

Updated Appendices
Queen Charlotte Goshawk
Status Review

Incorporating
The Coastal Mainland of BC
and
New Protected Areas
On the Queen Charlotte Islands, BC

U.S. Fish and Wildlife Service
Alaska Region
Juneau Fish and Wildlife Field Office

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Table A-1. Status of productive forest land (in ha) on Crown lands on Queen Charlotte and Vancouver Islands.

	Tenure	Inoperable	Low Site		Timber	Total		Decades of Old Forest Harvest
			Product ⁴	Retention	Harvesting Land Base	Productive Forest ¹	Total Area ²	
Queen Charlotte Islands (QCI)								
Timber Sale Areas								
	QC	104,301	71,184	12,266	33,381	149,949	191,290	12
Tree Farm Licenses								
	TFL 25-6	20,154	4,623	1,054	23,519	44,727	53,364	3
	TFL 39-6	9,986	8,080	61,744	117,846	189,576	240,311	na
	TFL 47-BL	5,202	514	4,624	21,676	31,502	38,020	3
QCI TFLs Totals		<u>35,342</u>	<u>13,217</u>	<u>67,422</u>	<u>163,041</u>	<u>265,805</u>	<u>331,695</u>	
QCI TSA+TFL Totals		<u>139,643</u>	<u>84,401</u>	<u>79,688</u>	<u>196,422</u>	<u>415,754</u>	<u>522,985</u>	
Vancouver Island (VI)								
Timber Sale Areas								
	Kingcome	365,190	102,408	57,041	164,114	586,345	1,110,008	5
	Strathcona	142,454	9,404	44,694	159,678	346,826	395,864	4
	Arrowsmith	40,457	7,305	11,496	58,716	110,669	201,837	7
VI TSA Totals ³		<u>182,911</u>	<u>16,709</u>	<u>56,190</u>	<u>218,394</u>	<u>457,495</u>	<u>597,701</u>	
Tree Farm Licenses								
	TFL 06	24,941	11,949	8,279	146,909	180,129	198,113	4
	TFL19	45,090	21	6,439	85,077	136,606	191,992	6
	TFL 25-1	3,599	2,134	623	23,745	27,967	32,201	7
	TFL 25-3	2,969	736	297	8,731	11,997	15,985	7
	TFL 37	20,984	2,933	36,411	90,221	150,549	196,725	4
	TFL 39-2	9,771	2,138	40,265	115,828	165,864	203,065	na
	TFL 39-4	853	413	8,167	29,955	38,975	51,541	na
	TFL 44	35,535	8,771	54,962	172,946	263,443	321,941	4
	TFL 46	8,998	247	3,855	64,029	76,882	90,870	3
	TFL 47-JS	5,742	1,406	9,221	71,260	86,223	101,847	2
	TFL 54	5,187	0	18,332	24,602	48,121	49,298	na
VI TFL Totals		<u>163,669</u>	<u>30,748</u>	<u>186,851</u>	<u>833,303</u>	<u>1,183,823</u>	<u>1,453,578</u>	
VI TSA+TFL Totals		<u>346,580</u>	<u>47,457</u>	<u>243,041</u>	<u>1,051,697</u>	<u>1,641,318</u>	<u>2,051,279</u>	
TSA Totals		287,212	87,893	68,456	251,775	607,444	788,991	
TFL Totals		199,011	43,965	254,273	996,344	1,449,628	1,785,273	
Crown Land Totals		<u>486,223</u>	<u>131,858</u>	<u>322,729</u>	<u>1,248,119</u>	<u>2,057,072</u>	<u>2,574,264</u>	

Data Source: Timber Harvesting Land Base Determination tables for each Tenure as described in Timber Supply Analysis Reports and Information Packages available at the following web sites (as of 12/2006)

for TFLs: <http://www.for.gov.bc.ca/dmswww/tfl/>

for TSAs: <http://www.for.gov.bc.ca/hts/rco.htm>

Note 1: "Productive Forest" totals do not include lands converted to roads.

Note 2: "Total Area" of TSAs include only lands managed by BC Forest Service.

Note 3: TSA totals for VI exclude Kingcome (most of which is on BC mainland). Strathcona TSA includes a mainland portion that approximates VI portion of Kingcome, allowing a reasonable estimate of TSA lands on VI (Method recommended by BC MoF, Niemann 2006).

