

**ADDENDUM TO
WORKING PAPER:
AGRICULTURAL LANDS**

**Commercial Agriculture & Farm
Parcel Size In Lane County**

November, 1983

This report is to supplement the material presented in Working Paper: Agricultural Lands. It seeks to address two questions posed by that publication that are as yet unanswered. Simply stated these question are:

1. What is a commercial agricultural enterprise?
2. What parcel sizes are appropriate for the continuation of commercial agricultural enterprise within an area?

The Working Paper attempted to deal with these questions, however, due to lack of available data, was unsuccessful in leading Lane County to acceptable conclusions. More information is now available and this report will draw on this newer material.

COMMERCIAL AGRICULTURAL ENTERPRISE

Working Paper: Agricultural Lands used a mail out survey to develop information on the nature of agriculture within the County. The results of the survey were not totally conclusive; however, some characteristics are evident:

- Farm enterprises tend to be diverse producing more than one crop type.
- There is no strong geographic pattern of farm type.
- The majority of producing acreage is concentrated in relatively large farm operations.
- Individual farm operations utilize rented land to a high degree.
- Individual farm operation spanning non-contiguous land are common.

Recently, unpublished data from the U.S. Bureau of Cencus 1978 Census of Agriculture has been assembled by James Pease of Oregon State University. This information supports earlier conclusions and, more importantly, allows a closer view of the overall size and diversity of agricultural operations within Lane County. From this new data the following characteristics can be stated:

1. Agriculture is diversified in Lane County. The Bureau of Census classifies the County's farms into 11 separate groups

Group No.	Type
1	Cash Grains
2	Field Crops (includes grass seed production)
3	Vegetables and melons
4	Berries and grapes
5	Tree fruits and nuts
6	Horticultural specialties
7	General farm, primarily crop
8	Extensive Animal Grazing
9	Intensive Animal Husbandry
10	Dairy Farms
11	General farm, primarily livestock

2. Mixed crops and/or products within a farm operation is common. To allow for this, the Bureau of Census classifies a farm operation by the type of crop or product that accounts for more than half of the gross revenue of the farm operation.
3. The 1978 Census of Agriculture reported 1709 farm units within the County. Of this total only 983 or 58% reported sales of \$2,500 or more. Farms having sales of \$2,500 or more however account for 85% of the total agricultural acreage reported in the census. This latter group also accounts for 98% of the total sales (See Table I).

4. The characteristics of the various farm groups differ widely. No single farm group dominates the agriculture economy (See Table I). The largest group in terms of sales is field crops which generate 23% of the total farm sales. The largest group by number of farms and area involved is extensive animal grazing. This group accounts for 50% of the number of farms and 69% of the agricultural land reported.
5. In general, the majority of total sales volume is generated by a relatively small percentage of operators (See Table II).
6. The distribution by size of farms varies from agricultural group to agricultural group (See Table III). As a function of distribution, the central tendency of farm unit size also varies considerably from group to group. This remains true whether evaluating for size (e.g. median size) or size range accounting for a given sales volume (e.g. percentile of dollar volume).
7. A large amount of farm production (45% overall) occurs on rented land (See Table IV).
8. Geographic distribution of farm types is unknown and cannot be determined by this data.

From the foregoing it becomes evident that no single standard can be used to describe commercial agricultural enterprise within the County. Rather it appears the best method would be to use different descriptions for the different types of enterprises.

OAR 660-05-005(2) states:

"Commercial agricultural enterprise consists of farm operations which will:

- (a) Contribute in a substantial way to area's existing agricultural economy; and
- (b) Help maintain agricultural processors and established farm markets.
- (c) When determining whether a farm is part of the commercial agricultural enterprise, not only what is produced, but how much and how it is marketed shall be considered. These are important factors because of the intent of Goal 3 to maintain the agricultural economy of the state."

The key to this definition is trying to determine how to describe or quantify "contribute in a substantial way to the agricultural economy." Table II illustrates that a relatively small number of farm operations account for the majority of sales. Overall 53%, or roughly half, of the total number of farms generate 80% of the dollar volume; less than a quarter of the producers (21%) account for well over half of the total dollar volume. In an initial review of this data, the Lane County Agricultural Extension Agent suggested the 20th percentile of dollar volume should be an adequate point to determine where a "significant" contribution occurs. (See Appendix A, paragraph 5. The dollar volume categories used in Table II can also be referred to as percentiles. The 20th percentile is the point at which 20% of the cases are below and 80% are above. Thus the three categories represent the 20th, 30th and 40th percentiles respectively.) Table II, along with the Extension Agent's opinion, while far from being conclusive, does have clear implications; overall, not more than half of the total number of farms can be considered to be making a "substantial" contribution to the agricultural economy.

Table III illustrates this same point in a different manner. The median size range (i.e. midpoint) for each farm group is identified. The 30th percentile (i.e. point above which 70% of sales occur) is also shown. In general, there is a correlation between these two different parameters; farms above the median size range account for 70% of the sales volume. This conclusion is consistent with that derived from Table II. By linking dollar volume to farm size a workable hypothesis emerges; the median size range could be used to establish the point at which a "significant" contribution occurs.

The standard posed by Goal 3 is vague and requires a subjective determination if it is to be quantified. At best, the working hypothesis suggested here is an approximation of such a value. From the information presented in Tables II and III it seems safe to conclude that farms above the median size range do in fact contribute in a substantial way to the agricultural economy. The same could be said for farms above the 40th percentile of sales volume. The number of producers falls off very rapidly at this point; however, and 79% of the total number of existing farms would be excluded. To select such a narrow definition does not seem logical or appropriate. To go in the other direction and select the 20th percentile as a standard may be valid; however, its use poses some difficulties. The number of farms (53% of total) included by this standard certainly is not out of line. The difficulty arises when a linkage to parcel size is attempted. In several of the farm group categories the 20th percentile falls below 20 acres. Available data does not allow for any size breakdown between 1 and 19 acres. As a result in these categories the best one can say is that the standard is somewhere between 1 and 19 acres. In other words we have no quantifiable standard using the 20th percentile. While using the suggested hypothesis as a standard is an approximation, at least it is a useable and supportable approximation.

Such a definition of a commercial farm is fine to a point, however, has some drawbacks. First is the fact that the data is derived from total farm operations. Any given operation may be conducted on several pieces of land not necessarily contiguous or even under the ownership of the operator. Another shortcoming is that it does not serve as a reasonable standard for land division. The data addresses only farm types; observation shows many of these types existing in the same area. Using the median range a standard ranging from 20 acres (berries and grapes) to 320 acres (general farms, primarily crop) is established. A land division approved at the lower size cannot be demonstrated as maintaining a commercial agricultural enterprise consisting of operations falling into the larger category.

PARCEL SIZES APPROPRIATE FOR COMMERCIAL AGRICULTURE

As discussed above, certain conclusions can be reached regarding the nature of commercial agriculture. A very important one is that a farm operation may well consist of many subunits (i.e. fields). Census data focuses on the overall operation and does not provide any tangible information on field sizes. A different method of gathering and evaluating data is needed.

From all reports the existing agricultural economy is quite viable within the county. One can assume that existing field sizes, while the result of an infinite number of factors, tend to optimize utility for the operator. Reviewing the size and distribution of existing farm parcel sizes would at least demonstrate the result of free marketplace choice. The existing field sizes could be reviewed to determine if there is any correlation with expert opinion on viable field sizes for similar farm operations. Knowing that the County is large and diverse, regionalizing the information seemed advisable. Geographic regions (See Map I) were established on the basis of soils series and location. This was done by working closely with County Agricultural Extension Agents (See Appendix B).

Utilizing the County's geographic data base computer capability, existing farm parcels within each region were evaluated to determine size characteristics. The results are shown on Tables VI and VII. The data was assembled under two different parameters; using all identified farm parcels (Table VI) and only using farm parcels of 10 acres or larger (Table VII). The purpose of using two sets of parameters was to check for a data bias; the land use data may identify small units as farm units when more properly they should be considered rural residential. The very small minimums and smaller central tendencies displayed on Table VI indicate that such a bias probably does exist, and hence, only the data rejecting units of less than 10 acres (Table VII) should be used. Five different ways of indicating the central tendency of field size are displayed on Table VII. Percentiles are a way of stating a point that a certain percentage of all cases are below. In other words the 20th percentile is the size that 20% of the cases are of lessor size and 80% are larger. The median is the midpoint having an equal number of cases smaller and larger; it is also the 50th percentile. The mean (commonly called the average) is the total of all sizes divided by the number of cases. The mean is the least reliable of all central tendencies because it is so easily influenced by extremes at either end of the range.

Not knowing what is being produced on the existing fields shown on Table VII, the data could be skewed by producers that are not "significant contributor" to the agricultural economy. To develop a knowledgeable opinion as to what would be a viable commercial field size, hypothetical situations were developed to represent a standard set of conditions in each geographic region. To represent a "commercial farm operation" within each region, the size range immediately above the median value for the farm type corresponding to a primary crop type was selected. The primary crops were selected by County Extension Agents as being the most common or suitable for the region. As explained earlier, in general, 70% of total sales are generated on farms of the median size or larger. For the purposes of this evaluation this point will be assumed to be the lower threshold of those farm operations making a significant contribution to the overall agricultural economy. Within the context of the hypothetical standard conditions, Extension Agents offered their opinion as to the smallest field size considered viable and also as to a preferred size. The results of this process are shown on Table VIII. The opinions received from the Extension Agents were compared to the existing parcel sizes to determine an appropriate parcel size standard for each region.

As with the earlier discussion regarding overall farm size, a parcel size that is appropriate for the continuation of commercial agriculture within an area can only be approximated. In general a parcel size in the 30th to 40th percentile range seems a reasonable approximation. A higher point (i.e. median size or 50th percentile) would dismiss too many (half) of the existing cases as being erroneous choices. A lower figure such as the 20th percentile tends to move too far in the other direction. If the parcel size within the 30th to 40th percentile is greatly at odds with the "expert opinion" offered by the Extension Agent, this difference should be reconciled to arrive at a reasonable approximation for the region.

Region 1. A standard of 40 acres is right at the 40th percentile. It is above the recommended minimums (20-30 ac.) and within the preferred size range (40-80 ac.).

Region 2. A standard of 40 acres is within the 30th to 40th percentile range (36-44 ac.). It is at the upper end of the recommended minimum range (20-40 ac.) and within the preferred size range (40-80 ac.).

Region 3A. A standard of 40 acres would be right at the 40th percentile. It is however below the recommended minimum range (20-40 ac.) and the preferred range (40-80 ac.). One must conclude the existing parcel size distribution is being influenced by crops other than those considered primary by the extension service.

A standard of 40 acres represents a compromise that seems consistent with existing and recommended.

Region 3B & C. The existing size distribution for the two regions is almost identical so they will be treated as one. A standard of 25 acres would be right at the 40th percentile however, is below recommended size ranges. Again, one must assume the size distribution is influenced by nonprimary crops. Given a much lower median value than found in Region 3A a standard of 40 acres seems too high. In this instance 30 acres seems a reasonable compromise between existing and recommended.

Regions 4, 5 and 7. A standard of 20 acres would be within 30th to 40th percentile range of existing parcels. It is also equal to or above recommended minimums. A standard of 40 acres would be consistent with the preferred recommendation however, is considerably above the median existing size of 28 acres. A standard of 30 acres seems a reasonable compromise between existing and recommended.

Region 6. A standard of 25 acres is within the 30th to 40th percentile range and equal to the preferred recommendation.

Region 8A. A standard of 60 acres is within the 30th to 40th percentile range. The standard would be well above recommended minimums and within the preferred range (25-80 ac.).

Region 8B. A standard of 30 acres is within the 30th to 40th percentile range. It is however, below recommended minimum and preferred sizes. This region has a lower median value (44 ac.) than Region 8A (82 ac.) so the 60 acre standard used for that region seems to high. 40 acres seems a reasonable compromise among these various factors.

Region 9A. Standard of 20 acres is within the 30th to 40th percentile range. This size however, is below the preferred recommendation. A 40 acre standard is slightly above the median of existing parcels and at the lower range of the preferred recommendation and represents a reasonable compromise between these factors.

Region 9B. A standard of 40 acres is right at the 40th percentile. As it is also at the lower end of the preferred recommendation range it represents an appropriate approximation for this region.

Region 12. A standard of 30 acres is within the 30th to 40th percentile range. This size is below recommended standards and hence is probably not an appropriate approximation.

Region 13. A standard of 30 acres in within the 30th to 40th percentile range and also in the middle of the recommended range.

Region 16. A standard of 40 acres is just above the 40th percentile and at the recommended minimum size. A larger standard would be too far above the median to be reasonable. This size should be an appropriate approximation for this region.

Region 17A. A standard of 25 acres is at the 40th percentile and consistent with the preferred recommendation.

Region 17B. A standard of 40 acres is equal to the 40th percentile and the preferred recommendation.

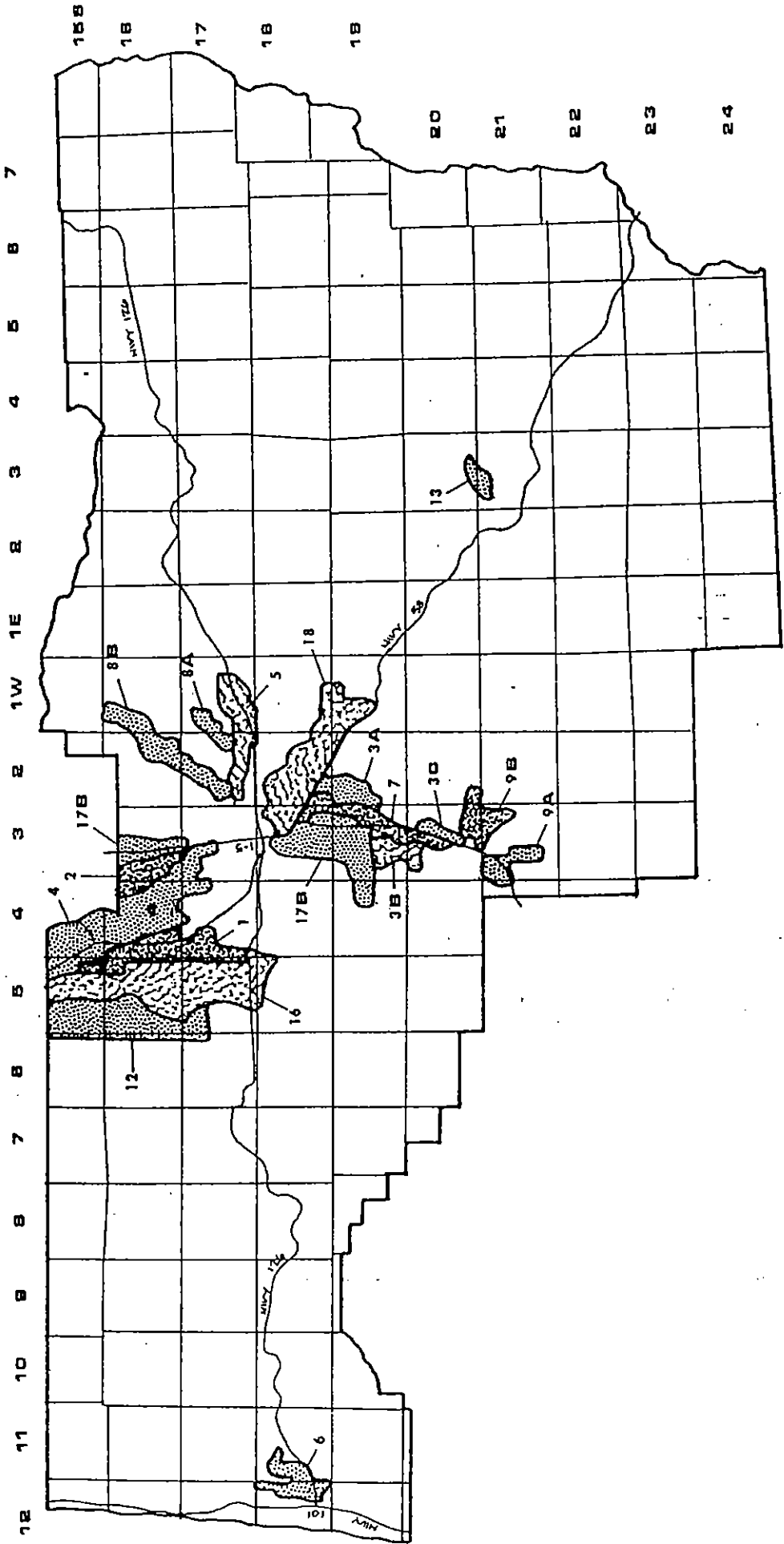
Region 18. A standard of 25 acres is approximately at the 40th percentile. As it also falls within the preferred recommendation range it should be an appropriate approximation for the region.

