



**Land Based
Investment
Strategy**

Land Based Investment Strategy

Annual Report

2012/2013



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1. Overview

We are pleased to submit our report covering the operations and administration of the Land Based Investment Strategy for 2012/13.

This report reports out on the fifteen LBIS line of works being funded:

- 1) Current Reforestation
- 2) Timber Supply Mitigation
- 3) Tree Improvement
- 4) Fish Passage
- 5) Watershed Management
- 6) Inventory
- 7) Visuals
- 8) Ecosystem Based Management (EBM)
- 9) Forest Health
- 10) Invasive Plants
- 11) Wildfire Planning
- 12) Ecosystem Restoration
- 13) Recreation
- 14) Range
- 15) Wildlife



The budget for the LBIS program was \$68,899,000. \$68,260,907 was spent leaving a surplus of \$638,093. This was a result of HST miscalculation. \$2,488,325 went to First Nations through employment opportunities and contracts to First Nations.

2. Progress (outputs) and Targets (outcomes)

1) Current Reforestation

Actual Expenditure: \$29,082,352

Activities such as basic reforestation of wildfire and mountain pine beetle killed stands (Forests for Tomorrow), assisting in watershed management and reforestation, ensure previously sown FIA-LBIP seedlings are planted and short-rotation or fibre plantations to assist with the feedstock for emerging industries.



Budget:

Program	\$ Spent	Notes
FIRS (Licensee Recipients)	\$ 732,079	
FRPA Section 108	\$ 16,571	This was the only payment made from 2012/13. Other payments (\$10,524,309) were made through a liability account.
PINES (FFT Recipients)	\$ 4,304,131	
Regions, Districts and BCTS	\$ 12,302,906	
RPB LBIP Delivery, NSR update	\$ 2,160,236	
Seed Purchase	\$ 687,587	
Sowing (through BCTS)	\$ 4,433,503	
Small Scale Salvage	\$2,795,339	
LBIS	\$1,650,000	Act on immediate needs/emerging priorities to enable the use of B.C.'s natural resources and contribute to the achievement of economic, social and environmental benefits
Total SUM	\$ 29,082,352	

Targets, Activities and Outputs:

Target (What we said we would do)	Achievement (What we did)	Activities and Outputs (How we did it)
<ul style="list-style-type: none"> • 2.77 million m³ in 65 years • 2.8 million tonnes CO₂e in 65 years • 321 million GDP in 65 years • 29,000 pd short term employment • 2,363 FTE long-term employment in 65 years 	<ul style="list-style-type: none"> • 1.9 million m³ in 65 years calculated by 10,099ha x 2.9m³/ha x 65yrs • 1.5 million tonnes CO₂e in 65 years calculated by 1.9Mm³ x 0.81/m³ • 220 million GDP in 65 years calculated by 1.9 Mm³ x \$116/m³ • 65,568 pd short term employment calculated by (seed and nursery employment + survey employment + site prep employment + planting employment) = (10099/1) + (289986 x 0.1) + (6273 x 1) + (10099 x 2) • 1999 FTE long-term employment in 65 years calculated by (2.9 potential volume gain m³/ha/yr x 65 x 10099 x 1.05) / 1000 	<ul style="list-style-type: none"> • 14,593,260 trees planted (10,099 ha). • 6,273 ha site preparation • 289,986 ha surveyed to assess areas, prescribe treatments and determine growth rates and survival on past FFT and FIA planting. • 87,000 ha of backlog (pre 87 NSR) assessed eliminating 49,851 ha of NSR.
Funding for RPB for strategic planning, performance measure development, reporting and program support.	Develop, refine and monitor the strategic plan, provide support for field operations, creation of standards and development best management practices.	GIS and Program Support, Standards Development, Assessments, Communication, Training Materials



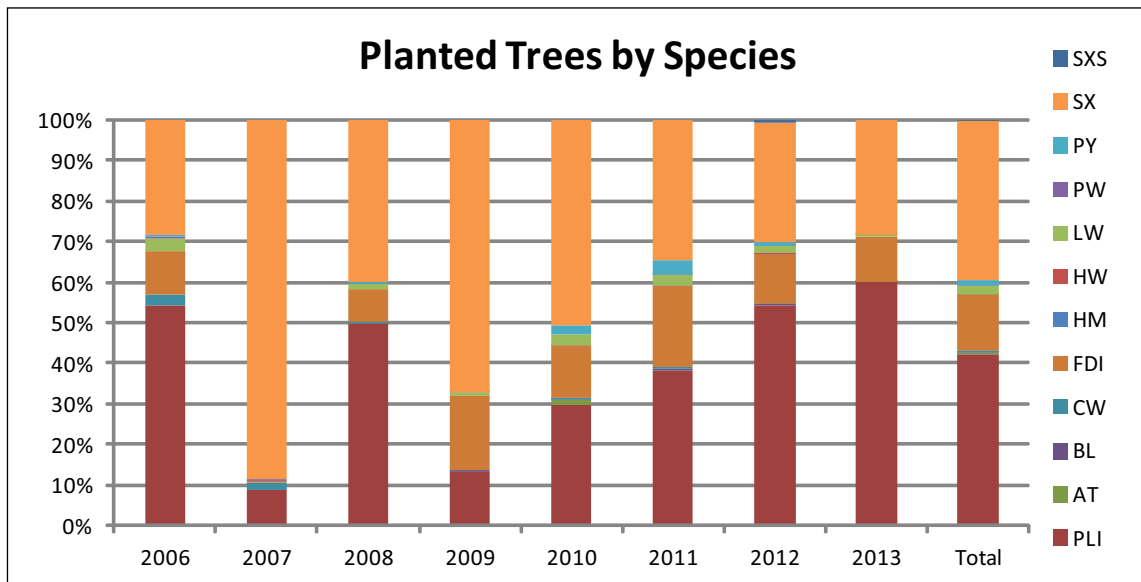
Management of Tree Species Composition

Policy - on sites with more than one “preferred” species, more than one preferred species (and, where practicable, all of the preferred species) will be planted.

Year	Total Ha Planted	Total Ha with more than one species planted	Total ha of area with one preferred species in prescription	Area planted with more than one species when the prescription only prescribes one species	Area weighted mean dominant species % in Silv Label	Total number of Pine Planted	Total number of Trees Planted	% of Pine Planted out of all trees planted	% of post-treatment stand composition that is PLI**
2005/06	843	612	737	575	75.4	610,330	1,127,552	54	48
2006/07	774	256	593	141	65.5	95,395	1,077,564	9	32
2007/08	5,518	4,482	5,144	1,198	77.5	3,375,539	6,782,751	50	43
2008/09	6,694	5,320	6,767	(7,288)	70.8	946,750	7,063,684	13	47
2009/10	10,756	9,076	10,117	1,420	73.8	4,109,994	13,850,626	30	44
2010/11	12,672	10,688	11,591	989	69.2	6,681,754	17,517,074	38	37
2011/12	9,740	7,691	8,091	466	71.6	7,569,529	13,971,563	54	54
2012/13	9,299	7,588	8,641	1,153	81.6	8,808,465	14,712,099	60	57
Total	56,296	45,713	51,681	990	-	32,197,756	76,102,913	42	47

Data Source: RESULTS as of July 3, 2013.

** Note: This column has changed from the previous annual reports. The column now represents only FFT planting activities and the base year is the first planting year.



2) Timber Supply Mitigation

Actual Expenditure: \$ 12,258,371

The focus of the Timber Supply Mitigation investment category is to mitigate impacts on timber supply caused by catastrophic disturbance or constrained timber. Fertilization, spacing and backlog brushing in the central interior will focus on Mountain Pine beetle impacted areas and treatments on the coastal, southeast and northwest forest management units will focus on areas of constrained timber supply and where the highest return-on-investment will be achieved. Fertilization of stands increases merchantable volume and shortens time to harvest and spacing activities will make stands suitable for harvest sooner.



Investment funds cover activities such as: overview planning; surveys; current and future treatment prescriptions; and activity treatments. Delivery of activities is by Ministry staff, major licensees, BCTS, Woodlots and Community Forests.

Budget:

Program	\$ Spent	Notes
Fertilization	\$ 7,084,706	Expenditures included application and prescriptions for future treatments. Fertilizer (\$7.25 million) for 2012/13 application was purchased in 2011/12.
Juvenile Spacing and Conifer Release	\$ 5,173,665	Initial allocation of 80% of funds for Ministry projects; Individual Ministry and BCTS contract approvals required at ADM level; and late project starts resulted in several projects being snowed out. A fourth quarter budget reduction was made to reflect the non-committed funds.
Total SUM	\$ 12,258,371	

Targets, Activities and Outputs:

Target (What we said we would do)	Achievement (What we did)	Activities and Outputs (How we did it)																																											
Fertilize 28,000 ha of area in MPB impacted or constrained timber supply areas to produce an additional 546,000 m ³ of wood in 10 years, and juvenile space 1200 ha of over dense stands in the interior, coastal, southeast, and northwest priority management units to make stands available for harvest 10-30 years sooner.	<ul style="list-style-type: none"> Ministry, BCTS, and licensee staff completed 28,261 ha of fertilization, 2,948 ha of juvenile spacing, and 621 ha of conifer release in 2012/13. In addition planning and surveys were completed to identify candidate stands for future treatments. Fertilization of 28,261 ha will produce 551,070 m³ additional wood in 10 years; 391,260 tonnes of CO₂e in 10 years; \$63 million GDP in 10 years; 5087 person days of short term employment; 579 FTE long-term employment in 65 years Juvenile spacing of 2,948 ha will make stands available for harvest in 10-30 years sooner and generated 11,678 person days of short term employment. Brushing treatments were completed on 621 ha of impeded pre-87 stands to release conifers and make stands available for harvest sooner. 	<p>Aerial application of fertilizer was focused on priority management units in the Interior (73% ha treated) where catastrophic disturbances have caused significant drops in mid-term timber supply. Coast treatments (27% ha treated) addressed areas with timber supply constraints. Of the Interior areas treated, 17,871 (87% of the Interior treated) was on Priority 1 areas.</p> <table border="1"> <thead> <tr> <th rowspan="2">FLNRO Regions</th> <th colspan="3">Treated Area (ha)</th> </tr> <tr> <th>Fertilization</th> <th>Juvenile Spacing</th> <th>Conifer Release</th> </tr> </thead> <tbody> <tr> <td>West Coast</td> <td>5,801</td> <td>41</td> <td>0</td> </tr> <tr> <td>South Coast</td> <td>1,884</td> <td>290</td> <td>0</td> </tr> <tr> <td>Omineca</td> <td>8,851</td> <td>0</td> <td>585</td> </tr> <tr> <td>Skeena</td> <td>4,423</td> <td>635</td> <td>0</td> </tr> <tr> <td>Kootenay/ Boundary</td> <td>0</td> <td>122</td> <td>0</td> </tr> <tr> <td>Thompson/ Okanagan</td> <td>1,921</td> <td>350</td> <td>36</td> </tr> <tr> <td>Cariboo</td> <td>5,381</td> <td>1,510</td> <td>0</td> </tr> <tr> <td>Northeast</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>TOTAL</td> <td>28,261</td> <td>2,948</td> <td>621</td> </tr> </tbody> </table>	FLNRO Regions	Treated Area (ha)			Fertilization	Juvenile Spacing	Conifer Release	West Coast	5,801	41	0	South Coast	1,884	290	0	Omineca	8,851	0	585	Skeena	4,423	635	0	Kootenay/ Boundary	0	122	0	Thompson/ Okanagan	1,921	350	36	Cariboo	5,381	1,510	0	Northeast	0	0	0	TOTAL	28,261	2,948	621
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3) Tree Improvement

Actual Expenditure: \$ 2,800,917

Tree improvement and forest genetic resource management includes increasing value through tree breeding and seed orchard seed production, conservation of the genetic diversity of indigenous forest tree species, and enhancing forest resilience through scientifically-based seed transfer standards and the maintenance of genetic diversity.