Note 4: "Low Site Productivity" is subset of Inoperable (includes non-merchantable, uneconomic, low prod., etc.)

Table A-2. Percentages of productive forest within Timber Sale Areas (TSAs) and Tree Farm Licences (TFLs) on British Columbia Islands.

	<u>Inoperable</u>	<u>Retention</u>	<u>Timber Harvesting Land Base</u>	<u>Total Productive Forest</u>
VI TFLs	163,669	186,851	833,303	1,183,823
QCI TFLs	35,342	67,422	163,041	265,805
VI TSAs	182,911	56,190	218,394	457,495
QCI TSA	104,301	12,266	33,381	149,949

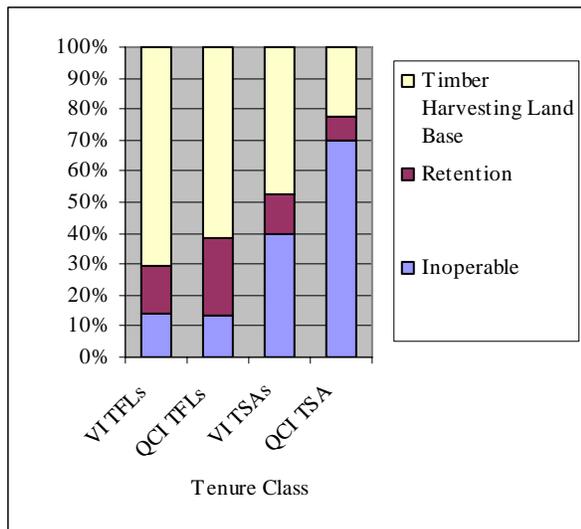


Table A-3. Private Land Assumptions and Calculations for British Columbia Islands

	<u>Inoperable</u>	<u>Retention</u>	<u>Timber Harvesting Land Base</u>			<u>Productive Forest</u>	<u>Total Private Land Area</u>
			<u>Young</u>	<u>Mature</u>	<u>Old</u>		
Queen Charlotte Islands	868	134	4,576	566	534	6,678	8,400
Vancouver Island	79,099	15,820	541,861	5,939	148,267	790,985	939,003

Sources: QCI: Muise (2006) (total private land area)

VI: Niemann (2006a) (total private land area (BTM/BEC), productive forest, and 2nd growth on those lands)

Assumptions:

- 1) Area reported as "BTM/BEC Proxy" by Niemann (2006a) assumed to represent 100% of private land on Vancouver Island.
- 2) Percentage of productive forest on QCI private land equal to percentage of productive forest on QCI Crown lands (79%, from TSA and TFL timber supply analysis reports, see Table A-1)
- 3) % inoperable productive forest on private lands (QCI and VI) assumed equal to % inoperable productive forest on TFL lands for each Island group (13% on QCI and 10% on VI, Table A-2)
- 4) 2% of the otherwise operable productive forest on private land retained for non-timber values
- 5) Young forest defined as <80 yr old, Mature forest defined as 81-140 yr old, Old forest defined as >140 yr old.
% of Young and Mature second growth = % of each age class of total second growth on Crown Lands (see table below, Young = 89%, Mature = 11%) total private land second growth on VI = 608,833
On QCI, % of Private Land Productive Forest in 2nd growth assumed = to % Private Prod Forest in 2nd growth on VI = 77% (see table below)
- 6) Mature/Old forest defined as >80 yr old, = Total Productive Forest - (Inop.+ Retention + Young)

Table A-4. Young, mature, and old forest on Vancouver Island **Crown** Lands (from Niemann 2006)

	<u>Area (ha)</u>	<u>% of Prod Forest</u>	<u>% of 2nd Growth</u>
Young (<80 yr old)	696,282	36	89
Mature (81-140 yr old)	85,319	4	11
Total 2nd Growth	781,601	41	
Old (>140 yr old)	1,130,284	59	
Total Prod Forest (Crown)	1,911,885		

Table A-5. Percentage of **Private** productive forest on Vancouver Island in 2nd growth stages

	<u>Area (ha)</u>	<u>% of Prod Forest</u>
Young/Mature	608,833	77
Old (>140 yr old)	182,152	23
Total Private Prod. Forest	790,985	100

Table A-6. Status of productive forest (in ha) on British Columbia Islands. "Timber harvesting land base" is the forested area outside reserves that is operable and not retained to protect other (non-timber) values. "Old" is unharvested (typically >250 yrs). (Does not include mainland BC)

