50% of each polygon.
- Design of retention within individual cutblocks will focus on retention of larger PPM polygons and harvest of smaller PPM polygons.
- A forested buffer not less than 15 meters width will be maintained surrounding each PPM site to provide wind firmness and to maintain the site conditions of moisture, temperature, and light. Buffers will be greater than 15 meters width as required. Research indicates that buffers exceeding 15 meters width may be required on a site-specific basis around then smaller PPM polygons to maintain ecological conditions favourable for production of pine mushroom.

⁸¹ Forest Stewardship Plan Supporting Documents, with permission from the Gitanyow Huwilp Society. (2017). *Forest Stewardship Plan for the Gitanyow Huwilp Society in the Skeena-Stikine Forest District, Supply Block G*

- It is recommended that, when retaining two or more smaller PPM polygons in close proximity, these polygons be combined to form one larger polygon protected within a single functional buffer.
- Design of cutblock retention of PPM sites will consider retention of PPM sites that are currently well used by mushroom pickers.
- It is recommended that the initial cutblocks that contain PPM polygons retain 100% of these sites in order to start the Forest Licensee operations with a positive balance of PPM site retention. Additional cutblocks will include design of PPM polygon harvest to move toward equal to or greater than the 50% or greater target PPM polygon retention.
- When new PPM polygons 0.3 hectare or greater in size, not captured in the original overview mapping, are identified during cutblock engineering, these sites will be mapped, recorded, and incorporated into the PPM polygon retention system.
- Harvest of cutblocks in forests of younger than 80 years that support PPM polygons will retain greater than 50% of the area of PPM polygons, even though the forest is less than 80 years of age, and the details of retention and harvest will be recorded in the PPM site database.
- The criteria for retention of area of PPM polygons within stands less than 80 years age will be the same as for stands 80 to 200 years of age, that is, full PPM polygons, large PPM polygons, protective buffers, currently unmapped PPM polygons etc.
- Information recorded and mapped in the database regarding the PPM polygons located within each cutblock engineered and assessed will include:
 - the area (mapped and hectares) and site series of each PPM polygon as determined by ground-truthing during cutblock engineering and assessments
 - the stand age at the time of cutblock engineering and assessment
 - the mapped and hectares area of each assessed PPM polygon that will be retained during the cutblock harvest
 - the mapped area (hectares) of each assessed PPM polygon that will be harvested during the cutblock harvest.
 - the area (mapped and hectares) contained within the protective buffer that surrounds the PPM polygon within each engineered cutblock.

9.9 Mineral and Coal Resources

The Upper Nass Lax Yip Land Use Plan (LUP) area sits on a geologic formation called the Bowser Basin. According to province-wide resource assessments performed by the BC Geological Survey (BCGS) in the 1990s, the majority of the Upper Nass LUP area has low potential for metal (e.g., copper, gold, silver) and industrial (e.g., sand, gravel) mining development.⁸² Ownership and jurisdiction held by each respective Simoogit over their respective Lax Yip extends beneath the ground level to include subsurface mineral and water resources.

The Upper Nass LUP area does, however, contain a portion of the Groundhog coalfield, and exploration for coal mining potential has been active in this region for numerous decades. At least two locations for potential coal mining – Panorama North and Panorama South, located in the vicinity of Panorama Lake – are currently identified and receiving active exploration interest from mining companies. Coal quality in the Upper Nass LUP area ranges from semi-anthracite to anthracite in quality, which has the potential to be used in steel-making. Exploration efforts to

⁸² Kilby, W.E.. (2004). *The British Columbia Mineral Potential Project 1992-1997*. Geofile 2004-2.

date have primarily envisioned using surface (i.e., open-pit) as opposed to underground mining methods to extract these coal deposits.⁸³

There are currently no major mining operations within the Upper Nass Lax Yip. The establishment of additional transportation infrastructure would likely be needed to support the development of an operational mine.

Some mining will play a role in the global transition to more renewable energy sources; however, coal mining – particularly thermal coal mining – has already played a detrimental role in the rapid acceleration of global Climate Change. Additionally, large-scale mining and other extractive industry has resulted in high adverse impacts to the water and land throughout BC, such as to the Elk River, Taku River, and Quesnel Lake watersheds.

Concerns of the Upper Nass Simigiyet and Wilp members regarding mineral tenures and mining:

- Upper Nass Simigiyet are concerned that monetary economic values will be treated as more important than environmental and cultural values in the pursuit of mineral and coal extraction
- Upper Nass Simigiyet are concerned that development of mining, including the establishment of roads and other transportation corridors, may harm lakes and rivers, forests and other plants, fish and wildlife, traditional food sources, traditional use areas, and sacred/cultural sites
- Upper Nass Simigiyet are concerned that the majority of staked mining claims are situated within terrain that is deemed not ecologically appropriate for industrial development on the Upper Nass LUP maps, due to steep terrain, many streams, and high value wildlife habitat (as stated in Section 5.0, Methodology of Upper Nass LUP Preparation)
- Upper Nass Simigiyet are concerned that insufficient engagement and consultation regarding mineral and coal development on the Upper Nass Lax Yip will take place. Particular concerns include that consultation will not begin early enough (i.e., at claim-staking), will not be thorough enough during early stages of development (e.g., during exploration), and that the Simigiyet will not have enough time or capacity (in terms of financial capacity or technical expertise) to effectively engage on mining-related proposals
- Upper Nass Simigiyet are concerned that Upper Nass Simigiyet and Wilp members will not be able to exercise inherent and legally recognized rights to decide if, where, and how mining takes place within the Upper Nass Lax Yip
- Upper Nass Simigiyet are concerned that Upper Nass Simigiyet and Wilp members will not receive appropriate economic benefits (via employment, revenue-sharing, business opportunities, or other mechanisms) of mining on the Upper Nass Lax Yip
- Upper Nass Simigiyet are concerned that mining-related activities will not be properly reclaimed and that insufficient bonds will be held by the government of British Columbia to pay for environmental clean-up

⁸³ MINFILE reports, COALFILE reports, and NI 43-101 Technical Reports obtained from MapPlace2 (British Columbia Geological Survey). British Columbia Geological Survey. (n.d.). *MapPlace2*. <https://www2.gov.bc.ca/gov/content/industry/mineral-exploration-mining/british-columbia-geological-survey/mapplace>

MINFILE reports, COALFILE reports, and NI 43-101 Technical Reports obtained from Mineral Titles Online (British Columbia Mineral Titles Branch). British Columbia Mineral Titles Branch. (n.d.). *Mineral Titles Online*. Retrieved from <https://www.mtonline.gov.bc.ca/mtov/home.do>

Management intents (goals) of the Upper Nass Simgigyet for mineral and coal resources:

- To explore the potential for an economically viable mining industry that provides long-term economic and social benefits to the Upper Nass Simgigyet and Wilp members, *and* that protects Upper Nass ecological and cultural values
- To guide decisions related to mining according to Upper Nass visions, customs and traditions, and Ayookw (traditional law)
- To establish clarity regarding if, where, and how proposed mining activities will be assessed and supported to proceed by the Upper Nass Simgigyet and Wilp members