Budget:

Program	\$ Spent	Notes
Tree Improvement	\$ 2,800,917	
Total SUM	\$ 2,800,917	

Targets, Activities and Outputs:

Target (What we said we would do)	Achievement (What we did)	Activities and Outputs (How we did it)
4.68 million cu metres (117,143 hectares x 0.615 cu metres/year x 65 years)	4.634 million cu metres (115,924 hectares x 0.615 cu metres/year x 65 years)	Seed production, tree breeding, and seed policy work for seed transfer in a changing climate were carried out. An estimated 115,924 hectares were planted using select seed.

4) Fish Passage

Actual Expenditure: \$ 2,351,269

Fish passage failure at road crossing constitutes a major loss of freshwater habitat for both migratory and resident fish populations in BC. Continued investment in the systematic assessment of closed bottom structures and remediation of high priority sites will contribute to the restoration of fish habitat connectivity in BC and will significantly improve fish populations and aquatic health.



Budget:

Program	\$ Spent	Notes
Remediation and Assessment	\$ 2,151,269	
Technical Working Group projects	\$ 200,000	
Total SUM	\$ 2,351,269	

Targets, Activities and Outputs:

Target (what we said we would do)	Achievement (What we did)	Activities and Outputs (How we did it)
<ul style="list-style-type: none"> • Remediate 15 high priority fish stream crossings to reconnect high quality fish habitat. • Complete assessments in 75 priority third order watersheds. • Complete Fish-Stream Crossing Guidebook. • Expand Fish Passage Technical Working Group (TWG) to include all Natural Resource agencies plus the Ministry of Transportation and Infrastructure • Update Engineering Standards. 	<ul style="list-style-type: none"> • Remediated 18 high priority fish stream crossings (5 bridges, 2 culverts, and 11 crossing deactivations) that reconnected about 27 km of primarily high value fish habitat. • Acquired structures for 11 additional remediation projects for future installation. • Completed assessments for about 250 priority third order watersheds involving about 4500 crossing assessments • Completed 85 habitat confirmations. • Completed the Fish-Stream Crossing Guidebook; distributed 1000 hard copies; widely communicated its availability on fish passage website (e.g. to professional associations) leading to about 10,000 downloads of the Guidebook. • TWG expanded to include Ministry of Transportation and Infrastructure, with contacts made to other Natural Resource Sector agencies; have followed-up with Oil and Gas Commission and BC Hydro with engagement on-going with both • Engineering Standards updated. 	<ul style="list-style-type: none"> • BCTS Timber Sales Offices delivered assessments and remediation work. • TWG conducted debrief/continuous improvement conference call with BCTS staff engaged in fish passage work. • TWG conducted field review of previous remediation and assessment work on southern Vancouver Island. • Habitat confirmations and design work completed in support of remediation projects. • New assessments have been entered into PSCIS data base. • Completed PSCIS loading of legacy data comprising about 2500 assessments. • TWG widely circulated a draft Fish-Stream Crossing Guidebook to government agencies and stakeholders for final review and comment. • TWG participated in the Fish Passage program evaluation initiated by the LBI Steering Committee. • TWG prepared and presented three technical papers at Resource Roads Workshop held in Cranbrook, BC.

5) Watershed Management

Actual Expenditure: \$ 485,926

The process of creating and implementing plans, programs, and projects to sustain and enhance watershed functions that affect flora, fauna and human communities within a watershed boundary.

Budget:

Program	\$ Spent	Notes
Water	\$ 485,926	The budget was \$520,000. The category was allocated \$523,000 and spent \$485,926. The difference (6.5%) was that in a couple of locations the regional offices funded final invoices with surplus funds.
Total SUM	\$ 485,926	



Targets, Activities and Outputs:

Target (What we said we would do)	Achievement (What we did)	Activities and Outputs (How we did it)
<p>Assessments to identify and/or mitigate risk to water quality in:</p> <ul style="list-style-type: none"> • Community / watersheds where water is diverted for human consumption • Fisheries sensitive watersheds, and, • Watersheds attacked by MPB, wildfire or where range activities are identified as impacting water quality. 	<p>Regional watershed risk assessments were completed in the:</p> <ul style="list-style-type: none"> • Cariboo-Chilcotin, • Kootenay , and, • Cariboo-Lillooett TSA's <p>Fisheries Sensitive Watersheds (FSW), funding was provided to complete assessments and inventories to facilitate FSW designation in the;</p> <ul style="list-style-type: none"> • Omineca and Nation drainages, • the Lakelse River watershed, • to complete FSW protocol development, • Peace country – undertake First Nation and stakeholders (forestry, oil&gas etc) workshops to refine package and objectives to move the process forward to designation, • to provide First Nation consultation in the Stuart Takla watersheds, and to, • to complete field based risk analysis in the Cariboo and Cottonwood watersheds in support of FSW designation. <p>Range activities - Conduct a review of the range referral letter process to identify understand, completeness and expectations, and to provide recommendations.</p> <p>FREP - To develop a digital version of the water quality effectiveness evaluation so as to improve efficiencies (reduce costs, time, and errors) and accuracy.</p> <p>Hydrologic recovery - A contract to improve estimates of snow recovery in the southern interior for fully stocked stands in the snow zone that reach a maximum crown closure of 50-70%.</p> <p>Community watershed channel assessments - A contract to complete two watershed assessments to reduce regional backlog</p> <p>Strategic plan - Initiation of a process to develop a strategic plan for LBISwater.</p>	<p>All work was completed by contract.</p> <p>Outputs included:</p> <ul style="list-style-type: none"> • Regional risk assessments, • Fish inventories, • Assessment procedures • Meetings (FN consultations) • Protocol development • Reports for approved projects.



6) Inventory

Actual Expenditure: \$ 6,466,889

Spatial and non-spatial forest inventory information is used to support many operational and strategic planning exercises (mid-term timber supply reviews, wildlife and habitat mapping, etc). Forest inventory information is also used to support investment decisions for other LBI programs. Higher risk management units require current and reliable data. Site productivity data are used to support TSR and silviculture investment planning.

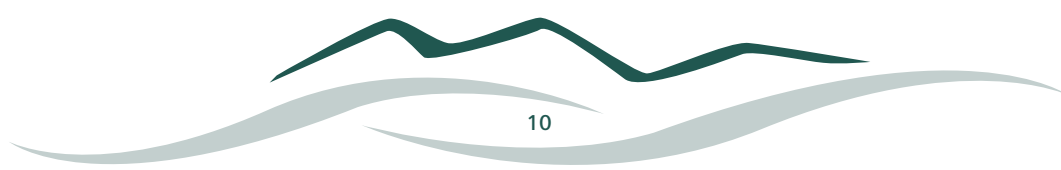


Budget:

Program	\$ Spent	Notes
Inventory Analyses	\$ 77,047	
Inventory Ground Sampling (VRI, NVAF, YSM, PSP)	\$ 1,098,693	
Photo Interpreted Inventory Activities (incl air photo acquisition)	\$ 3,501,102	
Program Support (contracts, auxilliary staff, etc)	\$ 274,069	
Remote Sensing/Innovative Inventory Activities	\$ 470,383	
Site Productivity	\$ 915,595	
Systems Support	\$ 130,000	
Total SUM	\$ 6,466,889	

Targets, Activities and Outputs:

Target (What we said we would do)	Achievement (What we did)	Activities and Outputs (How we did it)
<ul style="list-style-type: none"> • Improved information for decision making by natural resource sector managers including AAC determinations and strategic analyses, in addition to addressing emerging mid-term timber supply questions; First Nations Treaty negotiations; carbon estimation. • Enhanced ability to address licensees issues and concerns, help focus land based investments to the highest priorities and returns, inform those pursuing emerging opportunities; and better assist in government policy development. • Inventory information is current and complete for high risk management units. • Forecasts of the productivity on existing and future second growth stands are improved. Complete full draft PEM, develop AA Sample plan • Preliminary sampling plan for PEM and SIBEC 	<ul style="list-style-type: none"> • Photo interpretation of 100 Mile House TSA on schedule for a 2013/14 completion. • TFL 14 photo interpretation on schedule for 2012/13 completion. • Mackenzie TSA audit sampling complete and inventory analysis ongoing. • Completion of northern central interior regional net volume adjustment factor (NVAF) sampling (area approximates Mackenzie and Prince George TSAs, Kootenay Lake TSA, and coast Region) near complete. • Mid Coast TSA, Haida Gwaii TSA photo interpretation on schedule for a 2013/14 completion. • TFL 23 completion delayed until 2013/14 due to contractor capacity. • Vegetation Resources Inventory activities initiated and continuing in Kamloops Forest District, TFL 35, Pacific TSA (photo interpretation), Kootenay Lake and Morice TSA (audit, young stand monitoring, and analyses). Kamloops and TFL 35 on schedule to be completed over two years, Kootenay Lake and Morice to be completed 2012/13. • Photo acquisition successfully completed in the Lakes, Vanderhoof, and the southern Ft St James and PG TSAs. • Installation of young stand monitoring samples in the Quesnel TSA and complete, analysis to be completed 2012/13. • Develop and implement innovative, non-standard VRI inventory processes and activities. This includes (1) completion of Landscape Vegetation Inventory for priority MPB-impacted west Williams Lake TSA (1.7 million ha) using semi-automated classification of satellite imagery and MPB specific photo/ground sampling; (2) test Lidar technology, in conjunction with BCTS and licensees, to produce inventory information. These projects are progressing as planned, other than the ground sampling component of the Williams Lake project which has been delayed until 2013 due to lack of contractor capacity. • Initiation of SIBEC sampling in the Arrow/Boundary TSA • Initiation of PEM in the Cranbrook, initiate BEC sample plan. • Completion of PEM in the Kootenay lake and Accuracy Assessment in the Merritt TSA. • Completion of outstanding SIBEC sampling in priority LBIS management units ** In response to immediate info requirements in the Lakes TSA, initiated and completed unscheduled sampling project. Inventory analysis to be completed 2012/13. 	<ul style="list-style-type: none"> • Continuing completion of new photo interpreted inventory data in the Mid Coast TSA, Haida Gwaii TSA, 100 Mile House TSA, and Kamloops TSA. Completion of TFL 14 and Pacific TSA. Completion of TFL 23 put on hold. • Completed NVAF ground sample data collection in the Mackenzie, Prince George TSA and the Coast Region. • Completed Young Stand Monitoring sample data collection in the Quesnel TSA. • Completed of audit and Young Stand Monitoring ground sample data collection in the Morice and Kootenay Lake TSAs. • Photo acquisition successfully completed in the Lakes, Vanderhoof, and the southern Ft St James and PG TSAs. • Ongoing development and implementation of innovative, non-standard VRI inventory processes and activities. This includes (1) completion of Landscape Vegetation Inventory for priority MPB-impacted west Williams Lake TSA (1.7 million ha) using semi-automated classification of satellite imagery and MPB specific photo/ground sampling; (2) test Lidar technology, in conjunction with BCTS and licensees, to produce inventory information. These projects are progressing as planned, other than the ground sampling component of the Williams Lake project which has been delayed until 2013 due to lack of contractor capacity. • Completed SIBEC sampling in the Arrow/Boundary TSA • Completed SIBEC sampling in the Cranbrook select PEM including sample plan. • Completed PEM and preliminary field sampling in Robson Valley. • Concluded outstanding SIBEC sampling in priority LBIS management units



7) Visuals

Actual Expenditure: \$ 180,124

Refined visual landscape inventories to reduce the amount visually constrained area in priority units for mid-term timber supply and/or EBM areas. Complete re-inventory in those areas with significant past investment and direct new inventory work to occur in priority units.