	Reserves	Inoperable	Retention	Timber Harvesting Land Base			Total Productive Forest		Total Land Area		
				Land Base	Young	Mature	Old				
Queen Charlotte Islands											
Crown Timber		139,643	79,688	196,422	151,940	27,181	17,301	415,754	61%	522,985	52%
Private		868	134	5,676	4,576	566	534	6,678	1%	8,400	1%
Parks	261,373							261,373	38%	481,067	48%
QCI Totals	<u>261,373</u>	<u>140,511</u>	<u>79,822</u>	<u>202,098</u>	<u>156,516</u>	<u>27,747</u>	<u>17,835</u>	<u>683,804</u>	<u>100%</u>	<u>1,012,452</u>	100%
Vancouver Island											
Crown Timber		346,580	243,041	1,051,697	696,282	85,319	270,096	1,641,318	61%	2,051,279	60%
Private		79,099	15,820	696,067	541,861	5,939	148,267	790,985	29%	939,003	27%
Parks	254,191							254,191	9%	442,558	13%
VI Totals	<u>254,191</u>	<u>425,679</u>	<u>258,861</u>	<u>1,747,764</u>	<u>1,238,143</u>	<u>91,258</u>	<u>418,363</u>	<u>2,686,494</u>	<u>100%</u>	<u>3,432,840</u>	100%
BC Island Totals	<u>515,564</u>	<u>566,190</u>	<u>338,683</u>	<u>1,949,862</u>	<u>1,394,659</u>	<u>119,005</u>	<u>436,198</u>	<u>3,370,298</u>		<u>4,445,292</u>	

Sources: Crown Inoperable and Retention, see Table A-1; Vancouver Crown 2nd growth, Parks and Private Lands: Niemann (2006a);

QCI Private Lands, Muise 2006 and Table A-2. QCI 2nd growth and Parks: Leversee (2006); 201,786 ha productive forest added to QCI Parks and removed from Crown Timber in 12/2007 (See Table A-18 for New Protected Area calculations).

Table A-6a. Percentage distribution of lands "open" to logging (productive forest outside reserves) and of total harvesting land base. "Unharvested" means Inoperable + Retention + Old. "THLB" means total harvesting land base from Table A-6.

	total ha open	% of open lands			% of THLB			
		Inoperable	Retention	THLB	Unharvested	Young	Mature	Old
QCI	422,432	33%	19%	48%	56%	77%	14%	9%
VI	2,432,303	18%	11%	72%	45%	71%	5%	24%
BC Total	2,854,735	20%	12%	68%	47%	72%	6%	22%

Table A-7. Age Classes of Productive Forest in Southeast Alaska. Percentages are of Total Productive Forest by ownership.

Land Owner/Manager	Productive Forest						Total Productive Forest	Total Non-Prod Forest	Total Land Area
	Young		Mature		Old				
	Area (ha)	%	Area	%	Area	%			
Tongass Nat'l Forest	219,000	10%	7,000	0%	1,981,000	90%	2,207,000	1,444,111	6,290,000
Glacier Bay Nat'l Park	54	67%	27	33%	0	0%	81	107,967	873,300
State/Private/Other	125,630	33%	3,885	1%	251,478	66%	380,993	132,876	973,000
Totals	344,684		10,912		2,232,478		2,588,074	1,684,954	8,136,300

- Notes: 1) Tongass data excludes Yakutat Ranger District (outside goshawk range), approx 7% of TNF total
 2) non-prod forest on TNF outside YRD = 0.93 x total non-prod forest on TNF in Albert and Schoen 2006, Table 1
 3) Glacier Bay NP total area excludes St. Elias Mountains north of Mt. Fairweather (20% of GNP)
 Forest in excluded portion assumed to be 20% of Park-wide forest
 4) Young = <100 yr old, Mature = 101 to 150 yr old, Old = >150 yr old
 % of young and mature 2nd growth assumed = on TNF and State/Private/Other = 97% young, 3% mature
 Second growth in Glacier Bay is assumed to be primary succession following glacial retreat
 so 33% of forest <150 yrs old assumed to be >100 yr old
 5) Data sources: TNF: Goldstein 2006 (except non-productive forest)
 Other ownerships and non-prod forest: Albert and Schoen 2006, Table 1

Table A-8. Percentages of Total Area and Productive Forest by ownership in SE Alaska south of Mount Fairweather and Mount Foster.

