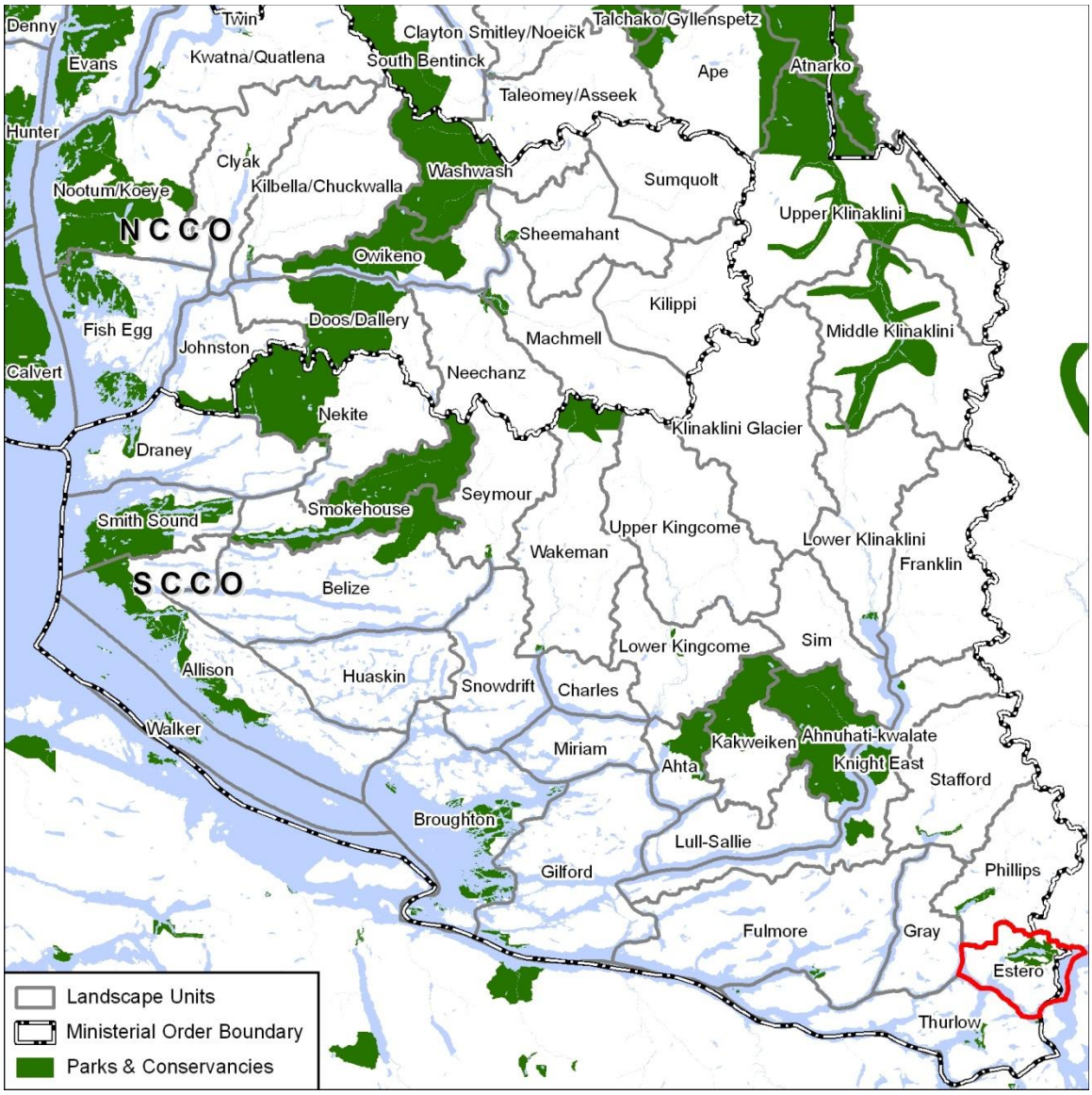
Draft Strategic-Level Reserve Design



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1. PREFACE

The reporting format provided here was provided to plan preparers by Integrated Land Management Bureau staff in October of 2010. This format recognizes that purpose of the draft is for strategic forest planning only.

