Vancouver B.C.
November 15, 1988

(PROCEEDINGS RESUMED PURSUANT TO ADJOURNMENT)

THE REGISTRAR: In the Supreme Court of British Columbia, Vancouver, this Tuesday, November 15, 1988. In the matter of Delgamuukw versus Her Majesty the Queen at bar, my lord.
THE COURT: Miss Mandell.
MS. MANDELL: Thank you. If Miss Haeussler could take the stand.

SYBILLE HAEUSSLER, resumed:

THE REGISTRAR: I caution the witness you are still under oath.
THE COURT: Miss Mandell.
MS. MANDELL: Just prior to Ms. Haeussler continuing, I was advised by Mr. Grant that the arguments respecting the documents and scheduling, if it's convenient to all parties, could be heard tomorrow. I understand this is convenient to Mr. Mackenzie and it's hoped that Ms. Haeussler will be finished today.
THE COURT: Yes, that's fine.

EXAMINATION IN CHIEF BY MS. MANDELL (Continued)
Q We were -- prior to breaking yesterday we were talking about fire suppression. Could you advise us what is fire suppression?
A Fire suppression is when humans or men actively tries to put out a fire or prevent it from burning to the extent that it would if left alone.
Q And is the study of fire suppression part of the study of vegetation dynamics?
A Yes. It's part of the study of fire ecology and forest succession, yes.
Q And is it an area which you would normally be involved in in your area of study?
A I would look at the effect that fire suppression has on the structure and composition of forest communities.
Q And would a fire ecologist be an expert in this field?
A Some of them would be.
Q You mention --
A The ecological impacts of fire suppression. I want to clarify this. The actual techniques and that, that's quite a different field altogether, and not something

about -- that a fire ecologist would normally have anything to do with.

Q All right. Yesterday you mentioned one fire ecologist, Mr. Parminter. Are there any other fire ecologists to your knowledge who might have developed a particular area of expertise in the area of fire management or --

A Yeah. I forgot -- I said yesterday that John Parminter was the only fire ecologist that I was aware of, but I was thinking very narrowly of in terms of someone who is looking at fire history and fire cycles and in fact I know of at least there is a group of fire ecologists in the Canadian forestry service, Dr. Lawson Hawkes and Steve Taylor. And there is also Dr. Michael Feller at U.B.C. But they look more at impacts of prescribed burning, prescribed burning techniques and impacts of that on the ecosystem. So I just wasn't thinking of the complete field when I said that he was the only one that I could -- that I knew of.

Q All right. At page 89 of the -- of exhibit book, tab 2, if you could turn to it. There is your literature cited for your study. And I want to ask you with reference to this literature the sources which you consulted dealing with fire history and cycles. And if I could first take you to page 90 and ask you whether Heinselman, which is the fifth author down, is a source consulted by you in this area?

A Yes.

Q And at page 91 there is two references by Mr. -- is it Mr. or Dr. Parminter?

A Mr. Parminter.

Q Mr. Parminter. Are those two references also sources consulted by you?

A Yes.

Q And at page 92, at the beginning of the page Mr. Pojar is looking at ecosystem classification. To your knowledge did he also deal with history or cycles of fire?

A Yes. There is some discussion of the fire origin of stands and so on, yes.

Q And later down the sixth item.

A And --

Q I am sorry?

A There is another one right underneath it.

Q All right. Is that the Romme reference?

A Yes.

Q That's the second one down in the column. And the sixth item, Mr. Smith, is that also a source dealing with fire cycles and history?
A That's right.
Q And Mr. Tande has two references, also in the same page. Are those also dealing with fire?
A They are.
Q And at page 93 Mr. Van Wagner, which is the eighth author cited, is he also in this area?
A That's right.
Q And Mr. Wein?
A Wein and MacLean.
Q Wein and MacLean?
A Yeah. That's also on that topic.
Q Apart from these references are there any other references to your knowledge which are available which you consulted which deal with fire history and cycles?
A There is quite an extensive literature on the topic and I have been reading in it for quite a number of years. But most of it I didn't see as specifically relevant, because it was for other parts of North America. It was more background knowledge. I have some of the references here, if you are interested. I don't know to what extent you -- whether I consulted them or not, I can't say. I don't really know.
Q Are these the main sources, the ones that you cited?
A The ones that I cited directly are the ones that I wanted to specifically bring up in the context of this study, but some of my other comments were based on background knowledge based on reading of other literature.
Q And have you done any direct research yourself in this area other than the consultation as you have described it with reference to the literature?
A No, I have not. I have done fieldwork in which we tried to estimate the age of stands and when the last fire -- you know, the fire origin of the stand, but as far as specific research directed to fire ecology, no, I haven't done any.
Q Is there much research in British Columbia in this area?
A No. There is very little.
Q All right. Now, at page 29 at the last full paragraph there, you state that:

> "Organized fire suppression in the study region has become increasingly effective over the past 50

years."

In your examination of a forest, is it possible for you to estimate if the fire has been one which has occurred in the last 50 years or less?

A You can tell by the age of the stand and you can see evidence that the stand is of fire origin. You can -- that's very common practice in -- when you do ecological sampling. You determine the age of stand. Even the age of lodgepole pine stand, it's very easy to determine right about when the stand first regenerated. And you can usually see evidence that fire was the disturbance that caused the new stand to develop. Burned logs, standing or half fallen snags, charcoal in the organic layers. So you could identify a stand that was less than 50 years old and had originated from a fire.

Q And without placing any magic on the year 50, could you also identify a stand which has been burned longer than 50 years?

A Oh, yeah. If the stand was 80 years old and was even aged and had evidence of -- that fire had taken place, certainly I don't see any problem with that.

Q And is this something that you have done in the course of your work?

A Yes, I have. Primarily in stands over the age of 50 years.

Q All right. At the top of page 30, you cite Smith and say that he estimates -- and I am reading from the first paragraph on page 30:

"Smith (1981) estimates that average fire cycles in British Columbia may now be 10 times longer than those in pre-settlement forests."

First of all, is this conclusion rebutted by anybody to your knowledge?

A I don't know of anybody that took Smith's work and rebutted it. Not -- to my knowledge I wouldn't -- it wouldn't surprise me if somebody said no, it wasn't ten, it was something else. But I don't think anybody has ever gone specifically. I wouldn't like to reput it. I am not aware of it.

Q All right. And you then in the next paragraph cite Parminter for the statement that:

"The impact of fire suppression varies with the

forest type and the natural fire cycle. In an area where the fire cycle is on the order of 300 years the effects of 50 years of fire exclusion are minimal, whereas in stands with a history of understory fires at least every decade, the effects of a similar period of fire exclusion would be much more evident."

Is this conclusion by Parminter in your view self-evident?

A It is if you think about it and you understand what happens. Would you like me to explain it a bit? Okay. If the fire cycle was on the order of 300 years that doesn't mean that every stand burns every 300 years. It means that there is a probability associated -- the chance that any particular spot on the ground will burn and that might happen approximately once every 300 years, but it could be once every thousand years and so on. So if you had -- if 50 years went by with no fire and the naturally stand might only burn say on average once every 300 years, but it could be a thousand years, 50 years is not going to be a big difference and you are not -- you wouldn't be able to say well, the reason this is the way it is is because somebody suppressed fire. You don't know for sure that it would have burned. On the other hand, there are many areas of North America where -- there are some areas in North America where there is abundant evidence that they had these light understory burns as frequently as every six years. There is evidence of scars in the annual rings of the trees. You can see the little bits of charcoal in the annual rings. You can date the fires. And in an area like that 50 years of fire suppression could have a dramatic impact on understory vegetation on the regeneration of tree species. Because that might have prevented four or five different fires and it is fairly certain that at least one fire would have happened in the 50 year period.

Q Okay. In the study area, is there any portion of that area to your knowledge which still has a natural -- I am sorry, a natural fire regime?

A A natural fire regime. I think -- okay. Now, the more remote an area is the less successful the fire suppression efforts have been and the less attention there has been paid at active fire suppression. For example, in the boreal forest we talked about

yesterday, the northern part of the study that I looked at, there isn't a lot of settlement. There isn't a lot of high timber values and in general it's -- measures aren't necessarily taken to suppress all fires. And so what exists there may approximate an annual fire regime. Of course if buildings are threatened, if property values are threatened, they will still go out and put out the fire, if it's decided that that's important to do. And so nothing is -- it can't be considered truly natural, but it would approximate -- and of course in more settled areas I don't think anything near the natural fire regime is now in existence, because it's simply too dangerous to allow fires to burn unchecked.

Q All right. At table four on page 27, if you could turn to it, there you under "Approximate Fire Cycles" indicate, very roughly speaking, and I know -- I want to emphasize your qualification on this yesterday that, you know, these are very rough figures, that the average duration of most fire cycles in the study area is approximately 200 to greater than 300 years, is that correct?

A I don't know if I would go quite that far, because as you see for the areas D and E, which do cover a fairly significant part of the area, I said less than 200 years. And I wouldn't want to say how much less.

Q All right. So --

A But there are large areas in which the study or the higher elevation areas, the coastal areas where the fire regime is is somewhere on that order.

Q All right. And do you have any reason to doubt Smith's conclusion that the average fire cycle in British Columbia are longer than those in pre-settlement forests?

A No. I believe it's true that they are longer. Whether it's ten times longer I couldn't say. But I do honestly believe that the fire cycle with fire suppression, with people actively putting out fires, that the fire cycle on average is now longer than it was before there was fire suppression efforts taken. But course of when you are talking about average fire cycles in B.C., he's averaging the whole province and takes in a lot of variation. So that's --

Q Would this conclusion in your view apply to the study area?

A The fact -- I wouldn't go any further than to say that fire cycles are now longer in the study area than they

1 would have been in the pre-settlement times.
2 Q All right. At the bottom of page 30 you say that:
3
4 "Evidence from other parts of North America
5 suggest that in the long term, fire suppression
6 will significantly affect the structure and
7 species composition of forests in the study
8 region, especially in high elevation or remote
9 areas that are not affected by other land
10 management practises."
11
12 Is this your opinion?
13 A This is my opinion based on reading literature from
14 other parts, particularly the Western U.S. and some
15 parts of the Rocky Mountains, in Canada, where there
16 is research that shows that structure and species
17 composition of forest does change in the long term
18 when there is a period of fire suppression. When I --
19 what I said high elevation areas or remote areas, I
20 thought that because those areas -- because fire is
21 the natural disturbance in those areas, the main ones,
22 you know, in the areas that aren't right out in the
23 coast where there is very little fire. Because man is
24 actively suppressing fire, but he's not going in there
25 and imposing any other disturbances that might take
26 its place. As in some of the lower elevation areas
27 man is actively suppressing fire, but he has imposed
28 some other type of disturbance which might in some way
29 offset it. So off in those remote areas the lack of
30 fire may be the most -- the largest perturbation
31 imposed by man. That's my opinion.
32 Q All right. And also on page --
33 THE COURT: I am sorry, what other kinds of disturbances would
34 you have in mind?
35 A Something like clear cutting or farming or land
36 clearing. That kind of activity.
37 THE COURT: Well, you would regard in each -- just taking the
38 two you mentioned as clear cutting and farming, you
39 would regard them both as within the generic
40 definition of disturbance?
41 A That's right. They affect --
42 THE COURT: Agriculture?
43 A They destroy plant matter. That's what I think of as
44 a disturbance.
45 THE COURT: All right. Now, I guess in the ordinary world you
46 don't regard agriculture as being necessarily
47 permanent, do you?

A Well, not in the long picture and certainly in the Northwest you see a lot of land clearing followed by natural succession where it's a fairly -- there is a short period of time perhaps where an area is grazed and then it is allowed to grow back. And no one tends to think of land clearing -- well, some of it is longer term than others, obviously. But I don't think --

THE COURT: Yes. Down at the bottom of the valley the farming may have -- may become established for several decades at least, whereas somewhere else it may be five or ten year --

A Yeah. Depends on --

THE COURT: -- operation at best?

A -- how intensive the agriculture is and how -- yeah.

THE COURT: All right. Thank you.

MS. MANDELL:

Q You say at page 30, and this is with respect to berries, and I am reading from the third full paragraph on the page:

> "...I do not -- "

I am reading from the third line:

> "...I do not believe that fire suppression has so far had a significant effect on the distribution of any of the species covered in this report. However, at specific locations, the abundance of these species and certainly their crop production will have declined greatly over roughly 50 years of fire suppression. I am certain that in some parts of the study region, the abundance of early seral habitats ideal for berry -- "

And you have included:

> " -- root crop production has decreased as a result of fire suppression. In other areas, the effects of fire suppression are far outweighed by the many other disturbances imposed by European settlement."

Is that your opinion?

A That is my opinion.

Q And can you explain it?

A The whole thing. Okay. When I say the distribution I

am speaking in terms of the maps. I don't think that fire suppression has caused a berry species that used to grow on the coast and now it doesn't grow on the coast but it does grow inland. I don't think -- on the big scale that I'm working at it just doesn't strike me that there has been a change -- a significant impact on the distribution. However, abundance I think can be affected if you look not on the big scale but if you look at very specific site. If you had a site that had huckleberries, for example it was an opening and for some reason or other somebody wanted to burn it and for some reason or other someone said you can't burn this, over 50 years is enough time for trees to grow over top this little berry patch. And the berry production -- and shaded out to the extend that there is less berry production than there was before or if it was saskatoon it might even cause the species to in 50 years be very much declining and bigger not only in berry production. So I feel comfortable with a statement like that, that there are -- certainly may be locations of the study area where somebody prevented -- you can't go out and burn at will because of fire suppression policies. If somebody was prevented from burning a berry patch, it -- or if an early seral habitat where somebody used to pick berries, it doesn't -- even if there was no active burning, it just was -- it just grew back, naturally that berry production could have declined. I don't have any problem with that statement.

Q Okay.

THE COURT: I am not sure that I grasp this paragraph completely, and forgive me for looking at it through eyes that may not be in focus. You say that fire suppression -- and I will put it another way. At specific locations, the abundance of these species will have declined greatly over 50 years of fire suppression. Now, I would take that to mean that you are saying that because of fire suppression the production in some species has declined?

A That's right. In over 50 years what would naturally happen if there were no fire in many of the productive forest habitats is that an area that was open and had predominantly shrub cover, trees could come in and overtop the shrubs. If for some reason the practices prevented a fire from removing those trees, then those shrubs would decline in vigour, could decline in vigour, depending on the species and berry production

1 would probably decline.
2 THE COURT: From the point of berry production, then, fire
3 suppression is bad?
4 A You can't make a general statement like that.
5 THE COURT: Well --
6 A I don't like to make generalizations.
7 THE COURT: I am trying to merely make sure I understand what
8 you are saying and I think I understand what you mean.
9 But in the -- from the point of view in the context of
10 berry production, fire suppression over 50 years will
11 cause a reduction in berry production?
12 A For some species in some habitats. In other habitats
13 50 years probably doesn't have -- doesn't make a lot
14 of difference. And --
15 THE COURT: All right. But then you say in other areas the
16 effect of fire suppression, which is to make
17 production go down, is outweighed by many other
18 disturbances imposed by European settlement. Does
19 that mean that it goes -- that the effect of fire
20 suppression on production is balanced or does it mean
21 it gets worse?
22 A I'm trying to --
23 THE COURT: In the point of view of production?
24 A I can understand your confusion there. I guess what I
25 was trying to get at was that fire suppression may not
26 be the big -- it -- okay. Let me think this over. If
27 you are looking for a scale magnitude of impacts, fire
28 suppression is one that could have a relatively big
29 impact in certain environments with certain species,
30 but in other places fire suppression has a relatively
31 minor impact and other types of disturbances have a
32 much greater impact. So why worry about fire
33 suppression when there are other kinds of
34 disturbances?
35 THE COURT: That's what is troubling me by outweighed.
36 A Yeah. This is a judgment here. I wish I could -- I
37 am trying to think specifically what is my point on
38 this particular sentence. Well, for example, if there
39 was -- say there was a patch of saskatoon in a low
40 elevation area in the Bulkley Valley and people
41 weren't allowed to burn. And so if it was allowed
42 to -- if they weren't allowed to burn, the trees
43 gradually grew over and the berries -- the shrubs
44 started to decline and the berry production declined.
45 That is one possibility. But what's far more likely
46 is that it was actually plowed up and there is now
47 grass there. And so that is probably much -- much

bigger on the scale of impacts, that's probably a much greater impact. That's what I was getting at. It's probably not a very logical statement to make in that sense.

THE COURT: Are you saying in other areas the effect of fire suppression is not as serious qua production as many other disturbances?

A Yes, that's what I am trying to say.

MS. MANDELL:

Q Okay. So the word maybe "over-shadowed" might be substituted for "outweighed"?

A Yeah. That might be the problem, that I didn't use the best word there that I could have used.

THE COURT: So fire suppression is bad so far as production is concerned but other things are worse?

A Yes. Fire suppression can be bad but other things could definitely be much worse.

THE COURT: Thank you.

MS. MANDELL:

Q And Ms. Haeussler, you used the Bulkley Valley as an example where the plow might get to it before the fire cycle is due. Is the Kispiox Valley another such example of a place where that principle might apply?

A Well, any area in the study area where there are lots of agricultural -- where the low elevations are in the agriculture and the Kispiox Valley is one. I outlined yesterday that much of the ICHg3 and the SBSd in this study area is presently in agricultural production.

Q Okay. If you could turn to page 31, there you deal with the effect of logging and silviculture. And if I could first ask you whether or not the effect of logging and silviculture on forest succession is an area which you study as part of your area of expertise?

A Could you say that again?

Q Whether the effect of logging and silviculture on forest succession is an area which you study as part of your area of expertise?

A I do. Yes.

Q And you have a particular area of interest in the area of silviculture?

A That's right.

