OLD GROWTH STUDIES

NEW WORLD PROJECT -
OLD GROWTH STUDY PLAN

Surveys for old growth conifer forests on the proposed New World Mine permit area and the proposed transmission line, from Cody to Cooke City, will be conducted in August and September of 1991. A methodology has been developed to collect data to identify old growth forests based on diameter and density of both living trees and snags, and on presence of downed woody material. The methodology is consistent with the Gallatin National Forest Plan, as amended, which defines old growth as:

> Old growth is forest generally past full maturity (but often includes seral species) in which a somewhat decadent multi-storied stand shows the following characteristics:
>
> a) overstory trees at least 12 inches dbh for lodgepole pine, 14 inches dbh for Douglas fir [sic], spruce and alpine fir, and at least 10 large trees per acre
> b) 10 to 40 percent crown closure of the overstory
> c) at least 15 tons per acre of 3 inch diameter or larger material on the ground
> d) at least 4 snags per acre of at least 12 inches dbh for lodgepole and 14 inches dbh for Douglas fir [sic] or spruce/alpine fir, and
> e) two or more canopy levels with a definite shrub-sapling layer and understory and overstory crown closure combined exceeding 70 percent.
>
> Not all of these characteristics will be present in every old growth stand, however, these characteristics will serve as guidelines for identifying old growth stands during Forest Plan implementation.

Field survey methods which will be employed to identify and delineate old growth will include the following:

1) Delineate on aerial photographs areas that appear to be mature conifer forest with an overstory canopy closure of 10 to 40 percent.

2) Conduct a reconnaissance walk-through study to determine whether old growth or near-old growth conditions appear to be met based on tree/snag diameter and canopy structure.

3) Lay out a 400-foot transect in a representative portion of an old growth or potential old growth stand.

4) Record all trees and snags within 50 feet of the 400-foot transect by diameter and species.

5) Record all downed woody material by size class traversed by the 400-foot transect.

6) Record all observations on the attached data sheet.

7) Prepare a brief narrative describing ecological characteristics of the stand including wildlife use and forest habitat type.

8) Take color photographs of the stand.

An overall old growth score between 1 and 100 will be developed to rate old growth stands, with a score of 100 representing maximum old growth values. The rating system has not been fully developed, but it will follow the methodology employed by the Kootenai National Forest (see attached Appendix A).

APPENDIX A

OLD GROWTH STUDY METHODOLOGY

PLOT/SAMPLE DESIGNATION: _____

OLD GROWTH SCORE: _____

OLD GROWTH INVENTORY: GALLATIN NATIONAL FOREST AND VICINITY

INVESTIGATOR(S): _____ DATE: _____ PROJECT/SITE _____

OWNER/APPLICANT: _____ STAND/POLYGON DESIGNATION: _____

LOCATION: T:___ R:___ S:___ 1/4S:___ 1/8S:___ USGS TOPO MAP: _____

STATE:___ COUNTY: _____ DESCRIPTION: _____

_____

_____

STAND or POLYGON SIZE, ACRES: _____ [determined by 1. estimation, 2. dot grid

PERCENT OG in POLYGON: _____ 3. planimeter 4. digitization (circle one)]

CANOPY STRUCTURE and COVERAGE (CC)

CANOPY IS, 1. SINGLE-STORY 2. TWO-STORY, 3. THREE-STORY 4. MULTISTORY (circle one)

OVERSTORY CC (%): _____: [Vis. Estimated, Sampled (Circle one)]

SAMPLING POINTS	1	2	3	4	5	6	7	8	9	10	AVE. CC by SPP.
SPECIES UNSPECIFIED											
SPECIES _ _ _/_ _ _											
_ _ _/_ _ _											
_ _ _/_ _ _											
_ _ _/_ _ _											
_ _ _/_ _ _											
AVE. CC BY PTS.											

