HCVFs: Examples of a process in Eastern British Columbia

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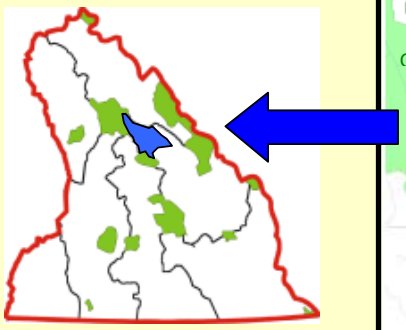
Overview

- Present on-going results from two processes
  - HCVF assessment for TFL 14 in East Kootenay Trench (Tembec)
  - Identification of HCVFs and Endangered Forests in larger Timber Supply Area (Invermere)
- Work by many different people - Utzig/ Forest Ethics / Wildsight / Tembec / Wells / Ferguson etc.
- FSC-BC: localised P9 guidance

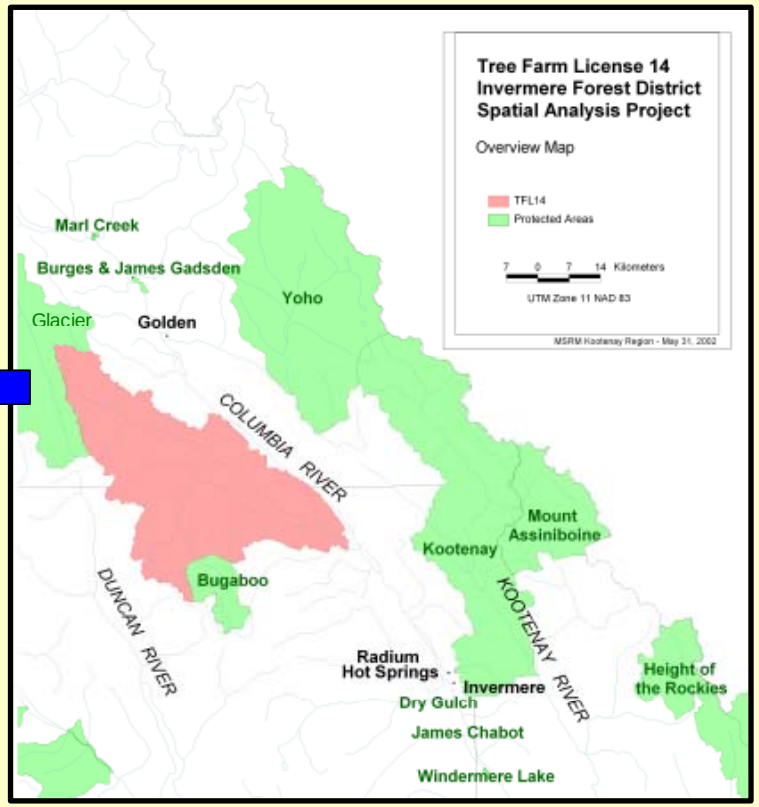
Overview

- Summary of the study area / process/ etc
- Present some preliminary product results
  - analysis primarily focusing on 1-3 HCVFs
- Discuss on-going issues
  - data layers
  - thresholds for different HCVs and EFs
  - management of attributes and how this interplays with thresholds
  - certainty

Study Area - Invermere TSA and Tembec TFL 14



Kootenay-Boundary Region



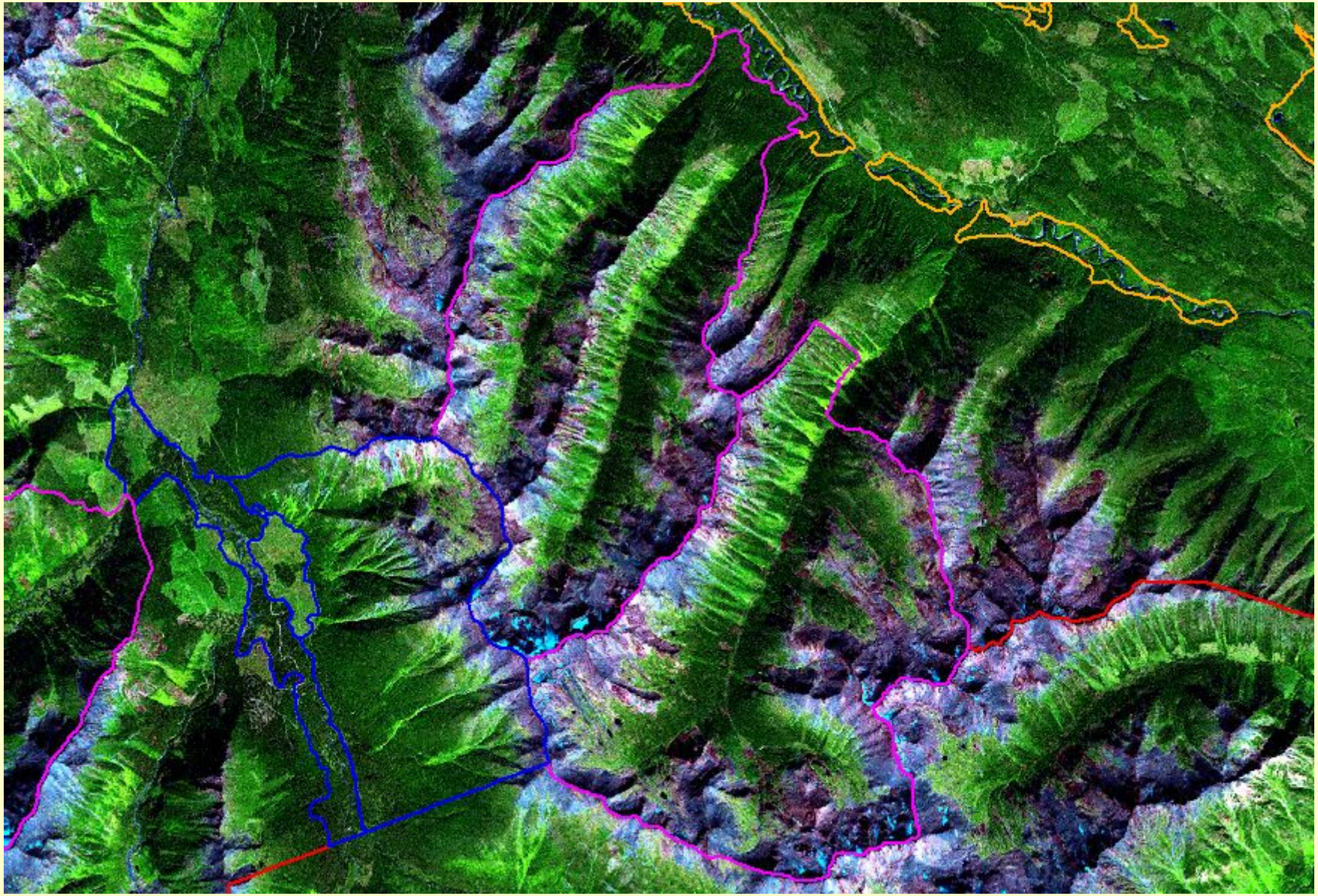
151,000ha

Two Approaches

- 1: primarily data-driven representation / values analysis (Tembec / Wells)
- 2: field based / map layer approach based primarily on Old Growth Management Area designations, followed up with representation analysis and ground-truthing

Ecological Context

- Columbia River Trench / wetlands
- Rockies/ Purcells
- 5 biogeoclimatic units
- Fire-maintained ecosystems (NDT4)
- Mixed fire regime (highly variable within local topographies)/ Cw/ Py / Pl/ Fd/
- Riparian
- High fire frequency and severity



