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January 23, 2023

Heather Soo
Planning Forester
BC Timber Sales – Strait of Georgia Business Area
370 S. Dogwood Street
Campbell River BC

Dear Ms. Soo,

Re: Review of Critically Imperiled and Imperiled Plant Communities for BC Timber Sales, Strait of Georgia Business Area – 2022 Update

BC Timber Sales (BCTS), in their At-Risk Ecological Communities (AREC) Standard Operating Procedure (SOP) for the Strait of Georgia Business Area¹ is committed to meeting the Sustainable Forestry Initiative (SFI) Objective 4 and Indicator 4.2.2 until a broader government strategy is implemented. These have been defined as:

***SFI Objective 4:** To manage the quality and distribution of wildlife habitats and contribute to the conservation of biological diversity by developing and implementing stand and landscape level measures that promote a diversity of types of habitat and successional stages and the conservation of forest plants and animals, including aquatic species as well as threatened and endangered species, Forests with Exceptional Conservation Value, old-growth forests and ecologically important sites.*

***SFI Indicator 4.2.2.** Locate and protect known sites of flora and fauna associated with viable occurrence of critically imperiled and imperiled species and communities also known as Forests with Exceptional Conservation Value. Plans for protection may be developed independently or collaboratively and may include Program Participant management, cooperation with other stakeholders, or use of easements, conservation land sales, exchanges, or other conservation strategies.*

SOP APPLICATION: *This SOP applies to all operating areas located within the Strait of Georgia (TSG) Business Area, with the exception of applicable areas under the Great Bear Rainforest Order, the Clayoquot Sound Land Use Plan Order and any areas that may be excluded from SFI certification.*

¹ At Risk Ecological Communities Standard Operating Procedure Strait of Georgia Business Area, March 26, 2020. Accessed from: https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/bc-timber-sales/ems-sfm-certification/business-area/strait-of-georgia/tsg_sop-at-risk-ecological-communities.pdf

BCTS is committed, through the SFI Sustainable Forest Management Plan, to manage for threatened and endangered species and forests with Exceptional Conservation Value. These are defined as critically imperiled (G1/S1) and imperiled (G2/S2) species and ecological communities. Therefore, the management focus for the SOP includes AREC with a global ranking of G1/G2 and S1/S2 communities. In BC, S1 and S2 ecological communities are red-listed when in old forest structure. BCTS TSG is committed to managing AREC identified on the TSG Plant Communities Focus List. Updates to this list must occur no more than two years apart. The purpose of the updates will be to monitor potential changes in ecological community designations either provincially by the BC Conservation Data Centre (BC CDC) or globally by NatureServe.

TSG Plant Communities Focus List Update Procedures

Madrone was contracted to update the TSG Plant Communities Focus List produced by Madrone in 2021. To facilitate the Focus List updates, a search of the BC CDC Species and Ecosystem database² was conducted using previously established search criteria from 2020 that was further refined in 2021. This 2021 refinement involved the exclusion of Biogeoclimatic (BGC) units not occurring within TSG operating areas, based on a spatial clip of the operating areas with BECv12³ (**Figure 1**). BGC units occurring in TSG operating area are outlined in **Table 1**, below.

TABLE 1: BIOGEOCLIMATIC UNITS WITHIN THE TSG OPERATING AREA BY GEOGRAPHIC AREA

BGC Unit	Unit Full Name	Geographic Area*
CDFmm	Coastal Douglas-fir, Moist Maritime	VI only
CMAunp	Coastal Mountain-heather Alpine, Undifferentiated and Parkland	MC and VI
CWHdm	Coastal Western Hemlock, Dry Maritime	MC only
CWHmm1	Coastal Western Hemlock, Submontane Moist Maritime	MC and VI
CWHmm2	Coastal Western Hemlock, Montane Moist Maritime	VI only
CWHvh1	Coastal Western Hemlock, Southern Very Wet Hypermaritime	VI only
CWHvm1	Coastal Western Hemlock, Submontane Very Wet Maritime	MC and VI
CWHvm2	Coastal Western Hemlock, Montane Very Wet Maritime	MC and VI
CWHxm1	Coastal Western Hemlock, Eastern Very Dry Maritime	VI only
CWHxm2	Coastal Western Hemlock, Western Very Dry Maritime	MC and VI
MHmm1	Mountain Hemlock, Windward Moist Maritime	MC and VI

*MC = Mainland Coast (including islands east of Vancouver Island), VI = Vancouver Island and islands west of Vancouver Island)

² B.C. Conservation Data Centre. 2022. BC Species and Ecosystems Explorer. B.C. Minist. of Environ. Victoria, B.C. Available: <http://a100.gov.bc.ca/pub/eswp/> (accessed November 2, 2022).