The reserve planning here represents a combination of hard and soft reserves. Hard reserves are areas such as wildlife habitat areas, riparian reserves, class 1 Grizzly Bear habitat, ungulate winter range and where possible park areas (this is not an exclusive list, each area is unique). In many cases these hard reserves form the base or the anchor for the soft reserves. Soft reserves are areas identified through things like coarse filter models and cursory analysis. It is expected that in many cases changes will need to be made based on site level information. The planning illustrated here was completed by qualified registered professionals weighing the economic benefits required to address human well being and the conservation component of the 2009 Land Use Objectives.

Soft reserves are identified in the Strategic Level Reserve Design process by identifying co-location values during the process of ecosystem representation (in this case site series surrogates). Where an area has high co-location value it is identified as a candidate for inclusion in a soft reserve. Co-location 'value' is determined by the number of values present. Co-location is a function of natural occurrence, it is not a process. Where there are more naturally occurring values coincident with each other the conservation benefit of maintaining the area increases. These values then have to be weighed against the economic value of a given area and the economic rent that the area can provide over time versus the conservation benefit over time. Site series surrogates have been shown to be a poor predictor or ecosystem type, so it is recognized that planning for representation will need to occur again once better information is available.

The objective of Strategic Level Reserve Design is to identify the area with the highest estimated conservation value for inclusion in area constrained to meet the Land Use Objectives. This is a dynamic process which will change over time. The information pictured here represents one of many possible solutions to meet the objectives. This means that the Strategic Level Reserve Design in this dataset is likely to change over time provided that the objectives are still met. It is expected that as new and more comprehensive information is collected in the plan area the requirements and consequently the plan will change. All of this will occur while ensuring that a high level of human well-being is maintained or as required improved over time.

2. LANDSCAPE UNIT DESCRIPTION

- **Land Use Order (LUO) Area:** SCCO
- **Unit Physical Description:** The Estero Landscape Unit is located to the south west of Bute Inlet and North West side of Cordero channel. It encompasses Phillips Arm and Fredrick Arm. The Estero Basin Conservancy is located within this landscape unit.
- **Forest Licences in the Unit:** TFL45, TSL, Vacant Crown Land, A64974, A59537, A20511, A17254 & A19232 .
- **Total Area:** 21,568 ha

- **Forested Area:** 16,293 ha (Source SSS2009 Representation Table from ILMB)
- **Timber Harvesting Land Base (THLB):** 9,502
- **Total Protected Areas:** 3,138 ha
- **Biogeoclimatic Units:** CWHdm, CWHvm1, CWHvm2, CWHxm2, MHmm1, ATunp.
- **Number of Site Series Surrogates (SSS):** 45
- **Focal Species:** Grizzly, Marbled Murrelet, Tailed Frog, Mountain Goat, Goshawk
- **Default Retention target:** 30 % of the Range of Natural Variation (RONV)

3. Land Use Order (March 2009)

South Central Coast LUO

http://www.ilmb.gov.bc.ca/slrp/lrmp/nanaimo/cencoast/plan/objectives/index.html

4. FIRST NATIONS & TRADITIONAL TERRITORIES

At the time of writing this draft has not been reviewed by First Nations or any of their representatives. The K'omoks and Kwiakah First Nation Traditional Territories intersect the Estero LU.

5. SLRD MAPPING PROCESS

SLRD mapping must be consistent with the intent of Objective 14 of the (SCC/CNC select appropriate order) Land Use Order (2009). Alpine Tundra (SSS) were not mapped since it is not part of the harvestable land base and 100% is considered available as reserves. The following is a descriptor of the general process followed in reserve selection there will be individual exceptions to this for some reserve selections for a variety of reasons such as inclusion of isolated THLB in a reserve or exclusion of non-contributing land base considered operable based on operational information.

- Modify the current landbase netdowns (describe changes to the baseline to include updated habitat or other data polygons)
- Assess hard reserves (list hard reserves by type in LU) and analyze for SSS representation.
- Map focal species habitat with high co-location value (Appendix 1) within the non-contributing landbase.
- Map Grizzly Class 2, Rank 1 and 2 marbled murrelet habitat, Northern Goshawk N1 habitat and Coast tailed frog habitat where there are known locations within the non-contributing land base and analyze for SSS representation.
- If a SSS is achieved, no further mapping is required. If not, continue mapping SSS in the non-contributing land base.
- If SSS representation target cannot be met in the non-contributing land base, map in the timber harvesting land base giving priority to co-located habitat, high habitat values for individual species and harvestability in order to meet the intent of Objective 14(7).