	<u>Total</u>		<u>Productive Forest</u>	
	Area	%	Area	%
US Forest Service	6,290,000	76	2,206,000	85
Nat'l Park Service	1,092,700	13		
Glacier Bay NP			81	0
State of AK	395,800	5		
Haines State Forest			28,929	1
Native Corporations	233,500	3	187,200	7
Bureau Land Mgmt.	149,700	2		
Municipal/Private/Other	96,000	1	165,864	6
Total	8,257,700	100	2,588,074	100

Data Source: Total Area: Albert and Schoen, 2006, Fig.9;

Productive Forest: Table A-9

Note: Municipal/Private/Other includes all ownerships other than those with data in the column above, defined differently for the Total Area and Prod Forest.

Table A-9. Estimated area (in hectares) and percent of **productive forest** protected and vulnerable to harvest by ownership/location. Percentages are of productive forest within each ownership. Young defined as <100 yrs old (Alaska) or <80 yr old (Canada) due to differences in forest growth rates. Mature defined as 101 to 150 yr old (Alaska) or 81 to 140 yr old (Canada). Old defined as >150 yr old (Alaska) or >140 yr old (Canada).

	Unharvested in Logged Matrix						Area Available for Harvest						Total Productive Forest	Total Land Area
	Reserves		Inoperable		Retention		Young 2nd Growth		Mature		Old Forest			
	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%		
Tongass NF	1,399,000	63	208,000	9	179,000	8	218,000	10	7,000	0	195,000	9	2,206,000	6,288,000
Haines SF	9,362	32	2,337	8	412	1	3,985	14	120	0	12,713	44	28,929	115,828
Native Corps.	0	0	16,848	9	9,360	5	115,564	62	3,467	2	41,961	22	187,200	234,000
Glacier Bay NP	0	0	0	0	0	0	54	67	27	33	0	0	81	873,300
Other AK	9,952	6	14,928	9	6,635	4	7,027	4	299	0	126,970	77	165,864	631,602
Alaska Totals	1,418,314	55	242,113	9	195,407	8	344,630	13	10,885	0	376,645	15	2,587,993	8,142,730
Queen Charlotte Is.	261,373	38	140,511	21	79,822	12	156,516	23	27,747	4	17,835	3	683,804	1,012,452
Vancouver Is.	254,191	9	425,679	16	258,861	10	1,238,143	46	91,258	3	418,363	16	2,686,494	3,432,840
Mainland BC	642,346	12	1,012,363	19	601,946	11	1,028,155	19	581,968	11	1,679,587	31	5,472,234	12,679,304
BC Totals	1,157,910	13	1,578,553	18	940,629	11	2,422,814	27	700,973	8	2,115,785	24	8,842,532	17,124,596
Range-wide Totals	2,576,224	23	1,820,666	16	1,136,035	10	2,767,444	24	711,858	6	2,492,430	22	11,430,525	25,267,326

Data sources: Tongass NF: Goldstein 2006; Haines SF: ADNR 2002 table 2-1; Native Corps: Albert and Schoen 2006; Glacier Bay NP: Albert and Schoen 2006; Other AK: Albert and Schoen 2006; QCI and VI, BC: Inoperable, Retention and Total Prod Forest: BC MoF Timber Supply Analysis Reports (see Tables A-1 to A-6); 2nd Growth and Reserves: Leversee 2006 (QCI) and Niemann 2006 (VI and Manland BC).

Assumptions and calculations:

Tongass National Forest

Yakutat Ranger District excluded (outside QC goshawk range)

"Falldown" (addit'l acreage determined not suitable based on field verification) divided evenly between inoperable and retention.

Haines State Forest

Retention (primarily for anadromous fish streams) estimated at 15% of area reported as Inoperable on Timber Harvest lands

Native Corp. Lands

Productive Forest = 80% of total Native Corp lands

Inoperable = % inoperable on combined Tongass NF and Haines SF = 0.09

Retention = 5% of Prod Forest = 0.05 x 175,500 = 8,775

2nd Growth = 95% of harvested land outside Tongass NF and Haines SF

= 0.95 x (Private/other Clear-cut & 2nd-Growth (Albert and Schoen 2006) - Haines SF 2nd Growth (ADNR 2002))

= .95 x (129,516 - 4,108) = 119,138

Young = 97% of 2nd growth, Mature = 3% of second growth (same %'s as on Tongass NF)