³ <https://catalogue.data.gov.bc.ca/dataset/bec-map>



FIGURE 1: BC TIMBER SALES STRAIT OF GEORGIA BUSINESS AREA OPERATING AREAS BY BIOGEOCLIMATIC ECOSYSTEM CLASSIFICATION

The following criteria were applied for the BC CDC search in 2022:

Ecological Communities: Terrestrial Realm: Flood Group (F) OR Forest
AND Prov. Conservation Status: S1: Critically Imperiled OR S2: Imperiled
OR Global Conservation Status: G1: Critically Imperiled OR G2: Imperiled
AND BGC Zone, Subzone, Variant, Phase: CMAunp, CWHdm, CWHmm1, CWHmm2,
CWHvh1, CWHvm1, CWHvm2, CWHxm1, CWHxm2, MHmm1

Due to a BCTS internal moratorium on harvesting within the Coastal Douglas-fir (CDF) zone, the CDFmm was not included in the search criteria. The BC CDC search resulted in 33 AREC identified as having potential to occur in the TSG operating areas. Of these, 8 AREC with a provincial status of S2S3 (blue-listed), and one AREC with a global status of G2G3 were removed as these statuses are excluded from the AREC SOP for the TSG. Three additional non-forested ecological communities were also removed. This resulted in a Focus List of 21 ecological communities.

Summary of 2022 Changes

Upon completion of the 2022 AREC list, the list was compared to the 2021 AREC list. Changes between 2021 and 2022 were relatively minimal compared to those observed between 2020 and 2021. This is likely due to refined search criteria between 2020 and 2021 that was also used in the 2022 assessment. The following is a summary of changes noted for 2022:

- The Garry oak/California brome (*Quercus garryana* / *Bromus carinatus*) ecological community (CWHxm1/00) was re-evaluated in 2022 and maintains an S1 (red-listed) provincial status. This is one of the three non-forested ecological communities observed in the BC CDC search, and therefore, has been removed from the Priority List.

Table 2 reflects the status information and changes for the AREC in the BCTS Strait of Georgia Business Area for 2022. **Table 2** has been organized by BGC unit and by the associated site series⁴ for that community. Note that an ecological community can occur in more than one BGC unit; therefore, the same at-risk ecological community may be listed in several BGC units.

Please refer to **Table 3** for BC CDC's ranking criteria definitions.

If you have any questions or comments, please do not hesitate in contacting the undersigned.

⁴ Green, R. K. and K. Klinka. 1994. A Field Guide to Site Identification and Interpretation for the Vancouver Forest Region. 2nd edition. Land Management Handbook 28. Research Branch Ministry of Forests. Victoria, BC.

Sincerely,

MADRONE ENVIRONMENTAL SERVICES LTD.

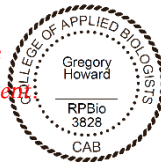
Prepared by:

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official manually signed and sealed document*

Emily Dawydiak, M.Sc., B.I.T

Reviewed by:

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official manually signed and sealed document.*



Gregory Howard, B.Sc., R.P.Bio.