Q If I could turn you to your -- to the exhibit book and to tab one of it, if you could identify for us the areas in your present work experience and your projects which deal with silviculture. When you are speaking first as your present situation as a partner

in Skeena Forestry Consultants, have you in the course of your work here conducted silviculture projects?
A Yeah. The vast majority of the projects that we do are related to silviculture in one way or another.
Q All right. And at page two under "Current Projects" you have listed four. Are those projects or any of them related to silviculture?
A "Current Projects." Yes. The first one is definitely related to silviculture. The second one is instructing to the silviculture institutes and so upgrading the knowledge of silviculturists, that would be relating to silviculture. The third one is a data base for silviculturists, yes. So that's relating -- that's supposed to improve silviculture practice. And this research plan was part of a project that is -- that also relates to silviculture.
Q And at page 3 you have identified four past projects. Are any or all of them related to silviculture?
A Okay. Those are not four projects. Those are four general areas in which we carried out a number of projects. I might say that all the work that I do is either in forest ecology or silviculture and forest ecologist is base -- or silviculture to an extent is just applied forest ecology, taking the principles of forest ecology and applying them to the growth of trees. And so all of the work that -- almost all of the work that I do, because there is -- that is one of the big markets for forest ecologists is in silviculture. So virtually all of this information is in some way related to silviculture.
Q And if you could turn to --
A Except for this Tribal Council work here.
Q Turn to page four under "Publications." Is the first two publications listed related to silviculture?
A Okay. My thesis on the topic is a silviculturally-related thesis. This site preparation guide is very directly silviculture. Definitely silviculture.
Q And the fourth item where you did work with Coates in 1986, is that also related to silviculture?
A Right. That is a guide written for silviculturists to improve their knowledge of vegetation.
Q And the last three works which you did with people among others, Mr. Pojar, is any of those -- are any of those projects related to silviculture?
A Well, this is the classification that we developed for the Northwest and part of this -- in addition to

1 describing the ecosystems, you develop silviculture
2 interpretations. You say, well, here is a
3 classification, so what does it mean for silviculture?
4 So a big section of each of those reports is devoted
5 to how those different ecosystems should be managed
6 and what silviculture practices are appropriate and so
7 on.
8 Q And if you could -- and do you keep current with the
9 literature on silviculture?
10 A Yes, I do try to.
11 Q Could you explain to us what is silviculture?
12 A As I said before, it is the practice of applying
13 knowledge of ecology and so on to the -- pardon me.
14 Let me step back. In broad terms it is the science of
15 growing trees as a crop and -- well, that's a good
16 enough definition of it.
17 Q And could you explain to us in terms of that science,
18 are there different management regimes which are used
19 in the province and in the study area?
20 A Pardon me? That's a bit of a broad question.
21 Q It is very broad. I will try and bring it down a bit.
22 In the -- in the silviculture field, are there any
23 general management practices which a logging company
24 or any company involved in the area would be applying
25 when they were seeking to log in the study area?
26 A Well, anything they do would -- could be construed as
27 a management practice. I am not sure if I can answer
28 that question. I am not -- any -- there is logging
29 going -- there is logging going on. There is
30 silviculture being practiced. I think you'll have to
31 repeat the question one more time. I just don't think
32 I understand.
33 Q I will get at it another way. Are you familiar with
34 the logging and silviculture practices in the study
35 area?
36 A I am.
37 Q And in the management and silviculture practices is
38 there any practice that's either followed or
39 encouraged to generate the management of the berry
40 species or to encourage the berry production for the
41 species that you've looked at in order to avoid
42 negative impacts?
43 A Negative impacts on berry production?
44 Q Uh-huh.
45 A Okay. I'm not aware of any silvicultural practices
46 carried out in the study region specific -- which are
47 carried out specifically to avoid negative impacts on

berry production. The objective of silviculture is the growth of trees. If there is concern about the impact on a resource for other users, sometimes measures are taken, in case of wildlife browse. There may be notification to recreationists that herbicides are being sprayed in an area where they may wish to go pick berries. But I am not aware of any specific practices taken out in the Northwest to encourage berry production or that any specific direct action is taken to minimize impact on berry production.

Q Okay. If you could turn to page 31, there you talk first about logging and you say that:

> "Logging activity in the study region increased steadily during the first century-and-a-half of European presence, then expanded dramatically in the 1960s."

What do you --

A Can you get the page for me?

Q Sorry. Page 31. On what do you base this statement?

A I base that on general knowledge. I don't -- I didn't have to read that anywhere.

Q Okay. And then you say:

> "A natural fire cycle of 150 to 300 or more years has been replaced in many areas by a logging rotation on the order of 70 to 200 years."

A Okay. Those figures, 150 to 300 and 70 to 200, are used by way of example rather than that -- I don't want to be tied to those figures. But the point that I was trying to make is that prior to the settlement by the Europeans there was a cycle of natural disturbance and fire was the -- in -- at least in the Interior portions of the study, was the predominant natural disturbance factor. And fire suppression practices now have changed that and in many cases the chance of wild fires is very much reduced. But in place of that disturbance they have now imposed a logging rotation which might occur every 70 to 200 years. Stands are managed with the idea that at the age of somewhere in that range, between 70 and 200 years, they will be relogged again. And then they will be reforested and harvested again. So we are talking in the really long term. But this is the way -- this is the idea behind the management is that

there is a continuous rotation. And so you can see this as replacing the natural disturbance cycle with a man-made disturbance cycle.

Q All right. And at this stage, based on your research and the knowledge which is available, can you generalize as to whether or not this change in disturbance pattern will have any effect on the berries in the claims area?

A Well, I like to say that the impacts could really -- are really variable. You can speculate for a given species for a given area what -- if you knew exactly, you know, what the fire cycle was and what the rotation was, you could speculate on what the difference between those two disturbance regimes would be. But there is a lot of variation and it's extremely difficult to generalize. It's pretty speculative. And it really depends on the environment and on the species you are talking about.

Q With respect to the species that you have studied, could you provide any examples at this point, just with respect to this change in disturbance that we have talked about? Just --

A And as an example. Okay. I say in my report on the coast it will probably be an increase in berry production since rotations are not much shorter than previously. And I should say in the shortrun it could mean an increase in berry production. As I said in my report, berry crops of these coastal species are higher in open conditions in the young stands when there is an abundance of berries with no overtopping trees than there are in the understory. The shrubs are still there, but berry production tends to be lower in the shade than in the open. And if you look at the age structure of the forests before the clear cut logging took place on the coast, there was a vast predominance of old growth stands, 300 plus years old. Now if you look at age structure, you have a significant proportion of young stands under the age of 30 years. And I would say that probably -- on average probably there is higher berry production as a result of that in the shortrun as a result of that logging. In other areas there may be less. And different species, different areas. That's just an example.

Q All right. You then go on at page 31 to say:

"Silvicultural practises such a prompt restocking

of conifers and brush control have only recently begun to affect berry abundance, but they may become important in the future."

At this stage and based on your knowledge personally and from your research, can you say whether or not the effect of silviculture practices will have effects in either the short or the long term on the berry species you studied?

A Well, I could come up with a few examples where prompt restocking of conifers and brush control might affect berry abundance. I will give you one example that you see in the SBSe sub zone and that's the medium elevations in the Interior Plateau and somewhat lower elevations of the SSF. Now, these are the areas that have quite an abundance of black huckleberry. And in the past, fires were often left to regenerate naturally. And if you have a big wildfire with relatively sparse seed source, it can take a very long time for a fire to regenerate naturally in some places. So there is an extended period of time where it's relatively open and there is a good cover of huckleberries and various things. Currently now there is somewhat more aggressive rehabilitation of fires. The idea is to get them stocked more rapidly than it would happen naturally. And so there is the practice of windrowing and burning, or the snags are knocked over because they get in the way of machines and planters and they are dangerous. So they are knocked over. Then their windrowing consists of bulldozing all the debris into big piles which are then burned. And in the bulldozing process the forest floor is removed and pushed aside. Now, this process to my mind has -- could have quite an impact on the black huckleberry, the presence and abundance of that species. It would probably recover fairly slowly from such an extreme disturbance if the scarification or the bulldozing was deep. And other species such as willows are prone to invade those areas. And so that kind of active restocking of the forest which probably -- you know, which tends to occur now, may have a negative impact on berries. Another example might be the spraying of herbicides. I have been reading some literature on saskatoon and it's sensitive to glyphosate and hexazinone, two commonly used herb --

THE COURT: I am sorry, you are going to have to spell the

words.
A Glyphosate, g-l-y-p-h-o-s-a-t-e, and hexazinone, h-e-x-a-z-i-n-o-n-e
Now, saskatoon is sensitive to these chemicals. And if an area had abundant saskatoon and that were perceived to be competing -- that the brush complex on the site was perceived to be competing or negatively -- having a negative impact on the trees, these herbicides could be sprayed and they would probably kill or set back the saskatoon and that could have a negative impact on berry production. Depends on the species of those, because, say, huckleberry is not quite as sensitive to these chemicals.

MS. MANDELL:
Q And what about the coast huckleberry, is there any --
A You were talking about longer term impacts?
Q Uh-huh.
A This is an area that is being addressed in Alaska by Paul Alaback and the group studying the impact of modern silviculture practices over the long term on -- they are interested in the effect of wildlife habitat. And they -- they are concerned that modern silviculture practice may lead to a reduction in huckleberry abundance, because huckleberry -- the red huckleberry and others species are important browse for the deer. So they have looked at it from this angle. And what they are finding is that the natural process of forest succession on this outer coast, where these huckleberries are very abundant, stands gradually get older and older. The stand opens up as the trees become larger, as they start to decay and fall over, and there is a lot of light in the forest understory. The light levels are quite high. And in this situation you can get abundant huckleberries in the understory and then if there is a subsequent disturbance, there is a good growth of shrubs and good berry production. And in the forest understory there is quite a few shrubs. So from the perspective of wildlife, they are feeding on the shrubs. With the modern silviculture practice you have -- they don't allow -- or the policy would not be to allow the stand to reach such an age where it gets very open and trees start to decay and fall over. There is relatively prompt restocking, fairly dense. Goes through a period when the stand is young of very dense tree growth. There is very little light in the understory. It shades out most of the understory of the

vegetation. There is very little in the understory except moss. So there -- and if the natural succession isn't allowed to proceed to the stage where the stand opens up, it's rather -- it's logged and the cycle is started over again. There is concern that these species will never have a chance to become established as they once did. And that other management practices such as thinning might have to be done to open up the stand and let the light in so that the shrubs can establish.

Q All right. And would this then have effects in the long term?

A Yeah. If you could picture it as foresters tend to think in terms of several rotations, although that's thinking a long ways ahead, 70 years, there is no shrubs in the understory. You go another 70 or a hundred years until you log again, and there is no shrubs in the understory. And over the long term they could potentially be wiped out or certainly greatly declined in abundance. But this is looking into the future now. Who knows.

Q All right. At page 31 you deal with residential settlement and agriculture. And again, is this an area which you would normally look to to see its effect on forest succession as a part of your area of study?

A Normally. I work mainly in the area of silviculture and forestry rather than agriculture. I have in the past looked at the scope of the land clearing and agricultural activities in the Skeena watershed. And I would certainly consider the effect of that cultivation -- I researched the subject of cultivation, the effect of cultivation on many shrub species and so on.

Q All right.

A But it's not something that I do all the time or very often.

Q You say at page 31:

> "Land clearing for residential settlement and agriculture has affected only a small percentage of the total land in the study region, but the relative impact of these activities on berry and root production is out of proportion to the land area affected."

And can you just explain that statement?

A Well, for a certain species such as the -- I thought that -- oh, how could I say that? I don't know if I could say it in here any other way than I said it. That those particular lands where -- the intensive cultivation that -- and land clearing, you know, with houses on it has a fairly dramatic impact on the natural species composition of the forest as you could well imagine. And those particular areas may well be areas that have -- that are more -- among the more productive for berry production. And so if the total land area was 80 per cent alpine tundra and 20 per cent -- just to really simplify the case, the total land area was 80 per cent alpine tundra and 20 per cent agricultural bottom land, and you completely plowed up the 20 per cent bottom land, you wouldn't have lost 20 per cent of your berries, because the other -- the remaining 80 per cent was all the alpine tundra. I am trying to --

Q Yeah.

A That was the extreme case, just so you could picture what I am trying to get at. And I thought this was particularly important for species such as saskatoon and high bush cranberry. Other ones such as Vaccinium tend not to be found in these argicultural bottom lands.

Q Vaccinium is V-a-c-c-i-n-i-u-m?

A Yeah. Those are the huckleberries and blueberries.

Q All right. And is this a permanent -- from your point of view is this a permanent displacement of the saskatoon and high bush cranberry or is it --

A No. Nothing is permanent.

Q Okay. And finally you say at page 31 regarding grazing and wildlife that:

> "Lands bordering on the prime agricultural lands, have been extensively grazed by livestock, particulary cattle. Several of the plant species are browsed by livestock, and in areas of heavy grazing their distribution and productivity may have been significantly affected."

Can you explain that statement?

A Well, I talked about the effect of agriculture which is a fairly intensive cultivation, building of houses. For a relatively long term you don't allow the natural vegetation to restablish itself. The less heavily used areas, usually on the border -- the higher --

slightly higher elevations or the less productive lands, often they are just cattle, open range grazing or maybe they were cleared once or twice and then allowed to grow back. So the impacts are less dramatic. However, many of the species are browsed by livestock, saskatoon, high bush cranberry, and they get, you know, a healthy shrub with large cover or leaf area can be reduced down to a small stubby shrub that isn't able to produce many berries. And you can see areas where the grazing is quite heavy and basically areas tend to go to grass and short-lived annuals and perennial herbs that are able to tolerate the grazing load a little better.

Q Okay. If I could ask you to turn to tab three of your -- of the exhibit book, can you identify whether this is the contract of employment which you entered into between yourself and the Tribal Council? Just look at the back page and see if it's your signature.

A Okay. Yeah. This is a photocopy of the contract that I signed.

MS. MANDELL: I ask that that be marked as the next exhibit.

THE COURT: All right.

THE REGISTRAR: Next exhibit will be 801.

(EXHIBIT 801: Contract between Sybille Hauessler and the Tribal Council)

MS. MANDELL:

Q If I could turn you to paragraph two where there -- your work which you are to complete was set out and if you can look at paragraph B you were asked to:

> "design and conduct a field experiment to test the ripe berries of seven shrub species for their sugar content or for other characteristics that would affect their overwinter preservation by drying."

Did you do that aspect of the contract?

A I did.

Q And did you report upon it to the Tribal Council?

A I did.

Q What were in general terms the conclusions which you drew?

A I -- in general I concluded that my experiments weren't sufficient to draw any significant conclusions about the -- I couldn't state with any confidence

about the characteristics that might affect overwinter preservation for drying.

Q Is it possible from your point of view to do such an experiment which could lead to conclusions of any confidence?

A Well, with very narrowly defined terms of reference and very elaborate experimentation involving actual drying trials and so on, I imagine something could be done, but that wasn't the scope of the work that I was contracted to do.

Q All right. And at page 32 of your report which is again tab 2 and onto page 34, there you describe the effects of volcanic eruption in the study area. Why did you address your mind to this area?

A Oh, that was in my terms of reference. I was told that there had been a volcanic eruption that date that I specified. I am trying to find the page.

Q It's on page 32.

A Yeah. I was told that this volcanic eruption did take place. I am familiar with the area. I have been there quite frequently. And I was asked to comment on the effect that this might have had on the production of berries of the species I was asked to -- and what impact this might have on trade.

Q And did you find anything there which in your view led you to any conclusions regarding the berry species?

A Well, I talked about the general effects that it could have. I think I laid out pretty much the impressions that I got. Nothing really detailed. You know, you need a lot more information to say anything really specific.

Q I noticed at page 34 that you made reference to Hunn and Norton in 1984 who had concluded that:

> "... the effects of volcanic activity on resource species were normally of short duration and were probably mitigated by social and cultural responses. In the same way, the destruction of habitat and spread of fires created by the Tseax volcanic eruption may have forced a restructuring of food gathering habits among the inhabitants of the Lower Nass Valley, and may have encouraged some additional trade with the adjacent groups in the early years following the catastrophe."

Is this assumptions you have made on the basis of Hunn and Norton?

A Yeah. I read the paper and they looked into a similar topic that I had looked into except with respect to the Mount St. Helen's eruption and they speculated on how this might compare with past volcanic activity. And I thought it sounded reasonable, the conclusions they drew, and I thought there wasn't any reason to believe that this situation would be dramatically different here. It was assumptions that I based reading this paper.

Q All right. I'd like -- I have got about perhaps five minutes left. I would only now like to draw you to the report and review for clarification your assumptions and the different portions of your report which may require further explanation.

My lord, I am in your hands as to whether or not we take the break now or continue.

THE COURT: It's more convenient to you if we carry on?

MS. MANDELL: It is.

THE COURT: Let's do that.

MS. MANDELL: Thank you.

Q Yesterday we went through some of the assumptions and clarifications which you were able to make for us regarding your report. And I'd like to now go through the report and ask you to explain and review for us in addition to the assumptions which we talked about yesterday, other assumptions and clarifications which may assist the court in giving weight to the aspects of your report. First, if I can say in general terms throughout your report you refer to the Gitksan and Wet'suwet'en territories. Did you assume for the purposes of your study the boundaries of those territories?

A I did assume them. They were told to me and I just assumed that that's where they were.

Q And did you also assume for the purpose of your study that the Gitksan-Wet'suwet'en lived in those territories?

A I did.

Q All right. At page six of your report you state at the last sentence of the first full paragraph:

> "It also seems possible that the territories are located at the logical hub of trade among groups living within these three distinct ecological units."

Did you assume the conclusion which you drew about

1 logical hub of trade?
2 A I just -- I made that conclusion -- I am not sure how
3 to answer -- how to say what did I assume. It was an
4 assumption that I made based on common sense.
5 Q All right.
6 A Rather than any specific knowledge of trading
7 relationships.
8 Q Would it be fair to say that it was your speculation?
9 A Speculation, yes, I would say that.
10 Q At page seven you deal with the fact that the
11 biogeoclimatic ecosystem classification operates at
12 two levels. First is the ecosystem level which
13 classifies small units of land which you rejected as
14 being helpful in the broad view that you were looking
15 at, but you did say there that:
16
17 "This classification level is too detailed to be
18 of much use in the overview descriptions of this
19 report, but may become useful in the future for
20 describing and inventorying individual House
21 territories and for future resource
22 decision-making in those territories."
23
24 Did you assume House territories?
25 A I did. This was something that I just assumed
26 existed.
27 Q All right. At page nine in the second paragraph at
28 the end of it you say:
29
30 "While several biogeoclimatic variants have been
31 recognized within the study region, only one
32 variant (the ICHg3) is shown on the map -- "
33
34 And these are the words I would like to draw to your
35 attention:
36
37 " -- because of its central significant to the
38 Gitksan-Wet'suwet'en economy."
39
40 Did you assume the Gitksan-Wet'suwet'en economy for
41 the purposes of the study?
42 A I did, yes, I assumed that information.
43 Q And you say this in addition to the remarks you made
44 yesterday, that you reviewed the literature and took
45 from that what you needed to in order to do the work
46 that you did. You reviewed the -- yesterday you
47 mentioned that you had -- in table one of the legend

you had made reference to a number of ethnobotanical sources --
A Oh, right.
Q -- to familiarize yourself with?
A Yes. I guess I am thinking in larger terms of the economy in central significance. This was assumed. I didn't look into this in detail. I did look into the use of plants.
Q All right. At page 16 you say in the middle of the second paragraph:

> "Western red cedar, a very important commodity for aboriginal peoples, is absent from this region."