Old Forest = (Total Prod Forest) - (Inop.+ Retention + 2nd Growth)

Other AK (State, Fed, Munic and Private)

Total Land area = (Private/Other) + (Glacier Bay NP) - (Haines SF); data from Albert and Schoen Table 1 and Fig 9

(20% of GBNP area outside QCGO range subtracted from totals in Albert and Schoen)

= 841,040 + 846,041 - 115,828 = 1,571,253

Total Prod Forest = (Private/Other + Glacier Bay NP (Albert and Schoen 2006)) - (Haines SF (ADNR 2002))

(Prod Forest in Albert and Schoen defined as all POG, Clearcut, Conifer<150 yr old, Conifer Forest Other, Decid Forest, and Mixed Forest, but not Muskeg forest, Muskeg woodland or Sub-alpine forest)

= 346,763 + 54,650 - 33,037 = 368,376

Reserves: Assume % Productive Forest in Reserves = % Total Land Area protected on these ownerships

% total land protected = ((Total protected area) - (protected Tongas NF + Haines SF + Native + NPS)) / (Total area -

(Total Tongass NF + Haines SF + Native + NPS)) x 100 = (6,438,362 - (5,311,340+9,362+0+1,089,802) /

(8,831,721- (6,794,333+216,110+233,512+1,089,802) x 100 = 27858 / 497,964 = 6%

(data from Albert and Schoen 2005, Table 6 and Fig 9; Protected Native and Haines SF from table above)

% Productive Forest protected in Resercves = 0.06 x Other AK Total Prod Forest (calculated above)

Inoperable = % inoperable on combined Tongass NF and Haines SF (9%) of land outside Reserves

= 0.09 x 368,376

Retention: Estimated at 5% of Productive Forest outside Reserves

= 0.05 x (Total Prod Forest - Reserves)

Young 2nd Growth = All Young 2nd growth reported in Table A-7 outside Tongass NF, Haines SF, GBNP and Native Corp lands

= 399,000- (Tongass NF +Haines SF + Native +GBNP)

Mature = All Mature 2nd growth reported in Table A-7 outside Tongass NF, Haines SF, GBNP, and Native Corp lands

= 37,870 - (Tongass NF + Haines SF + GLNP + Native)

Old = All Old forest reported in Table A-7 outside Tongass NF, Haines SF, GBNP and Native Corp lands and not Inoperable or Retention

QCI and VI, BC

See Tables A-1 to A-6 for assumptions and calculations

Mainland BC

See Tables A-19 to A-22 for assumptions and calculations

Table A-10. Habitat Value Calculations using BCMF Definition of Productive Forest (from Table 11). Reserves increased, and Crown Timber decreased, in 12/2007 with establishment of new Protected Areas (See Table A-18). (Does not include mainland BC)

Location	Non-Prod Forest	Productive Forest (ha)					Available Old Forest	Historical Habitat Value	Current Habitat Value	Future 50 Habitat Value*	Future 100 Habitat Value**	% Productive Forest	
		Reserves	Inoperable	Retention	2nd growth	Harvested						Remaining	
Alaska	1,684,954	1,418,314	242,113	195,407	355,515	376,645	3,851,709	3,536,099	3,322,437	3,095,352	14%	86%	
QCI	45,899	154,233	140,511	79,822	184,263	17,835	611,089	441,713	378,318	378,318	32%	68%	
VI	121,588	254,191	425,679	258,861	1,329,401	418,363	2,777,685	1,583,646	1,098,804	1,098,804	49%	51%	
BC	167,487	408,424	1,578,553	940,629	3,123,787	2,115,785	8,292,794	5,457,689	3,132,060	3,132,060	38%	62%	
Rangewide	1,852,441	1,826,738	1,820,666	1,136,035	3,479,302	2,492,430	12,144,502	9,003,342	6,454,496	6,227,412	32%	68%	

Table A-11. Historic (year 1900) Habitat Value calculations using Leverage (2006) definitions of Productive and Non-Productive Forest (from Table 12).

	Non-Prod Forest	Prod. Forest	Historical Habitat Value	%
Alaska	1,684,954	2,587,993	3,851,709	52%
QCI	347,793	447,156	708,001	10%
VI	748,340	2,283,389	2,844,644	38%
BC	1,096,133	2,730,545	3,552,645	48%
Rangewide	2,781,087	5,318,538	7,404,353	100%

Table A-12. Distribution of Range-wide Habitat Value (percent) at four time intervals.