Budget:

Program	\$ Spent	Notes
Visuals	\$ 180,124	
Total SUM	\$ 180,124	

Targets, Activities and Outputs:

Target (What we said we would do)	Achievement (What we did)	Activities and Outputs (How we did it)
<ul style="list-style-type: none"> • Complete re-inventory in those areas with significant past investment. • Direct new inventory work to occur in priority units. 	<ul style="list-style-type: none"> • 100 Mile House: Carryover project completed. • Highway 29 Moberly Lake to Hudson's Hope and Hudson's Hope to the WAC Bennett Dam re-inventory completed. • Lund to Saltery, Jervis & Princess Royal Inlets, Texada & Lasqueti Island re-inventory completed. • Hwy 97 McAllister-Cottonwood Ck re-inventory completed. • Re-inventory entire Rocky Mountain District completed. • Quality assurance and upload to BCGW completed for DNI & DSI. 	<p>All work accomplished through contract.</p>



8) Ecosystem-Based Management

Actual Expenditure: \$ 987,588

Mapping support for (1) implementation of old growth retention targets at the site series level; (2) application of improved SIBEC estimates for assessment of timber supply; (3) SLR design.

Budget:

Program	\$ Spent	Notes
R level TEM mapping. PEM TEM hybrid assessment.	\$ 987,588	\$72.56 remaining at end of fiscal plus an additional \$12,337 was JV'd to MoE to contribute to operationalizing the TEM for CFCL/ BCTS, and others (crosswalking, matching polys, analysis on site series groups, etc.).
Total SUM	\$ 987,588	

Targets, Activities and Outputs:

Target (What we said we would do)	Achievement (What we did)	Activities and Outputs (How we did it)
<ul style="list-style-type: none"> Field data and completed spatial mapping for approximately 1 million ha; including 4 LUs in Kingcome TSA1; 8 LUs in MidCoast TSA2, and 13 LUs in the NorthCoast TSA3 primarily at level R - on target for completion March 2013 Completion of TEM-PEM hybrid assessment and extension of mapping model to priority LUs dependent on QA results and relative cost analysis - final report expected Nov 30, 2012 Independent AA to contribute to cost:benefit analysis of level4 vs. Level R vs. PEM/TEM hybrid mapping in plan area - field work completed internally; report planned by Jan 30, 2013 	<ul style="list-style-type: none"> Preliminary polygon delineation and attribution for all LUs completed; field sampling completed in Kingcome TSA, MidCoast TSA, and 7 LUs in North Coast TSA. Initial report and layers received, knowledge tables updated to reflect new plot information; awaiting final comparative report and output layers. New test methodology developed and field work completed by MFLNRO and MoE staff (report in process) Initial seamless layer derived; evaluation by stakeholders and updates of layer ongoing. Initial joint meetings held onsite with Heiltsuk representatives including joint TEM flight; partnership meetings held with additional partners (Hakai Institute, SFU) and mapping consultants (Blackwell). 	<ul style="list-style-type: none"> Preliminary polygon delineation and attribution for all LUs completed; field sampling completed by helicopter in Kingcome TSA, MidCoast TSA, and 7 LUs in North Coast TSA. Initial report and layers received, knowledge tables updated to reflect new plot information; New test methodology developed and field work completed by MFLNRO and MoE staff (report in process) Initial seamless layer derived; evaluation by stakeholders Initial joint meetings held onsite with Heiltsuk representatives including joint TEM flight; partnership meetings held with additional partners (Hakai Institute, SFU) and mapping consultants (Blackwell).



Target (What we said we would do)	Achievement (What we did)	Activities and Outputs (How we did it)
<p>(1) Complete level R field data and spatial mapping for approximately 1 million ha; 4 LUs in Kingcome TSA1 ; 8 LUs in MidCoast TSA2, and 13 LUs in the NorthCoast TSA3 (2) Completion of TEM-PEM hybrid mapping for Draney LU - comparative methodology validation (PEM-TEM hybrid with and without field data incorporated); (3) Independent Accuracy Assessment of TEM for >=1 LU to assess mapping consistency and utility of level 4 vs. Level R vs. PEM/ TEM hybrid mapping in plan area (4) GIS, spatial analysis and standards development to complete seamless TEM-PEM layer to support operational use of mapping in EBM implementation; (5) partnership development with FN in current mapping and project mapping areas; and evaluation of joint TEM use and feasibility for capacity building within FN resource departments</p>	<p>(1) 1,000,000 ha (approximately 15% of EBM land base) mapped with Level R Terrestrial Ecosystem Mapping (TEM) including MidCoast TSA LUs4 and NorthCoast TSA LUs5 ; priorities determined in part through stakeholder consultation and coordination with VRI progress; preliminary polygon attribution completed for an additional LU (Calvert); (2) Completion of comparative analysis and report for TEM-PEM hybrid mapping for Draney LU ; final comparative report and output layers produced; (3) Sampling of Draney LU for independent accuracy assessment (AA) of mapping; reevaluation of BEC linework in Draney and adjacent LUs completed; quantitative comparison of emerging mapping standards and approaches relative to traditional TEM initiated for 1 LU; (4) Completion of seamless TEM for operational use by all stakeholders (use being assessed by JSP members); (5) initiated discussion with FN in MidCoast re: TEM utility and sampling approaches</p>	<p>(1) preliminary polygon delineation and attribution for all LUs completed through air photo interpretation; ground and air call field sampling done in Kingcome TSA, and MidCoast TSA; air sampling done in North Coast TSA; (2) update of PEM knowledge tables and polygon delineation using 2011 field data; quantitative comparison of this 2nd hybrid (TEM-PEM) ecosystem map to materials produced previous to field work; final report and input/output layers produced/received (3) Novel AA and BEC/ linework sampling methodology developed and tested in the field (ground and air calls for Draney LU) by MFLNRO and MoE staff; quantitative comparison of the independent sampling vs. TEM methodologies and TEM-PEM work in process; (4) Completion of seamless TEM for operational use, incorporating crosswalked ecosystem units for all 2011-12 data and any updated provincial BEC linework; development of methodologies for integrating new TEM polygons with ssPEM where TEM is not available, quantitative analysis of TEM vs. ssPEM and assessment of operational implications (done in collaboration with CFCI and RSP partners); (5) meetings held onsite (Koeve and Calvert LUs) with Heiltsuk representatives- including joint TEM flight; meetings held with and presentations made to additional partners (Hakai Network - included representatives from Heiltsuk and Owikeno FNs-, Hakai Institute, and SFU) and mapping consultants (Blackwell)</p>

9) Forest Health

Actual Expenditure: \$ 6,003,543

Forest Health, a component of the Silviculture Program, is responsible for the detection and quantification of forest health problems, and, where necessary, the prescription and implementation of protective or suppressive treatments to prevent insect, disease and mammal damage to reforested areas and old growth stands. The forest health program also evaluates the effect of forest practices on forest health as these occasionally increase the risk of damage from insects, diseases and mammals. Funding for forest health increased by 1 million dollars to support Mountain Pine Beetle treatments in south east part of the province.



Budget:

Program	\$ Spent	Notes
Forest Health - All	\$ 6,003,543	
Total SUM	\$ 6,003,543	

Targets, Activities and Outputs:

Target (What we said we would do)	Achievement (What we did)	Activities and Outputs (How we did it)
<ul style="list-style-type: none"> • Conduct an aerial overview survey on 80% of the province • Conduct 10% quality checks of the aerial overview survey • Treat 100,000 ha of high value interior Douglas-fir to reduce impacts caused by Western Spruce Budworm • Update all TSA/District forest health strategies • Conduct detailed aerial surveys on all high priority Douglas-fir and Spruce Beetle infestations • Manage all high priority mountain pine beetle infestations • Deploy gypsy moth eradication program 	<ul style="list-style-type: none"> • Over 80% of the province was surveyed • 10% quality checks of the aerial overview survey completed • Over 100,000 ha of interior Douglas-fir were protected using aerial spray applications • Forest health strategy updates are on track for completion by year end • All high priority Douglas-fir and Spruce Beetle infestations detected • Mountain pine beetle management ongoing and on track • gypsy moth monitoring completed 	<ul style="list-style-type: none"> • All regions participated in administering aerial overview survey contract in their areas. HQ is coordinating and summarizing the provincial data and producing an annual forest health conditions report in March 2013. • HQ administers the quality control contract to ensure the aerial overview survey is deployed to provincial standards • Cariboo, TOR and KBR regions conducted aerial applications of Btk to treat high value budworm stands. In addition, stands critical for caribou habitat were also treated to prevent stand mortality by defoliation by western hemlock looper. A small operational trial to test treatment timing for 2 year cycle budworm was conducted near Quesnel. • Forest health strategies will be updated with the latest AOS results. Climate change and FSP stocking standards recommendations will be added where the information is available. • Detailed aerial surveys were conducted to identify new Douglas-fir and spruce beetle infestations that will be managed mainly through harvesting • Mountain pine beetle detailed aerial surveys have been completed in suppression BMUs in SE BC. Ground detection and single tree treatments will be completed this winter. • Gypsy moth traps were deployed by the province in FS recreation sites and provincial parks by regional FH staff/contractors. No male GM were found in these traps this year.