Remainder of County. Most land to be zoned as exclusive farm use will be within one of the regions listed above as they are formed by the soils commonly farmed. Nonetheless, properties outside of the described regions will also be zoned for exclusive farm use. The lack of other agricultural activity in these areas makes comparative analysis difficult if not impossible. Reviewing the various size standards selected throughout the primary farm regions, 40 acres is found most frequently. Lacking data for localized comparative analysis, 40 acres, being the most common standards overall, will be used for all areas not included in one of the 18 regions discussed above.

A SUGGESTED APPLICATION

From the foregoing discussion it appears there are two separate answers to the questions posed in the introduction. This conclusion leads to yet another question: Can the two different answers be used in conjunction to establish standards that are consistent with Goal 3? The answer is yes; the following will describe such a method. Any use or activity, such as a dwelling, that is allowed only in conjunction with a farm use would be permitted only when it is demonstrated that the farm use is larger than the median size for all farm uses of that type. The farm use would mean the entire farm unit; the total of all land (owned or leased) that is managed together by a single operator. Farm type would be the same categories used in this report. In the case of multiple crop activities an operation would be classified according to which activity generated more than half of the gross revenues. If this standard could not be met, the proposed use would not be considered to be in conjunction with a farm use. As such, the activity could only be allowed if all applicable provisions of ORS 215.213(3) are satisfied. Land divisions would be classified as farm use divisions and non-farm use divisions. A farm parcel being created would be equal to or greater than the selected size standard established in Table IX. This size standard would be deemed as being consistent with the requirements of ORS 215.263. A parcel proposed to be created at a lessor size would be considered to be a non-farm parcel and could be approved only upon satisfaction of the applicable provisions of ORS 215.263 and Goal 3. The important factor to keep in mind with this system is the creation of a farm parcel is not synonymous with creating a farm use. Approval of the farm parcel is governed by standards derived from other such parcels in the area. A farm use is evaluated by standards derived by examining the total scope of all other such farm operations in the County.

In conclusion, this report sought to provide answers to two basic questions regarding the treatment of agricultural land. By intent, the answers suggested are in quantified form (as opposed to being stated as criteria). As pointed out in the earlier report, Working Paper: Agricultural Lands, each approach has its own unique advantages and disadvantages. A criteria based approach maximizes flexibility by allowing a review tailored to the individual situation. This, however, reduces certainty and predictability. A quantified standard increases predictability, however, reduces flexibility or individual consideration. Given a policy position that stresses predictability the standards presented are workable. Even so, one must always remember that these standards are based on generalized data; at best they are approximations.



MAP I
Farm Regions

ALL FARMS		All groups		Cash grains		Field crops (includes grass seed)		Vegetables and melons		Berries and grapes		Tree fruits and nuts		Horticultural specialties		General farming, primarily crop		Extensive animal grazing		Intensive animal husbandry		Dairy farms		General farms, primarily livestock	
Number	1709	47	164	61	27	166	80	48	852	220	30	14													
% of total (tenths)	100.0	2.8	9.6	3.6	1.6	9.7	4.7	2.8	49.9	12.9	1.8	0.8													
Land in farms (acres)	266765	6406	50012	9745	886	6233	2078	12175	155602	14964	7991	673													
% of total	100.0	1.1	23.1	9.4	1.0	4.8	0.8	4.5	58.3	5.6	3.0	0.3													
Sales (in \$1000)	42808	468	9891	4007	438	2055	4605	2860	6725	4148	5558	55													
% of total	100.0	1.1	23.1	9.4	1.0	4.8	10.8	6.7	15.7	14.4	13.0	0.1													

FARMS WITH SALES OF \$2500 OR MORE

Number	983	32	98	54	20	95	65	26	453	111	26	3													
% of total	58.0	1.9	5.7	3.2	1.2	5.6	3.8	1.6	26.5	6.5	1.6	0.2													
Land in farms	226380	5782	45146	9661	658	5193	1938	11310	127103	11488	7913	187													
% of total	84.9	2.2	16.9	3.6	0.2	1.9	0.7	4.2	47.6	4.3	3.0	0.1													
Sales	41928	449	9808	3998	432	1997	4584	2854	6196	6017	5551	41													
% of total	97.9	1.0	22.9	9.3	1.0	4.7	10.7	6.7	14.5	14.1	13.0	0.1													

TABLE I: MARKET VALUE OF AGRICULTURAL PRODUCTS SOLD
(Source: Bureau of Census)

FARMS GENERATING 80% OF SALES VOLUME			FARMS GENERATING 70% OF SALES VOLUME			FARMS GENERATING 60% OF SALES VOLUME		
	Number of farms	% of group total		Number of farms	% of group total		Number of farms	% of group total
	Smallest size (acres)			Smallest farm size			Smallest farm size	
All groups	908	53.1	40	605	35.4	80	365	21.4
Cash grains	23	48.9	80	14	29.8	160	insufficient data	insufficient data
Field crops (includes grass seed)	35	21.3	320	insufficient data	insufficient data	insufficient data	insufficient data	insufficient data
Vegetables and melons	33	54.1	80	20	32.8	160	11	18.0
Berries and grapes	insufficient data	insufficient data	insufficient data	7	35.0	20	insufficient data	insufficient data
Tree fruits and nuts	71	42.8	20	42	25.3	40	insufficient data	insufficient data
Horticultural specialties	insufficient data	insufficient data	insufficient data	18	22.5	20	10	12.5
General farming, primarily crop	13	27.1	320	insufficient data	insufficient data	insufficient data	insufficient data	insufficient data
Extensive animal grazing	516	60.6	40	346	40.6	80	207	24.3
Intensive animal husbandry	insufficient data	insufficient data	insufficient data	insufficient data	insufficient data	insufficient data	insufficient data	insufficient data
Dairy farms	18	60.0	160	insufficient data	insufficient data	insufficient data	9	30.0
General farms, primarily livestock	insufficient data	insufficient data	insufficient data	insufficient data	insufficient data	insufficient data	insufficient data	insufficient data

TABLE II: SELECTED CHARACTERISTICS OF FARMS GENERATING MAJORITY OF SALES VOLUME
(Source: Bureau of Census)

	NUMBER OF FARMS										
	1 to 19 ac	20 to 39 ac	40 to 59 ac	60 to 79 ac	80 to 119 ac	120 to 159 ac	160 to 239 ac	240 to 319 ac	320 to 499 ac	500 to 999 ac	1000 ac or more
Berries and grapes.....	20	15	2	--	1	--	2	--	--	--	--
Horticultural specialties	65	49	7	2	1	1	2	--	2	--	--
Intensive animal husbandry.....	111	49	9	4	14	4	6	3	1	--	1
Tree fruits and nuts...	95	38	14	7	10	3	1	1	2	1	--
All groups.....	983	219	114	100	78	100	55	100	54	72	58
General farms, primarily livestock....	3	--	1	--	1	--	--	--	--	--	--
Cash grains.....	32	1	3	3	4	7	--	7	3	3	--
Vegetables and melons..	54	5	4	5	7	9	4	4	5	7	4
Extensive animal grazing.....	453	58	51	51	42	44	37	52	32	39	35
Field crops.....	98	2	7	12	10	8	3	16	7	9	8
Dairy farms.....	26	--	2	--	1	3	2	8	1	7	1
General farms, primarily crop.....	26	2	1	2	1	2	1	2	2	2	9

Median size range

 30th percentile (approx.) of sales volume

NOTES:

 ① 50% of total sales come from operations of less than 20 acres. 30th percentile is somewhere between 1 and 19 acres.

 ② 85% of total sales come from operations larger than 320 acres. Data does not allow extrapolation of 30th percentile.

 ③ Insufficient data to determine 30th percentile for General Farms, Primarily Livestock

TABLE III: SIZE DISTRIBUTION OF FARMS HAVING SALES OF \$ 2500 OR MORE (Source: Bureau of Census)

	All groups	Cash grains	Field crops (includes grass seed)	Vegetables and melons	Berries and grapes	Tree fruits and nuts	Horticultural specialties	General farming, primarily crops	Extensive animal grazing	Intensive animal husbandry	Dairy farms	General farms, primarily livestock
Total farms in group	983	32	98	54	20	95	65	26	453	111	26	7
Number.....												
Acres.....	226380	5782	45146	9661	658	5193	1939	11310	127103	11488	7913	187
Farms renting land												
Number.....	301	15	53	37	4	23	9	20	104	22	13	1
Acres.....	101580	3309	28552	5187	(S)	1321	150	5417	50331	5090	2096	(S)

(S) Suppressed data

TABLE IV: LAND RENTED BY FARMS WITH SALES OF \$2500 OR MORE
(Source: Bureau of Census)

TABLE V: FARM REGIONS

REGION NO.	SOIL SERIES	PRIMARY CROPS
1	Awbrig-Coburg Oxley-Courtney Dayton-Natroy	Grass seed, wheat, peppermint
2	Awbrig-Coburg Oxley-Courtney Dayton-Natroy	Grass seed, wheat, peppermint
3A,B,C	Awbrig-Coburg Oxley-Courtney Dayton-Natroy	Grass seed, wheat, peppermint
4	Chehalis-Cloquato Newberg-Cloquato-Camas Malabon-Salem	Row crops, orchards, wheat in rotation with peppermint
5	Chehalis-Cloquato Newberg-Cloquato-Camas Malabon-Salem	Row crops, orchards, wheat in rotation with peppermint
6	Nehelam-Nestucca-Brenner	Pasture, cranberry, truffle
7	Chehalis-Cloquato Newberg-Cloquato-Camas Malabon-Salem	Row crops, orchard, wheat in rotation with peppermint
8A,B	Abiqua-McAlpin	Pasture, cereal grain, row crops, grass seed
9A,B	Abiqua-McAlpin	Pasture, cereal grain, row crops, grass seed
12	Nekia-Bellpine-Ritner	Pasture/timber, grass seed, cereal grain
13	Nekia-Bellpine-Ritner	Pasture/timber, cereal grain
16	Bashaw-Natroy	Grass seed
17A,B	Bashaw-Natroy	Pasture
18	Chehalis-Cloquato Newberg-Cloquato Malabon-Salem	Row crop, orchards, wheat in rotation with peppermint

TABLE VI: PARCEL SIZE BY REGION
(All farm units)

Region	Number of cases	Size (in acres)						
		min.	max.	20th percentile	30th percentile	40th percentile	50th percentile (median)	mean
1	236	0.1	405	5	5	18	29	46
2	145	0.4	287	4	5	8	10	38
3A	79	1.3	391	9	12	22	30	54
3B	39	0.7	187	15	18	20	24	40
3C	29	3.3	369	10	14	19	25	45
4	1019	0.2	289	3	5	7	10	24
5	205	0.2	316	3	4	6	10	24
6	18	1.8	118	3	5	5	14	27
7	155	0.9	344	5	6	9	14	27
8A	-	-	-	-	-	-	-	-
8B	122	0.1	303	5	7	11	19	42
9A	28	0.5	155	2	4	9	14	29
9B	36	1.0	219	10	15	34	42	62
12	224	1.0	518	10	14	22	32	60
13	14	1.3	216	13	15	17	47	75
16	405	0.1	418	5	9	13	22	55
17A	133	1.3	468	6	10	12	16	53
17B	44	0.8	619	12	20	31	43	107
18	309	0.3	295	5	8	12	17	30

TABLE VII: PARCEL SIZE BY REGION
(Farm units of 10 acres or larger)

Region	Number of cases	Size (in acres)						
		min.	max.	20th percentile	30th percentile	40th percentile	50th percentile (median)	mean
1	106	10	405	24	32	39	46	66
2	75	10	287	24	36	44	60	68
3A	60	10	391	21	27	31	45	69
3B	34	11	187	18	20	23	29	44
3C	23	11	369	19	20	25	27	55
4	510	10	289	16	19	22	27	43
5	102	10	317	14	18	20	28	44
6	11	12	118	21	24	42	57	58
7	89	10	344	17	19	25	31	43
8A	17	12	163	14	56	69	82	84
8B	75	11	303	20	28	38	44	65
9A	15	14	155	17	20	20	31	51
9B	29	14	219	27	34	42	59	76
12	177	10	519	20	25	36	51	74
13	12	13	216	15	17	47	50	87
16	260	10	418	21	31	39	47	83
17A	89	10	467	14	18	23	34	76
17B	38	11	619	22	27	40	59	124
18	197	10	295	17	20	23	27	45

TABLE VIII
FARM PARCEL SIZE QUESTIONNAIRE

For each farming region listed below:

- (a) Assume you are farming in the area.
- (b) Your total operation is of the approximate size listed.
- (c) You are primarily engaged in one or more of the activities listed. You may participate in other activities however the primary activity accounts for over half of gross sales volume.
- (d) Given the size, location, and nature of your operation what is the smallest parcel of land you would consider buying or renting (assuming a reasonable price)? What is a more desirable (preferred) size for this operation.
- (e) Give a separate answer for each primary activity listed.

Region No.	Size of Operation (acres)	Primary Activities	Smallest Parcel (acres)	Preferred Parcel (acres)
1	160-239	grass seed	20	80
	120-159	wheat	20	40
	160-239	peppermint	30	60
2	160-239	grass seed	40	80
	120-159	wheat	20	40
	160-239	peppermint	30	60
3A	160-239	grass seed	40	80
	120-159	wheat	20	40
	160-239	peppermint	30	60
3B	160-239	grass seed	40	80
	120-159	wheat	20	40
	160-239	peppermint	30	60
3C	160-239	grass seed	40	80
	120-159	wheat	20	40
	160-239	peppermint	30	60
4	120-159	row crop	20	40
	40-59	orchard	5	10
	120-159	wheat/peppermint	20	40
5	120-159	row crop	20	40
	40-59	orchard	5	10
	120-159	wheat/peppermint	20	40
6	120-159	pasture	10	25
7	120-159	row crop	20	40
	40-59	orchard	5	10
	120-159	wheat/peppermint	20	40

(Table VIII cont.)