	Historical	Current	Future 50	Future 100
Alaska	32	39	51	50
QCI	5	5	6	6
VI	23	18	17	18
BC	68	61	49	50

Table A-13. Percentage reductions in habitat value from historical conditions.

	Current	Future 50	Future 100
Alaska	8	14	20
QCI	28	38	38
VI	43	60	60
Canada	34	62	62
Rangewide	26	47	49

Habitat Value Discounts applied to Forest Categories (Habitat Value = sum of (1-discount) x hectares in each category, by scenario)

Non-Prod.	0.25 for historic, current and future (e.g. 0.75 x 2,065,479 for Alaska, all scenarios)
Reserves	0 for historic, current and future (e.g., 1.0 x 1,559,724 for Alaska, all scenarios)
Inoperable	0 for historic and current, 0.15 for portion harvested in future (e.g., 0.85 x 250,617 for Alaska Future100)
Retention	0 for historic, 0.5 for portion harvested (current and future) (e.g., 0.5 x 96,046 for Alaska Future 100)
2nd growth	0 for historic, 0.85 for current and future (e.g., 1.0 x 356,285 for Historic, 0.15 x 356,285 for Alaska Current, Future 50 and Future 100)

Old Forest 0 for historic and current, 0.85 for portion harvested in future (e.g., $1.0 \times 372,265$ for Alaska Current; $0.15 \times 372,265$ for Alaska Future 100; $(0.5 \times 1.0 \times 372,265) + (0.5 \times 0.15 \times 372,265)$ for Alaska Future 50)

Notes: *Future 50 assumes half of remaining available old forest harvested in Alaska, all available harvested in Canada

**Future 100 assumes all available old forest harvested in Alaska and Canada

Table A-14. Percentage of historical range-wide habitat value in each geographic region, historically (1900), currently (2005) and in the future (2100). (Does not include mainland BC).

	<u>Historical</u>		<u>Current</u>		<u>Future</u>	
	<u>Value</u>	<u>%</u> 1900	<u>Value</u>	<u>%</u> 2005	<u>Value</u>	<u>%</u> 2100
SE Alaska	3,851,709	53%	3,536,099	49%	3,095,352	43%
Queen Charlottes	611,089	8%	441,713	6%	378,318	5%
Vancouver Island	2,777,685	38%	1,583,646	22%	1,098,804	15%
totals	7,240,483	100%	5,561,458	77%	4,572,474	63%

Table A-15. Projected declines in habitat value from current conditions (2005 to 2100).

	2005	2050		2100	
	<u>Value</u>	<u>Value</u>	<u>% Decline</u>	<u>Value</u>	<u>%</u>
SE Alaska	3,536,099	3,322,437	6%	3,095,352	12%
Queen Charlottes	441,713	378,318	14%	378,318	14%
Vancouver Island	1,583,646	1,098,804	31%	1,098,804	31%
BC Total	5,457,689	3,132,060	43%	3,132,060	43%
Rangewide	9,003,342	6,454,496	28%	6,227,412	31%

Table A-16 . Timber supply forecasts for Queen Charlotte and Vancouver Islands, 2000 - 2050. (Source: "Detailed Information" link in BCMF 2004, p. 35)

Management unit	Name	Increase (decrease)	
		Cubic meters per year	%
Queen Charlotte Island			
TSA25	Queen Charlotte TSA	(48,200)	-10.1
TFL39	Haida	(134,338)	-3.7
TFL47	Duncan Bay	8,240	1.0
	Total for QC Islands	(174,298)	
Vancouver Island			
TSA33	Kingcome TSA	(545,683)	-41.4
TSA37	Strathcona TSA	(279,600)	-22.4
TSA38	Arrowsmith TSA	(94,000)	-26.3
TFL06	Quatsino TFL	(173,299)	-12.1
TFL19	Tahsis TFL	(214,900)	-22.9
TFL25	Naka TFL	(120,000)	-17.6
TFL39	Haida TFL	(134,338)	-3.7
TFL44	Alberni TFL	(130,000)	-7.6
TFL46	West Coast TFL	-	0.0
TFL54	Maquinna TFL	-	0.0
	Total for Vancouver Island	(1,691,820)	

Table A-17 Mature and Old Forest Trends (Original = 1900, Current = 2005, Future = 2100, OG = Old Growth Forest)