Representation: PAs

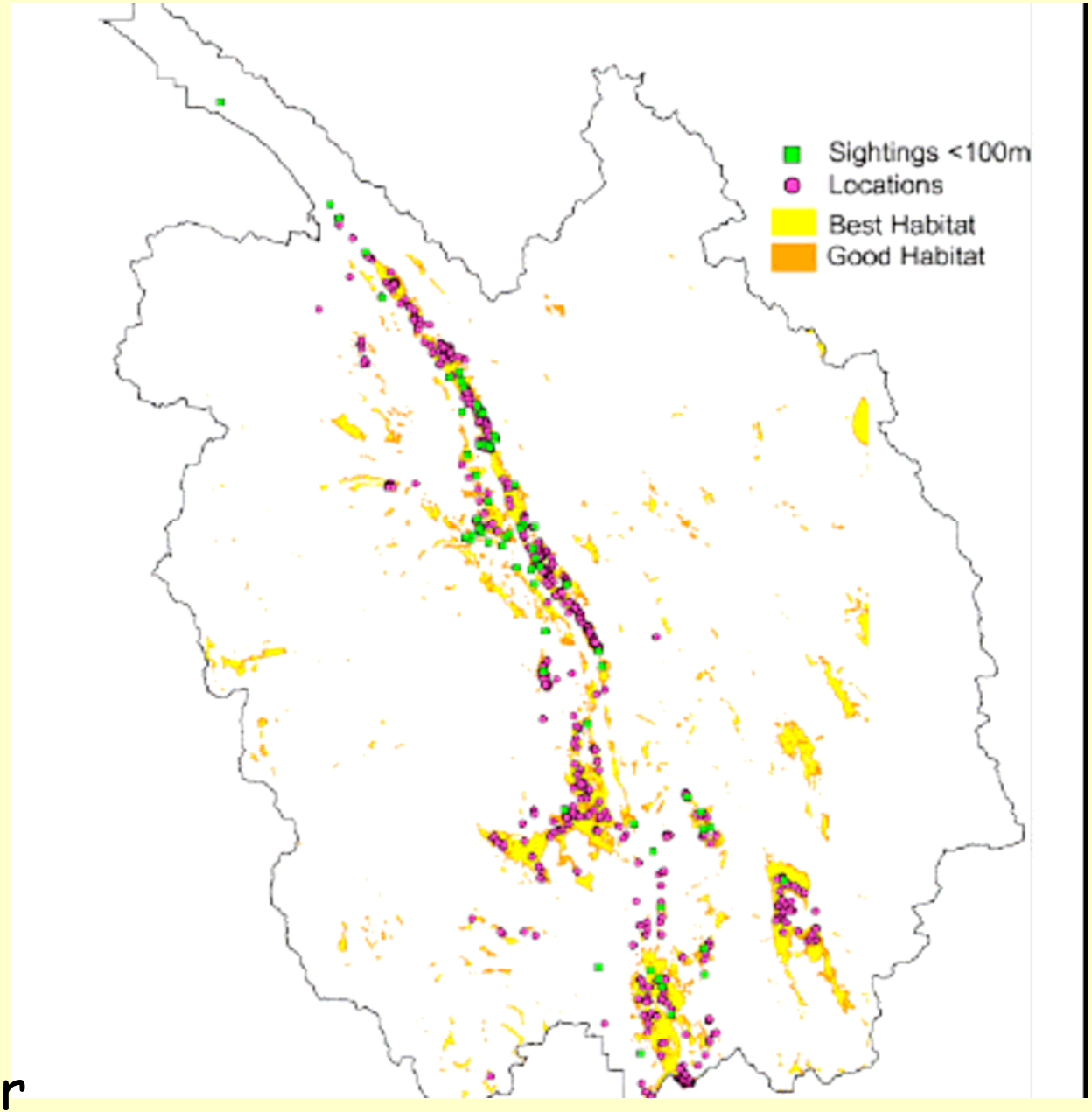
BEC unit		Ecosection	
		EPM	EKT
	(%)	18.87	0.67
IDFdm2	**0.78**	0.00	0.78
MSdk	**10.90**	5.96	0.19
ESSFdk	**20.42**	22.44	0.00
ESSFwm	**10.27**	4.82	na
ICHmk1	**4.13**	0.00	0.71
ICHmw1	**4.87**	0.00	na

1. The 'overlay' approach (Wells 2004)

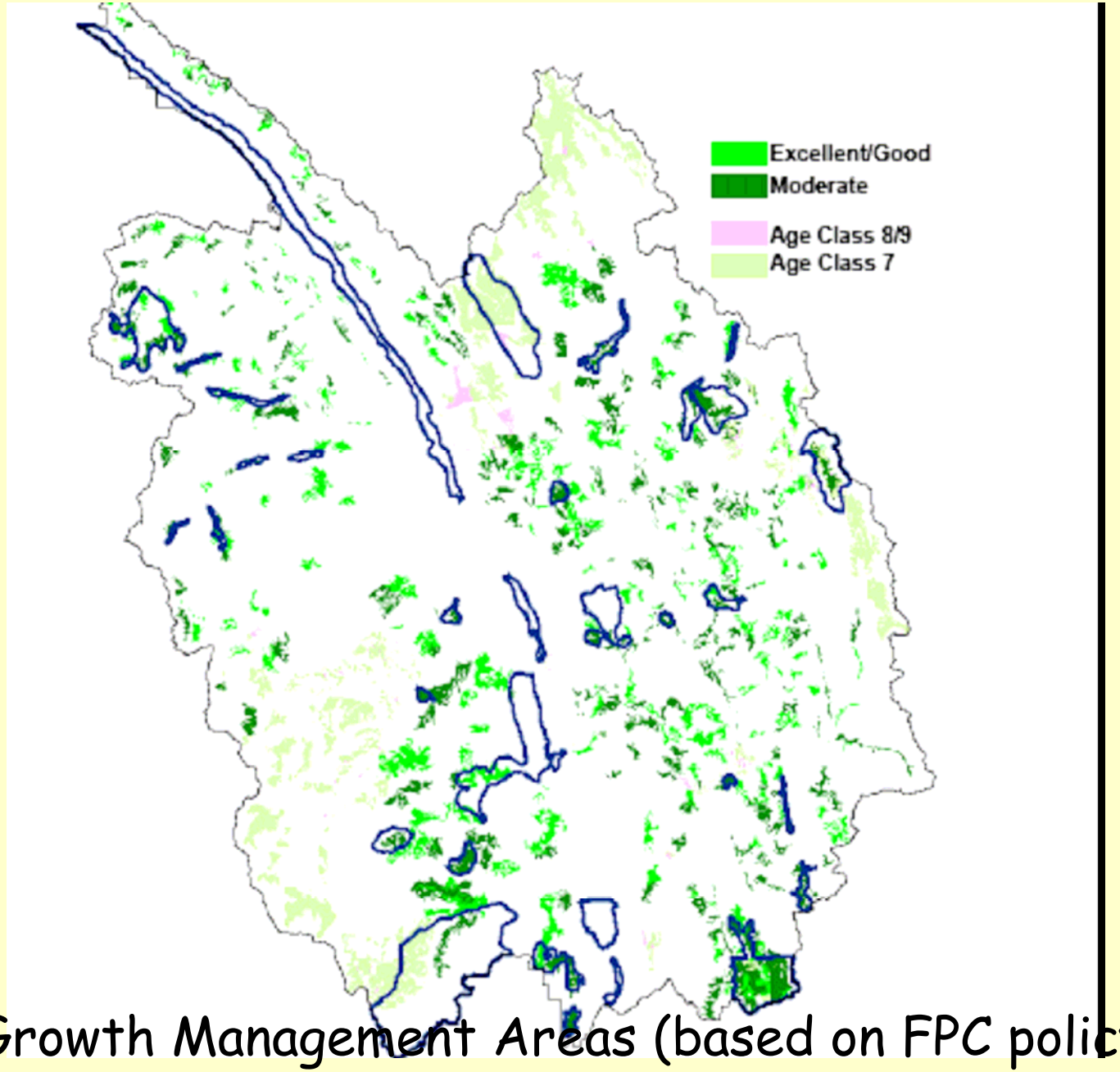
- Compiled digital data layers (many)

Data Layers

- forest cover maps (tree species groups and age-class distributions)
- biogeoclimatic classification units (to variant level)
- Terrestrial Ecosystem Mapping
- riparian and wetland habitat themes (from terrestrial ecosystem mapping)
- riparian ecosystems (from predictive ecosystem mapping and sire-series groupings)
- Red and Blue-listed plant communities (British Columbia Conservation Data Centre)
- candidate Old Growth Management Areas (TFL 14 Old Growth Management Area inventory)
- avalanche path inventory and suitability ratings for Grizzly Bear
- ungulate winter range for caribou, elk, moose, mule deer and mountain goat
- preliminary caribou habitat management zones
- patch size distribution (relative measures of forest intactness/fragmentation)
- ecosystem rarity and representation (rare and under-represented site-series groupings)
- deciduous-leading stands
- white-bark pine and western larch leading stands
- candidate HCVF from July 2003 Assessment Report
- 1:20,000 black-and-white aerial photographs