Region No.	Size of Operation (acres)	Primary Activities	Smallest Parcel (acres)	Preferred Parcel (acres)
8A	120-159	pasture	15	25
	120-159	cereal grain	20	40
	120-159	row crop	20	40
	160-239	grass seed	40	80
8B	120-159	pasture	15	25
	120-159	cereal grain	20	40
	120-159	row crop	20	40
	160-239	grass seed	40	80
9A	120-159	pasture	15	25
	120-159	cereal grain	20	40
	120-159	row crop	20	40
	160-239	grass seed	40	80
9B	120-159	pasture	15	25
	120-159	cereal grain	20	40
	120-159	row crop	20	40
	160-239	grass seed	40	80
12	120-159	pasture/timber	--	--
	120-159	cereal grain	30	40
	160-239	grass seed	40	80
13	120-159	pasture/timber	10	25
	120-159	cereal grain	20	40
16	160-239	grass seed	40	80
17A	120-159	pasture	15	25
17B	120-159	pasture	20	40
18	120-159	row crop	20	40
	40-59	orchard	5	10
	120-159	wheat/peppermint	20	40

Footnote: wheat/peppermint = wheat and peppermint in rotation

TABLE IX: SELECTED STANDARD FOR FARM PARCEL SIZE

Region	Selected Standard (acres)
1	40
2	40
3A	40
3B	30
3C	30
4	30
5	30
6	25
7	30
8A	60
8B	40
9A	40
9B	40
12	40
13	40
16	40
17A	25
17B	40
18	25

APPENDIX A

EXTENSION SERVICE
Lane County Office



950 W. 13th Avenue
Eugene, Oregon 97402-3999

687-4243 Agriculture,
Home Economics, 4-H
697-4281 Nutrition

April 19, 1983

TO: Vern Delk
County & Community Development
Courthouse
Eugene, OR 97401

FROM: Mike Stoltz
Extension Agent

A handwritten signature in cursive script that reads "Mike Stoltz".

RE: Land Use Planning Criteria Questions

1. Can crop types be regionalized?
2. Can generalized soils mapping be used as a guide to farming type?

Yes, with location combined with soil types. Examples are: West of 99 from Eugene, north to Benton County line on soils of Awbrig-Coburg association, Oxley-Courtney association and Dayton association, the crops are primarily grass seed with wheat and peppermint on the higher, better drained ground. These could be classified as "extensive" or primarily agronomic crops. This description would also fit the area east of Coburg Road between Coburg and Harrisburg and in the Creswell-Walker area on the coast fork of the Willamette.

The area east of 99 and Prairie Road all the way across the Willamette to Coburg Road on soils of Chehalis-Cloquato association, Newburg-Cloquato-Camas association, and the Malabon-Salem association are primarily row crops and orchards with wheat or peppermint as rotations. Some of this ground is often in wheat but is suited for the more "intensive" or horticulture crops. This is also true of these associations running up the McKenzie and the forks of the Willamette.

The areas of the Mohawk Valley, north of Walterville, and around Cottage Grove on soils of Abiqua-McAlpin association are mixed agriculture areas, primarily made up of pasture, cereal grains and small amounts of row crop on better drained sites, and grass seed on poorer drained sites.

The Bellpine-Hazelair-Philomath association soils are predominately timber. However, some pasture is predominant on the poorer drained soil and on the lower slopes.

The Nekia-Bellpine-Ritner association soils up the Mohawk are primarily pasture-timber mixture, with some grass seed and cereal grains, as they are to the southwest of Eugene-Springfield, west of Territorial Road, and up the forks of the Willamette.



Agriculture, Home Economics, 4-H Youth, Forestry, Community Development,
Energy, and Marine Advisory Programs, Oregon State University,
United States Department of Agriculture, and Lane County cooperating

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The Veneta-Salkum association soils around Fern Ridge are used for orchards and berries, particularly on Veneta soils, with some grass seed on Salkum soils. Timber is usually the case on the steeper slopes and pasture on lower slopes. Pasture also predominates on the smaller and/or less developed parcels.

The Nehalem-Nestucca-Brenner association soils on the coast are primarily in pasture. Some of the Brailier-Brenner association soils on the coast are also in pasture but are also suitable for cranberry or truffle production, which are both very intensive, small acreage enterprises.

The Bashaw-Natroy association soils are primarily pasture except for that area between Highway 99 and Territorial Road, which is again grass seed.

A number of exceptions exist on soil associations listed as grass seed where drainage tile has been installed. Crops there are wheat, peppermint, vegetable seed crops and row crops.

I think these associations will work for determining predominant-agriculture type for an area. They are probably too broad for pinpoint zoning, for example, in the Bellpine-Hazelair-Philomath association is the Dixonville-Philomath-Hazelair Complex.

Several years ago, there was considerable discussion on keeping 374C Dixonville-Philomath-Hazelair Complex in an agricultural capability classification. The Soil Conservation Service, however, felt there was no need to keep such poor soils for resource land--agricultural or timber. It does not have an economic value for seed crops as many of the Class IV soils, and is marginal for woodland with a 30-year root-rot/blowdown connotation to forest consultants.

This Complex as well as single units of each soil, with Panther in many of the drainages, is found at Gimpl Hill, in the Eugene south hills, Coburg Hills, etc. There is concern over an F1 zoning being assigned to these areas as a buffer between agricultural and timber land. In most areas where these soils are found, however, there is no need for such a designation. For instance, the Coburg Hills above I-5 have low site timber soils and are not being intensively managed for woodland. In fact, many owners in that area are using a combination of grazing and timber as the best management practice. This is agreeable with the natural ecology of such low site areas.

3. Is the size of a commercial farm enterprise different than a land division parcel size that is "appropriate for the continuation of existing commercial agriculture" within the area?

Yes--most of the commercial agriculture farms consist of some owned land and one or more parcels of rented land. The size of parcel and the distance from the main headquarters are the determining factors after price of the lease. The larger parcels are more desirable as is closeness to the headquarters.

4. Can minimum parcel size be approximated, through expert opinion for different areas based on most common or most suitable crop type?

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A qualified yes--the qualification being that a land productivity rating system be part of or used by the "experts" - a system such as the one published by Oregon State University Extension in EC 1105 (October, 1982). The Agriculture Land Evaluation and Site Assessment (LESA) System could also be incorporated into the process.

5. Which central tendency of farm unit appears most appropriate?

I would think the 80 percentile would be restrictive enough in determining what size a farm had to be in order to get a designation as a farm unit. At that size, the farm is definitely more than a sideline or hobby. It still may be part time, and could justify a farm dwelling. We may need to look at operations of that size in each category to test that observation out.

mh

cc: James R. Pease, OSU
Harold Kerr, OSU

**ADDENDUM TO
WORKING PAPER:
AGRICULTURAL LANDS**

**Commercial Agriculture & Farm
Parcel Size In Lane County**

November, 1983

This report is to supplement the material presented in Working Paper: Agricultural Lands. It seeks to address two questions posed by that publication that are as yet unanswered. Simply stated these question are:

1. What is a commercial agricultural enterprise?
2. What parcel sizes are appropriate for the continuation of commercial agricultural enterprise within an area?

The Working Paper attempted to deal with these questions, however, due to lack of available data, was unsuccessful in leading Lane County to acceptable conclusions. More information is now available and this report will draw on this newer material.

COMMERCIAL AGRICULTURAL ENTERPRISE

Working Paper: Agricultural Lands used a mail out survey to develop information on the nature of agriculture within the County. The results of the survey were not totally conclusive; however, some characteristics are evident:

- Farm enterprises tend to be diverse producing more than one crop type.
- There is no strong geographic pattern of farm type.
- The majority of producing acreage is concentrated in relatively large farm operations.
- Individual farm operations utilize rented land to a high degree.
- Individual farm operation spanning non-contiguous land are common.

Recently, unpublished data from the U.S. Bureau of Cencus 1978 Census of Agriculture has been assembled by James Pease of Oregon State University. This information supports earlier conclusions and, more importantly, allows a closer view of the overall size and diversity of agricultural operations within Lane County. From this new data the following characteristics can be stated:

1. Agriculture is diversified in Lane County. The Bureau of Census classifies the County's farms into 11 separate groups

Group No.	Type
1	Cash Grains
2	Field Crops (includes grass seed production)
3	Vegetables and melons
4	Berries and grapes
5	Tree fruits and nuts
6	Horticultural specialties
7	General farm, primarily crop
8	Extensive Animal Grazing
9	Intensive Animal Husbandry
10	Dairy Farms
11	General farm, primarily livestock

2. Mixed crops and/or products within a farm operation is common. To allow for this, the Bureau of Census classifies a farm operation by the type of crop or product that accounts for more than half of the gross revenue of the farm operation.
3. The 1978 Census of Agriculture reported 1709 farm units within the County. Of this total only 983 or 58% reported sales of \$2,500 or more. Farms having sales of \$2,500 or more however account for 85% of the total agricultural acreage reported in the census. This latter group also accounts for 98% of the total sales (See Table I).

4. The characteristics of the various farm groups differ widely. No single farm group dominates the agriculture economy (See Table I). The largest group in terms of sales is field crops which generate 23% of the total farm sales. The largest group by number of farms and area involved is extensive animal grazing. This group accounts for 50% of the number of farms and 69% of the agricultural land reported.
5. In general, the majority of total sales volume is generated by a relatively small percentage of operators (See Table II).
6. The distribution by size of farms varies from agricultural group to agricultural group (See Table III). As a function of distribution, the central tendency of farm unit size also varies considerably from group to group. This remains true whether evaluating for size (e.g. median size) or size range accounting for a given sales volume (e.g. percentile of dollar volume).
7. A large amount of farm production (45% overall) occurs on rented land (See Table IV).
8. Geographic distribution of farm types is unknown and cannot be determined by this data.

From the foregoing it becomes evident that no single standard can be used to describe commercial agricultural enterprise within the County. Rather it appears the best method would be to use different descriptions for the different types of enterprises.

OAR 660-05-005(2) states:

"Commercial agricultural enterprise consists of farm operations which will:

- (a) Contribute in a substantial way to area's existing agricultural economy; and
- (b) Help maintain agricultural processors and established farm markets.
- (c) When determining whether a farm is part of the commercial agricultural enterprise, not only what is produced, but how much and how it is marketed shall be considered. These are important factors because of the intent of Goal 3 to maintain the agricultural economy of the state."

The key to this definition is trying to determine how to describe or quantify "contribute in a substantial way to the agricultural economy." Table II illustrates that a relatively small number of farm operations account for the majority of sales. Overall 53%, or roughly half, of the total number of farms generate 80% of the dollar volume; less than a quarter of the producers (21%) account for well over half of the total dollar volume. In an initial review of this data, the Lane County Agricultural Extension Agent suggested the 20th percentile of dollar volume should be an adequate point to determine where a "significant" contribution occurs. (See Appendix A, paragraph 5. The dollar volume categories used in Table II can also be referred to as percentiles. The 20th percentile is the point at which 20% of the cases are below and 80% are above. Thus the three categories represent the 20th, 30th and 40th percentiles respectively.) Table II, along with the Extension Agent's opinion, while far from being conclusive, does have clear implications; overall, not more than half of the total number of farms can be considered to be making a "substantial" contribution to the agricultural economy.

Table III illustrates this same point in a different manner. The median size range (i.e. midpoint) for each farm group is identified. The 30th percentile (i.e. point above which 70% of sales occur) is also shown. In general, there is a correlation between these two different parameters; farms above the median size range account for 70% of the sales volume. This conclusion is consistent with that derived from Table II. By linking dollar volume to farm size a workable hypothesis emerges; the median size range could be used to establish the point at which a "significant" contribution occurs.

The standard posed by Goal 3 is vague and requires a subjective determination if it is to be quantified. At best, the working hypothesis suggested here is an approximation of such a value. From the information presented in Tables II and III it seems safe to conclude that farms above the median size range do in fact contribute in a substantial way to the agricultural economy. The same could be said for farms above the 40th percentile of sales volume. The number of producers falls off very rapidly at this point; however, and 79% of the total number of existing farms would be excluded. To select such a narrow definition does not seem logical or appropriate. To go in the other direction and select the 20th percentile as a standard may be valid; however, its use poses some difficulties. The number of farms (53% of total) included by this standard certainly is not out of line. The difficulty arises when a linkage to parcel size is attempted. In several of the farm group categories the 20th percentile falls below 20 acres. Available data does not allow for any size breakdown between 1 and 19 acres. As a result in these categories the best one can say is that the standard is somewhere between 1 and 19 acres. In other words we have no quantifiable standard using the 20th percentile. While using the suggested hypothesis as a standard is an approximation, at least it is a useable and supportable approximation.

Such a definition of a commercial farm is fine to a point, however, has some drawbacks. First is the fact that the data is derived from total farm operations. Any given operation may be conducted on several pieces of land not necessarily contiguous or even under the ownership of the operator. Another shortcoming is that it does not serve as a reasonable standard for land division. The data addresses only farm types; observation shows many of these types existing in the same area. Using the median range a standard ranging from 20 acres (berries and grapes) to 320 acres (general farms, primarily crop) is established. A land division approved at the lower size cannot be demonstrated as maintaining a commercial agricultural enterprise consisting of operations falling into the larger category.

PARCEL SIZES APPROPRIATE FOR COMMERCIAL AGRICULTURE

As discussed above, certain conclusions can be reached regarding the nature of commercial agriculture. A very important one is that a farm operation may well consist of many subunits (i.e. fields). Census data focuses on the overall operation and does not provide any tangible information on field sizes. A different method of gathering and evaluating data is needed.

From all reports the existing agricultural economy is quite viable within the county. One can assume that existing field sizes, while the result of an infinite number of factors, tend to optimize utility for the operator. Reviewing the size and distribution of existing farm parcel sizes would at least demonstrate the result of free marketplace choice. The existing field sizes could be reviewed to determine if there is any correlation with expert opinion on viable field sizes for similar farm operations. Knowing that the County is large and diverse, regionalizing the information seemed advisable. Geographic regions (See Map I) were established on the basis of soils series and location. This was done by working closely with County Agricultural Extension Agents (See Appendix B).

Utilizing the County's geographic data base computer capability, existing farm parcels within each region were evaluated to determine size characteristics. The results are shown on Tables VI and VII. The data was assembled under two different parameters; using all identified farm parcels (Table VI) and only using farm parcels of 10 acres or larger (Table VII). The purpose of using two sets of parameters was to check for a data bias; the land use data may identify small units as farm units when more properly they should be considered rural residential. The very small minimums and smaller central tendencies displayed on Table VI indicate that such a bias probably does exist, and hence, only the data rejecting units of less than 10 acres (Table VII) should be used. Five different ways of indicating the central tendency of field size are displayed on Table VII. Percentiles are a way of stating a point that a certain percentage of all cases are below. In other words the 20th percentile is the size that 20% of the cases are of lessor size and 80% are larger. The median is the midpoint having an equal number of cases smaller and larger; it is also the 50th percentile. The mean (commonly called the average) is the total of all sizes divided by the number of cases. The mean is the least reliable of all central tendencies because it is so easily influenced by extremes at either end of the range.