10) Invasive Plants

Actual Expenditure: \$ 2,297,259

Invasive plants threaten healthy forest and rangeland ecosystems by displacing native species and disrupting natural ecosystem processes. They can also seriously affect wildlife habitat and forage availability, forest regeneration, water quality, and natural disturbance regimes. The Invasive Plant Program works collaboratively and often in partnership with other land management agencies, First Nations, and regional weed committees to detect and eradicate new incursions, contain the spread of priority invasive plant populations through treatment programs, and reduce existing impacts through best management practices and applied biological control activities. (<http://www.for.gov.bc.ca/hra/plants/index.htm>)



Budget:

Program	\$ Spent	Notes
Invasive Plant Early Detection and Rapid Response, containment and control	\$ 597,259	
Grant	\$ 1,700,000	Twenty eight grants given to local governments, Regional Weed Committees and the Invasive Species Council of BC to assist their activities and support the objectives of the provincial Invasive Plant Program (http://www.newsroom.gov.bc.ca/2012/05/bc-grants-over-17-million-to-fight-invasive-plants.html).
Total SUM	\$ 2,297,259	

Targets, Activities and Outputs:

Target (What we said we would do)	Achievement (What we did)	Activities and Outputs (How we did it)
<ul style="list-style-type: none"> • 12 historic candidate EDRR invasive plant species reviewed; control or containment action determined and implemented. • No new invasive plant species established in the province. • Some expansion of highest provincial priority invasive plant species beyond established containment lines • 600 priority invasive plant sites inspected and/or treated • 12% of highest provincial priority invasive plant species treatment sites are eradicated. • Infestations of Dalmatian toadflax, hound's-tongue, and diffuse knapweed are under biological control. 	<ul style="list-style-type: none"> • Provincial EDRR plan updated and implemented on 12 invasive plant species with historic accounts; no new incursions reported this year • Inventory and incursion surveys completed on FSRs West of Revelstoke; East of Vernon (Monashee); North of Sparwood; Bummer's Flats WMA and Cariboo east for Marsh Plume thistle. • 32% of highest provincial priority invasive plant species (IPP Goal 3 species) sites on Crown land were inspected and/or treated outside containment lines. This achievement was due to partnership delivery FYE grant funding of \$1.727 million in March 2012. Without the partnership funds, the result would have been 5%. • Available operational biological control agents distributed to fill gaps 	<ul style="list-style-type: none"> • Analysis and field verification of 12 historic candidate prohibited invasive plant species records; • Invasive Plant Early Detection and Rapid Resonse (EDRR) treatment actions on 7 species; • Invasive Plant Multi-Stakeholder Partnerships maintained with 13 invasive species/plant committees and 15 local governments; • Invasive Plant Inventory completed on 60% of planned areas; • Invasive Plant Surveys and Treatments completed on 438 sites (does not include sites treated through partnership grants); • Invasive Plant Sites Extirpated: 5%

11) Wildfire Planning

Actual Expenditure: \$ 515,220

Planning to: reduce fire hazards and risks (particularly in and around communities and other high-value areas); carefully use controlled burning where the benefits are clearly defined and the risks can be cost-effectively managed; monitor and manage, rather than suppress, fires that are of minimal risk to communities, infrastructure or resource values; implement land, natural resource and community planning that incorporates management of wildland fire at all appropriate scales; and develop a high level of public awareness and support for wildland fire management.



Budget:

Program	\$ Spent	Notes
Wildfire Planning	\$ 165,220	9,780 was unspent as Burn P3 computer modelling times were longer than anticipated for each district.
Fire & Fuel Management Planning and Implementation	\$ 350,000	
Total SUM	\$ 515,220	

Targets, Activities and Outputs:

Target (What we said we would do)	Achievement (What we did)	Activities and Outputs (How we did it)
<ul style="list-style-type: none"> • Development of a hazard/risk analysis methodology • Test Pilot hazard risk analysis methodology in key districts • Provincial scale Hazard/Risk Mapping • Development of a system/ Protocol for development of landscape fire management plans and integration of fire management into other resource management activities including training. • TIPSYP/TASS updates to include Fire Management Tree Species. TASS currently does output and model canopy base height and canopy bulk density. This work was to validate TASS estimates of canopy base height. 	<p>Burn-P3 is a simulation model used to evaluate wildfire susceptibility over large fire-prone landscapes. The results of this simulation are a map showing the predicted wildfire susceptibility, expressed as burn probability for a given year within a defined landscape, ie TSA or District, and this year for predicted wildfire intensity.</p> <p>Developed a GIS based Fire Management Planning Information Viewpoint Information (FMPIV).</p> <p>Two Year Landscape Focused Fire Management Pilots</p> <p>Initiated in three Planning Units:</p> <ol style="list-style-type: none"> 1. Merritt, Vanderhoof/Fort St. James, Soo Planning Units. 2. Co-sponsored by FCM, RDM, and Manager, Fire Management. 3. Planning teams include Fire Mgmt Sp (FMS), Fuel Mgmt Sp (FuMS), Resource District (RD), and Zone (FZ) staff. <p>The general purpose of this project is to continue to develop the ability of TASS/TIPSYP to provide crown fire potential relevant stand information (e.g. canopy base height, crown bulk density, fuel loading as a result of silviculture) as well as model these parameters into the future.</p>	<p>Burn P3 (probability, prediction, and planning) modelling and analysis was completed on 90% of the Province. 20 year probably maps have been produced. These maps are planned to be updated in 2013 with;</p> <ul style="list-style-type: none"> • Improved spatial weather and fuel layer inputs • Statistical ignition layer for historical ignition grid inputs • Improved fire intensity module – Canadian Forest Service and; • 2013 provincial I fuels map updated for TFLs, and Parks. <p>Developed a seamless provincial FMP map template, standard GIS layer files for FMP, that will allow the user to analyze, display, and plan for fire response and landscape activities. This included;</p> <ul style="list-style-type: none"> • The development of several GIS layers to display risk, hazard and priorities on a landscape level. • Collection and identification of values at risk and relative initial ranking using suppression priorities (high value timber areas). <p>Soo TSA planning unit (PU) near Squamish is in the information phase; Merritt (PU) is in the planning and consultation phase and Vanderhoof and Ft. St. James (PU) is starting the development of an implementation plan.</p> <p>A contract was let to use stand management cooperative datasets to assess the accuracy of TASS estimates of canopy base heights. The results indicate that TASS II and III both sometimes under predict or over predict canopy base heights. The species tested were lodgepole pine and Douglas-fir. Additional work is needed to improve the TASS estimates of canopy base height.</p>



12) Ecosystem Restoration

Actual Expenditure: \$946,525

The process of assisting the recovery of resilience and adaptive capacity of ecosystems that have been degraded, damaged, or destroyed. Restoration focuses on establishing the composition, structure, pattern, and ecological processes necessary to make terrestrial and aquatic ecosystems sustainable, resilient, and healthy under current and future conditions. British Columbia’s current priority is the restoration of ingrown open forests and native grassland ecosystems to create landscapes more resilient to climate change while providing sustainable goods and services.



Budget:

Program	\$ Spent	Notes:
Ecosystem Restoration	\$ 654,760	\$ 875,594 in additional leveraged funding.
FIRS/PINES	\$ 291,765	
Total SUM	\$ 946,525	

Targets, Activities and Outputs:

Target (What we said we would do)	Achievement (What we did)	Activities and Outputs (How we did it)
<ul style="list-style-type: none"> Restoration treatments applied to 4000 ha of key ecosystems to create landscapes more resilient to climate change. Contribute 175,000 m³ annually throughout the short and mid-term timber supply, and create other potential biomass opportunities. Reducing excessive fuel loads, through spacing and prescribed fire, helps to mitigate wildfire risks, maintain community water supplies, protect air quality, endangered species and ecosystems, enhance First Nations values, and increase fibre availability. 	<ul style="list-style-type: none"> 4450 ha of mechanical treatments applied. 3421 ha of ER prescribed fire treatments applied. (200 ha is pile burning). 4 District Strategic Plans updated. 	<ul style="list-style-type: none"> Operations implemented spacing/thinning treatments. Operations implemented spring and fall prescribed fire treatments. 4 Districts, working closely with their local steering committees, updated their 5-year Strategic ER Plans.

13) Recreation

Actual Expenditure: \$ 951,339

Conduct maintenance and rehabilitation efforts to extend the life of existing recreation sites and trails; develop new sites and trails where the opportunity, demand and community support is high; lower operating costs and increase service capacity and the quality of outdoor recreation experiences through effective partnerships.



Budget:

Program	\$ Spent	Notes:
Recreation Site and Trail Maintenance and Repair	\$ 951,339	
Total SUM	\$ 951,339	

Targets, Activities and Outputs:

Target (What we said we would do)	Achievement (What we did)	Activities and Outputs (How we did it)
<ul style="list-style-type: none"> • On target for a 5% increase in use at recreation sites and trails (over previous year). • Extended the life of recreation sites and trails. • Provide communities safe, healthy and sustainable outdoor recreation opportunities. 	<p>Approximately 60% of recreation sites and trails have been successfully maintained or rehabilitated in partnership with local community groups, 1st Nations and Forest Licensee's.</p>	<ul style="list-style-type: none"> • Maintain and as necessary rehabilitate 790 recreation sites and 490 trails. • Leverage 198 partnership agreements in place for managing and maintaining recreation sites and trails essential to communities. • Maintain partnership delivery of Rec Site/Trail program; including support from First Nations, Forest Industry and community groups



14) Range

Actual Expenditure: \$827,159

Program activities focus on ensuring healthy and sustainably managed rangelands which are capable of supporting the interests and activities of clients, stakeholders and partners.

Budget:

Program	\$ Spent	Notes
Range	\$ 827,159	
Total SUM	\$ 827,159	

Targets, Activities and Outputs:

Target (What we said we would do)	Achievement (What we did)	Activities and Outputs (How we did it)
14,500 ha	14,500 ha of rangelands benefited from Crown Range Infrastructure Replacement Projects, water developments, riparian management and soil stabilitation seeding.	<ul style="list-style-type: none"> • Fence construction • Fenceline protection from MPB pine fall down • Livestock Water Developments • Riparian management projects • Soil stabilization and rangeland seeding

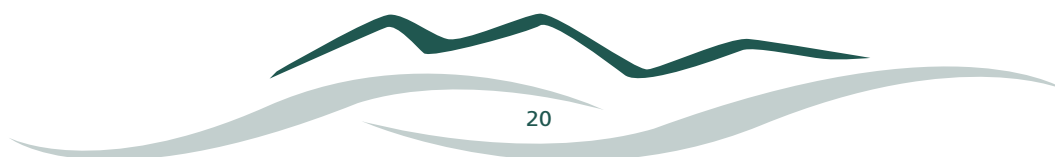
15) Wildlife

Actual Expenditure: \$ 2,106,426

The wildlife program provides naturally diverse and sustainable wildlife to support varied uses for current and future generations through adaptive, proactive and coordinated delivery of wildlife conservation, use and enjoyment opportunities.

