Project No.: 512

by

David L. Mealiea
Bachelor of Science, Dalhou ie ! niver ity, 2""5

#S%#&' P#()$&* S!BM+**$D +N P%#*+%L ,!L,+LLM$N*
(,*'$ #$-!+#$M$N*S ,(#*'$ D$.#$$ (,

M%S*$# (, #$S(!#&$ M%N%.MN*

+n the
School of #e ource and $nviron / ental Mana0e / ent

!

" #$ % # & ' (" ($

) '$ * +,-

$ % . ## (" % #$ (" ($ '$ ' # &(!
' &($/ 0 # ! (! ' (($ ($ (& # (
$ #. & 0 (' " ' # '$

1 ((" $$

. 2 ! (((
Ma ter of #e ource Mana0e / ent &andidate
School of #e ource and $nviron / ental Mana0e / ent
Si / on , ra er ! niver ity

88888888888888888888888888888888888888

* 3 ($4 (
Senior Su4ervi or
Profe or
School of #e ource and $nviron / ental Mana0e / ent
Si / on , ra er ! niver ity

88888888888888888888888888888888888888

* / ((5 $ (
Su4ervi or
% ociate Profe or
School of #e ource and $nviron / ental Mana0e / ent
Si / on , ra er ! niver ity

$ % (! !6 ! 88888888888888888888888888888888888888

0#$ '$

*o hed e / 4irical li0ht on the debate urroundin0 the 4erceived ecolo0ical benefit of co / / unity fore try, ⊦u ed / ulti4le ty4e of data to co / 4are five co / / unity fore t to 0eo0ra4hically 4ro9i / ate conventional tenure . ⊦u ed data 0enerated fro / the B& Mini try of , ore t #$S ! L*S databa e to inve ti0ate 4ro9y / ea ure of ecolo0ically u tainable fore t / ana0e / ent, includin0 ilviculture y te / u a0e, cutbloc6 tructural characteri tic , and harve tin0 4rofile . ⊦n addition, ⊦ conducted ta6eholder intervie5 5ith fello5 re earcher to hel4 infor / the choice of 4ro9y / ea ure e / 4loyed, a 5ell a to 4rovide a :ualitative conte9t for ilviculture and harve tin0 data. &o / / unity fore t are lar0ely / ana0in0 in a / ore ecolo0ically u tainable / anner than their counter4art . *hey are / ore li6ely to e / 4loy alternative ilviculture y te / , and out;4erfor / their counter4art in certain / ea ure of tand tructure and

*o / y fa / ily and friend , the foundation u4on

5hich all of / y 4ur uit   are built.

'5(7 !" ($#

+-ve never learned o / uch and had o / uch fun conductin0 re earch,

and 5ithout the 5i do / , 6indne , u44ort, and of cour e, co / / unity 4irit of

0 % ($ ($#

#$ % "&

#$ % 0

0 , ' (# # (' &! ! (#$&!/**********;
0 - $ '# &# ! # 1 # % ' " ' #&#$ (0 $/ **********,-
0 = #& $# % #$ $ #$ ' ' # (% # '& $& #/#$ &# " **********=<
0 9 #& $# % #$ $ #$ ' ' # (% #$. #$ '&$0 '5 #$ &'$& *9,
0 + # (% @& $ $ (! @& ($ $ #& $# **********<;

#$ % ' (/

B&	Briti h &olu / bia
B&*S	Briti h &olu / bia *i / ber Sale
&,	co / / unity fore t
&,%	co / / unity fore t a0ree / ent
&2,&	&re ton 2alley , ore t &or4oration
,L	fore t licence
,*%	fore t tenure a44lication
' P&,	

($!&'$ (

Mana0e / ent y te / 0overnin0 ho5 natural re ource are harve ted re4re ent a co / bination of our under tandin0 of tho e eco y te / 4rovidin0 the re ource in :ue tion and the related ocietal belief , attitude , and 4ractice urroundin0 our relation hi4 5ith the environ / ent BLert7 / an, 2""CD. *he e y te / have evolved out of a variety of different ocial in titution , ba ed in both 4rivate o5ner hi4 and 0overn / ent control a 5ell a throu0h u er elf; 0overnance, all of 5hich have uni :ue a44roache to re ource / ana0e / ent BDiet7 et al., 2""ED. , or in tance, 5hile 0overn / ent in titution / ay i / 4o e fine and jail ti / e for re ource u e violation , locally;ba ed in titution / ay rely on / ore ubtle avenue of di ci4line BDiet7 et al., 2""ED. *hat the e different in titution al o often 4o e diver0ent objective BBer6e , 2""F< Ber6e , 2""ED u00e t that, 5hile both ucce e and failure have been a ociated 5ith each, outco / e / ay be inherently different.

$colo0ical i ue urroundin0 re ource / ana0e / ent have beco / e increa in0ly i / 4ortant to the 4ublic and 4olicy / a6er in &anada and around the 5orld in recent decade BPo6harel et al., 2"1"< Schlae4fer, 1CCF< *o / an and % hton, 1CCGD. *hi trend hold true in Briti h &olu / bia in 4articular, 5here the e :ue tion of the ecolo0ical i / 4act of re ource u e are often held a / ore i / 4ortant than econo / ic and ocial con ideration . , or in tance, >o7ac et al.

B2""HD found that in fore t de4endent co / / unitie acro the 4rovince, ecolo0ical i ue uch a u tainin0 biolo0ical richne , / ana0in0 fore t to reduce 0lobal 5ar / in0, and u tainin0 the 4roductive ca4acity of fore t are con i tently held by the 4ublic a / ore i / 4ortant than econo / ic con ideration .

*he co / / unity fore try / ove / ent ha e / er0ed 0lobally in recent decade in tride 5ith thi ur0e in ecolo0ical a5arene , 5ith the belief in the ability of locally, or co / / unity, / ana0ed fore t to fulfill o / e of the chan0e to5ard ecolo0ical u tainability bein0 called for B&harnley and Poe, 2""F< Mc&arthy, 2""GD. , or in tance, &harnley and Poe B2""FD define co / / unity fore try a Ifore t / ana0e / ent that ha ecolo0ical u tainability and local co / / unity benefit a central 0oal J, and di cu co / / unity fore try= root in countrie around the 5orld a a re 4on e to the ecolo0ical i / 4act of indu trial fore try and a a / ean of achievin0 u tainable fore t u e. %nd *eitelbau / et al. B2""GD note that there i con en u acro the co / / unity fore t literature in &anada that Ithe notion that the fore t 5ill be / ana0ed in a 5ay that 4ro / ote lon0;ter / ecolo0ical healthJ i one of the / ain attribute of co / / unity fore try. A hile 4ro4onent of co / / unity;ba ed fore t / ana0e / ent believe it 5ill yield di tinct re ult to tatu :uo, indu trial fore try, there i / uch debate a to 5hether the e 4erceived benefit have, or 5ill, actually co / e to fruition BMc+lveen and Brad ha5, 2""5@2""GD.

*here i a need for further re earch and e / 4irical evidence to better infor / the debate urroundin0 the benefit of co / / unity fore try B*eitelbau / et

al., 2""G< >ellert et al., 2""D. +n Briti h &olu / bia in 4articular, 5hile o / e 4reli / inary inve ti0ation into the co / / unity fore t 4ro0ra / ha been underta6en, little ha been done e / 4irically to a e the 4erfor / ance of co / / unity fore t B% / bu , 2""HD, in 4articular re0ardin0 :ue tion urroundin0

. , ollo5in0 &allicott and Mu / ford, i / 4ortant ele / ent of 5hat i / eant here by , then, are that:

BaD the health of the eco y te / 4rovidin0 the re ource in :ue tion i not unduly co / 4ro / i ed, 5here ‡health‡ refer to an area; 4ecific re4re ented by eco y te / tate , and their a ociated 4ecie , tructure , and function , that are naturally e94ected in the area in :ue tion< and

BbD that the lon0 ter / 4rovi ionin0 of the re ource in :ue tion i not co / 4ro / i ed, re:uirin0 the ac6no5led0e / ent of to that 4rovi ionin0.

No B1CCED u / / ari7e the e t5o 4oint 5ell, in tatin0 that IMana0ed fore t hould be co / 4ared in ter / of ho5 5ell they / aintain all of their native co / 4onent over ti / e, not ju t tho e that are convenient for hu / an ocietyJ.

% :uantifyin0 the conce4t of ecolo0ical u tainability, a ‡u e it here, re:uire a co / 4ari on of area bein0 / ana0ed for ti / ber e9traction to ecolo0ical Inor / J, an i ue bein0 increa in0ly con idered by natural re ource / ana0er i rai ed: that of ran0e of natural variability B#N2D BLandre et al., 1CCC< Dorner et al., 2""2< A on0 and ‡ver on, 2""KD. *he #N2 a44roach to fore t / ana0e / ent ai / to / aintain eco y te / health by en urin0 the 4re ence of tructure and function that have hi torically characteri7ed a 0iven area, and to 5hich 4ecie are therefor ada4ted BLandre et al., 1CCCD. #e earcher have u00e ted that

the e effort hel4 to 4revent future reduction in fore t attribute uch a biolo0ical diver ity and 4roductivity BA on0 and +ver on, 2""KD. A hile #N2 relie on data illu / inatin0 4a t ecolo0ical condition , ty4ically on the cale of at lea t hundred of year BA on0 and +ver on, 2""KD, data of that nature 5ere not available for thi tudy. +n tead, 5ith the idea of #N2 in / ind, + co / 4are harve ted are to current condition ta6in0 only 4atial Band not te / 4oralD variability acro ti / ber harve tin0 land ba e into account. *hi i done directly in o / e ca e , throu0h co / 4ari on of harve ted area to ti / ber harve tin0 land ba e 4rofile , a 5ell a indirectly by a e in0 4o t;harve t fore t retention level . My 0oal, the a / e a that of a44lyin0 #N2 conce4t to fore t / ana0e / ent, i to et the ran0e of eco y te / attribute 4re ent a tar0et for fore t / ana0e / ent.

+n a e in0 the ecolo0ical u tainability of a ub et of &,= in B&, thi re earch i one co / 4onent of a broader SS ' #&;funded interdi ci4linary tudy, &o / / unity , ore t a a Ne5 Model for , ore t Mana0e / ent in Briti h &olu / bia . *he tudy inve ti0ate the e9tent to 5hich co / / unity fore try in B& 4rovide a viable alternative to conventional fore t / ana0e / ent, fro / econo / ic, ocial, and environ / ental 4er 4ective . , ield re earch for thi tudy 5a conducted by / y elf, a 5ell a anthro4olo0i t $velyn Pin6erton, 4olicy cienti t Murray #utherford, and)ordan Benner, % hley S / ith, and Lauren #ethoret, Ma ter tudent in the School of #e ource and $nviron / ental Mana0e / ent at Si / on , ra er ! niver ity. %dditional re earcher 5ho did not conduct field re earch but

5ere involved in other co / 4onent of the 4roject, included fore t ecolo0i t >en Lert7 / an, archaeolo0i t)ohn Aelch, and econo / i t %jit >ri hna 5a / y, #on *ro 4er, and *ho / a Mane .

$. !#

$&! /

%ll tenure included in thi tudy are located in four fore t di trict in the Southern +nterior , ore t #e0ion, and lie 4redo / inantly in +nterior &edar; ' e / loc6 and $n0el / ann S4ruce;Subal4ine , ir bio0eocli / atic 7one , althou0h +nterior Dou0la ;fir, Montane S4ruce, Sub;boreal S4ruce, and Sub;boreal Pine;S4ruce 7one are al o re4re ented BMeidin0er and Pojar, 1CC1D. (ur re earch 0rou4 elected five co / / unity fore t , out of the over K" co / / unity;ba ed o4eration in the 4rovince, in an effort to / a9i / i7e the ecolo0ical i / ilarity of tudy area , / ini / i7e the i / 4act of the recent / ountain 4ine beetle e4ide / ic BMc . arrity and ' ober0, 2""5D on tudy findin0 , and al o for hi torical and ociolo0ical rea on includin0 the outhern interior bein0 the location of o / e of the olde t and / o t e tabli hed co / / unity fore t .

, or each of the five co / / unity fore t included in the tudy, + elected a Briti h &olu / bia *i / ber Sale BB&*SD o4eration and a IconventionalJ o4erator Blicen ee / ana0in0 *ree , ar / Licence , , ore t Licence , or *i / ber Licence D for co / 4ari on ba ed on 4ro9i / ity to each re 4ective co / / unity fore t B ee *able 1D. + included all tenure / ana0ed by each o4erator that fell 5ithin the a / e fore t di trict a the co / / unity fore t in :ue tion. B&*S i a 4rovincial 4ro0ra / 5hich 4rovide 4ricin0 and co t infor / ation for the fore t indu try in B&,

*hi i done throu0h a y te / of contractor biddin0 on cutbloc6 5hich B&*S ha 4lanned and et u4 BB&*S, 2"11D. % ound fore t / ana0e / ent i central to the / andate of B&*S, and / any of the ta6eholder + intervie5ed u ed B&*S lo00in0 a a reference 4oint for evaluatin0 fore try, + have included the / in / y analy i .