[1] **UNDERSTORY CC (%):** _____: UNSTRY. SAMPING PTS. 1___2___3___4___5___6___7___8___9___10___ X_____

LIVE TREE COMPOSITION by SPECIES and SIZE CLASS

TOTAL NUMBER TREES (>14" DBH MIN. SIZE) PER ACRE: _____: **TREES (>19" DBH MIN. SIZE:** _____:

ABILAS		PICENG		PIAL or PIFL		PINCON		PIPO/POPTRE		PSEMEN		OTHER( )	
>14	>19	>14	>19	>14	>19	>12	>19	>14	>19	>14	>19	>14	>19

add w/ pressonsletters

SPECIES TOTAL

SNAG TREE COMPOSITION by SIZE CLASS and SPECIES (or undetermined class)

TOTAL NUMBER SNAGS (>15 ft.& 10" dbh) PER ACRE: _____: **SNAGS < 15 ft. & 10":** _____:

ABILAS		PICENG		PINALB/PINFLE		PINCON		PIPO/POPTRE		PSEMEN		NO IDNT.	
>15 ft	<	>15 ft.	<	>15 ft.	<	>15 ft.	<	>15 ft.	<	>15 ft.	<	>15 ft.	<

SPECIES TOTAL

DOWNED WOODY MATERIAL >3 INCHES in DIAMETER (all diameters below in inches)

DECAY CLASSES (↓ INCREASING DECAY)	>3	>6		>12	>15	>18	>20	>22	>24	>26	>28	>30	>32	>34	>36
1															
2															
3															
4															

1. Includes tall shrubs (>7ft.) & sapling size (< 5" dbh) trees

INSTRUCTIONS FOR OLD GROWTH EVALUATION FORM

This survey attempts to identify the essential components and positive attributes of old growth forests. The procedure is designed to balance the need for objectivity with the need to facilitate rapid on-site appraisal of stand condition. The inherent variability of old growth stands requires that some parameters be evaluated subjectively. The purpose of the survey is to evaluate timber stands to determine the degree to which they meet old growth requirements, if at all.

The form was essentially developed for stands in the western hemlock-cedar habitat types (Pfister, 1977) as found on the Libby Ranger District, Kootenai National Forest. Some potential adjustments on the point scale sheet may be neccessary in the 'large standing live' and 'large down' catagories when sampling drier site ponderosa pine / Douglas-fir stands or high elevation subalpine fir/spruce stands. As more of these forest types are sampled, adjustments can be made accordingly.

While this procedure is meant to substitute a "walk-through" transect for the "fixed or variable plot" sampling technique, it must still be done carefully with attention to detail. Many stands will require constant tallying during the walk. The path taken should not be haphazard, but must be easily traceable on a map. The procedure is informal, but when done carefully, can produce relatively accurate numbers with a reasonable investment of time. The walk should also allow the surveyor to see a large portion of the stand reducing the liklihood of missing important features.

A 50% canopy closure is one prerequisite of stand structure that must be present in most stands. Canopy closure should be determined by spherical densiometer readings.

The first three catagories describe the essential components of old growth.

I. Large Standing Live

A. No. trees/acre >19" dbh

This component of stand structure is the overstory trees, which are here defined as being at least 19" in diameter. It is difficult to set a minimum stocking density of large trees that provides both canopy closure and the stand character to which old growth associated wildlife species respond. That minimum may be 12 (Christensen, 1983), 14 (Kuennen, 1983), or 15 (Thomas, 1979) trees/acre. These numbers attempt to define minimums, but in the context of evaluating worth, do not mark the break between low value and no value. It is assumed here that the break is at 8 trees/acre and at that point enough of a large overstory character exists to provide some minimal value to the wildlife associates of old growth. Although the density from 8 to 14 trees/acre is below the definitional requirement, it is not without some value to wildlife and is therefore assigned from 1-18 points. The final group, those

stands with density greater than the minimum 14 trees/acre, are assigned from 19 to a maximum of 25 points.

Stand exams, when available, give the most accurate estimate of the number of trees/acre. Otherwise, field measurement of what appears to the observer to be the average spacing between large trees is an acceptable substitute that is both easily accomplished and reasonably accurate. Space is given on the form to enter the average spacing of trees, and the conversion to trees/acre can be gotten from the chart on the point sheet.

B. No. trees/acre >76 cm (30" dbh)

This category is included because of the need to recognize that all trees greater than 19" dbh are not of equal utility to wildlife. Generally, the larger a tree the greater is its value since it is capable of providing more and larger cavities especially high on the tree bole, which some specialized species require. This quality of the overstory is evaluated in terms of the number of trees per acre greater than 30" dbh. Up to one 30+ inch tree/acre receives one point, two points for 1-3 per acre, and 3 points for anything greater than 3 trees/acre.