Not knowing what is being produced on the existing fields shown on Table VII, the data could be skewed by producers that are not "significant contributor" to the agricultural economy. To develop a knowledgeable opinion as to what would be a viable commercial field size, hypothetical situations were developed to represent a standard set of conditions in each geographic region. To represent a "commercial farm operation" within each region, the size range immediately above the median value for the farm type corresponding to a primary crop type was selected. The primary crops were selected by County Extension Agents as being the most common or suitable for the region. As explained earlier, in general, 70% of total sales are generated on farms of the median size or larger. For the purposes of this evaluation this point will be assumed to be the lower threshold of those farm operations making a significant contribution to the overall agricultural economy. Within the context of the hypothetical standard conditions, Extension Agents offered their opinion as to the smallest field size considered viable and also as to a preferred size. The results of this process are shown on Table VIII. The opinions received from the Extension Agents were compared to the existing parcel sizes to determine an appropriate parcel size standard for each region.

As with the earlier discussion regarding overall farm size, a parcel size that is appropriate for the continuation of commercial agriculture within an area can only be approximated. In general a parcel size in the 30th to 40th percentile range seems a reasonable approximation. A higher point (i.e. median size or 50th percentile) would dismiss too many (half) of the existing cases as being erroneous choices. A lower figure such as the 20th percentile tends to move too far in the other direction. If the parcel size within the 30th to 40th percentile is greatly at odds with the "expert opinion" offered by the Extension Agent, this difference should be reconciled to arrive at a reasonable approximation for the region.

Region 1. A standard of 40 acres is right at the 40th percentile. It is above the recommended minimums (20-30 ac.) and within the preferred size range (40-80 ac.).

Region 2. A standard of 40 acres is within the 30th to 40th percentile range (36-44 ac.). It is at the upper end of the recommended minimum range (20-40 ac.) and within the preferred size range (40-80 ac.).

Region 3A. A standard of 40 acres would be right at the 40th percentile. It is however below the recommended minimum range (20-40 ac.) and the preferred range (40-80 ac.). One must conclude the existing parcel size distribution is being influenced by crops other than those considered primary by the extension service.

A standard of 40 acres represents a compromise that seems consistent with existing and recommended.

Region 3B & C. The existing size distribution for the two regions is almost identical so they will be treated as one. A standard of 25 acres would be right at the 40th percentile however, is below recommended size ranges. Again, one must assume the size distribution is influenced by nonprimary crops. Given a much lower median value than found in Region 3A a standard of 40 acres seems too high. In this instance 30 acres seems a reasonable compromise between existing and recommended.

Regions 4, 5 and 7. A standard of 20 acres would be within 30th to 40th percentile range of existing parcels. It is also equal to or above recommended minimums. A standard of 40 acres would be consistent with the preferred recommendation however, is considerably above the median existing size of 28 acres. A standard of 30 acres seems a reasonable compromise between existing and recommended.

Region 6. A standard of 25 acres is within the 30th to 40th percentile range and equal to the preferred recommendation.

Region 8A. A standard of 60 acres is within the 30th to 40th percentile range. The standard would be well above recommended minimums and within the preferred range (25-80 ac.).

Region 8B. A standard of 30 acres is within the 30th to 40th percentile range. It is however, below recommended minimum and preferred sizes. This region has a lower median value (44 ac.) than Region 8A (82 ac.) so the 60 acre standard used for that region seems to high. 40 acres seems a reasonable compromise among these various factors.

Region 9A. Standard of 20 acres is within the 30th to 40th percentile range. This size however, is below the preferred recommendation. A 40 acre standard is slightly above the median of existing parcels and at the lower range of the preferred recommendation and represents a reasonable compromise between these factors.

Region 9B. A standard of 40 acres is right at the 40th percentile. As it is also at the lower end of the preferred recommendation range it represents an appropriate approximation for this region.

Region 12. A standard of 30 acres is within the 30th to 40th percentile range. This size is below recommended standards and hence is probably not an appropriate approximation.

Region 13. A standard of 30 acres is within the 30th to 40th percentile range and also in the middle of the recommended range.

Region 16. A standard of 40 acres is just above the 40th percentile and at the recommended minimum size. A larger standard would be too far above the median to be reasonable. This size should be an appropriate approximation for this region.

Region 17A. A standard of 25 acres is at the 40th percentile and consistent with the preferred recommendation.

Region 17B. A standard of 40 acres is equal to the 40th percentile and the preferred recommendation.

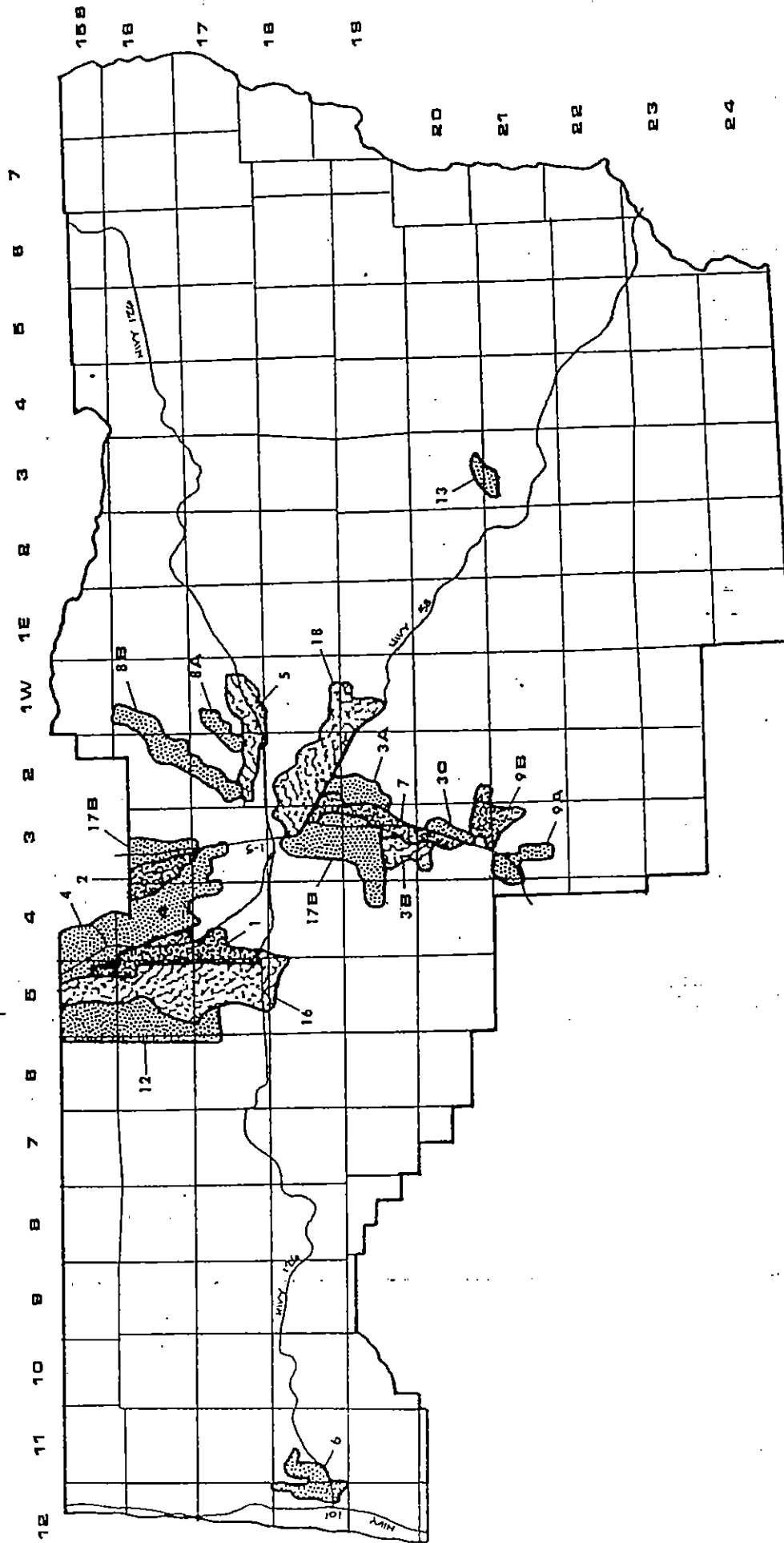
Region 18. A standard of 25 acres is approximately at the 40th percentile. As it also falls within the preferred recommendation range it should be an appropriate approximation for the region.

Remainder of County. Most land to be zoned as exclusive farm use will be within one of the regions listed above as they are formed by the soils commonly farmed. Nonetheless, properties outside of the described regions will also be zoned for exclusive farm use. The lack of other agricultural activity in these areas makes comparative analysis difficult if not impossible. Reviewing the various size standards selected throughout the primary farm regions, 40 acres is found most frequently. Lacking data for localized comparative analysis, 40 acres, being the most common standards overall, will be used for all areas not included in one of the 18 regions discussed above.

A SUGGESTED APPLICATION

From the foregoing discussion it appears there are two separate answers to the questions posed in the introduction. This conclusion leads to yet another question: Can the two different answers be used in conjunction to establish standards that are consistent with Goal 3? The answer is yes; the following will describe such a method. Any use or activity, such as a dwelling, that is allowed only in conjunction with a farm use would be permitted only when it is demonstrated that the farm use is larger than the median size for all farm uses of that type. The farm use would mean the entire farm unit; the total of all land (owned or leased) that is managed together by a single operator. Farm type would be the same categories used in this report. In the case of multiple crop activities an operation would be classified according to which activity generated more than half of the gross revenues. If this standard could not be met, the proposed use would not be considered to be in conjunction with a farm use. As such, the activity could only be allowed if all applicable provisions of ORS 215.213(3) are satisfied. Land divisions would be classified as farm use divisions and non-farm use divisions. A farm parcel being created would be equal to or greater than the selected size standard established in Table IX. This size standard would be deemed as being consistent with the requirements of ORS 215.263. A parcel proposed to be created at a lessor size would be considered to be a non-farm parcel and could be approved only upon satisfaction of the applicable provisions of ORS 215.263 and Goal 3. The important factor to keep in mind with this system is the creation of a farm parcel is not synonymous with creating a farm use. Approval of the farm parcel is governed by standards derived from other such parcels in the area. A farm use is evaluated by standards derived by examining the total scope of all other such farm operations in the County.

In conclusion, this report sought to provide answers to two basic questions regarding the treatment of agricultural land. By intent, the answers suggested are in quantified form (as opposed to being stated as criteria). As pointed out in the earlier report, Working Paper: Agricultural Lands, each approach has its own unique advantages and disadvantages. A criteria based approach maximizes flexibility by allowing a review tailored to the individual situation. This, however, reduces certainty and predictability. A quantified standard increases predictability, however, reduces flexibility or individual consideration. Given a policy position that stresses predictability the standards presented are workable. Even so, one must always remember that these standards are based on generalized data; at best they are approximations.



MAP I
Farm Regions

	ALL FARMS	Cash grains	Field crops (includes grass seed)	Vegetables and melons	Berries and grapes	Tree fruits and nuts	Horticultural specialties	General farming, primarily crop	Extensive animal grazing	Intensive animal husbandry	Dairy farms	General farms, primarily livestock
Number	1709	47	164	61	27	166	80	48	852	220	30	14
% of total (tenths)	100.0	2.8	9.6	3.6	1.6	9.7	4.7	2.8	49.9	12.9	1.8	0.8
Land in farms (acres)	266765	6406	50012	9745	886	6233	2078	12175	155602	14964	7991	673
% of total	100.0	1.1	23.1	9.4	1.0	4.8	0.8	4.5	58.3	5.6	3.0	0.3
Sales (in \$1000)	42808	468	9891	4007	438	2055	4605	2860	6725	4148	5558	55
% of total	100.0	1.1	23.1	9.4	1.0	4.8	10.8	6.7	15.7	14.4	13.0	0.1
FARMS WITH SALES OF \$2500 OR MORE												
Number	983	32	98	54	20	95	65	26	453	111	26	3
% of total	58.0	1.9	5.7	3.2	1.2	5.6	3.8	1.6	26.5	6.5	1.6	0.2
Land in farms	226380	5782	45146	9661	658	5193	1938	11310	127103	11488	7913	187
% of total	84.9	2.2	16.9	3.6	0.2	1.9	0.7	4.2	47.6	4.3	3.0	0.1
Sales	41928	449	9808	3998	432	1997	4584	2854	6196	6017	5551	41
% of total	97.9	1.0	22.9	9.3	1.0	4.7	10.7	6.7	14.5	14.1	13.0	0.1

TABLE 1: MARKET VALUE OF AGRICULTURAL PRODUCTS SOLD
(Source: Bureau of Census)

FARMS GENERATING 80% OF SALES VOLUME			FARMS GENERATING 70% OF SALES VOLUME			FARMS GENERATING 60% OF SALES VOLUME		
	Number of farms	% of group total		Number of farms	% of group total		Number of farms	% of group total
	Smallest size (acres)			Smallest farm size			Smallest farm size	
All groups	908	53.1	40	605	35.4	80	365	21.4
Cash grains	23	48.9	80	14	29.8	160	insufficient data	insufficient data
Field crops (includes grass seed)	35	21.3	320	insufficient data	insufficient data	insufficient data	insufficient data	insufficient data
Vegetables and melons	33	54.1	80	20	32.8	160	11	18.0
Berries and grapes	insufficient data	insufficient data	insufficient data	7	35.0	20	insufficient data	insufficient data
Tree fruits and nuts	71	42.8	20	42	25.3	40	insufficient data	insufficient data
Horticultural specialties	insufficient data	insufficient data	insufficient data	18	22.5	20	10	12.5
General farming, primarily crop	13	27.1	320	insufficient data	insufficient data	insufficient data	insufficient data	insufficient data
Extensive animal grazing	516	60.6	40	346	40.6	80	207	24.3
Intensive animal husbandry	insufficient data	insufficient data	insufficient data	insufficient data	insufficient data	insufficient data	insufficient data	insufficient data
Dairy farms	18	60.0	160	insufficient data	insufficient data	insufficient data	9	30.0
General farms, primarily livestock	insufficient data	insufficient data	insufficient data	insufficient data	insufficient data	insufficient data	insufficient data	insufficient data

TABLE II: SELECTED CHARACTERISTICS OF FARMS GENERATING MAJORITY OF SALES VOLUME

(Source: Bureau of Census)

	NUMBER OF FARMS										
	1 to 19 ac	20 to 39 ac	40 to 59 ac	60 to 79 ac	80 to 119 ac	120 to 159 ac	160 to 239 ac	240 to 319 ac	320 to 499 ac	500 to 999 ac	1000 ac or more
Berries and grapes.....	20	15	2	--	1	--	2	--	--	--	--
Horticultural specialties	65	49	7	2	1	1	2	--	2	--	--
Intensive animal husbandry.....	111	49	20	9	4	14	4	6	3	1	--
Tree fruits and nuts....	95	38	18	14	7	10	3	1	2	1	--
All groups.....	983	219	114	100	78	100	55	100	54	72	58
General farms, primarily livestock....	3	--	1	--	1	--	--	--	--	--	--
Cash grains.....	32	1	3	3	4	7	--	7	3	3	1
Vegetables and melons..	54	5	4	5	7	9	4	4	5	7	4
Extensive animal grazing.....	453	58	51	51	42	44	37	52	32	39	35
Field crops.....	98	2	7	12	10	8	3	16	7	9	8
Dairy farms.....	26	--	2	--	1	3	2	8	1	7	1
General farms, primarily crop.....	26	2	1	2	1	2	1	2	2	2	9

Median size range
 30th percentile (aprox.) of sales volume

NOTES:
 ① 50% of total sales come from operations of less than 20 acres. 30th percentile is somewhere between 1 and 19 acres.
 ② 85% of total sales come from operations larger than 320 acres. Data does not allow extrapolation of 30th percentile.
 ③ Insufficient data to determine 30th percentile for General Farms, Primarily Livestock

TABLE III: SIZE DISTRIBUTION OF FARMS HAVING SALES OF \$ 2500 OR MORE (Source: Bureau of Census)

	All groups	Cash grains	Field crops (includes grass seed)	Vegetables and melons	Berries and grapes	Tree fruits and nuts	Horticultural specialties	General farming, primarily crops	Extensive animal grazing	Intensive animal husbandary	Dairy farms	General farms, primarily livestock
Total farms in group	983	32	98	54	20	95	65	26	453	111	26	7
Number.....	226380	5782	45146	9661	658	5193	1939	11310	127103	11488	7913	187
Acres.....												
Farms renting land	301	15	53	37	4	23	9	20	104	22	13	1
Number.....	101580	3309	28552	5187	(S)	1321	150	5417	50331	5090	2096	(S)
Acres.....												