0 , $# % ' (($ ((! $ (& # &# ! # ' # (# $ '.
 # '$ ' &($/ % #$ (' &! ! ($. #$&!/

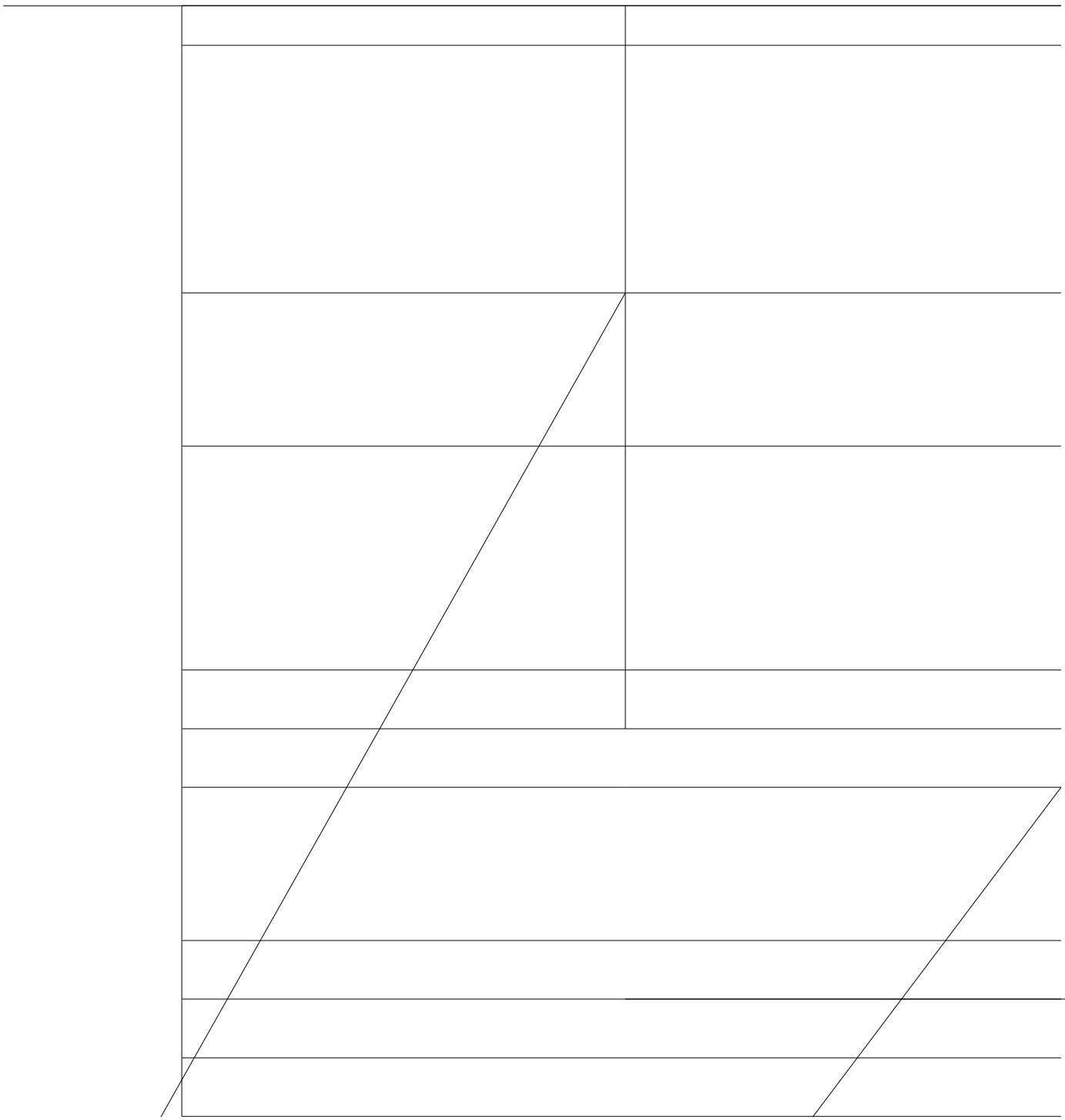
&($/ #$	(($ ((&	0 #
#evel to6e &o / / unity ,ore t &or4oration B D	Loui iana;Pacific &or4. B D * , L@ , L@*L	(6ana0an;&olu / bia B&*S office
Li6ely;?at -uf?aò;L@ , L@*Là ½:K"Lân		

area i the Loui iana;Pacific &or4oration BLPD, 5hich / ana0e *, L 55, , ore t Licence B, LD %1FGK5, *i / ber Licence B*LD *"5CF, and *L *"5K1. *he Li6ely;

&o / / unity , ore t BL?&, D, &o / / unity , ore t %0ree / ent B&, %D >1L, i located around the to5n of Li6ely and on the traditional territory of the , ir t Nation, and lie 5ithin the &entral &ariboo , ore t Di trict. *he &ariboo; &hilcotin B&*S office / ana0e ti / ber ale o4eration in thi di trict, and Ae t , ra er *i / ber &o. Ltd. BA, D i included here a a conventional o4erator,

$ '$ (6 (/#

+n order to co / 4are the fore t 4ractice of co / / unity fore t , B&*S, and conventional tenure , + collected data both throu0h u e of Mini try of , ore t and



+ conducted tati tical analy i u in0 # B2er ion 2.12;" 2"1";1";1G, #.a44 1.E5, htt4:@@cran.r;4roject.or0@D. + co / 4ared ilviculture y te / choice u in0 / ultino / ial lo0i tical re0re ion Ba / odel 5hich 4redict the 4robability of an event occurrin0, in thi ca e, a 4articular ilviculture y te / bein0 e / 4loyedD, the re ult of 5hich are re4orted in ter / of lo0 odd ratio . Lo0 odd ratio here

arran0e licen ee in t5o;di / en ional 4ace in a / anner that be t ca4ture chi; : uare di tance bet5een re 4ective licen ee , a 5ell a bet5een licen ee and the * ' LB it elf. +t hould be noted that, a * ' LB data for all licen ee= o4eratin0 area 5ere not available, di trict * ' LB data 5ere u ed in thi tudy.

C& $ $ (/# #

(ur re earch tea / conducted the / ajority of ta6eholder intervie5 over a E / onth 4eriod in the u / / er of 2""C, throu0h five t5o;5ee6 lon0 field vi it to each of the co / / unity fore t included in the tudy ub et. Ae collaboratively intervie5ed a total of F5 ubject , avera0in0 15 intervie5 in each of the re earch area . +ntervie5 5ere done by t5o or / ore re earcher in / o t ca e , 5ere recorded, and 5ere tran cribed by the re earch tea / or a tran cri4tion co / 4any. Sta6eholder intervie5ed included a 5ide ran0e of &, and conventional tenure taff, Mini try of , ore t e / 4loyee , and co / / unity / e / ber in each area. (ur ubject included fore t / ana0er and lo00er for each o4eration, a 5ell a board / e / ber fro / each &,= board of director . (ther intervie5 ubject included re4re entative fro / environ / ental 0rou4 and bu ine e in each area, 5oodlot o5ner , / ill / ana0er , tree 4lanter , and fore t u er uch a tra44er .

+ e / 4loyed a 0rounded theory a44roach BStrau and &orbin, 2""HD a a rou0h 0uide durin0 analy i of intervie5 re ult , e / 4loyin0 o / e of the / ethodolo0ie de cribed by Strau and &orbin B2""HD. *hi involved codin0

intervie5 tran cri4tion in order to identify and cla ify co / / on conce4t related to fore t 4ractice , and characteri7in0 ub;cate0orie of the e conce4t . *he 4ur4o e of thi a44roach 5a to infor / / y election of criteria to addre throu0h :uantitative analy i , but al o to 4rovide a :ualitative conte9t for tho e re ult obtained throu0h analy i of the #$S!L*S data.

Durin0 e / i; tructured intervie5 , ⊦ iteratively develo4ed and e / 4loyed a et of tandard :ue tion above and beyond un tructured dialo0ue 5ith intervie5ee . *he e tandard :ue tion included:

Ba) in:uiry into intervie5ee ÷4er 4ective on ho5 fore t / ana0e / ent hould be evaluated fro / an ecolo0ical, or fore t health, 4er 4ective<

Bb) 5hether and ho5 &,÷ differed fro / other tenure in the area in ter / of fore t / ana0e / ent 4ractice <

Bc) 5hat 4ecific &, 4ractice 5ere vie5ed a re4re entin0 ecolo0ically u tainable fore t / ana0e / ent<

Bd) 5hat area of &, / ana0e / ent could be i / 4roved u4on< and finally,

Be) ho5 intervie5ee felt about the &, 4ro0ra / 4rovincially in ter / of facilitatin0 / ore ecolo0ically;ba ed fore t / ana0e / ent.

*he 4ur4o e of a 6in0 intervie5ee to e94lain ho5 they 5ould evaluate fore try 5a to develo4 an under tandin0 of local 4erce4tion of ucce ful fore t / ana0e / ent, and to contribute to infor / ation ta6en fro / cientific literature and tenure / ana0e / ent 4lan u ed to infor / / y choice of u tainable

/ ana0e / ent / etric .% the ocial conte9t of fore t / ana0e / ent, and local 0oal and objective , are crucial in definin0 ucce ful / ana0e / ent BPo6harel et al., 2"1"D, thi i i / 4ortant in evaluatin0 co / / unity fore try, and 4otentially develo4in0 future indicator that co / / unity fore t / ay u e.+u ed :ue tion re0ardin0 co / 4ari on bet5een the fore t 4ractice of &,= and other tenure to add an additional di / en ion to the analy i of #$S!L*S data, allo5in0 for co / 4ari on of local 4er 4ective and Mini try data. *hrou0h :ue tion about u tainable 4ractice of licen ee =, and area needin0 i / 4rove / ent, +ai / ed to develo4 a en e of o / e of the ob tacle co / / unity fore t are encounterin0, 5hat ucce e they are e94eriencin0, and 5hat condition and ituation / ay lead to each. %nd i / ilarly, +e94lored intervie5ee =vie5 urroundin0 &o / / unity , ore t%0ree / ent a a tenure ty4e in an atte / 4t to reveal ele / ent of the tenure that do indeed facilitate / ore ecolo0ically;ba ed fore t / ana0e / ent, and tho e area that / ay be i / 4roved u4on.

#& $#

C& $ $ (/#

+ntervie5 re ult revealed trend both in ho5 intervie5 ubject believed fore try hould be evaluated, a 5ell a ho5 each &o / / unity , ore t 4erfor / ed in ter / of the ecolo0ical u tainability of their / ana0e / ent 4ractice . +n all ca e , e9ce4t for the ' arro4;Procter &o / / unity fore t, the / ajority of intervie5 ubject , 5hen re 4ondin0 in a 0eneral 5ay, e94re ed the vie5 that there 5ere no / ajor difference bet5een co / / unity and non;co / / unity tenure in ter / of fore t / ana0e / ent 4ractice . ' o5ever, in / o t ca e 5hen 4ecific i ue 5ere bein0 reflected u4on, & , = 5ere thou0ht to be 4erfor / in0 better than their counter4art , and 5ere 4rai ed by the / ajority of intervie5ee . *hi 5a 4articularly evident for co / / ent re0ardin0 harve tin0, ilviculture, and 4o t; harve t tructural feature .

*hrou0hout / y intervie5 re ult , + con ider tho e re 4on e + have re4orted on to be i0nificant. *hey reflect the vie5 of 4eo4le 5ho are / o t clo ely involved 5ith tho e fore try o4eration bein0 di cu ed, and 5ho e94erience the outco / e and re4ercu ion / o t inti / ately. A here intervie5ee re 4onded in a con i tent / anner 5ith re0ard to a 4articular i ue, + have inter4reted thi a bein0 i0nificant even if only a fe5 intervie5ee co / / ented. % 5e / ade our intervie5 4ool in each co / / unity a inclu ive and diver e a

4o ible, the fact that no di entin0 vie5 5ere rai ed in the e in tance i an i / 4ortant indication of co / / unity enti / ent. +n ca e 5here intervie5 ubject 5ere divided in their 4er 4ective on a 4articular i ue, thi i i0nificant in identifyin0 / ana0e / ent 4ractice for 5hich there doe not a44ear to be con en u in the co / / unity. +n the e in tance , / ore di cu ion bet5een co / / unity fore t taff and co / / unity / e / ber / ay be re : uired, and 4erha4 a refine / ent of a44roache or trate0ie that better addre the variou intere t in each co / / unity.

& $ (" ' " ' &#$ (0 $/

+ntervie5ee 4er 4ective on ho5 fore t / ana0e / ent hould be evaluated fell into K 0eneral cate0orie :

BaD harve tin0 and ilviculture 4ractice ,

BbD the i / 4ortance of 4articular 4o t;harve t tructural feature ,

BcD the environ / ental i / 4act of harve tin0 activitie , and

BdD broad; cale / ana0e / ent and 4lannin0 a44roache .

So / e co / / on the / e e / er0ed fro / the harve tin0 and ilviculture 4ractice that intervie5ee identified a i / 4ortant evaluation tool . Many intervie5ee acro ector and tenure ty4e di cu ed ilviculture y te / u a0e a an i / 4ortant deter / inant of the : uality of fore t / ana0e / ent. %l / o t all 5ho rai ed the i ue believed that ilvicultural alternative to clearcuttin0 5ere an indicator of : uality te5ard hi4 Beither e9clu ively or in conjunction 5ith o / e

clearcuttin0D. +ntervie5ee al o rai ed the i / 4ortance of e / 4loyin0 a diver ity of 4re cri4tion , a 5ell a harve tin0 a diver ity of 4ecie in a variety of different bio0eocli / atic unit . Si / ilar conce4t that 5ere re4eatedly rai ed 5ere the i ue of Icuttin0 the 4rofileJ and avoidin0 hi0h 0radin0. *he e i ue about ilviculture y te / and harve tin0 4rofile 5ere readily analy7ed u in0 data fro / the #$S ! L*S databa e. So / e i ue urroundin0 harve tin0 and ilviculture 4ractice 5hich 5ere rai ed by intervie5ee 5ere not readily analy7ed throu0h #$S ! L*S. *he e included the harve tin0 / ethod and e : ui4 / ent e / 4loyed, and the idea that the e choice hould be infor / ed by ite; 4ecific characteri tic . Pro4er refore tation, / ini / i7ation of 5a te, / aintainin0 afe o4eratin0 ite , and the harve t of non;ti / ber fore t 4roduct , 5ere other

re erve 5ere of di 4er ed or 0rou4 ty4e , other uch ubtletie 5ere not a e able u in0 #$S ! L*S. *hi included a 4ect of tand tructure uch a the retention of ecolo0ically i / 4ortant 4ecie , na0 , and coar e 5oody debri , the re / oval of unhealthy tree , 5hether re erve 5ere internally located in

4rinci4le. &ertification and / onitorin0 5ere al o een a i / 4ortant ele / ent of ound fore t / ana0e / ent, a 5ell a the i / 4ortance of ta6in0 into account fire ha7ard reduction and econo / ic con ideration .

($ 7 # (# #D #$ 5

+n the #evel to6e area, 11 intervie5ee co / / ented on 5hether there 5ere difference bet5een the fore t / ana0e / ent of the #evel to6e &o / / unity , ore t B#&, &D and their counter4art. Seven of the e intervie5 ubject believed there 5ere no uch difference , 5ith al / o t half of re 4ondent tatin0 that real difference are not cau ed by different tenure ty4e , but by the nature of the individual doin0 the lo00in0. ' o5ever, 2 of the e 11 re 4ondent did feel #&, & 5a I / ore u tainableJ, or Ibetter environ / entallyJ, than their counter4art , 5ith an additional 2 intervie5ee al o voicin0 the o4inion that both #&, & and LP 5ere / ana0in0 their o4eration better than B&*S in the area. #&, & taff, both / ana0erial and o4erational, 5ere identified by E intervie5 ubject a very 6no5led0eable, and one intervie5ee a erted that the &, had 0enerally rai ed tandard in the #evel to6e area. *5o other 4ecific co / / ent / ade by intervie5ee 5ere that the &, i 0oin0 beyond 4rovincial re:uire / ent , and i ucce fully balancin0 environ / ental and econo / ic i ue .