A Which page is that?
Q Page 16.
A Thank you.
Q How do you know that western red cedar is an important commodity for aboriginal peoples?
A That's common knowledge. Certainly among foresters.
Q All right.
A I don't need to assume that I -- I mean I know that.
MR. WILLMS: My lord, I object. Aboriginal peoples is very broad term. And I don't know whether western red cedar is very important to people living on the Prairies.
A That's not what I meant.
MR. WILLMS: I realize that's not what the witness meant, but that's a broad statement which the witness has just adopted and I object to it.
THE COURT: Well, in that sense what did you mean by aboriginal?
A Well, I meant that western red cedar was a tree that was used by Indians and I -- that's common knowledge.
THE COURT: Indians in the study?
A Well, I don't need -- I don't want to specify which group of Indians and where they live, because that's not my area of expertise. But I think it's perfectly acceptable to make a statement of that nature.
THE COURT: Well, you are talking there about aboriginal peoples in the area as with study?
A In the study area.
THE COURT: Does that help you, Mr. Willms?
MR. WILLMS: Well, I don't think it does, but that's what the witness wants to say, that's what the witness can say.
THE COURT: What region are you talking about? You are talking about the Northern Territory there, are you? North --

A Yeah. I am talking about the species occurs in these areas and when I made the statement, "western red cedar, a very important commodity for aboriginal peoples," is absent from this region. So --
THE COURT: That's north of Cranberry Lake?
A Oh.
THE COURT: Is that what you mean?
A Cranberry Junction.
THE COURT: All right Cranberry Junction. Sorry.
A Yeah.
THE COURT: And Gisgagas?
A Basically, yeah.
THE COURT: Yes. All right.
MS. MANDELL:
Q Can I ask you -- I don't want to blur the waters, but are you saying that as a forest ecology -- as a person in forest ecology you are aware that red cedar is a commodity which has been used by Indian people in a manner different from other people?
A Yes. I am aware as a citizen of British Columbia and as a forester who knows what western red cedar is and what its like. I am aware of that.
Q All right.
THE COURT: You can't help that, can you?
MS. MANDELL:
Q On the same page you say:

"The ICHg3 -- "

And this is in the middle of the last paragraph:

" -- is of central significance to the Gitksan people because it is the location of almost all of the village sites -- "

And if I could stop there and ask you how do you know that it's the location of almost all of the village sites?
A That's partly assumed and partly based on my general knowledge of the study area. I know about the present village sites where people live. So I am not talking about -- and I am assuming about past village sites.
Q All right. And you say "and the centre of Gitksan economic activity"?
A That is an assumption.
Q All right. At page 23 you pose four questions with respect to the study of forest ecology and forest

1 history of the study region. And questions three and
2 four, I would like to ask you first of all whether or
3 not you posed those questions or were they posed by --
4 A I am sorry,
5 Q Page 23. I'd like to ask you first whether you posed
6 those questions?
7 A I posed them as a result of the terms of reference I
8 was given. I wrote those questions up, but they --
9 they arose out of the terms of reference that I was
10 given and I guess that's what I can say. I don't
11 think I went to answer each of them specifically.
12 Q All right. And were those questions the questions
13 which a person who was studying the area of fire
14 ecology and fire history in this region would normally
15 pose?
16 A Well, yeah. If you were studying the fire history it
17 would be reasonable to pose questions about -- on
18 those topics, yes.
19 Q All right. Now, at page 28 you talk about burns by
20 Indian people and I am speaking now about the first
21 full paragraph. Could you explain where the
22 information for that paragraph comes from?
23 A This is information I haven't cited, but it comes from
24 background reading that I've done on the topic of fire
25 and fire history and fire ecology. I found two
26 references that I have read in the past. One by
27 Grewell published in '85 and another one by, oh, I
28 can't remember.
29 Q Stewart?
30 A Stewart in 1963. These are part of symposia. The
31 symposia both on the ecological system in which people
32 did discuss the aboriginal use of fire, and in a lot
33 of other papers on a more conventional forestry topic.
34 It seems to be fairly common topic at these symposia.
35 There is usually a couple of papers on it.
36 Q Did you assume that the Gitksan and Wet'suwet'en also
37 burned?
38 A I did assume that.
39 Q All right. And at page 29 under "Fire and Fire
40 Suppression," you there deal with the effects of
41 European settlement, and if you could explain where
42 the information for this section comes from. This is
43 the first --
44 A I am sorry?
45 Q Page 29. This is under "Fire and Fire Suppression."
46 A Okay.
47 Q I am just now referring to the paragraph which deals

with the effects of European settlement, and if you could explain where the information for that paragraph is taken.

A This is just something that I wrote from my general knowledge and past reading.

Q All right. And at the last paragraph of that last sentence of that paragraph you say:

> "These corridors were also used by native people and tend to be climatically predisposed to fire."

A Okay. I assumed that the corridors were used by native people. That's an assumption. But the business about climatically predisposed to fire, that is based on my knowledge of the study area and my analysis of the climate and the vegetation in those areas.

Q All right.

THE COURT: What's the seral forest?

A Seral is -- means early successional, which means the type of vegetation that would develop shortly after a disturbance. Young -- young.

THE COURT: Thank you.

MS. MANDELL:

Q At page 30 the second to the last paragraph, the last sentence you say:

> "If fire suppression policies have been responsible for preventing periodic burning of certain Gitksan and Wet'suwet'en berry patches, then it is very likely that they have caused a decline in the crop production of those berry patches."

Now, here you are assuming the Gitksan and Wet'suwet'en people did practice burning?

A Yeah, I am assuming that.

Q And if they did, then you are saying that it's your opinion that there would be a decline in the crop production?

A If they were -- if these practices were prevented by fire suppression, yeah, that's my opinion.

Q All right. And at page 31 you say under "Residential Settlement and Agriculture" that with respect to those lands probably they are the same lands that were most heavily used by aboriginal peoples, do you assume that or do you generalize?

A Where is this statement?
Q I am sorry, you say:

"The valley bottom lands that have been alienated for residential and agricultural purposes -- "

And then the words --
A I say "probably because of their favourable climate." That is something that I -- that is an opinion that I had and I guess based on some -- I guess it's my opinion and I think it makes sense.
Q All right. So you are saying that if aboriginal people were there, then you assume that this is the land they would use because of its climate and its --
A Productivity and accessibility. Yeah.
MS. MANDELL: All right. Those are the end of my questions. If I could ask your lordship to mark as exhibits Map 2, and Madam Registrar has suggested that perhaps that could be given the number 358-2, and the legend which she asks be given the number 358 sub A.
THE COURT: Any objection?
MR. WILLMS: No, my lord.
MS. KOENIGSBERG: No.
THE COURT: All right. So the map will be 358-2 and the other one is 358-2A.
THE REGISTRAR: 358-A.
THE COURT: 258 or 358?
THE REGISTRAR: 358-A.
THE COURT: 358-A. All right.

(EXHIBIT 358-2: Map 2)
(EXHIBIT 358-A: Legend)

MS. MANDELL: And if I could also have marked tab 2 of the exhibit book as an exhibit.
THE REGISTRAR: That will be Exhibit 802.
MR. WILLMS: My lord, I object to part of it and I have got an argument on part of it.
THE COURT: What is it you are asking be marked now?
MS. MANDELL: Exhibit 2, the extracts from the report.
MR. KOENIGSBERG: You mean tab 2.
MS. MANDELL: Tab 2.
THE COURT: Of tab 2 of --
MS. MANDELL: The exhibit book.
THE COURT: What was it --
THE REGISTRAR: And 801 is tab 3.
THE COURT: Yes. All right. What is your convenience in that

connection? You are tendering the report as the next exhibit? Mr. Willms, you are opposing that, are you?
MR. WILLMS: In its present form, yes, my lord.
THE COURT: All right. Do you want to argue it now?
MR. WILLMS: I am prepared to argue it now, my lord.
THE COURT: All right.
MR. WILLMS: My friend has set out a number of assumptions which we have dealt with. Does your lordship wish to take a break?
THE COURT: Oh, let's finish this. Something going on downstairs.
MR. WILLMS: My lord, the single point is this -- and does your lordship have the brief of authorities on experts that I handed up?
THE COURT: Yes.
MR. WILLMS: It's a black binder. It was referred to in the argument related to -- well, the argument that I have is based on one -- on two cases that are in that.
THE COURT: Oh. All right. No, those books of authorities are downstairs. Miss Mandell, are you able to stay for this argument?
MS. MANDELL: Yes, I will stay for this argument. I have got a little bit of time. And if your lordship wishes to take the break, my plane doesn't leave until 1:30 now.
THE COURT: Oh, all right. We will take the morning adjournment now and I will see if I can find that book of authorities. It's a book of authorities.
MR. WILLMS: Yes. It says "Authorities Respecting Opinion Evidence."
THE COURT: All right.

(PROCEEDINGS ADJOURNED PURSUANT TO MORNING RECESS)

I hereby certify the foregoing to be a true and accurate transcript of the proceedings herein to the best of my skill and ability.

Laara Yardley,
Official Reporter,
United Reporting Service Ltd.

1 (Proceedings resumed following short recess)
2
3 THE COURT: Tell me, Mr. Willms, aren't you going to
4 cross-examine on the report.
5 MR. WILLMS: Am I going to cross-examine on the report?
6 THE COURT: Yes.
7 MR. WILLMS: I am going to cross-examine on the parts of the
8 report that are properly admitted in evidence, yes.
9 THE COURT: All right. Because it seems to me if you are going
10 to cross-examine on the report, those parts in issue
11 at least were going to go in anyway.
12 MR. WILLMS: And the extracts, my lord, they are not lengthy.
13 THE COURT: All right.
14 MR. WILLMS: But it's -- and perhaps while -- I could usefully
15 outline the areas before I turn to the reference, and
16 it's based on these three points, my lord, the three
17 points are -- this is the first --
18 MS. RUSSELL: Excuse me, my lord, we do have an extra copy of
19 that report, if you want.
20 MS. KOENIGSBERG: We know it by heart, my lord.
21 THE COURT: I have the authorities committed to memory too but
22 it might be useful to be reminded.
23 MR. WILLMS: My lord, three points, in my submission, are clear
24 from the evidence given by this witness on her
25 qualifications. The first is that in the area of the
26 ecology and berry chemistry of food plants, this is
27 the very first report she has ever done, so it's the
28 very first time that she has embarked in this area of
29 investigation. Secondly --
30 THE COURT: No one should ever do anything for the first time?
31 MR. WILLMS: Not in court. That's my submission, my lord, not
32 in court. The second point is that in terms of fire
33 ecology, she acknowledges that there are other people
34 that are experts in the field, that she has done no
35 direct research herself and what she done is
36 essentially a literature review.
37 The third point is the acknowledgement by the
38 witness that anything with respect to aboriginal
39 peoples or aboriginal habits is something that she has
40 read, that she has no background in that area
41 whatsoever and it's with that in mind that I turn and
42 ask your lord to turn to tab 4, which is a decision of
43 the Alberta Court of Appeal, Regina and Anderson. And
44 it's this page, 206, in decision of the Chief Justice
45 of the Court of Appeal, and the issue that arose here
46 was the use by a particular witness to references to
47 textbooks, an expert witness, and the Chief Justice

1 starting at the line, "I agree" part way down page
2 206, said this: "I agree with what my brother Beck
3 has said with reference to the use of textbooks. As
4 all evidence is given under the sanction of an
5 oath..."
6 THE COURT: What tab was that?
7 MR. WILLMS: Tab 4 my lord, page 206:
8 "As all evidence is given under the sanction of
9 an oath or its equivalent it is apparent that
10 textbooks or other treatises as such cannot be
11 given as evidence. The opinion of an eminent
12 author may be, and in many cases is, as a matter
13 of fact, entitled to more weight than that of the
14 sworn witness but the fact is if his opinion is
15 put in the form of a treatise there is no
16 opportunity of questioning and ascertaining
17 whether any expression might be subject to any
18 qualification respecting a particular case. A
19 witness would not be qualified as an expert if
20 his opinions were gained wholly from the opinions
21 of others and the faith that is to be given to
22 the opinion of an author of a treatise must come
23 through the faith in and the witness and the
24 confidence to be placed in the witness' opinion,
25 in theory is not to be derived from the
26 confidence in the author with whose opinion he
27 agrees."
28 " And I just stop there, my lord, and say that in
29 respect forest ecology this witness has already said
30 forest fires, fire ecology, that she spoke to Mr.
31 Parminter, personal communication, she has read some
32 books, she has done no direct research herself and
33 insofar as these three points are inter-related, fire
34 ecology, aboriginal people's and berries, this witness
35 is eminently unqualified to give any opinions or make
36 any statements with respect to those three. And that
37 is the -- somewhere here -- and, my lord, I have
38 outlined the extracts in the report, pages 28, 29, and
39 30, which I say all of those extracts, because of the
40 witness' lack of expertise in the area of anthropology
41 respecting aboriginal actions, in respect of fire
42 ecology, because it's just a literature review, and in
43 respect of the effect on berries, because this is her
44 first report in respect of berries, I say that all of
45 that is inadmissible. It's not just entitled to less
46 weight, it's inadmissible.
47 THE COURT: Thank you. Well, let me ask you this Mr. Willms,

1 with respect to this being the witness' first
2 adventure into a report on berries, you don't suggest,
3 do you, that it becomes inadmissible because it's her
4 first report?
5 MR. WILLMS: My lord, I suggest --
6 THE COURT: Einstein my never have done a report on relativity
7 until very late in his career, but surely that
8 wouldn't prevent his opinion from being received,
9 would it?
10 MR. WILLMS: My lord, that is why I am not objecting to the
11 opinion of the witness on where the berries are and
12 what effects -- you know, where they grow well and
13 don't grow well. That's why I am limiting this to the
14 very narrow issue I have handed up to your lordship.
15 THE COURT: Secondly, because there are other people who may
16 have made fire a sub specialty, surely you're not
17 suggesting that that means that only those people with
18 that kind of highly specialized training could give an
19 opinion on the consequences of fire?
20 MR. WILLMS: Well, that's --
21 THE COURT: If that were so, you would say a general surgeon
22 couldn't give an opinion on a broken bone because an
23 orthopaedic surgeon would have greater skill in broken
24 bones, wouldn't you?
25 MR. WILLMS: I would put it this way, my lord, I would say a
26 general surgeon shouldn't venture in to neurosurgery
27 because he has done some surgery.
28 THE COURT: Lots of general surgeons in British Columbia do
29 neurosurgery when there is no one else available.
30 They would prefer not to but --
31 MR. WILLMS: Well, they may do the surgery, my lord, but I would
32 to them giving evidence about the proper way to do it.
33 THE COURT: Why can't a forester, I don't say that in any
34 pejorative sense, but this witness is trained in
35 matters of forestry, why can't she -- fire is a big
36 part of forestry, why can't she be of assistance in
37 connection with fire?
38 MR. WILLMS: And forestry. But that's -- the portions that I am
39 suggesting that she can't give evidence about is the
40 linking and it's an interwoven linking to what it does
41 over the long run to berries.
42 THE COURT: Well I don't -- doesn't -- it seems to me that that
43 is a matter that would go only to weight, wouldn't it?
44 If it's within her general specialty, surely she can
45 assist me. We are all in relative degrees of
46 knowledge about these things. I worked in a fire
47 crew, but I could certainly be assisted by somebody

1 with more knowledge than that. And it's not something
2 that I have, what is somebody called a habitual --
3 MR. WILLMS: Familiarity.
4 -- familiarity with these things. I am just trying to
5 cut away some of the preliminary bases for your
6 objection. And you say you're only objecting now to
7 the linkage between past and present. You did say it
8 was one of the grounds of your objections was that
9 there were other people that studied fire with greater
10 intensity than the witness has. Are you maintaining
11 that as a ground of objection?
12 MR. WILLMS: My lord, I am maintaining all three of the bases
13 for the single objection. All three of the bases to
14 the objection that there is inter-related on these
15 pages, the three concepts of what fire does to berries
16 and what aboriginal use was made of fire and berries.
17 And it is that opinion, and it's -- in particular it's
18 the "if then" opinion that's on page 12 -- the extract
19 that I handed up to your lordship, they are numbered,
20 there was a much longer document before, but you will
21 see at the top of page 12, the "if fire suppression
22 policies have been responsible, then it's likely that
23 it's caused the decline." Now, all of what precedes
24 leads up to that "if then" proposition, and it's my
25 submission that this witness is unqualified to give
26 that opinion. I mean, there are assumptions made by
27 reading texts, of which the witness has no personal
28 knowledge whatsoever, such as aboriginal use and the
29 references to Turner, fire ecology is from Mr.
30 Parminter over the phone, and the berry and the effect
31 on the berries, there is no direct studies whatsoever.
32 There is a supposition based on no expertise. And, in
33 my submission, that all leads up to that line there,
34 and it's all inter-woven and if that line's gone the
35 rest of the extracts that I have handed up are
36 unnecessary in any event.
37 THE COURT: Well, I am -- I tend to be against you on the
38 question of that sentence, "if fire suppression
39 policies have been responsible for the periodic
40 burning of Gitksan and Wet'suwet'en berry patches,
41 then it is very likely they have caused a decline in
42 the crop production." That seems to me to be a matter
43 within her specialty. It's tentative, or it's
44 hypothetical, if these things have happened, then it's
45 likely something has resulted. Do you say that's not
46 within the expertise of a person who has studied and
47 makes her living out of the study of forests and what

goes on in forests?
MR. WILLMS: Yes, my lord, silviculture, as I understand it, refers to the trees. Yes, I do maintain that.
THE COURT: All right. Well, I don't think I can accede to that objection. I don't think that you can study silviculture without having an understanding of the flora in the forests, what goes on there. It may that be there is on another sub specialty of botany that deals only with the underbrush, but I wouldn't prevent the witness from giving an opinion of that kind. I want to hear, on the question of the connection or early use by both aboriginals and Europeans, but I haven't you, Ms. Koenigsberg?
MS. KOENIGSBERG: My lord, I guess I'd have to say that I think that the issue on the parts that my friend, Mr. Willms, has referred to, stay in the report. In my submission it would go to weight because, in my submission, you're at or near her area of expertise. I do have more difficulty, although I believe it's now been cleared up, I do have a lot more difficulty with comments made throughout the report which are related solely to aboriginal use, trade patterns and so on, because we are not at or near her area of expertise, and I don't believe that the land use practice aspect of her training and her experience, although considerable, has any relationship to historical use or economic use of aboriginal peoples, as it's posited in the report. And that it is inter-woven, unfortunately, in paragraphs which clearly are within her expertise. But I think we now have dealt with them, just to save myself standing again, I think we have dealt with all of those, although I am still checking them off, as now assumptions. And if they are dealt with in that way I don't see the point of carving up the paper.
THE COURT: Thank you. Well, Ms. Mandell, are you content with what Ms. Koenigsberg has said, are these historical matters to be treated as assumptions?
MS. MANDELL: Except the only qualification is with respect to the index, which was set out yesterday where there was reference made there to the Turner and Kuhnlein and the people who influenced the witness' knowledge about the use made by Indian people of these berry species, which is part of the literature that she would consult normally in the land management question of the study area. Certainly with respect to the Gitksan-Wet'suwet'en trade or their economy, I'd say all of

1 that are assumptions.
2 MS. KOENIGSBERG: My lord, maybe I could just respond to that,
3 and I am not ad idem with Ms. Mandell on that, I would
4 say Mr. Willms's objections and the parts of the case
5 are particularly apposite to this area. When an
6 expert witness is not qualified in an area, then the
7 reading of materials by persons who may be or appear
8 to be qualified in an area should not be part of their
9 expert opinion, in my submission.
10 THE COURT: All right. Anything else, Mr. Willms?
11 MR. WILLMS: Nothing further, my lord.
12 THE COURT: Well, as with all of these matters, one has to take
13 authorities with a certain scepticism -- that's
14 probably not the right word -- with care, because the
15 Anderson case was a case where an unfortunate man had
16 been had been found guilty of murder and was about to
17 be executed and, of course, judges are exceedingly
18 careful, in such a case, to ensure that if that
19 indignity is to be carried out that it be done
20 properly. I think that a -- that one cannot become,
21 one cannot put into evidence the opinion of someone
22 else just because he has read it. But if it is in the
23 same area of expertise as the witness, the witness is
24 not required to purge his or her mind of related
25 matters that he or she has acquired from others. And
26 those matters, in my view, go to weight rather than to
27 admissibility, to the extent that the witness has got
28 information solely from another source, by reading it,
29 then that would not be admissible. And I would not
30 give any weight to it. But if it's information that
31 confirms or corroborates or supports what the witness'
32 own investigation and experience tells her, then it
33 seems to me that it's a matter that is of some weight.
34 I think, therefore, that the report may be marked
35 as the next exhibit, which would be Exhibit 802, I
36 believe, but that all the historical matters that are
37 mentioned or those that relate to the early use of
38 these lands, both by aboriginals and by European
39 settlers, are to be deemed as assumptions and not as
40 statements of opinion and not as proof of the facts
41 that are stated as matters of history.
42
43 (EXHIBIT 802: REPORT OF SYBILLE HAEUSSLER)
44
45 THE COURT: Are you ready to cross-examine, Mr. Willms?
46 MS. MANDELL: My lord, if I could be excused?
47 THE COURT: Yes. Have a pleasant trip.