6. STRATEGIC LEVEL RESERVES (Appendices 2 and 3)

All SSS retention targets in the Smokehouse Landscape Unit were met or exceeded. See the Representation Summary worksheet in the standard reporting template excel workbook in Appendix 3.

7. FOCAL SPECIES

Estero Landscape Unit contains habitat for all of the 5 focal species, see spreadsheet in appendix 3 for a summary of habitat capture within the reserves.

As the function of the Strategic Landscape Reserve Design (SLRD) is an ecosystem representation process, focal species were only addressed to the extent required in S.14(7) from the Ministerial Order. The results of utilizing the *Focal Species Workshop* high risk thresholds (with their inherent uncertainties and the adjustments for unverified inventory data) must be assessed and treated with caution.

8. TIMBER HARVESTING LAND BASE IMPACT

Total Impact: 1,971 ha or 21 % of the total THLB based (Strathcona TSR3)

Mature/Old Impact: 1,125 ha representing 26% of the mature and old THLB.

(See Appendix 3 for breakdown by SSS)

Note: THLB values here are different than those presented in Appendix 3 – Representation Summary. This is caused by polygons in the SSS2009 dataset with missing attribute data. There is THLB area in this unit without a surrogate assignment.

9. REFERENCES

2009 Site series surrogate data base

ILMB LU Group data package

Grizzly habitat mapping version 12.9 (modified after the preparation of the ILBM group data sets)

Current TSR data package for THLB definition.

Appendix 1: Focal Species Co-Location Values

This is the standard one from the Strategic Landscape Reserve Design Process (Template) July 28 2010 Kremsater et. Al. Note if modified

Value description	Points	Notes
Known Monumental Cedar stands	4	Field verified stands identified by First Nations
Known Red-listed plant communities	4	Field verified, Schedules 5 of SCC and CNC Orders
Known Blue-listed plant communities	3	Field verified, Schedules 6 of SCC and CNC Orders
Known MAMU nest sites/occupied detections or proposed WHA's	4	Field verified**, includes but not limited to Tier 1 for Mid Coast
Known Northern Goshawk nest areas	4	Field verified**, includes but not limited to Tier 1 for Mid Coast
Known Tailed Frog streams	4	Field verified**, includes but not limited to Tier 1 for Mid Coast
Class 2 Grizzly Habitat: field verified, high quality	3	Note: The NCC Legal Order requires reserving 50% of class 2.
Goat Class 1 habitat	3 (NU)	As modelled on SC. NU on Mid-North Coast; there, use only legally established and proposed/submitted winter ranges for goats
Mamu Class 1 and 2 habitat	3	Air-photo interpreted rankings (Use low-level inventory if available).
Northern Goshawk N1 & N2 habitat	3	Modelled; merge contiguous N1 and N2 polygons and rate the merged polygons as 3 pts
Tailed Frog Class 1 habitat (i.e. stream plus buffer) without known locations*	3	Modelled
Class 2 Grizzly Habitat: high quality, not field verified	2	High quality includes lower elevation (<500 m) and valley bottom habitat throughout the CWH, and all class 2 within hypermaritime subzones. Note: The NCC Legal Order requires reserving 50% of class 2.
Class 2 Grizzly Habitat : non-priority, not field verified	1	
Northern Goshawk F1 & F2 habitat	NU	For the script, nesting is used rather than foraging ratings, because good/moderate nesting will also be good/moderate foraging and we want to avoid double weighting in the script.
Mamu Class 3 habitat	2	Air-photo interpreted ranking (Use low-level inventory if available).
Tailed Frog Class 2 habitat without known locations	2	Modelled
Goat habitat Class 2	1 (NU)	As modelled on SC. NU on Mid-North Coast; there, use only legally established and proposed/submitted winter ranges for goats
Tailed Frog classes 3 & 4	NU	Stream reaches are to be used rather than basins

Definitions/clarifications for co-location values table

*Class 2 tailed frog streams adjoining class 1 streams ideally would also be given a value of 3 so that longer reaches of good frog streams are reserved. Because that may be difficult to determine in Arcscript, we suggest that step be done during rationale reserve design (see Appendix 1).

** Field verified means on-the-ground or low-level aerial flight reconnaissance which provide additional inventory information to confirm the following definitions of **high value (suitability) habitat, and/or provide evidence of species presence/not detected** for Marbled Murrelet, Northern Goshawk and tailed frog.

