2.7 Biodiversity Indicator 6. [Retention of Habitat for] Endangered Plant and Animal Life

2.7.1Background:

Retention of habitat for endangered animal life is discussed in Wildlife Indicator 1. This biodiversity indicator focuses on the status of accommodation for rare and endangered plant communities (i.e. red- or blue-listed by the BC Conservation Data Centre - BCCDC).

LUP direction is to "retain representative examples of rare and endangered plant communities within Core Ecosystems". Protected areas (i.e. parks, ecological reserves) and SMZ1's also contribute to protection of rare and endangered ecosystems.

Until recently, assessment of TSA-level accommodation for rare and endangered plant communities (i.e. ecosystems) has been infeasible because site-level ecosystem mapping was unavailable for the TSA as a whole. Rare and endangered plants and plant communities listed in LUP's were identified at the block layout stage, and accommodated through boundary adjustment or Wildlife Tree Patch placement (Doug Witala, pers comm).

The final draft completion of two projects have improved the situation:

- Rare Plant Communities and Plant Species within the Bulkley portion of the Bulkley-Cassiar Forest District (Skeena Forestry Consultants, 1998), which mapped a selection of red and blue-listed communities in the southern half of the TSA
- Predictive Ecosystem Mapping (PEM) for Bulkley TSA (Ministry of Forests, 2002), which can be used to predict the spatial location of certain rare and endangered plant communities.

Based on this information, representation of known and predicted occurrences of rare and endangered plant communities shall be assessed.

2.7.2 Measure:

Known and predicted locations of rare and endangered plant communities versus proportion (by area) contained within core ecosystems, protected areas, and SMZ1's.

2.7.3 Results and Discussion:

Table 4 lists rare and endangered plant communities identified by the BC Conservation Data Centre and Skeena Forest Consultants (1998), and provides the BC ranking (red- or blue-listed). The table includes the PEM site series or site code that has been selected to represent the sensitive community. A field with "site series identifier" numbers has been added, which is referenced both in Figure 10 and the discussion.

Figure 10 illustrates the proportion by area of rare and endangered ecosystems contained within Core Ecosystems, protected areas and SMZ1's. For purposes of this discussion, these areas shall be referenced as Protective Areas or **PA's**. In summary, site series identifiers 1, 2, 8, 16, 17 and 23 are not present in PA's (or PEM is unable to predict their location), and identifiers 3, 4, 10, 11, 13, 14, 28 and 29 have 10% or less representation.