MS. MANDELL: Thank you.

CROSS-EXAMINATION BY MR. WILLMS:

MR. WILLMS: Could Exhibit 358-2 be put before the witness, please? And could you turn to map two, please.

Q Now, this map represents your opinion of the biogeoclimatic land classification in January of 1987?

A No. As I indicated -- as it's indicated on this map, and on my draft it says as of 1985, information obtained from the Forest Service as of 1985, and I think somewhere on this map I requested that they put "boundary subject to change."

Q But, it's 1985 then, not 1987?

A I believe that's the correct time. I can't find the little comment.

Q And this map and the other maps that you prepared, that is maps three through ten, indicate conditions for as far back as the climate remained constant?

A Yeah, I assumed that -- I can't assume -- yes. Yes.

Q So if the climate has changed in the last 100 to 200 years, you don't know whether this biogeoclimatic land classification would have been the same 100 or 200 years ago?

A I think that's very unlikely based on the age of the trees, since 100 or 200 years most of the trees studied for the -- in the sampling were older than that age. So, I am not sure -- that seems -- can you say the question again so I can answer it directly?

Q If the climate has changed in the last 100 or 200 years, you do not know whether this biogeoclimatic land classification is the same as it would have been 100 or 200 years ago?

A If the climate had changed, I wouldn't know if it were the same? That's a rather twisted question. I don't -- I don't think that -- I believe that this classification is relevant to 100 to 200 years ago based on the age of the forests that were sampled to develop the classification. I believe that.

Q You have -- you said -- you described climax forests, and are climax forests the end result of an ecological succession?

A I think -- yes.

Q And when you get to a climax forest it's one of a relatively stable species composition?

A Relatively stable, yes.

Q Now, in the boreal region of British Columbia and the

1 drier parts of central and southern B. C., it's
2 difficult to find forest stands older than 150 years,
3 isn't it?
4 A That's right.
5 Q And in some areas the classification has to be
6 developed primarily with stands that are about 70
7 years old?
8 A About -- it is developed with as mature stands as one
9 can find and I -- I would say for the southern
10 interior those stands were substantially older than 70
11 years, somewhere closer to 150. But --
12 Q Well, I am suggesting that in the areas that I have
13 just mentioned, the boreal regions of British Columbia
14 and the drier parts of the central and southern
15 portion of the province, that most of the stands that
16 have been used in the biogeoclimatic mapping are 70
17 years or older but that's --
18 A Oh, 70 years or older. I thought you said around 70
19 years. They are -- certainly the "or older" part I
20 will agree with.
21 Q How much in the area of map two is older than 150
22 years?
23 A I can't answer that question.
24 Q You don't know?
25 A No. Well, what is older? If you gave me a more
26 specific question I could try to answer it. How much
27 of this map is older than --
28 Q Yes.
29 A You will have to --
30 Q Are there any distinctive portions or any distinctive
31 biogeoclimatic zones in map two that you know is older
32 than 150 years, on average?
33 A The four -- I am sorry, that question can't be
34 answered as it's been asked. You have to say the
35 forest -- where the majority of -- I can't answer that
36 question the way it's asked. It doesn't make sense to
37 me.
38 Q Well, let's go to the Hazelton variant, the ICHg3, is
39 it the case that in that variant climax vegetation is
40 uncommon?
41 A That is true.
42 Q And so not much of the vegetation, not much of the
43 timber in that area is older than 150 years, is it?
44 A Not much. The majority is not. The majority is
45 definitely younger than 150 years, I assume.
46 Q Now, the map that you produced as of January, 1985,
47 that would have been different during the Little Ice

1 Age, wouldn't it, the classification would have been
2 different?
3 A That's right. The Little Ice Age.
4 Q And since the Little Ice Age the climate in the area
5 has warmed, hasn't it?
6 A What do you specifically mean by the Little Ice Age?
7 Q I am referring to the Little Ice Age which extended
8 some say beginning in the 1300s into the 1850s?
9 A I am afraid I haven't studied that subject of the
10 Little Ice Age, the effect of Little Ice Age on
11 northwestern British Columbia.
12 Q You don't know what the effect of the Little Ice Age
13 on that biogeoclimatic map would be, do you?
14 A No, I -- the effects would be very diverse. I can't
15 make a simple answer to that. If you would give me a
16 specific example perhaps I could -- I could give you
17 an answer.
18 Q What I suggest is that this map is a snapshot of
19 around 1985?
20 A That is correct.
21 Q But that it's not much use in going back, even as far
22 as the Little Ice Age?
23 MR. GRANT: Well, what my friend has indicated that it appeared
24 from the Little Ice Age, 1300 to 1850, I think it's
25 unfair for him to ask the witness as far as the Little
26 Ice Age, unless he tells here what region -- if he is
27 going to 1850 to 1300, I think those are relevant
28 dates. My recollection is that the evidence -- I
29 don't recall it going back as far as 1300. But he has
30 given those dates here to this witness and I think he
31 should tell here what dates he is referring to.
32 THE COURT: I think one of the other experts agreed with that.
33 MR. GRANT: 1300? In my mind, it was a different date but
34 that's fine.
35 MR. WILLMS: 1300, I believe.
36 Q Well, let's just go back to the end of the Little Ice
37 Age, obviously the climate has warmed since then,
38 hasn't it?
39 A I wouldn't want to say yes or no for the entire study
40 area. That's not an area of my expertise.
41 Q Do you know what the regional climate has done in the
42 study area over the last 200 years?
43 A No, I do not.
44 Q Now, biogeoclimatic mapping uses vegetation and
45 geology to predict areas of common climate; is that
46 right?
47 A Say that again?

1 Q Biogeoclimatic mapping uses vegetation and -- maybe I
2 am wrong, maybe it's geography -- to predict areas of
3 common climate?
4 A That is not -- no, it's sort of the other way around.
5 Climatic soils or geological and vegetation
6 information is used as the base for mapping areas of
7 similar ecosystems. So that the climate is part of
8 the data base. You don't predict climate.
9 Q I am showing you what are some extracts from
10 Biogeoclimatic Ecosystem Classification in British
11 Columbia by Mr. Pojar and Mr. Klinka and Mr.
12 Meidinger; you referred to and relied on this in
13 preparing your report?
14 A No, as I said, this was published after -- I used
15 Pojar 1983 in the preparation of any report. I have
16 since read this, however. I have looked it over. I
17 am familiar with this publication.
18 Q This publication was forwarded to us from your files,
19 this is something that you reviewed before giving
20 evidence in this case today?
21 A I have seen it, yes. I guess I can say I reviewed it.
22 Q If you turn to page eight, I am in -- under 4.1,
23 Synopsis, and the report says: "To show relationships
24 among ecosystems in form, space and time, the BEC
25 system..." and that's the Biogeoclimatic Ecosystem
26 Classification, do you recognize that?
27 A That's right.
28 Q Is that the system you used?
29 A That is the system I used.
30 Q "...organizes the ecosystems at local, regional and
31 chronological levels." You agree with that?
32 A That's right.
33 Q "The purpose of the local level of integration is to
34 organize ecosystems according to similarities and
35 composition and structure of their vegetation and
36 sites." Do you agree with that?
37 A Yes, I agree with that.
38 Q "This is done by vegetation and site classifications
39 producing vegetation and site units." You accept
40 that?
41 A I accept that.
42 Q "The purpose of the regional level of integration is
43 to organize ecosystems according to similarities in
44 their distribution in a vegetation-inferred climatic
45 space." Do you agree with that?
46 A A bit hard to understand.
47 Q Well, do you agree with that?

1 A I agree with that, this is a description of the
2 classification, yes.
3 Q And if I am wrong, doesn't this mean that you look at
4 the vegetation to infer areas of common climate?
5 A To a degree, you do. That isn't what you originally
6 asked me. You asked me whether you used vegetation
7 and soils to predict climate and I said no, that's not
8 what you do in the classification. You use
9 information -- do you understand the difference? I
10 think there is a distinction there. It's not the
11 purpose of the classification to predict climate. The
12 purpose it is to classify or group similar ecosystems,
13 based on their vegetation, their soils and their
14 climate. I see quite a distinction between those two
15 points.
16 Q Well, correct me if I am wrong, but are you -- is
17 there enough climatic data available to tell you from
18 the climatic data alone, the areas of common climate?
19 A No, the climatic stations are spaced widely apart and
20 one has to make some assumptions about or interpolate
21 to some degree, yes.
22 Q And isn't it one of the methods of interpolating
23 between climatic stations the vegetation that exists?
24 A Yes, I agree with that.
25 Q So that what I am suggesting is that you are using,
26 because you have knowledge of the vegetation of the
27 area, you're using that vegetation to predict areas of
28 common climate?
29 A I -- okay. I disagree with your use of the word
30 predict, and when you say "predict climate" I see
31 something like because hemlock grows here and here the
32 mean number of degree days is 2002, and because
33 hemlock grows there, there the mean number of degree
34 days shall be 202 or something like that. No one ever
35 does with the biogeoclimatic classification and that
36 is what you seem to be saying by "predicting" climate.
37 What you do is you infer that the ecosystem
38 characteristics in that area are similar to any other
39 area simply because the vegetation and the soils are
40 the same because your climatic data support the fact
41 and the information you have on climate supports that
42 as well.
43 Q All right.
44 A Based --
45 Q Maybe if I just explain what I mean by predict. If
46 you have got a climatic data control area at point A
47 and a climatic control data at point B, and you have

similar vegetation between A and B and you have similar geology between A and B, you then assume or infer that the climate between A and B is the same?

A You infer -- it's up to the climatologists to make predictions about the climate, when it gets specifically climatic data. And the climatologists are working on the subject. The people doing the biogeoclimatic classification, when it -- they would, in a general sense, make that kind of an inference, however they wouldn't go so for as to predict climate I don't think. I don't -- I am not really comfortable with that suggestion.

THE COURT: What are you mapping in biogeoclimatic mapping?

A You are mapping ecosystems and an ecosystem is an expression of the complete environment, including the vegetation and soils and so on. And it's quite different to me than to be predicting, predicting climate, which is sort of narrow when you think of quantifying certain parameters, such as temperature, precipitation, evapotranspiration and all that. I am just not comfortable with that statement and I would prefer to state it the way I stated it.

MR. WILLMS:

Q Could you turn to page 15 of the classification document and down to the paragraph, the second paragraph on the left hand column "The zonal classification follows", do you have that paragraph?

A Yes.

Q You will see that starting with the second line the report says: "However, because of problems with climatic data and analysis, zonal" and then there is a parenthesis "(climatic climax) plant associations are used to provide a link between regional climate and ecosystems."

A Yes.

Q You agree with that?

A I agree with that.

Q "And this linkage results from the application of the zonal concept (originally part of the Russian tradition of vegetation and soil classification) to that of the biotic area of vegetation zone."

A "Or vegetation zone."

Q Now, the last sentence: "The resulting biogeoclimatic units define large geographical areas with similar climate and further stratify the original vegetation units into climatically consistent classes." All right?

A Yes.
Q Now, what I am suggesting to you is that what you have done in your biogeoclimatic map, is taken from the ministry of forests, some detailed analysis of the vegetation that is there; is that right?
A Vegetation, soils and topographic information.
Q Soils and topographic information?
A The climatic data are also taken, not at the site but the data are looked at.
Q The climatic data is pretty scanty for most of that area?
A Have you seen -- pretty scanty? In some areas it's quite extensive, there have been quite extensive field stations, short-term stations have been done.
Q Let's use the word short-term, it's pretty short-term?
A It is.
Q In terms of climate assessment; is that right?
A It is.
Q In fact, it's mostly in the 1900s, 1920 and on in most of this area that climatic data has been recorded?
A That's true.
Q So that what you are doing here is you're relying primarily on vegetation, soils, and some climatic data to, in effect, fill out whole zones of similar, what you call biogeoclimatic units?
A That's right.
Q Was there a late migration of cedar into the ICHg3?
A That's not my area of expertise. I can't answer that question.
Q Now, if you could just turn for a moment to map three, this is still the soapberry map, in the upper right hand corner you have got the symbols "abundant, common, uncommon and uncommon to rare." And I think you said in your evidence in chief that you don't know what density of berry to area is in the common area, for example?
A No, I don't, I am not quantifying it.
Q You're just saying that it's kind of like less, there is less and more sort of a range for the middle range in there?
A Yes, I could -- yes.
Q And in respect of each of the species that you have mapped, the same comment applies, it's a sort of a less to more rather than there is this much here or this much there?
A I agree with that.
Q What papers or articles have you written prior to

1 being retained to give evidence in this case in
2 respect of any of the berry species that you
3 investigated here?
4 A Okay, the vaccinium membranacium, the vaccinium
5 avalifolium alaskaese --
6 THE COURT: You are going to to have spell those for the
7 reporter.
8 A I can use the common names. Oval leaf blueberry, black
9 huckleberry, Alaska blueberry and high bush cranberry,
10 I was author of two publications put out by the
11 ministry of forests on the -- one was a comprehensive
12 literary review on those species, their otocological
13 characteristics and the second one was a summary of
14 the field knowledge and personal knowledge of
15 silviculture combined with literature to produce a
16 handbook on the response of those species to
17 silvicultural treatments.
18 Q Is one of them the report you did in 1986?
19 A It's published in '86, yes. The Haeussler/Coates and
20 Coates/Haeussler.
21 Q Those are the two?
22 A Those are the two.
23 Q And you have cited one of them, the Haeussler and
24 Coates?
25 A I think they are both in my CV. I didn't cite the
26 Coates and Haeussler in the report, because similar
27 information were in the two reports and for the
28 citations that I used it wasn't necessary.
29 Q So is it fair to say you were working on that
30 contemporaneous with your work on this?
31 A It was prior to. I had completed both of those
32 projects before I took on this project.
33 MR. GRANT: I think they are both cited at page four of the CV.
34 It's 800.
35 MR. WILLMS: Oh, the CV. I was looking at her report.
36 Q Now, turning back to map two, that was based on
37 ministry of forests data and personal communications?
38 A And personal experience. And we went over what the
39 information was based on. Map two, I am sorry, I
40 thought we were talking about map three. Can you ask
41 the question again?
42 Q Map two, I think you said it was based on ministry of
43 forests data and personal communications in some
44 instances?
45 A Yes, and I failed to mention that when I worked for
46 the ministry of environment I transferred a lot of the
47 ministry of forests' information on to a -- I am sorry

1 I didn't mention this earlier but I am not sure it
2 makes a lot of difference -- when I worked for the
3 ministry of environment I transferred a lot of
4 ministry of forests information on to a map scale of
5 one to 250,000 and I used those base maps extensively
6 in this preparation of this particular one. But it's
7 the same information, it just got transferred to a
8 variety of different scales and to different base
9 maps.
10 Q Who else did you have personal communications with in
11 order to prepare that map?
12 A Jim Kojar, ministry of forests in Smithers -- I am --
13 I had a lot of personal communications during that
14 period in relation to the berries and the mapping and
15 I can't remember exactly who I spoke to on which
16 topic.
17 Q I am just dealing with map two now.
18 A I know you are. And I indicated in my report, and
19 also in the letter, about the people I spoke to and I
20 could list them again for you but I couldn't at this
21 point say whether when I was talking to a specific
22 person, whether we discussed the map and the berries
23 or just the berries. And two of the people I
24 indicated -- I know I talked to Ray Coupe about the
25 classification in this area here and I talk to Craig
26 Delong in the classification in this area and the lack
27 of classification in this area, and I talked to Jim
28 Pojar quite a bit about the mapping. I can't remember
29 all of the people. But I do have them written down in
30 various places. And I just don't remember the events
31 that well.
32 Q Could you put Exhibit 796 --
33 MR. WILLMS: My lord, I will take two minutes and then I will
34 move on to a different topic.
35 THE COURT: Well, it's time to adjourn but if you --
36 MR. WILLMS: I have two questions, my lord, and that's all.
37 THE COURT: Exhibit 796?
38 MR. WILLMS: Exhibit 796.
39 Q Did you prepare this map?
40 A Yes, this is the map I prepared.
41 Q Did you prepare everything on that map?
42 MR. GRANT: I think some of this was printed out.
43 A I am not -- I am trying to remember, I didn't do this
44 handwriting on the corner. I am not sure to
45 with|were} what detail. I don't know about these
46 purple -- these red lines, things like that, is that
47 what you're getting at?