	Original	Current			Future				
	Hectares	Hectares	% of Orig.	% Loss	Hectares	% of 1900	% Loss from 1900	OG Harvest 2005-2100	% Loss from 2005
SE AK	2,587,993	2,243,363	87%	13%	1,965,657	76%	24%	376,645	12%
VI	2,686,494	1,448,351	54%	46%	1,200,895	45%	55%	418,363	17%
QCI	683,804	527,289	77%	23%	512,021	75%	25%	17,835	3%
Mainland BC	5,472,234	4,518,211	83%	17%	2,750,112	50%	50%	1,679,587	39%
BC Total	8,842,532	6,493,850	73%	27%	4,463,028	50%	50%	2,115,785	31%
Range-wide	11,430,525	8,737,213	76%	24%	6,428,685	56%	44%	2,492,430	26%

Note: Future condition assumes 15% of second growth (from Table A-9) is mature.

Table A-18. Estimated timber harvesting land base (Ha) for the Queen Charlotte Timber Supply Area after establishment of New Protected Areas (NPA) in December, 2007. Calculations assume forest conditions in NPA reflect average conditions across the TSA, except only 1,000 ha marine and fresh water and no Federal or non-BCFS-managed lands in NPA. "Original Land Base" data (bold-faced column headers) from BCMF 2000, Queen Charlotte TSA Analysis Report, Table 2.

Land Base Classification	Original Land Base Reductions	Original Land Base Area	% of BCFS Land or Prod Forest	Amount of Reduction in NPA	NPA Area	Adjusted TSA Reductions	Adjusted Land Base Area
Total area on Inventory file		1,386,981					
Total Area in QC TSA/NPA		979,456			254,000		725,456
Marine and fresh water	519,365			1,000			
Land area in QC TSA		460,091			253,000		207,091
Federal lands and reserves	6,589			0			
Not managed by BCFS	9,212			0			
Total Land managed by BCFS		444,290			253,000		191,290
Non-forest	78,632		17.70%	44,777			
Non-productive forest	11,305		2.54%	6,438			
Total BCFS-mgd prod. Forest		354,353			201,786		152,567
Ecological reserve areas	1,621		0.46%	923		698	
Unmerchantable forest types	8,346		2.36%	4,753		3,593	
Inaccessible and inoperable	54,999		15.52%	31,319		23,680	
Uneconomic and low site stands	165,331		46.66%	94,147		71,184	
Environmentally sensitive	8,333		2.35%	4,745		3,588	
High recreation values	2,412		0.68%	1,374		1,038	
Unstable soils	13,574		3.83%	7,730		5,844	
Riparian management areas	9,774		2.76%	5,566		4,208	
Cultural/heritage values	5,757		1.62%	3,278		2,479	
Wildlife tree reserve areas	593		0.17%	338		255	
Unmapped roads	1,240		0.35%	706		534	
Total current reductions	271,980	-271,980	76.75%	154,878	-154,878	117,102	-117,102
Current timber harvesting land base		82,373			46,907		35,466
Future reductions							
Future roads	4,842	-4,842	1.37%	2,757	-2,757	2,085	-2,085
Long-term timber harvesting land base		77,531			44,150		33,381
Total Inoperable	242,250			137,949		104,301	
Total Retention	28,490			16,224		12,266	
Reductions for Inop and Retention	270,740			154,172		116,568	

Table A-19. Protected Area Statistics for the Coast Forest Region, BC (from Niemann 2006 and Table A-18). "Pre-QCI" includes (2002) proposed protected areas on mainland; final (2006) protected areas similar but not exactly equal (Niemann 2006).

	Total Area (ha)	Total Area (acres)	Productive Forest (ha)	Productive Forest (acres)	% Productive Forest
Pre-QCI Total Protected Area	2,022,070	4,994,513	956,124	2,361,626	47
New QCI Protected Areas	254,000	627,380	201,786	498,411	79
Total Protected Area	2,276,070	5,621,893	1,157,910	2,860,038	51

Table A-20. Young and Mature Productive Forest Across the Coast Forest, Region BC
(derived from Neimann 2006, based on 2002 Conditions)

	Total Area (ha)	Total Area (acres)	% of total land area	% of Subalpine land area	% of Productive Forest
Productive Forest	8,842,532	21,841,054	52	64	100
Young Growth (<80 yr old)	2,422,814	5,984,351	14	18	27
Second Growth (<100 yr old)	2,110,299	5,212,438	12	15	24
Mature (80 - 140 yr old)	794,424	1,962,227	5	6	9
Old (>140 yr old)	5,625,296	13,894,481	33	41	64
Old/Mature Forest (>80 yr old)	5,755,552	14,216,212	34	42	65
Alpine Tundra	3,294,900	8,138,402	19		
Subalpine Land	13,829,696	34,159,349	81	100	
Total Land Area	17,124,596	42,297,751	100		

Table A-21. Estimated land area and cover by young and mature productive forest in portions of coastal British Columbia (from Niemann 2006 and Table A-9).