Budget:

Program	\$ Spent	Notes
Big Game Inventory	\$ 306,426	
Caribou	\$200,000	
Data Management	\$ 320,000	
Habitat Designations under FRPA and OGAA	\$ 710,106	
Monitoring	\$ 117,597	
Species at risk	\$ 452,297	
Total SUM	\$ 2,106,426	



Targets, Activities and Outputs:

Target (What we said we would do)	Achievement (What we did)	Activities and Outputs (How we did it)
Decrease the backlog of GAR/EMPR habitat authority designations	<ul style="list-style-type: none"> • WHAs - completed WHA inventory, assessment and (field) mapping for over 220 new WHA designations for the following high priority species (as identified in the GAR Implementation Strategy): Racer, Gopher Snake, Rattlesnake, Screech Owl, Sonora Skipper, Williamson’s Sapsucker, Lewis’ Woodpecker, Spadefoot, Grizzly Bear, Tailed Frog, Pacific Giant Salamander, Gillett’s Checkerspot and Waterbirch. Reports, summarizing results and presenting rationale for designation were completed for each of these initiatives. • UWRs - Conducted LBIS-funded UWR work across 7/9 regions supplemented by regional funding . Conducted work on > 12 UWR packages. Completed legal designation of Morice mountain goat UWR and Chinchaga caribou UWRs. “ • FSWs - 5 FSW designated in the PG District. Aproximately 80 watersheds moved toward designation (final tallies pending based on regional reports)” • TSS - two pilot assessments (Nicola and Nadina)” 	<ul style="list-style-type: none"> • Six field crews were trained and conducted habitat inventories with provincial, regional, and consulting species experts. Following field work HQ IWMS coordinator with assistance from some of the field crew technicians completed data entry of WHA candidate polygons and project reporting, to allow Regional Ecosystem staff to proceed with required consultation and WHA proposals. • Helicopter flights conducted in 6 of 9 Regions. Expert analysis of telemetry and flight data conducted in 2 regions. Range monitoring conducted in 3 Regions. Included habitat-related work for 5 ungulate species (caribou, mountain goat, bighorn sheep, deer and elk). • HQ wkg with reg staff and contractors.
Increase sustainable harvest of deer, elk and moose by 10% over 2011/12 levels	Still do not have the hunter sample estimates available to determine how we actually did. One project (\$80K) could not be funded due to poor survey conditions	Ungulate surveys prioirized by standardized criteria to ensure the most important surveys were funded. Some survey reports are completed, others still in progress. Data to be loaded to LRDW and SPI
\$200,000 for caribou, moose and wolf surveys	\$190,000. Conducted caribou surveys in R3,4,5,6; Wolf surveys in R5	Survey reports completed and available on request. Data to be loaded to LRDW and SPI



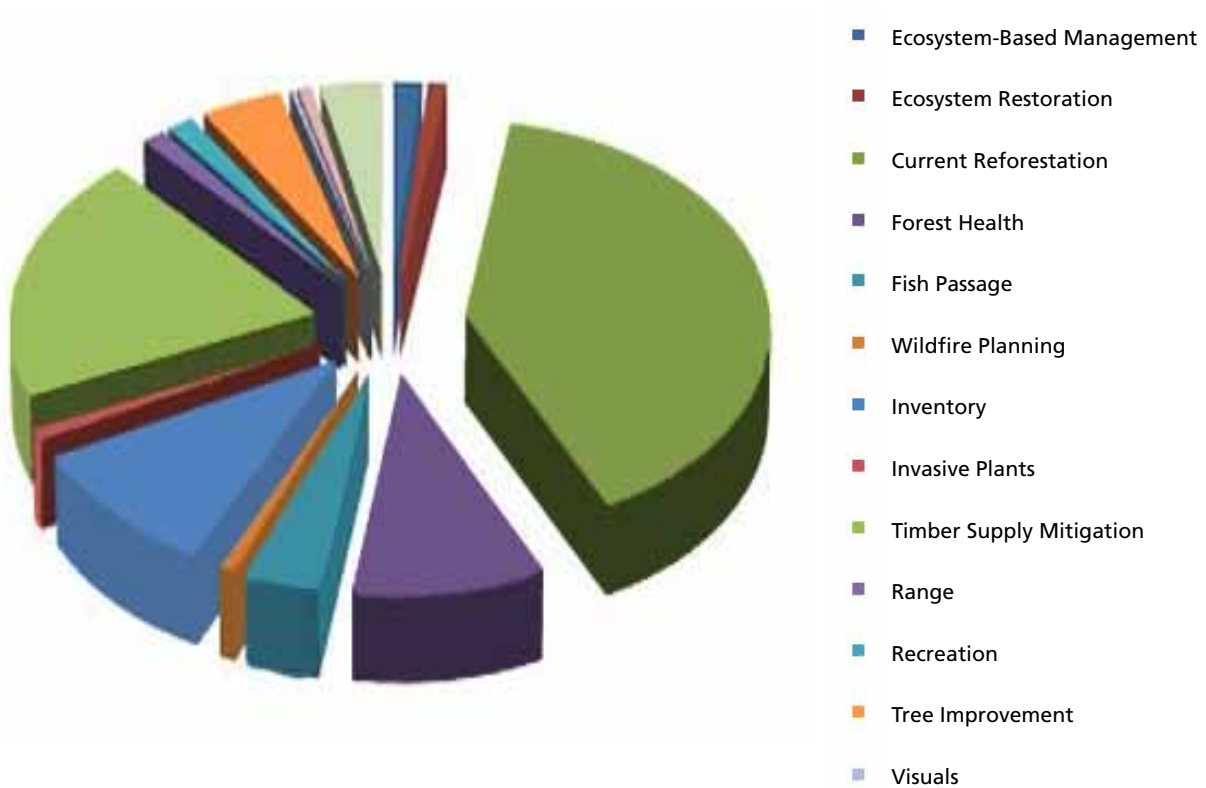
Target (What we said we would do)	Achievement (What we did)	Activities and Outputs (How we did it)
<p>Provide tools for the NRS sector to manage and recover species at risk</p>	<ul style="list-style-type: none"> • Mapped and made accessible known locations of species at risk, with priority on areas of heavy development. • Developed plans and implemented key actions to guide NRS activities and partnerships to recover and manage species at risk. • Improved legal tools to protect habitat for species at risk implemented by NRS regions. 	<ul style="list-style-type: none"> • DATA: Mapped >1600 occurrences of species and ecosystems at risk (190 species, 24 ecosystems) to inform NR decision-making and EO assessment processes. Mapping was geographically focussed in areas of impending major project decisions, primarily along a number of proposed pipeline routes in the north and interior of BC. We increased mapping capacity for species and ecosystems at risk by training mapping contractor's in NatureServe occurrence mapping methodology and managing \$139,116 of LBIS mapping contracts. We utilized CDC staff to conduct training, to do additional in-house mapping, and conduct quality control. Improved the capacity to address ecosystem-based management by incorporating species/ecosystem/habitat relationship information into Biotics Data System and making those data available through modifications to BC Species and Ecosystems Explorer online information delivery. We used contracted support to facilitate required data system and information delivery changes. • PLANNING: Reduced backlog of recovery/ management plans by completing drafts of 11 plans, including plans for Northern Goshawk and Peace Northern Caribou, which occur in areas of major resource development. Developed a provincial 5-Year Species at Risk Plan to bring greater certainty to how species at risk are managed in the NRS over the next 5 years. • ACTION: Implemented actions from an additional 10 recovery/ management plans, supported land owner contact in endangered Garry Oak ecosystems, and developed accounts to support Wildlife Habitat Features regulation in FRPA.



<p>Functioning Data system to allow the storage and retrieval of data associated with habitat authorities, ecological inventories, and monitoring results</p>	<p>Conducted data loading and data access projects to make regional data and information available to support the management of species and ecosystems, natural resource decision making and major project evaluation.</p> <ul style="list-style-type: none"> • Wildlife Information: Loaded 106 new projects (more than double our typical amount) to the Species Inventory Database. This created 650 new files in Species Inventory Web Explorer. This also created 52,000 survey points, 134,000 telemetry points, and 4,225 incidental points on wildlife spatial layers in the BCGW. • Fish Information: Loaded 1403 Projects to the Fisheries Data Warehouse covering a total of 47,723 fish sampling sites sampled from as far back as 7 years ago. Loaded 1322 Lake reports to the Ecological Reports Catalogue (eLibrary) making them electronically searchable and available to the public. • Terrestrial Ecosystem Information: 24.8 million polygons or 1010 projects, covering 342 million hectares ecosystem mapping polygons loaded to TEST (soon to go to BCGW production) [50 PEM projects (74 million ha); 960 TEM, Terrain and SEI projects (268 million ha); 140 Soil project boundaries – (18 million ha)]. Over 55,000 sample points and on-site symbols loaded to TEI operational databases and made available for data distribution. 	<p>Contracted resources:</p> <ul style="list-style-type: none"> • \$157K to clean and load fish and wildlife inventory data (both recent and legacy backlogs) • \$125K to clean and load ecosystem mapping data and products • \$38K for data systems support and to create layers and tools to facilitate access to the data.
<p>Decrease in backlog of Monitoring Protocols, and monitoring projects</p>		



3. Distribution of Funds



Category	Actual Expenditure
Ecosystem-Based Management	\$ 987,588
Ecosystem Restoration	\$ 946,525
Current Reforestation	\$ 29,082,352
Forest Health	\$ 6,003,543
Fish Passage	\$ 2,351,269
Wildfire Planning	\$ 515,220
Inventory	\$ 6,466,889
Invasive Plants	\$ 2,297,259
Timber Supply Mitigation	\$ 12,258,371
Range	\$ 827,159
Recreation	\$ 951,339
Tree Improvement	\$ 2,800,917
Visuals	\$ 180,124
Watershed	\$ 485,926
Wildlife	\$ 2,106,426
Total SUM	\$ 68,260,907



Acronyms

APHIS – Animal and Plant Health Inspection Service	m – meter
BCTS – British Columbia Timber Sales	M – Million
CFIA – Canadian Food Inspection Agency	MPB – Mountain Pine Beetle
CWPP – Community Wildfire Protection Plans	N/A – Not applicable
EDRR - Early Detection and Rapid Response	NSR – Not Sufficiently Restocked
EBM - Ecosystem-Based Management	NVAF - Net Volume Adjustment Factor
FAIB – Forest Analysis and Inventory Branch	PwC – PricewaterhouseCoopers
FD – Forest District	QA – Quality Assurance
FIA – Forest Investment Account	RPB - Resources Practice Branch
FFT – Forests for Tomorrow	RESULTS – Reporting Silviculture Updates and Land status Tracking System
FH – Forest Health	SELES - Spatially Explicit Landscape Event Simulator
FN – First Nations	SIBEC - Site Index estimates by Site Series
GRM – Genetic Resource Management	SLRD – Strategic Landscape Reserve Design
ha – hectares	TBA – To be announced
IAPP - Invasive Alien Plant Program	TEM - Terrestrial Ecosystem Mapping
IP – Invasive Plant	TSA – Timber Supply Area
L1, L2 ... – Level 1, Level 2 ...	USDA – United States Department of Agriculture
LBIP – Land Based Investment Program	VRI – Vegetation Resource Inventory
LBIS – Land Based Investment Strategy	