C. Decadence

Decadency in the overstory of an old growth stand is not an essential component, but is a positive attribute in that it indicates successional maturity, decline in vigor, and a continuous recruitment into the essential dead component. Points are based on a relative scale of decadency judged through simple observation. Decadence is considered absent when it takes an effort to find any of the signs, such as broken tops, conks, scars and spike-tops. When decadence is considered present, more than half the trees show no signs, but they can still be found fairly easily. At the common level, more than half the trees do show signs of decadence. When decadence is prevalent, nearly all or at least 75% of the trees are affected.

The potential may exist to cross-reference stand exam data to develop a more quantitative means for assigning the point totals for this catagory. After a sufficient number of stands have been surveyed, the four decadence catagories might be checked against the number of live cull and the damage/severity codes from stand exam plots to determine if any correlation's exist between old growth field observations and stand exam plot data. In other words, maybe 1-2 live cull trees/plot or 1-2 trees/plot with high "severity" ratings under "Damage/cause of Death" on the stand exam form may potentially correlate with the "common" catagory on the old growth form for a 2-3 point score.

Caution should be used in distinguishing the decadence that may not contribute to old growth stand quality. Examples are decadence in 1) a lodgepole pine stand that is losing an entire age class quickly, 2) a Douglas-fir stand with root rot that causes the standing snag stage to be circumvented, and 3) a western hemlock stand in which decay may result in a nearly total and rapid loss of stand character.

D. 16 - 19" dbh tree catagory

This catagory is meant as an accommodation for those stands in which a large tree overstory is lacking, but is being substituted for by small diameter trees in the 16 - 19" dbh catagory. Trees in this class cannot fully substitute for the larger diameter trees and are, therefore, reduced by a factor of 0.6 after scoring them in the same manner as for the larger trees. This condition is scored only in those stands that have fewer than 15 trees/acre. In the professional judgement of the biologists involved including personal observations, this factor (0.6) seemed reasonable in view of the available information.

II. Large Standing Dead and Dying

This component of old growth is considered the most important since it provides for cavity excavation and nesting as well as foraging, drumming and perching. Only 19"+ dbh trees are initially considered. A total of 42 points can be given a stand with a "perfect" snag component. The procedure to follow is to start with 42 points and deduct from that "perfect" situation as deficiencies in the snag component are identified. Since this category refers to all trees that provide cavity nesting, it also includes live trees that are decadent enough for cavity excavation since they are functionally equivalent to snags.

A. No. snags/acre >19" dbh

Old growth is generally defined in terms of decadency or the number of snags/acre, and according to Thomas (1979) that number is 0.5/acre. Since the extent to which more snags are better is uncertain, only 6 points are available to be given for numbers higher than the definitional limit. At snag densities higher than 4/acre, factors other than competition for nesting sites may limit old growth populations. For a snag count of less than 0.5/acre, points are deducted from 42 ranging from 7 to the full 42 if no snags are present. Estimates below 0.5 call for extra caution since small differences in the number of snags translate into large differences in the points deducted. The choice of a number requires subjectivity since such small distinctions cannot be made solely on the basis of an imprecise system of measurement.

Arriving at an accurate snag count is difficult. Stand exams do not give reliable estimates of snag numbers since

the sampling intensity is designed to be statistically accurate for estimates of the live tree component, not the less frequently occurring snag component. A good method for estimating snags/acre is to tally those seen on a walk through the stand and divide that by the number of acres walked. Plotting one's path on a map or aerial photo, combined with sight distance, gives a reasonable estimate of the acres observed. For consistency, it is recommended that the sight distance be limited to 100ft.on either side of the path. Snags seen beyond that distance are not counted. If the stand allows, and the surveyor has confidence in his ability to estimate distances greater than 100ft,then use of a greater site distance is acceptable. If accuracy in estimating site distance can be maintained, than a greater distance is desireable since it represents a larger sample size and consequently a better estimate of snags per acre.

B. Snag Species

If snags were all of equal quality and condition, their density would be the only parameter of importance for determining the relative values of old growth stands. In fact though, the great difference in decay pattern as determined by tree species, cause of death, etc., produces trees of highly variable utility to cavity nesters.