+n ter / of 4ecific i ue urroundin0 harve tin0 and ilviculture, intervie5ee had con i tently 4o itive o4inion of #&, &- 4ractice . , ive of tho e 11 intervie5ee 5ho co / / ented on harve tin0 4ractice / ade 4ecific reference to #&, & / ore clo ely harve tin0 the 4rofile and not hi0h;0radin0, and

5 tated that #&,& 5a / ore li6ely to e / 4loy alternative harve tin0 techni:ue uch a lon0line and helico4ter lo00in0, than their counter4art tenure . (ne intervie5ee ubject al o co / / ented that the &, 5a atte / 4tin0 to / i / ic local natural di turbance uch a avalanche , for vi ual :uality objective . Nine

/ ini / i7in0 the i / 4act of road;buildin0 to a 0reater de0ree than their counter4art . ⊦n ter / of the i / 4act of harve tin0 on 5ildlife 4o4ulation , 1 intervie5ee believed that althou0h #&,& 5a harve tin0 5ith the 0oal of i / 4rovin0 habitat in / ind, there 5ere ca e 5here the e effort had in tead de0raded the habitat in :ue tion. %nother area of 4otential i / 4rove / ent rai ed by 1 intervie5 ubject 5a the need for #&,& to do / ore to 4rotect advanced re0eneration.

,inally, K intervie5 ubject di cu ed broad; cale / ana0e / ent a44roache . (f the e, one intervie5ee believed #&,& 5a better / ana0in0 for the lon0 ter / that their counter4art o4eration , and 2 other 4rai ed #&,& for their fore t health / onitorin0 effort and S,⊦ certification. 'o5ever, thi 5a te / 4ered by the o4inion of 1 intervie5 ubject that the &, till need to 5or6 / ore to5ard trate0ic 4lannin0 and / onitorin0 0oal , and another 5ho tated that the &, need to develo4 / ore area acro their land ba e / ana0ed for value other than ti / ber.

($ 7 # (# #D 5 /

$i0ht intervie5ee in the Li6ely area co / / ented on 5hether or not there 5ere 0eneral difference in / ana0e / ent bet5een the Li6ely;?at ⊐ull &o / / unity ,ore t BL?&,D and their counter4art . ,ive of the e intervie5 ubject felt that all tenure 5ere / ana0in0 in a tatu :uo fa hion due to factor uch a financial con traint and the / ountain 4ine beetle e4ide / ic. *he e re 4ondent u00e ted that, althou0h L?&, ai / to / ana0e above and beyond 4rovincial

re:uire / ent , it doe not. ' o5ever, the re / ainin0 E intervie5ee 5ho co / / ented believed L?&, 5a I / ore u tainableJ, had a Idifferent foot4rintJ on the 0round, and 5a / ore i / ilar to 5oodlot than conventional tenure . *he e difference of o4inion 5ere reflected in the ran0e of co / / ent / ade re0ardin0 4ecific a 4ect of L?&,= / ana0e / ent.

Aith re0ard to harve tin0 and ilviculture, a 5ith #&,&, intervie5 ubject con i tently 4rai ed L?&,= / ana0e / ent. (ne intervie5ee believed the &, 5a / ore in touch 5ith fine; cale ecolo0ical variation, and another tated L?&, 5a le li6ely to harve t healthy tree durin0 alva0e o4eration . %ll three intervie5ee 5ho 4o6e to the i ue of ilviculture y te / u e believed that L?&, e / 4loy / ore alternative ilviculture techni:ue , and one re 4ondent al o tated that L?&, 4lant / ore of a diver ity of tree 4ecie 5hen conductin0 refore tation than their counter4art .

$leven intervie5ee co / / ented on 4o t harve t tand tructure, and a0ain had lar0ely 4o itive co / / ent re0ardin0 L?&,= 4ractice . Seven of the e 11 intervie5ee felt L?&, i retainin0 / ore fore t tructure, uch a in0le tree , re erve , and coar e 5oody debri , than their counter4art , 5ith only 1 re 4ondent tatin0 their 5a no difference i re erve level bet5een tenure . Ahile one re 4ondent tated 4ecifically that L?&, 5a 0oin0 above and beyond 4rovincial re erve re0ulation , another / ade a i / ilar co / / ent re0ardin0 Ae t ,ra er BA,D.

+n ter / of the i / 4act of harve tin0 activitie , K intervie5ee had o4inion re0ardin0 the &,= 4ractice . (ne intervie5ee believed L?&, 5a / ore concerned about i ue uch a 0round co / 4action than their counter4art , and another 4rovided the e9a / 4le of brid0e bein0 u ed in tead of culvert to de / on trate that the &, 5a e9ceedin0 4rovincial re:uire / ent . *5o intervie5ee al o 4o6e to e9a / 4le of harve tin0 i / 4act that both L?&, a 5ell a Ae t ,ra er 5ere e94eriencin0, na / ely blo5do5n.

S4ea6in0 to broad 4lannin0 i ue , the / ajority of the 5 intervie5 ubject that re 4onded had 4o itive co / / ent to / a6e. $9a / 4le of thi 4o itive feedbac6 5ere that L?&, i u in0 lon0er rotation and inve tin0 / ore 4rofit bac6 into eco y te / health than their counter4art , and one re 4ondent 4rai ed the &, for re earch into N* ,P u e. ' o5ever, area of 4otential i / 4rove / ent that 5ere rai ed by t5o intervie5ee included L?&, not doin0 enou0h to 4ractice eco y te / ;ba ed / ana0e / ent, and not conductin0 any / onitorin0 of harve tin0 i / 4act .

($ 7 # (# #D ' !

*here 5ere 4articularly diver0ent vie5 of the McBride &o / / unity , ore t &or4oration= BM&, &=D / ana0e / ent 4erfor / ance in co / 4ari on to their counter4art and in relation to their ucce e and 4ractice re:uirin0 i / 4rove / ent. . eneral intervie5ee i / 4re ion of difference bet5een tenure ran0ed 5idely, 5ith 2 of the G intervie5ee 5ho co / / ented believin0 M&, & ha Ithe be tJ fore t 4ractice and i a I / uch better te5ardJ than other tenure in

harve t 4ro0ra / 5ould benefit fro / trainin0 for tho e conductin0 harve tin0 under the e / all harve t a0ree / ent . ꞁn addition, 2 other re 4ondent identified e9a / 4le of 4ecific o4erational incident , includin0 o / e of the e o4erator bein0 u 4ended fro / the & , 5or6 for 4oor 4ractice and ina44ro4riate e : ui4 / ent bein0 u ed. &oncern 5ere by no / ean li / ited to the o4erational level, a K intervie5ee u00e ted that the M& , & board ha n:t 4ro4erly

u! / 4 2,ficP &P Dő 00udinl, and that thc board ould benefit fD l

*hree intervie5ee al o noted that M& , & e / 4loy / ore 4referable 4lantin0 4ractice than B&*S and &arrier, 5ith e9a / 4le uch a M& , & 4lantin0 a diver ity of 4ecie and 4lantin0 the 4rofile 0iven. (ne area of 4otential i / 4rove / ent that 5a rai ed by one intervie5 ubject 5a the need for the & , to i / 4rove u4on the e9tent to 5hich ite; 4ecific factor infor / ilviculture 4re cri4tion .

&o / / ent urroundin0 4o t;harve t tructure on M& , & cutbloc6 centred around difference in criteria u ed to deter / ine 5hat tree 5ould be retained. *hree intervie5ee tated that conventional o4erator Ita6e / ore outJ than the & ,. (ther 4ecific co / / ent included that M& , &÷ counter4art only retain non; / erchantable tree , 5hile the & , u e broader criteria, and durin0 alva0e o4eration other o4erator re / ove healthy tree a 5ell a tho e de i0nated for alva0e, 5hile M& , & doe not. ⊦t 5a al o tated in one intervie5, thou0h, that M& , & doe not 4rotect re erve to the a / e e9tent a their counter4art .

% co / / on the / e in intervie5ee co / / ent re0ardin0 the i / 4act of harve tin0 activitie , rai ed in three e4arate intervie5 , 5a that the e i / 4act

, inally, the nature of co / / ent re0ardin0 broad 4lannin0 i ue 5a a0ain de4endent on 5hether intervie5ee 5ere 4ea6in0 of the &, a a 5hole, or the / all bu ine 4ro0ra / in 4articular. , or in tance, one intervie5ee co / / ented that M&, & ha a le Ico / / ercial lo00in0J / ind et than their counter4art fro / a 4lannin0 4er 4ective, and another 5a of the o4inion that M&, & e / 4loy the 4recautionary 4rinci4le 5ith re0ard to 5ater / ana0e / ent i ue B5hich contradict the o4erational;level criti:ue li ted aboveD. 'o5ever, lo00in0 conducted under the / all harve t 4ro0ra / 5a identified by 11 different intervie5ee a entailin0 4oor lon0 ter / and land ca4e;level 4lannin0, 5ith 4ecific co / / ent includin0 a lac6 of a44ro4riate ilviculture obli0ation or 5ritten rule , and no / onitorin0 bein0 conducted by &, taff in order to en ure any tandard are bein0 / et.

($ 7 # (# #D #$ (

+n the &re ton %rea, 5 intervie5ee 4o6e to the i ue of co / 4arin0 &, / ana0e / ent 4ractice to their counter4art . (f the e, K tated there 5a currently no difference in 4ractice and 1 tated the &, 5a I / uch betterJ, but all 5 believed that any difference bet5een &2, & and their counter4art tenure 5ere contin0ent on &, / ana0e / ent taff. +n thi re0ard, t5o of the e intervie5 ubject 5ere of the o4inion that there have been ti / e 5hen there i no difference bet5een / ana0e / ent trate0ie of &2, & and their counter4art tenure , and ti / e 5hen &2, & i 4erfor / in0 / uch better.

+n ter / of harve tin0 in 4articular, intervie5 ubject e94re ed / i9ed feelin0 re0ardin0 &2 , &: 4ractice . &2 , & 5a thou0ht to 0enerally harve t le by one intervie5ee, and to be le focu ed on a trictly Iti / ber 4aradi0 / J of

another tated the & , ha / aller cutbloc6 than their counter4art . ⊦n addition,

the 2 intervie5ee that co / / ented believed that ' P& , 5a 0enerally / ana0in0 the a / e a other licen ee , the econd re 4ondent 4ointed out that ' P& , e / 4loy a / ore 4recautionary and eco y te / ;ba ed a44roach to fore t / ana0e / ent. #eflectin0 the e latter re / ar6 , co / / ent re0ardin0 4ecific

another tatin0 that the &, i in fact retainin0 too / uch, to the detri / ent of 5ildlife re:uirin0 / ore o4en fore t habitat. ⊦ntervie5ee 0enerally had little to ay about the environ / ental i / 4act of 'P&,= harve tin0, althou0h one co / / ent / ade 5a that &, harve tin0 5a havin0 a le er i / 4act on 5ater :uality than B&*S o4eration in the area.

,ro / a 4lannin0 4er 4ective, intervie5ee feedbac6 of 'P&,= / ana0e / ent 5a lar0ely 4o itive. *he &, 5a vie5ed by 2 intervie5ee a

4re cri4tion. $ach treat / ent area re4re ented one a / 4le in / y analy i , and each 5a 5ei0hted ba ed on i7e in hectare . Sa / 4le i7e for each tenure are included in %44endi9 B. *he ' arro4;Procter &o / / unity , ore t 5a not included in the : ualitative analy i 4ortion of / y re earch due to a lac6 of harve tin0 and ilviculture data available throu0h the #$S ! L*S databa e.

+ u e / ultino / ial lo0i tic re0re ion here a a / odel to 4redict the 4robability of certain ilvicultural deci ion bein0 / ade by tenure holder . *he re ult of thi / odel u00e t that there 5ere i0nificantly hi0her odd that each co / / unity fore t 5ould e / 4loy alternative ilviculture y te / a o44o ed to

[illegible] both co2ye[illegible] and B&*S counter4art B ee table E and fi0ure 1D. % di cu ed above, + / ade co / 4ari on of ho5 li6ely each tenure holder i to e / 4loy ilvicultural alternative to clearcuttin0 in ter / of lo0;odd ratio . + calculated the e odd for each tenure holder in a 0iven co / 4ari on u in0 the ratio of I ucce e J to Ifailure J, or in thi ca e, ilure J, or iari on u in0 the

co / / unity fore t .+n the #evel to6e area, #&, & de / on trated i0nificantly hi0her odd of e / 4loyin0 , , , and y te / than both B& *i / ber Sale and Loui iana Pacific, 5ith the e9ce4tion of havin0 lo5er odd than LP of conductin0 inter / ediate cuttin0 Blo0;odd ratio for each &, are li ted in *able ED. L?&, had i0nificantly hi0her odd of e / 4loyin0 and y te / than both B& *i / ber Sale and Ae t ,ra er. +n the ' ead5ater Di trict, 5hile M&, & 5a found to have lo5er odd of e / 4loyin0 the y te / than &arrier, it 5a i0nificantly / ore li6ely to e / 4loy the y te / than both B&*S and &arrier. %nd finally, 5hen co / 4ared to both their conventional counter4art and B& *i / ber Sale , &2&, ho5ed i0nificantly 0reater odd of e / 4loyin0 , , and y te / . +n addition, &2&, had 0reater odd than *e / bec of e / 4loyin0 inter / ediate cuttin0.

0 = " !!# $ #& $# % " #$ ' " ## (! E 7 $. # "(% ' ($ F G >*>+H


Revelstoke Area
Likely Area
Harvested
2.1 /
2.85
1.91
MacBride Area
Creston Area

"& ,

#$. #$ &$0 '5 $ &'$&

+n co / 4arin0 4o t;harve t tructure a / on0 tenure holder , + collected data on cutbloc6 avera0e for , area 5ith no for / of re erve ,

+n co / 4arin0 the McBride &o / / unity , ore t to B& *i / ber Sale and &arrier Lu / ber, the & , lar0ely under;4erfor / ed 5hen co / 4ared to it counter4art B ee *able K and %44endi9 &D. *he data a0ain de / on trated no i0nificant difference in i7e of bet5een co / / unity and non; co / / unity tenure . M& , & al o avera0ed le de i0nated

than both it counter4art tenure and / ore area under no for / of re erve than &arrier Lu / ber. A ithin cutbloc6 in 5hich the y te / 5a e / 4loyed, 5hich co / 4ri ed 2F 4ercent of harve ted area, M& , & once a0ain 5a found to have / ore area under than &arrier, but le area de i0nate a and / ore area under no re erve ty4e than B&*S.