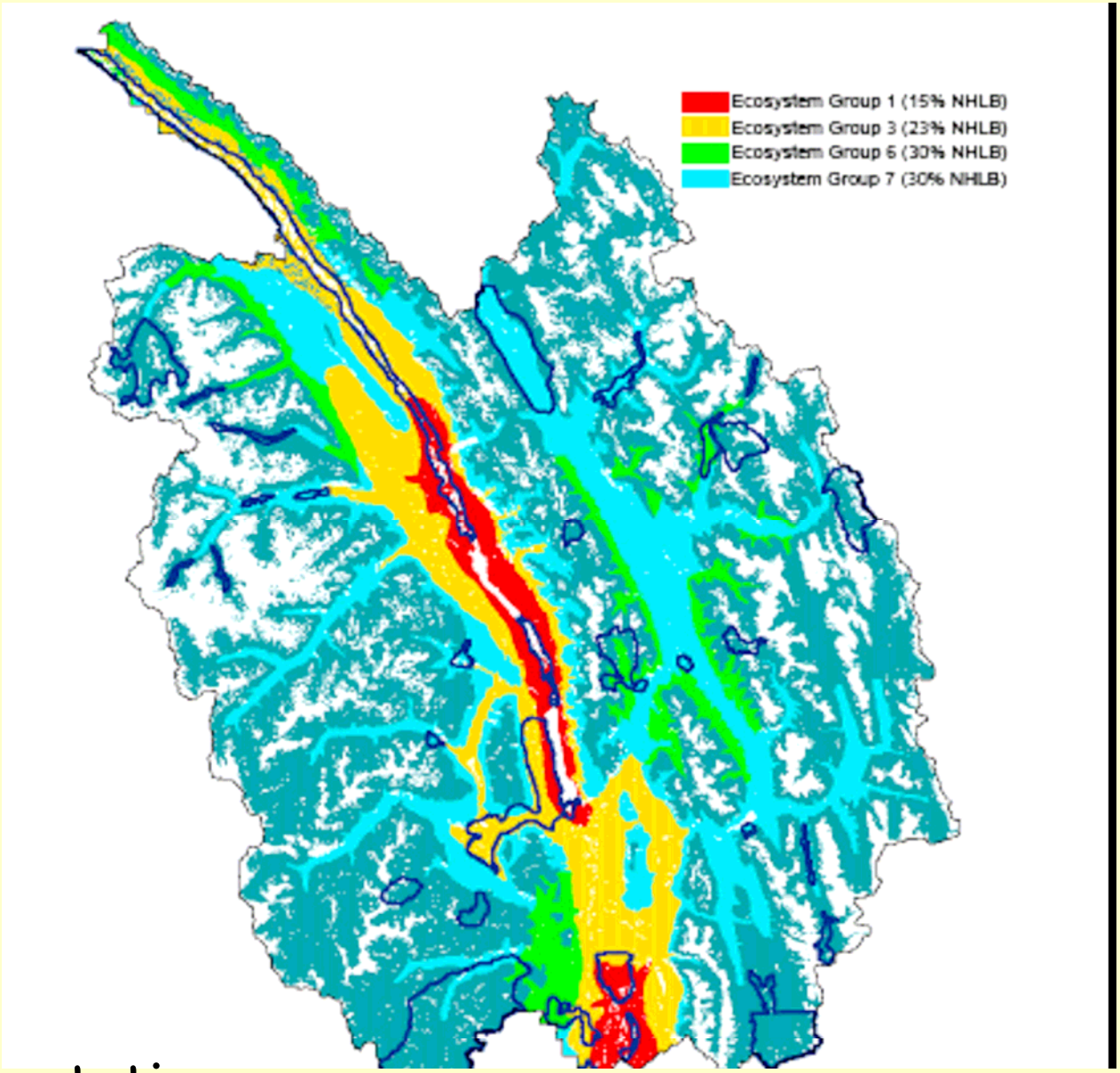
Badger



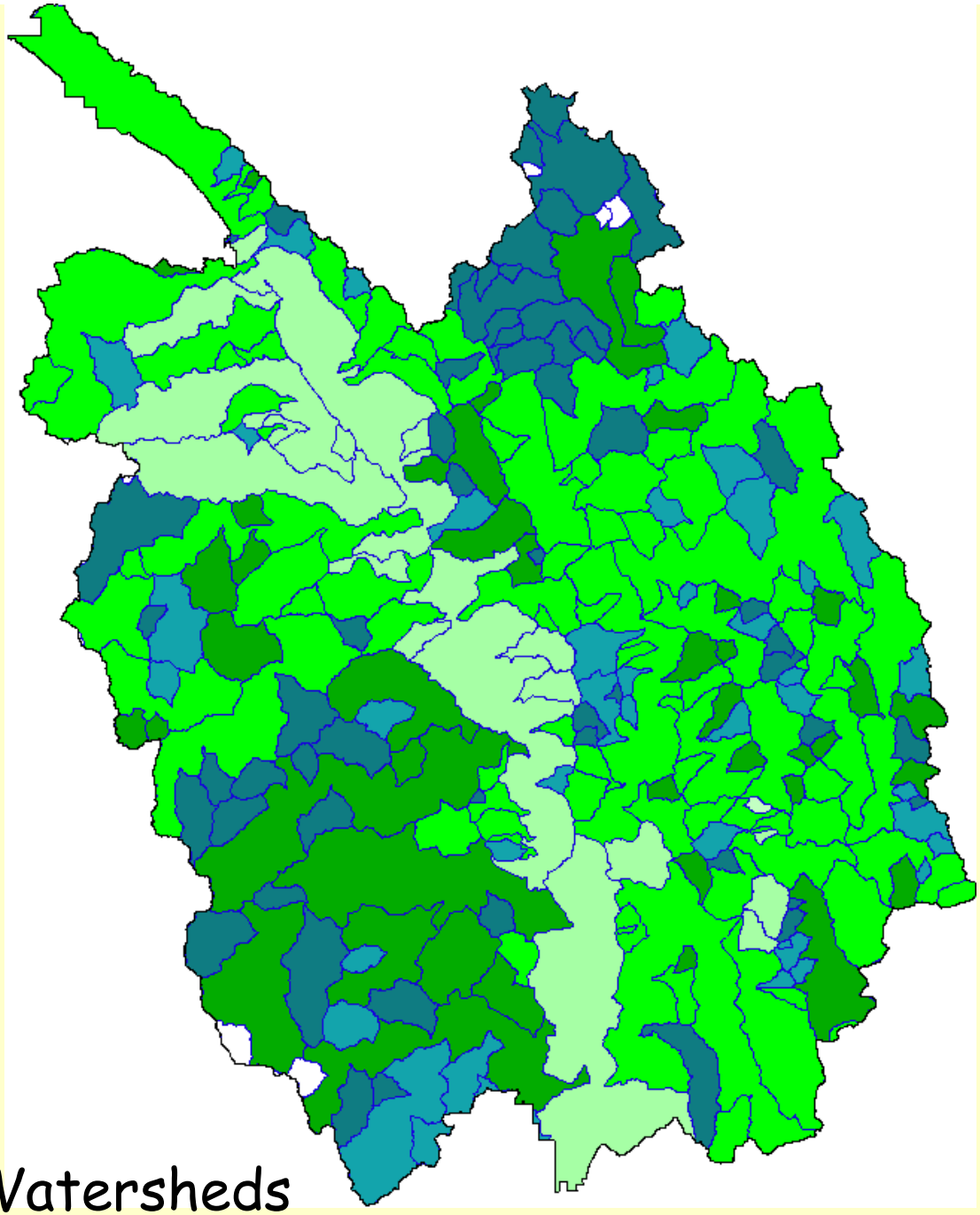
Old Growth Management Areas (based on FPC policy)

Method

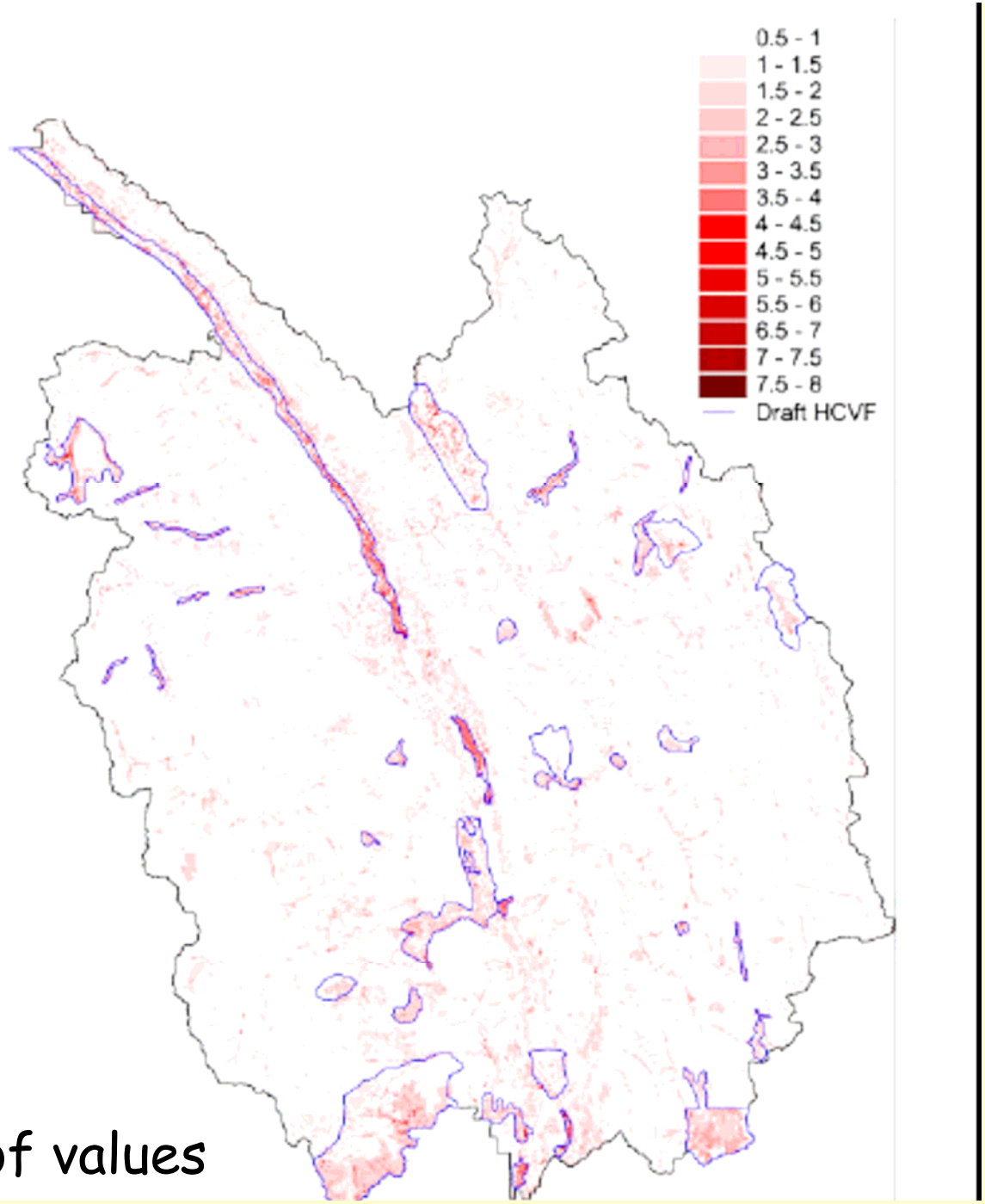
- Generate raster layers
- Overlay
- Compare to representation and intact watersheds analyses
- Identify candidate HCVFs based on overlay