Based upon the frequency of occurrence of nest cavities, the tree species are grouped according to their relative value. These groupings and ratings are designed for a theoretical stand having only one species of snags. If the actual snag component is made up of species from different groups, then it is necessary to subjectively balance the deductions between categories. For example, if a stand had a snag component that is roughly 50% larch and 50% spruce, then 6 points might be the most accurate deduction. Such averaging is necessary only for snag densities less than 4/acre. In the above example, if there were 8 snags per acre and 4 were larch and 4 were spruce, then no points should be deducted for the additional lower value spruce since it does not detract from a situation that may already be optimum. In this case, as with many others in the survey, it is necessary to be aware of the limiting factors. Only when snags are limiting, which it is assumed they are not at 8/acre, will the presence of inferior species of snags contribute to the limiting condition.

Each forest can provide a suitable ranking of tree species important for cavity nesting. The ranking included on the point sheet appears appropriate for mixed conifer stands in the warm and wet habitat type series on the Libby Ranger District, Kootenai National Forest.

C. Snag Condition

Snag condition is the most important measure of quality, or utility of the dead component to wildlife. This evaluation is necessarily subjective, but based on snag characteristics known to be of use to wildlife. After deductions have been made for numbers and species of snags, it is necessary to take that score and deduct further according to the condition of those snags. It is possible to deduct as much as half, or 50%, for the worst conceivable condition. The remaining 50% represents a base quantity of points for which no deductions can be made on the basis of condition. A base level for points is supported by the fact that our knowledge of snag use and development is incomplete and that there are important activities such as perching and drumming that can be provided by non-cavity snags. Increments of deductions less than 50% are used to span the range of conditions as described on the point scale sheet.

Positive characteristics of condition to be used in making a subjective evaluation are broken-topped, large diameter, existing cavities, signs of feeding, conks and other indications of disease, partial fire scarring, and live trees which have a broken or dead top or those which have just recently died (longevity factor). Some undesirable characteristics can include spike-topped snags which are totally fire charred and case hardened (sometimes evident in larch). The absence of cavities can often be a negative indication, but should be viewed cautiously.

Since the surveyor must assign a score for this parameter on a purely subjective basis, it is necessary to clearly document in the narrative the rationale for the score given.

D. Less than 1 snag/2 acre catagory

If a stand has fewer than 0.5 snags/acre (or 1 snag/2 acres), then the number of snags is considered limiting and it is necessary to consider if there are snags in a smaller than 19" diameter class that may be at least partial substitutes. In such a case, the smaller diameter classes are to be evaluated in the same manner as was the greater than 19" diameter class. Since smaller diameter snags are not of the same utility as those greater than 19", their score must be reduced by one of the following factors: 0.2 for the 12-15" diameter class and 0.4 for the 16-19" class. Again, in the professional judgement of the biologists involved, these factors seemed reasonable and realistic in view of the available information.

III. Large Down

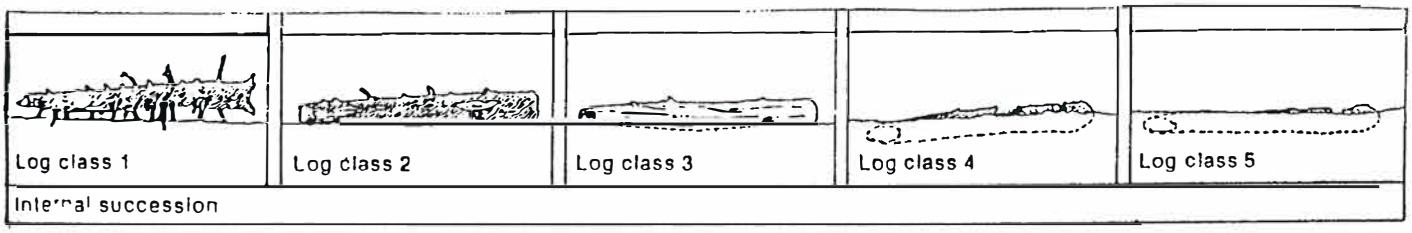
The large down component serves a vital role in nutrient recycling, in supporting a community of plant and animal decomposers, in providing forage and denning for small mammals and feeding substrate for birds.