Appendix A – Summary of Activities

What we said we would do:	What we did:	How we did it:																																											
<ul style="list-style-type: none"> • 2.77 million m³ in 65 years • 2.8 million tonnes CO²e in 65 years • 321 million GDP in 65 years • 29,000 pd short term employment • 2,363 FTE long-term employment in 65 years 	<ul style="list-style-type: none"> • 1.9 million m³ in 65 years calculated by 10,099ha x 2.9m³/ha x 65yrs • 1.5 million tonnes CO²e in 65 years calculated by 1.9Mm³ x 0.81/m³ • 220 million GDP in 65 years calculated by 1.9 Mm³ x \$116/m³ • 65,568 pd short term employment calculated by (seed and nursery employment + survey employment + site prep employment + planting employment) = (10099/1) + (289986 x 0.1) + (6273 x 1) + (10099 x 2) • 1999 FTE long-term employment in 65 years calculated by (2.9 potential volume gain m³/ha/yr x 65 x 10099 x 1.05) / 1000 	<ul style="list-style-type: none"> • 14,593,260 trees planted (10,099 ha). • 6,273 ha site preparation • 289,986 ha surveyed to assess areas, prescribe treatments and determine growth rates and survival on past FFT and FIA planting. • 87,000 ha of backlog (pre 87 NSR) assessed eliminating 49,851 ha of NSR. 																																											
Funding for RPB for strategic planning, performance measure development, reporting and program support.	Develop, refine and monitor the strategic plan, provide support for field operations, creation of standards and development best management practices.	GIS and Program Support, Standards Development, Assessments, Communication, Training Materials																																											
Fertilize 28,000 ha of area in MPB impacted or constrained timber supply areas to produce an additional 546,000 m ³ of wood in 10 years, and juvenile space 1200 ha of over dense stands in the interior, coastal, southeast, and northwest priority management units to make stands available for harvest 10-30 years sooner.	<ul style="list-style-type: none"> • Ministry, BCTS, and licensee staff completed 28,261 ha of fertilization, 2,948 ha of juvenile spacing, and 621 ha of conifer release in 2012/13. In addition planning and surveys were completed to identify candidate stands for future treatments. • Fertilization of 28,261 ha will produce 551,070 m³ additional wood in 10 years; 391,260 tonnes of CO²e in 10 years; \$63 million GDP in 10 years; 5087 person days of short term employment; 579 FTE long-term employment in 65 years • Juvenile spacing of 2,948 ha will make stands available for harvest in 10-30 years sooner and generated 11,678 person days of short term employment. • Brushing treatments were completed on 621 ha of impeded pre-87 stands to release conifers and make stands available for harvest sooner. 	<p>Aerial application of fertilizer was focused on priority management units in the Interior (73% ha treated) where catastrophic disturbances have caused significant drops in mid-term timber supply. Coast treatments (27% ha treated) addressed areas with timber supply constraints. Of the Interior areas treated, 17,871 (87% of the Interior treated) was on Priority 1 areas.</p> <table border="1"> <thead> <tr> <th rowspan="2">FLNRO Regions</th> <th colspan="3">Treated Area (ha)</th> </tr> <tr> <th>Fertilization</th> <th>Juvenile Spacing</th> <th>Conifer Release</th> </tr> </thead> <tbody> <tr> <td>West Coast</td> <td>5,801</td> <td>41</td> <td>0</td> </tr> <tr> <td>South Coast</td> <td>1,884</td> <td>290</td> <td>0</td> </tr> <tr> <td>Omineca</td> <td>8,851</td> <td>0</td> <td>585</td> </tr> <tr> <td>Skeena</td> <td>4,423</td> <td>635</td> <td>0</td> </tr> <tr> <td>Kootenay/ Boundary</td> <td>0</td> <td>122</td> <td>0</td> </tr> <tr> <td>Thompson/ Okanagan</td> <td>1,921</td> <td>350</td> <td>36</td> </tr> <tr> <td>Cariboo</td> <td>5,381</td> <td>1,510</td> <td>0</td> </tr> <tr> <td>Northeast</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>TOTAL</td> <td>28,261</td> <td>2,948</td> <td>621</td> </tr> </tbody> </table>	FLNRO Regions	Treated Area (ha)			Fertilization	Juvenile Spacing	Conifer Release	West Coast	5,801	41	0	South Coast	1,884	290	0	Omineca	8,851	0	585	Skeena	4,423	635	0	Kootenay/ Boundary	0	122	0	Thompson/ Okanagan	1,921	350	36	Cariboo	5,381	1,510	0	Northeast	0	0	0	TOTAL	28,261	2,948	621
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4.68 million cu metres (117,143 hectares x 0.615 cu metres/year x 65 years)	4.634 million cu metres (115,924 hectares x 0.615 cu metres/year x 65 years)	Seed production, tree breeding, and seed policy work for seed transfer in a changing climate were carried out. An estimated 115,924 hectares were planted using select seed.																																											

<ul style="list-style-type: none"> • Remediate 15 high priority fish stream crossings to reconnect high quality fish habitat. • Complete assessments in 75 priority third order watersheds. • Complete Fish-Stream Crossing Guidebook. • Expand Fish Passage Technical Working Group (TWG) to include all Natural Resource agencies plus the Ministry of Transportation and Infrastructure • Update Engineering Standards. 	<ul style="list-style-type: none"> • Remediated 18 high priority fish stream crossings (5 bridges, 2 culverts, and 11 crossing deactivations) that reconnected about 27 km of primarily high value fish habitat. • Acquired structures for 11 additional remediation projects for future installation. • Completed assessments for about 250 priority third order watersheds involving about 4500 crossing assessments • Completed 85 habitat confirmations. • Completed the Fish-Stream Crossing Guidebook; distributed 1000 hard copies; widely communicated its availability on fish passage website (e.g. to professional associations) leading to about 10,000 downloads of the Guidebook. • TWG expanded to include Ministry of Transportation and Infrastructure, with contacts made to other Natural Resource Sector agencies; have followed-up with Oil and Gas Commission and BC Hydro with engagement on-going with both • Engineering Standards updated. 	<ul style="list-style-type: none"> • BCTS Timber Sales Offices delivered assessments and remediation work. • TWG conducted debrief/continuous improvement conference call with BCTS staff engaged in fish passage work. • TWG conducted field review of previous remediation and assessment work on southern Vancouver Island. • Habitat confirmations and design work completed in support of remediation projects. • New assessments have been entered into PSCIS data base. • Completed PSCIS loading of legacy data comprising about 2500 assessments. • TWG widely circulated a draft Fish-Stream Crossing Guidebook to government agencies and stakeholders for final review and comment. • TWG participated in the Fish Passage program evaluation initiated by the LBI Steering Committee. • TWG prepared and presented three technical papers at Resource Roads Workshop held in Cranbrook, BC.
<p>Assessments to identify and/or mitigate risk to water quality in:</p> <ul style="list-style-type: none"> • Community / watersheds where water is diverted for human consumption • Fisheries sensitive watersheds, and, • Watersheds attacked by MPB, wildfire or where range activities are identified as impacting water quality. 	<p>Regional watershed risk assessments were completed in the Cariboo-Chilcotin, Kootenay and Cariboo-Lillooett TSA's</p> <p>Fisheries Sensitive Watersheds (FSW), funding was provided to complete assessments and inventories to facilitate FSW designation in the;</p> <ul style="list-style-type: none"> • Omineca and Nation drainages, • the Lakelse River watershed, • to complete FSW protocol development, • Peace country – undertake First Nation and stakeholders (forestry, oil&gas etc) workshops to refine package and objectives to move the process forward to designation, • to provide First Nation consultation in the Stuart Takla watersheds, and to, • to complete field based risk analysis in the Cariboo and Cottonwood watersheds in support of FSW designation. <p>Range activities - Conduct a review of the range referral letter process to identify understand, completeness and expectations, and to provide recommendations.</p> <p>FREP - To develop a digital version of the water quality effectiveness evaluation so as to improve efficiencies (reduce costs, time, and errors) and accuracy.</p> <p>Hydrologic recovery - A contract to improve estimates of snow recovery in the southern interior for fully stocked stands in the snow zone that reach a maximum crown closure of 50-70%.</p> <p>Community watershed channel assessments - A contract to complete two watershed assessments to reduce regional backlog</p> <p>Strategic plan - Initiation of a process to develop a strategic plan for LBISwater.</p>	<p>All work was completed by contract. Outputs included:</p> <ul style="list-style-type: none"> • Regional risk assessments, • Fish inventories, • Assessment procedures • Meetings (FN consultations) • Protocol development • Reports for approved projects.



