Forest and Range Evaluation Program
Monitoring Results and Continuous Improvement Opportunities

Key Opportunities for Continued Improvement of Forest and Range Practices

Based on the findings of FREP, the following actions either resulted in the best outcomes or were seen as key opportunities for improvement

Timber-Planting species densities and mixes that account for insect, disease and abiotic factors

Cultural Heritage-Engaging First Nations as early as possible through proactive face-to-face communications

Fish/Riparian-Leaving full retention within the first 10m of all perennial S4, S5 and S6 streams that deliver water, nutrients and invertebrates downstream to fish bearing streams and (or) drinking water sources

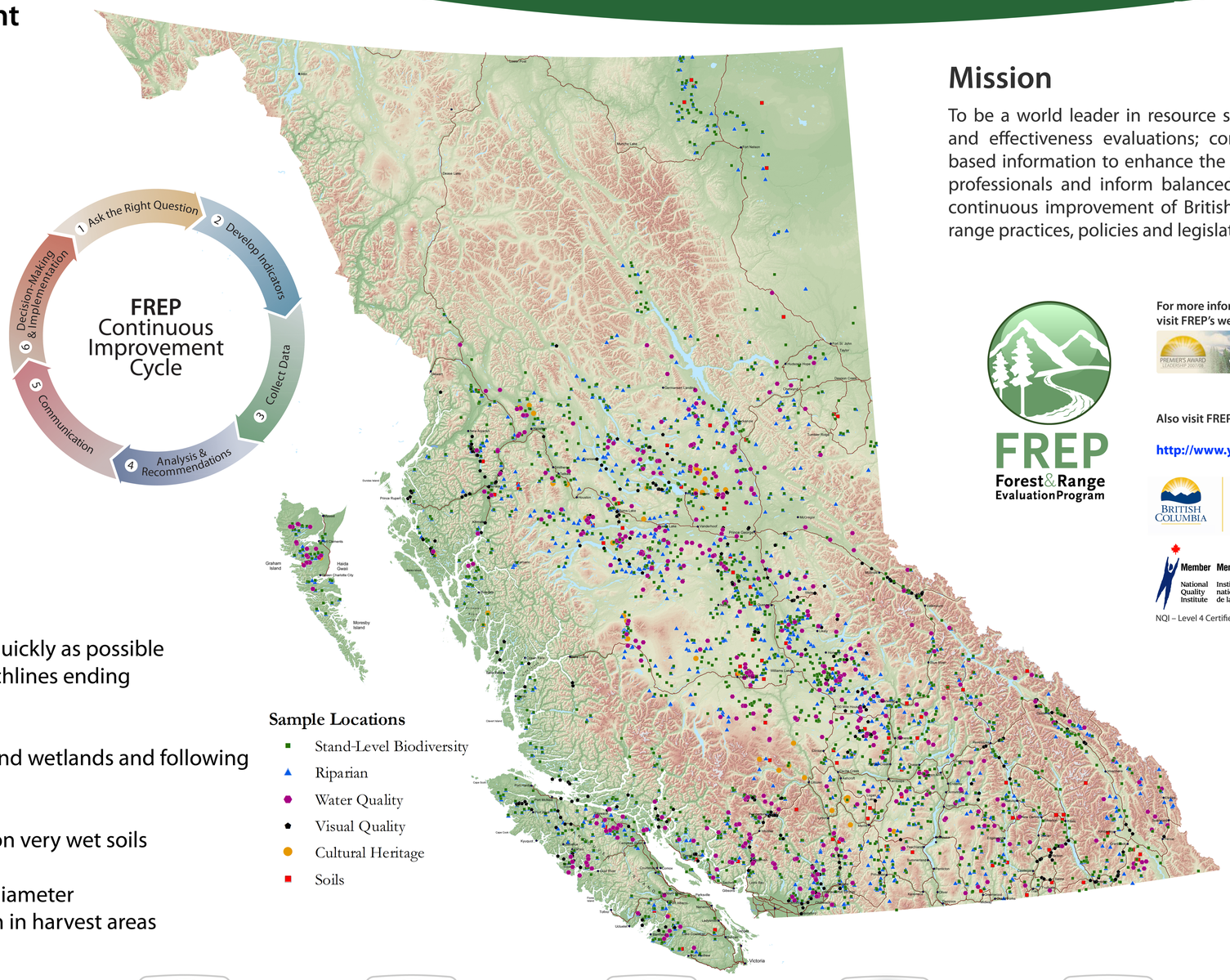
Visual Quality-Leaving visually effective levels of in-block retention (>24%) and using visual design concepts

Water Quality-Getting water off roads and out of ditchlines as quickly as possible (e.g., shorter ditchlines, filtering suspended sediment, avoid ditchlines ending at creeks and minimizing soil (exposure)

Forage/Range-Retaining natural range barriers along streams and wetlands and following well-established best management practices

Soils-Avoiding thick layers of slash and compaction, especially on very wet soils

Biodiversity-Leaving large live and dead trees, long and large diameter coarse woody debris and a mix of dispersed and patch retention in harvest areas



Mission

To be a world leader in resource stewardship monitoring and effectiveness evaluations; communicating science-based information to enhance the knowledge of resource professionals and inform balanced decision making and continuous improvement of British Columbia's forest and range practices, policies and legislation.