(S) Suppressed data

TABLE IV: LAND RENTED BY FARMS WITH SALES OF \$2500 OR MORE
(Source: Bureau of Census)

TABLE V: FARM REGIONS

REGION NO.	SOIL SERIES	PRIMARY CROPS
1	Awbrig-Coburg Oxley-Courtney Dayton-Natroy	Grass seed, wheat, peppermint
2	Awbrig-Coburg Oxley-Courtney Dayton-Natroy	Grass seed, wheat, peppermint
3A,B,C	Awbrig-Coburg Oxley-Courtney Dayton-Natroy	Grass seed, wheat, peppermint
4	Chehalis-Cloquato Newberg-Cloquato-Camas Malabon-Salem	Row crops, orchards, wheat in rotation with peppermint
5	Chehalis-Cloquato Newberg-Cloquato-Camas Malabon-Salem	Row crops, orchards, wheat in rotation with peppermint
6	Nehelam-Nestucca-Brenner	Pasture, cranberry, truffle
7	Chehalis-Cloquato Newberg-Cloquato-Camas Malabon-Salem	Row crops, orchard, wheat in rotation with peppermint
8A,B	Abiqua-McAlpin	Pasture, cereal grain, row crops, grass seed
9A,B	Abiqua-McAlpin	Pasture, cereal grain, row crops, grass seed
12	Nekia-Bellpine-Ritner	Pasture/timber, grass seed, cereal grain
13	Nekia-Bellpine-Ritner	Pasture/timber, cereal grain
16	Bashaw-Natroy	Grass seed
17A,B	Bashaw-Natroy	Pasture
18	Chehalis-Cloquato Newberg-Cloquato Malabon-Salem	Row crop, orchards, wheat in rotation with peppermint

TABLE VI: PARCEL SIZE BY REGION
(All farm units)

Region	Number of cases	Size (in acres)						
		min.	max.	20th percentile	30th percentile	40th percentile	50th percentile (median)	mean
1	236	0.1	405	5	5	18	29	46
2	145	0.4	287	4	5	8	10	38
3A	79	1.3	391	9	12	22	30	54
3B	39	0.7	187	15	18	20	24	40
3C	29	3.3	369	10	14	19	25	45
4	1019	0.2	289	3	5	7	10	24
5	205	0.2	316	3	4	6	10	24
6	18	1.8	118	3	5	5	14	27
7	155	0.9	344	5	6	9	14	27
8A	-	-	-	-	-	-	-	-
8B	122	0.1	303	5	7	11	19	42
9A	28	0.5	155	2	4	9	14	29
9B	36	1.0	219	10	15	34	42	62
12	224	1.0	518	10	14	22	32	60
13	14	1.3	216	13	15	17	47	75
16	405	0.1	418	5	9	13	22	55
17A	133	1.3	468	6	10	12	16	53
17B	44	0.8	619	12	20	31	43	107
18	309	0.3	295	5	8	12	17	30

TABLE VII: PARCEL SIZE BY REGION
(Farm units of 10 acres or larger)

Region	Number of cases	Size (in acres)						
		min.	max.	20th percentile	30th percentile	40th percentile	50th percentile (median)	mean
1	106	10	405	24	32	39	46	66
2	75	10	287	24	36	44	60	68
3A	60	10	391	21	27	31	45	69
3B	34	11	187	18	20	23	29	44
3C	23	11	369	19	20	25	27	55
4	510	10	289	16	19	22	27	43
5	102	10	317	14	18	20	28	44
6	11	12	118	21	24	42	57	58
7	89	10	344	17	19	25	31	43
8A	17	12	163	14	56	69	82	84
8B	75	11	303	20	28	38	44	65
9A	15	14	155	17	20	20	31	51
9B	29	14	219	27	34	42	59	76
12	177	10	519	20	25	36	51	74
13	12	13	216	15	17	47	50	87
16	260	10	418	21	31	39	47	83
17A	89	10	467	14	18	23	34	76
17B	38	11	619	22	27	40	59	124
18	197	10	295	17	20	23	27	45

TABLE VIII
FARM PARCEL SIZE QUESTIONNAIRE

For each farming region listed below:

- (a) Assume you are farming in the area.
- (b) Your total operation is of the approximate size listed.
- (c) You are primarily engaged in one or more of the activities listed. You may participate in other activities however the primary activity accounts for over half of gross sales volume.
- (d) Given the size, location, and nature of your operation what is the smallest parcel of land you would consider buying or renting (assuming a reasonable price)? What is a more desirable (preferred) size for this operation.
- (e) Give a separate answer for each primary activity listed.

Region No.	Size of Operation (acres)	Primary Activities	Smallest Parcel (acres)	Preferred Parcel (acres)
1	160-239	grass seed	20	80
	120-159	wheat	20	40
	160-239	peppermint	30	60
2	160-239	grass seed	40	80
	120-159	wheat	20	40
	160-239	peppermint	30	60
3A	160-239	grass seed	40	80
	120-159	wheat	20	40
	160-239	peppermint	30	60
3B	160-239	grass seed	40	80
	120-159	wheat	20	40
	160-239	peppermint	30	60
3C	160-239	grass seed	40	80
	120-159	wheat	20	40
	160-239	peppermint	30	60
4	120-159	row crop	20	40
	40-59	orchard	5	10
	120-159	wheat/peppermint	20	40
5	120-159	row crop	20	40
	40-59	orchard	5	10
	120-159	wheat/peppermint	20	40
6	120-159	pasture	10	25
7	120-159	row crop	20	40
	40-59	orchard	5	10
	120-159	wheat/peppermint	20	40

(Table VIII cont.)

Region No.	Size of Operation (acres)	Primary Activities	Smallest Parcel (acres)	Preferred Parcel (acres)
8A	120-159	pasture	15	25
	120-159	cereal grain	20	40
	120-159	row crop	20	40
	160-239	grass seed	40	80
8B	120-159	pasture	15	25
	120-159	cereal grain	20	40
	120-159	row crop	20	40
	160-239	grass seed	40	80
9A	120-159	pasture	15	25
	120-159	cereal grain	20	40
	120-159	row crop	20	40
	160-239	grass seed	40	80
9B	120-159	pasture	15	25
	120-159	cereal grain	20	40
	120-159	row crop	20	40
	160-239	grass seed	40	80
12	120-159	pasture/timber	--	--
	120-159	cereal grain	30	40
	160-239	grass seed	40	80
13	120-159	pasture/timber	10	25
	120-159	cereal grain	20	40
16	160-239	grass seed	40	80
17A	120-159	pasture	15	25
17B	120-159	pasture	20	40
18	120-159	row crop	20	40
	40-59	orchard	5	10
	120-159	wheat/peppermint	20	40

Footnote: wheat/peppermint = wheat and peppermint in rotation

TABLE IX: SELECTED STANDARD FOR FARM PARCEL SIZE

Region	Selected Standard (acres)
1	40
2	40
3A	40
3B	30
3C	30
4	30
5	30
6	25
7	30
8A	60
8B	40
9A	40
9B	40
12	40
13	40
16	40
17A	25
17B	40
18	25

APPENDIX A

EXTENSION SERVICE
Lane County Office



950 W. 13th Avenue
Eugene, Oregon 97402-3999

687-4243 Agriculture,
Home Economics, 4-H
697-4281 Nutrition

April 19, 1983

TO: Vern Delk
County & Community Development
Courthouse
Eugene, OR 97401

FROM: Mike Stoltz
Extension Agent

A handwritten signature in black ink, appearing to read "Mike Stoltz", written over the typed name.

RE: Land Use Planning Criteria Questions

1. Can crop types be regionalized?
2. Can generalized soils mapping be used as a guide to farming type?

Yes, with location combined with soil types. Examples are: West of 99 from Eugene, north to Benton County line on soils of Awbrig-Coburg association, Oxley-Courtney association and Dayton association, the crops are primarily grass seed with wheat and peppermint on the higher, better drained ground. These could be classified as "extensive" or primarily agronomic crops. This description would also fit the area east of Coburg Road between Coburg and Harrisburg and in the Creswell-Walker area on the coast fork of the Willamette.

The area east of 99 and Prairie Road all the way across the Willamette to Coburg Road on soils of Chehalis-Cloquato association, Newburg-Cloquato-Camas association, and the Malabon-Salem association are primarily row crops and orchards with wheat or peppermint as rotations. Some of this ground is often in wheat but is suited for the more "intensive" or horticulture crops. This is also true of these associations running up the McKenzie and the forks of the Willamette.

The areas of the Mohawk Valley, north of Walterville, and around Cottage Grove on soils of Abiqua-McAlpin association are mixed agriculture areas, primarily made up of pasture, cereal grains and small amounts of row crop on better drained sites, and grass seed on poorer drained sites.

The Bellpine-Hazelair-Philomath association soils are predominately timber. However, some pasture is predominant on the poorer drained soil and on the lower slopes.

The Nekia-Bellpine-Ritner association soils up the Mohawk are primarily pasture-timber mixture, with some grass seed and cereal grains, as they are to the southwest of Eugene-Springfield, west of Territorial Road, and up the forks of the Willamette.



Agriculture, Home Economics, 4-H Youth, Forestry, Community Development,
Energy, and Marine Advisory Programs. Oregon State University,
United States Department of Agriculture, and Lane County cooperating

Vern Delk
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April 19, 1983

The Veneta-Salkum association soils around Fern Ridge are used for orchards and berries, particularly on Veneta soils, with some grass seed on Salkum soils. Timber is usually the case on the steeper slopes and pasture on lower slopes. Pasture also predominates on the smaller and/or less developed parcels.

The Nehalem-Nestucca-Brenner association soils on the coast are primarily in pasture. Some of the Braillier-Brenner association soils on the coast are also in pasture but are also suitable for cranberry or truffle production, which are both very intensive, small acreage enterprises.

The Bashaw-Natrov association soils are primarily pasture except for that area between Highway 99 and Territorial Road, which is again grass seed.

A number of exceptions exist on soil associations listed as grass seed where drainage tile has been installed. Crops there are wheat, peppermint, vegetable seed crops and row crops.

I think these associations will work for determining predominant-agriculture type for an area. They are probably too broad for pinpoint zoning, for example, in the Bellpine-Hazelair-Philomath association is the Dixonville-Philomath-Hazelair Complex.

Several years ago, there was considerable discussion on keeping 374C Dixonville-Philomath-Hazelair Complex in an agricultural capability classification. The Soil Conservation Service, however, felt there was no need to keep such poor soils for resource land--agricultural or timber. It does not have an economic value for seed crops as many of the Class IV soils, and is marginal for woodland with a 30-year root-rot/blowdown connotation to forest consultants.

This Complex as well as single units of each soil, with Panther in many of the drainages, is found at Gimpl Hill, in the Eugene south hills, Coburg Hills, etc. There is concern over an F1 zoning being assigned to these areas as a buffer between agricultural and timber land. In most areas where these soils are found, however, there is no need for such a designation. For instance, the Coburg Hills above I-5 have low site timber soils and are not being intensively managed for woodland. In fact, many owners in that area are using a combination of grazing and timber as the best management practice. This is agreeable with the natural ecology of such low site areas.

3. Is the size of a commercial farm enterprise different than a land division parcel size that is "appropriate for the continuation of existing commercial agriculture" within the area?

Yes--most of the commercial agriculture farms consist of some owned land and one or more parcels of rented land. The size of parcel and the distance from the main headquarters are the determining factors after price of the lease. The larger parcels are more desirable as is closeness to the headquarters.

4. Can minimum parcel size be approximated, through expert opinion for different areas based on most common or most suitable crop type?

Vern Delk
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April 19, 1983

A qualified yes--the qualification being that a land productivity rating system be part of or used by the "experts" - a system such as the one published by Oregon State University Extension in EC 1105 (October, 1982). The Agriculture Land Evaluation and Site Assessment (LESA) System could also be incorporated into the process.

5. Which central tendency of farm unit appears most appropriate?

I would think the 80 percentile would be restrictive enough in determining what size a farm had to be in order to get a designation as a farm unit. At that size, the farm is definitely more than a sideline or hobby. It still may be part time, and could justify a farm dwelling. We may need to look at operations of that size in each category to test that observation out.

mh


cc: James R. Pease, OSU
Harold Kerr, OSU

Lane County Soil Ratings for Forestry and Agriculture

The Lane County Land Management Division, with technical assistance from Lane Council of Governments, compiled this data to assist the public in preparing land use applications. The Natural Resources Conservation Service (NRCS) reviewed the data and methodology.