MR. WILLMS:
Q Let's flip this up, is all of the line drawing and all of the colouring on this map, was that all prepared by you?
A I assume so. I haven't examined it really carefully to make sure nobody has adjusted it but I would take this as my work here.
Q And what about the overleaf biogeoclimatic units of northwestern British Columbia?
A That legend, yes, I prepared that but there is some marking on there that wasn't done by me.
Q When you say here under sub boreal spruce zone, boundaries under review, what do you mean by that?
A This process of classification is ongoing and the names of the sub zones change and that's why I tried to say the map was prepared as of 1985, because a classification is -- it's not an absolute -- you group things that are most similar and a year later you might decide well, I would prefer to put this particular valley with that one or I will change the name of this unit or I will subdivide this unit and create another variant, and this is going on all the time. You can't ever have the final version of the map, okay?
MR. WILLMS: Yes. This would be an appropriate time.
THE COURT: All right. You're not going to finish in afternoon, are you, Mr. Willms?
MR. WILLMS: Yes, I will.
THE COURT: You think you will? What have we got do tomorrow? How long will that argument take?
MR. GRANT: Mr. Mackenzie and myself would have anticipated it would be a total of 40 minutes and I asked -- and then there is another half hour, housekeeping, we call it housekeeping, including schedule discussion and other matters we wish to raise.
THE COURT: How much pressure will you be under this afternoon to finish?
MR. WILLMS: Not much, my lord.
THE COURT: Well, I have -- I am running very late for a lot of other things today. Could we come back at quarter after two then? And, if necessary, I am happy to sit later this afternoon.
MR. GRANT: I have indicated to Mr. Willms we may ask you that for the witness but see how we are then.
THE COURT: In view of what Mr. Willms says it sounds like we can finish this afternoon.
MR. GRANT: Ms. Koenigsberg might have something to say.

MS. KOENIGSBERG: I do have cross-examination. I don't anticipate it will be very lengthy.
THE COURT: All right. 2:15 please.

I hereby certify the foregoing to be a true and accurate transcript of the proceedings herein to the best of my skill and ability.

Wilf Roy
Official Reporter

(PROCEEDINGS RESUMED PURSUANT TO LUNCHEON ADJOURNMENT)

THE COURT: All right. Mr. Willms.

CROSS-EXAMINATION BY MR. WILLMS:

Q Ms. Haeussler, do you have Exhibit 802, your report? Would you turn in that report to page 30, please. And in that report you refer at the end of the second paragraph to J. Parminter, personal communication August, 1985. I am showing you two pages of a document that was forwarded to us by your counsel. Are those your notes of that personal communication with Mr. Parminter?

A Yes, they are.

MR. WILLMS: My lord, could that be Exhibit 784-26, please.

THE REGISTRAR: 784-26.

(EXHIBIT 784-26: Tab 26. B.C. Cross Exam Bood, Copy of Handnotes by S. Haeussler re conversation with J. Parminter)

MR. WILLMS:

Q Are all of the -- is all of the handwriting on these two pages yours?

A It is.

Q Down near the bottom you have a note, "some thoughts" and then "Fort Nelson" adjacent to it? Do you see that?

A That's right.

Q Are these your thoughts or were these Mr. Parminter's thoughts?

A I don't recall right -- can I read them over?

Q Please do.

A I believe those are his. I wouldn't be a hundred per cent certain. If they are his, then they would be after the conversation some things that I wrote down as a result of the conversation.

Q All right. Just on the -- you say:

> "In the north fire suppression did not come into effect in any significant way until the mid 1960s"?

A That's right.

Q Is that from your own observations as well?

A No. This is the Fort Nelson T.S.A. And I don't have observations from that area.

THE COURT: T.S.A., timber sale area?

A Timber supply area.
THE COURT: And when you are talking about the north, are you talking about Fort Nelson north or the rest of British Columbia north?
A We were discussing his research onto the fire history of the Fort Nelson T.S.A.
MR. WILLMS:
Q But that's what you were referring to, though, in your report, wasn't it, at page 30, the personal communication?
A I was -- he was -- we were talking in general in that personal communication. That is a general statement. That doesn't refer specifically to the Fort Nelson T.S.A.
Q Well, just referring to the area of Map 2, would you agree that fire -- and I am just reading on "some thoughts, Fort Nelson." Would you agree fire suppression is mainly effective on small fires in accessible areas?
A We are speaking here of the north, the Fort Nelson T.S.A., and I would agree with that statement, mainly effective.
Q Okay. And I am asking about Map 2 now.
A Oh, the whole area of Map 2?
Q Yes.
A I don't think that these comments relate to the whole area of Map 2.
Q No, I am asking for your own opinion.
A My own opinion, no, it would be quite -- the situation would be quite different in the central area where it's more accessible. It's quite a different situation. Small fires in accessible areas. There is much more concerted effort to suppress fires in these -- in the more central portion of the study area, because it -- and it is more accessible. These statements do relate to the Fort Nelson area.
Q All right. Well, what I am getting at is are they only related to Fort Nelson or do they relate to the Map 2 area as well?
A They don't apply over the whole area, no. I don't think that the comment "fire suppression is mainly effective on small fires in accessible areas," no. Fire suppression takes place on large fires in accessible areas and in small fires in not so accessible areas. So no, that statement isn't truly -- I wouldn't think that statement was completely applicable to all of the area of Map 2.

1 Q Now, what about down -- you have got "in more remote
2 areas fires" and then what is that, "generally -- "?
3 A "Generally a lightning cause." I made a spelling
4 mistake on lightning.
5 Q
6 "And in most areas fires generally lightning
7 caused become so large by the time they are
8 detected that little control can be achieved and
9 they are basically natural."
10
11 Now, does that apply to any of the Map 2 area?
12 A I was speaking here about the north, the boreal
13 forest, and we did discuss that earlier today when I
14 was asked whether in any of these areas have something
15 that approximates a natural fire regime, and I said
16 that up in the north meant that the fire suppression
17 efforts aren't as intense as for the south. I think
18 that kind of a comment would apply to the boreal
19 forest area well away from the highways where there
20 wasn't a lot of valuable property and so on that
21 wanted to be protected.
22 Q Now, what other fire research did you rely on in
23 coming to your conclusions about the map area?
24 Something in addition to Mr. Parminter that you have
25 cited there?
26 A Which conclusions are those?
27 Q Well, at the end of that long paragraph -- that
28 paragraph on the impact of fire suppression, you cite
29 J. Parminter personal communication, August 1985.
30 A Yeah. This statement:
31
32 "In an area where the fire cycle is on the order
33 of 300 years the effects of 50 years of fire
34 exclusion are minimal, whereas in stands with a
35 history of understory fires at least every decade,
36 the effects of a similar period of fire
37 exclusion -- "
38
39 THE COURT: I am sorry.
40 A "-- would be much more evident."
41 THE COURT: I am sorry, witness, the reporter can't possibly
42 take it down.
43 A I am sorry. I will slow down. That sentence, would
44 you like me to repeat that?
45 THE COURT: Yes, you will have to do that, please.
46 A
47 "In an area where the fire cycle is on the order

1 of 300 years the effects of 50 years of fire
2 exclusion are minimal, whereas in stands where the
3 history of understory fires at least every decade,
4 the effects of a similar period of fire exclusion
5 would be much more evident."
6
7 That is something he told me over the phone.
8 MR. WILLMS:
9 Q And you wrote it down?
10 A No, I did not.
11 Q Oh.
12 A At least I don't see it anywhere on here and these are
13 the only notes that I have relating to that
14 conversation.
15 Q All right. Did you put anything that you have written
16 down here in your report?
17 A I am not -- I don't -- not totally familiar with
18 what's on here and I would have to look this over
19 carefully to determine that.
20 Q Well, please read both pages.
21 MR. GRANT: While she is doing that, my lord, I may have missed
22 something, but my friend indicated that this would be
23 Exhibit 784-26. Is there a sub A? I don't have a
24 784-25.
25 THE REGISTRAR: 784-25.
26 THE COURT: 784-25, that is Mr. Hatler's prospectives on the
27 inventory of caribou.
28 MR. GRANT: Okay. It's not in in book. That's fine.
29 A There is several things in these two pages of notes
30 that do appear in our -- related to somehow in my
31 report, but I can't tell you -- I think one of the
32 comments is not taken directly from the phone
33 conversation. I am not certain.
34 MR. WILLMS:
35 Q Well, let's carry on with the "some thoughts" in the
36 Map 2 area. Are there -- and I am down to the line:
37
38 "There are some in between fires --"
39
40 I am on the exhibit on your note. You have got that?
41 A Yes.
42 Q Yes.
43
44 "-- lightning caused fires in accessible locations
45 where suppression has some effect."
46
47 Am I reading that right?

A Yeah.

"There are some in between fires, for example, lightning caused fires in accessible locations where suppression does have some effect."

Q Does that apply to the Map 2 area?
A That would -- I -- I think those general comments that relate to the Fort Nelson T.S.A. would include this northern part of the map area. Those kind of general statements probably do apply in this area. The boreal or the area that I referred to as the north ecoregion.
Q And then you have got a note:

"In addition prescribed fire is widely used for grazing wildlife and domestic stock. This has gone on for a long time in certain locations."

And then what valley is that?
A Kechika.
Q Where is that?
A It's -- I think it might be right off the edge of this map. It's -- I think it's just out here.
THE COURT: K-e-c-h-i-k-a?
A That's right.
MR. GRANT: The witness was indicating just on the second area of the second column of typescript at the bottom of that was where she was indicating on the map.
THE COURT: Oh. All right.
MR. WILLMS:
Q Does that have application in the Map 2 area?
A I believe that -- this is something that I am not familiar with, the prescribed burning practices in -- over near Fort Nelson. And I believe it's much more widespread. There is some prescribed burning for the guide outfitters, and I believe that it's much more widespread in that area further east. But I couldn't say for sure.
Q Is there any prescribed burning whatsoever in the claims area?
A Certainly there is prescribed burning in the claims area.
Q For wildlife and domestic stock?
A For wildlife, I wouldn't want to say for -- I believe -- yeah, I think there is for domestic stock and there is other types of prescribed burning as well.

THE COURT: Where is the Kechika valley, please?
A I believe it's just to the east of the map area.
THE COURT: In the central region? All right.
A Do you know where it is? I think right here.
MR. GRANT: Okay. The witness is pointing in the area of where the northern Wet'suwet'en territories' triangle is, so it's around the third column.
A What I mean is it's off the edge -- off the map over here. If we had a map of British Columbia I could find it for you.
THE COURT: It's all right. It's just off the east edge of the --
A I don't -- I'm not a hundred per cent certain on that. I would rather see a map. But that's where I believe it is. It's definitely in the Fort Nelson T.S.A.
THE COURT: In the Fort Nelson T.S.A.?
A Or I believe it's in Fort Nelson T.S.A.
THE COURT: The east edge of this map is a long way from the Fort Nelson T.S.A., isn't it?
A It gets close, in the top, in the far right, does it not?
THE COURT: Well, maybe at the top, but the central part you are a long way from Prince George.
A Yeah. The discussion was relating to a study that he had done in the Fort Nelson T.S.A. in the boreal forest.
THE COURT: All right.
A These particular notes.
MR. WILLMS:
Q Now, I am finished with that exhibit, but can you keep Exhibit 802 and turn to page 21. And from page 21 on to page 51 is a portion of the report that you actually did. Your report goes from page 52 on through 88?
A That's right.
Q All right. And I am showing you here I believe what is -- and this is provided by your counsel, a draft of what is chapter two, the first draft of what is chapter two of Exhibit 802. Can you just take a look at that and confirm that?
A That's right.
MR. WILLMS: All right. My lord, Exhibit 784-27.

(EXHIBIT 784-27: Tab 27, B.C. Cross Exam Book, First Draft of April 1986 from Ex. 802 - S. Haeussler Report)

1 MR. WILLMS: And I'll just -- I want to put a few documents
2 together, so maybe I'll put the next document to you
3 and you can keep those separate, my lord. Just for
4 the time being, from the three-ring binder.
5 Q I am showing you a letter dated December 9, 1985 from
6 Mr. Overstall to yourself. Is that a letter that
7 refers to this draft that has "October 1985" printed
8 and then a line with "revised April '86" written in on
9 it?
10 A I imagine -- yeah. I think so.
11 MR. WILLMS: All right. Could that letter be Exhibit 784-28,
12 my lord.
13
14 (EXHIBIT 784-28: Tab 28, B.C. Cross Exam Book, Letter
15 dated Dec. 9, 1985 to S. Haeussler from R. Overstall)
16
17 THE COURT: Yes.
18 MR. WILLMS:
19 Q And Ms. Haeussler, what you did after you received the
20 letter which is marked 784-28, you revised your report
21 and have a copy dated May 1986?
22 A That's right.
23 MR. WILLMS: And can that be Exhibit 784-29, my lord.
24 THE COURT: I am sorry, this is a revision of 784-27 or of 802?
25 MR. WILLMS: It's a revision of 784-27.
26 THE COURT: So that will be 784-29 then.
27 THE REGISTRAR: Yes.
28
29 (EXHIBIT 784-29: Tab 29, B.C. Cross Exam Book, Second
30 Draft of May 1986 of Ex. 802, S. Haeussler Report)
31
32 MR. WILLMS: My lord, I might make it clear that the original
33 report had some Roman numeral pages at the beginning
34 which are not in the exhibit that has been marked by
35 my friends, and it also had some pages after the end
36 of the discussion of the berries, and these drafts
37 that I have put forward to the witness here, the
38 portions that have been excluded in the ultimate
39 report, I haven't put in these drafts. The drafts are
40 longer just as the report was longer as well.
41 THE COURT: Yes.
42 MR. WILLMS: Now --
43 MR. GRANT: Just to be clear, my lord, we delivered, of course,
44 all of the drafts, the section that's excised as well
45 it's been delivered to my friends.
46 THE COURT: I assumed that.
47 MR. GRANT: Yes.

MR. WILLMS: Yes.
Q Now, if you can turn to page --
THE COURT: Well, one thing I don't know is when were the drafts delivered? With the report?
MR. GRANT: No. What happened was this report of Ms. Haeussler was delivered in February 1987 by my friend.
THE COURT: That's the 802?
MR. GRANT: 802, in the entirety of 802.
THE COURT: In February '87?
MR. GRANT: February of 1987.
THE COURT: Yes.
MR. GRANT: And then what happened is a basically as you recall Miss Mandell was dealing with the question of disclosure of the argument that you ruled on last week. But when the drafts came to counsel's attention that these drafts existed, they were dealt with in the same manner as other documents, that is they were delivered ahead of that ruling.
THE COURT: Right.
MR. GRANT: Because we became aware that they were extant drafts.
THE COURT: All right.
MR. WILLMS:
Q Now, if you can turn at the same time in these three drafts, starting in 784-27, which is the draft, could you turn to page 3. Sorry, it's your first draft.
A Oh.
Q If you can turn to page three of your first draft.
A This one.
Q That's the draft that has the date "revised April 1986" written on it. If you could turn at the same time in the letter, to page two of the letter, and then turn in the second draft to page three, that is 784-29. Now, you will see that in Exhibit 784-27 you ended the third paragraph with the statement:

> "Not coincidentally the Gitksan and the Nishga who occupy these transitional areas have a culture and native economy that is transitional between that of typical Coastal and Interior Indian groups."

And you cited Turner. Do you see that?
A That's right.
Q And then on page two of Mr. Overstall's letter to you, which is Exhibit 784-28, you'll see the note under P.3, para 3, last sentence in his letter to you?
A That's right.

Q And he says this statement:

> "Nishga and Gitksan culture is too simplistic and may contradict other evidence we will be presenting."

The sentence should be omitted. Do you see that?
A Yes.
Q And in fact, on the second draft, 784-29, that reference and the reference to Turner has been deleted, hasn't it?
A That's right.
Q And in your ultimate report, Exhibit 802, that reference to Turner isn't there, is it?
A No, I don't believe it is.
Q You deleted the reference to Turner because Mr. Overstall told you to?
A He asked me to and, yes, I did.
Q However, you left other references to Turner in your report, didn't you?
A I did. Those were relating to native use of the berries. This is relating to some cultural and native economy. And that -- I felt that was -- I thought that was a fair comment that it was rather simplistic and since it wasn't an area that I felt -- well, this was a quote that I found and I thought it was useful in this report, but I agreed with Richard that it was a bit simplistic and so I took it out.
Q Well, perhaps you could turn in Exhibit 803 -- sorry, 802.

MR. GRANT: Can you give which one that is to the witness.
MR. WILLMS:
Q Exhibit 802 is your report.
THE REGISTRAR: Tab 2.
MR. WILLMS:
Q Tab 2.
A Uh-huh.
Q Page 21. Now, you have left in there, and I am after the words, "Eight-berry producing shrubs," you have got a discussion in there ending with the documentation in the ethnobotanical literature of British Columbia?
A Uh-huh.
Q And you refer to the table below?
A That's right.
Q Which includes Turner?
A That's right.

1 Q And part of your discussion there from Turner is trade
2 goods in that paragraph? I mean you got that from
3 Turner, didn't you?
4 A Pardon me? I am not following. Which paragraph?
5 Q Well, the assumption here in paragraph one.
6 A This part, I felt that this was -- in my terms of
7 reference that were given to me before I began the
8 study, these kind of statements were made and those
9 were assumptions that I made which were supported by
10 the -- by this information here, but those are
11 primarily assumptions that were given to me.
12 Q And so these assumptions were given to you, the
13 assumption that you made about the transitional
14 between Coast and Interior that you took out was an
15 assumption that you made? It wasn't given to you?
16 A No, that wasn't given to me. I was -- in reviewing
17 the literature on this topic I came across this
18 discussion by Turner of the transitional zone and I
19 thought that was interesting, so I put it in. And
20 it -- it was not something that was part of the terms
21 of reference I was given.
22 Q So the terms of reference that you have got in here as
23 your underlying assumptions were the ones that Mr.
24 Overstall agreed with?
25 MR. GRANT: Wait. Wait. Wait. My friend is combining about
26 three different kind of concepts here, I think.
27 First, what Mr. Overstall gave the witness. Second,
28 what her terms of reference are and third, what her
29 assumptions were. And I think that the combination of
30 assumptions and terms of reference is apples and
31 oranges.
32 THE COURT: I don't think I need to rule on that.
33 MR. GRANT: I think my friend can rephrase it.
34 THE COURT: Mr. Willms can put another question and avoid
35 whatever difficulty there is, if any.
36 MR. WILLMS:
37 Q Who was it that gave you your terms of reference?
38 A Richard Overstall.
39 Q All right. And the references to the aboriginal
40 references --
41 A In this first paragraph.
42 Q On page 21?
43 A Uh-huh.
44 Q Of Exhibit 802?
45 A Yes.
46 Q Those were given to you by Mr. Overstall?
47 A The -- I'm -- I want to make this perfectly clear.