Objectives	Measures/Indicators	Targets
<p>1.0 Manage <u>all</u> mining-related activities to achieve Upper Nass Simgigyet management intents and objectives</p>	<p>1.1 Mining-related activities to which the targets in this chapter are applied</p>	<p>All</p>
	<p>Management Considerations:</p> <p>The term “mining-related activities” is intentionally defined broadly, including even activities that do not require permit applications (e.g., claim-staking and non-mechanical exploration) and/or do not trigger advanced regulatory oversight (e.g., small mines that do not meet provincial or federal Environmental Assessment thresholds).</p> <p>Some targets may not apply in some circumstances; consultation/consent requirements and environmental and social oversight will increase as the mining activity expands and/or advances.</p> <p>Rationale for Objective 1.0</p> <p>The intent of this chapter is to address mining on the Upper Nass Lax Yip from start (i.e., prospecting) to finish (i.e., reclamation and post-closure). It is made explicit here that the LUP targets apply to all mining-related activities because this approach differs from provincial obligations and/or standard practices currently being applied to some mining-related activities (such as claim-staking).</p>	

<p>2.0 Engage in mutually beneficial and respectful relationships, and exercise inherent, traditional, and legally recognized rights</p>	<p>2.1 Mining-related activities that proceed without first being subject to meaningful consultation with the Upper Nass Simgigyet</p>	<p>None</p>
	<p>Management Considerations:</p> <ul style="list-style-type: none"> • Please refer to Chapter 9.1 (Consultation) of this Land Use Plan for greater discussion of what is meant by “meaningful consultation”. • Consultation should be initiated at the earliest stage – well before the mining-related activity in question begins, including prospecting, and before permit or authorization applications are submitted. 	

of the Upper Nass Simgigyet and Wilp members regarding mining activities on the Upper Nass Lax Yip	<ul style="list-style-type: none"> • Consultation is an iterative and ongoing process that should occur with any newly proposed mining-related activities and any substantive changes/amendments to previously proposed activities. • Please refer to Appendix A for consultation protocols and considerations specifically related to mining on the Upper Nass Lax Yip. 	
	2.2 Mining-related activities that proceed without first receiving the free, prior, and informed consent (FPIC) of the Upper Nass Simgigyet	None
	<p>Management Considerations:</p> <p>Granting of FPIC is not guaranteed and may be conditional on meaningful consultation, shared agreements, and adherence to the rest of the targets in this chapter and to the LUP overall.</p> <p>FPIC should be sought and issued before permits or authorizations are applied for, and provincial/federal permits and authorizations should align with the parameters within which FPIC has been provided.</p> <p>Consent is iterative, and may be withdrawn. Consent for one mining-related activity can open the door for further advancement of that activity, but does not guarantee it. Ongoing consent will be contingent on compliance with shared agreements and permits, and the continued absence of unacceptable social, cultural, or environmental risks and impacts (as deemed by the Simgigyet).</p>	
	2.3 Mining-related activities proceeding on the Lax Yip that have unacceptable and/or irreparable adverse impacts, as deemed by the Simgigyet	None
	2.4 Mining-related activities proceeding on the Lax Yip that are subject to independent review, as deemed necessary by the Simgigyet	All
	<p>Management Considerations:</p> <p>Independent review should be conducted by qualified experts external to industry and government, as chosen by the Simgigyet.</p> <p>Independent review may cover topics such as mine design; social, economic, and environmental impact assessment; environmental and social mitigation measures; geochemical assessment and materials management; water management; waste facility design and management; reclamation plans and liability estimates; and identification of potential or actual mine-related environmental impacts, including independent analysis of monitoring data.</p>	
3.0 Maximize benefits of mining-related development to the Upper Nass people, and	3.1 Mining-related activities subject to shared, formal agreement between Simgigyet and proponent, when deemed necessary by the Simgigyet	All
	<p>Management Consideration:</p> <p>Agreements should be consent-based.</p>	

<p>ensure adherence to appropriate protocols</p>	<p>Agreements may cover topics such as recognition of Gitxsan Aboriginal Rights and Title, recognition of Upper Nass decision-making authority, scope of the mining-related activities covered by the agreement, communication and information-sharing protocols, provision of funding and other assistance to support Upper Nass Simigiyet and Wilp member engagement, revenue-sharing and other financial benefits, employment and other economic opportunities, training and education, co-management protocols, impact mitigation and monitoring commitments and protocols, reclamation and financial security, and conditions of access to explore and develop on the Upper Nass Lax Yip.</p> <p>Rationale for Objectives 2.0 and 3.0</p> <p>The intent is to recognize the decision-making authority of the Upper Nass Simigiyet and Wilp members regarding access to, and activities on, the Upper Nass Lax Yip, as well as to provide certainty regarding how mutually beneficial relationships and responsible development will be navigated, and how benefits of mining-related activity on the Lax Yip will be distributed.</p>	
Objectives	Measures/Indicators	Targets
<p>4.0 Ensure mining development is planned and carried out to protect ecological, social, and cultural values</p>	<p>4.1 Mining-related activities that are planned and carried out to prioritize safety over cost and other economic considerations</p>	<p>All</p>
	<p>Management Considerations:</p> <ul style="list-style-type: none"> Less adversely impactful practices and technologies should not be dismissed for financial reasons, or because they are higher cost; preservation of Upper Nass environmental, social, and cultural values must remain the ultimate priority. Following recommendation by the Mount Polley Independent Expert Panel, echoed by the United Nations Environmental Program, “Safety attributes should be evaluated separately from economic considerations, and cost should not be the determining factor.”^{84,85} Prioritizing safety over cost will contribute directly to adhering to an appropriate mitigation hierarchy (see next target). 	
	<p>4.2 Mining-related activities that are planned and carried out to first prevent all avoidable impacts, and then to mitigate all unavoidable impacts</p>	<p>All</p>
	<p>Management Considerations:</p> <p>Conducting full and transparent alternatives analyses for all mining-related infrastructure and management approaches will assist in achieving this target.</p>	

⁸⁴ Independent Expert Engineering Investigation and Review Panel. (2015) *Report on Mount Polley Tailings Storage Facility Breach*. Page 125.

⁸⁵C. Roche et al. (Eds.). (2017). Page 11.

	<p>Design choices and practices that may help achieve this target include avoiding locating mine infrastructure and mine discharges in the immediate vicinity of communities, sensitive ecosystems, and/or critical fish or wildlife habitat; avoiding impacts and/or physical cross-over into areas identified as not appropriate for industrial operations under this LUP; minimizing the scale of planned mining activities; minimizing road development and other fragmentation of the surrounding environment; maximizing use of existing infrastructure; prioritizing underground mining over open-pit mining; minimizing mine waste production and volume; maximizing waste backfill and avoiding surface waste disposal; maximizing effective source control measures; avoiding long-term and/or perpetual water treatment; and adhering to non-degradation principles for the receiving environment.</p> <p>Impact mitigation planning should be developed up front and updated often, including consideration for impacts that may arise during temporary closures and in late project stages (e.g., closure or post-closure).</p>	
	<p>4.3 Mining-related activities that are planned and carried out to account for and adapt to Climate Change</p>	<p>All</p>
	<p>Management Consideration:</p> <p>Planning should consider potential flooding, drought, heat events, glacial melts, wildfires, and landslides, including the likely increasing scale and frequency of these events. Design choices and practices that may help achieve this target include avoiding disruption of large climate refugia and wildlife connectivity; planning appropriate emergency responses; and ensuring adequate capacity in containment ponds, waste storage facilities, and water diversion structures for extreme rainfall events.</p>	
<p>5.0 Avoid mining-related impacts to freshwater quality and quantity, and aquatic organisms</p>	<p>5.1 Mining-related activities planned and carried out to apply non-degradation principles to affected water bodies and aquatic organisms, especially those deemed culturally or ecologically important by the Simgiyet</p>	<p>All</p>
	<p>Management Considerations:</p> <p>Non-degradation is intended here to mean that there will be no change from background conditions, or no change from the range of natural variability of the environmental indicator in question.</p> <p>Design choices and practices that may help achieve this target include avoiding interaction with or disruption of sensitive surface water and/or groundwater systems; avoiding disposal of mine wastes in natural water bodies; controlling both surface water and groundwater emissions from the mine site; locating mine effluent discharges away from sensitive or critical habitat; limiting discharge volume; avoiding use of initial dilution zones; setting discharge quality targets that will maintain receiving environment</p>	