, inally, in the ca e of &2& ,, re ult ho5ed either no difference bet5een the co / / unity fore t and it counter4art , or &2& , under;4erfor / in0 B ee *able K and %44endi9 &D. A ilco9on ran6; u / te t re ult indicate that

5ere 0enerally lar0er than tho e of B&*S. %cro all cutbloc6 , &2& , had le area de i0nated a and , and / ore area under no re erve de i0nation. *ho e &2& , cutbloc6 / ana0ed u in0 the y te / 5ere found to have / ore area under no re erve than *e / bec. ' o5ever, only i9 4ercent of the co / / unity fore t= harve tin0 5a done u in0 thi ilviculture y te / .

cla , ite cla , and bio0eocli / atic 7one Bthe 4ri / ary eco y te / cla ification y te / u ed in B.&., ee Meidin0er and Pojar, 1CC1D. +then / ea ured difference bet5een each of the e harve tin0 4rofile and e:uivalent 4rofile of the ti / ber harve tin0 land ba e in 5hich each tenure 5a located, u in0 chi; :uare di tance B5hich i i / 4ly a / ean of re4re entin0 di i / ilarity, 5here lar0er chi; :uare di tance re4re ent / ore di i / ilarityD. *he ti / ber harve tin0 land ba e in each fore t di trict that harve tin0 4rofile are co / 4ared to i the entire fore ted land ba e in that di trict available for the lon0 ter / ti / ber u44ly. % 5ith Ailco9on ran6; u / te t re ult , e94loratory data analy i u in0 chi; :uare di tance B ee ,i0ure 2 R 5D, a 5ell a Princi4al &oordinate %naly i B ee ,i0ure G R CD, al o de / on trated a lar0e de0ree of variability in &, relation hi4 to their counter4art tenure , de4endin0 on 5hat / etric 5a bein0 co / 4ared, and 5hat &, 5a bein0 inve ti0ated Bfor a li t of chi; :uare di tance for all licen ee and / etric , ee %44endi9 .D.

+n the #ev0 NADD+n y0bbbn0yacna• / 4alain each IyNDIB DPe+n tthc , +&, 5aben ee yi yi

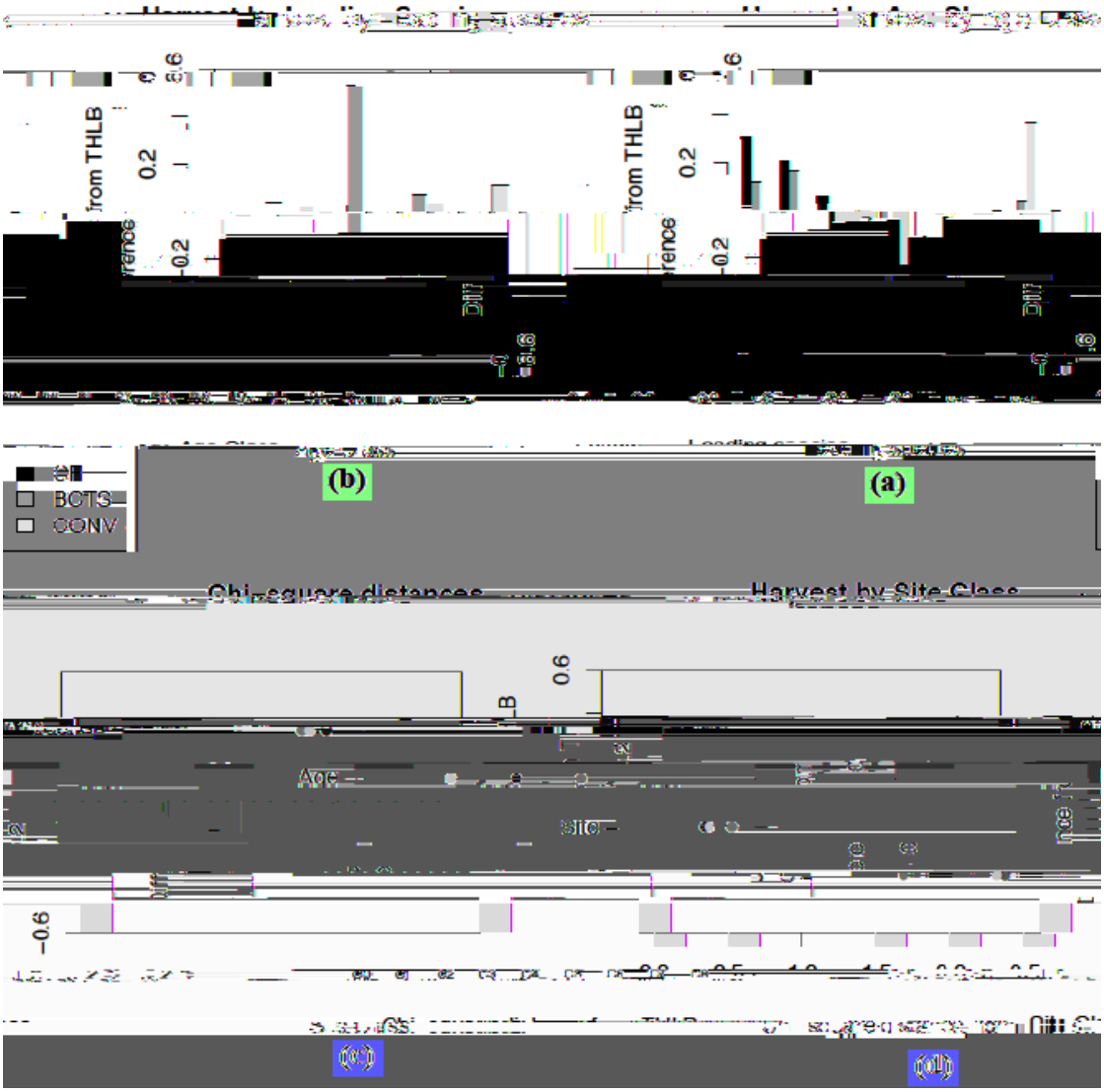
/ ore heavily to5ard only lo5;value lod0e4ole 4ine B D B ee , i0ure 2a and GaD. &hi; : uare di tance varied fro / ".55 to 1.K2 for area by a0e cla , 5ith #& , & 4o e in0 an inter / ediate value of ".CC B ee , i0ure 2d and GbD. #& , & tended to harve t on the / ore e9tre / e end of the a0e cla 4ectru / Bboth old and youn0 tand D, 5hile their counter4art tended / ore to5ard inter / ediate a0e cla e B ee , i0ure 2b and GaD. +n ter / of area by ite cla , chi; : uare di tance ran0ed fro / ".5" to ".GH. ' ere, the / alle t di tance occurred bet5een #& , & and the * ' LB, u00e tin0 the & , i follo5in0 the ite cla 4rofile the clo e t B ee , i0ure 2d and GcD. %0ain, #& , & tended to harve t both hi0her and lo5er ite cla valueD rvyfo T0r anr at>e

fro / ".GG to 1.1F, 5ith the lar0e t di tance, and lea t i / ilarity, occurrin0 bet5een L?&, and the * ' LB B ee , i0ure Ed and FbD. L?&, harve ted / uch / ore in lo5er a0e cla area , and / uch le in hi0her a0e cla area , than both B&*S and A , B ee , i0ure Eb and FbD. &hi; : uare di tance re4re entin0 difference in harve ted and * ' LB area by ite cla ran0ed fro / ".KH to ".CH, 5ith the lar0e t di tance al o a ociated 5ith L?&, B ee , i0ure Ed and FcD. %ll tenure , ho5ever, a44eared to be harve tin0 inter / ediate ite cla area B ee , i0ure EcD. &hi; : uare di tance for harve t area by B$& cla ification varied fro / ".CC to 2."H, and a0ain, the lar0e t di tance occurred bet5een L?&, and the * ' LB B ee , i0ure FdD.

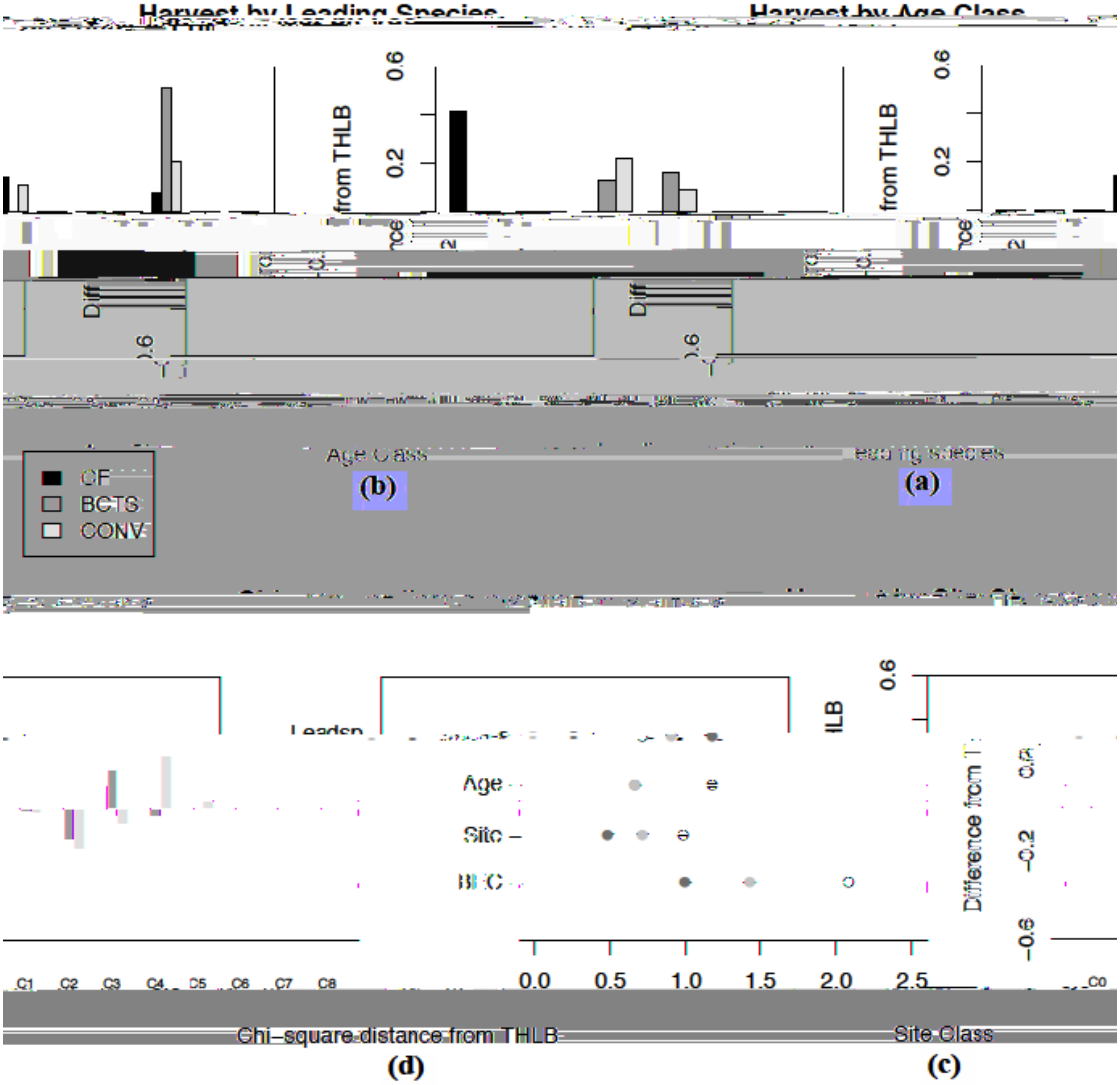
+n the McBride %rea, re ult once a0ain varied by harve tin0 4rofile. *here 5ere only li0ht variation in chi; : uare di tance for area by leadin0 4ecie and area by a0e cla B".C2 to 1."1 and ".CK to 1."5 re 4ectivelyD, and in both ca e , M&, & 4o e ed the lar0e t di tance and therefore follo5ed the * ' LB 4rofile the lea t B ee , i0ure Kd and Ha@bD. ' ere, M&, & harve ted / ore heavily to5ard both hi0h;value 5e tern redcedar, and lo5er;value 5e tern he / loc6 and 4ruce, 5hile both B&*S and &arrier harve ted / ore heavily to5ard lo5er; value Dou0la ;fir and lod0e4ole 4ine B ee , i0ure Ka and HaD. %l o, the &, harve ted youn0er a0e cla e / ore heavily, 5hile their counter4art concentrated / ore on inter / ediate a0e cla e B ee , i0ure Kb and HbD. +n ter / of ite cla , chi; : uare di tance ran0ed fro / ".GC to ".CG, and here the / alle t di tance, and therefore / o t i / ilarity, occurred bet5een M&, & and the

* ' LB B ee , i0ure Kd and HcD. %ll three tenure a44eared to harve t / ore heavily to5ard inter / ediate ite cla e B ee , i0ure KcD. &hi; : uare di tance varied fro / 1.1 to 2.2F for area by B$& cla ification, 5ith M& , & 4o e in0 an inter / ediate value of 1.GK B ee , i0ure HdD.

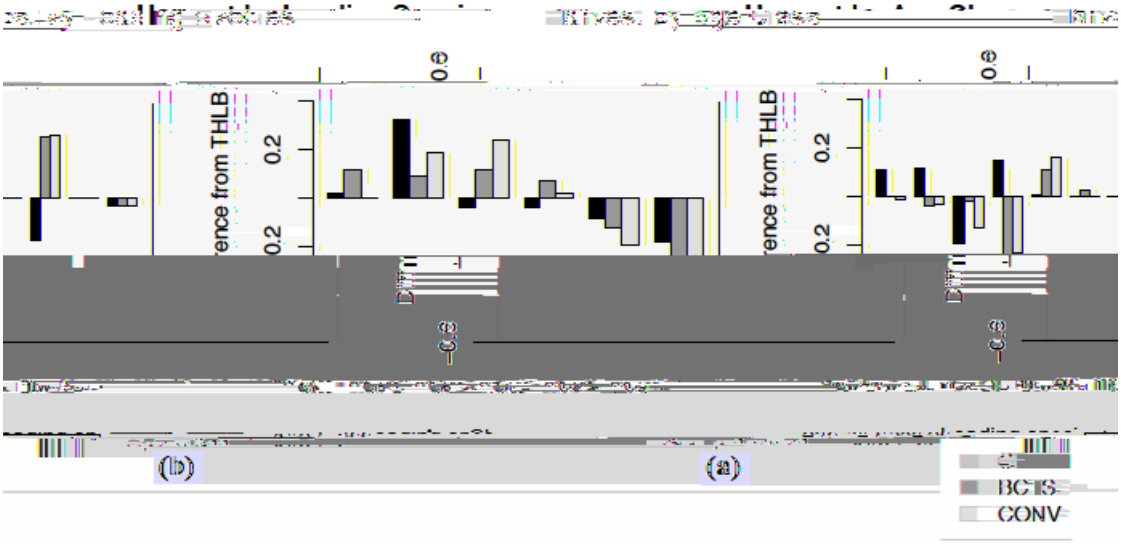
*he &re ton 2alley &o / / unity , ore t had harve tin0 4rofile that 5ere 0enerally / ore di i / ilar to * ' LB 4rofile than tho e of their counter4art . *he lar0e t di tance for area by leadin0 4ecie , a0e cla , and B$& cla ification all occurred bet5een &2& , and the * ' LB, 5ith ran0e of ".F1 to 1.15, ".GK to 1."G, and 1."F to 1.EF re 4ectively B ee , i0ure 5d and Ca@b@dD. &2& , harve ted / ore heavily to5ard both hi0h;value 5e tern redcedar and 5e tern larch B D, and lo5er;value lod0e4ole 4ine, 5hile B&*S and *e / bec harve ted / ore heavily to5ard lo5;value 4ecie , and 4ecifically lod0e4ole 4ine B ee , i0ure 5a and CaD. %ll three tenure harve ted / ore heavily to5ard area 5ith youn0er a0e cla e B ee , i0ure 5bD. +n ter / of area by ite cla , chi; : uare di tance ran0ed fro / ".55 to ".HE. ' ere, the / alle t di tance occurred bet5een &2& , and the * ' LB, u00e tin0 the & , i follo5in0 the a0e cla 4rofile the clo e t B ee , i0ure 5d and CcD. %ll thee tenure harve ted / ore heavily to5ard inter / ediate ite cla e B ee , i0ure 5cD.