	Total Land Area (ha)	Productive Forest		Young Growth (<80 yr old)		Mature and Old Growth (>80 yr old)		
		(ha)	% of Total Land Area	(ha)	% of Prod. Forest	(ha)	% of Total Land Area	% of Prod. Forest
Queen Charlotte Is.	1,012,452	683,804	68	156,516	23	527,288	52	77
Vancouver Island	3,432,840	2,686,494	78	1,238,143	46	1,448,351	42	54
Mainland Coast	12,679,304	5,472,234	43	1,028,155	19	3,779,913	30	69

Table A-22. Estimated area and percent of productive forest protected and vulnerable to harvest on **mainland BC** (derived from Niemann 2006 and Table A-9). Young, Mature, and Old forest data are on lands available for harvest only (outside reserves)

	Reserves	Outside Reserves	Protected in Matrix		Available for Harvest		
			Inoperable	Retention	Young Growth (<80 yr old)	Mature (80-140 yr old)	Old Growth (>140 yr old)
Hectares	642,346	4,829,887	1,012,363	601,946	954,023	581,968	1,679,587
Acres	1,586,596	11,929,822	2,500,537	1,486,806	2,356,437	1,437,461	4,148,581
% of prod. forest on Mainland	12	88	19	11	17	11	31
% of Land Area	5	38	8	5	8	5	13

notes: Young, Mature and Old Forest = (total ha in age class in Coast Region (Niemann 2006)) - (total ha in age class in Protected Areas in Coast Region (from Niemann 2006)) - (ha in age class on QCI (from Table A-9)) - (ha in age class on VI (from Table A-9))

Prod. Forest in Reserves = (total Productive Forest in Coast Region (Table A-19)) - (Prod. Forest in reserves on QCI (Table A-9)) - (Prod. Forest in reserves on VI (Table A-9))

Amount of inoperable and retention calculated as a percentage of total productive forest, assumed to be similar to (average of) analogous percentages for QCI and VI

Table A-23. Estimated areas (ha) and percentages of protected lands and protected forest in coastal British Columbia.

	Total Land Area	Total Protected Area	% of Land Protected	Productive Forest Protected	% of Protected Area w/ Prod. Forest
Queen Charlotte Islands	1,012,452	481,067	48	261,373	54
Vancouver Island	3,432,840	456,713	13	254,191	56
Coastal Mainland	12,679,304	1,338,290	11	642,346	48
Total (Coastal Region)	17,124,596	2,276,070	13	1,157,910	51

notes: Protected area on QCI = 227,067 from Leversee (2006) + 254,000 from New Protected Areas (Dec, 2007)

Protected area on VI from Niemann (2006)

Protected area on mainland = Total protected area from Niemann (2006)(=2,022,070) - Total protected area on VI from Niemann (2006) - total protected area on QCI from Leversee (2006)

Niemann (2006) included proposed protected areas on the mainland, but not New Protected Areas on QCI

Leversee did not include New Protected Areas on QCI

Productive Forest Protected from Table A-9

Table A-24. Landscape composition of British Columbia Coast Region after all Timber Harvesting Land Base is converted to second growth (areas in ha).

	Productive Forest to Remain Unlogged	% of Future Landscape in Old Growth	Future Area of Mature 2nd Growth	% of Future Landscape in Mature/Old
Queen Charlotte Islands	481,706	48	30,315	51
Vancouver Island	938,730	27	262,165	35
Coastal Mainland	2,256,655	18	493,457	22
Total (Coastal Region)	3,677,092	21	785,936	26

notes: Prod forest to remain unlogged = Reserves + Inoperable + Retention from Table A-9

Future area of Mature 2nd growth = 15% of (Young + Mature + Old) from Table A-9 (assumes all available old forest cut and 15% of second growth is in mature stage)