Representation



Intact Watersheds



Overlay of values

Candidate HCVFs

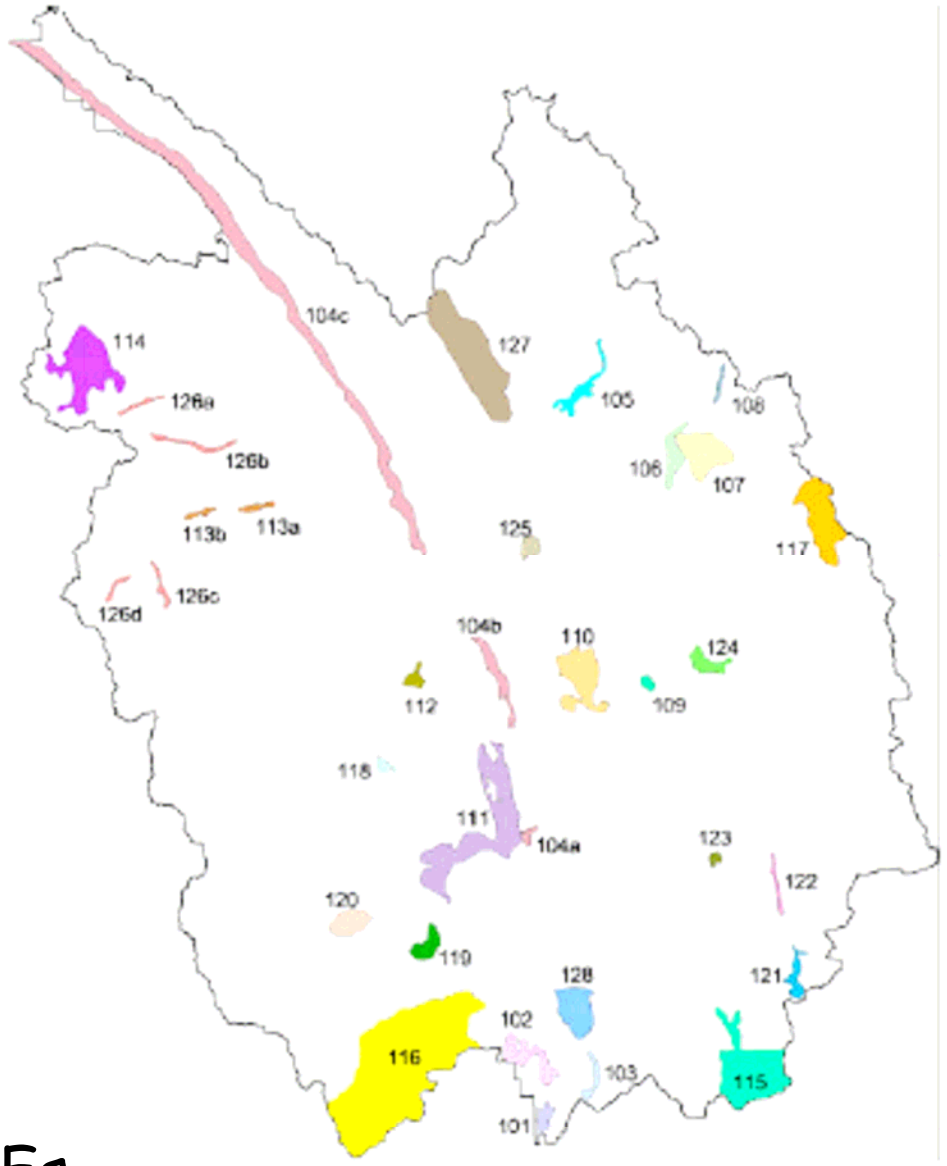


Figure 6: Draft candidate HCVF (HCV 1-3) locations in the Invermere TSA.

This starting point ..

- Focuses on 'efficiency'
- Produced an output layer based on overlaps, but under represents:
  - Intact areas (tend to lack data and definition depends on scale)
  - Critical areas for key wildlife species (GB)
  - Outstanding areas (for a single value)
- Approach 'believes' the data on all layers equally
- Doesn't explicitly question
  - functionality of areas
  - outstanding / critical for each type

Data Layers

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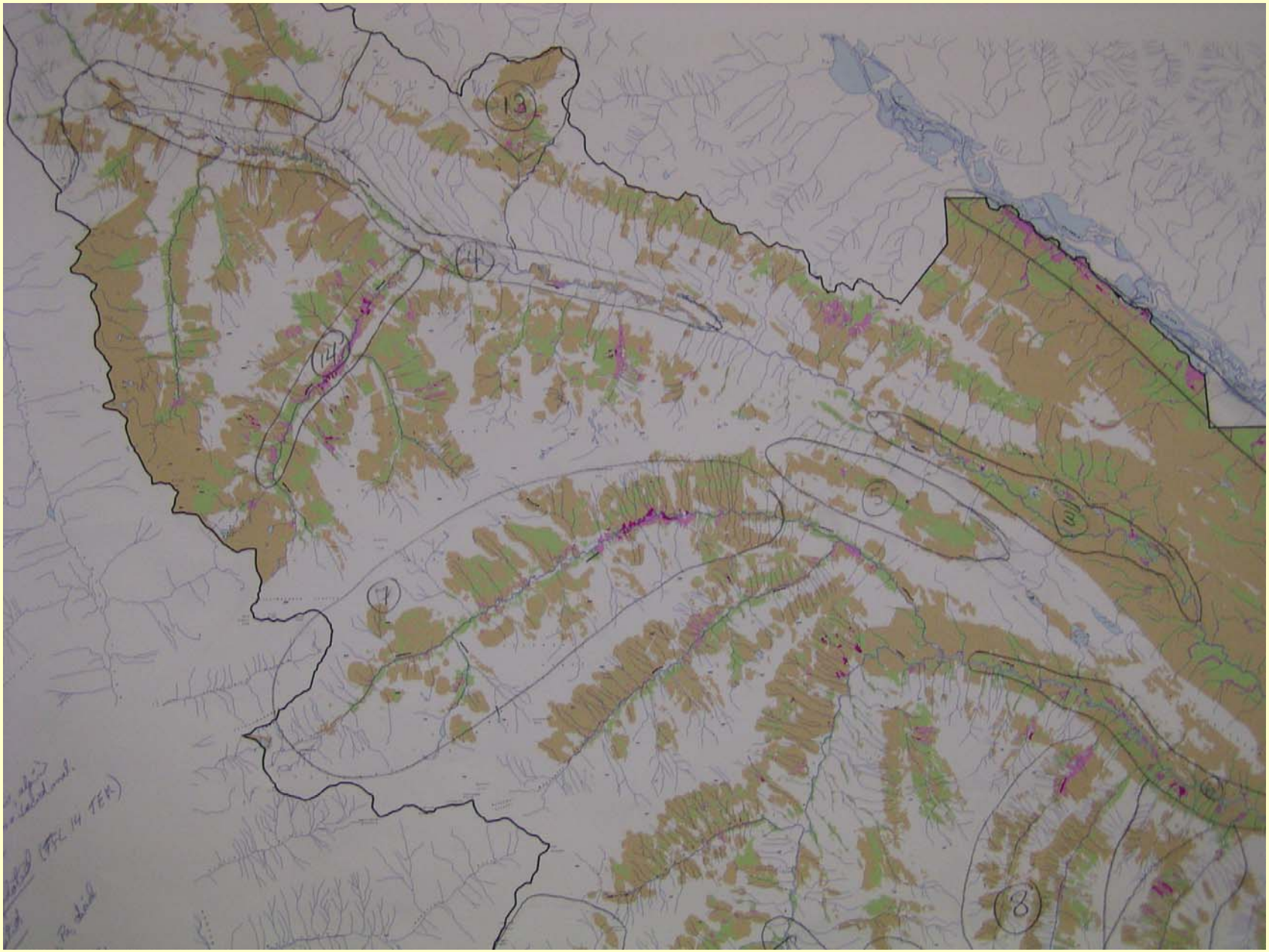
Additional steps ...