1 You are not just speaking of these references in the
2 table. You are speaking of --
3 Q No.
4 A -- the sentence:
5
6 "These plant species were chosen for study
7 because of the importance of their berries to the
8 aboriginal economy of northwestern B.C. The
9 berries were capable of being preserved and
10 were especially important as a source of nutrition
11 during the winter and early spring months."
12
13 Those are assumptions that I made based on the terms
14 of reference and discussions I had with Richard
15 Overstall prior to beginning the study. And there has
16 also been much discussion of their use as trade goods.
17 That is also -- that should be included with that
18 previous comment.
19 Q On the last page of the letter from Mr. Overstall to
20 you, 784-28, Mr. Overstall -- and it's page six. Do
21 you see the page numbers are at the bottom? Mr.
22 Overstall says he's going to assemble some 19th
23 century documents describing pre-industrial vegetation
24 of the region. Did he do that for you?
25 A He did send along some large quantities of reports
26 from early explorers and things.
27 Q All right. And did he send you other reference
28 material for you to review as well?
29 A He from time to time sent me papers that he thought
30 would interest me. And I -- yes, I think -- I recall
31 one on aboriginal burning in Australia. I think that
32 would have been about it aside from this historical
33 material.
34 MR. WILLMS: Now, my lord, I'm -- it may help to clean up a bit
35 if the 784-27 and 28 can be put away. I am going to
36 refer to 784-29.
37 THE COURT: All right.
38 MR. WILLMS:
39 Q And just referring to that, you sent the revised
40 report that's dated May 1986 to Mr. Overstall?
41 A I believe so. I can't remember.
42 Q And I'm showing you a letter dated January 15, 1987,
43 and this is a letter -- you will see Mr. Overstall
44 refers to in paragraph one, "incorporate the
45 ecological classification paper into the main May 1986
46 report." And he's referring there to the report we
47 have marked 784-29, is that right?

A Which report is which? Which report is which?
Q Yeah. When he says "incorporate the ecological classification paper into the main May 1986 report," that is this report you have in front of you right now.
A That's the main May 1986 report.
MR. WILLMS: And that's the report that's been marked 784-29. And, my lord, I would ask that this letter be marked 784-30.

(EXHIBIT 784-30: Tab 30 B.C. Cross Exam Book. Letter dated January 15, 1987 from R. Overstall to S. Haeussler)

THE COURT: Thank you.
MR. WILLMS:
Q Now, in the 784-30 you did incorporate some of these suggestions. For example, you had another draft paper which you incorporated into Exhibit 802 as chapter one?
A That's right.
Q And just referring to Exhibit 784-29, you'll see, and I am just skipping item two, the berry sampling. That's not in your report any more?
A No.
Q Not the one marked in court?
A No, it's no longer in there.
Q Now, item three he said, "omit descriptions of rise root and axe," and you'll see in 784-29 you have got on pages 39, 40 and 41 a description of rise root and axe and you've omitted them in the final?
A That's right.
Q Did Mr. Overstall tell you why --
MR. GRANT: Just a second. What pages did you refer to?
MR. WILLMS:
Q I referred to pages 39, 40 and 41 of Exhibit 784-29.
A Okay.
Q All right. You did you omitted them?
A I did.
Q Did Mr. Overstall tell you why to admit them?
A In this letter he says this focuses the report on the biogeoclimatic zones and the berries. So it restricted it strictly to berries. And I assume that's the reason.
Q There is a reference in the letter 784-30, the letter January 15 to a copy of your ecological classification paper with comments from Jim Pojar. Were the comments

1 written on the paper or were they separate?
2 A I am sure I don't remember. Maybe both.
3 Q All right.
4 A You have to show me specifically what --
5 Q Well, I am at a loss, I am sorry, because I don't have
6 a copy of any comments from Jim Pojar, nor a marked-up
7 draft by anybody.
8 A Well, I --
9 Q So --
10 A I submitted everything in my file.
11 Q You don't recall?
12 A I have -- I have a letter -- okay. The question was
13 did he mark on the paper or -- he wrote -- there was a
14 letter and I am trying to remember if there were
15 comments on the paper. I am pretty sure there were
16 comments on the paper. A little bit with red ink or
17 something.
18 Q All right. And it also says, "together with a few
19 from myself." From Mr. Overstall. Did he write a
20 separate document too?
21 A I don't remember which -- there was a lot of going
22 back and forth. Is it in this letter?
23 Q Yes. I am just reading from --
24 A Right at beginning.
25 Q -- the very beginning.
26 A Okay. I am -- "I enclose a copy -- " okay. The
27 comments from Richard were probably in the text of the
28 report.
29 Q Written on the draft?
30 A I presume so, yeah. I think I remember -- I think I
31 remember the ones that Jim wrote on, but I don't
32 recall specifically Richard's comments.
33 Q All right.
34 A But I -- they are probably written on the draft.
35 Q Did you keep the draft?
36 A There were a lot of drafts. You didn't get a copy of
37 the draft. I assume then that I threw it away. I
38 gave them everything that I had. There were a lot of
39 drafts and I don't know which was which.
40 Q All right. And you don't have any of your file left?
41 A I gave everything on the topic -- I brought all my
42 drafts down and gave them to the lawyers. There is --
43 it's very likely that I threw some away because there
44 were numerous copies of the same thing and I moved
45 several times, so I whittled things down.
46 Q Now, just referring to Exhibit 802 and Exhibit 784 at
47 the same time and I am on page 21 of Exhibit 802.

1 THE COURT: 21?
2 MR. WILLMS: 21, my lord.
3 THE COURT: Yes.
4 MR. WILLMS:
5 Q And page one of Exhibit 784-29.
6 A This one?
7 Q Yes. Page one, yeah. Got it. Now, you'll see if you
8 start reading at the top of page 21 of Exhibit 802 it
9 starts "Eight-berry producing shrubs."
10 A Right.
11 Q And that's the middle paragraph in your draft?
12 A That's right.
13 Q All right. Why did you take the first paragraph out?
14 A Because it was no longer the introduction and I moved
15 the introduction to the beginning of the report. The
16 objectives of the study are. And I believe they are
17 now in the front of the report. Is that true?
18 Q Well, I have --
19 A Or -- do we have the complete report? There is so
20 many reports.
21 MR. GRANT: My understanding, my lord, is that the introduction
22 is not put into the exhibit, but my understanding is
23 that the introduction is in the report that was
24 delivered to my friends. But Miss Mandell, because of
25 objections of my friends, including extensive
26 objections relating to the introduction from my review
27 of the correspondence, edited the report so that to
28 avoid unnecessary argument over what my friends would
29 consider admissible and not admissible.
30 MR. WILLMS: Well, my lord, if the witness says that it was
31 moved to another section which is no longer in, I
32 accept that.
33 THE COURT: Is that the case?
34 A Do believe -- I have to admit that I no longer can
35 keep all these reports clear in my mind. I do have a
36 copy of it right here. May I refer to it?
37 THE COURT: Certainly. What is it you are looking at now?
38 A This is my unedited final report and --
39 MR. GRANT: Just a second. I have an unmarked copy of that. I
40 am not sure if that one is marked.
41 A Okay. Okay. There is my statement of opinion. There
42 is an introduction on page one of my unedited final
43 report, but it's not in here. It's in the table of
44 contents, introduction, page one, but then you move
45 over there and it's not there. It's on -- it starts
46 on page two. But I definitely wrote -- it's missing.
47 I definitely wrote an introduction which I moved and

1 it had this type of -- just to say chapter one says
2 this, chapter two says this, chapter three says this.
3 Rather than having halfway through the report sounding
4 like you are starting over a report.
5 MR. WILLMS: My lord, I recall why I asked the question now. I
6 don't have a page one either and anything that has
7 been given to me by my friends. So --
8 MR. GRANT: Well, the copy the witness looked at -- sorry, my
9 lord, I have been relying on the table of contents as
10 well which, of course, was edited out of the 802. The
11 copy that I have which was going to -- was the full
12 copy for the court initially to be filed doesn't have
13 it and I don't have that page. I suspect that -- I
14 don't know. I can't really -- I would hypothesize
15 about the problem. But obviously it wasn't in.
16 MR. WILLMS:
17 Q Now, paragraph -- and I am staying with page one of
18 Exhibit 784-29 and continuing on to page 21 of Exhibit
19 802. It appears that after the line "Eight-berry
20 producing shrubs," that the text of the paragraph has
21 been rewritten. Do you see that?
22 A That's right. I removed the reference to the two root
23 plants. We discussed that earlier. I took those two
24 plants out of the report at the request of Richard.
25 Q But then the text that follows --
26 A Oh.
27 Q -- has been rewritten as well.
28 A Oh, well, okay. I will have to reread it. I think
29 it's fairly similar, is it not?
30 Q Well, it is similar but it's rewritten.
31 A Well, I did -- I did rewrite, because I wanted it to
32 flow from chapter to chapter, and I had shifted
33 material all over and I had taken references out to
34 species. I can't concentrate very well on these two
35 paragraphs, but I don't see that it's very different.
36 Q Well, for example, you talk in your draft about
37 because of their possible use as trade goods, and then
38 in your final you say there has been much discussion
39 of their use as trade goods. Was that something Mr.
40 Overstall suggested could be tightened up a bit?
41 A No. I don't recall. I mean we could look through the
42 letter and see if he makes a comment about that. But
43 that probably would have been a stylistic change that
44 I made. I don't recall. I think that sentence is a
45 little long and got too many commas in and that may be
46 the reason why I broke it into two sentences.
47 Q Do you have a letter -- and I am sorry to come back to

1 this, but you don't have any recollection of a letter
2 from Mr. Overstall? You think he wrote on the report
3 itself?
4 A We have that letter -- you think there might be
5 something before that?
6 Q Well, remember I asked you about the first line of the
7 January 15 letter where Mr. Overstall says he is
8 "sending you the paper with comments from Mr. Pojar
9 together with a few from myself"?
10 A We had -- we looked at a letter earlier from -- a
11 letter earlier. I remember that letter from him with
12 comments and suggestions. I don't recall another --
13 this is a letter. There is the body of the letter. I
14 don't believe there would have been anything -- I
15 think the comments would have been in the text.
16 Q In the text itself?
17 A But I really -- honestly I can't remember. I put all
18 my information in the file.
19 Q Now, in your report is it fair to say that berry
20 production for each of the species studied increases
21 with exposure to full sunlight?
22 A Say that again.
23 Q Is it true that berry production for each of the
24 species that you studied increases with exposure to
25 full sunlight?
26 A I think in general that's a fair statement.
27 Q And you have described the effect that fires have on
28 removing the forest canopy?
29 A That's right.
30 Q All right. And that allows direct sunlight into these
31 berry shrubs?
32 A That's right.
33 Q Now, logging does the same thing in terms of removing
34 the forest canopy, doesn't it?
35 A That's right.
36 Q Some of these berries that you have investigated do
37 not respond well after a fire?
38 A They are slow to recover I think is what I said and
39 that's -- yeah, that's what I would say.
40 Q So that with a logged removal of the forest canopy
41 versus a fire removal of the forest canopy there are
42 some fire side effects that logging doesn't have?
43 A Logging in and of itself. I would agree with that.
44 Q Now --
45 THE COURT: I am sorry, what are you saying that logged removal
46 the canopy has some consequences that are not the same
47 as with the fire?

A Yes. I think I go along with that.
MR. WILLMS:.
Q It's more that fire can have a detriment because it has a soil -- it may get into the roots, for example. It may increase the competitive vegetation?
A I wouldn't use the word detriment. I would say it's a different impact. Because just for example, burning might stimulate more vigorous resprouting if the shrub in the forest understory was decadent. So in the -- you have -- you can't make these -- you can't say it's detrimental as a broadcast statement like that. Certain -- certainly the impact of -- if there is burning as opposed to logging alone, initially right after the fire there probably would be more shrubs there if it was just logged as opposed to burned or logged and burned. But whether that is detrimental, I wouldn't like to say that.
Q On Map 2, do you know what area of Map 2 in terms of hectares has been logged in the last ten years?
A No, I couldn't make a statement like that.
Q Referring to the Map 2 area, do you know what area in hectares was destroyed by fire in the last ten years?
A No, I -- I couldn't tell you that off the top of my head either.
Q Do you know what area of Map 2 has been saved by fire suppression techniques in the last ten years?
A No, I don't know that number either.
Q Is it fair to say that you don't know whether the area logged is greater than the area saved by fire suppression?
A That is fair to say. And I do -- I referred to that in my report to -- would you like me to find that reference, that section?
Q Well, as long as you agree with that statement I don't think it's necessary.
A Okay. Yeah. I make that comment in the report.
THE COURT: The area logged is greater than --
A No, no. That --
MR. WILLMS: That she doesn't know.
A That I don't know to what extent the amount of logging might offset the -- you understand the amount of burning, that there are these different types of disturbances and they might tend to compensate for one another.
MR. WILLMS:
Q If the area logged is greater than the area saved by fire suppression, presumably there would be no general

1 negative effect on the overall berry habitat, would
2 there?
3 A You have -- you are assuming a few things here. You
4 are assuming that saving is good for berries and
5 logging is bad for berries.
6 Q No, no.
7 A I am sorry. I have to -- maybe you say it one more
8 time and I can --
9 Q Let's assume that the area logged exceeds, is greater
10 than the area saved by fire suppression. All right?
11 A So -- okay. There is --
12 Q There is more logging than there is forest protected
13 from fire.
14 A Right.
15 Q All right. Over the Map 2 area.
16 A Okay.
17 Q Generally, then, can you at least say that there would
18 presumably be no overall negative effect?
19 A Those are two quite different things and I wouldn't
20 want to say that what the net effect was. Whether it
21 was positive or beneficial and it would depend where
22 and in which species. I wouldn't want to make a
23 statement like that. Because the -- it's very
24 complex. I just -- I might have to think about that
25 for awhile to see if I can answer it better. You have
26 to really try to -- there would -- if the area -- if
27 the total area that didn't burn because of fire
28 suppression, if the amount logged was greater than
29 that --
30 Q Yes.
31 A -- then there would be no net effect?
32 Q No negative effect.
33 A I couldn't say -- I could -- I couldn't support that
34 kind of a statement. I wouldn't make that kind of a
35 statement. I just don't think you could have enough
36 information to make a kind of a statement.
37 Q Well, isn't the important effect of a fire removal of
38 the forest canopy for berry production?
39 A That's part of it. That's an important part of it.
40 Q Isn't that the most important part of it?
41 A That's a little bit of a value judgment there. The
42 most -- I would say it's probably one of the most
43 important factors are the increased light availability
44 following the removal of overstory, but things like I
45 said stimulating of resprouting and maybe there is a
46 nutritional -- you know, there is -- there is a
47 variety of factors.

1 Q Well, I thought you --
2 A Change.
3 Q -- said in your report that fire suppression would
4 have a negative effect on berry production?
5 A I said -- I said, yes, in specific situations it
6 would.
7 Q All right. And I am suggesting what if you substitute
8 logging to open forest canopy for the fire suppression
9 which protects the forest canopy, are you saying you
10 can't give any opinion about that at all?
11 A I can, but you are asking for a general statement. A
12 generalization. This is -- has no negative, overall
13 negative effect, and I don't -- I think that would be
14 a little bit too much of a sweeping statement to make.
15 I think that certainly -- if you asked me does logging
16 to some extent offset the effect of fire, the loss of
17 fire, I would say yes. It does offset it to the
18 degree -- the degree to which it offsets it I said in
19 my report I can't say that. I wouldn't want to say
20 whether we have a net benefit or a net loss in the
21 amount of berries. It's just too sweeping a statement
22 and it would depend on the species in the area. There
23 is too many factors involved to make that kind of a
24 generalization.
25 Q Well, turn to page 30 of Exhibit 802.
26 A Which is 802?
27 Q Exhibit 802 is tab 2 and it's page 30 and at the
28 bottom -- and you don't do it in any particular --
29 with particular berries or anything like that. That
30 long paragraph in the middle of the page ending with
31 your:
32
33 "If fire suppression policies have been
34 responsible for preventing periodic burning of
35 certain Gitksan and Wet'suwet'en berry patches,
36 then it is very likely that they have caused a
37 decline in the crop production of those berry
38 patches."
39
40 A Yeah. Certain. And I make -- I am assuming there
41 that there it is not substituted by logging. I am
42 just saying if you had a patch and if it grew over
43 with trees and you were prevented from burning it,
44 then it is quite likely that the berry production
45 would decline. And I am not saying but then it's also
46 possible that it could have been logged. You see that
47 gets in too much speculation.

1 Q I am asking you to speculate that the fire suppression
2 is replaced in the same location with logging.
3 A Okay. Okay. You are creating a scenario. This
4 particular berry patch that I have in mind when I make
5 this statement, suppose it were logged.
6 Q Yes.
7 A That would certainly offset to some degree the loss of
8 berry production that was made by -- that -- yeah, to
9 some degree. I wouldn't be able to say whether you
10 had better berries if you burned or whether you had
11 better berries if you logged, or more. I wouldn't be
12 able to say that.
13 Q Well, can't you say that with respect to, for example,
14 the Alaska blueberry or the black huckleberry or the
15 red huckleberry which takes a longer time?
16 A If you gave me those specific species, I am prepared
17 to comment. So, yeah, if you give me a specific
18 example and you asked my opinion --
19 Q Well --
20 A -- I will give an opinion.
21 Q All right. Well, what about those three? They don't
22 respond well after a fire, do they?
23 A My feeling on -- my opinion would be that in the short
24 term logging without burning there would be more
25 berries than logging with burning in the very short
26 term. Yeah. I would think so. That if you logged
27 and didn't burn. But I couldn't speculate about maybe
28 ten, 15 years down the road or anything. Because
29 there would be -- you have to consider how fast their
30 regeneration took place and so on. But I would think
31 that the damage to those shrubs would be greater with
32 the burning. And it also depends on the intensity of
33 the fire. Some of these fires are quite light. So
34 it's -- really it's a big thing to speculate. And I
35 tried to stay away from those kind of sweeping
36 statements. Because I just think, you know, there is
37 a lot of different factors to consider.
38 MR. WILLMS: Time for the afternoon adjournment, my lord?
39 THE COURT: Yes, all right.
40
41 (PROCEEDINGS ADJOURNED PURSUANT TO AFTERNOON RECESS)
42
43
44
45
46
47

1 I hereby certify the foregoing to be a true
2 and accurate transcript of the proceedings
3 herein to the best of my skill and ability.
4
5
6
7 Laara Yardley, Official Reporter
8 United Reporting Service Ltd.
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47

(PROCEEDINGS RESUMED FOLLOWING SHORT BREAK)

CROSS-EXAMINATION BY MR. WILLMS: (Continued)

MR. WILLMS:

Q Referring to map two, the forests that are in the ICHg3 and the SBSD zones are -- and I am on your fire frequency map at page 26 of your report -- they are there within the letters C and D; is that right?