	<p>conditions within the natural background range; and ensuring discharge quality does not exceed chronic effect thresholds for sensitive aquatic species.</p> <p>Early planning and implementation of effective source control measures is essential for reducing water quality impacts and the need for long-term water treatment. Long-term, detailed water management plans should be developed up front and updated often.</p>	
<p>6.0 Minimize the probability and social and environmental consequences of mine waste storage facility failures</p>	<p>6.1 Mining waste storage that is designed and managed to promote the highest degree of physical safety</p>	<p>All</p>
	<p>Management Considerations:</p> <p>These targets and guidelines should be applied to all mine waste storage, not just tailings facilities.</p> <p>The safest waste facility is one that is not built. For this reason, waste volume minimization and waste backfilling should be strongly prioritized.</p> <p>The highest degree of safety in mine waste facility design will be promoted by not using upstream or modified centreline dam construction methods; designing all waste facilities to withstand the most extreme credible meteorological and seismic events, including events that may become more extreme with Climate Change; designing all waste facilities to minimize failure consequences; implementing conservative factors of safety, strict thresholds for annual probability of failure, and safe embankment slopes; completing detailed evaluations of waste properties (such as acid generating potential) and dam foundations; and modeling worst-case facility failure scenarios, including the complete loss of stored waste and water, during facility design and throughout the lifecycle.</p> <p>The highest degree of safety in facility management will involve, among other things, implementing rigorous adaptive management plans and emergency response plans, regularly updating worst-case facility failure models, disclosing all information relevant to facility safety (including failure models, emergency response plans, and Independent Tailings Review Board reports), and ensuring accountability for facility performance rests with the mine operator’s Board of Directors.⁸⁶</p>	
	<p>6.2 Mine waste storage facilities that are closed and reclaimed, in a timely manner, to eliminate potential modes of failure</p>	<p>All</p>
	<p>6.3 Tailings facilities that are designed to eliminate water content in and on tailings</p>	<p>All</p>
	<p>Management Consideration</p> <p>Paste, thickened, and especially filtered tailings should be used rather than wet tailings, and water covers should be avoided (preferably</p>	

⁸⁶ J. Morrill et al. (2020). *Safety First: Guidelines for Responsible Mine Tailings Management*
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	entirely, but at least at mine closure), unless it is demonstrated via a comprehensive alternatives assessment that the use of wet tailings and a permanent water cover poses the least long-term environmental, financial, and public safety risk. ⁸⁷	
7.0 Ensure effective and transparent assessment of environmental conditions and management of mining-related impacts	7.1 Mining-related activities that include a robust and responsive environmental monitoring program, as approved by the Simigiyet	All
	<p>Management Considerations:</p> <p>The scale of environmental monitoring required will depend on the scale and/or risk associated with the mining-related activity.</p> <p>Generally, environmental monitoring programs should incorporate traditional knowledge, collect adequate baseline data (at least 5 years monthly sampling is recommended for many indicators), design sampling programs based on observed natural variability and an assessment of statistical power required to detect change over time, implement consistent sampling structure (i.e., frequency and timing) to avoid biased sampling, set conservative trigger levels and effect thresholds (either no-change thresholds that reflect natural background conditions or chronic effect thresholds for sensitive species obtained from the best available science – even if those thresholds are more stringent than provincial or federal guidelines), and perform additional mitigative measures and follow-up monitoring if thresholds or trigger levels are surpassed.</p>	
	7.2 Mining proponents who support and enable Indigenous Guardian programs, wherein Upper Nass Wilp members perform environmental monitoring and site inspections, as deemed necessary by the Simigiyet	All
	7.3 Mining proponents who share, in a timely manner well prior to commencement of any work on the mine site and on an ongoing basis, all environmental management plans, monitoring plans, and monitoring data and analysis with the Simigiyet	All
	<p>Management Consideration</p> <p>Monitoring information should be provided in multiple forms, including raw data and written and graphical summaries of results.</p>	
8.0 Ensure all mining-related development is appropriately reclaimed, mine-	8.1 Mining-related activities where all unavoidable impacts (including unanticipated impacts) are fully remediated, at the proponent’s expense, using best practices and within a reasonable time frame, as agreed upon by the Simigiyet	All

⁸⁷ This direction follows recommendations made in the Mount Polley Independent Expert Panel Report. (*Report on Mount Polley Tailings Storage Facility Breach* [2015.] Independent Expert Engineering Investigation and Review Panel.)

<p>related disturbance is appropriately restored, and that proponents maintain full financial responsibility for environmental clean-up</p>	<p>Management Considerations:</p> <p>Full remediation will involve restoration of land, water, and other resources to natural levels of productivity, or to the Simgiiget’s desired land-use objectives.</p> <p>Detailed closure, reclamation, and post-closure planning, including measurable and enforceable reclamation criteria, consented to by the Simgiiget, should occur prior to mining-related activities proceeding.</p> <p>Best practices for mine reclamation may include progressive reclamation, backfilling mine workings, draining wet tailings at closure, eliminating potential modes of failure at waste storage facilities, avoiding the need for long-term or perpetual water treatment, revegetating with native species blends, decommissioning unnecessary roads, restoring surface flow patterns, and developing ecosystem restoration goals with measurable criteria to determine if goals are attained.</p>	
	<p>8.2 Mining-related activities that maintain financial assurances for the full cost of site closure, post-closure, and any unanticipated environmental damages</p>	<p>All</p>
<p>Management Considerations:</p> <p>Reclamation bonding should be based on third-party costs, include long-term costs (e.g., post-closure monitoring and water treatment), and be updated regularly and with any significant changes to mining activities.</p> <p>The reclamation bond amount and any return of bonds to the proponent should be approved by the Simgiiget.</p> <p>Proponents should take all efforts, as deemed satisfactory by the Simgiiget, to acquire insurance and/or secure financial mechanisms to cover social and environmental costs resulting from accidents or disasters.</p> <p>Rationale for Objective 8.0:</p> <p>The intent is to promote long-term ecological integrity through ecosystem restoration, which may require additional considerations beyond provincial reclamation standards.</p> <p>The intent is additionally to incentivize environmentally responsible practices, avoid abandonment of reclamation obligations, and ensure accidents or disasters are properly cleaned up with damages being sufficiently compensated for.</p>		