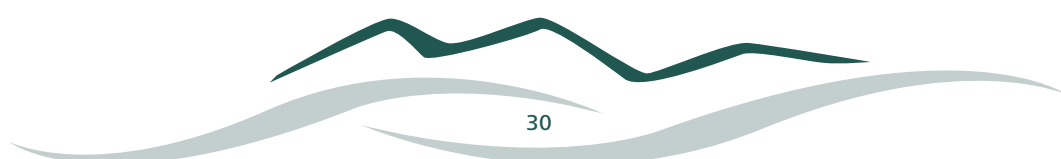
<ul style="list-style-type: none"> • Improved information for decision making by natural resource sector managers including AAC determinations and strategic analyses, in addition to addressing emerging mid-term timber supply questions; First Nations Treaty negotiations; carbon estimation. • Enhanced ability to address licensees issues and concerns, help focus land based investments to the highest priorities and returns, inform those pursuing emerging opportunities; and better assist in government policy development. • Inventory information is current and complete for high risk management units. • Forecasts of the productivity on existing and future second growth stands are improved. Complete full draft PEM, develop AA Sample plan • Preliminary sampling plan for PEM and SIBEC 	<ul style="list-style-type: none"> • Photo interpretation of 100 Mile House TSA on schedule for a 2013/14 completion. • TFL 14 photo interpretation on schedule for 2012/13 completion. • Mackenzie TSA audit sampling complete and inventory analysis ongoing. • Completion of northern central interior regional net volume adjustment factor (NVAF) sampling (area approximates Mackenzie and Prince George TSAs, Kootenay Lake TSA, and coast Region) near complete. • Mid Coast TSA, Haida Gwaii TSA photo interpretation on schedule for a 2013/14 completion. • TFL 23 completion delayed until 2013/14 due to contractor capacity. • Vegetation Resources Inventory activities initiated and continuing in Kamloops Forest District, TFL 35, Pacific TSA (photo interpretation), Kootenay Lake and Morice TSA (audit, young stand monitoring, and analyses). Kamloops and TFL 35 on schedule to be completed over two years, Kootenay Lake and Morice to be completed 2012/13. • Photo acquisition successfully completed in the Lakes, Vanderhoof, and the southern Ft St James and PG TSAs. • Installation of young stand monitoring samples in the Quesnel TSA and complete, analysis to be completed 2012/13. • Develop and implement innovative, non-standard VRI inventory processes and activities. This includes (1) completion of Landscape Vegetation Inventory for priority MPB-impacted west Williams Lake TSA (1.7 million ha) using semi-automated classification of satellite imagery and MPB specific photo/ground sampling; (2) test Lidar technology, in conjunction with BCTS and licensees, to produce inventory information. These projects are progressing as planned, other than the ground sampling component of the Williams Lake project which has been delayed until 2013 due to lack of contractor capacity. • Initiation of SIBEC sampling in the Arrow/Boundary TSA • Initiation of PEM in the Cranbrook, initiate BEC sample plan. • Completion of PEM in the Kootenay lake and Accuracy Assessment in the Merritt TSA. • Completion of outstanding SIBEC sampling in priority LBIS management units ** In response to immediate info requirements in the Lakes TSA, initiated and completed unscheduled sampling project. Inventory analysis to be completed 2012/13. 	<ul style="list-style-type: none"> • Continuing completion of new photo interpreted inventory data in the Mid Coast TSA, Haida Gwaii TSA, 100 Mile House TSA, and Kamloops TSA. Completion of TFL 14 and Pacific TSA. Completion of TFL 23 put on hold. • Completed NVAF ground sample data collection in the Mackenzie, Prince George TSA and the Coast Region. • Completed Young Stand Monitoring sample data collection in the Quesnel TSA. • Completed of audit and Young Stand Monitoring ground sample data collection in the Morice and Kootenay Lake TSAs. • Photo acquisition successfully completed in the Lakes, Vanderhoof, and the southern Ft St James and PG TSAs. • Ongoing development and implementation of innovative, non-standard VRI inventory processes and activities. This includes (1) completion of Landscape Vegetation Inventory for priority MPB-impacted west Williams Lake TSA (1.7 million ha) using semi-automated classification of satellite imagery and MPB specific photo/ground sampling; (2) test Lidar technology, in conjunction with BCTS and licensees, to produce inventory information. These projects are progressing as planned, other than the ground sampling component of the Williams Lake project which has been delayed until 2013 due to lack of contractor capacity. • Completed SIBEC sampling in the Arrow/Boundary TSA • Completed SIBEC sampling in the Cranbrook select PEM including sample plan. • Completed PEM and preliminary field sampling in Robson Valley. • Concluded outstanding SIBEC sampling in priority LBIS management units
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<ul style="list-style-type: none"> • Complete re-inventory in those areas with significant past investment. • Direct new inventory work to occur in priority units. 	<ul style="list-style-type: none"> • 100 Mile House: Carryover project completed. • Highway 29 Moberly Lake to Hudson's Hope and Hudson's Hope to the WAC Bennett Dam re-inventory completed. • Lund to Saltery, Jervis & Princess Royal Inlets, Texada & Lasqueti Island re-inventory completed. • Hwy 97 McAllister-Cottonwood Ck re-inventory completed. • Re-inventory entire Rocky Mountain District completed. • Quality assurance and upload to BCGW completed for DNI & DSI. 	<p>All work accomplished through contract.</p>
<ul style="list-style-type: none"> • Field data and completed spatial mapping for approximately 1 million ha; including 4 LUs in Kingcome TSA1; 8 LUs in MidCoast TSA2, and 13 LUs in the NorthCoast TSA3 primarily at level R - on target for completion March 2013 • Completion of TEM-PEM hybrid assessment and extension of mapping model to priority LUs dependent on QA results and relative cost analysis - final report expected Nov 30, 2012 • Independent AA to contribute to cost:benefit analysis of level4 vs. Level R vs. PEM/TEM hybrid mapping in plan area - field work completed internally; report planned by Jan 30, 2013 	<ul style="list-style-type: none"> • Preliminary polygon delineation and attribution for all LUs completed; field sampling completed in Kingcome TSA, MidCoast TSA, and 7 LUs in North Coast TSA. • Initial report and layers received, knowledge tables updated to reflect new plot information; awaiting final comparative report and output layers. • New test methodology developed and field work completed by MFLNRO and MoE staff (report in process) • Initial seamless layer derived; evaluation by stakeholders and updates of layer ongoing. • Initial joint meetings held onsite with Heiltsuk representatives including joint TEM flight; partnership meetings held with additional partners (Hakai Institute, SFU) and mapping consultants (Blackwell). 	<ul style="list-style-type: none"> • Preliminary polygon delineation and attribution for all LUs completed; field sampling completed by helicopter in Kingcome TSA, MidCoast TSA, and 7 LUs in North Coast TSA. • Initial report and layers received, knowledge tables updated to reflect new plot information; • New test methodology developed and field work completed by MFLNRO and MoE staff (report in process) • Initial seamless layer derived; evaluation by stakeholders • Initial joint meetings held onsite with Heiltsuk representatives including joint TEM flight; partnership meetings held with additional partners (Hakai Institute, SFU) and mapping consultants (Blackwell).



<p>(1) Complete level R field data and spatial mapping for approximately 1 million ha; 4 LUs in Kingcome TSA1 ; 8 LUs in MidCoast TSA2, and 13 LUs in the NorthCoast TSA3 (2) Completion of TEM-PEM hybrid mapping for Draney LU - comparative methodology validation (PEM-TEM hybrid with and without field data incorporated); (3) Independent Accuracy Assessment of TEM for >=1 LU to assess mapping consistency and utility of level 4 vs. Level R vs. PEM/ TEM hybrid mapping in plan area (4) GIS, spatial analysis and standards development to complete seamless TEM-PEM layer to support operational use of mapping in EBM implementation; (5) partnership development with FN in current mapping and project mapping areas; and evaluation of joint TEM use and feasibility for capacity building within FN resource departments</p>	<p>(1) 1,000,000 ha (approximately 15% of EBM land base) mapped with Level R Terrestrial Ecosystem Mapping (TEM) including MidCoast TSA LUs4 and NorthCoast TSA LUs5 ; priorities determined in part through stakeholder consultation and coordination with VRI progress; preliminary polygon attribution completed for an additional LU (Calvert); (2) Completion of comparative analysis and report for TEM-PEM hybrid mapping for Draney LU ; final comparative report and output layers produced; (3) Sampling of Draney LU for independent accuracy assessment (AA) of mapping; reevaluation of BEC linework in Draney and adjacent LUs completed; quantitative comparison of emerging mapping standards and approaches relative to traditional TEM initiated for 1 LU; (4) Completion of seamless TEM for operational use by all stakeholders (use being assessed by JSP members); (5) initiated discussion with FN in MidCoast re: TEM utility and sampling approaches</p>	<p>(1) preliminary polygon delineation and attribution for all LUs completed through air photo interpretation; ground and aircall field sampling done in Kingcome TSA, and MidCoast TSA; air sampling done in North Coast TSA; (2) update of PEM knowledge tables and polygon delineation using 2011 field data; quantitative comparison of this 2nd hybrid (TEM-PEM) ecosystem map to materials produced previous to field work; final report and input/output layers produced/received (3) Novel AA and BEC/ linework sampling methodology developed and tested in the field (ground and aircalls for Draney LU) by MFLNRO and MoE staff; quantitative comparison of the independent sampling vs. TEM methodologies and TEM-PEM work in process; (4) Completion of seamless TEM for operational use, incorporating crosswalked ecosystem units for all 2011-12 data and any updated provincial BEC linework; development of methodologies for integrating new TEM polygons with ssPEM where TEM is not available, quantitative analysis of TEM vs. ssPEM and assessment of operational implications (done in collaboration with CFCI and RSP partners); (5) meetings held onsite (Koeve and Calvert LUs) with Heiltsuk representatives- including joint TEM flight; meetings held with and presentations made to additional partners (Hakai Network - included representatives from Heiltsuk and Owikeno FNs-, Hakai Institute, and SFU) and mapping consultants (Blackwell)</p>
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<ul style="list-style-type: none"> • Conduct an aerial overview survey on 80% of the province • Conduct 10% quality checks of the aerial overview survey • Treat 100,000 ha of high value interior Douglas-fir to reduce impacts caused by Western Spruce Budworm • Update all TSA/ District forest health strategies • Conduct detailed aerial surveys on all high priority Douglas-fir and Spruce Beetle infestations • Manage all high priority mountain pine beetle infestations • Deploy gypsy moth eradication program 	<ul style="list-style-type: none"> • Over 80% of the province was surveyed • 10% quality checks of the aerial overview survey completed • Over 100,000 ha of interior Douglas-fir were protected using aerial spray applications • Forest health strategy updates are on track for completion by year end • All high priority Douglas-fir and Spruce Beetle infestations detected • Mountain pine beetle management ongoing and on track • Gypsy moth monitoring completed 	<ul style="list-style-type: none"> • All regions participated in administering aerial overview survey contract in their areas. HQ is coordinating and summarizing the provincial data and producing an annual forest health conditions report in March 2013. • HQ administers the quality control contract to ensure the aerial overview survey is deployed to provincial standards • Cariboo, TOR and KBR regions conducted aerial applications of Btk to treat high value budworm stands. In addition, stands critical for caribou habitat were also treated to prevent stand mortality by defoliation by western hemlock looper. A small operational trial to test treatment timing for 2 year cycle budworm was conducted near Quesnel. • Forest health strategies will be updated with the latest AOS results. Climate change and FSP stocking standards recommendations will be added where the information is available. • Detailed aerial surveys were conducted to identify new Douglas-fir and spruce beetle infestations that will be managed mainly through harvesting • Mountain pine beetle detailed aerial surveys have been completed in suppression BMUs in SE BC. Ground detection and single tree treatments will be completed this winter. • Gypsy moth traps were deployed by the province in FS recreation sites and provincial parks by regional FH staff/contractors. No male GM were found in these traps this year.
<ul style="list-style-type: none"> • 12 historic candidate EDRR invasive plant species reviewed; control or containment action determined and implemented. • No new invasive plant species established in the province. • Some expansion of highest provincial priority invasive plant species beyond established containment lines • 600 priority invasive plant sites inspected and/or treated • 12% of highest provincial priority invasive plant species treatment sites are eradicated. • Infestations of Dalmatian toadflax, hound's-tongue, and diffuse knapweed are under biological control. 	<ul style="list-style-type: none"> • Provincial EDRR plan updated and implemented on 12 invasive plant species with historic accounts; no new incursions reported this year • Inventory and incursion surveys completed on FSRs West of Revelstoke; East of Vernon (Monashee); North of Sparwood; Bummer's Flats WMA and Cariboo east for Marsh Plume thistle. • 32% of highest provincial priority invasive plant species (IPP Goal 3 species) sites on Crown land were inspected and/or treated outside containment lines. This achievement was due to partnership delivery FYE grant funding of \$1.727 million in March 2012. Without the partnership funds, the result would have been 5%. • Available operational biological control agents distributed to fill gaps 	<ul style="list-style-type: none"> • Analysis and field verification of 12 historic candidate prohibited invasive plant species records; • Invasive Plant Early Detection and Rapid Resonse (EDRR) treatment actions on 7 species; • Invasive Plant Multi-Stakeholder Partnerships maintained with 13 invasive species/plant committees and 15 local governments; • Invasive Plant Inventory completed on 60% of planned areas; • Invasive Plant Surveys and Treatments completed on 438 sites (does not include sites treated through partnership grants); • Invasive Plant Sites Extirpated: 5%