FREP Forest&Range EvaluationProgram

For more information, visit FREP's website:
www.for.gov.bc.ca/hfp/frep

Also visit FREP's YouTube channel
http://www.youtube.com/user/frep101

BRITISH COLUMBIA
Ministry of Forests, Lands and Natural Resource Operations

Member Membre National Quality Institute Institut national de la qualité
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CANADA AWARDS FOR EXCELLENCE GOLD RECIPIENT QUALITY 2011
Canada Awards for Excellence, Gold Trophy

Design by: GeoBC
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Timber

What is the forest health and productivity of 15-40 year-old regenerated stands?

- 266 post-free-growing cutblocks sampled
- On average, post-free-growing stands meet minimum stocking standards; however, some stands are below minimum stocking standards due to stand mortality
- The most common forest health agents were, deformities and abiotic damage, mammal damage, hard pine rusts, vegetation competition, and root diseases



Cultural Heritage

Are cultural heritage resources being conserved for First Nations cultural and traditional activities?

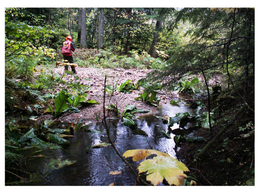
- 54 cutblocks sampled
- 21% of sites showed avoidable damage attributed to harvesting activities and 12% had permanent damage and (or) were rendered unsuitable for continued use
- Management strategies included feature/site avoidance and stumping of culturally modified trees above the marking



Fish/ Riparian

Are riparian forestry and range practices effective in maintaining the proper functioning of riparian areas?

- 1668 stream reaches sampled
- 87% of all stream reaches were in one of three categories of Properly Functioning Condition
- Stream reaches in the best category of Properly Functioning Condition were provided the widest riparian buffers
- Functioning condition of stream reaches with buffers >10 m was not significantly different from streams with buffers 10 m wide
- Primary forestry-related impacts were transport of fine sediments, lower levels of tree retention in riparian management areas (RMA), and machine disturbance in RMAs



Visual Quality

How are we managing views in scenic areas and achieving Visual Quality Objectives (VQOs)?

- 234 landforms sampled
- VQOs were achieved on 61% of landscapes sampled
- 22% of openings sampled had visually effective levels of tree retention (>24% by volume or stem count)
- 40% of landscapes sampled had clearly evident visual design (cutblock shaping)



Water Quality

Are forest practices effective in protecting water quality?

- 1717 road-stream crossings and 466 range sites sampled
- 70% of sample sites were rated Low or Very Low for potential sediment generation, indicating water quality was preserved at these sites
- 5% of sample sites were rated as High or Very High for potential sediment generation, indicating water quality was negatively affected
- Long ditch lines, disturbed natural drainage patterns, exposed erodible soils, and road maintenance shortcomings were the main causes of elevated sediment generation



Forage/ Range

What impact are range practices having on the desired plant succession and the water cycle/hydrologic function?

- 439 upland areas, 117 wetlands, and 56 streams sampled
- 56% of upland areas, 68% of wetlands, and 63% of streams were properly functioning to slightly at risk
- One-third of range upland areas show decreasing forage supply because of forest in-growth and (or) heavy combined livestock and wildlife use
- Wetlands show the effects of low water levels and increased susceptibility to trampling damage



Soils

Are forest practices preventing site disturbance that is detrimental to soil productivity and hydrologic function?

- 150 cutblocks sampled
- Most cutblocks were below the soil disturbance limits of 5% for sensitive soils and 10% on other soils
- Soil disturbance created during roadside processing of timber and piling debris were often concentrated and exceeded 25%
- In salvage-logged beetle areas, exposed seepage areas and areas of standing water indicated changes in soil hydrologic function



Biodiversity

Is stand-level retention providing the habitat necessary for maintaining the species dependent on wildlife trees and CWD?

- 1642 cutblocks sampled
- Results below are from the three predominant biogeoclimatic (BEC) subzones representing the Northern Interior, Southern Interior, and Coast areas



BEC	Average retention	Cutblocks with retention	Retention quality compared to baseline		
			Tree Species	Large trees	Big CWD
BWBSmw	10%	87%	Borderline	Excellent	Poor
IDFdk	27%	93%	Good	Good	Poor
CWHvm	21%	92%	Borderline	Poor	Good