- From this basic layer, additional areas were identified, based on considerations of:
  - critical habitat for GB
  - large intact areas (review of map, rather than using variable order watershed layer as previously used)
  - consideration of other old growth areas (not constrained by policy), I.e. remnants
  - less emphasis on 'known' sightings for red-listed etc.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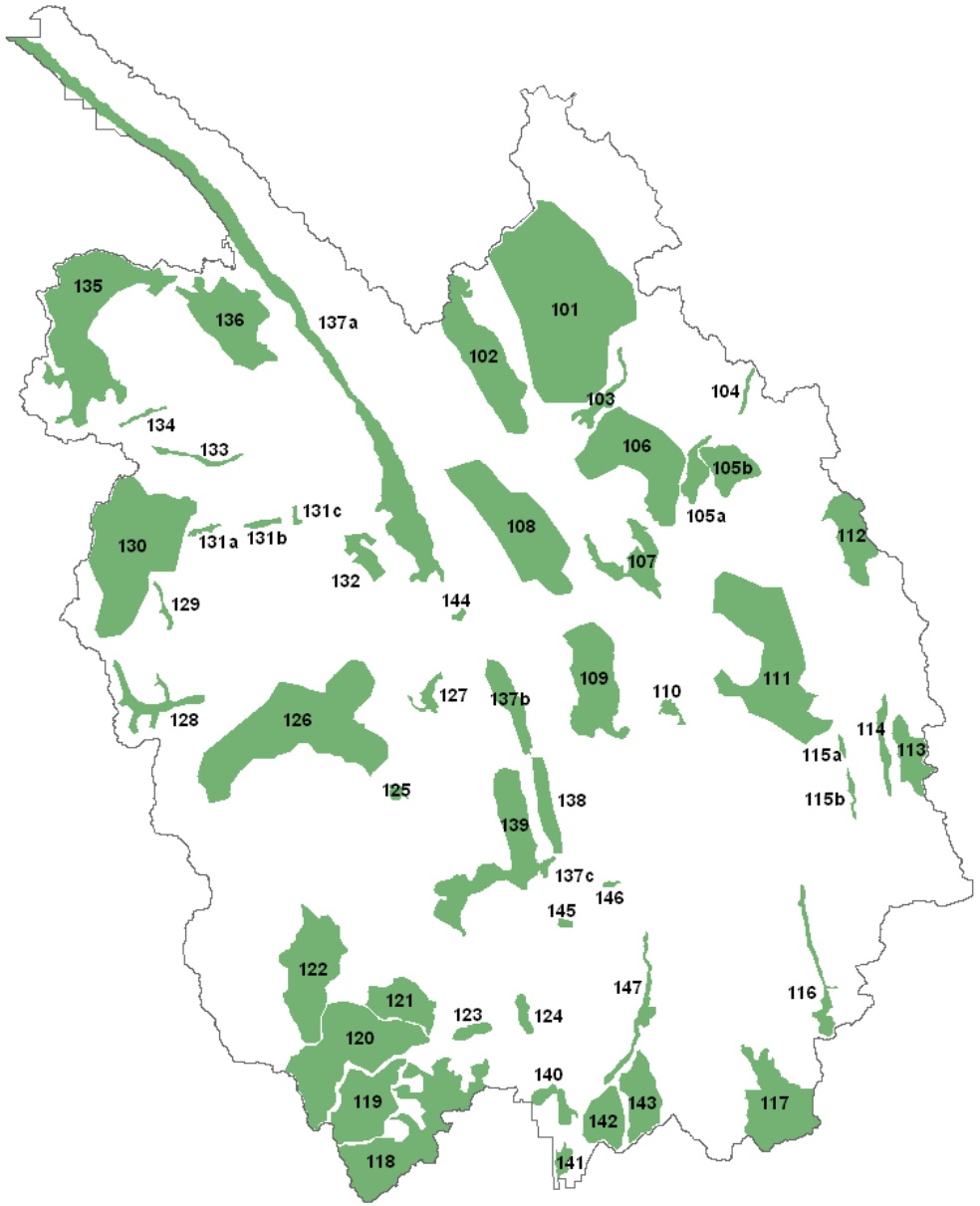
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Additional areas proposed

- Ground assessment for exceptional values
- Identified key outstanding areas E.g.
  - intact watershed - different sizes
  - functioning riparian areas / buffers on wetlands
  - G.B. habitat; caribou recovery habitat
  - connectivity areas - generic
  - rare elements e.g. whitebark pine stands

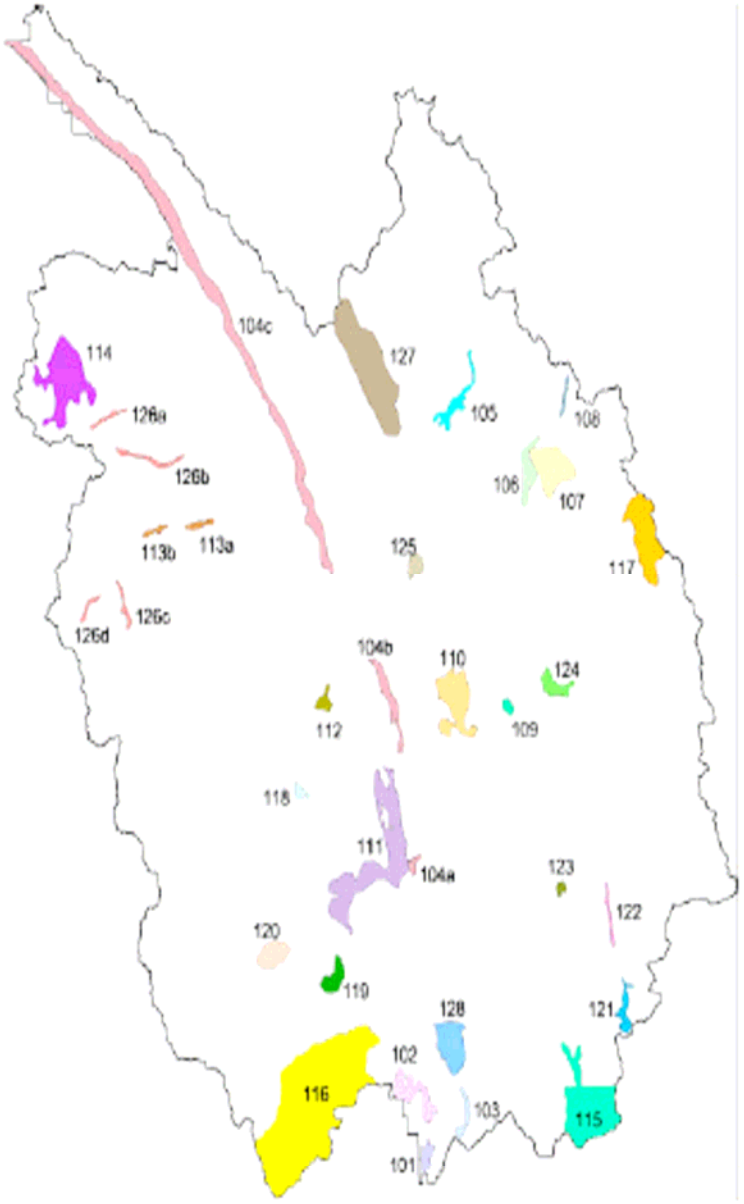
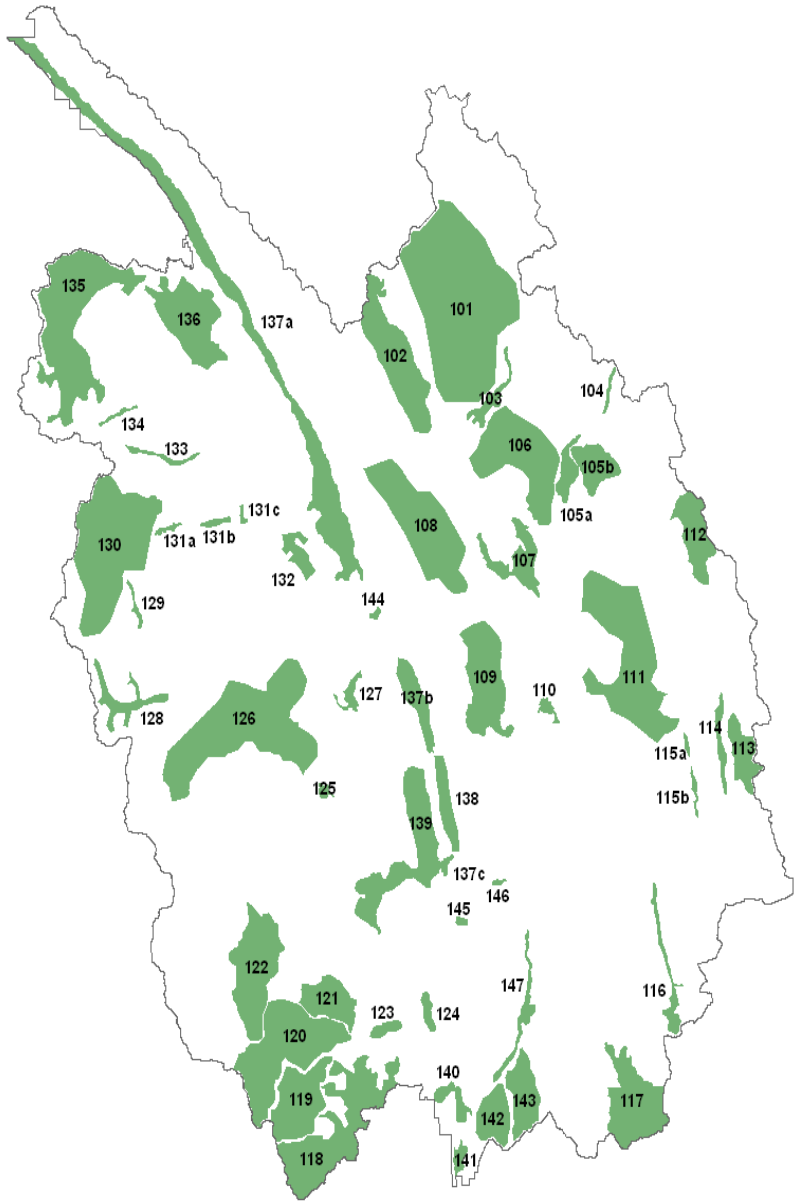