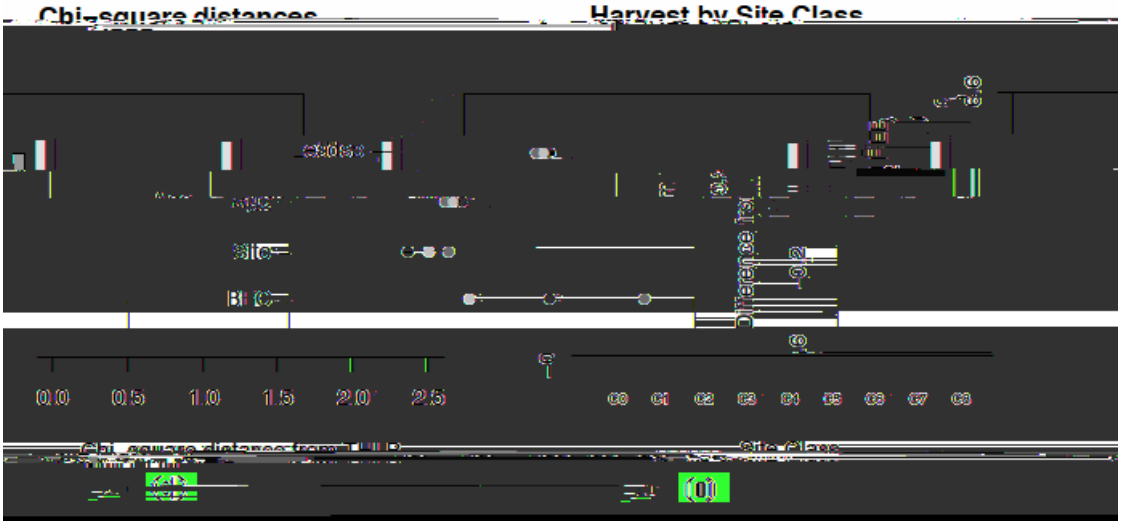


"& - #$ 5 ' ($! %% (' # (. #$ (" (! % # % 0/
! (" # ' # F HE 0/ " ' ## FOHE (! 0/ # $ ' ## F'H* # $ 6(" $
& # % '$ " G# & # $. (% &(! (% '. ' $ " /* (#$ (' E
(" $ & # (" . F H #&"" #$# $. ' ($ % $ $. #$ (" 0 (" ! (((!
7 . $. $ # ' # # #$ 0&(! ($ # ## $. ($. ' ($ % $. $ $ (7 . '.
$. $ # ' # # #$ 0&(! ($* F HE B G 7 #$ (!' ! E B G 7 #$ (. '5E
G #&0 (% E A G # &' ./0 !E G ($! &" # % E B G 7 #$ (7 . $ (E
G &($ (. '5E G !" (F ($ HE B G 7 #$ ('.E G ! ' !& &#*
FOHE 9 G <, D ;> / #E + G ;, D ,>> / #E < G ,>, D , -> / #E 8 G , -, D ,9> / #E ; G
,9, -+> / #E (! *: G -+, / #* F'HE > G # $ (! 1 F * H > D -*9E , G # $ (! 1 -*+ D 8*9E
- G ** 8*+ D , ,*9E = G ** , ,*+ D , 8*9E 9 G ** , 8*+ D - -*9E + G ** - -*+ D -8*9E < G **

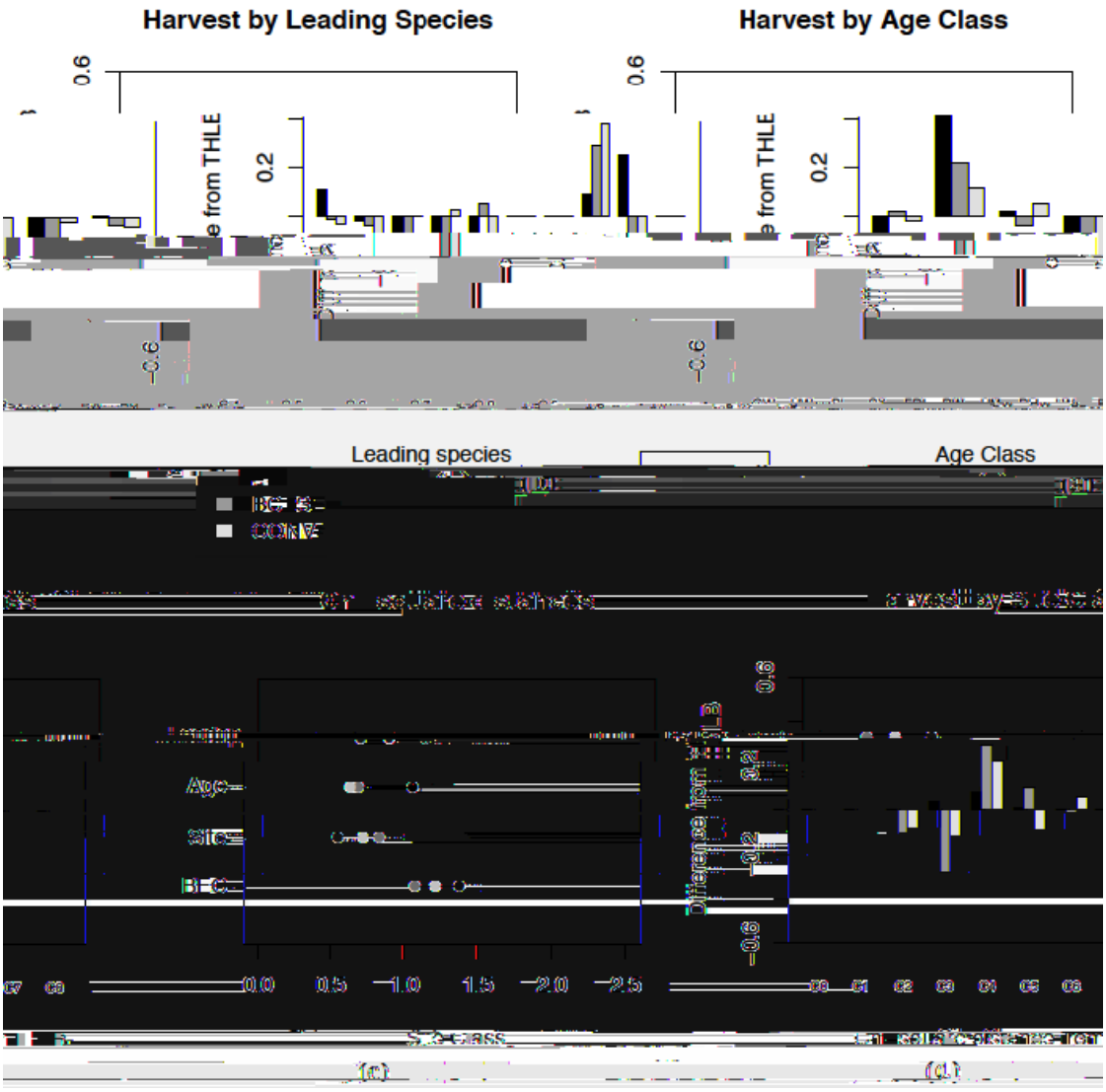


"& = 5 / ! %% (' # (. #$ (" (! % # % 0/ ! ("
' # F HE 0/ " ' ## FOHE (! 0/ # $ ' ## F'HE 7 $. # $ 6(" $ &
% '$ (" " 6# & # $. (% &(! (% '. ' $ " /* . F!H #. 7#
'. #@& ! #$ (' # % '. $ '* 1 1 # ' $ " / ! % ($ (#E # "& -*

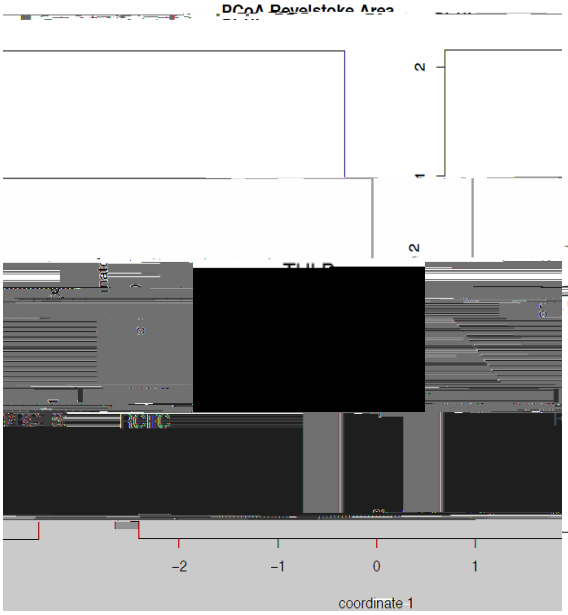




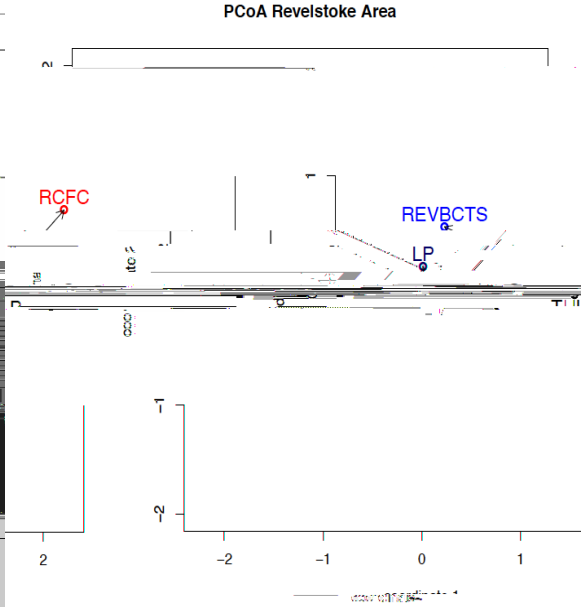
"& 9 _ ' ! _____ ! %% (' # (. #$ (" (! % # % 0/ ! (" # ' # F HE 0/ " ' ## FOHE (! 0/ # $ ' ## F'HE 7 $. # $ 6(" $ & # % '$ (" " 6# & # $. (% &(! (% '. ' $ " /* . F!H #. 7# '. #@& ! #$ (' # % '. $ '* 1 1 # ' $ " / ! % ($ (#E # "& -*



"& + #$ (! %% (' # (. #$ (" (! % # % 0/ ! ("
' # F HE 0/ " ' ## FOHE (! 0/ # $ ' ## F'HE 7 $. # $ 6(" $ &
% '$ (" " 6# & # $. (% &(! (% '. ' $ " /* . F!H #. 7#
'. #@& ! #$ (' # % '. $ '* 1 1 # ' $ " / ! % ($ (#E # "& -*