TABLE 2. AT RISK ECOLOGICAL COMMUNITIES (AREC) IN BCTS STRAIT OF GEORGIA (TSG) BUSINESS AREA - 2022 RANKING STATUSES

At Risk Ecological Community Name	Biogeoclimatic Unit	Global Rank	Provincial Rank	Changes to AREC list Since 2021 Update
Coastal Western Hemlock, Dry Maritime (CWHdm) – Mainland Coast Only				
Douglas-fir - western hemlock / salal (<i>Pseudotsuga menziesii</i> - <i>Tsuga heterophylla</i> / <i>Gaultheria shallon</i>)	CWHdm/03	G3G4	S2 (2019)	No change
Douglas-fir / sword fern (<i>Pseudotsuga menziesii</i> / <i>Polystichum munitum</i>)	CWHdm/04	G2G4	S2 (2019)	No change
western redcedar / sword fern (<i>Thuja plicata</i> / <i>Polystichum munitum</i>)	CWHdm/05	G2G3	S2? (2016)	No change
western hemlock – western redcedar / deer fern (<i>Tsuga heterophylla</i> – <i>Thuja plicata</i> / <i>Struthiopteris spicant</i>)	CWHdm/06	G2G3	S2 (2013)	No change
Sitka spruce / salmonberry (<i>Picea sitchensis</i> / <i>Rubus spectabilis</i>)	CWHdm/08	G1G2	S1S2 (2010)	No change
western redcedar / salmonberry (<i>Thuja plicata</i> / <i>Rubus spectabilis</i>)	CWHdm/13	GNR	S1S2 (2019)	No change
western redcedar / black twinberry (<i>Thuja plicata</i> / <i>Lonicera involucrata</i>)	CWHdm/14	GNR	S1 (2019)	No change
western redcedar / slough sedge (<i>Thuja plicata</i> / <i>Carex obnupta</i>)	CWHdm/15	GNR	S2 (2021)	No change
Coastal Western Hemlock, Submontane Moist Maritime (CWHmm1)				
western hemlock - amabilis fir / pipecleaner moss (<i>Tsuga heterophylla</i> - <i>Abies amabilis</i> / <i>Rhytidiopsis robusta</i>)	CWHmm1/01	G3	S2 (2021)	No change
western hemlock - western redcedar / salal (<i>Tsuga heterophylla</i> - <i>Thuja plicata</i> / <i>Gaultheria shallon</i>)	CWHmm1/03	G3G4	S1S2 (2019)	No change
amabilis fir - western redcedar / three-leaved foamflower (<i>Abies amabilis</i> - <i>Thuja plicata</i> / <i>Tiarella trifoliata</i>)	CWHmm1/05	G2	S2 (2019)	No change
western hemlock - amabilis fir / deer fern (<i>Tsuga heterophylla</i> - <i>Abies amabilis</i> / <i>Struthiopteris spicant</i>)	CWHmm1/06	GNR	S2 (2019)	No change

At Risk Ecological Community Name	Biogeoclimatic Unit	Global Rank	Provincial Rank	Changes to AREC list Since 2021 Update
amabilis fir - western redcedar / salmonberry (<i>Abies amabilis</i> - <i>Thuja plicata</i> / <i>Rubus spectabilis</i>)	CWHmm1/07	G3G4	S2 (2019)	No change
Coastal Western Hemlock, Montane Moist Maritime (CWHmm2) - Vancouver Island Only				
western hemlock - amabilis fir / pipecleaner moss (<i>Tsuga heterophylla</i> - <i>Abies amabilis</i> / <i>Rhytidiopsis robusta</i>)	CWHmm2/01	G3	S2 (2021)	No change
western hemlock - amabilis fir / deer fern (<i>Tsuga heterophylla</i> - <i>Abies amabilis</i> / <i>Struthiopteris spicant</i>)	CWHmm2/06	GNR	S2 (2019)	No change
western redcedar - yellow-cedar / spleenwort-leaved goldthread (<i>Thuja plicata</i> - <i>Callitropsis nootkatensis</i> / <i>Coptis aspleniifolia</i>)	CWHmm2/07	G4G5	S1 (2019)	No change
Coastal Western Hemlock, Southern Very Wet Hypermaritime (CWHvh1) - Vancouver Island Only				
Sitka spruce / false lily-of-the-valley (<i>Picea sitchensis</i> / <i>Maianthemum dilatatum</i>)	CWHvh1/08	G1G2	S1S2 (2004)	No change
Sitka spruce / tall trisetum (<i>Picea sitchensis</i> / <i>Trisetum canescens</i>)	CWHvh1/09	G1G2	S1S2 (2009)	No change
Coastal Western Hemlock, Submontane Very Wet Maritime (CWHvm1)				
Sitka spruce / salmonberry (<i>Picea sitchensis</i> / <i>Rubus spectabilis</i>)	CWHvm1/09	G3	S2 (2020)	No change
Coastal Western Hemlock, Eastern Very Dry Maritime (CWHxm1) - Vancouver Island Only				
western hemlock - Douglas-fir / Oregon beaked-moss (<i>Tsuga heterophylla</i> - <i>Pseudotsuga menziesii</i> / <i>Eurhynchium oreganum</i>)	CWHxm1/01	G3G4	S2 (2013)	No change
Douglas-fir - western hemlock / salal (<i>Pseudotsuga menziesii</i> - <i>Tsuga heterophylla</i> / <i>Gaultheria shallon</i>)	CWHxm1/03	G3G4	S2 (2019)	No change
Douglas-fir / sword fern (<i>Pseudotsuga menziesii</i> / <i>Polystichum munitum</i>)	CWHxm1/04	G2G4	S2 (2019)	No change