<p>9.0 Ensure the contributions of mining-related activities to cumulative effects on the Upper Nass Lax Yip are adequately assessed and managed</p>	<p>9.1 Mining-related activities that, when proposed, include assessment of the proposal’s contribution to cumulative effects</p>	<p>All</p>
	<p>Management Consideration:</p> <p>All stages of mining development (from exploration to post-closure) and all associated infrastructure (e.g., roads, railways, stream crossings, etc.) need to be considered in cumulative effects assessments.</p> <p>Cumulative effects assessments must incorporate past, present, and reasonably foreseeable future human actions, using the natural background conditions of the area as a baseline from which to assess effects.</p>	
	<p>9.2 Mining-related activities wherein detailed records regarding extent of disturbance, level of reclamation, and reclamation effectiveness are maintained and shared regularly with the Simgigyet</p>	<p>All</p>

Appendix G: Upper Nass Consultation Topics and Protocols for Mining-Related Activities

Consultation involves meaningful discussion, information exchange, and negotiation between the Upper Nass Simigiyet and the Development Proponent. Chapter 9.1 regarding Consultation sets out the broad framework for consultation under the Upper Nass LUP; this Appendix H is supplemental to the provisions under Chapter 9.1 and sets out mining-related consultation protocols that must be regarded in addition to the provisions under Chapter 9.1. A variety of topics may be addressed through consultation, depending on the details of the proposed mining-related activities and on the stage of the project. Some of these topics may include:

- Sharing by the proponent with the Simigiyet of all information relevant to the proposed or ongoing mining-related activities, which may include (but is not limited to) historical site information, planned activities and related assessments, inspection and compliance records, reclamation reports, and environmental monitoring reports and data
- Proposed activities and workplan, including methods of surveying, sampling, or extraction, location and design of any required project and/or supporting infrastructure, and methods of waste and water management and treatment
- Sharing by the Simigiyet with the proponent of Upper Nass Huwilp priorities, values and overall vision for the Lax Yip, as well as any information, as needed and appropriate, related to the presence and location of Upper Nass ecological and cultural resources
- Financial or other support required by the Upper Nass Simigiyet to effectively engage in consultation and decision-making related to the project
- Discussion of how the proposed activities can align with long-term conservation and sustainability goals held by the Simigiyet and the overall vision for the respective Wilp Lax Yip and Wilp members
- Necessary information-gathering related to Upper Nass land, ecological, and cultural resources potentially affected by the project (e.g., environmental baseline studies and ongoing monitoring, archaeological studies, traditional use assessments, etc.)
- Economic and environmental assessments related to the project
- Assessments of alternative methods of designing and conducting the proposed activities
- Execution of independent expert reviews and incorporation of recommendations resulting from independent reviews
- Procurement, employment, and other economic opportunities for the Upper Nass Wilp members
- Integration of traditional knowledge
- Timing and method of site access (both by land and aerially)
- Protocols for site care and clean-up and impact mitigation during all phases of the mining-related activities, including temporary closures or pauses
- Social and environmental impact mitigation and monitoring
- Environmental management plans
- Reclamation plans and financial security
- Risk of accidents and failures, including potential environmental and economic damages
- Emergency response plans
- Material changes to any information or activities already discussed, including (but not limited to) expansions or progressions in the stage of the project and any challenges or changes related to impact management strategies

In the event that Upper Nass Simigyet require funding to enable effective engagement, or to hire external experts to enable informed decision-making, it is expected that proponents will provide this financial support.

It is additionally expected that proponents will listen to Upper Nass Simigyet concerns, and integrate into their plans measures to recognize, respect, manage, conserve, and sustain Upper Nass lands, cultural, and natural resources, and to support the long-term goals and vision of the Simigyet Wilp members. These measures will be specific to each proposed activity, but will broadly relate to the location, timing, design, and overall manner of planned activities, as well as the mitigation of any potential harms and the reclamation of any disturbances. Upper Nass Simigyet reserve the inherent right to deny consent for mining-related activities to proceed where they are deemed inappropriate by the Simigyet.

9.10 Cumulative impacts of multiple industries through time

Timber harvesting has occurred within the Upper Nass Lax Yip, focused along the western edge of the Lax Yip. The remainder of the Upper Nass Lax Yip has not yet been the location of timber harvesting operations. To date, timber harvesting has been the only commercial or industrial disturbance within the Upper Nass Lax Yip.

Currently, there is interest in renewing timber harvest operations within the Upper Nass Lax Yip. Additionally, the potential exists for development of commercial and industrial ventures other than timber harvesting. Examples of these potential ventures include minerals and mining, gas and oil, pipelines, powerlines, hydro-electric power projects, tourism, agriculture and grazing leases, etc. These commercial and industrial activities present a high potential to result in increased and cumulative negative impacts to the ecological and cultural resources of the Upper Nass Lax Yip.

Under the present Province of British Columbia government and the government of Canada, administration and regulation of these varied industries are controlled by different government ministries and regulated under different acts of legislation such as the *Forest Act*, *Mineral Tenure Act*, *Water Sustainability Act*, etc.

There appears to be little coordination between government ministries within either government or between the provincial and federal government jurisdictions. As part of the honor of carrying each respective name, the Gitxsan Upper Nass Simigyet each also have the responsibility to act in accordance with Gitxsan Ayookw. The tenets of Gitxsan Ayookw require the land to be managed in a holistic approach designed to result in long-term landscape-level sustainability of the ecological and cultural resources of the Lax Yip.

The Upper Nass Simigyet and Wilp member concerns include:

- That projects from different industries will be regulated under different legislation, administered by different ministries or departments, but applied to the same land base, that is, the Upper Nass Lax Yip
- The individual results of each project may be acceptable under their respective governing legislation and regulations, but when considered with a holistic perspective and combined with other projects from other industries, the cumulative effects may result in negative impacts for the ecological and cultural resources of the Upper Nass Lax Yip
- That government ministries and departments will consider each development project implemented by a given industry under their respective regulations without evaluating the cumulative effects of multiple projects from the same industry or multiple industries, failing to implement a holistic approach to sustainable management of the Upper Nass Lax Yip

Management goal for cumulative effects of multiple industries

It is the requirement of the Gitksan Upper Nass Simgiyet that the cumulative effects of multiple commercial and industrial developments throughout the Upper Nass Lax Yip be quantified, monitored, and managed over time. The intent of this requirement is to ensure that developments are conducted in places and at rates that are ecologically appropriate and will result in long-term sustainability of ecological and cultural resources of the Upper Nass Lax Yip, for the benefit of present and future generations.

Objectives	Measures/Indicators	Targets
<p>1.0 Monitor, record, and manage the cumulative effects of multiple industries to achieve sustainable management of the Upper Nass Lax'yip Land Use Planning area through time, as defined in the Upper Nass LUP Section 2.0 Sustainable Management</p>	<p>1.1 Number of Development Proponents from all industries that conduct meaningful consultation with the Upper Nass Simgiyet regarding proposed work on the Upper Nass Lax Yip prior to initiating any field work on the Upper Nass Lax Yip</p>	<p>All</p>
	<p>1.2 Number of Development Proponents from all industries that fully implement the Upper Nass LUP within the Upper Nass Lax Yip Planning Area</p>	<p>All</p>
	<p>1.3 Number of Development Proponents that fully utilize to the greatest extent possible the infrastructure (roads, bridges, culverts, cleared land etc.) developed by other projects and other industries in order to minimize disturbance to the land, water, and vegetation of the Upper Nass Lax Yip</p>	<p>All</p>
	<p>1.4 Development of a plan by Upper Nass Simgiyet and the Province of British Columbia that considers the cumulative commercial and industrial practices of all industries that are operational within the Upper Nass Lax Yip and includes within the plan:</p> <ul style="list-style-type: none"> • Valued Ecosystem components to be monitored and recorded • Monitoring criteria • Database and recording of monitored results • Short, medium, and long-term impacts of the cumulative impacts of the practices on the valued ecosystem components • Recommendations designed to ensure the long-term sustainability of the ecological and cultural resources of the Upper Nass Lax Yip 	<p>Within three years of completion and Upper Nass Simgiyet completion of the Upper Nass LUP</p>
	<p>Management Considerations</p> <p>The Upper Nass LUP has been developed to protect the most sensitive and culturally valuable areas of each Wilp. The plan is based upon traditional knowledge combined with recent scientific knowledge, and is intended to consider the cumulative impacts of multiple commercial and industrial ventures.</p> <p>Over time, multiple industries will operate within the Upper Nass Lax Yip and will</p>	