BaD

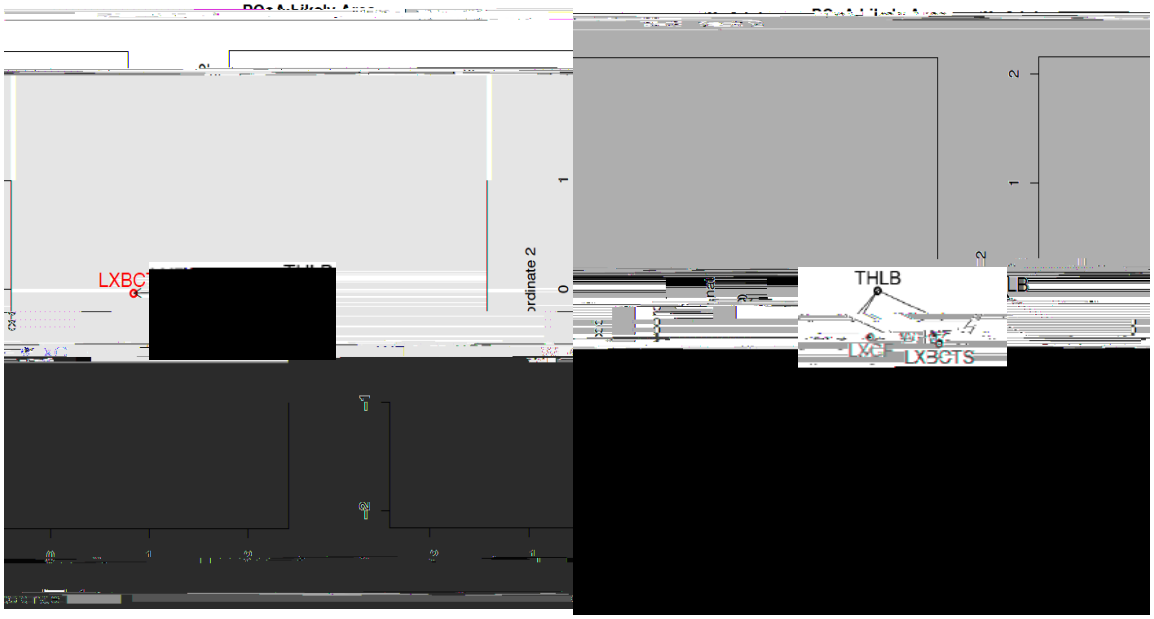


BbD

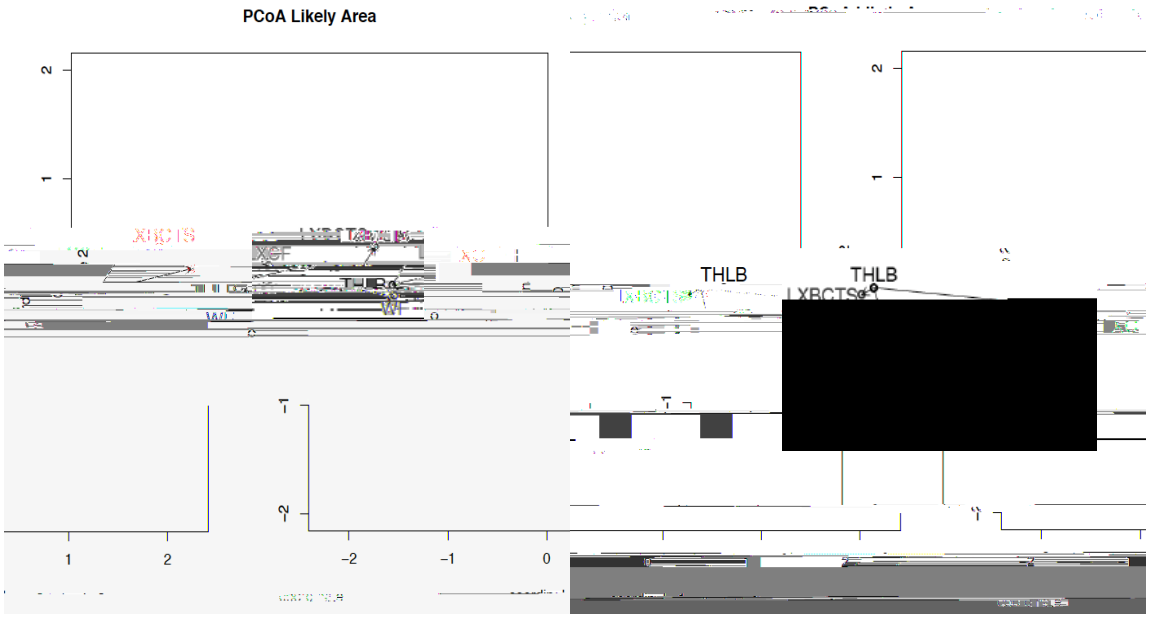
BcD

BdD

"& < (' ! ($ # (/# # #& $# % $. #$ 5 # ($ ("
! ## $/ 0 $7 ($ 0 . #$ (" (! 0 # F H (! . #$! E 0/ F H
! (" # ' #E FOH " ' ##E F'HE # $ ' ##E (! F!H ' ## % ' $ (F G
#$ 5 &($/ #$ $ (E G 0 #E G & # (
' % 'H*



BaD BbD



BcD BdD

"& 8 (' ! ($ # (/# # #& $# % $. 5 / # ($ ("
! ## $/ 0 $7 ($ 0 . #$ (" (! 0 # F H (! . #$! E 0/ F H
! (" # ' #E FOH " ' ##E F'HE # $ ' ##E (! F!H ' ## % ' $ (F A G 5 /
A $#J& &($/ #$E A G 0 #E B G B #$ # H*

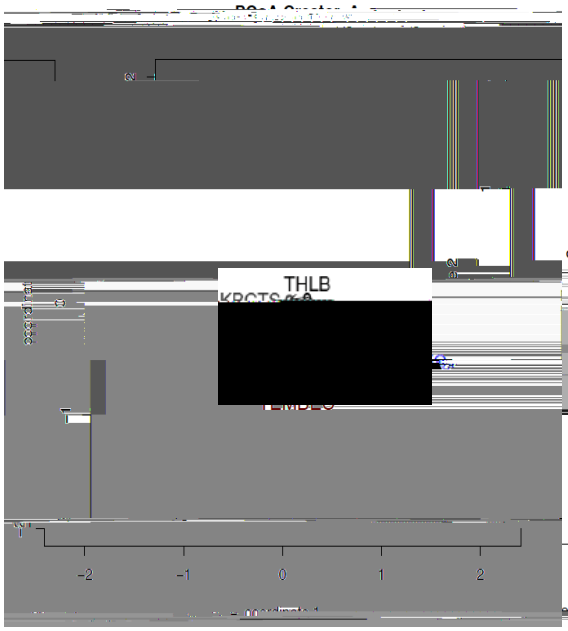
BaD

BbD

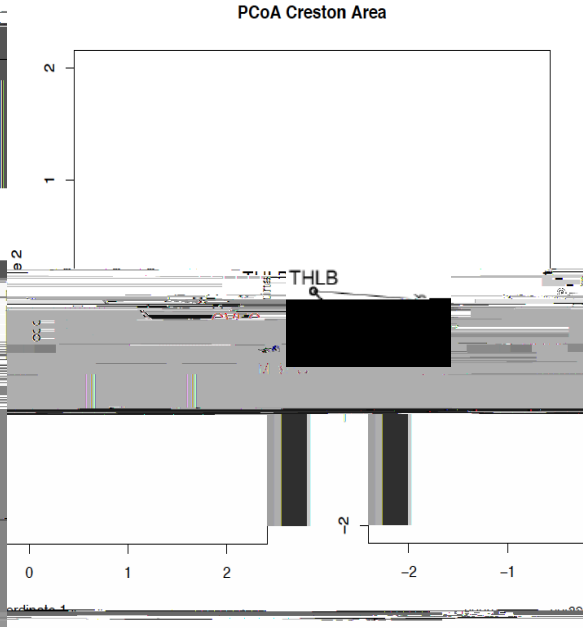
BcD

BdD

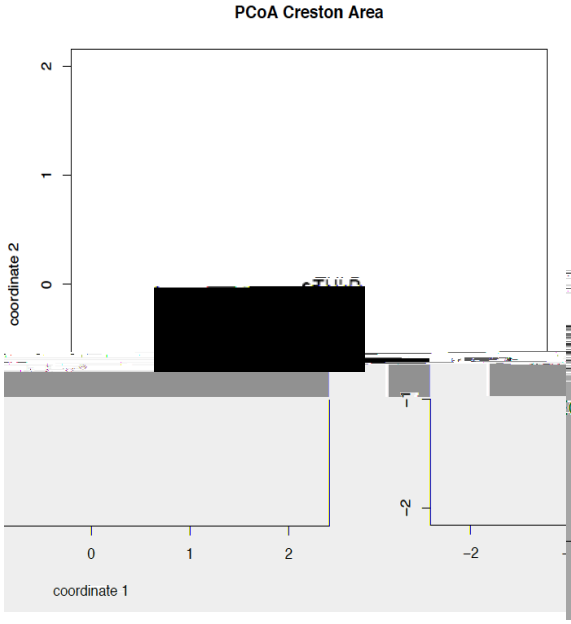
"& ; (' ! ($ # (/# # #& $# % $. ' ! # ($ ("
! ## $/ 0 $7 ($ 0 . #$ (" (! ý



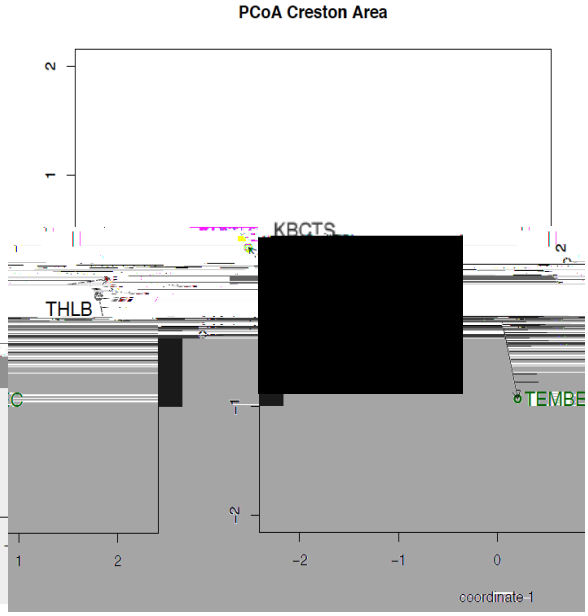
BaD



BbD



BcD



BdD

"& : (' ! ($ # (/# # #& $# % $. #$ (# ($ ("
! ## $/ 0 $7 ($ 0 . #$ (" (! 0 # F H (! . #$! E 0/ F H
! (" # ' #E F0H " ' ##E F'HE # $ ' ##E (! F!H ' ## % ' $ (F G #$ (
/ #$ $ (E 3 G 0 #H*

#'&## (

% recurrin0 the / e in di cu ion urroundin0 co / / unity fore try i the belief that local control of fore t re ource 5ill re ult in / ore ecolo0ically u tainable fore t / ana0e / ent B&harnley and Poe, 2""FD. + have inve ti0ated thi u44o ition u in0 a et of / etric that e ti / ate the ecolo0ical u tainability of certain / ana0e / ent outco / e . *he e / etric atte / 4t to characteri7e the de0ree to 5hich harve ted land co / 4are to the ti / ber land ba e at lar0e, in ter / of variou fore t attribute and their natural ran0e of variability acro that land ba e. +n the ca e of re4re entativene of harve tin0 / etric , + directly co / 4are characteri tic of harve ted area to variability in different fore t attribute acro tudy area . , or tho e / etric dealin0 5ith ilviculture y te / election and 4o t;harve t cutbloc6 tructure, + / a6e thi co / 4ari on indirectly, by evaluatin0 the de0ree to 5hich / ana0e / ent a44roache u44ort the / aintenance of tructure and function 4re ent.

A hile o / e trend e / er0ed for all co / / unity fore t included in / y analy i , the difference in / ana0e / ent outco / e to non;co / / unity tenure 5ere uni:ue in each ca e. *hrou0h both :ualitative and :uantitative analy i , + found that all co / / unity fore t included in the tudy are / ore li6ely to elect alternative ilviculture y te / a o44o ed to traditional clearcuttin0. My

:uantitative analy i of 4o t;harve t tructural feature of cutbloc6 ho5ed co/ / unity fore t under;4erfor/in0 for / any / etric .+n the ca e of

area , ho5ever, co/ / unity fore t had hi0her avera0e re erve level than their non;co/ / unity counter4art in / any ca e .+ntervie5 re ult u44ort the e findin0 for , and indeed u00e t that thi trend i true for / ore co/ / unity fore t and / ore 4o t;harve t tructural / etric than found throu0h :uantitative analy i .%nd finally, for tho e / etric a e in0 the re4re entativene of harve tin0 4rofile , re ult al o varied de4endin0 on 5hat / etric 5a bein0 con idered. ' ere a0ain, / y :uantitative and :ualitative analy e yielded different re ult . Ba ed on :uantitative analy i ,+hy4othe i7e that co/ / unity fore t harve tin0 4rofile 5ere 0enerally le i / ilar to ti / ber harve tin0 land ba e 4rofile than tho e of their non;co/ / unity counter4art .+n o / e of the e ca e ,+hy4othe i7e that le re4re entative harve tin0 / ay actually 4ro / ote better ecolo0ical outco / e , uch a 4re ervation of old 0ro5th area .+n contra t to :uantitative re ult , / y intervie5 re 4on e / ore often u00e ted that &, harve tin0 5a / ore re4re entative than non;co/ / unity / ana0e / ent.

*here are o / e 4reviou e9a / 4le of effort to to co / 4are ecolo0ical characteri tic of fore try o4eration under different / ana0e / ent y te / . ,or in tance, everal tudie have been conducted in Ne4al, a country 5ith a very

u tainable ilviculture effort on the 4art of &,= . , or in tance, one intervie5ee u00e ted that the co / / unity fore t in their area u ed / all cale a an initial effort to deal 5ith / ountain 4ine beetle infe tation . ' o5ever,even if everal / all; cale entrie 5ere initially u ed in an atte / 4t to / aintain urroundin0 fore t cover, thi 5ould not be re4orted to #$S ! L*S. +f the entire area eventually had to be cleared of fore t cover due to e94andin0 MPB infe tation, the only thin0 that 5ould be re4orted 5ould be the final harve tin0 u in0 or y te / .% thi intervie5 ubject u00e ted conventional and B& *i / ber ale counter4art in the area 5ould i / 4ly clearcut the entire tand to be0in 5ith, u in0 #$S ! L*S data 5ould fal ely re4re ent both ilvicultural trate0ie a identical. (n the other hand, co / / unity fore t / ay conduct a lar0e fraction of their harve tin0 under / all harve t licen e . +f / ana0e / ent 4ractice under 5hich thi harve tin0 i carried out are of lo5er :uality than tho e for cutbloc6 re:uirin0 ite 4lan , #$S ! L*S data 5ould e9a00erate the ecolo0ical u tainability of the co / / unity fore t= a44roache .

% a co / 4onent of her Ma ter= the i ,% / bu B2""HD al o co / 4ared ilviculture y te / u e bet5een &o / / unity , ore t%0ree / ent B&,%= D and *ree , ar / Licence B*, L= D in Briti h &olu / bia. %cro 11 &,%= ,% / bu found that &o / / unity , ore t%0ree / ent e / 4loy and y te / / ore often, but u e and y te / le often, than *, L= .% / bu al o found no difference bet5een &,% and *, L u e of and

y te / . % / bu u00e t that factor uch a local ecolo0ical, econo / ic, and ocial i ue / a6e it unli6ely that all co / / unity fore t 5ill a44ly alternative ilviculture y te / / ore often than non;co / / unity tenure . ndeed, 5hile the co / / unity fore t that have analy ed are / ore li6ely to e / 4loy ilvicultural alternative to clearcuttin0, re earch includin0 a / uch lar0er fraction of co / / unity fore t in B.&. 5ould need to be conducted to infer any 4rovince; 5ide conclu ion .

*o / y 6no5led0e, the ilvicultural co / 4ari on have / ade here i uni:ue in the co / / unity fore try literature. A hile there are o / e 4arallel bet5een / y re earch and that of % / bu B2""HD, her analy i a e ed fore t tenure fro / an in titutional 4er 4ective, throu0h a co / 4ari on of &o / / unity , ore t %0ree / ent and *ree , ar / Licen e 4ecifically. My analy i , on the other hand, included o4eration acro tenure ty4e B& , %= , * , L= , and , ore t Licen e D. *he e 5ere co / 4ared to o4eration re4re entin0 a44roache to / ana0e / ent, 5hich al o include diver e tenure arran0e / ent . My inclu ion of both 4ublic and 4rivate counter4art to

#$. #$ &$0 '5 $ &'$&

+ analy ed o / e of the 4ecific attribute of 4o t;harve t cutbloc6 tructure, uch a di turbance i7e and re erve characteri tic , in an atte / 4t to 0ain a / ore detailed 4icture of the difference in ilvicultural a44roache ta6en by each of the tenure in the tudy. My : uantitative re ult ho5 o / e of the e attribute , uch di 4er ed re erve level , 5ere / ana0ed for / ore ucce fully

i7e can be / iti0ated BBee e et al., 2""ED. +n the &re ton area, a an e9a / 4le, althou0h &2 , & ha a lar0er avera0e di turbance i7e than B&*S in the area, the &re ton co / / unity fore t i / ore li6ely e / 4loy a ilviculture y te / that incor4orate retention throu0hout the di turbed area. *hi / ay e94lain 5hy intervie5ee in &re ton incorrectly believed the & , 0enerally had I / uch / aller cutbloc6 J than their counter4art . %ll other co / / unity fore t 5ere found to have value for avera0e di turbance i7e that 5ere i / ilar or / aller than tho e of their counter4art . % the e co / / unity fore t : harve tin0 5a al o / ore li6ely to occur under an alternative ilviculture y te / , + hy4othe i7e that they are doin0 / ore than their counter4art to / aintain ecolo0ical attribute naturally 4re ent in 4re;harve t tand .