At Risk Ecological Community Name	Biogeoclimatic Unit	Global Rank	Provincial Rank	Changes to AREC list Since 2021 Update
western redcedar / sword fern (<i>Thuja plicata</i> / <i>Polystichum munitum</i>)	CWHxm1/05	GNR	S1S2 (2021)	No change
western hemlock – western redcedar / deer fern (<i>Tsuga heterophylla</i> – <i>Thuja plicata</i> / <i>Struthiopteris spicant</i>)	CWHxm1/06	G2G3	S2 (2013)	No change
Sitka spruce / salmonberry (<i>Picea sitchensis</i> / <i>Rubus spectabilis</i>)	CWHxm1/08	G3	S2 (2004)	No change
western redcedar / salmonberry (<i>Thuja plicata</i> / <i>Rubus spectabilis</i>)	CWHxm1/13	GNR	S1S2 (2019)	No change
western redcedar / black twinberry (<i>Thuja plicata</i> / <i>Lonicera involucrata</i>)	CWHxm1/14	GNR	S1 (2019)	No change
western redcedar / slough sedge (<i>Thuja plicata</i> / <i>Carex obnupta</i>)	CWHxm1/15	GNR	S2 (2021)	No change
Coastal Western Hemlock, Western Very Dry Maritime (CWHxm2)				
western hemlock - Douglas-fir / Oregon beaked-moss (<i>Tsuga heterophylla</i> - <i>Pseudotsuga menziesii</i> / <i>Eurhynchium oreganum</i>)	CWHxm2/01	G3G4	S2 (2013)	No change
Douglas-fir - lodgepole pine / reindeer lichens (<i>Pseudotsuga menziesii</i> - <i>Pinus contorta</i> / <i>Cladina spp.</i>)	CWHxm2/02	GNR	S2 (2004)	No change
Douglas-fir - western hemlock / salal (<i>Pseudotsuga menziesii</i> - <i>Tsuga heterophylla</i> / <i>Gaultheria shallon</i>)	CWHxm2/03	G3G4	S2 (2019)	No change
Douglas-fir / sword fern (<i>Pseudotsuga menziesii</i> / <i>Polystichum munitum</i>)	CWHxm2/04	G2G4	S2 (2019)	No change
western redcedar / sword fern (<i>Thuja plicata</i> / <i>Polystichum munitum</i>)	CWHxm2/05	GNR	S1S2 (2021)	No change
western hemlock – western redcedar / deer fern (<i>Tsuga heterophylla</i> – <i>Thuja plicata</i> / <i>Struthiopteris spicant</i>)	CWHxm2/06	G2G3	S2 (2013)	No change
Sitka spruce / salmonberry (<i>Picea sitchensis</i> / <i>Rubus spectabilis</i>)	CWHxm2/08	G3	S2 (2004)	No change
western redcedar / salmonberry (<i>Thuja plicata</i> / <i>Rubus spectabilis</i>)	CWHxm2/13	GNR	S1S2 (2019)	No change
western redcedar / black twinberry (<i>Thuja plicata</i> / <i>Lonicera involucrata</i>)	CWHxm2/14	GNR	S1 (2019)	No change
western redcedar / slough sedge (<i>Thuja plicata</i> / <i>Carex obnupta</i>)	CWHxm2/15	GNR	S2 (2021)	No change

TABLE 3. B.C. CONSERVATION DATA CENTRE RANKING DEFINITIONS.

Type of Rank		Description
S		Subnational ranks assigned and maintained by the B.C. Conservation Data Centre
N		National ranks assigned by national and international conservation authorities
G		Global ranks assigned by national and international conservation authorities
Rank	Meaning	Description
X	Presumed extirpated or extinct	Not located despite intensive searches and no expectation that it will be rediscovered.
H	Historical	Not located in the last 50 years, but some expectation that it may be rediscovered.
1	Critically imperiled	Especially susceptible to extirpation or extinction. Occurrences: 5 or less.
2	Imperiled	Very susceptible to extirpation or extinction. Occurrences: 6 to 20.
3	Vulnerable	Found only in a restricted range (even if abundant at some locations), or susceptible to extirpation or extinction. Occurrences: 21 to 100.
4	Apparently secure	Uncommon but not rare, and usually widespread in the province. Occurrences: more than 100 existing.
5	Secure	Common to very common, typically widespread, abundant, and not susceptible to extirpation or extinction under present conditions.
?	Unranked	Rank not yet assessed.
U	Unrankable	Due to current lack of available information.
Modifier		Description
E		Exotic – a species introduced by man to the province
?		Inexact or uncertain rank due to limited information; qualifies the immediately preceding character.
Q		Taxonomic status is not clear or is in question.
T		A rank for a subspecies or variety.
B		A rank for breeding occurrence of mobile animals.
N		A rank for non-breeding occurrences of mobile animals.
Z		Reported in province as a diffuse, usually moving population.
R		Reported from province, but without persuasive documentation for either accepting or rejecting the report.
RF		Reported in error, but this error has persisted in the literature.