	<p>be administered and regulated by numerous British Columbia and Canada ministries and departments under differing legislation and regulations. Development of a functional, effective plan to work and coordinate with multiple industries, government agencies and legislation will require a monitoring plan developed in coordination at the highest government levels.</p> <p>The Upper Nass LUP is intended to apply to all commercial and industrial developments proposed or operational within the Upper Nass Lax Yip. Valued Ecosystem components and targets that can be applied to cumulative effects of multiple industries are presented within this Land Use Plan and include, but are not limited to:</p> <ul style="list-style-type: none"> • the hydrologic stability, peak and low flows, and quality (temperature, turbidity, and chemistry) of the flows of every major valley bottom river as listed within the Land use Plan chapter 3.0 Water Quality and Hydrology • the Equivalent Clearcut Area (ECA) of each ECA watershed shown in the Land Use Plan maps and presented within chapter 3.0 Water Quality and Hydrology • distribution of old, mature, and early seral forest maintained across the landscape, as presented in chapter 4.0 Biodiversity <p>The Province of British Columbia has been working with cumulative impacts of multiple industries and may already have a plan for monitoring, recording, and utilizing information that would be applicable to the Upper Nass Simigiyet. To the extent that such information is available, it should be shared with the Upper Nass Simigiyet.</p> <p>Cumulative impacts from multiple developments may restrict or prevent future developments from occurring, either temporarily or permanently.</p> <p>Rationale</p> <p>Cumulative impacts of multiple industries present a high potential for negative impacts to the long-term sustainability of Upper Nass ecological and cultural resources.</p> <p>Monitoring, assessment, and regulation of the cumulative impacts of all industries combined is necessary to ensure sustainable management of the Upper Nass ecological and cultural resources, ability of the Upper Nass Simigiyet and Wilp members to use their Lax Yip through time for traditional purposes, and to contribute to the mental, emotional, and physical health of the Upper Nass people.</p>
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9.11 Dominion Yukon Telegraph Trail and Recreation Sites

Note: The first four paragraphs of Chapter 9.11 have been provided through verbal discussions with the Upper Nass Simigiyet regarding the contributions of the Upper Nass people to the historic development and use of the Dominion Yukon Telegraph Trail.

For many centuries prior to construction of the Dominion Yukon Telegraph Trail (as well as during and following construction) the Upper Nass people of the Gitksan Nation have occupied the area of the Telegraph Trail as an integral part of the Upper Nass Lax Yip. Gitksan Upper Nass people have inhabited and continue to inhabit and utilize the Upper Nass Lax Yip as they have for thousands of years. The Upper Nass people have established many connected trails throughout the Upper Nass Lax Yip, some of which provided routes that benefitted the development of the Dominion Yukon Telegraph Trail.

In contrast to the relatively few years when the Yukon Telegraph Trail was utilized by explorers and prospectors, the Upper Nass people have inhabited and utilized the land as their Lax Yip for thousands of years. The Upper Nass people assisted the explorers and prospectors by provision of:

- Physical guidance along the trails through the Upper Nass Lax Yip
- Communication of the location of Upper Nass trails that provided direction and transportation through the Upper Nass Lax Yip
- Shelter and access routes for explorers and prospectors during their travels
- Assistance in location and construction of the Yukon Telegraph Line

The Dominion Yukon Telegraph Trail route is rich in ecological, cultural, and heritage history, resulting from:

- Ancient to current history of the Gitksan people of the Upper Nass Lax Yip
- The recent history of the Dominion Yukon Telegraph route explorers, prospectors, and related current events

A section of the historic Dominion Yukon Telegraph Trail, also known as the Yukon Telegraph Trail, approximately 130 kilometers in length is situated within the Upper Nass Lax Yip. The Trail is located along the length of Damdochax, Muskaboo, and Rochester creeks, extending from the Skeena to Bell-Irving rivers.

Historically, construction of the Dominion Yukon Telegraph Trail started in the mid-1800s in order to establish faster and more efficient communications between North America and Europe. By 1866, an excellent trail had been constructed as far north as Telegraph Creek, but the project then ceased and the sections north of Quesnel were abandoned; the trail was not used for a telegraph line but did become a great asset for general access through the northern interior.

The Yukon Gold Rush of 1898 brought many people north searching for gold. The Dominion of Canada completed construction of the telegraph line and trail through to Dawson City, Yukon, by 1901, and the trail remained in use for many years.^{88, 89}

Currently, much of the trail is obstructed by varying densities of brush and wind-felled trees; however, parts of the trail are still used by hikers.

The Dominion Yukon Telegraph Trail is recognized by the Regional District of Kitimat-Stikine as a “trail of heritage significance” throughout the Regional District, and has been registered by the British Columbia and Canadian Registries of Historic Places as a Trail of Historic Significance since 2016. Currently, there are no legal requirements to provide protection and management of the Telegraph Trail as a historic value.

Along the length of the trail through the Upper Nass Lax Yip, there are five Recreation Sites established by the Ministry of Forests. Within the Kwinageese River watershed, there are three additional Ministry of Forests Recreation Sites established under Section 56 of the *Forest and Range Practices Act* (FRPA).

⁸⁸ Ministry of Forests; Kispiox Forest, Hazelton, BC. (Sept. 1995). District *Dominion Telegraph Trail Management Plan*.

⁸⁹ Regional District of Kitimat-Stikine Heritage Register. (2009). *Yukon Telegraph Trail Statement of Significance*.

Concerns of the Upper Nass Simigiyet and Wilp members regarding the established Recreation Sites and the cultural and heritage values of the Dominion Yukon Telegraph Trail include that any commercial or industrial development within or immediately adjacent to the established Recreation Sites and the Yukon Telegraph Trail will damage or destroy cultural and heritage sites and resources of the Upper Nass Lax Yip; heritage significant to the people of British Columbia and Canada, and recreational values for all people of the local area.