Table 4 – Rare and Endangered Plant Communities, Bulkley Timber Supply Area

Rare and Endangered Plant Communities	BC Ranking	PEM Site Series/Code	Site Series Identifier*
Amabilis Fir/Western Red Cedar - Devil's Club, Wet Submaritime	*Blue*	CWHws2/06	1
Amabilis Fir/Western Red Cedar - Oak Fern	*Blue*	CWHws2/04	2
Black Cottonwood - Hybrid White Spruce - red osier dogwood - prickly rose floodplains	(Blue)	SBSdk/08	3
Black Spruce - hybrid white spruce - scrub birch - sedge	Blue (RED)	ICHmc2/08	4
Black Spruce/Lodgepole Pine - Feathermoss	Blue	SBSmc2/03	5
Bluegrass - Slender Wheatgrass	*RED*	SBSdk/82	6
Bracken - cow parsnip - rice root meadow	(Blue)	(ICHmc2 - PEM code ME)	**7**
Cottonwood - Dogwood - Prickly Rose	*RED*	SBSdk/08	8
Cottonwood - Red Osier Dogwood	*Blue*	CWHws2/08	9
Cow parsnip - large leaved avens - stinging nettle - brome lush meadows	(Blue)	(SBSdk, mc2, ESSFmc, ICHmc1, mc2, CWHws2 - PEM code CP)	10
Douglas-Fir - Feathermoss - Stepmoss	*Blue*	SBSdk/04	11
Hybrid Spruce - paper birch - devil's club - lady fern	*Blue*	ICHmc2/54	**12**
Hybrid Spruce - twinberry - coltsfoot	*Blue*	ICHmc2/51; SBSdk/06; SBSmc2/05	13
Hybrid White Spruce - Horsetail floodplain forest	(RED)	SBSdk/07	14
Lodgepole Pine - Juniper - Ricegrass	*Blue*	SBSdk/02	15
Lodgepole Pine - Kinnikinnick	*RED*	CWHws2/02	16
Lodgepole Pine - Sphagnum, Wet Submaritime 2	Blue	CWHws2/10	17
Mesic (montane) forb meadows - variable spp. Composition	RED (Blue)	(SBSdk, mc2, ICHmc2 - PEM code HM)	18
Pacific willow - Mountain Alder - Lady Fern	(Blue)	(SBS dk, mc2 - PEM code AW)	**19**
Paper Birch - Black Twinberry Fluvial Forest	(RED)	SBSdk/$58	**20**
Saskatoon-Slender Wheat Grass	*RED*	SBSdk/81; ICHmc2/81	21
Sitka Spruce - Salmonberry, wet submaritime 2	*RED*	CWHws2/07	22
Subalpine Fir - Huckleberry - Crowberry	Blue	ESSFmc/03	**23**
Subalpine Fir/Lodgepole Pine - Cladonia	Blue	ESSFwv/02	24
Subalpine Fir/Lodgepole Pine - Juniper - Lichen	Blue	ESSFmc/02	25
Subalpine Fir/Whitebark Pine - Cladonia	Blue	ESSFmk/02; ESSFmk/03	26
Timber Oatgrass dry grassland	RED (Blue)	(SBSmc2, ESSFmc - PEM code HG)	27
Trembling Aspen - paper birch - beaked hazelnut - red osier dogwood	(Blue)	ICHmc2/52, 53	28
Western Hemlock - Azalea - Skunk Cabbage	*Blue*	ICHmc1/06	29
Western Hemlock - Kinnikinnick - Cladonia	*Blue*	ICHmc1/02; ICHmc2/02	30
Western Red Cedar/Hybrid White Spruce - Devil's Club - Horsetail	Blue	ICHmc2/07	31
Whitebark Pine/Cladonia - Dicranum	*Blue*	ESSFmk/02; ESSFmk/03	32

Italic = rare and endangered as listed by the BC Conservation Data Centre. Remainder are rare and endangered as identified by Skeena Forest Consultants

(…) = provincial ranking suggested by Skeena Forest Consultants

*** bold** identifiers were neither predicted by PEM as being present, nor were mapped by Skeena Forest Consultants

There are certain areas outside of PA's where harvest-related disturbance is unlikely to occur. These include non-forested areas and certain non-productive forested areas (i.e. private lands, gravel pits, open range and urban areas) that are normally excluded from the Timber Harvesting Landbase. Figure 10 also illustrates the proportion (by area) of rare and endangered ecosystems that are protected in the combination of these areas and PA's. In summary, site series identifiers 1, 2, 16, 17 and 23 are not present (or PEM is unable to predict their location), and identifiers 3, 8, 11, 13, 131, 14 and 28 have 10% or less representation.

So in summary, identifiers 1, 2, 3, 8, 10, 11, 13, 14, 16, 17, 23, 26, 28 and 29 are either poorly represented or PEM is unable to predict their location. Of this list, PEM is able to predict locations for site identifiers 3, 8, 10, 11, 13, 14, 28 and 29. Figure 11 shows the location of under-represented sites that PEM is able to predict, with the exception of site identifier 13.

Site identifier 13 is not displayed because it comprises a large area (93,890 ha) and these are supposedly rare and endangered types. It was discovered that the logic equations used in PEM do not necessarily predict one site series uniquely: sometimes site series "ties" occur. Allan Banner (pers comm October 3, 2003) suggested that site identifier 13 types with no site series "ties" may be a more realistic representation. Of the types associated with site identifier 13 (see Table 4), only SBSdk/06 had instances with no "ties", and the area represented was still quite extensive (20,491 ha).

2.7.4 Recommendations

The following recommendations have therefore been made:

- SRM/MOF to ensure any future adjustment of Core Ecosystem boundaries focuses on including examples of these plant communities.
- Licensees to ensure PEM/ Skeena Forest Consultants mapping of existing or potential rare and endangered plant communities is used as a planning layer for Forest Development Plan/Forest Stewardship Plan development.
- PEM developers to revisit the logic tables for SBSdk/06, SBSmc2/05 and ICHmc2/51 (i.e. site identifier 13) to re-evaluate parameters used to predict the location of these rare and endangered types.