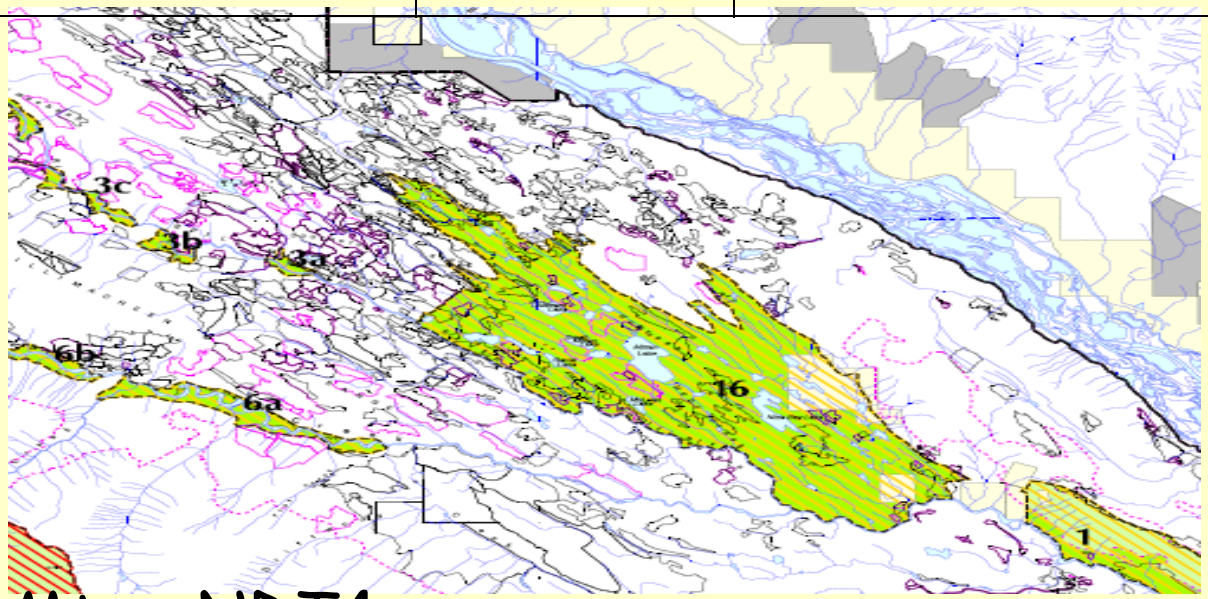
Figure 6: Draft candidate HCVF (HCV 1-3) locations in the Invermere TSA.



Appropriate Management?

- On-going discussion as part of the assessment process
  - easy ones: 'partial harvest' to mimic natural disturbance / restoration (NDT4 types)

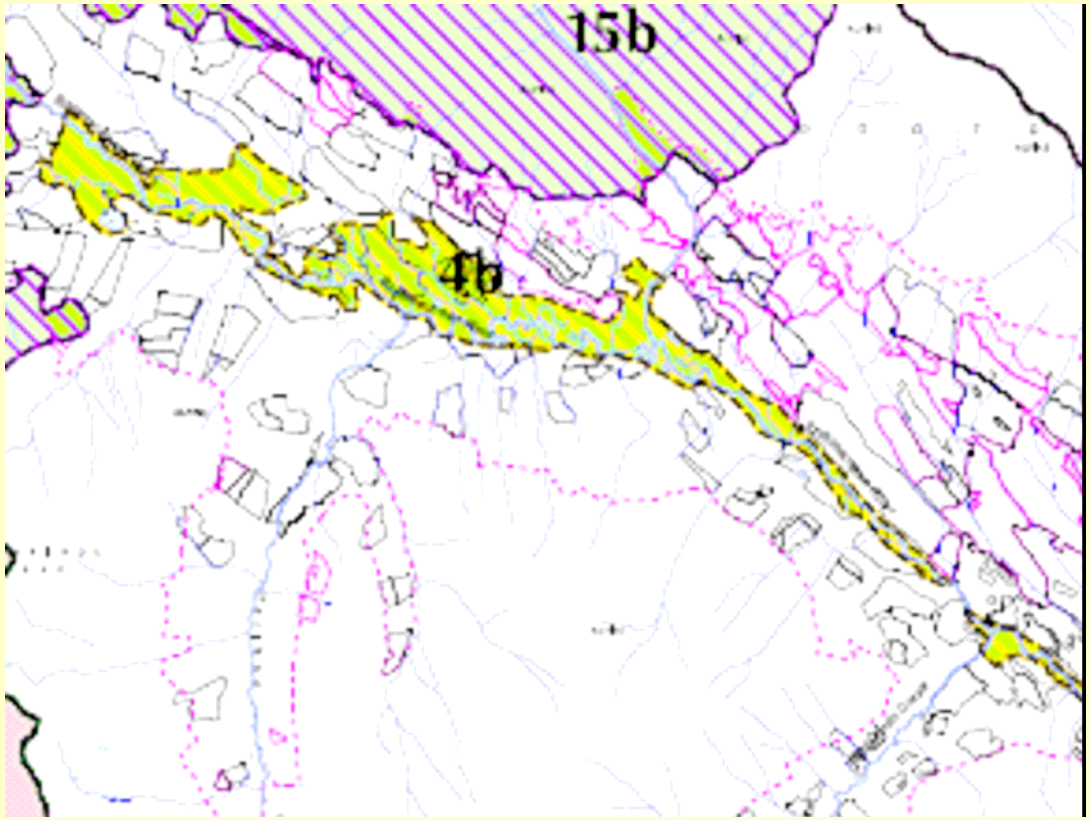
Conservation Attributes	Designation	Management Expectations
• Mule winter range • Possible habitat for Flammulated Owl • High quality OGMA • Good snags • Deciduous leading & component stands • Rare & uncommon ecosystems • Portion of 5-10k intact patch • High & medium priority BEC clusters	• Possible HCVF • Possible EF (but requiring intervention to maintain)	• Candidate for restoration (thinning & burning) • (fire maintained ecosystem rehab) • (relatively low priority for restoration relative to others in study area • UWR where they overlap with area • Maintain snags for owl if there are there



Jublilee Mtn - NDT4

Appropriate Management?