Management Plan Goals for Recreational Sites and for Dominion Yukon Telegraph Trail

- To provide adequate protection to retain the function and integrity of the established Recreation Sites;
- To provide adequate protection and management to the Dominion Yukon Telegraph Trail to maintain the heritage significance of the trail;
- To protect and maintain the physical integrity and cultural values of Upper Nass cultural sites situated along the Dominion Yukon Telegraph Trail

Objectives	Measures/Indicators	Tactics
<p>1.0 Maintain adequate protection and management for the Dominion Yukon Telegraph Trail corridor to maintain the heritage significance, visual, and recreational values of the trail that is presented on the Upper Nass LUP – Ecological Resource Zonation Map</p>	<p>1.1 Width of a retained undisturbed forest buffer that encompasses the full length of the trail through the Upper Nass Lax Yip Land Use Plan area, excepting:</p> <ul style="list-style-type: none"> • where road access is required to access timber or other commercial or industrial resources on the other side of the trail that otherwise would be isolated from developments 	<p>Not less than 100 meters either side of the trail, measured from the trail centreline</p>
<p>2.0 Maintain adequate protection to retain the function, integrity, and recreational values of the established recreation sites that are shown on the Upper Nass LUP Ecological Resources Zonation Map</p>	<p>2.1 Width of a retained undisturbed forest buffer that encompasses the full area of each recreational site as established under Section 56 (1) of the Forest and Range Practices Act</p>	<p>Not less than 75 meters on all sides of the Recreational Site legal boundaries, or the full width of the Yukon Telegraph Trail buffer, whichever is greater</p>
	<p>Management Considerations</p> <p>Road crossings through the Telegraph Trail buffer will be permitted where essential for access to resources that otherwise would be inaccessible.</p> <p>Road crossings are to be the minimum number required, located at right angles to the trail or as close to right angles as possible, will remain as narrow as possible, and will be fully deactivated as soon as possible.</p> <p>First Nations cultural sites and artifacts within and immediately adjacent to the trail buffer and recreational site buffers will be preserved and protected as set forth in the Upper Nass LUP or as determined through meaningful consultation with the Ministry of Forests and the Development Proponent working adjacent to the trail buffer or building</p>	

	<p>an access road through the buffer.</p> <p>Allow natural processes (for example, fire, insects, disease) to occur within the retained forest, except where these processes threaten values of resources adjacent to the retained forest, or the recreation, heritage, and education values within the retained forest.</p> <p>The Dominion Yukon Telegraph Trail and the established Recreational Sites identified on the Upper Nass LUP – Ecological Resources Zonation Map, utilize and impact the cultural heritage resources of the Upper Nass Lax Yip, and in turn are supported by and reliant on the ecological resources of our Lax Yip to sustain the recreational, heritage, and cultural values of these mapped sites and trails.</p> <p>The Upper Nass LUP provides objectives, measures, targets, and management considerations intended to sustainably manage through time, across the full landscape of the Upper Nass Lax Yip, the ecological, cultural, and economic resources of the Lax Yip. The Dominion Yukon Telegraph Trail and the Recreational Sites will benefit from the implementation and results of the Upper Nass LUP through the objectives, measures, and targets for water, biodiversity, fish, wildlife etc. The Upper Nass LUP is equally beneficial to the Telegraph Trail and the Recreational Sites as it is to the remainder of the Upper Nass Lax Yip. Everything is connected throughout the landscape by the ecological and cultural resources of the Lax Yip.</p> <p>Rationale</p> <p>The Upper Nass Lax Yip and the surrounding lands of the Upper Nass and the Upper Skeena watersheds currently are pristine wilderness with few roads, dams or industrial developments, and many large and intact watersheds rich in biodiversity, wildlife, varied terrain—literally an intact paradise in comparison to the majority of North America.</p> <p>Upper Nass Simgiyet could potentially develop adventure wilderness tourism and guiding opportunities within an Upper Nass Lax Yip wilderness area. Upper Nass cultural sites, artifacts, natural ecological resources, and cultural knowledge of the Lax Yip could provide valuable educational opportunities on the Lax'yip and relating to the history and culture of the Upper Nass people. The Dominion Yukon Telegraph Trail and the established Recreational Sites could contribute historical assets to supplement the Upper Nass cultural heritage sites, artifacts, wilderness and historic knowledge of the Lax Yip.</p>
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9.12 Climate Change, Carbon Storage, and Biodiversity preservation

Climate Change/global warming is a reality. Increasingly, scientific research is providing evidence that the global climate is warming, caused at least in part by the release of greenhouse gasses (GHG) as a result of human activities. A real potential exists for global warming to increase to levels that will have catastrophic consequences for all life on planet Earth. An increasing number of scientists world-wide agree that greenhouse gasses must be controlled and reduced by year 2050 in order to avert world-wide catastrophe.

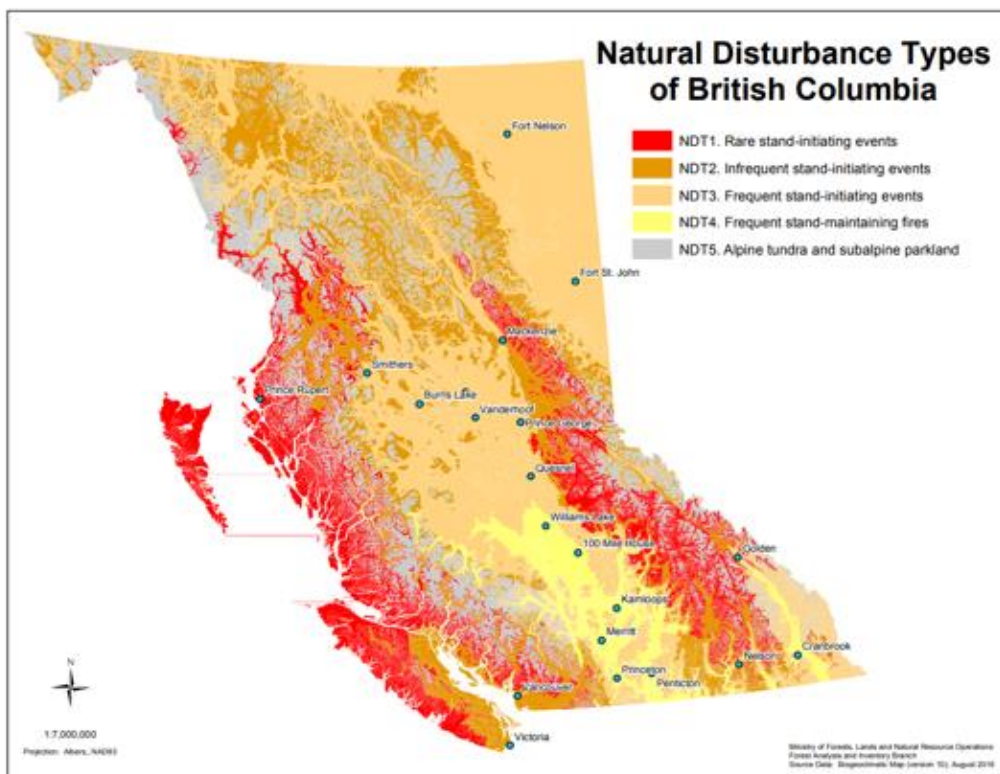
Carbon in the forest is stored in three separate pools: living biomass, dead wood and organic forest floor, and the forest soils. Carbon is released into the atmosphere through decomposition of the forest organic matter and release of the stored carbon gas from disturbed and exposed forest soils.

Natural disturbances such as wildfire, wind-throw, insects, disease, and human disturbance such as timber harvesting and other industrial development result in death of trees, decomposition of organic matter, exposure of forest soils, and release of greenhouse gases into the atmosphere.

The forests of the Upper Nass Lax Yip planning area are classed as Natural Disturbance Types 1, 2, and 3:

1. rare natural events
2. infrequent natural events
3. frequent natural events

See Chapter 9.4: Biodiversity for more complete descriptions of Natural Disturbance Type 1, 2, 3.