A. Estimation of the tonnage of large down material is accomplished by the use of a method adopted from Anderson's (1978) forest fuels inventory. The surveyor should begin with a walk through the stand appraising the condition of the down material. An area within the stand that best represents the whole stand in terms of down material is chosen. Through that area a transect 400' in length is walked. All down material greater than 12" in diameter that is intersected by the path is tallied in the columns provided at the bottom of the form. The total tallies in each class are multiplied by the numbers given. The sum of these numbers equals Σd^2. Log decay class taken from Thomas (1979) is also recorded.

IV. Multi-storied

Because a multi-storied canopy appears to be an important component of old growth forests, this component will be rated by multiplying the total stand score by an appropriate factor.

If two or more distinct canopies are present in the stand the total score is multiplied by a factor of 1.0 and thus no deduction is made. If only one canopy layer is present (that being the main overstory), and stand structure is such that the evaluator feels a deduction should be made, then the total score can be multiplied by a 0.9 or 0.8 factor. Due to the inherent structural diversity within a given old growth stand, this should occur very infrequently. The maximum possible deduction for any one stand would be 20 points.



(From Thomas, 1979).

Figure 47. Logs progress through two simultaneous successional processes—internal and external.

Literature Cited

Anderson, Hal E. 1978. Graphic Aids for Field Calculation of Dead, Down Forest Fuels. USDA Forest Service Gen. Tech. Rep. INT-45, 21 pp.

Christensen, Alan G. 1983. Interim Guidelines for Old Growth Mgmt., Kootenai National Forest.

Kuennen, Reed. 1983. Results of Kootenai National Forest Old Growth Surveys. 4 pp.

Pfister, R. et. al. 1977. Forest Habitat Types of Montana. USDA Forest Service Gen. Tech. Rep. INT-34, 174 pp.

Thomas, J. W., ed. 1979. Wildlife Habitats in Managed Forests, The Blue Mountains of Washington and Oregon. Agricultural Handbook No. 553. U.S. Department of Agriculture, Forest Service. 512 pp.

OLD GROWTH EVALUATION FORM

Drainage _____ Analysis Area _____ Score
Surveyed by _____ Date _____ Stand # _____
Acreage _____

I. Large Standing Live

Points

A. No. trees/ac >19" dbh:ave. spacing = ___ x ___ = ___tree/ac; s.e.* ___ ____
B. No. trees/ac >30" dbh:No. seen ÷ ac seen ___ = ___trees/ac; s.e.___ ____
C. Decadence _____ ____
D. If 16-19" dbh trees are significantly contributing to overstory, then evaluate standing live 16-19" dbh: Score ___ x Factor .6 = ____

Subtotal ☐ Out of 32 Possible

II. Large Standing Dead and Dying

A. No. snags/ac >19" dbh; No. seen ___ ÷ ac seen ___ = ___ snags/ac ____=A
B. Snag species: ___% ___; ___% ___; ___% ___; ____=B
Total ____=A+B
C. Snag condition 42 - (A+B) = ___ x Condition Factor ___ = ____=C
Total ____=A+B+C
42 - _____ = ____
A+B+C
D. If <1 snag/2 ac, then evaluate snags <19" dbh:Score ___ x Factor ___= ____=D

Add

Subtotal ☐ Out of 42 Possible

III. Large Down

Σd^2 = ___ x 0.0025 = ___: Chart Value = ___ tons/ac

Subtotal ☐ Out of 26 Possible

Total ☐ Out of 100 Possible

IV. Multi-Storied

Total Score ___ x Multi-storied Factor ___ = Stand Score

Down Tally

12-15" = ___ x 182 = ___
16-20" = ___ x 306 = ___
21-25" = ___ x 506 = ___
26-30" = ___ x 756 = ___
>30" = ___ x 900 = ___
Σd^2 = ___

Log decay class _____

Snag Tally		Live Tally
≤19" dbh	>19" dbh	>30" dbh

Stand Age

dbh	Species	Age
___	_____	___
___	_____	___
___	_____	___

% Canopy Closure ____
Habitat Type _____
Elev./Aspect _____

* stand exam

Hansen, Bratkovich, Fairman-1984

EVALUATION FOR REPLACEMENT OLD GROWTH

This scheme is designed to provide the surveyor with a guide for evaluating stands that don't currently provide adequate old growth values. Important questions this scheme attemts to answer are whether or not the timber stand has the potential to develop into old growth and if so, in what time frame.