A I will have to refer to the map. Primarily D.

Q Primarily D?

A Yes.

Q And so those forests in that area are susceptible, once they start burning, they burn readily?

A That depends on the type of forest. For example, the species composition such as a deciduous forest perhaps might burn less readily than that a lodgepole pine forest.

Q So if it was a coniferous forest, lodgepole pine, and it was a fire that was in the canopy of the forest and not a fire along the ground, is it a fire that would spread or could spread quite readily?

A More readily than in some other area? It would depend -- I presume if it was a crown fire it was already well established.

Q And --

A I have a little difficulty answering this question. I -- the spread -- the rate at which the fire spreads would depend more on the weather conditions and the topography.

Q And wind?

A And wind and temperatures and condition of the fuels, rather than on which particular zone it was in.

Q Once a fire like that had started, and I am talking about a fire that would take the canopy of the forest in the ICHg3 or the SBSD zone, how would you supress that fire, how would you stop it?

A Okay. I don't consider myself an expert in fire suppression techniques. What's normally done is fire guards are built, they use topography, natural topographic breaks, they build fire guards, there is -- bombers are used. I am afraid you would have to ask a fire suppression expert for more details than that.

Q The burning that you have given evidence about in your report, which affects berry production, is the burning which removes the forest canopy?

A I would think both a surface fire or a crown fire would affect berry production.
Q But it's the crown fire that gets that sunlight to the berry crop?
A I guess you could say that.
Q And is it fair to say that once a fire gets going in this region in the summer, when it's hot, and I am talking about the ICHg3 and the SBSD, that unless it's supressed by either nature, that is rainfall, or man, that large areas can be burnt?
A Yes, large areas can be burnt, given appropriate forest cover and weather conditions.
Q And would you say that in the absence of fire suppression that man-made fires, canopy fires in that area might get out of control?
A In the absence of fire suppression, would man-made fires get out of control?
Q Canopy fires I am talking about.
A Certainly, it could get out of control.
Q Any of the berry species that you have discussed in your report, is it possible to cultivate any of those berry species or can they only grow in the wild?
A It's possible to cultivate them, yes.
Q And in your opinion would cultivation increase the relative production of a crop over a particular area?
A What do you mean by over a particular area?
Q Well, let's say that you took an area that had been burned and immediately adjacent to it took an area where you -- same area but you cultivated the berries in that area rather than letting mother nature take its course, could you get better production out of the cultivated area?
A I don't think any have been cultivated to the extent I could answer that question. If the techniques, if you knew the proper techniques for managing the species you could potentially get higher production but I don't think the techniques are available because none of these species have been cultivated, to any great extent, certainly not in this, to my knowledge, not to any great extent in this part of the province.
Q All right. Now, if you you can have in front of you page 358-A, and that's the back page on map two, and at the same time open your report, Exhibit 802, to page five, starting with page five of Exhibit 802, did you prepare table one?
A I did.
Q And did you send table one off to the cartographer to

be reproduced?
A I submitted the report to Richard and I believe he passed it on to the cartographer.
Q Referring to the exhibit, 358-A, and you will see that there is a replication of table one in green?
A That's right.
Q And if you look down to the bottom on present day economic activities, and compare table one for the Interior, with the green on 358-A for the Interior, you will see that berry picking has been added to Exhibit 358-A and it's not on table one?
A Yes, I noticed that myself.
Q You didn't do that; is that right?
A I don't recall ever doing it. I was surprised when I saw that there.
THE COURT: Where is this, please?
MR. WILLMS: The very bottom of the Interior column, my lord, in the green, you will see that after agriculture there is berry picking.
THE COURT: Oh, yes, yes.
MR. WILLMS:
Q And, Miss Haeussler, you will see under the north that appears berry picking has been added to table one there as well?
A That's right.
Q Somebody else added that?
A As far as I can recall. I don't recall having done that myself.
Q It's certainly not your evidence that berry picking is a present day economic activity having the same importance as the other ones you have listed there, is it?
A No, and if I had done it myself I would have put berry picking on the coast. I find it unusual that it's missing from the coast when it's present in the interior and the north. But I don't recall having put those there.
Q And then you will see that agriculture is in the Interior, it's been added as well?
A Oh, there is an error here on my table. The agriculture should be under the Interior rather than the north and that's a computer problem with the carriage return and possibly there is an earlier version where it was corrected. Yeah, that's my mistake on this table and I probably -- what I did, I was -- I noticed it earlier -- yeah, that agriculture should be in the Interior on both of those tables.

1 Not on the north unit.
2 THE COURT: Whereabouts -- on both those tables you mean
3 agriculture should be deleted from the north and added
4 to the Interior?
5 A That's correct.
6 MR. WILLMS: Those are all my questions, my lord.
7 THE COURT: Ms. Koenigsberg?
8
9 CROSS-EXAMINATION BY MS. KOENIGSBERG:
10
11 MS. KOENIGSBERG:
12 Q Miss Haeussler, there are numerous other berry and
13 food plants growing in northwestern British Columbia,
14 coastal climate and the interior, other than those
15 which you have listed, are there not?
16 A That's right.
17 Q And they would include raspberries?
18 A Yes.
19 Q Gooseberries?
20 A Yes.
21 Q Bunch berries?
22 A Yes.
23 Q Wild crab apple, does that qualify as a berry?
24 A No, it's a palm. It's not considered a berry.
25 Q And it's --
26 A But if you use the term loosely, and I will -- I will
27 say, yeah. What the heck?
28 Q And low bush cranberries?
29 A Yes.
30 Q Chokecherries?
31 A Yes, again, they are not all berries, but I
32 understand, I think I know what --
33 Q And kinnikinick, did I pronounce that correctly?
34 A Yes.
35 Q And wild strawberries?
36 A Right.
37 Q Are there any of the berries or food plants that I
38 have just listed, which are so rare in any of the,
39 either coastal, interior or north, that they would not
40 be worth discussing in the same category with those
41 which have been listed as being present?
42 A Over the study areas as a whole are any of them so
43 rare that they would not be worth discussing? The
44 crabapple is one, I wouldn't call it rare, but it's
45 not -- it's less abundant than those other ones. But
46 they are all quite common and widespread.
47 Q Now, I would like to just deal with the biogeoclimatic

1 zone classification. You have told us, and I don't
2 think there is any real difficulty with this, that the
3 maps that we have looked at from two through 11, show
4 the inherent capability of the landscape to support
5 the species in question, they don't show an actual
6 distribution of any of the species?
7 A Yes, I use that term cap capability fairly loosely,
8 but, yes, I think so, yes.
9 Q They don't reflect, I think you told us, any data?
10 A I think they do reflect some data. They don't reflect
11 quantatative estimates of the amount of berries
12 present.
13 Q You have made a distinction in the maps between two
14 different kinds of classifications, if I can call it
15 that, or two different levels for the classification,
16 one was where the biogeoclimatic zone is based upon
17 information, some form of data in the ministry of
18 forests? Somebody has been on the ground and made
19 some observations about species being present?
20 A I am not -- is there a question here? I don't follow
21 you.
22 Q Yes. Well, I want you to confirm or not what I am
23 saying, there are two uses that you made of the
24 biogeoclimatic zone classification in the maps, one is
25 where it reflects actual data of some sort, someone's
26 observations, and the areas where there is
27 extrapolation?
28 A I am really having a little trouble understanding what
29 you say so I wouldn't want to confirm it because what
30 you're saying doesn't make complete sense to me. I
31 don't understand it.
32 Q All right. Let's go at it backwards from the way I
33 started.
34 In your maps, we could take any one of them, you
35 divided the areas into zones, biogeoclimatic zones?
36 A Only on map two. That's the only one that shows the
37 zones.
38 Q Let's look at map two.
39 A Okay.
40 Q In some areas, where you have a zone, let's take the
41 northern zone, you had little or no actual data?
42 A There was -- the field sampling was not -- there
43 wasn't a lot of field sampling of ecological plot
44 data, no.
45 Q So you extrapolated?
46 A Right. Okay.
47 THE COURT: I am sorry, Ms. Koenigsberg, I am not sure what

1 you're talking about by the northern territory. Are
2 you talking about the northern area shown on the
3 tables or the northern area shown on the map?
4 MS. KOENIGSBERG: I believe the northern area shown on the map.
5 A I think it's the same thing --
6 THE COURT: What do you call the northern area?
7 A We are talking in general terms here and I think --
8 MS. KOENIGSBERG: Yes.
9 Q Maybe we can be a little more specific to assist his
10 lordship. Roughly, where would you draw the line of
11 the northern biogeoclimatic zone?
12 A There is no northern biogeoclimatic zone. I define
13 three ecoregions, one of them I called the north and
14 the -- you can see here where the purple, which is
15 called ESSF, and you switch over to a blue called SWB,
16 if you looked around for that boundary that would be
17 the southern boundary of that north ecoregion.
18 Q I am sorry, I am being not precise enough. And when
19 we talk about ecoregions, that's a terminology which
20 you have developed?
21 A I -- I -- specifically for this report, just to give
22 it a name, so that we could use that name and wouldn't
23 have to say classification unit.
24 Q Okay. And just tell us, using the northern ecoregion,
25 what defines that as northern?
26 A At low elevations you have the true boreal forest, and
27 it is classified as such by -- in the biogeoclimatic
28 land classification, in other classifications of
29 forest regions of Canada, it is widely recognized that
30 the true boreal forest does extend into this -- that
31 this is basically the southern limit of the true
32 boreal forest and then at higher elevations you have
33 the sub alpine equivalent of the true boreal forest.
34 So it is based on, primarily, the biogeoclimatic
35 classification which shows these two zones but also on
36 other people's interpretation of where the taiga is
37 distributed in Canada. The boreal forest and taiga are
38 similar.
39 THE COURT: What is that word?
40 A Taiga, T-A-I-G-A, it's equivalent, it also -- it means
41 boreal forest.
42 MS. KOENIGSBERG:
43 Q Is there a difference between what's encompassed in
44 boreal forest and what's encompassed in taiga?
45 A Depend on people's interpretation. Some people think
46 of the taiga as boreal, once the forest becomes less
47 productive and more stunted and sparse and open, other

1 people use the terms in -- they interchange them.
2 MS. KOENIGSBERG:
3 Q Okay. Now, we have got three ecosystems, correct?
4 A Three ecoregions?
5 Q Ecoregions, yes. Sorry.
6 THE COURT: Sorry, you have got the north and we have got the
7 pink one, is that the central one?
8 A As an overview map, we had three ecoregions, the
9 coast, the interior and the north.
10 MR. GRANT: They are referred to on the extended legend of map
11 two, North America map on the Exhibit 358-A, my lord.
12 THE COURT: What do you call the coast, the blue or the green?
13 A The coast is -- you can roughly make it out on this
14 map as where you switch from CWH to SBS or from ESSF
15 to mountain hemlock, there is no actual boundary shown
16 on this map. What you would have to do is overlay the
17 map, the boundaries on that little map on to this one
18 to find the -- it's basically the coast map, it
19 includes all of the coast ranges and once you're into
20 the east side of the coast ranges you would either be
21 into the interior or the north unit.
22 MS. KOENIGSBERG:
23 Q Is there a correspondence between what you have
24 designated as ecoregions, the three ecoregions, and
25 the biogeoclimatic zone?
26 A Yes, I intended -- I created that classification to
27 give you a big picture then I went to the more
28 detailed classification, but my intention was that
29 they could be overlain on one another. Yes. That's
30 what the triangles show, they show the relationships
31 for each of those -- on the overleaf of map two, for
32 each of the ecoregions you have a distinct sequence of
33 biogeoclimatic zones within the ecoregions.
34 Q Okay. And the biogeoclimatic zone, another way to
35 describe that very generally would be a macroclimate?
36 A It represents an area of broadly similar macroclimate
37 but you couldn't -- the zone is much more than just a
38 climatic discriptor, so I wouldn't use those terms
39 interchangably, no.
40 Q Would being able to use the word macroclimate at least
41 in some contexts as equivalent to biogeoclimatic zone
42 indicate that climate is one of the major factors in
43 determining biogeoclimatic zone?
44 A I agree with the second half of your sentence but I
45 don't really follow your point on the first half of
46 the sentence. The climate is one of the major
47 determining factors in -- yes.

Q In classifying zones?
A That's right.
Q Is that fair?
A That's fair.
Q What you're predicting, and I will come back to the predicting if it gives you difficulty in the question, but for the moment don't stick on that one, what you're predicting when you have classified a huge area like this, biogeoclimatically, is that you will find certain soil types with certain vegetation, and when we say vegetation with this classification system, we are emphasizing trees; is that correct?
A No, we are talking about the complete community, because there are descriptions of the type of plant communities that occur across the landscape within those zones and plant associations -- no, not strictly trees.
Q Are these trees one of the major vegetation factors that you're looking at in identifying something as being a particular biogeoclimatic zone?
A Yes, trees are probably the dominant type of biomass on most of the ecosystems with the exception of some of the higher elevations. They are one of the more important factors in delineating these.
Q So we are looking at soils, we are looking at climate and we are looking at certain vegetation with maybe an emphasis on trees because they are the most dominant?
A Okay.
Q We classify, as you have done on these maps, we are predicting that we will find in the zone classified, a certain soil type, a certain vegetation and a certain climate?
A We know -- yes, I think that's an over-simplification, but I don't object to that statement.
Q Now, if I can come back to the first part of what I was trying to discuss with you, when you have extrapolated rather than having any or very many, I guess you called them data points, from which to classify a zone, you have predicted in the truest sense of the use of the word when we talk about classifying with this particular classification?
A When you are speaking about the biogeoclimatic classification, most of this has been overflown or driven, so the predictions, to some extent you follow the elevation line and assume that I saw it on this side of the valley, I didn't see it on this side of the valley but at the same elevation I would place it

in the same zone or sub zone.
Q When you get on the ground, in any one of the zones that you have classified, whether it's ICHg or whatever, when you get on the ground what you find may be quite different, vegetatively, from what you would assume is there from the classification that you have made on the maps, isn't that so?
A I am not certain I -- I think a person who is familiar with the mosaic of vegetation that occurs within a particular zone or sub zone or variant, doesn't find it to be a lot different. Generally you find pretty much what you expect to find. I mean, you don't get big surprises in the vegetation because it's not all that diverse.
Q One other defining factor, if you will, that we have talked about in trying to grapple with what a biogeoclimatic zone means, it is based on, I believe you put it, climax vegetation?
A That's right, it is.
Q Old growth?
A It is based on the concept of a climatic climax, yes.
Q So to the extent that you're not classifying by going and looking at what's there and then saying, it's X and Y and G, therefore, I have an XYG zone, but rather you are extrapolating from more general information, than whether it's old growth or new growth would make a big difference, wouldn't it?
A I think I understand what you mean and I think the answer is yes, but you might want to say that question one more time. I find it a little difficult to follow your questions.
Q If we are dealing with -- if the classification system is based on climax vegetation, that is, it's developed from --
A Yes, they use it, the concept of climax as -- it's a central concept in deciding that an area belongs to a zone or sub zone, yes, that's correct.
Q And the system, the biogeoclimatic zone system as it's applied for instance to these maps, you have a classification which has been developed in relation to climax vegetation?
A That's right.
Q Then when we apply it to this situation, if we don't have climax vegetation, it won't be surprising if we don't have much correspondence in many species between what's on the ground and what our classification would predict?

A Our classification doesn't predict that we find climax forests everywhere. I disagree with what you say because the classification just because -- a description -- this is -- this is fairly complex and I wasn't sure that I really wanted to get into it. The climax -- the classification is based on the concept of the zonal ecosystem and that is that given -- I think we could spend an awful lot of time on this and I think I should probably backtrack and just try to answer your question a little more simply.

You know what the climatic climax vegetation looks like for that zone, and you have described it as part of the classification, that doesn't mean you expect to find it wherever it is. You know that there is a mosaic of ecosystems across the landscape, there is a range of sites which range from wet sites to dry sites, there is a range of successional conditions, young forests, old forests, you know what you have from field experience from sampling from a wide variety of data sources from information about the types of communities that recur across the landscape within that zone and you don't find things dramatically different from what you would expect.

Q If I can -- I will try and translate for my purposes what you have just said, at least in part.

You have said that within a broad classification, and a biogeoclimatic zone classification is a very broad classification?

A At that level is broad. That level is a regional level.

Q And it's made up of a range that -- the geography is made up of a range of sites?

A That's correct.

Q Topographically?

A Right.

Q Climatically?

A Yes.

Q And forest succession or vegetation succession?

A Hm-hmm, that's right.

Q And that would vary?

A Yes, the community varies with time, with site and soil conditions and with local climatic differences, within the zone or within the sub zone. So the zone or sub zone is not uniform, it has a range of conditions.

Q Okay. If we turn to, for instance, map six, which is dwarf blueberries, I believe that you say in your

1 report and in the legend, that dwarf blueberries in
2 the ICHg3 are abundant?
3 A Yes, I believe they are abundant in the ICHg3.
4 Q Is the ICHg3 a zone or a sub zone?
5 A It's a variant. The three.
6 Q I am sorry, could we even say a sub sub zone?
7 A Yes, a variant is a sub sub zone, right. It's one
8 notch smaller, one level smaller than a sub zone.
9 Q If we could just agree on a very general description,
10 if we talked about biogeoclimatic zone as one level of
11 information which is very broad --
12 A Right.
13 Q Then we will talk about the next level of information
14 as a sub zone?
15 A That's correct.
16 Q And even a third level of information, which is a
17 variant, which we could call a sub sub zone?
18 A Yes.
19 Q When we talk about sub sub zones we have begun to
20 describe much more precisely, and in a much narrower
21 area, a site? We still may not have described a
22 specific site?
23 A I don't like to use the term site because at the
24 regional level you are talking about a range of sites.
25 When I talk about a site, I think of something more
26 uniform than a sub sub zone.
27 Q A sub sub zone is still so broad that we could find a
28 variety of topography?
29 A That's correct.
30 Q And we probably would find a variety of vegetation?
31 A Oh, yes, definitely.
32 Q We might not find too much variety in climate?
33 A A macroclimate you have like -- we like to think is
34 relatively uniform at that scale. But local climate,
35 of course, varies in smaller -- climate at a smaller
36 scale, changes, you know, south slopes, north slopes,
37 that kind of variation.
38 Q And when you say in your text that you expect to find
39 dwarf blueberries as abundant in the sub sub zone,
40 ICHg3?
41 A That's correct.
42 Q That is not based on going out and looking at the
43 ground in that area and counting berry shrubs?
44 A It's certainly not based on counting berry shrubs.
45 It's very much based on going out and seeing the shrub
46 on the ground almost wherever you go.
47 Q You participated in a study in 1985, did you not,

of -- called A Guide to the Interior Cedar Hemlock Zone and and that's the ICHg?
A That's right, I wrote that, or a major portion of that paper quite a few years earlier and it was published in 1985.
Q I am just showing you some parts of it, it's quite a lengthy paper, isn't it?
A That's right.
Q I am not going to take you through too much detail, but I have just copied out the pages here in which you're describing what you found?
A Right.
Q In relation to some of the species that are mapped in the exhibit before the court?
A Hm-hmm.
Q And in this study in 1985, that was published in 1985, it was based on going out and looking and --
A Collecting data from mature forests, yes.
Q And we had assumed from the map that we would find dwarf blueberries to be abundant, would we not, at the ICHg level?
A On the ground in that variant, it is very abundant. I think I know what you're leading up to but I will let you get there yourself.
Q What I am leading up to is that when we look at the data it doesn't correspond with our predictions from the general mapping on the ground, does it?
A That's correct. These are based on, the descriptions here are based on the climax, most of them, there are some others that follow, most of them are based on the vegetation in what we assume to be climax or near climax stands. And as I indicated in my description of the zone and the sub zone, seral or young vegetation, extremely abundant in the ICHg3, it dominates the landscape. These particular stand descriptions that are here are not characteristic of the communities that dominate the landscape. This is what they would look like if succession was allowed to proceed for several hundred years. What I say about dwarf blueberry is that it tends to be abundant in young seral conditions and as the forest succession proceeds and you get these type of communities developing, the dwarf blueberry will disappear.
Q In other words, in your text, in a variety of areas, you have given us much more specific information about where it is that we might expect to find or not find any of these eight species?