The planning area forests are comprised of relatively long-lived species such as hemlock, balsam, pine, and spruce. Thus, our forests have great potential for carbon uptake and storage. Further, the Upper Nass forests are comprised of primarily mature and old forests that are growing mainly in soils classed as poor to very poor site index (growth potential).

In the event of removal or death of the forests by natural causes or by industrial development, it will be a long period of time – estimated at not less than 150 years – and probably 200+ years, before the existing stored carbon and the existing mature-old growth biodiversity values would be replaced by regrowth of forests on these sites. Possibly the timber volume and carbon storage may be replaced within 200 years; the existing old growth biodiversity value may never be fully replaced. Similarly, the old forests contain many Upper Nass cultural values such as cultural sites, hunting and fishing areas and habitat areas as well as medicinal plants that may never be replaced within younger forests.

Historically within British Columbia, timber harvesting, road construction, and sites for industrial developments have focused on valley bottom/lower elevation areas to take advantage of higher volume timber stands, cheaper and easier access routes, and sites suitable for industrial infrastructure. The sites that have been disproportionately targeted for development are also the sites having the greatest impact regarding loss of carbon storage and old forest biodiversity.

The Upper Nass LUP has evaluated and mapped areas of the Upper Nass Lax Yip that are considered to be:

- areas that are ecologically appropriate for industrial development, subject to respecting and following the objectives, measures, and targets of the LUP and the concerns and requirements of the Upper Nass Simigiyet
- areas that are considered not ecologically or culturally appropriate for industrial development

Upper Nass concerns include the impact that timber harvesting and other industrial developments may have on:

- continued Climate Change
- loss of biodiversity values
- loss of cultural values
- quality of life for future Upper Nass generations, and,
- quality of life for the world in general

Management Intent: Plan goals for carbon sequestration and storage

- to utilize the resources of the Upper Nass Lax Yip to provide the greatest short term and long term benefits to the culture, physical and mental health, education, and wellbeing of:
 - current and future generations of Upper Nass people
 - current and future generations of neighboring Gitksan Huwilp and other First Nations
 - current and future generations of all humanity
- to utilize the resources of the Upper Nass Lax Yip in a manner that will maintain or contribute to the maintenance of:
 - the long-term sustainability of the ecological resources of the Upper Nass Lax yip
 - the long-term sustainability of the ecological resources of neighboring Gitksan Huwilp and other First Nations
 - the long-term sustainability of the ecological resources and climate of planet Earth

Maps and notes regarding the objective, measure, and target relating to Objective 1.0:

The stated maps, measures, indicators, and target do not relate to new areas to be protected but provide a summary of the zonations of areas that have been selected and mapped for protection through earlier chapters of the Land Use Plan, and include:

- Water Management Units
- Hydroriparian Zones
- Ecosystem Network Core Reserves
- Ecosystem Network Buffer (retention of ≥70% forest structure and function)
- Areas of High Value Habitat for General Wildlife

Objectives	Measures/Indicators	Targets
<p>1.0 Maintain large areas of mature and old forest to contribute to carbon storage and sequestration, and to preserve biodiversity values</p>	<p>1.1 Percentage of the Upper Nass Lax Yip Land Use Plan area that is recommended for special management dedicated to carbon storage and sequestration, and to retention of biodiversity values as mapped on the Upper Nass LUP Ecological Resource Zonation Map C1.</p> <p>This objective, measure, and target is intended to apply to all industrial development, and is not limited only to the forest industry.</p>	<p>100%</p>
<p>Management Considerations Within the lands designated as appropriate for industrial development, consider the current low volume of timber and the poor to very poor site indices (growth potential), and consider extended rotations that increase the length of growing period to raise the values of carbon retained on site, as well as increase the volume and value of the timber resource.</p> <p>Rationale</p> <p>Everything is connected through the climate across the planet</p> <p>Criteria utilized to determine whether or not the lands are ecologically appropriate for industrial development are presented in Section 5.0 of this Upper Nass LUP</p>		

9.13 Formalized Indigenous Protected Areas under the Upper Nass Lax Yip Land Use Plan

Wii Minosik Protected Area:

Refer to Upper Nass LUP Map P1 – Wii Minosik Protected Area

The Upper Nass LUP sets out various requirements for protection and conservation of a multitude of values present within the Upper Nass Lax Yip. Some protection measures within the LUP are spatial, meaning they apply to a specific area, and other protection measures are non-spatial in that they follow a specific value throughout the Lax Yip regardless of spatial location.

In addition to areas that have been spatially identified as not suitable for industrial development, the Upper Nass LUP hereby establishes an Indigenous Protected Area known as Wii Minosik Protected Area that encompasses riparian areas, culturally significant places, and critical wildlife habitat associated with Damdochax Lake (also known as Blackwater Lake) and the Damdochax River valley (also known as Blackwater River). Wii Minosik Protected area extends from the existing northern boundary of Damdochax Protected Area (designated by the Province of BC) on both sides of Damdochax River downstream to the confluence of the Damdochax River and the Nass River. Wii Minosik Protected Area builds upon the existing Damdochax Protected Area, holding the common goal of conserving biological diversity associated with undeveloped ecosystems (especially transitional ecosystems such as the Damdochax corridor) and protecting Gitxsan Cultural features and values.

An important historic village site is encompassed by Wii Minosik Protected Area in addition to the rich array of flourishing biological resources. Tahm Dutxw Axks Village, also known as Blackwater Village, is a sacred ancestral homeland to people of the Upper Nass and the protection of this site is very important to the Upper Nass Simigiyet, especially to Simoogit Wii Minosik on whose Lax Yip the protected area is situated. Gitxsan Upper Nass cultural features associated with Tahm Dutxw Axks Village are vast and immense.

The Upper Nass Simigiyet support a conservation strategy being pursued to help mitigate the effects of rapidly changing global climate which involves expanding the existing global protected areas network by focusing new candidate conservation areas adjacent to existing protected areas. In this way connectivity corridors between anticipated and/or known areas of refugia can be established thereby retaining opportunities for species to potentially adapt to changing habitat conditions.

Future Protected Areas Under the Upper Nass Lax Yip Land Use Plan:

Continued unobstructed access to wild, healthy, and abundant populations of wildlife and fish for food, social, and ceremonial purposes is a legally protected Aboriginal Right held by Gitxsan Upper Nass people. Fish and wildlife of the Upper Nass Lax Yip, and the habitats these species depend on for survival and adaptation over generations, are inherently tied to the physical, spiritual, and cultural/social wellbeing of Gitxsan Upper Nass people. It is this inextricable connection between Gitxsan Upper Nass people and the Upper Nass Lax Yip that forms the foundation of Gwa Ix Yee'nst; a sacred responsibility and duty of care that includes stewardship of natural systems and resources across generations in perpetuity. As the global climate shifts to extremes yet to be recorded by humanity, forecasting and sufficiently protecting critical emerging habitats of key species such as salmon becomes a primary focus for land and resource stewardship and conservation of biodiversity. The Upper Nass Simigiyet will take a proactive approach to identifying and setting aside protected areas within the Upper Nass Lax Yip for the purposes of conserving the integrated suite of Upper Nass ecological and cultural values into the future.