1. Total score > _____ existing old growth
   Total score < _____ does not meet criteria for old growth, go to 2

2. Overstory < 8 pts., and age > 250 years — old growth will not develop
   Overstory < 8 pts., and age < 250 years — possible long term replacement
   Overstory > 8 pts., — go to 3

3. Standing dead < 15 pts., and overstory vigorous — long term replacement
   Standing dead < 15 pts., and overstory decadent — near term replacement

NARRATIVE (including but not limited to prominant vegetation such as overstory and understory species, distance to water, thermal and hiding cover value, animal use and sightings, fire or logging history, distance to roads, potential for management impacts, rough map illustrating area walked, and general impressions of stand)

POINT SCALE

I. 1) < 8 trees/ac = 0 points
8-14 " = 1-18 points
15-27 " = 19-24 points
> 27 trees/acres = 25 points

2) 0 trees/ac > 30" dbh = 0 point
0-1 " " = 1 point
1-3 " " = 2 points
> 3 " " = 3 points

Tree Spacing Chart

100'	x 100'	= 4	trees/ac	
90	x 90	= 5	"	"
80	x 80	= 7	"	"
75	x 75	= 8	"	"
70	x 70	= 9	"	"
60	x 60	= 12	"	"
50	x 50	= 17	"	"
40	x 40	= 27	"	"
30	x 30	= 49	"	"
20	x 20	= 109	"	"

3) Absent : almost all trees vigorous = 0 points
Present : some decadence, most trees vigorous = 1 point
Common : decadence easily found = 2-3 points
Prevalent : most trees affected significantly = 4 points

4) Same point scale as No. 1, except refers to 16-19" dbh class rather than the greater than 19" dbh class.

II. 1) greater than 4 snags (or live cavity trees)/ac — deduct 0 points
2-4 snags/ac — deduct 2 points
1-2 snags/ac — deduct 4-6 points
1 snag/2 ac or .5/ac — deduct 8 points
1 snag/2.5 ac or .4/ac — deduct 12 points
1 snag/3 ac or .3/ac — deduct 17 points
1 snag/5 ac or .2/ac — deduct 25 points
1 snag/10 ac or .1/ac — deduct 35 points
0 snags seen — deduct 42 points

2) Larch, ponderosa pine, black cottonwood — deduct 0 points
Douglas-fir, cedar — deduct 7 points
Hemlock, spruce, grand fir, white pine — deduct 12 points
Lodgepole pine, subalpine fir — deduct 20 points

3) Condition (Positive characteristics explained in instructions)

Factor		
.5	-	no snags showing any positive characteristics
.4	-	10% of snags showing positive characteristics
.3	-	20% of " " " "
.2	-	40% of " " " "
.1	-	60% of " " " "
0	-	80% of " " " "