Sur4ri in0ly, re ult 4ecifically on the level of tructural retention 5ithin cutbloc6 5a incon i tent 5ith the re ult on ilviculture y te / u a0e / ore 0enerally. , or in tance, althou0h all co / / unity fore t 5ere / ore li6ely than their counter4art to e / 4loy alternative ilviculture y te / that by definition included a 0reater de0ree of retention than clearcutttin0, 5ildlife tree 4atch level for all co / / unity fore t 5ere lo5er than tho e of their counter4art . +ntervie5ee re 4on e about 4o t;harve t tand tructure 5ere al o incon i tent 5ith / any of the tand tructure findin0 0enerated throu0h analy i of the #$S ! L*S data. , or in tance, in the ca e of L?& , , 5hile intervie5ee felt the & , / ana0ed for 0reater a / ount of retention than their counter4art B5hich 5ould ee / to follo5 fro / their 0reater li6elihood of e / 4loyin0 both and

y te / D, #$S ! L*S data ho5ed L?& , either under;4erfor / in0 or havin0 no tati tical difference fro / their counter4art for all tructural / etric . *hi trend i / irrored, to varyin0 de0ree , in the re t of the tudy area .

(ne 4otential e94lanation for thi i in the ub / i ion fra / e5or6 of #$S ! L*S, and the re4ortin0 convention of licen ee . #$S ! L*S 5a initially

*he e difference / ay i / 4act to 5hat e9tent the level of re erve bein0 / ana0ed for by a licen ee ho5 u4 in #$S ! L*S data. , or in tance, 4rovincial re erve re : uire / ent for volu / e;ba ed tenure , uch a , ore t Licence and *i / ber Licence , are attached to each 4ecific cutbloc6 bein0 lo00ed. ' o5ever, re erve re : uire / ent for area;ba ed tenure uch a &o / / unity , ore t %0ree / ent are con idered for the entire tenure area a a 5hole B#obin ' ood, Per onal &o / / unication, %4ril 25th, 2"11D. +n other 5ord , 5hile all contribution to re erve area for non;co / / unity tenure 5ill theoretically a44ear in #$S ! L*S, / any co / / unity fore t re erve area 5ill not.

Definitive conclu ion urroundin0 the i ue of level of tructural retention in cutbloc6 acro tenure re : uire future re earch, for in tance throu0h 0atherin0 data directly fro / licen ee ite 4lan . Ba ed on analy i of the #$S ! L*S data, ho5ever, retention B4articularly in the for / of 5ildlife tree 4atche D i an area needin0 i / 4roved / ana0e / ent on the 4art of co / / unity fore t . % thi / ay be an i ue of incon i tent online re4ortin0 convention , the Mini try al o ha a role of facilitation to 4lay here. *here i , ho5ever, a notable a / ount of variation a / on0 t & , : , and in the ca e of area in 4articular, & , : in / o t ca e / ana0ed for either i0nificantly 0reater or co / 4arable level a co / 4ared to both their B& ti / ber ale and conventional counter4art .

% 5ith / y co / 4ari on of ilviculture y te / u e, to / y 6no5led0e / y u e of 4o t;harve t tand tructure data i a novel a44roach to e ti / atin0 the

ecolo0ical i / 4act of fore t / ana0e / ent. ⊦n 4ite of tho e li / itation di cu ed above, ⊦ found thi a44roach to yield i / 4ortant re ult . ⊦n thi en e, the develo4 / ent of online re4ortin0 databa e 4ecifically de i0ned for of collected data i i / 4ortant to future fore try and fore t ecolo0y re earch. My

* ' LB. *he e9ce4tion to thi trend 5a 5ith re0ard to ite cla , for 5hich all & ,= ave L?& , had harve tin0 4rofile / o t clo ely reflectin0 the * ' LB.

% e in0 thi de0ree of re4re entativene of harve tin0 i i / 4ortant, a over;harve tin0 ele / ent in any of the e area can erode the foundation u4on 5hich both future eco y te / and econo / ic health are built BLandre et al., 1CCC< A on0 and +ver on, 2""K< . reen, 2""FD. +n analy in0 harve t 4rofile acro tenure , + u ed 4rofile for the overall di trict * ' LB a co / 4ari on , ince * ' LB 4rofile for individual licen ee = land ba e 5ere unavailable. A hile there are 4otential benefit to thi a44roach, uch a addre in0 the i / 4ortance of u in0 a ufficiently lar0e reference area to ca4ture a full ran0e of ecolo0ical variability B A on0 and +ver on, 2""KD, there are dra5bac6 a 5ell. *he co / 4o itional 4rofile on each licen ee= land varie in the de0ree to 5hich it reflect the overall 4rofile of the di trict. #e earch in the future 5ould benefit fro / tenure; 4ecific co / 4ari on .

+n ter / of harve ted area defined by leadin0 4ecie , a di cu ed in / y re ult ection co / / unity fore t over;harve ted different 4ecie than their counter4art . &onventional and B&*S o4eration , on the other hand, 5ere / ore i / ilar to each other in thi re0ard. , or in tance, 5hile the McBride co / / unity fore t harve ted / ore 5e tern redcedar, 5e tern he / loc6, and 4ruce than 5ere re4re ented in the ti / ber harve tin0 land ba e, B& ti / ber ale and &arrier Lu / ber both harve ted / ore Dou0la ;fir and lod0e4ole 4ine. *he e trend are re4re ented 5ell in P&o% re ult B ee fi0ure Ga, Ha, and CaD. +ntere tin0ly, in

each of the e ca e &,= 5ere ho5n to be over;harve tin0 a co / bination of a / ore valuable 4ecie , uch a cedar Ball &,= 5ith the e9ce4tion of L?&,D or larch B&2 ,&D, and lo5;value 4ecie , uch a he / loc6. *he trend 5ith counter4art tenure in all four area , on the other hand, 5a olely over; harve tin0 lo5;value 4ine, fir, and 4ruce B 4ecie value ba ed on 4ricin0 data ta6en fro / Mo , interior lo0 / ar6et re4ort D.

Several econo / ic factor li6ely influence the deci ion by co / / unity fore t to harve t hi0her;value 4ecie .% the co / / unity fore t included in thi tudy are till in the early ta0e of their o4eration, tart;u4 co t add an e9tra burden to their financial viability. +n addition, co / / unity fore t / ay 0enerally have / ore difficulty co / 4etin0 in the fore try ector than indu trial tenure due to i ue uch a a lac6 of econo / ie of cale B% / bu , 2""HD. *herefore thi effort to ca4ture / ore value in the 4ecie that co / / unity fore t harve t li6ely ari e out of a de0ree of financial nece ity. %n i / 4ortant :ue tion rai ed here, ho5ever, i 5hether tho e hi0h;value 4ecie are bein0 re / oved to a 0reater de0ree than lo5;value 4ecie B5hich a44ear to be the ca e for o / e &,= D. *he ri 6 in the e ca e i , in 4arallel to the ecolo0ical i / 4act of / ore heavy harve tin0 of 4articular 4ecie , future econo / ic o4tion and viability / ay be under / ined. *hi i a clear e9a / 4le of ho5 ecolo0ical con traint can co / e to bear on the continued u tained 4rovi ion of a 0iven re ource, and the cru9 of the conce4t of ecolo0ically u tainable / ana0e / ent. *hi balance bet5een avoidin0 hi0h 0radin0 and en urin0 econo / ic viability i an i / 4ortant one for the

lon0 ter / ecolo0ical u tainability of co / / unity fore try, and therefore o / ethin0 that each &, hould clo ely / onitor.

*he a0e cla di tribution of an area: fore t , and the i / 4act of fore t / ana0e / ent on that di tribution, i another i / 4ortant i ue urroundin0 re4re entativene of harve t. ' ere a0ain, the i / 4ortance of / aintainin0 the 4rofile naturally 4re ent in an area i related to 4rovidin0 the natural ran0e of eco y te / ty4e nece ary to u44ort native 4ecie and ecolo0ical functionin0 BNo , 1CCE< Mc#ae, 2""1, Aon0 and +ver on, 2""KD. +n thi en e, that &, : are 0enerally follo5in0 the * ' LB a0e cla 4rofile le clo ely than their counter4art 5ould be inter4reted ne0atively. ' o5ever, another i ue in B& i that of hi torical over;harve t of older fore t , and a de ire to con erve old 0ro5th area and characteri tic in B&: * ' LB BB&Mo,, 2""ED. *he lar0e / ajority of di 4arity fro / * ' LB a0e cla 4rofile in ter / of &, harve tin0 i re4re ented in G1;H" an H1;1"" a0e cla e , and in addition, in each area ave &re ton, &, counter4art 5ere found to harve t above * ' LB 4rofile level in tho e a0e cla e a ociated 5ith definition of old 0ro5th in B& / ore o than &, : 5ere. *hi trend of &, : bein0 di tinct fro / both conventional tenure ty4e i a0ain 5ell re4re ented in P&o% re ult , 4articularly for L?&,, M&, &, and &2, & B ee fi0ure Fb, Hb, and CbD.

Licen ee have incentive to elect better ite cla e for harve tin0, a the e contribute)P%7ß a

a 5ell a bio0eocli / atic 7one , tho e 4ecie and ecolo0ical function that de4end u4on attribute 4ecific to area of hi0h 4roductivity or certain bio0eocli / atic feature 5ill nece arily uffer fro / any 4referential harve tin0 to 4ecific area . % tated above, all &,= , 5ith the e9ce4tion of L?&,, have harve t 4rofile by ite cla / o t i / ilar to * ' LB ite cla 4rofile . +n ter / of B$& 7one , the o44o ite 5a true, a three of the four &,= had their harve tin0 4rofile / o t di i / ilar to * ' LB 4rofile .

(%C& $ $ (! C& ($ $ $ #& $#

So / e co / 4onent of / y analy i of #$S ! L*S data u44orted intervie5ee 4er 4ective urroundin0 each co / / unity fore t= / ana0e / ent 4ractice . ' o5ever, thi 5a often not the ca e B ee *able 5D. So / e 4otential e94lanation for the e difference in :uantitative and :ualitative re ult have been di cu ed above. +n the ca e of 4o t;harve t tand tructure, intervie5 and #$S ! L*S data / ainly differed. *he i ue urroundin0 i / 4ro4er or inco / 4lete #$S ! L*S re4ortin0 4ractice / ay e94lain thi difference to o / e de0ree. +n addition, a re erve not a ociated 5ith cutbloc6 5ill not be re4orted to #$S ! L*S for area;ba ed tenure B#obin ' ood, Per onal &o / / unication, %4ril 25th, 2"11D, co / / unity fore t / ay be / ana0in0 for / ore re erve area than / y analy i of #$S ! L*S data u00e t . ,or re ult , ilviculture y te / u e / ay have influenced intervie5ee 4erce4tion of di turbance i7e.

0 + #& / %./ $. # #" ($! % ($ 7 #& $#E (! 7. $. $. #
./ $. # # #& $! 0/ @& ($$ $ #& $# % '. $ ' &# !*

C	C							
	Silv. Sy te /	Di t. %rea	Di 4. #e erve	A*P %rea	Lead S4	%0e &la	Site &la	B$& Lone
#2LS* (>$ %#$%								
&, harve t ecolo0ically re4re entative than counter4art	;	;	;	;	N (	3$S	3$S	N (
&, e / 4loyin0 alternative ilviculture y te / than counter4art	3$S	;	;	;	;	;	;	;
L+>$L3 %#$%								
&, e / 4loyin0 alternative ilviculture y te / than counter4art	3$S	;	;	;	;	;	;	;
&, / ana0in0 for retention and re erve than counter4art	3$S	N (	N (	N (	;	;	;	;
M&B#+D$ %#$%								
&, harve t ## ecolo0ically re4re entative than counter4art	;	;	;	;	3$S	3$S	N (	N (
&, e / 4loyin0 alternative ilviculture y te / than counter4art	3$S	;	;	;	;	;	;	;
&, / ana0in0 for retention and re erve than counter4art	3$S	N (	3$S	N (	;	;	;	;
&#$S* (N %#$%								
&, harve t ecolo0ically re4re entative than counter4art	;	;	;	;	N (			N (

locally. %nother i / 4ortant 4oint rai ed durin0 intervie5 5a en urin0 a 5ide a 6no5led0e ba e a 4o ible i recruited to board and / ana0e / ent 4o ition . Si / ilarly, the 4rovincial 0overn / ent hould do all it can to 4rovide re ource and infor / ation to co / / unitie , for in tance trainin0 related to #$S ! L*S ub / i ion 4rocedure .

% related i ue i that of ho5 &,= contract out the harve tin0 of their cutbloc6 , and ho5 thi harve tin0 i re0ulated and / onitored. $ach co / / unity fore t e / 4loyed a different a44roach to allocatin0 harve tin0 ri0ht , and o / e a44eared to be / ore ucce ful at encoura0in0 ecolo0ically u tainable 4ractice .+n o / e in tance , intervie5ee e94re ed concern that y te / of allocation allo5ed too / uch fle9ibility and not enou0h 4lannin0 and over i0ht in relation to harve tin0 activitie .+n thi re0ard, 4ro4er / onitorin0 and and future ada4tive / ana0e / ent i crucial.

,ore t health i ue , and 4articularly the / ountain 4ine beetle BMPBD e4ide / ic in B&, al o had an i / 4act on the fore t 4ractice of &,= . A hile our re earch 0rou4 cho e ite in an effort to / ini / i7e the i / 4act of MPB on tudy re ult , / ana0e / ent 4ractice in o / e ca e 5ere none the le effected. ,or in tance, o / e intervie5ee tated that MPB alva0e re:uired a / ove to5ard hi0her i / 4act harve tin0 techni:ue , and 0enerally altered / ana0e / ent 4ractice for the 5or e. +n the ca e of the Li6ely;?at =ull &o / / unity ,ore t, one intervie5 re 4ondent in 4articular tated that the co / / unity fore t ha n=t lo00ed one bloc6 in 5hich fore t health i ue haven=t been a / ajor con ideration,

i / 4actin0 / ana0e / ent deci ion uch a ilviculture y te / choice and fore t retention.