Map Symbol	Lane County Soil Map Unit	Douglas Fir Site Index	Cu. Ft./ Acre/ Year	Agricultural Capability Class	High Value Farmland
01A	Abiqua silty clay loam, 0 - 3% slopes	135	203	1	X
01B	Abiqua silty clay loam, 3 - 5% slopes	135	203	2	X
02E	Astoria silt loam, 5 - 30% slopes	130	193	6	
03E	Astoria Variant silt loam, 3 - 30% slopes	none		6	
03G	Astoria Variant silt loam, 30 - 60% slopes	none		6	
04G	Atring-Rock outcrop complex, 30 - 60% slopes	***	81	6	
05	Awbrig silty clay loam	none		4	X
06	Awbrig-Urban land complex	none		4	
07B	Bandon sandy loam, 0 - 7% slopes	105	145	3	
07C	Bandon sandy loam, 7 - 12% slopes	105	145	3	
07F	Bandon sandy loam, 12 - 50% slopes	105	145	6	
08	Bashaw clay	none		4	X
09	Bashaw-Urban land complex	none		4	
10	Beaches	none		8	
11C	Bellpine silty clay loam, 3 - 12% slopes	115	163	3	X
11D	Bellpine silty clay loam, 12 - 20% slopes	115	163	3	X
11E	Bellpine silty clay loam, 20 - 30% slopes	115	163	4	X
11F	Bellpine silty clay loam, 30 - 50% slopes	115	163	6	
12E	Bellpine cobbly silty clay loam, 2 - 30% slopes	115	163	4	
13F	Blachly clay loam, 30 - 50% slopes	119	173	6	
13G	Blachly clay loam, 50 - 70% slopes	119	173	7	
14E	Blachly silty clay loam, 3 - 30% slopes	125	184	6	
14F	Blachly silty clay loam, 30 - 50% slopes	125	184	6	
15E	Blachly-McCully clay loam, 3 - 30% slopes	***	172	6	
16D	Bohannon gravelly loam, 3 - 25% slopes	118	171	6	
16F	Bohannon gravelly loam, 25 - 50% slopes	118	171	6	
16H	Bohannon gravelly loam, 50 - 90% slopes	118	171	7	
17	Brallier muck, drained	none		4	
18	Brallier Variant muck	none		5	
19	Brenner silty clay loam	none		3	X
20B	Briedwell cobbly loam, 0 - 7% slopes	103	141	3	X
21B	Bullards-Ferrelo loams, 0 - 7% slopes	***	84	3	
21C	Bullards-Ferrelo loams, 7 - 12% slopes	***	84	3	
21E	Bullards-Ferrelo loams, 12 - 30% slopes	***	76	4	
21F	Bullards-Ferrelo loams, 30 - 60% slopes	***	76	6	

ATTACHMENT D



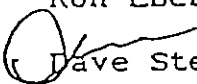
Forestry Department

OFFICE OF STATE FORESTER

2600 STATE STREET, SALEM, OREGON 97310 PHONE 378-2560

General File 7-1-1

MEMORANDUM

Subj: Forest Lands Soils Ratings - Revisions
To : Ron Eber, Policy Analyst, DLCD
From:  Dave Stere, Director, Forest Resources Planning
Date: February 8, 1990

Attached are revisions to my listing of Forest Soils Productivity Ratings for Lane, Benton, Linn, Marion, Polk and Yamhill Counties.

I've revised these ratings based upon the valuable information gained during the field tour in Lane County, and on the vegetational comparisons that we can now make as a result of that information.

I'm certain that more revisions are warranted in other areas and on other soils. As I mentioned to you before, we are ready and willing to make revisions if field-gathered information shows them warranted.

I'll send copies of these revisions to Jerry Latshaw and Herb Huddleston and to the affected Counties.

DS-200

LANE COUNTY - FOREST SOILS RATINGS

SCS #	SCS Name	(Site Index)		SCS Acreage	Cuft/Ac per yr
		Rating			
004G	Atring-Rock Outcrop Complex, 30-60%	Med	120	1140	86
005	Awbrig sicl	3		9890	est 40
006	Awbrig Urban Land complex	3		350	est 20
008	Bashaw c	3		9650	est 30
009	Bashaw-Urban Land complex	3		350	est 20
010	Beaches	3		1000	
017	Brallier muck, drained	3		1160	
018	Brallier muck, tidal	3		930	
019	Brenner sicl	3		860	
021B	Bullards-Ferrelo loams, 0-7%	Med	144	510	est 80
021C	Bullards-Ferrelo loams, 7-12%	Med	144	1560	est 80
021E	Bullards-Ferrelo loams, 12-30%	Med	144	1210	est 80
021G	Bullards-Ferrelo loams, 30-60%	Med	144	850	est 80
022	Camas gr si, occ flooded	3		6370	est 40
023	Camas-Urban land complex	3		600	est 20
028C	Chehulpum sil, 3-12%	3		1970	est 40
028E	Chehulpum sil, 12-40%	3		440	est 40
033	Conser sicl	3		4200	est 45
034	Courtney gr sicl	3		2920	est 40
034	Dayton, sil, clay sub	3		4280	est 40
042E	Dixonville-Hazelair-Urban Land, 12-35%	Low		640	est 35
043C	Dixonville-Philomath-Hazelair, 3-12%	Med		11480	est 45
043E	Dixonville-Philomath-Hazelair, 12-35%	Med		22990	est 45
044	Dune Land	3		5870	
045C	Dupee sil, 3-20%	Med		20190	est 70 *
048	Fluvents, Nearly Level	3		9550	
052B	Hazelair sicl, 2-7%	Low		5680	est 40
052D	Hazelair, 7-20%	Low		41510	est 40
053	Heceta fs	3		2010	est 20
073	Linslaw l	2		5700	est 80
075	Malabon sicl	2		15350	est 65
076	Malabon-Urban Land complex	2		6420	est 50
077B	Marcola cob sicl, 2-7%	Med		690	est 70
085	Natroy sicl	3		15170	est 60
086	Natroy sic	3		2100	est 60
087	Natroy-Urban Land Complex	3		610	est 40
094C	Netarts fs, 3-12%	Med	80	1060	58
094E	Netarts fs, 12-30%	Med	80	420	58
098	Noti l	3		3860	est 30
100	Oxley gr sil	2		2010	est 80
101	Oxley-Urban land complex	2		870	est 60
102C	Panther sicl, 2-12%	3		8400	est 45
103C	Panther-Urban Land complex, 2-12%	3		440	est 40
105A	Pengra sil, 1-4%	3		5070	est 45
105A	Pengra-Urban land complex, 1-4%	3		780	est 30
107C	Philomath sic, 3-12%	Low		2280	est 45
108C	Philomath cob sic, 3-12%	Low		2280	est 45
108F	Philomath cob sic, 12-45%	Low		7090	est 45
109F	Philomath-Urban land complex, 12-45%	Low		270	est 20

3		700	
3		2050	
4	Riverwash	3950	34
5H	Rock Outcrop-Kilchis complex. 30-90%	1480	21
6G	Rock Outcrop-Witzel complex. 10-70%	2790	est 30
5C	Steier 1. 3-12%	1000	est 30
5D	Steier 1. 12-20%	1240	est 30
5F	Steier 1. 20-50%	1450	est 45
7C	Urban Land-Hazelair-Dixonville. 3-12%	7550	est 45
30	Waldo sicl	1700	29
31C	Waldport fs. 0-12%	1000	29
31E	Waldport fs. 12-30%	650	29
31G	Waldport fs. 30-70%	2110	29
32E	Waldport fs. thin surf.. 0-30%	250	est 20
33C	Waldport-Urban Land Complex. 0-12%	870	est 40
36	Willanch fsl	560	48
37F	Winberry v gr 1. 10-45%	5780	70
38E	Witzel v cob 1. 3-30%	5520	70
38G	Witzel v cob 1. 30-75%	260	est 45
41	Yaquina-Urban land complex	1560	38
42G	Yellowstone-Rock Outcrop. 10-60%		

No examples of Forested lands on Dupee soil found... adjacent areas had a productivity rating of (est) 45 cuft/acre/yr. This rating is questionable.

total - LOW & MEDIUM ratings -- 293,500 acres

001A	Abiqua sicl. 0-3%	High 152	5210	161
001B	Abiqua sicl. 3-5%	High 152	1230	161
002E	Astoria sil. 5-30%	High 170	3380	181
003E	Astoria Variant sil. 3-30%	High 170	200	181
003G	Astoria Variant sil. 30-60%	High 170	1500	181
007B	Bandon sl. 0-7%	High 138	240	142
007C	Bandon sl. 7-12%	High 138	220	142
007F	Bandon sl. 12-50%	High 138	270	142
011C	Bellpine sicl. 3-12%	High 155	15950	164
011D	Bellpine sicl. 12-20%	High 155	58600	164
011E	Bellpine sicl. 20-30%	High 155	38100	164
011F	Bellpine sicl. 30-50%	High 155	27100	164
012E	Bellpine cob sicl. 2-30%	High 155	4230	164
013F	Blachly cl. 30-50%	High 148	13400	156
013G	Blachly cl. 50-70%	High 148	2960	176
014E	Blachly sicl. 3-30%	High 165	7030	176
014F	Blachly sicl. 30-50%	High 165	8520	176
015E	Blachly-McCully cls. 3-30%	High 147	23000	155
016D	Bohannon gr 1. 3-25%	High 155	15800	164
016F	Bohannon gr 1. 25-50%	High 155	27770	164
016H	Bohannon gr 1. 50-90%	High 155	92000	164
021	Briedwell cob 1. 0-7%	High 135	1780	138
022	Chapman 1	1	3800	est 140
025	Chapman-Urban land complex	1	1070	est 100
026	Chehalis sicl. occ flooded	1	9300	est 100
027	Chehalis-Urban land complex	1	700	est 90
		1	5170	est 120

low (89,55) ac
med

6	Coburg sicl	1	13480	est	100
7	Coburg-Urban land complex	1	2740	est	90
8D	Crusier gr cl. 3-25%	High 135	2670		138
8F	Crusier gr cl. 25-50%	High 135	1710		138
8G	Cruiser gr cl. 35-70%	High 135	360		138
9D	Cumley sicl. 2-20%	High 154	34000		163
9C	Cupola cob l. 3-12%	High 124	2530		121
9E	Cupola cob l. 12-30%	High 124	1110		121
9E	Digger gr l. 10-30%	High 145	970		152
9F	Digger gr l. 30-50%	High 145	3730		152
9H	Digger-Rock outcrop complex. 50-85%	High 145	62140		114
10C	Dixonville sicl. 3-12%	High 120	3360		115
10E	Dixonville sicl. 12-30%	High 120	3670		115
10F	Dixonville sicl. 30-50%	High 120	3280		115
5	Eilertsen sil	High 159	1580		169
7E	Fendall sil. 3-30%	High 150	720		158
9E	Formander l. 3-30%	High 162	4690		172
9G	Formander l. 30-60%	High 162	5130		172
9G	Formander-Hembre-Klickitat. 50-80%	High 165	24510		170
1B	Haflinger-Jimbo complex. 0-5%	High 159	1990		161
4D	Hembre sil. 5-25%	High 170	650		181
4G	Hembre sil. 25-60%	High 170	1030		181
5E	Hembre-Klickitat complex. 3-30%	High	1920		170
5G	Hembre-Klickitat complex. 30-60%	High	1760		168
6	Holcomb sicl	1	1560	est	100
7A	Holderman ext cob l. 5-25%	High 120	490		98
7F	Holderman ext cob l. 25-50%	High 120	1900		98
7G	Holderman ext cob l. 50-75%	High 120	1600		98
8D	Honeygrove sicl. 3-25%	High 165	31050		176
8F	Honeygrove sicl. 25-50%	High 165	10430		176
9E	Hullt l. 2-30%	High 165	480		176
9G	Hullt l. 30-60%	High 165	400		176
0D	Hummington gr l. 5-25%	High 145	840		152
0F	Hummington gr l. 25-50%	High 145	1620		152
0G	Hummington gr l. 50-75%	High 145	7530		152
1	Jimbo sil	High 162	2550		173
2B	Jimbo-Haflinger complex. 0-5%	High	590		167
3C	Jory sicl. 2-12%	High 155	4560		164
3D	Jory sicl. 12-20%	High 155	6940		164
3E	Jory sicl. 20-30%	High 155	3130		164
4D	Keel cob cl. 3-25%	High 139	6390		144
4F	Keel cob cl. 35-45%	High 139	9300		144
4G	Keel cob cl. 45-75%	High 139	5060		144
5G	Kilichis st l. 30-60%	High 110	2370		98
5H	Kilichis st l. 60-90%	High 110	7920		98
6D	Kinney cob l. 3-20%	High 150	6970		158
7F	Kinney cob l. 20-50%. N	High 162	9010		172
7G	Kinney cob l. 50-70%. N	High 162	18220		172
8F	Kinney cob l. 20-50%. S	High 150	13710		164
8G	Kinney cob l. 50-70%. S	High 150	7780		164
9	Kinney cob l. slump. 3-30%	High 168	15530		180
10L	Klickitat st l. 3-30%	High 144	10050		165
11F	Klickitat st l. 30-50%. N	High 156	8350		165
11G	Klickitat st l. 50-75%. N	High 156	37150		145
12F	Klickitat st l. 30-50%. S	High 140	25900		145
13	Klickitat st l. 50-75%. S	High 140	68200		150

74B	Lint sil. 0-7%	High 160	1120	170
74C	Lint sil. 7-12%	High 160	1510	170
74D	Lint sil. 12-20%	High 160	1860	170
74E	Lint sil. 20-40%	High 160	1920	170
78	McAlpin sicl	High 159	11860	169
79	McBee sicl	1	5200	est 100
80F	McKully cl. 30-50%	High 162	7730	172
80G	McKully cl. 50-70%	High 162	4210	172
81D	McDuff cl. 3-25%	High 142	3010	148
81F	McDuff cl. 25-50%	High 142	3000	148
81G	McDuff cl. 50-70%	High 142	950	148
82C	Meda l. 2-12%	High 161	10650	171
83B	Minniece sicl, 0-8%	High 130	1420	129
84D	Mulkey l. 5-25%	High 143	230	224
88	Nehalem sil	High 174	5950	186
89C	Nekia sicl. 2-12%	High 151	4960	159
89D	Nikia sicl. 12-20%	High 151	15520	159
89E	Nikia sicl. 20-30%	High 151	8760	159
89F	Nikia sicl. 30-50%	High 151	7580	159
90	Nekoma sil	High 180	7170	191
91D	Neskowin sil. 12-20%	High 133	560	205
91E	Neskowin sil. 20-40%	High 133	230	205
92G	Neskowin-Salander sil. 40-60%	High 133	4350	205
93	Nestucca sil	1	5830	est 130
95	Newberg fsl	1	2970	est 150
97	Newberg l	1	4490	est 150
97	Newberg-Urban land complex	1	930	est 100
99H	Ochrepts & Umbrepts, v. steep	1	1070	est 130
04E	Peavine sicl. 3-30%	High 155	68300	164
04G	Peavine sicl. 30-60%	High 155	124810	164
11D	Preacher l. 0-25%	High 181	10950	192
11F	Preacher l. 25-50%	High 181	25600	192
12G	Preacher-Bohannon-Slickrock, 50-75%	High	113500	185
13C	Ritner cob sicl. 2-12%	High 131	2940	131
13E	Ritner cob sicl. 12-30%	High 131	14890	131
13G	Ritner cob sicl. 30-60%	High 131	21340	131
17E	Salander sil. 12-30%	High 133	770	205
18	Salem gr sil	1	7550	est 130
19	Salem-Urban land complex	1	2300	est 100
20B	Salkum sil. 2-6%	High 145	5060	151
21B	Salkum sicl. 2-8%	High 145	5160	151
21C	Salkum sicl. 8-16%	High 145	2160	151
22	Saturn cl	High 162	4210	172
23	Sifton gr l	1	650	
24D	Slickrock gr l. 3-25%	High 194	1850	203
24F	Slickrock gr l. 25-50%	High 194	1500	203
26F	Tahkenitch l. 20-45%	High 156	390	165
26G	Tahkenitch l. 45-75%	High 156	500	165
28B	Veneta l. 0-7%	High 139	11930	144
29B	Veneta Variant sil. 0-7%	High 150	1320	158
31	Willakenzie cl. 2-12%	High 160	2500	170
35C	Willakenzie cl. 12-20%	High 160	7320	170
35E	Willakenzie cl. 20-30%	High 160	6490	170
35F	Willakenzie cl. 30-50%	High 160	10610	170
39	Woodburn sil	1	215	est 170

1 - HIGH rating -- 1,455,415 acres

These soils ratings are based upon published SCS data. Estimates are derived by the Oregon Department of Forestry from comparisons of natural vegetation complex information in published SCS data for soils where the data do not include measured forest productivity information with other soils where such information is available.