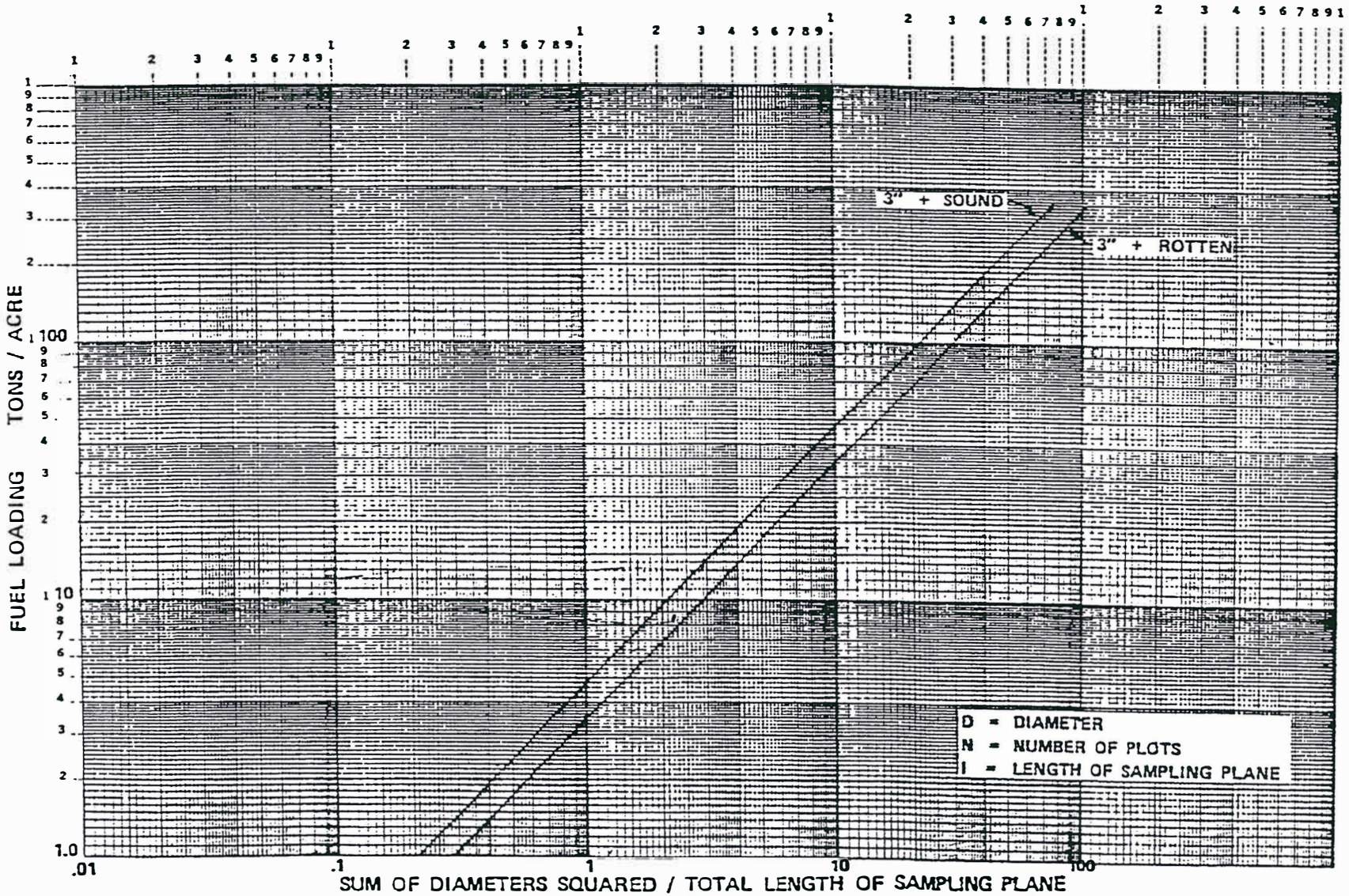
4) Compute the smaller diameter snag score in the same manner as the large component. Multiply the resulting score by one of the following conversion factors:

0.2 if the diameter class is 12-15"
0.6 if the diameter class is 15-19"

III. less than 2 tons/ac = 0 points
2-5 tons/ac = 1-4 points
6-10 tons/ac = 5-15 points
11-18 tons/ac = 16-20 points
19-25 tons/ac = 21-22 points
26-30 tons/ac = 23 points
31-35 tons/ac = 24-25 points
>35 tons/ac = 26 points

IV. Present - 1.0 Marginal - 0.9 Absent - 0.8

DEAD - DOWN FUEL LOADING FOR FUELS > 3 INCH DIAMETER
SOUND AND ROTTEN - FROM FUEL INVENTORY



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EXAMPLE STAND

OLD GROWTH EVALUATION FORM

Drainage Bud Ck
Surveyed by Foreman

Analysis Area 4
Date June 19, 1985

Score 84
Stand # 51-4-27
Acreage 25

I. Large Standing Live

Points

A. No. trees/ac >19" dbh:ave. spacing = 75 x 75 = 8 tree/ac; s.e. 2nd available* — 9
B. No. trees/ac >30" dbh:No. seen ÷ ac seen 2/5 = .4 trees/ac; s.e. — 1
C. Decadence Common — 3
D. If 16-19" dbh trees are significantly contributing to overstory, then evaluate standing live 16-19" dbh: Score 19 x Factor .6 = 11

55 X 55 = apx 151 trees/ac

Subtotal [24] Out of 32 Possible

II. Large Standing Dead and Dying

A. No. snags/ac >19" dbh; No. seen 9 ÷ ac seen 5 = 1.8 snags/ac — 4 =A
B. Snag species: 100% L; ___%; ___%; — 0 =B — Add
Total 4 =A+B
C. Snag condition 42 - (A+B) = 38 x Condition Factor 0 = 0 =C — Add
Total 4 =A+B+C
42 - 4 (A+B+C) = 38
D. If <1 snag/2 ac, then evaluate snags <19" dbh:Score ___ x Factor ___ = ___ =D — Add

Subtotal [38] Out of 42 Possible

III. Large Down

Σd^2 = 2380 x 0.0025 = 5.95 Chart Value = 22 tons/ac.