The Upper Nass Simigiyet will support ongoing research into critical emerging and existing habitats for key species as the Upper Nass Lax Yip Land Use Plan is implemented. Existing protected areas may require expansion or amendment in the future based on the results of research and monitoring. The expansion of existing protected areas is a favored conservation strategy in the context of maximizing the overall value of each hectare of land set aside for protection as well as the provision of crucial connectivity corridors for species adaptation over space and time. It may be the case that future demands of species conservation require the establishment of entirely new protected areas. The Upper Nass Simigiyet will assess conservation needs on an ongoing basis and will take a precautionary approach to conserving biodiversity at the species/genetic level as well as at the ecosystem/landscape level. Given the

unprecedented climate extremes being witnessed across the planet, the Upper Nass Simigyet cannot overstate the importance of anchoring all conservation planning and decision-making relating to the Upper Nass Lax Yip in a precautionary approach that prioritizes biodiversity, ecosystem health, and resilience.

9.14 Future Chapters for Additional Industries

This Land Use Plan has been prepared with the intent to present objectives, measures, and targets designed to achieve specific results throughout the Upper Nass Lax Yip that will:

- Maintain sustainability of the ecological resources of the Upper Nass Lax Yip
- Provide protection to and sustainability of Upper Nass cultural heritage resources
- Accommodate compatible and beneficial resource use in appropriate locations and at rates that will result in and contribute to the sustainability and wise use of Upper Nass ecological, cultural, and heritage resources

Currently, the intent of this Upper Nass LUP is not to produce a manual of practices for multiple industries, but to provide a Land Use Plan that will state the results required from any and all commercial or industrial developments that may occur within the Upper Nass Lax Yip.

Within this Land Use Plan there is a chapter presenting objectives, measures, and targets and management considerations for timber as an industry, because there is an established timber industry functioning within and adjacent to the Upper Nass Lax Yip. A chapter presenting objectives, measures, and targets and management considerations for the mining industry is also included as mining exploration is active within the Upper Nass Lax Yip.

Not currently included within this Land Use Plan are chapters for specific industries other than the forest and mining industries, respectively.

There is potential within the Upper Nass Lax Yip for establishment of commercial/industrial developments relating to:

- Agriculture
- Oil and gas
- Hydro and wind power
- Other resources or opportunities not currently known to the Upper Nass Simigyet

This Land Use Plan is intended to be a living document intended to assist in achievement of the objectives of the Upper Nass Simigyet for the Upper Nass Lax Yip. Over time the Land Use Plan may require corrections, amendments, or additions, and may require new chapters to be added in response to:

- Development of new information and/or industrial techniques
- Changing social and economic conditions
- Evolving needs and desires of Gitksan Upper Nass people

Amendments, changes, new information, and new chapters may require new or amended objectives, measures, targets and statements of desired results that are not presently incorporated within this Land Use Plan.

As presented, this Land Use Plan is currently intended to be applicable to all commercial/industrial ventures within the Upper Nass Lax Yip.

As a living document, the Upper Nass LUP is intended to be reviewed and amended periodically as required. New chapters are intended to be prepared and incorporated when required.

10.0 Plan implementation, monitoring, and amendment

The Upper Nass LUP has been prepared as a living document to contribute to sustainable resource management within the Upper Nass Lax Yip. The document is intended to be implemented, monitored, and amended periodically through time, to:

- Modify or correct errors or omissions in the mapping or text of the Land Use Plan
- Incorporate new information not known at the time of the Land Use Plan preparation
- Incorporate new chapters as required into the Land Use Plan
- Identify through implementation and monitoring procedures where the Land Use Plan objectives, measures, and targets are ineffective at achieving the Land Use Plan desired results and goals.

The Upper Nass Lax Yip Land Use Plan has been prepared with the intent that it will be formally presented to the Province of British Columbia with a request that the Plan be accepted and adhered to as part of legally binding direction required under Gitksan Ayookw and supported by the BC Declaration on the Rights of Indigenous Peoples Act (DRIPA). The intent of the Upper Nass Simigyeyt in preparing the Upper Nass Lax Yip Land Use Plan is that the Land Use Plan will provide direction for management to all Development Proponents to be incorporated into their planning processes and documents.

10.1 Implementation Plan

Implementation is the application of the Land Use Plan objectives, measures, and targets to on-the-ground management of Upper Nass Lax Yip land and resources.

Recommended steps for the implementation phase of this Land Use Plan are:

1. Complete the Land Use Plan to the point where it has been ratified by the Upper Nass Simigyeyt as a unified group.
2. Upper Nass Simigyeyt and Wilp members become fully familiar with the Land Use Plan text and maps as a working tool.
3. Present the Land Use Plan text and maps:
 - To Province of British Columbia
 - To Development Proponents that are currently working within the Upper Nass Lax Yip or are planning to work within Upper Nass Lax Yip
 - Make copies of the Land Use Plan text and maps available to the general public
4. Develop protocols and procedures for consultation with Province of BC, Development Proponents, and general public regarding the Land Use Plan content and implementation and incorporation of the Land Use Plan objectives measures, and targets into lower level plans such as Forest Stewardship Plans.
5. Consultation between Upper Nass Simigyeyt as a unit, Province of BC, and Development Proponents of all industries is considered mandatory, prior to any work commencing within the Upper Nass Lax Yip.

10.2 Monitoring

Monitoring of the Land Use Plan involves ongoing assessment of:

- Compliance monitoring; have the LUP objectives, measures, and targets designed to achieve desired results been applied?
- Effectiveness monitoring; have the implemented LUP objectives, measures, and targets been **effective** to achieve the LUP desired results? If the results of the effectiveness monitoring are not being achieved, revisions or amendments to the LUP text or maps may be required.

Monitoring of the Land Use Plan is intended to be a shared responsibility between the Upper Nass Simgiyet, the Province of BC, and Development Proponents.

Following acceptance by the Province of BC of the Upper Nass LUP, monitoring of implementation of the Land Use Plan will be a shared responsibility by Upper Nass, Province of BC, and Development Proponents.

Components of monitoring include:

- Preparation of an annual monitoring plan at the start of each year that outlines the monitoring strategy
 - What will be monitored (resources, practices, cultural indicators etc.)
 - Frequency of monitoring
 - Methodology of monitoring
 - Indicators to be assessed
 - Staffing required
 - Training for Upper Nass personnel to conduct monitoring procedures
- On-the-ground monitoring procedures as outlined in the monitoring plan
- Annual year-end report on the results of the monitoring that outlines:
 - Documented results of the monitoring (compliance and effectiveness monitoring)
 - How the management intent and objectives of the LUP are, or are not, being achieved by the resource management practices being applied to the Land Use Plan
 - Recommendation for revisions or amendments to the Land Use Plan.

10.3 Amendments to the Land Use Plan

The Land Use Plan has been prepared using the best available information and knowledge. It is recognized that:

- New information from scientific research, traditional knowledge, and monitoring of the Land Use Plan, will develop through time
- New issues and new initiatives will develop through time
- Mapped line work is not always precise regarding locations of features and resources

and that revisions or amendments to the Land Use Plan maps and text may be required periodically to incorporate new or refined information in order to best achieve the Land Use Plan goal of sustainable resource management throughout the Upper Nass Lax Yip.

10.4 Comprehensive review of the Land Use Plan

Periodically, a comprehensive review of the Land Use Plan will be required to ensure that the LUP reflects current social, cultural, economic, and ecological values, and to incorporate new information, new issues, and new initiatives.

It is recommended that a comprehensive review of the Upper Nass LUP occurs at five-year intervals and never longer than ten years between reviews.

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Appendix G
Upper Nass Lax Yip Land Use Plan Maps