Soils marked with numbers are soils where the data are insufficient to make a more-precise determination; or where SCS data indicates that forest growth is unlikely. Soils are not rated where data indicate that tree growth does not occur on the soil.

- 3" indicates productivity probably less than 50 cuft/ac/yr
- 2" indicates productivity probably between 50 and 85 cuft/ac/yr
- 1" indicates productivity probably more than 85 cuft/ac/yr

Where the soil is given a number rating, the productivity estimate shown is of lower precision than for other productivity estimates.

1 BEFORE THE LAND USE BOARD OF APPEALS
2 OF THE STATE OF OREGON
3

4 JAMES JUST,
5 *Petitioner,*

6
7 vs.

JUN08'05 PM12:58 LUBA

8
9 LANE COUNTY,
10 *Respondent,*

11 and

12
13 ROY CARVER III,
14 *Intervenor-Respondent.*

15
16 LUBA No. 2005-029

17
18 FINAL OPINION
19 AND ORDER
20

21
22 Appeal from Lane County.

23
24 James P. Just, Lebanon, filed the petition for review and argued on his own behalf.
25

26 Stephen L. Vorhes, Lane County Legal Counsel, Eugene, filed the response brief and
27 argued on behalf of the respondent.
28

29 P. Steven Cornacchia, Eugene, filed the response brief and argued on behalf of
30 intervenor-respondent. With him on the brief was Hershner Hunter LLP.
31

32 BASSHAM, Board Member; DAVIES, Board Chair; HOLSTUN, Board Member,
33 participated in the decision.
34

35 AFFIRMED

06/08/2005

36
37 You are entitled to judicial review of this Order. Judicial review is governed by the
38 provisions of ORS 197.850.

NATURE OF THE DECISION

Petitioner appeals an ordinance that changes the comprehensive plan designation for a 42.2-acre parcel from "Forest Land" to "Marginal Land," and rezones the property from Impacted Forest Lands (F-2) to Marginal Lands (ML).

MOTION TO INTERVENE

Roy Carver III (intervenor), the applicant below, moves to intervene on the side of respondent. There is no opposition to the motion, and it is allowed.

MOTION TO FILE REPLY BRIEF

Petitioner seeks permission to file a reply brief, to address alleged new matters raised in the response briefs. There is no opposition to the reply brief, and it is allowed.

FACTS

The subject property is a 42.2-acre irregularly shaped parcel bordered on the north and east by the City of Eugene urban growth boundary. The northern portion of the property is relatively flat, rising to the south, and covered with scattered stands of Ponderosa Pine, Douglas Fir and oak trees. The property has received forest tax deferral since 1970. The adjoining properties to the north, west and east are in rural or urban residential zoning. To the south of the subject property lies a 53.60-acre parcel also zoned F-2.

In 1987, the Soil Conservation Service (SCS, now the National Resource and Conservation Service (NRCS)) published a soil survey for the county. According to the 1987 soil survey, the soils on the subject property consist of the following four soil types or complexes:

Unit 43C Dixonville-Philomath-Hazelair Complex, 3 to 12 percent slopes, agricultural capability class VI, 19 acres (48%);

Unit 43E Dixonville-Philomath-Hazelair Complex, 12 to 35 percent slopes, agricultural capability class VI, 1.145 acres (3.6%);

Unit 45C Dupee Silt Loam, agricultural capability class III, 15 acres (39%);

1 Unit 138E Witzel Very Cobbly Loam, agricultural capability class VI, 3.6
2 acres (9%).

3 Thus, slightly more than half of the soils on the property consist of Units 43C and 43E, the
4 two Dixonville-Philomath-Hazelair complexes.¹ The 1987 soil survey rates the agricultural
5 capability of Units 43C and 43E as Class VIe.² However, the 1987 soil survey assigns higher
6 capability classifications to some of the individual soils that make up the Unit 43C and 43E
7 complexes. Unit 41C (Dixonville silty clay loam, 3 to 12 percent slopes) is class IIIe, and
8 Unit 41E (Dixonville silty clay loam, 12 to 30 percent slopes) is class IVe. Similarly, Units
9 52B (Hazelair silty clay loam, 2 to 7 percent slopes) and 52D (Hazelair silty clay loam, 7 to
10 20 percent slopes) are rated IIIe and IVe, respectively.

11 Lane County is a "marginal lands" county, and therefore may designate certain lands
12 as marginal lands, under *former* ORS 197.247. OAR 660-033-0020(8)(j). In September
13 2003, intervenor applied to redesignate the subject property from "Forest Land" to "Marginal
14 Land," and to rezone the property from F-2 to ML. Under the requested plan map and zoning
15 map designations, the property could develop at a density of one dwelling per 10 acres. The

¹ The 1987 soil survey describes a soil complex as follows:

"A complex consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Dixonville-Philomath-Hazelair complex, 3 to 12 percent slopes, is an example."

² The 1987 soil survey describes the composition of Unit 43C as follows:

"This unit is 30 percent Dixonville silty clay loam, 30 percent Philomath cobbly silty clay, and 25 percent Hazelair silty clay loam. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used. Included in this unit are small areas of Panther, Ritner, and Witzel soils and Rock outcrop. Included areas make up about 15 percent of the total acreage." Record 63.

The soil survey describes the composition of Unit 43E as follows:

"This unit is 35 percent Dixonville silty clay loam, 30 percent Philomath cobbly silty clay, and 20 percent Hazelair silty clay loam. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used. Included in this unit are small areas of Ritner and Witzel soils and Rock outcrop. Included areas make up about 15 percent of the total acreage." Record 64.

1 county planning commission recommended approval. The county board of commissioners
2 held a hearing on December 15, 2004, and approved the application on January 12, 2005.
3 This appeal followed.

4 **MOTION TO STRIKE**

5 Petitioner moves to strike appendices A-F, and H, attached to intervenor's response
6 brief, arguing that the documents therein are not in the record, subject to official notice, or the
7 subject of a motion to take evidence under OAR 661-010-0045. Intervenor does not argue
8 that any of the cited appendices are in the record, request that we take official notice, or
9 request that we consider those documents pursuant to OAR 661-010-0045. Accordingly, we
10 grant the motion to strike, and will not consider appendices A-F and H, or the references to
11 those appendices in intervenor's brief.

12 **FIRST, SECOND AND THIRD ASSIGNMENTS OF ERROR**

13 *Former* ORS 197.247 (1991) allowed a county to designate as "marginal lands" lands
14 that met a series of tests.³ The "gross income" test at ORS 197.247(1)(a) requires a finding

³ ORS 197.247(1) (1991) provided, in relevant part:

"In accordance with ORS 197.240 and 197.245, the commission shall amend the goals to authorize counties to designate land as marginal land if the land meets the following criteria and the criteria set out in subsections (2) and (4) of this section:

"(a) The proposed marginal land was not managed during three of the five calendar years preceding January 1, 1983, as part of a farm operation that produced \$20,000 or more in annual gross income or a forest operation capable of producing an average, over the growth cycle, of \$10,000 in annual gross income; and

"(b) The proposed marginal land also meets at least one of the following tests:

"* * * * *

"(c) The proposed marginal land is composed predominantly of soils in capability classes V through VIII in the Agricultural Capability Classification System in use by the United States Department of Agriculture Soil Conservation Service on October 15, 1983, and is not capable of producing * * * eighty-five cubic feet of merchantable timber per acre per year in those counties west of the summit of the Cascade Range, as that term is defined in ORS 477.011(21)."

1 that the proposed marginal land was not managed, during three of the five calendar years
2 preceding January 1, 1983, as part of (1) a farm operation producing grossing \$20,000 or
3 more in annual gross income, or (2) a forest operation capable of producing an average, over
4 the growth cycle, of \$10,000 in annual gross income. The "productivity" test at
5 ORS 197.247(1)(b)(C) requires a finding that (1) the land is composed predominantly of
6 Class V through VIII soils in the capability classification system in use by SCS on October
7 15, 1983, and (2) the land is not capable of producing 85 cubic feet of timber per acre per
8 year (cf/ac/yr).

9 The county concluded that the subject property met both the "gross income" test and
10 the "productivity" test. Petitioner challenges both conclusions.

11 **A. Gross Income Test (ORS 197.247(1)(a))**

12 In 1997, the county board of commissioners issued an "information sheet" that sets
13 out the following methodology for applying the "forest operation" prong of the
14 ORS 197.247(1)(a) gross income test:

- 15 "1. Based on the best information available regarding soils, topography,
16 etc., determine the optimal level of timber production for the tract
17 assuming reasonable management.
- 18 "2. Assume that the stand was, in 1983, fully mature and ready for harvest.
- 19 "3. Using the volumes calculated in step (1), and 1983 prices, calculate the
20 average gross income over the growth cycle." Record 36.

21 The information sheet also directs that the methodology assume a 50-year growth cycle, *i.e.*,
22 divide by 50 the timber revenue produced at harvest of a (hypothetical) fully mature stand to
23 determine the average annual gross income. Intervenor does not dispute that the subject

In addition, ORS 197.247(5) (1991) provided:

"A county may use statistical information compiled by the Oregon State University Extension Service or other objective criteria to calculate income for the purposes of paragraph (a) of subsection (1) of this section."

1 property was part of a “forest operation” during three of the five calendar years preceding
2 January 1, 1983. However, intervenor submitted expert testimony using the county’s
3 methodology concluding that the subject property is not capable of producing \$10,000 in
4 average annual gross income over a 50-year growth cycle, as measured in 1983 dollars.⁴

5 Petitioner contends that ORS 197.247 requires the county to use actual or projected
6 lumber prices at the time of harvest in applying the gross income test and, further, that there
7 is no basis in the statute to assume a 50-year growth cycle. According to petitioner,

8 “* * * The county’s findings assume a 50-year growth cycle. Actual growth
9 cycles could be considerably longer. Evidence in the record establishes that
10 trees were planted on the subject property at some time prior to March 1979,
11 and that the trees were still present in 1982. The projected harvest date for the
12 trees planted on the subject property would therefore be no sooner than
13 sometime around 2029, a minimum of fifty years following planting. There is
14 no evidence in the record which suggests that 1983 timber pricing would
15 prevail in 2029, and no reasonable person could conclude from evidence in the
16 record that 1983 prices would be in fact be obtained by the forest operation
17 manager.

18 “ORS 197.247(1)(a) requires that average income be projected over the
19 growth cycle, and thus clearly anticipates that the harvesting of timber would
20 occur at different times over the growth cycle and that prices obtained would
21 be those prevailing at the time of harvest. Nothing in ORS 197.247(1)(a)
22 mandates or ever mentions the use of a 1983 timber harvest date or the use of
23 timber prices prevailing at that time. There is no basis whatsoever in law or in
24 fact for the county’s reliance on 1983 timber prices in its decision.” Petition
25 for Review 18.

26 We understand petitioner to contend that the county must (1) estimate the harvest date of the
27 trees planted in 1979 based on the actual or optimal growth cycle, (2) estimate the timber

⁴ It is not clear whether the subject property was part of a larger forest operation involving multiple properties during three of the five calendar years preceding January 1, 1983, or whether the “forest operation” included only the subject property during the relevant period. ORS 197.247(1)(a) can be read to apply the gross income threshold test to the farm and forest operation itself, not limited to the subject property. In other words, the pertinent question under ORS 197.247(1)(a) may not be whether the *subject property* can produce \$10,000 in average annual income, the question that intervenor’s forestry consultant asked and answered, but whether the forest operation that the property is or was part of can produce \$10,000 in average annual income. However, petitioner does this challenge this aspect of the evidence submitted under the gross income test, and therefore we need not address or resolve that question.

1 prices on the projected harvest date, and (3) based on those estimates determine whether the
2 subject property is capable of producing an average, over the growth cycle, of \$10,000 in
3 annual gross income.⁵

4 Although ORS 197.247(1)(a) does not expressly mandate that counties use 1983
5 timber prices in applying the gross income test, we agree with the county and intervenor that
6 it implicitly does so. The purpose of the forest operation test is to identify lands that are not
7 capable of meeting the specified \$10,000 threshold averaged over the growth cycle. Both the
8 “farm operation” and “forest operation” prongs of the test are specifically linked to January 1,
9 1983. There is no explicit provision to adjust either threshold for inflation or other economic
10 changes over subsequent decades. The \$10,000 threshold would rapidly become outdated
11 and incapable of performing its intended function if counties (1) must use inflated timber
12 prices but (2) cannot adjust the \$10,000 threshold to compensate for inflation since 1983. In
13 a relatively short time it would become difficult if not impossible to designate any marginal
14 land under ORS 197.247(1)(a). Clearly, that was not the legislature’s intent. The text and
15 context of ORS 197.247(1)(a) make it reasonably clear that the statute requires an “apples to
16 apples” comparison. If the unadjusted threshold (\$10,000 in 1983 dollars) is used, then the
17 estimate of annual average timber revenue derived from the property must also be based on
18 1983 timber prices.⁶

⁵ In support of his view that the statute requires use of current timber values, petitioner also cites to *DLCD v. Lane County*, 23 Or LUBA 33 (1992) (*Ericsson*), in which LUBA affirmed a county decision that designated marginal lands under the ORS 197.247(1)(a) forest operation prong of the gross income test, based in part on evidence of then-current timber values. However, while *Ericsson* recites the county’s findings describing the methodology used by the applicant’s expert, no issue was raised regarding the expert’s use of current timber values, and our decision expressed no views on that point.

⁶ In response to petitioner’s arguments against using 1983 prices, intervenor’s consultant also calculated revenues based on current timber values, and concluded that even so calculated the average annual gross income fell below the \$10,000 threshold. Record 371. Intervenor argues that this evidence renders petitioner’s objections to using 1983 prices moot. Petitioner disagrees, arguing that use of current prices rather than the estimated price at the projected harvest date is also inappropriate. Our conclusion that the county did not err in using 1983 timber prices makes it unnecessary to address these contentions.

1 To the extent resort to legislative history is warranted, the history directed to our
2 attention is consistent with the above textual analysis. Intervenor attaches to its brief
3 transcripts of the House and Senate committee hearings that led to adoption of ORS 197.247.
4 Those transcripts make it reasonably clear that the legislature intended the gross income test
5 under ORS 197.247(1) to be applied based on the five-year period preceding January 1, 1983,
6 and not based on subsequent years. The question of whether to include a mechanism to
7 adjust the income test for inflation was discussed, and apparently rejected as unnecessary,
8 because the income test was linked to the five-year period preceding January 1, 1983.⁷
9 Petitioner does not dispute that point with respect to the "farm operation" prong of the gross
10 income test, but argues there is no indication that the legislature intended the "forest
11 operation" prong to be also fixed at 1983 levels. However, the legislative discussion of the
12 question of adjusting for inflation, while directed at the farm operation element of
13 ORS 197.247(1)(a), seems equally applicable to the forest operation prong of that subsection.
14 We conclude that the legislative history of ORS 197.247(1)(a) brought to our attention does
15 not support petitioner's view of the statute, and is more consistent with the county's
16 approach.