"**High Value Nesting Habitat**" for Marbled Murrelet means areas of forest that:

1. are in structural stage 7 or age class 8 or 9;
2. are of a patch shape and size sufficient to provide interior forest conditions;
3. include a variable canopy structure allowing access to nesting platforms;
4. provide large trees (greater than 60 cm diameter) with suitable nesting platforms (limbs or deformities >15 cm diameter with epiphyte cover);
5. are located within the 0–900 m a.s.l. elevation band; and
6. consist of coniferous forest dominated by western hemlock (*Tsuga heterophylla*), Sitka spruce (*Picea sitchensis*), Douglas-fir (*Pseudotsuga menziesii*), or Western Redcedar (*Thuja plicata*)

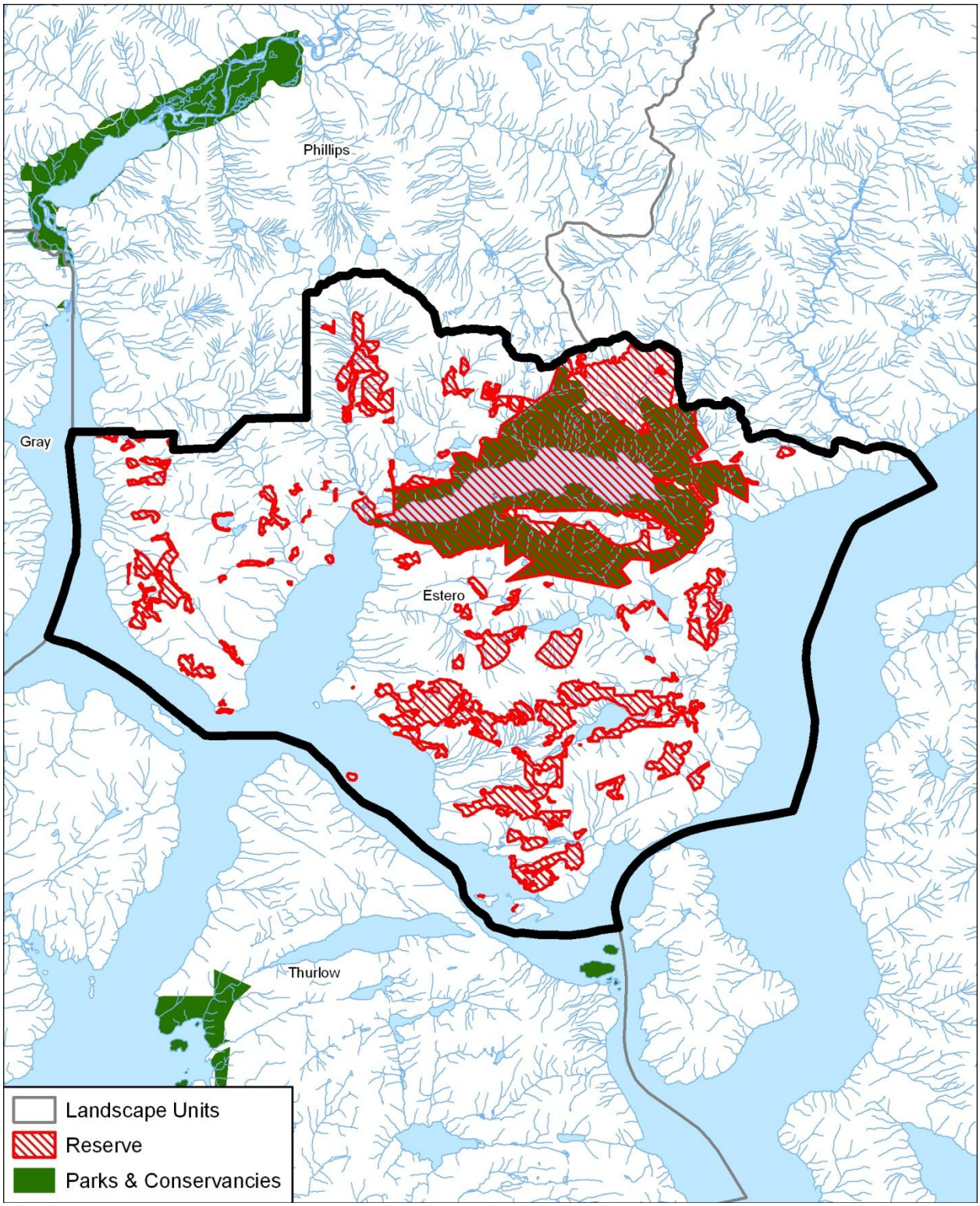
"**High Value Nesting Habitat"** for Northern Goshawk means areas of forest that:

1. contain Mature, or Old Forests (Structural Stage 6 and 7 respectively) (or co-dominant minimum tree height of 25 meters, and age of 70 years),
2. are dominated by Mountain Hemlock (Tsuga mertensiana), Western Hemlock (Tsuga heterophylla), Sitka Spruce (Picea sitchensis), Amabilis fir (Abies amabilis) or Douglas-Fir (Pseudotsuga menziesii)
3. occur on slopes less than 100 %,
4. exhibit between 46 and 75% crown closure (Crown Closure Class 5, 6, and 7), and
5. are greater than 200 ha in size and at least 200 m distant from hard edges.

"**High Value Natal Habitat**" for Tailed Frog means streams that can be buffered with a no- harvest riparian reserve (30 m width recommended but may vary with site-specific justification) and a riparian management zone (20 m width recommended but may vary with site-specific justification, and which maintains 80% basal area), and that:

1. occur at elevations less than 900 meters and within basins that are 0.3 to 10 km2 in size,
2. if practicable, cover within a given basin the length of the stream network identified in Tiers 1, 2, and 3,
3. are part of a dendritic stream network,
4. show the presence of tadpoles of Coastal Tailed Frog,
5. have perennial flow, overall ruggedness between 30 and 120%, step pool or cascade stream morphology, clean boulder-cobble gravel substrates with stable channel beds (boulder aggradations stable for >10 years), Low to Moderate Channel Disturbance Intensity, bankfull channel width between 1- 6.5 meters, and mature or old forest cover (80 and 140 years of age respectively).

Appendix 2: Map of Draft Strategic Level Reserve



Appendix 3: SLRD Summary

Estero LU - Representation

All numeric values are in hectares (except %)