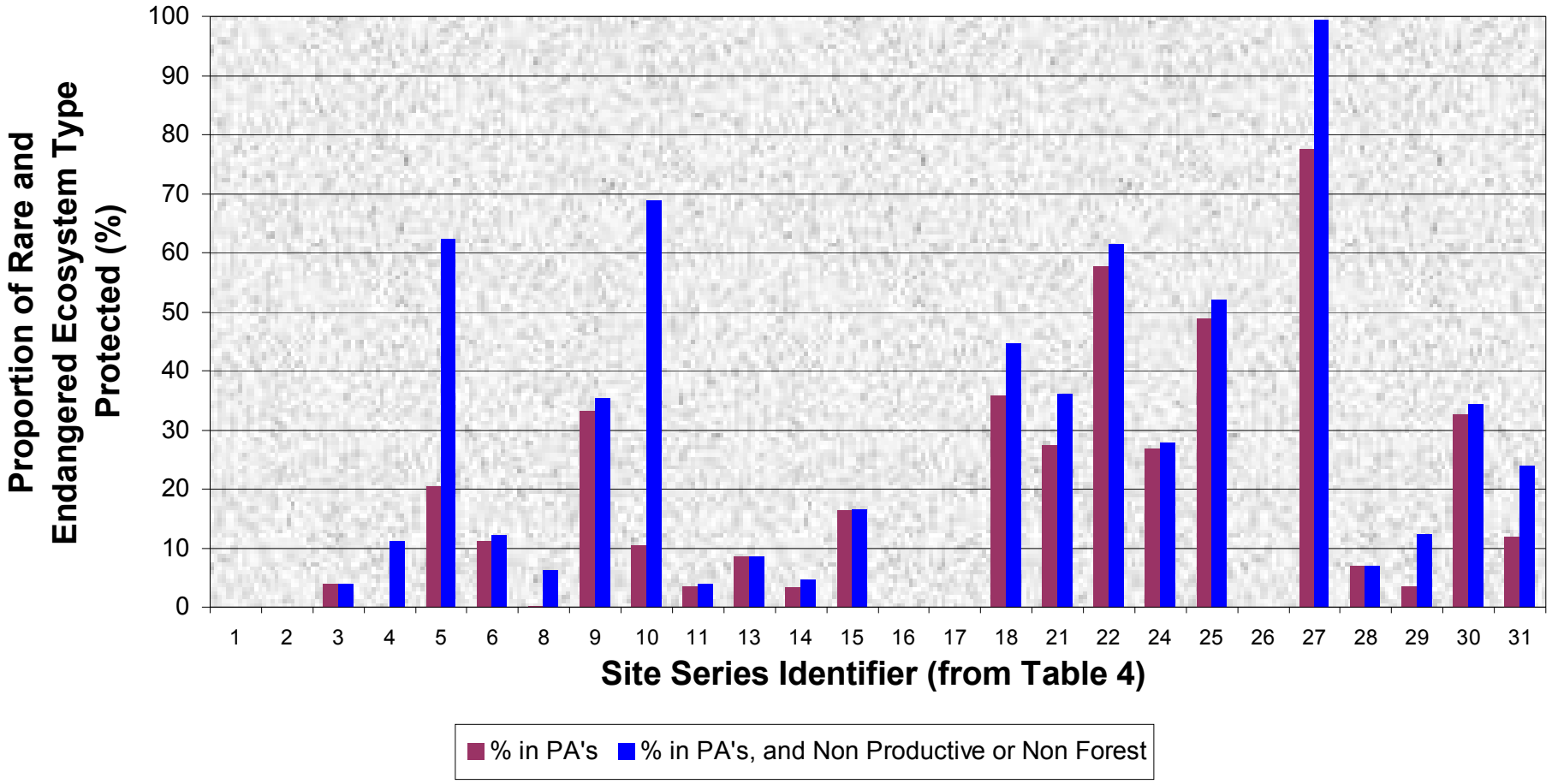
2.7.5 Data Sources:

- Ministry of Sustainable Resource Management. October 23, 2001. Biodiversity Indicators in the Bulkley Landscape Units; Part 1: Landscape Level Analysis.
- TSR3 dataset (includes forest cover data current to December 2000)
- Biodiversity Guidebook
- Bulkley Landscape Unit Plans

Personal Communications:

- Doug Witala, Planning Forester, Pacific Inland Resources
- Alan Banner, Regional Ecologist, Coastal Forest Region

Protection of Rare and Endangered Ecosystems



Predicted Location of Under-Represented Rare and Endangered Plant Communities