1 A That's right. You can't take the data strictly from
2 here, from these descriptions of climatic climax
3 vegetation. You can find some seral types in here
4 though, right?
5 Q Yes. But, for instance, just testing one of the
6 things that you said, you looked at, and we don't all
7 have to turn to map four, but map four maps Saskatoon
8 berries abundant --
9 A That's right, it is.
10 Q -- in ICHg3?
11 A That's right, it is.
12 Q In 1985, when you looked at that, you found a variety
13 of conditions for Saskatoon and, for instance, you
14 show it in three areas?
15 MR. GRANT: Just a moment. Can I clarify something? Is my
16 friend is referring to this guide or is my friend
17 referring to the report? Because she says 1985, and
18 that's when this was published, but as Ms. Haeussler
19 has described it, she did it before. Her report is
20 from 1985. So I want to be clear for the record what
21 she is referring to.
22 MS. KOENIGSBERG:
23 Q What I am referring to is the document which was
24 published in 1985, which contains what I guess we will
25 call for shorthand, data, as opposed to just
26 predictions, is that fair? In other words --
27 A I think this is definitely supported by data, yes.
28 Q It represents going out on the ground and observing
29 and making notes of your observations?
30 A That's right.
31 Q And you have already told us the maps don't purport to
32 do that?
33 A That's right, they don't purport -- they are broad
34 categories and they don't purport to pinpoint any
35 particular location that berry is there.
36 Q But interestingly enough, if we look at the Saskatoon
37 data -- I am not sure I can find the page -- what you
38 were looking at in 1985 in your study that's
39 published, were, if ICHg3 is a sub zone or sub sub
40 zone, you were looking at smaller and smaller areas,
41 you were looking at what are called ecosystem
42 associations?
43 A I am not sure I followed that sentence, that question.
44 Q For instance, you looked at -- you went to particular
45 areas characterized by specific vegetation?
46 A That's right. This -- yeah, when you do the field
47 sampling, on this kind of a scale. You're down on the

ground. An ecosystem association, yes.
Q And you sample by ecosystem association?
A Yeah.
Q And you found 11, you classified the ICHg3 into 11 ecosystem associations, do you recall that?
A Yes, I believe you. Right.
Q And within those 11, Saskatoon was poor, meaning low cover or not being consistently present in the hemlock moss association which itself occurred widely within that sub zone, correct?
A The ecosystem association, that is all sites that are capable of having the hemlock moss vegetation at climax, so if they were allowed to proceed to climax the type of the vegetation that you would expect to develop is a hemlock overstory with a moss understory, and, yes, Saskatoon is not abundant in that climax community. Can I go on? The point is it is an early successional species, it occurs following. When that ecosystem association is not at climax, when it's a seral condition, then one would expect it more abundantly.
Q Correct.
A Okay.
Q And the point of all of that is that we can't, with a great deal of confidence, assume anything about the berry, the actual today or even yesterday's, berry distribution in abundance, from the mapping of the biogeoclimatic zone as is shown in these maps?
A I disagree.
Q What data are you aware of which would be generally consistent with the biogeoclimatic zone?
A Sorry, I can't answer that question. That -- I am afraid that didn't make sense. Could you ask that question again?
Q Let me put it this way: Isn't it true that in any instance where you have actually gone out and looked in the particular area where you expected to find a species in abundance, just using the biogeoclimatic zone, not the little -- the sub sub zone, just the biogeoclimatic zone which is shown on these maps, have you found the berry species in actual abundance?
A I really don't follow what you're saying. I think I have an idea what you mean to say but it doesn't make sense. And I can't answer the question because you will have to phrase if in another way. What you're saying, I don't think I can answer.
Q When you have gone out in the field --

A Yes.
Q -- and you have looked for berry species?
A That's right. Okay.
Q And you have looked in an area where you would have predicted from the biogeoclimatic zone classification system alone that it was abundant?
A I would never predict the abundance Saskatoons from the climax vegetation. I base that on my understanding and my knowledge of the successional patterns on that ecosystem.
Q That's my point. You couldn't, with a great deal of confidence, predict where you would find the berry species, any of the eight, from the classification that's shown in the maps?
A The classification system is -- does enable you to predict if you are aware of the successional patterns that are characteristic of that zone, sub zone or variant. Strictly looking at the description of a climatic ecosystem isn't sufficient but you have to understand that what kind of a community would there be following clear-cutting, and that is very consistent. It isn't random, it doesn't -- and you can -- that information -- I feel very comfortable with that information, it is embodied within the classification although the book would be this thick if you wanted to describe all of those possible variations.
Q That's right, if you wanted to increase the chances that's your prediction --
A No, no, that's not the point. I am not increasing the prediction, I am just describing -- I -- in this -- the purpose of this description is not to tell me whether Saskatoon is present or not and I don't use this to -- this is, merely -- this describes the -- this describes what the vegetation of a mature -- of a climax or near mature forest would look like, okay? It doesn't tell me anything about what a early seral stand would -- what the vegetation would be. But that doesn't mean that I can't -- that I don't know within that zone that there are specific patterns of succession.
MR. GRANT: The witness was referring, for the record, to the guide, the published guide, my lord.
A I am having a little trouble explaining myself because the questions are hard to answer.
MS. KOENIGSBERG:
Q Dealing with the maps, you have got one turned to map

1 four, it tells you that Saskatoon berry is abundant in
2 a very large area indicated by ICHg3 and probably
3 other systems as well?
4 A Yes, it is abundant in those areas and -- yes.
5 Q With what degree of confidence could you go to any of
6 the area indicated by the colouration and expect today
7 to find Saskatoon berries in abundance?
8 A I feel very confident that within there I would find
9 abundant Saskatoons.
10 Q But you couldn't do it from this broad categorization,
11 could you?
12 A Well, certainly. I know that this area belongs to the
13 ICHg3 sub zone. That conveys to me a great deal of
14 information. It conveys to me the information that's
15 contained in here, it conveys to me information
16 that -- on successional patterns which is not
17 published in here, and I know what types of
18 communities you will find, early successional
19 communities you will find within the ICHg3. I know
20 when I leach the ICHg3 and go up in elevation to the
21 ICHg1 I find different communities and different -- I
22 don't see the problem.
23 THE COURT: How do I know, by looking at this map, what is
24 ICHg3?
25 A You have to refer back to the other map. So what I
26 have done here, I have interpreted the information for
27 you. I put --
28 MS. KOENIGSBERG: Sorry.
29 A That's fine.
30 MR. GRANT: Maybe the witness can continue her explanation.
31 A No, there wasn't anything more to say.
32 THE COURT: Is everything that's shown in pinky colour ICHg3?
33 A Pinky colour?
34 THE COURT: Well, I don't know.
35 MR. GRANT: Map four.
36 MS. KOENIGSBERG: If you look at map two --
37 THE COURT: I am looking at map four.
38 A Okay, map four, pink.
39 MS. KOENIGSBERG: There is no pink. My lord, I think you're
40 thinking of the pink colour which is on the legend of
41 map two, which was an ecosystem.
42 THE COURT: I am sorry. I thought I was looking at map four and
43 I am looking at map six.
44 MS. KOENIGSBERG: The witness in her report used the colour pink
45 for ICHg3 and when the maps were made I believe they
46 used a rather paler colour of green.
47 A I used the pale green too.

THE COURT: How do I know what is ICHg3 on map four?
A The only way you could tell that is to overlay the two maps.
MR. GRANT: Map two shows it.
THE COURT: All right.
A Map two, yes.
MS. KOENIGSBERG: ICHg3, my lord, covers -- maybe I should let the witness do this, but sort of the, trying to think of something that resembles the area. If you will -- if you fold up, without making a crease, map two.
THE COURT: I just want to know where I would get the information from. I don't particularly want to know at the moment.
MS. KOENIGSBERG: It covers, up the Kitwanga River, the Skeena, the Bulkley River Valley.
THE COURT: I don't need to know that. I just wanted to know where to find it. Thank you.
MS. KOENIGSBERG:
Q When you say that you know where to go to find abundant species of certain kinds of berries, you were using a great deal more information than the information contained or the maps, isn't that so?
A On this map here?
Q Yes.
A Yes, certainly, far more information. All that does is outline the extent of the zones and sub zones.
Q If you look at map four, what's mapped there?
A Yeah.
Q That's the same, the same statement would hold true, would it not?
A The statement was, again?
Q That you're using a great deal more information --
A Well, this is -- this represents my information. This is what I think -- this is what the information about the abundance of Saskatoon. So, of course I used a lot of information to produce this map, yes, definitely.
Q Does it show areas that are logged versus areas that are burned?
A This map, no.
Q Does it even show areas that are burned?
A No, it does not.
Q Isn't that one of the things that you would look at that would assist you with your confidence level in finding abundance?
A We are talking on here about a very broad regional scale. Within -- at this scale I know that there

is -- there is a mosaic of communities across the landscape. I know that seral communities are very abundant, I know that Saskatoon grows in seral communities in the ICHg3 very commonly on a wide range of sites. I don't need to know where it's logged and not logged to know that Saskatoon is therefore abundant. Do you understand the difference?

Q Yes.

A If it was a smaller scale and more specific, if I had to say, here is a clear-cut, here is a forest, or larger scale, if it was a local scale map rather than a broad regional map, then I would need that information. But at this scale I don't need that information. All I need to know is about the mosaic of plant communities occurring across the landscape to know the relative abundance of seral communities and old growth forest.

Q Would you agree with me that weather conditions would be important as well?

A Weather conditions? No, they wouldn't affect the abundance of the species. Berries, perhaps, but not the species.

Q I am sorry, berries?

A Oh, yeah, but this is a map of the species, not of the berries.

Q That map doesn't tell us how abundant the berries are?

A No, although if there is no species there is no berries and if there is more of the bush, one would expect to find more of the berries but not, you know, there is not 100 percent correlation.

Q There are a lot of things that affect the abundance of berries, more things than affect actually the abundance of the species?

A Yeah, once you have the species present there are a variety of factors that affect the abundance of berries, that is true.

MS. KOENIGSBERG: Those are all my questions, my lord.

THE COURT: Thank you. Mr. Grant?

MR. GRANT: I note the time and I am prepared to -- I don't think I would be very long.

THE COURT: No, doesn't the witness want to get away?

MR. GRANT: Yes.

THE COURT: Let's stay and finish.

RE-EXAMINATION BY MR. GRANT:

MR. GRANT: Could I have Exhibit 756, briefly, madam registrar?
Q I just wanted to ask you a few questions to clarify a few of the answers you gave earlier.
One of the documents that was put to you was this map which you had drawn, which I understand was the basis for Exhibit 358-2, the biogeoclimatic zone, you said on this map that there may have been some additions and you referred to the legend, now are you referring to the pencilled-in notations beside some of the colours and the little writing there?
A That's right. I -- that's not my writing.
Q Thank you. Just want to clarify that, because there was an exhibit stamp on that as well.
On Exhibit 784-26, the gray book, I just wanted to clarify your notations here of the Parmenter discussion. Mr. Willms focused you on the bottom of the first page some thoughts, Fort Nelson, and then there is some writing below that. Is that entire discussion on the bottom of that page relating to Mr. Parminter's discussion or research in the Fort Nelson T. S. A.?
THE COURT: Well, Mr. Grant, she said it also applied to the boreal.
MR. GRANT: No, he asked if those same comments would apply, I am asking when she discussed it with Mr. Parminter, did she discuss whether it applied ot the boreal forest or was it just --
A We talked about his studies on the Fort Nelson T. S. A. and these notes relate to that discussion. Whether in the conversation we gave some broader, I don't recall.
Q Okay. Now, you were asked by Mr. Willms about the -- he clarified with you that fire -- the reason that fire is important for berry production is because it takes off the canopy, then he said, well if you log you can take off the canopy as well. Do you remember that discussion, he was asking you about the relative relation of the logging versus --
A Yes, I think so.
Q You are familiar with the logging practices --
MR. WILLMS: My lord, I object. Logging was dealt with in chief. This isn't anything new that came up on cross-examination. This is something that came up in chief when Ms. Mandell was leading the witness on logging. This isn't proper re-examination.

1 THE COURT: We had a lot of evidence in chief on logging, Mr.
2 Grant.
3 MR. GRANT: I will try to focus on one question.
4 Q There was a relationship -- I am not trying to get
5 back into the logging, my lord, what I am trying to
6 establish is the relationship between, which is a
7 relationship, as my friend focused on, on between
8 logging practices supplanting fire suppression. I
9 submit that was not raised on direct. That's the only
10 point. I don't want to discuss the logging generally.
11 Can you -- if you -- is the -- is the impact --
12 is the removal of the canopy by fire or by logging
13 neutral as far as berry production is concerned in
14 light -- that is, in light of the logging practices
15 within the study region?
16 A Is the removal -- okay, is the effect of fire versus
17 logging neutral? No it is not, the impacts are quite
18 different because fire can affect many things,
19 including depth of humus layers, there would be damage
20 to the above ground parts of the plant versus
21 possibly --
22 THE COURT: You know, I think this is unfair. This was fully
23 covered by the -- it wasn't fully covered, it was
24 embarked upon and covered to a great extent by Ms.
25 Mandell and now if you are going to, as it were, take
26 the evidence and wrap it up in a package and put a
27 ribbon on it and your friends don't have another
28 chance to challenge that.
29 MR. GRANT: The only point I was trying to lead, my friend posed
30 a hypothesis, which I, from my recollection of the
31 evidence on direct, it had never been set up, which
32 was that, basically, your -- it's just your canopy
33 removal and has the same effect.
34 THE COURT: The witness made it abundantly clear that things of
35 a doubtful nature are full of uncertainty.
36 MR. GRANT: I won't go any further.
37 Q Ms. Koenigsberg asked you a question about with
38 reference to the maps and take the -- not the
39 biogeoclimatic but say any of the berry maps you
40 produced, and I -- my notation of her question to you
41 was whether you agreed that we can assume nothing
42 about berry data from the maps, and you said "I
43 disagree."
44 A I remember saying I disagree. I can't remember the
45 question, the statement that led up to that.
46 Q Okay. We can assume nothing from the maps about berry
47 data. And you said that you disagreed with that

1 statement?
2 A I would disagree with what you said. I am afraid I
3 don't recall the conversation.
4 Q I noted what her question was and that's what my note
5 of her question was. Why do you disagree?
6 A I am afraid I can't recall the context of that
7 statement and it makes it hard for me to answer the
8 question.
9 THE COURT: Well, didn't she go on and tell me all that?
10 A I don't recall.
11 THE COURT: She told me about the conflict in the mapping if you
12 know the progression of the forest.
13 MR. GRANT: Thank you. That's all. I need not pursue it.
14 THE COURT: She said these maps are based on climax vegetation
15 or forest, and if you know what the progression of
16 forest is you can have some reasonable confidence in
17 the maps as indicators of where you might reasonably
18 expect to find berries.
19 MR. GRANT: My lord, I that what happened is she said that
20 afterwards and I probably didn't note it at the same
21 place. I have no further redirect, my lord.
22 MS. KOENIGSBERG: My lord, I forgot to mark A Guide To Interior
23 Cedar and Hemlock zone and we referred to it.
24 MR. GRANT: I would ask that the entire -- if my friend is
25 putting it in, the entire document.
26 MS. KOENIGSBERG: Perhaps my friend will want the entire
27 document in but not only was it not referred to it
28 runs to almost 200 pages and all we did refer to were
29 the data pages, if you will.
30 THE COURT: Are you asking for something more than these pages
31 139 to -- these aren't even sequential.
32 MS. KOENIGSBERG: They were chosen as those data pages which
33 were in the area that the mapping is in. And, of
34 course, it is an enormous article.
35 THE COURT: Well, there is recent authority in the Court of
36 Appeal when you put a document to the witness the only
37 part that goes in automatically is the part that you
38 used for cross-examination.
39 MR. GRANT: I concede that I am doing this out of an abundance
40 of caution. Ms. Haeussler was the witness of Ms.
41 Mandell, generally. I haven't had a chance to compare
42 these excerpts with the rest of it, whether there's an
43 explanation --
44 THE COURT: What are you saying should go in, Ms. Koenigsberg?
45 All you handed up just a couple of pages you referred
46 to.
47 MS. KOENIGSBERG: I would even suggest that in fairness to what

Mr. Grant is suggesting that it all should go because that's all of the relevant data out of it. But we could just put the few pages that were referred to.

THE COURT: Well, I think what I will do is put this in as the next exhibit, which will be --

THE REGISTRAR: Exhibit 803.

THE COURT: -- Exhibit 803, and Mr. Grant when you have had a chance to look at it, you may apply to have more of the document than that admitted as you deem fit and pursue it with me at that time.

(EXHIBIT 803: EXCERPT FROM A GUIDE TO INTERIOR CEDAR AND HEMLOCK DOCUMENT)

MR. GRANT: It's just a question of whether there are other parts have been put forward to explain what's being put in.

THE COURT: All right. That will be Exhibit 803. Anything else this afternoon? All right. You want Ms. Haeussler to be excused?

MR. GRANT: Yes.

THE COURT: Thank you. You are finished and you are excused and we will adjourn until 10 o'clock tomorrow morning.

I hereby certify the foregoing to be a true and accurate transcript of the proceedings herein to the best of my skill and ability.

Wilf Roy
Official Reporter