SSS	Total Area	Old Seral Area	% RONV	Target (RONV)	Existing Legal Reserve												SLRD												Total				Target Balance*	
					TSA						TFL						TSA						TFL											
					Early	Mid	Mat	Old	Total	THLB	Early	Mid	Mat	Old	Total	THLB	Early	Mid	Mat	Old	Total	THLB	Early	Mid	Mat	Old	Total	THLB	Old	Recruit	Total	THLB	Old	Total
ATunp Cw Poor	33	32																																
ATunp HB Poor	7	3																																
CWHdm Cw Good	196		23%	33													29	5			35	35			0		0	0		35	35	35	-33	2
CWHdm Cw Med	725	274	23%	133															44	110	154	91			0	40	40	16	150	44	194	107	17	61
CWHdm Cw Poor	588	303	26%	149				0	0									7	108	152	267	101				2	2	0	153	116	269	101	4	120
CWHdm Decid	642				0	0			0	0		3	2		5	0	19	76	6		101	90								106	106	90		106
CWHdm Fd Good	333		23%	84							0				0	0		31	64		96	95	0				0	0		96	96	96	-84	11
CWHdm Fd Med	900	28	17%	142													30	10	76	27	143	132				1	1	0	28	116	144	133	-114	2
CWHdm Fd Poor	388	56	17%	62													3	6	20	12	40	32				44	44	20	56	28	84	52	-6	22
CWHdm HB Good	2,546		23%	468		2			2	2							46	306	118		470	454			0		0	0		472	472	456	-468	4
CWHdm HB Med	2,055	205	23%	395			0	0	0	0			6	3	9	3	22	75	117	147	361	238			0	55	55	24	205	220	425	265	-190	30
CWHdm HB Poor	114	68	23%	26															5	30	35	4							30	5	35	4	4	9
CWHdm S PoorPl	18		12%	2															6		6	0								6	6	0	-2	3
CWHvm1 Cw Good	82		25%	19													8				8	8	18		1		18	8		27	27	16	-19	8
CWHvm1 Cw Med	557	242	28%	119															5	110	115	46				19	19	5	129	5	134	50	11	16
CWHvm1 Cw Poor	797	568	28%	215		1	2		3	0									59	212	271	40				6	6	0	219	62	281	40	4	67
CWHvm1 Decid	20																	1			1	1								1	1	1		1
CWHvm1 Fd Good	35		21%	8													0				0	0	15				15	7		15	15	7	-8	7
CWHvm1 Fd Med	136	5	21%	26													3	2	17	5	28	23							5	22	28	23	-21	1
CWHvm1 Fd Poor	80	4	21%	16													8	1	5	1	15	9	2			3	5	3	4	16	20	12	-12	3
CWHvm1 HB Good	374		25%	54													27	2	5		33	32	36	0	7		43	19		76	76	51	-54	22
CWHvm1 HB Med	854	173	25%	185	1			7	8	8							10	13	25	91	139	54		0	0	74	74	29	173	49	222	92	-12	37
CWHvm1 HB Poor	293	163	25%	73				0	0	0									9	74	83	28							74	9	84	28	1	10
CWHvm1 S PoorPl	14		12%	2															2		2									2	2		-2	0
CWHvm2 Cw Good	33		25%	10													1				1	1	18				18	8		19	19	10	-10	9
CWHvm2 Cw Med	736	439	28%	138				0	0	0								0	0	87	87	18				91	91	36	178	0	178	54	39	39
CWHvm2 Cw Poor	1,677	1,435	28%	440		6	1	11	18	2									23	447	470	28							458	30	488	30	17	48
CWHvm2 Decid	3																																	
CWHvm2 Fd Good	8		21%	2																			5				5	2		5	5	2	-2	3
CWHvm2 Fd Med	41	12	21%	14															6		6	3			1	12	13	5	12	7	19	8	-2	5
CWHvm2 Fd Poor	44	22	21%	18															8		8					22	22	9	22	8	31	9	5	13
CWHvm2 HB Good	557		25%	86													37				37	37	83		0		83	34		120	120	71	-86	34
CWHvm2 HB Med	1,549	839	25%	301			2	10	13	3								0		184	184	29	0		0	157	157	49	351	2	354	81	50	53
CWHvm2 HB Poor	1,031	809	25%	231		29	11	1	41	0									0	224	224	6			0	9	9	0	234	40	274	6	2	42
CWHvm2 S PoorPl	4		12%	1															1		1									1	1		-1	-0
CWHxm2 Fd Good	1		23%	0															0		0									0	0		-0	0
CWHxm2 HB Good	4		23%	1															4		4									4	4		-1	3
CWHxm2 S PoorPl	1		12%	0															0		0									0	0		-0	0
MHmm1 Cw Good	3		25%	2													2				2	2								2	2	2	-2	1
MHmm1 Cw Med	32	32	28%	17																14	14					6	6	2	20		20	2	3	3
MHmm1 Cw Poor	617	547	28%	172				1	1									0	3	185	188					0	0		186	3	189		14	17
MHmm1 Fd Poor	27	25	22%	7																						16	16	7	16		16	7	8	8
MHmm1 HB Good	0		25%	0																													-0	-0
MHmm1 HB Med	260	226	25%	57													0			49	50	2				8	8		57	0	58	2	1	1
MHmm1 HB Poor	758	596	25%	180		13	1	2	15											180	180	0				3	3		184	13	197	0	4	17
	19,175	7,107		3,890	1	51	17	33	102	15	0	3	8	3	14	3	246	537	736	2,342	3,861	1,641	177	0	9	567	753	286	2,945	1,785	4,729	1,945	-945	840

* Balance - Negative indicates a deficit in this type. Positive indicates a surplus in this type.

Estero LU - 14(7) Values Summary - SLRD (includes Existing Legal)

All numeric values are in hectares (except %)

Habitat Type	Reserved		Not Reserved		Total	Total Reserved Habitat			
	THLB	NCLB	THLB	NCLB		Reserved		Reserved & NCLB	
Grizzly Class 1	19	157			175	175	100%	175	100%
Grizzly Class 2							0%		0%
MaMu Rank 1	12	17	12	18	59	29	49%	47	80%
MaMu Rank 2	107	275	209	282	874	383	44%	665	76%
MaMu Rank 3	196	363	486	606	1,651	559	34%	1,165	71%
TaFr Class 1	90	194	383	325	992	283	29%	609	61%
TaFr Class 2	62	100	184	235	581	162	28%	397	68%
Goat	34	83	15	90	222	117	53%	207	93%
NoGo Nest High	355	131	1,204	737	2,427	486	20%	1,223	50%
NoGo Nest Mod	575	476	1,712	1,601	4,365	1,051	24%	2,652	61%
Red-Listed	10	9	2	4	24	18	75%	22	90%
Blue-Listed	113	68	96	33	311	181	58%	214	69%
Total	1,573	1,874	4,303	3,931	11,681	3,446	30%	7,377	63%