Ba ed on i ue uch a tenure i7e, de / and for lu / ber, and 4ro9i / ity to

+ ue 0eneratin0 con i tent 4rai e fro / intervie5ee included the u e of alternative, lo5;i / 4act harve tin0 / ethod , better 4erfor / ance in ter / of re4lantin0 than &, counter4art , 4lantin0 a diver ity of 4ecie , li / bin0 and leavin0 coar e 5oody debri in the bu h, and better / iti0atin0 i / 4act of harve tin0 uch a 0round co / 4action and decrea ed 5ater :uality. (n the other hand, co / / on area in 5hich &,= 5ere believed to need i / 4rove / ent included o / e o4erational level i ue uch a / iti0atin0 blo5do5n, and al o lon0 ter / 4lannin0 i ue related to the need for / ore trate0ic 4lannin0 and / onitorin0.

(' &# (#

' ere in Briti h &olu / bia, it a44ear a thou0h both co / / unitie a 5ell a the 4rovincial 0overn / ent have faith in the 4otential benefit of co / / unity; ba ed fore t / ana0e / ent. Since the co / / unity fore t 4ro0ra / be0an in B& in 1CCH, EC co / / unity fore t and 4robationary co / / unity fore t a0ree / ent have been i ued, 5ith another 15 invitation fro / the 4rovince for co / / unitie to a44ly currently 4endin0 BB&& ,%, 2"1"D. %nd durin0 the cour e of thi re earch, ,ore t Mini ter Pat Bell 4ro / i ed al / o t a doublin0 of 4rovincial cut level for co / / unity fore t and other / all tenure uch a 5oodlot and ,ir t Nation licen e B(fficial #e4ort of the Debate of the Le0i lative % e / bly, 2G March 2""CD.

My 0oal here 5a to 4rovide o / e e / 4irical in i0ht into the :ue tion of 5hether co / / unity fore t differ fro / nearby conventional tenure acro a

co / 4arin0 field tudy a e / ent of re erve and retention level to tho e re4orted in #$S ! L*S.

*hi rai e the i ue of the current confi0uration of the #$S ! L*S databa e. &han0e to #$S ! L*S 5ould / a6e an i / 4ortant difference to the ability of thi 6ind of re earch to / a6e a u eful contribution to fore t / ana0e / ent, a 5ell a i / 4rovin0 the :uality of the data. ,ir t of all, chan0e to allo5 for ea ier acce to data for / onitorin0 and re earch 4ur4o e 5ould be beneficial. ,acilitatin0 ub / i ion of / ore co / 4le9 ilviculture y te / 5ould hel4 en ure activitie a ociated 5ith the e are not underre4orted, and 5ould be hel4ful to 4olicy / a6er , re earcher , and fore t / ana0er ali6e. (nce a0ain in the the Mini try- State of B& ,ore t re4ort, the i / 4ortance of u tainable fore t / ana0e / ent and thorou0h / onitorin0 and a e / ent of current / ana0e / ent 4ractice i tre ed BMo , ML, 2"1"D. % 4ro4erly functionin0 re ource li6e the #$S ! L*S databa e / ay be invaluable in thi re0ard. Due to lo0i tical and financial con traint , 5hile the later i ue ha been ac6no5led0ed by the Mini try, the cho en cour e thu far ha been to leave the overall re4ortin0 y te / intact, and to in tead chan0e Ire4ortin0 4olicyJ BB&Mo ,, 2""CD. %dditionally, / any evaluative tool identified a i / 4ortant by intervie5ee 5ere not available for analy i in #$S ! L*S, uch a i / 4act of harve tin0 includin0 tho e on 5ater :uality, 0round co / 4action, and blo5do5n, and 5ould be u eful addition to the y te / in in tance 5here it 5ould be 4ractical to inte0rate the e into the #$S ! L*S fra / e5or6.

My inve ti0ation into the ecolo0ical re4re entativene of harve tin0 4rofile al o 4roduced i / 4ortant hy4othe e . , ir tly, ⊦ hy4othe i7e that the co / / unity fore t included in / y re earch are lar0ely harve tin0 in 5ay that are le reflective of overall * ' LB 4rofile . *hi :ue tion could be addre ed 5ith / ore 4reci ion if 4rofile data 4ecific to licen ee= / ana0e / ent area beco / e co / 4rehen ively available. ' ere a0ain, other re earch a44roache uch a the u e of aerial and atellite i / a0e could be u eful in co / 4le / entin0 #$S ! L*S data. So / e of the co / 4onent of co / / unity fore t / ana0e / ent identified a needin0 i / 4rove / ent by intervie5ee , uch a lon0 ter / 4lannin0 and / onitorin0, are i / 4ortant in develo4in0 olution to thi i ue of re4re entativene of harve tin0. ⊦ al o hy4othe i7e that o / e ca e of co / / unity fore t harve tin0 involvin0 di i / ilarity to * ' LB 4rofile / ay in fact be u eful in achievin0 4articular ecolo0ical objective . , or in tance, throu0h avoidin0 older a0e cla e and 4articularly tho e a ociated 5ith old 0ro5th, co / / unity fore t / ay be hel4in0 to rever e the hi torical trend of over; harve tin0 old 0ro5th fore t in the 4rovinca pco th fore —€hitorDrocal r 2

our re earch 0rou4 learned throu0h our intervie5 4roce , co / / unity fore try re4re ent different thin0 for different 4eo4le. %nd a co / / unity fore try i / eant to reflect local 4er 4ective urroundin0 re ource / ana0e / ent, difference in local 4rioritie 5ill no doubt re ult in different / ana0e / ent outco / e . +ndeed, it i i / 4ortant to ac6no5led0ed that there i no blac6 and 5hite et of re ult that co / / unity fore try 5ill 4roduce. ' o5ever, / y re earch de / on trate that 5hen local 6no5led0e and 6ill are 4re ent and ca4itali7ed on, co / / unity control of fore t / ana0e / ent can 4roduce i / 4roved ecolo0ical re ult co / 4ared to the conventional indu trial fore try / odel under 5hich B& ha hi torically o4erated. +t 5ould be beneficial for a tudy uch a thi one to be done in a 5ide;reachin0 / anner, includin0 the entire et of & ,= acro B&. *hi 5ould hel4 develo4 a / ore co / 4rehen ive under tandin0 of the variou a44roache to co / / unity fore t / ana0e / ent, 5here ucce e have been achieved, and ho5 difficultie / ay be overco / e.

% a final note, 5hile the co / / unity fore t 4ro0ra / in B& ha the 4otential to effect 4o itive chan0e in the ecolo0ical i / 4act of fore try in the 4rovince on land no5 under co / / unity / ana0e / ent, it al o hold thi 4otential for land under control of other tenurPty€overco / e itunéDr DPun$8 Ka•old ta&nãõr lyuny4D !

(! '

(! 1 #&$# $ ($ (' !& F $! % '. ' (# ('&! ! ($. (/# #H

*he #$S!L*S databa e allo5 u er to acce data acro / ulti4le cutbloc6 u in0 Ire4ort 0eneratin0J function . ! in0 the / any different re4ort ty4e that the databa e can 0enerate, u er can 4ecify certain con traint in order to acce data for 4ecific licen ee durin0 a 4ecific ti / e fra / e. *he follo5in0 i the re4ort 0eneratin0 4rocedure + u ed to 0enerate / y :uantitative data.

1. Per / anent %cce Structure BP%SD re4ort 0enerated, filtered by di turbance tart date in order to included only activity fallin0 5ithin the tudy ti / e fra / e. % other re4ort do not allo5 filterin0 by di turbance tart date, further data filtered by / atchin0 o4enin0 +D nu / ber to P%S li t. Mature %rea BM%*8%#$%D data collected fro / P%S re4ort.
2. Aildlife *ree Path BA*#D re4ort 0enerated, N(8#S#2$8%#$%, D+SP$#S$D8#S#2$8%#$%, and Aildlife *ree Patch@#i4arian #e erve %rea BA*P8#+#e!turetj5-2ß#e!turej5-2ßd e0e 0 Path BA*#D re4ort 0enerated [illegible]

(! 1 &$("#$' " ## (#4 #%
'.$(& . !

(& !	4 F(& 0 %$ $ ($ #H
#evel to6e &o / / unity , ore t	2"K
(6ana0an;&olu / bia B&*S office	1C2
Loui ian Pacific	G5G
Li6ely;?at ⁼ull &o / / unity , ore t	E1
&ariboo;&hilcotin B&*S office	F2E
Ae t , ra er	11K2
McBride &o / / unity , ore t	E"
>a / loo4 B&*S office	1HE
&arrier Lu / ber	1H1
&re ton 2alley &o / / unity , ore t	5F
>ootenay B&*S (ffice	2EK
*e / bec	2HK

(!1 B ' 1 ((5 #& $ #$ p & #E % ' # (#
0 $7 (J# (!0 $. (!' (($ (' &($ $#

				A		
'5#	#$& ¢%U0B5E3 #$ñ		ð	#$&•	#$&1$&1$&1ÔÔ•	

(! 1 ((! #$ (! ! ! $ (& # %#$ (! #$ &'$& # $ '# % '. $ (& . ! F #&(!
clearcut with reserves #/#$ (/H

	#		# # ! #		B	
	/ ean	SD	/ ean	SD	/ ean	SD
(& R D						

/ eadaMudBuf6dD.

(!1 . #@& !#$ (' #% E% '. $ '
(! ' (# #$!

% (' #$

% / bu , L. 2""H.
. M.Sc. *he i . ! niver ity of 2ictoria: &anada.

%ubry, >.B., &.B. ' al4ern, and D.%. Ma0uire. 2""K. $colo0ical effect of variable retention harve t in the north; 5e tern ! nited State : the D$M (tudy. , or. Sno5 Land c. #e . **8;**B1@2D: 11C;1EF

B.&. Mini try of , ore t . 1CC5. Biodiver ity . uideboo6. 2ictoria, B.&. htt4:@@5 5 5.for.0ov.bc.ca@ta b@le0 re0 @f4c@f4c0uide@biodiv@biotoc.ht /

B.&. Mini try of , ore t . 2""E. (ld . ro5th , ore t : Briti h &olu / bia, &anada. 2ictoria,
B.&.htt4:@@5 5 5.llbc.le0.bc.ca@4ublic@4ubdoc @bcdoc @EG"ECE@old80ro5th.4 df

B.&. Mini try of , ore t . 2""H. #$S ! L*S +nfor / ation Sub / i ion S4ecification . 2ictoria, B.&. htt4:@@5 5 5.for.0ov.bc.ca@hi @re ult @#+SS8l 8Ea8ed8 (ct1.4df

B.&. Mini try of , ore t . 2""C. Su / bittin0 , ore t &over to #$S ! L*S for (4enin0 A ith *reed #etention. 2ictoria, B.&.
htt4:@@5 5 5.for.0ov.bc.ca@hi @re ult @ , ore t8&over8#etention8Sub / i ion .4df

B.&. &o / / unity , ore t % ociation. 2"1". & , % Statu *able May 2"1".
htt4:@@5 5 5.bccfa.ca@inde9.4h4S
o4tionNco / 862Tvie5Nite / Tta 6Ndo5nloadTidNECT+te / idNH

B.&., Le0i lative % e / bly, (fficial #e4ort of the Debate of the Le0i lative % e / bly, K1B2G March 2""CD, B. Bari off, online: Debate of the Le0i lative % e / bly B ' an ardD
htt4:@@5 5 5.le0.bc.ca@han ard@EHth5th@ ' "E2Ga / ;"2.4df

B.&. Mini try of , ore t , Mine , and Land . 2"1". *he State of Briti h &olu / bia: , ore t . 2ictoria, B.&.
htt4:@@5 5 5.for.0ov.bc.ca@hf4@ of@2"1"@S (, 82"1"8 A eb.4df

B.&. *i / ber Sale . 2"11. B& *i / ber Sale . 2ictoria, B.&.
htt4:@@5 5 5.for.0ov.bc.ca@bct @about@bct cor4overvie5.4df

Bee e, A.)., et al, 2""E. Maintainin0 attribute of old 0ro5th fore t in coa tal
B.&. throu0h variable retention. *he , ore try &hronicle. **8:**BED: 5F";5FH

Ber6 , ,. 2""F. &o / / unity;ba ed con ervation in a 0lobali7ed 5orld. PN%S.
,>9BECD: 151HH ; 151CE

co / 4ari on 5ith 5" 5orld;5ide ba in tudie .)ournal of ' ydrolo0y. **=>-**B1; KD: 1EF;15E

*he $cono / i t. 2"1". >ee4in0 it in the &o / / unity, Se4te / ber 2E.

>ellert, S.#., et al. 2"". &o / / unity natural re ource / ana0e / ent: Pro / i e, rhetoric, and reality. Society and Natural #e ource . **,=**: F"5 ; F15

>o7ac, #.%., et al. 2""H. Public 4rioritie for u tainable fore t / ana0e / ent in i9 fore t d4endent co / / unitie in Briti h &olu / bia. &anadian)ournal of ,ore try #e earch. **=;**: E"F1 ; E"HK

Landre , P.B., P. Mor0an, and ,.). S5an on. 1CCC. (vervie5 of the u e of natural variability conce4t in / ana0in0 ecolo0ical y te / . $colo0ical %44lication . **:**BKD: 11FC ; 11HH

Lert7 / an, >. 2""C. *he 4aradi0 / of / ana0e / ent, / ana0e / ent y te / , and re ource te5ard hi4.)ournal of $thnobiolo0y. **-:**B2D: EEC ; E5H

Mc&arthy,). 2""G. Neoliberali / and the 4olitic of alternative : &o / / unity fore try in Briti h &olu / bia and the ! nited State . %nnal of the % ociation of % / erican . eo0ra4her . **:<**B1D: HK ; 1"K

Mc . arrity, >., and . . ' ober0. 2""5. *he Beetle &hallen0e: %n (vervie5 of the Mountain Pine Beetle $4ide / ic and it + / 4lication . + ue Brief, De4art / ent of ,ore t #e ource Mana0e / ent, ! B&.

(n5ue0bu7ie, %.)., and N.L. Leech. 2""5. (n beco / in0 a 4ra0 / atic re earcher: the i / 4ortance of co / binin0 : uantitative and : ualitative re earch / ethodolo0ie . ⊦nternational)ournal of Social #e earch Methodolo0y. ;B5D: EF5;EHF

(uterbrid0e, #.%.,).%. *rofy / o5, and %. Lalu / iere. 2""C. #e;e tabli h / ent of ecto / ycorrhi7ae fro / refu0ia borderin0 re0eneratin0 Dou0la ;fir tand on 2ancouver ⊦ land. Natural #e ource &anada, &anadian , ore t Service, Pacific , ore try &entre, 2ictoria, B.&. ⊦nf. #e4. B&;?;K1H

Pali6, B.)., #.). Mitchell, and).>. ' ier . 2""2. Modelin0 ilviculture after natural