- On-going discussion as part of the assessment process
  - easy ones: 'partial harvest to mimic natural disturbance / restoration (NDT4 types)
  - riparian identification and management (maintain spruce / remove lodgepole pine)



Riparian ID and management

Candidate Area # 4a-b: ESSF Floodplain on Spillimacheen River (Riparian Forests)

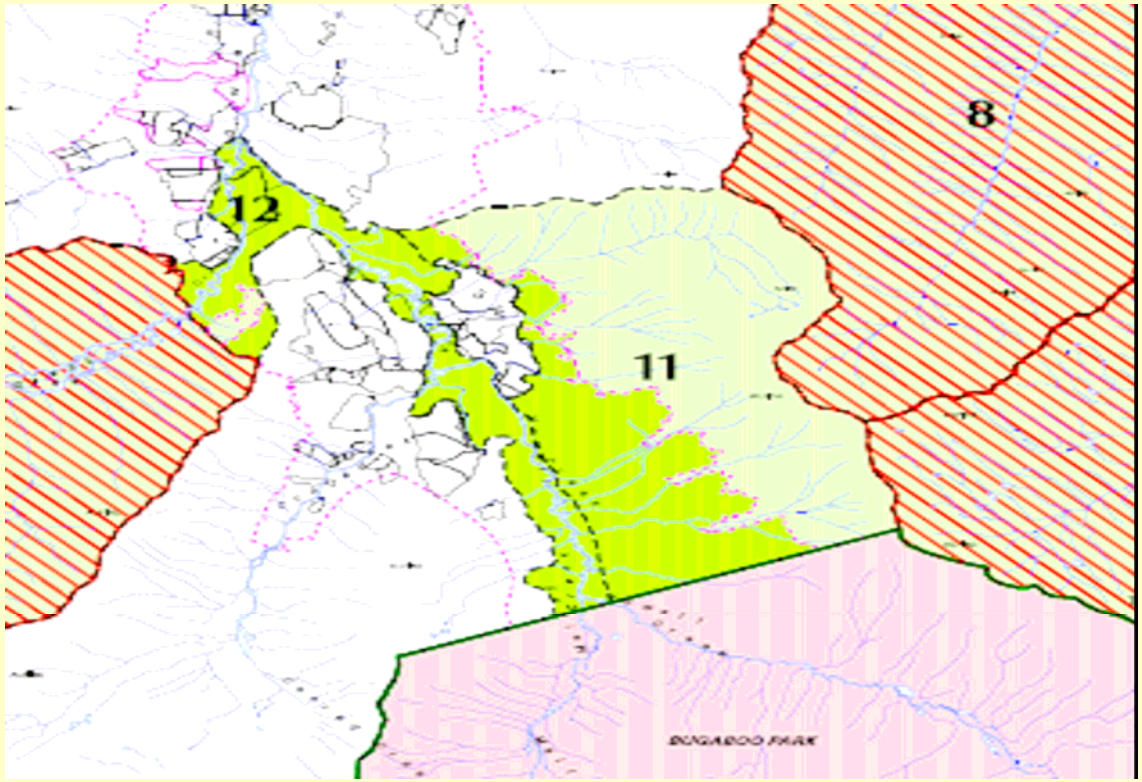
- the boundary was drawn primarily on the basis of forest cover polygons and topographic features to include floodplain habitats of the Spillimacheen River, nearby wetland habitats (both forested and non-forested), alluvial fans of small creeks entering the Spillimacheen River, and other adjacent areas strongly influenced by waters from the Spillimacheen River
- this area also includes the age-class 8 and 9 stands of lodgepole pine (candidate OGMA) in the Baird Lake area

Required detailed airphoto interpretation to determine appropriate functional boundaries for this system. Existing data were insufficient.

Appropriate Management?

- On-going discussion as part of the assessment process
  - easy ones: 'partial harvest to mimic natural disturbance / restoration (NDT4 types)
  - riparian management (maintain spruce / remove lodgepole pine)
  - HCVs for areas with medium number of different values/ attributes. May have specific management direction for different areas

• Contains lower portions of 3 Old Growth Management Areas • May maintain connectivity between Bugaboo Park & Crystalline valley • Large proportion is pine right down to valley bottom • Medium rep. clusters • High road use & fragmentation at end of valley • Remainder moderately fragmented	• HCVF & possible a portion EF	• Portions reserved & portions managed possibly with higher levels of retention • Protect riparian & wetland • Does not make sense to reserve dry pine stands that go right down to valley riparian



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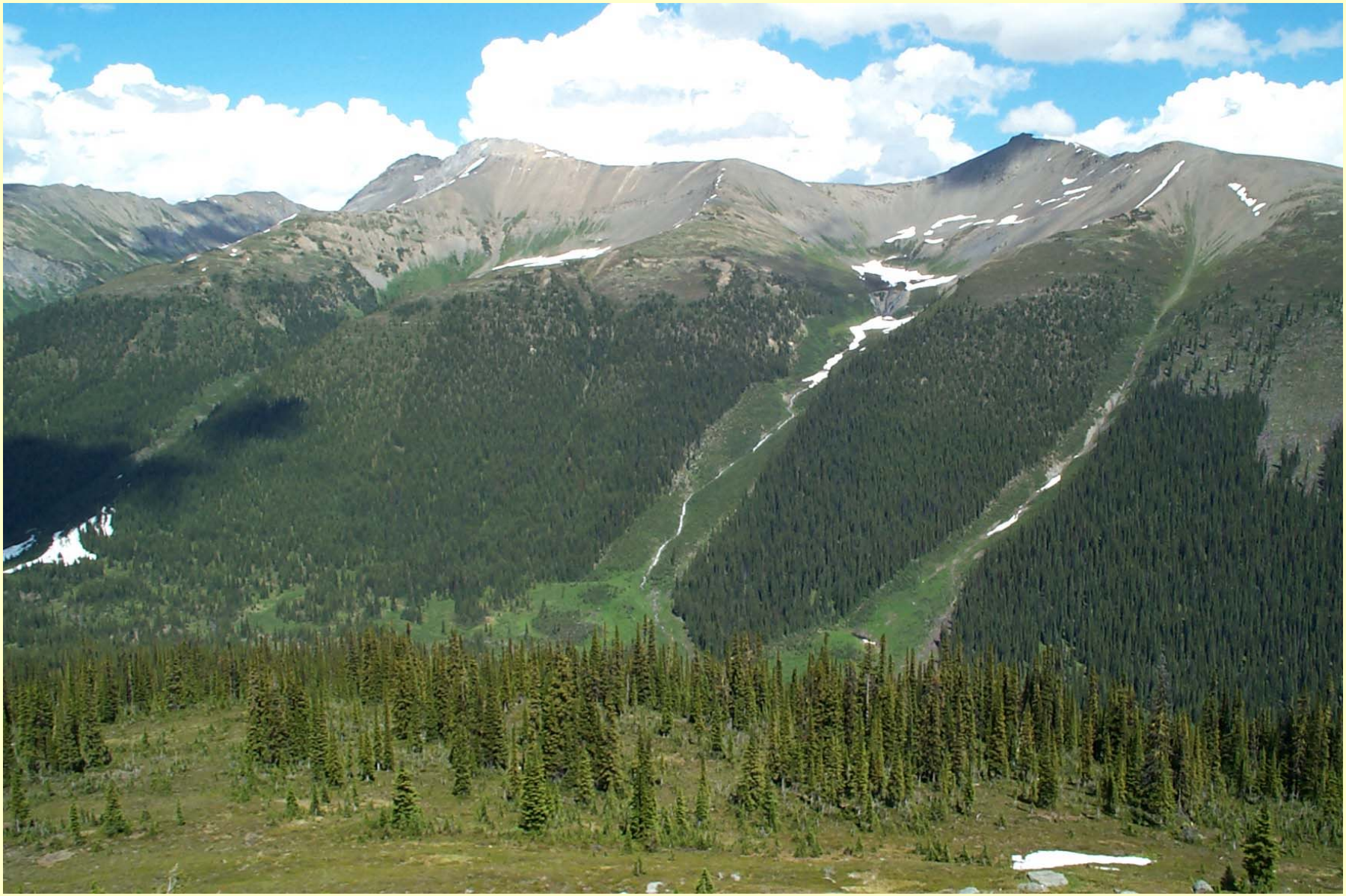
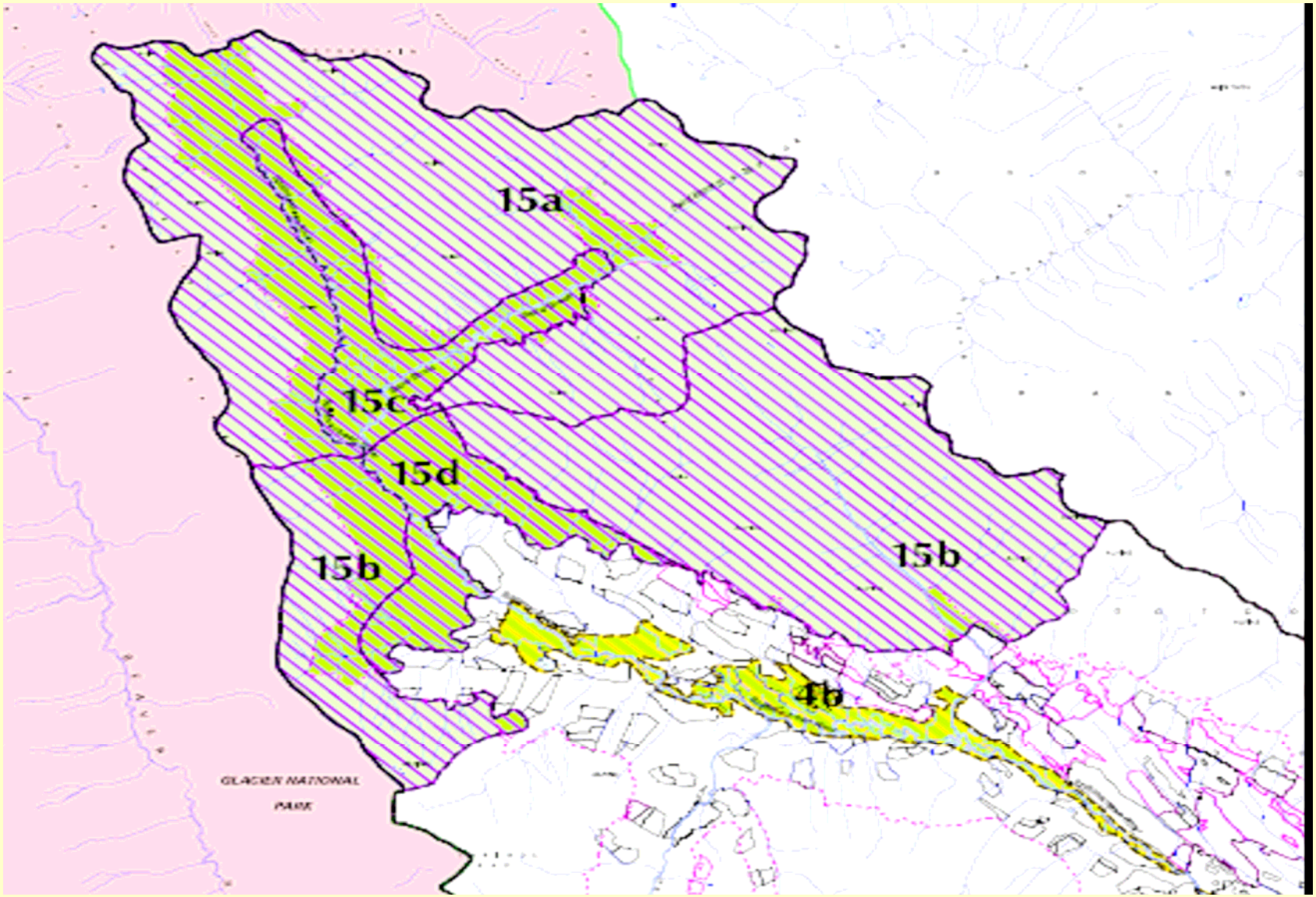
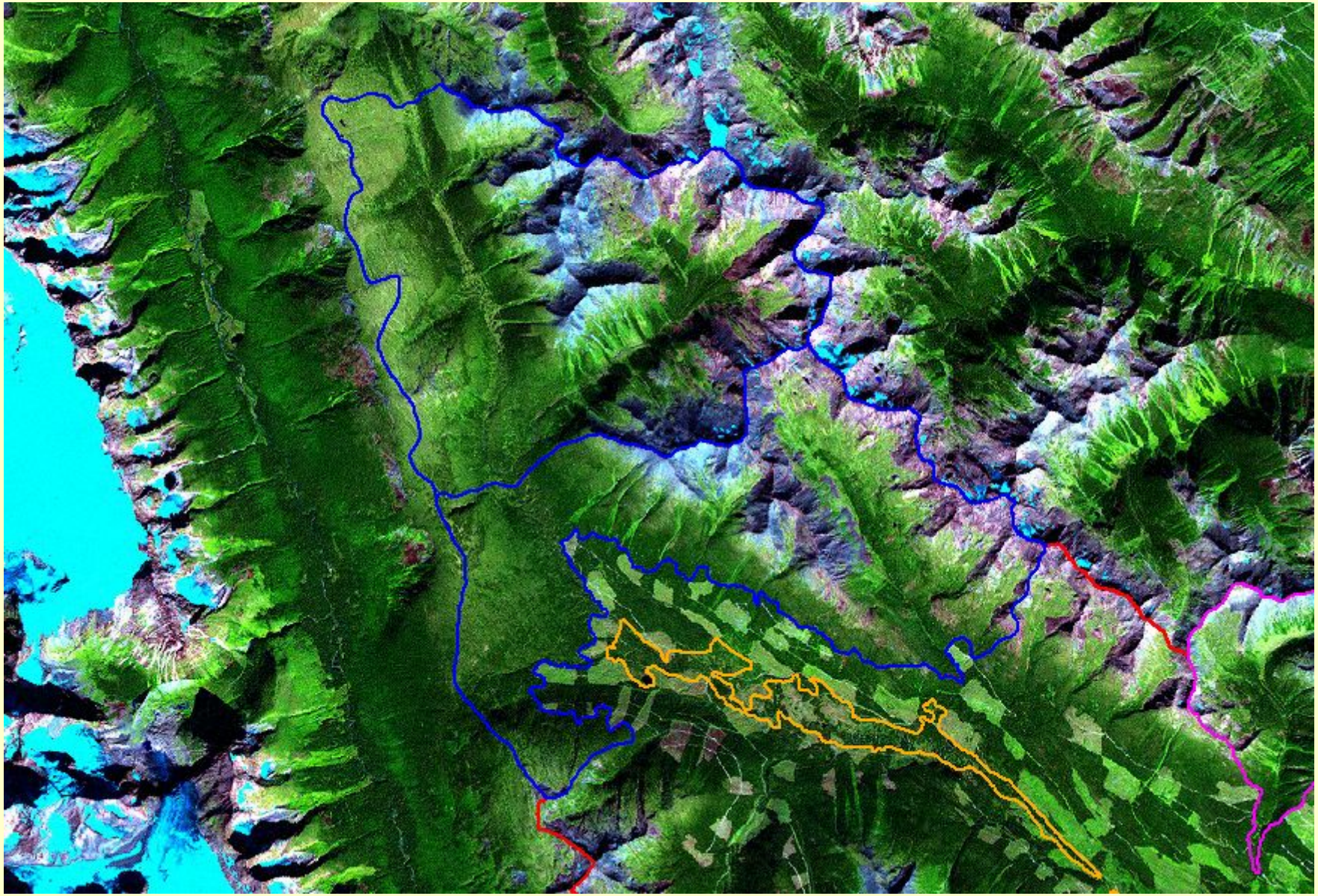
Appropriate Management?