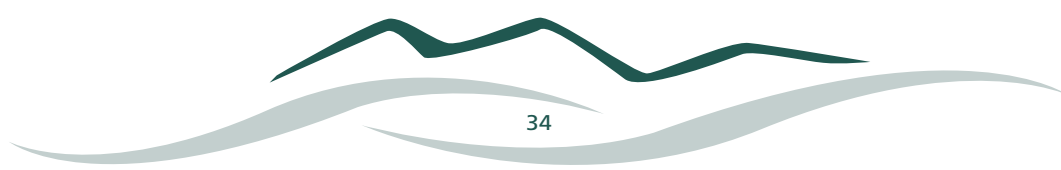
<ul style="list-style-type: none"> • Development of a hazard/risk analysis methodology • Test Pilot hazard risk analysis methodology in key districts • Provincial scale Hazard/Risk Mapping • Development of a system/ Protocol for development of landscape fire management plans and integration of fire management into other resource management activities including training. • TIPSYP/TASS updates to include Fire Management Tree Species. TASS currently does output and model canopy base height and canopy bulk density. This work was to validate TASS estimates of canopy base height. 	<p>Burn-P3 is a simulation model used to evaluate wildfire susceptibility over large fire-prone landscapes. The results of this simulation are a map showing the predicted wildfire susceptibility, expressed as burn probability for a given year within a defined landscape, ie TSA or District, and this year for predicted wildfire intensity.</p> <p>Developed a GIS based Fire Management Planning Information Viewpoint Information (FMPIV).</p> <p>Two Year Landscape Focused Fire Management Pilots</p> <p>Initiated in three Planning Units:</p> <ol style="list-style-type: none"> 1. Merritt, Vanderhoof/Fort St. James, Soo Planning Units. 2. Co-sponsored by FCM, RDM, and Manager, Fire Management. 3. Planning teams include Fire Mgmt Sp (FMS), Fuel Mgmt Sp (FuMS), Resource District (RD), and Zone (FZ) staff. <p>The general purpose of this project is to continue to develop the ability of TASS/TIPSYP to provide crown fire potential relevant stand information (e.g. canopy base height, crown bulk density, fuel loading as a result of silviculture) as well as model these parameters into the future.</p>	<p>Burn P3 (probability, prediction, and planning) modelling and analysis was completed on 90% of the Province. 20 year probably maps have been produced. These maps are planned to be updated in 2013 with;</p> <ul style="list-style-type: none"> • Improved spatial weather and fuel layer inputs • Statistical ignition layer for historical ignition grid inputs • Improved fire intensity module – Canadian Forest Service and; • 2013 provincial I fuels map updated for TFLs, and Parks. <p>Developed a seamless provincial FMP map template, standard GIS layer files for FMP, that will allow the user to analyze, display, and plan for fire response and landscape activities. This included;</p> <ul style="list-style-type: none"> • The development of several GIS layers to display risk, hazard and priorities on a landscape level. • Collection and identification of values at risk and relative initial ranking using suppression priorities (high value timber areas). <p>Soo TSA planning unit (PU) near Squamish is in the information phase; Merritt (PU) is in the planning and consultation phase and Vanderhoof and Ft. St. James (PU) is starting the development of an implementation plan.</p> <p>A contract was let to use stand management cooperative datasets to assess the accuracy of TASS estimates of canopy base heights. The results indicate that TASS II and III both sometimes under predict or over predict canopy base heights. The species tested were lodgepole pine and Douglas-fir. Additional work is needed to improve the TASS estimates of canopy base height.</p>
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<ul style="list-style-type: none"> • Restoration treatments applied to 4000 ha of key ecosystems to create landscapes more resilient to climate change. • Contribute 175,000 m³ annually throughout the short and mid-term timber supply, and create other potential biomass opportunities. • Reducing excessive fuel loads, through spacing and prescribed fire, helps to mitigate wildfire risks, maintain community water supplies, protect air quality, endangered species and ecosystems, enhance First Nations values, and increase fibre availability. 	<ul style="list-style-type: none"> • 4450 ha of mechanical treatments applied. • 3421 ha of ER prescribed fire treatments applied. (200 ha is pile burning). • 4 District Strategic Plans updated 	<ul style="list-style-type: none"> • Operations implemented spacing/thinning treatments • Operations implemented spring and fall prescribed fire treatments • 4 Districts, working closely with their local steering committees, updated their 5-year Strategic ER Plans.
<ul style="list-style-type: none"> • On target for a 5% increase in use at recreation sites and trails (over previous year). • Extended the life of recreation sites and trails. • Provide communities safe, healthy and sustainable outdoor recreation opportunities. 	<p>Approximately 60% of recreation sites and trails have been successfully maintained or rehabilitated in partnership with local community groups, 1st Nations and Forest Licensee's.</p>	<ul style="list-style-type: none"> • Maintain and as necessary rehabilitate 790 recreation sites and 490 trails. • Leverage 198 partnership agreements in place for managing and maintaining recreation sites and trails essential to communities. • Maintain partnership delivery of Rec Site/Trail program; including support from First Nations, Forest Industry and community groups
<p>14,500 ha</p>	<p>14,500 ha of rangelands benefited from Crown Range Infrastructure Replacement Projects, water developments, riparian management and soil stabilisation seeding.</p>	<ul style="list-style-type: none"> • Fence construction • Fenceline protection from MPB pine fall down • Livestock Water Developments • Riparian management projects • Soil stabilization and rangeland seeding



<p>Decrease the backlog of GAR/EMPR habitat authority designations</p>	<ul style="list-style-type: none"> • WHAs - completed WHA inventory, assessment and (field) mapping for over 220 new WHA designations for the following high priority species (as identified in the GAR Implementation Strategy): Racer, Gopher Snake, Rattlesnake, Screech Owl, Sonora Skipper, Williamson’s Sapsucker, Lewis’ Woodpecker, Spadefoot, Grizzly Bear, Tailed Frog, Pacific Giant Salamander, Gillett’s Checkerspot and Waterbirch. Reports, summarizing results and presenting rationale for designation were completed for each of these initiatives. • UWRs - Conducted LBIS-funded UWR work across 7/9 regions supplemented by regional funding . Conducted work on > 12 UWR packages. Completed legal designation of Morice mountain goat UWR and Chinchaga caribou UWRs. “ • FSWs - 5 FSW designated in the PG District. Aproximately 80 watersheds moved toward designation (final tallies pending based on regional reports)” • TSS - two pilot assessments (Nicola and Nadina)” 	<ul style="list-style-type: none"> • Six field crews were trained and conducted habitat inventories with provincial, regional, and consulting species experts. Following field work HQ IWMS coordinator with assistance from some of the field crew technicians completed data entry of WHA candidate polygons and project reporting, to allow Regional Ecosystem staff to proceed with required consultation and WHA proposals. • Helicopter flights conducted in 6 of 9 Regions. Expert analysis of telemetry and flight data conducted in 2 regions. Range monitoring conducted in 3 Regions. Included habitat-related work for 5 ungulate species (caribou, mountain goat, bighorn sheep, deer and elk). • HQ wkg with reg staff and contractors.
<p>Increase sustainable harvest of deer, elk and moose by 10% over 2011/12 levels</p>	<p>Still do not have the hunter sample estimates available to determine how we actually did. One project (\$80K) could not be funded due to poor survey conditions</p>	<p>Ungulate surveys prioritized by standardized criteria to ensure the most important surveys were funded. Data to be loaded to LRDW and SPI</p>
<p>\$200,000 for caribou, moose and wolf surveys</p>	<p>\$190,000. Conducted caribou surveys in R3,4,5,6; Wolf surveys in R5</p>	<p>Survey reports completed and available on request. Data to be loaded to LRDW and SPI</p>
<p>Functioning Data system to allow the storage and retrieval of data associated with habitat authorities, ecological inventories, and monitoring results</p>	<p>Conducted data loading and data access projects to make regional data and information available to support the management of species and ecosystems, natural resource decision making and major project evaluation.</p> <ul style="list-style-type: none"> • Wildlife Information: Loaded 106 new projects (more than double our typical amount) to the Species Inventory Database. This created 650 new files in Species Inventory Web Explorer. This also created 52,000 survey points, 134,000 telemetry points, and 4,225 incidental points on wildlife spatial layers in the BCGW. • Fish Information: Loaded 1403 Projects to the Fisheries Data Warehouse covering a total of 47,723 fish sampling sites sampled from as far back as 7 years ago. Loaded 1322 Lake reports to the Ecological Reports Catalogue (eLibrary) making them electronically searchable and available to the public. • Terrestrial Ecosystem Information: 24.8 million polygons or 1010 projects, covering 342 million hectares ecosystem mapping polygons loaded to TEST (soon to go to BCGW production) [50 PEM projects (74 million ha); 960 TEM, Terrain and SEI projects (268 million ha); 140 Soil project boundaries – (18 million ha)]. Over 55,000 sample points and on-site symbols loaded to TEI operational databases and made available for data distribution. 	<p>Contracted resources:</p> <ul style="list-style-type: none"> • \$157K to clean and load fish and wildlife inventory data (both recent and legacy backlogs) • \$125K to clean and load ecosystem mapping data and products • \$38K for data systems support and to create layers and tools to facilitate access to the data.
<p>Decrease in backlog of Monitoring Protocols, and monitoring projects</p>		



<p>Provide tools for the NRS sector to manage and recover species at risk</p>	<ul style="list-style-type: none"> • Mapped and made accessible known locations of species at risk, with priority on areas of heavy development. • Developed plans and implemented key actions to guide NRS activities and partnerships to recover and manage species at risk. • Improved legal tools to protect habitat for species at risk implemented by NRS regions. 	<ul style="list-style-type: none"> • DATA: Mapped >1600 occurrences of species and ecosystems at risk (190 species, 24 ecosystems) to inform NR decision-making and EO assessment processes. Mapping was geographically focussed in areas of impending major project decisions, primarily along a number of proposed pipeline routes in the north and interior of BC. We increased mapping capacity for species and ecosystems at risk by training mapping contractor's in NatureServe occurrence mapping methodology and managing \$139,116 of LBIS mapping contracts. We utilized CDC staff to conduct training, to do additional in-house mapping, and conduct quality control. Improved the capacity to address ecosystem-based management by incorporating species/ecosystem/habitat relationship information into Biotics Data System and making those data available through modifications to BC Species and Ecosystems Explorer online information delivery. We used contracted support to facilitate required data system and information delivery changes. • PLANNING: Reduced backlog of recovery/management plans by completing drafts of 11 plans, including plans for Northern Goshawk and Peace Northern Caribou, which occur in areas of major resource development. Developed a provincial 5-Year Species at Risk Plan to bring greater certainty to how species at risk are managed in the NRS over the next 5 years. • ACTION: Implemented actions from an additional 10 recovery/management plans, supported land owner contact in endangered Garry Oak ecosystems, and developed accounts to support Wildlife Habitat Features regulation in FRPA.
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Appendix B - First Nation Investment by Category

Category	FN Investment	% of FN Investment to total FN Investment	% of FN Investment to Category Allocation
Ecosystem-Based Management	\$ 0	0%	0%
Ecosystem Restoration	\$ 256,490	10%	26%
Current Reforestation	\$ 822,773	33%	3%
Forest Health	\$ 0	0%	0%
Fish Passage	\$ 0	0%	0%
Wildfire Planning	\$ 0	0%	0%
Inventory	\$ 0	0%	0%
Invasive Plants	\$ 24,000	1%	4%
Timber Supply Mitigation	\$ 1,135,062	46%	9%
Range	\$ 150,000	6%	19%
Recreation	\$ 100,000	4%	10%
Tree Improvement	\$ 0	0%	0%
Visuals	\$ 0	0%	0%
Watershed	\$ 0	0%	0%
Wildlife	\$ 0	0%	0%
Total SUM	\$ 2,488,325	FN investment of Total Program:	4%