Subtotal [22] Out of 26 Possible

Total [84] Out of 100 Possible

IV. Multi-Storied

Total Score ___ x Multi-storied Factor ___ = Stand Score

Down Tally

12-15" = ___ x 182 = ___
16-20" = II x 306 = ___
21-25" = II x 506 = ___
26-30" = I x 756 = ___
>30" = ___ x 900 = ___
Σd^2 = 2380

Log decay class 3

Snag Tally

≤19" dbh	>19" dbh
II DF B	III L B
I DF S	I L S
II LPP by Kill	I L live w/ con
I GF <10"	I L B live
	II L live

Live Tally

>30" dbh
III

Stand Age

dbh	Species	Age
27	L	282 + heart rot
17	DF	175
18	WP	190

% Canopy Closure 85%
Habitat Type TsHe/ClOh
Elev./Aspect NW - 5000

* stand exam

Hansen, Bratkovich, Fairman-1984

S = spiked top
B = Broken top
L = Live tree functioning as a snag

EVALUATION FOR REPLACEMENT OLD GROWTH

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1. Total score > _____ existing old growth
   Total score < _____ does not meet criteria for old growth, go to 2

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   Overstory < 8 pts., and age < 250 years — possible long term replacement
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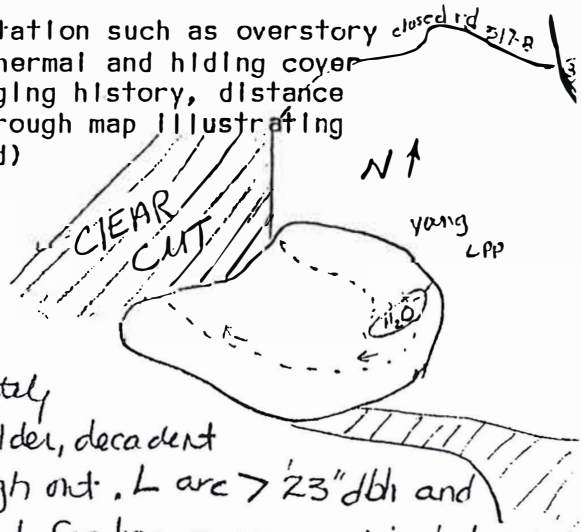
3. Standing dead < 15 pts., and overstory vigorous — long term replacement
   Standing dead < 15 pts., and overtory decadent — near term replacement

NARRATIVE (Including but not limited to prominant vegetation such as overstory and understory species, distance to water, thermal and hiding cover value, animal use and sightings, fire or logging history, distance to roads, potential for management impacts, rough map illustrating area walked, and general impressions of stand)



OVERSTORY -
DF, L, WP w/ scattered large L (> 23" dbh)
UNDERSTORY
DF, WP, w/ H, S, LPP, yew

Veg
clum
XETE
VAGL
IEFE
CHUM
ALSI
- looks like good berry crop yum!
carpet like, shrubs
↑ is sunny spots
40% slope

This stand is predominately a DF stand (17" dbh) w/ an older, decadent L component scattered through out. L are > 23" dbh and provide some prime cavity and feeding sources. Live, deg large L insure the continuation and longevity of a quality dead/dying component. #/ac of large live is low, but I feel the 17" dbh class of DF fulfill (or soon will fulfill) this category. The U.S. is a mixture of species, w/ H as the prominent regen. The seral L stage is slowly giving way to ultimately a H. stand. Fire scars appear on some large L.

Logging history is evident - some large L were removed many years ago. This stand has logging potential as the DF appear healthy and vigorous. Wildlife signs near the H_2O area are very prevelant. Several widows exist, a pileated sighted, a couple cavities, pileated feeding occurring, game trails common. This stand provides thermal and security cover, and a H_2O source. This area is very definately functioning O.G. The only limiting factor I perceive is that the stand is too small.