- On-going discussion as part of the assessment process
  - easy ones: 'partial harvest to mimic natural disturbance / restoration (NDT4 types)
  - riparian management (maintain spruce / remove lodgepole pine)
  - general HCVs for areas with medium number of attributes. May have specific management direction
  - 'endangered forests' (no touch) - tended to be most intact areas, or areas considered most critical for GB





Intact headwaters/ GB critical habitat



15 a and 15b

	Conservation Attributes	Merchantability	Designation
•	• alpine connectivity • good riparian • excellent OGMA in upper Spillimacheen • local knowledge indicates grizzly use • absence of significant human use and lots of alpine meadows • good wolverine habitat due to absence of humans • low fragmentation however moderate use of road to Baird Brook • Purcell Lodge at top of pass & guide-outfitter cabin lower down • Rare & uncommon ecosystems in Baird Brook	• Moderate to severe deficit • Proposed cut blocks in lower portion	• HCVF-EF ??
•	• same as above but extends lower into valley to cabins • creates a large intact patch that extends all of the way to Glacier National Park • Substantial high value Grizzly Bear habitat • Includes potential caribou habitat areas • Adds portions of excellent OGMA • Includes some white-bark pine stands not included in 15a	• see 15a • largely deficit with portions of marginal stands	• Possible EF & HCVF

No agreement to date

Thresholds and Science

- Relevant features / thresholds vary in relation to local context.
- Intactness - can be measured a many different scales. 'Thresholds' consider
  - size of natural disturbances. Difficult to quantify in area with highly variable natural disturbances (fire maintained to large scale replacing fire in close proximity)
  - useful sizes for key species (e.g. G.B. and access management)
  - functional units (e.g. watersheds)
  - 'routine' GIS approach required review

Thresholds and Science

- Remnant and restoration areas
  - e.g. fire-maintained ecosystems heavily impacted by harvest and fire suppression - creates a win-win.
- 'Rare' -
  - TEM mapping to identify BC CDC 'listed' ecosystems. But data not completely reliable due to complex polygons.
  - Also does not include anthropogenically rare types.
  - Used expert opinion to ID other 'rare' types (e.g. remaining wet site OG in MSdk).

Thresholds and Science

- Connectivity - for what?
  - access management areas for GB
  - physical linkages between PAs,
  - generalised 'movement' across landscape
- Core habitat
  - GB habitat quality mapping (context ….??)
  - mountain caribou habitat mapping (context …..)
  - no specific population viability models available - to help determine 'how much'. ID's 'best remaining' mostly intact areas.
  - High representation in PAs, but doesn't provide 'safe' habitat for GB. Need careful interpretation.

Precautionary?

- How valuable is the value?
  - How certain are we about the data?
- What are the levels of stressors ?
  - Are they increasing / decreasing?
- Higher values, higher uncertainty,and increasing stressors - should push the precaution …..
- Climate Change - relevant to resilience.

Summary

- Preliminary work - used a process similar to that advocated in the WWF documents
  - representation
  - overlay values layers
  - look for overlapping areas
- Provides a starting point - but need significant 'local' ecological input, including assessment of data quality, data holes, functional ecosystems, critical habitats etc.

In the end: the process becomes a political negotiation, because science only provides guidance

Need an increasing acknowledgement of uncertainty

FOR TFL 14:

- fully reserved small drainages (accepted HCVF/ EF)
- HCVF with management guidelines
- areas with 5 yr moratoria - negotiations underway