17 With respect to the 50-year growth cycle assumed under the county's methodology,
18 petitioner does not explain why it is unreasonable to assume a 50-year growth cycle, or why
19 ORS 197.247(1)(a) compels the county to assume a longer or different cycle.

⁷ See testimony of Richard Benner before the House Committee on Energy and Environment on SB 237, Tape 260, Side A:

"* * * [The gross income test] is intended to be the way it reads which is, you use the five-year period preceding the effective date of the Act. The reason the farmers chose that language was to get in part at Representative Parkinson's point about inflation. If you look at a set period in time, those numbers can't inflate over time. Those figures are set, obviously, and they have been. * * *"

1 **B. Productivity Test (ORS 197.247(1)(b)(C))**

2 Petitioner challenges the county's findings that the subject property is predominantly
3 composed of Class VI soils and that the property is not capable of producing 85 cf/ac/yr of
4 merchantable timber.

5 **1. Agricultural Capability Class**

6 As noted, according to the SCS soil survey maps, the predominant soils on the subject
7 property are Units 43C and 43E, two variants of the Dixonville/Philomath/Hazelair complex,
8 both of which the soil survey assigns a capability classification of VIe. Petitioner argues,
9 however,²that the 1987 soil survey assigns higher capability classifications to the majority of
10 individual soils making up the two complexes. Further, petitioner points out, the 1987 soil
11 survey assigns percentages to each of the individual soils in each complex, so that, for
12 example, Dixonville soils (class IIIe) make up approximately 30 percent of the Unit 43C
13 complex. *See* n 2. If the relative portion of the individual soils and their individual ratings
14 are taken into account, petitioner argues, then it is clear that approximately 53 percent of the
15 subject property consists of Class III soils, while approximately 67 percent consists of Class
16 III or IV soils.

17 In addition, petitioner argues that while the 1987 soil survey may have assigned a
18 single agricultural capability classification of VIe to Units 43C and 43E, the current NRCS
19 practice is to assign individual ratings to the soils making up those soil complexes, without
20 an overall capability classification. *See* Record 58 (NRCS table listing individual ratings for
21 each soil in the Unit 43C and 43E complexes) and Record 62 (memorandum from staff to the
22 Lane Council of Governments documenting the staff person's understanding of the current
23 NRCS practice, and explaining her decision to assign a capability classification to a complex
24 based on the predominant soil—the soil first listed in the complex). According to petitioner,
25 the former NRCS practice was to assign to the complex as a whole the capability
26 classification of the least productive soil in the complex (in Units 43C and 43E, the

1 Philomath soils, Class VIe). The current NRCS practice, petitioner argues, is to rate each
2 individual soil separately, and not assign a composite rating based on the least productive soil
3 in the complex.

4 The county and intervenor respond that the predominant soil test under
5 ORS 197.247(1)(b)(C) must be based on the "Agricultural Capability Classification System
6 in use by the United States Department of Agriculture, Soil Conservation Service on October
7 15, 1983," not subsequent or modified classification systems. Even assuming that the NRCS
8 has since revised its system of classifying soils within complexes, which respondents do not
9 concede, respondents argue that ORS 197.247(1)(b)(C) requires evaluation under the system
10 in use on October 15, 1983. According to respondents, the 1987 soil survey accurately
11 reflects the classification system in use on that date.

12 Petitioner responds that the above-described changes is simply a change in how the
13 data generated by the Class I through VIII classification system is reported, not a change in
14 the Class I through VIII *classification system* itself.

15 The documents cited to us in the record do not establish that the NRCS has in fact
16 changed the way it reports or classifies complex soils. Something more official than an
17 obscure table and a memorandum from a staff person at the Lane Council of Governments is
18 necessary to establish that claim. Accordingly, we need not resolve the parties' contentions
19 regarding whether the purported change is a change in the "classification system" that was in
20 use on October 15, 1983, for purposes of ORS 197.247(1)(b)(C).

21 Petitioner does not dispute that the 1987 soil survey is a product of, and consistent
22 with, the "Agricultural Capability Classification System in use by the United States
23 Department of Agriculture, Soil Conservation Service on October 15, 1983." The 1987 soil
24 survey provides a single rating for complex soils, such as Units 43C and 43E. Therefore, the
25 county did not err in relying on that composite rating in the 1987 soil survey to conclude that

1 the predominant soils on the subject property are Class VIe, for purposes of
2 ORS 197.247(1)(b)(C).

3 **2. Wood Fiber Production Capability of 85 cf/ac/yr**

4 The NRCS rates the forest productivity of the Dixonville soils in Units 43C and 43D
5 at 152 cf/ac/yr, but apparently publishes no forest productivity ratings for any of the soil units
6 or soil complexes on the property. Record 66. The county found, based on a report from
7 intervenor's forestry consultant, that the subject property is not capable of producing 85
8 cf/ac/yr of merchantable timber. The consultant's report relied on several sources to estimate
9 timber productivity, principally (1) a document entitled "Lane County Soil Ratings for
10 Forestry and Agriculture," and (2) a document entitled "Lane County Forest Soil Ratings."⁸
11 Record 347-49. The first document rates the forest productivity of Units 43C and 43E at 54
12 cf/ac/yr and 64 cf/ac/yr, respectively. Record 347. The second document rates both Units
13 43C and 43E at 45 cf/ac/yr, Unit 45C (Dupee) at 70 cf/ac/yr and Unit 138E (Witzel) at 70
14 cf/ac/yr. Record 348-49. The cited source of the pertinent ratings in the second document is
15 a memorandum dated February 8, 1990, from the Office of State Forester. *Id.* That
16 memorandum is not in the record.

17 Petitioner contends that the county's findings are inadequate, misconstrue the
18 applicable law, and are not supported by substantial evidence. According to petitioner, the
19 county's findings under ORS ORS 197.247(1)(b)(C) are governed by OAR 660-006-0005(2),
20 which defines the term "cubic foot per acre" for purposes of the administrative rules
21 implementing Statewide Planning Goal 4 (Forest Lands).⁹ OAR 660-006-0005(2) requires

⁸ The report also cites to "U.S. Dept. of Agriculture SCS Data, as presented in the Soil Survey of Lane County Area (Green Sheet)." Record 342. However, the cited source is not attached to the report and, as far as we can tell, not in the record. As noted above, no party has argued, and it does not appear to be the case, that either the SCS or NRCS has published timber productivity figures for Units 43C, 43E, 45C or 138E.

⁹ OAR 660-004-0005 provides, in relevant part:

"For the purpose of this division, the following definitions apply:

1 that the county use productivity data "as reported by [NRCS]." Where NRCS data are not
2 available or are shown to be inaccurate, OAR 660-006-0005(2) allows for alternative
3 methods of determining productivity, if the alternative method provides "equivalent data"
4 and is approved by the state Department of Forestry (ODF). *See, generally, Carlson v.*
5 *Benton County*, 37 Or LUBA 897, 909-915 (2000), for an extensive discussion of OAR 660-
6 006-0005(2).

7 Petitioner argues that the county has not shown that the NRCS rating of 152 cf/ac/yr
8 for the Dixonville component of Units 43C and 43E is "inaccurate." With respect to the soils
9 on the property not rated by NRCS for forest productivity, petitioner contends that the county
10 has not shown that ODF has approved the methodology used by the forestry consultant, or the
11 methodology used to generate the ratings in the two documents relied upon by the forestry
12 consultant. According to petitioner, an ODF publication entitled "Land Use Planning Notes,
13 Number 3X, April 1998," found at Record 452-58, describes the methodology approved by
14 the department under OAR 660-006-0005 in circumstances where NRCS data is unavailable
15 or inaccurate.¹⁰ Petitioner contends that the forestry consultant did not follow the
16 methodology prescribed in that ODF publication.

17 Intervenor responds that the two documents the forestry consultant relied upon are
18 ultimately based on NRCS data and therefore there is no need under OAR 660-006-0005(2)
19 to use or seek approval for an alternate methodology. Even if the documents are not based on

"(2) 'Cubic Foot Per Acre' means the average annual increase in cubic foot volume of wood fiber per acre for fully stocked stands at the culmination of mean annual increment as reported by the USDA Natural Resource Conservation Service (NRCS). Where NRCS data are not available or are shown to be inaccurate, an alternative method for determining productivity may be used. An alternative method must provide equivalent data and be approved by the Department of Forestry."

¹⁰ The methodology described in the April 1998 ODF publication generally requires a field survey of selected trees on the property.

1 The second document, "Lane County Forest Soil Ratings," provides ratings for Units
2 43C and 43E (both 45 cf/ac/yr), Dupee soils (70 cf/ac/yr) and Witzel soils (70 cf/ac/yr). Each
3 of these ratings is marked with asterisks ("***"). A footnote states that ratings marked with
4 asterisks are not derived from the SCS "green sheets." A second footnote indicates: "***
5 These estimated soils ratings are taken from an Office of State Forester Memorandum,
6 February 8, 1990, General File 7-1-1." Record 348-49.

7 Petitioner does not dispute that the documents relied upon provide "equivalent data"
8 to NRCS data, for purposes of OAR 660-006-0005(2). Nor does petitioner dispute that the
9 pertinent cf/ac/yr figures in the "Lane County Forest Soil Ratings" document are based on the
10 February 8, 1990 memorandum from the Office of State Forester. Instead, petitioner
11 complains that the February 8, 1990 memorandum is not in the record and there is no
12 description of the methodology used to generate the data in that memorandum, or any
13 evidence that the methodology used conforms to the methodology set out in the April 1998
14 ODF publication.

15 Petitioner is correct that, as a general matter, OAR 660-006-0005(2) requires that the
16 "alternative methodology" be described or set forth in the record, and that there is evidence
17 that ODF has approved the methodology. Presumably, use of the methodology set out in the
18 April 1998 ODF publication would suffice to satisfy the rule. It also seems consistent with
19 the rule to obtain explicit ODF approval of a different methodology, on a case-by-case basis.
20 However, we believe that it is also consistent with the rule to use ODF-generated cf/ac/yr
21 figures, if available, even if the methodology that generated those figures is not described in
22 the record. Here, petitioner does not dispute that the cf/ac/yr figures in the "Lane County
23 Forest Soil Ratings" accurately reflect the ODF-generated figures for the pertinent soils. A
24 decision maker could reasonably presume that whatever methodology generated the ODF
25 cf/ac/yr figures is one that ODF approves of. Even if the ODF figures were generated under a
26 different methodology than that set out in the April 1998 ODF publication, as petitioner

1 NRCS data, intervenor argues, the documents provide “equivalent data” that was generated
2 by an ODF-approved methodology. Intervenor points out that the pertinent data in the “Lane
3 County Forest Soil Ratings” document are based on data from a February 8, 1990
4 memorandum from the Office of the State Forester. Using data generated by the State
5 Forester should be sufficient, intervenor argues, to satisfy the requirements of OAR 660-006-
6 0005(2).

7 We assume, without deciding, that OAR 660-006-0005(2) governs the forest
8 productivity element of ORS 197.247(1)(b)(C) (1991).¹¹ The only NRCS data cited to us
9 indicates that the NRCS does not rate the forest productivity of any soil on the property, with
10 the exception of the Dixonville soils. Intervenor has not established that the ratings in the
11 “Lane County Soil Ratings for Forestry and Agriculture,” or “Lane County Forest Soil
12 Ratings” are based on NRCS or SCS data. Because NRCS data are not available, intervenor
13 can proceed under OAR 660-006-0005(2) only by providing “equivalent data” pursuant to an
14 “alternative method” that is approved by ODF.

15 As noted, the first document, “Lane County Soil Ratings for Forestry and
16 Agriculture,” rates Units 43C and 43E as 54 cf/ac/yr and 63 cf/ac/yr, respectively. Record
17 347. The source of that rating and the methodology by which it was derived is not described.
18 There is no indication in the record that it is based on SCS, NRCS or ODF data.

¹¹ We note that the statute, adopted in 1983 and repealed in 1991, does not require reliance on NRCS data in determining whether the property is capable of producing 85 cf/ac/yr of merchantable timber. The statute explicitly imposes such a requirement with respect to agricultural capability, but not forest productivity. OAR 660-006-0005(2), in turn, was adopted after the statute’s repeal and simply defines a term, “Cubic Foot Per Acre” for purposes of OAR chapter 660, Division 006. As far as we can tell, nothing in Division 006 governs designation of marginal lands under ORS 197.247. Instead, it appears that the term “Cubic Foot Per Acre” is used in Division 006 only with respect to forest template dwellings, under OAR 660-006-0027. It is possible that the Land Conservation and Development Commission did not intend the definition of “Cubic Foot Per Acre” to apply to designation of marginal land under the ORS 197.247(1)(b)(C) forest productivity test. One could also argue the converse. We need not resolve this question, as the county and the parties proceeded under the assumption that the rule definition is applicable to a marginal lands designation, and no party raises any arguments to us questioning that assumption.

1 contends, the ODF is presumably free to follow or approve a different methodology for
2 calculating timber productivity than the one set out in the April 1998 publication.

3 The first, second and third assignments of error are denied.

4 **FOURTH ASSIGNMENT OF ERROR**

5 ORS 215.327 provides for different minimum lot sizes for marginal lands, depending
6 on the character of the surrounding land.¹² Ten-acre lots are permissible if the subject
7 property is not adjacent to land zoned for exclusive farm or forest use or, if adjacent to such
8 land, such land must qualify for designation for marginal land. Otherwise the lot or parcel
9 must be 20 acres or more in size.

10 A 53.6-acre parcel south of the subject property is zoned for forest uses. The county
11 concluded that this parcel qualified for designation for marginal land, and thus that the
12 subject property could be divided into 10-acre lots. Petitioner argues that the county's
13 conclusion that the adjacent property qualifies for designation as marginal land suffers from
14 the same flaws described in the first, second and third assignments of error.

15 Because petitioner's arguments under the first, second and third assignments of error
16 do not provide a basis for reversal or remand, neither do the incorporated arguments under
17 this assignment of error.

18 The fourth assignment of error is denied.

19 The county's decision is affirmed.

¹² ORS 215.327 provides:

"A county may allow the following divisions of marginal land:

- "(1) Divisions of land to create a parcel or lot containing 10 or more acres if the lot or parcel is not adjacent to land zoned for exclusive farm use or forest use or, if it is adjacent to such land, the land qualifies for designation as marginal land under ORS 197.247 (1991 Edition).
- "(2) Divisions of land to create a lot or parcel containing 20 or more acres if the lot or parcel is adjacent to land zoned for exclusive farm use and that land does not qualify for designation as marginal land under ORS 197.247 (1991 Edition)."

Certificate of Mailing


I hereby certify that I served the foregoing Final Opinion and Order for LUBA No. 2005-029 on June 8, 2005, by mailing to said parties or their attorney a true copy thereof contained in a sealed envelope with postage prepaid addressed to said parties or their attorney as follows:

James Just
39621 Almen Drive
Lebanon, OR 97355

Steve Cornacchia
Hershner Hunter Andrews Neill & Smith LLP
PO Box # 1475
Eugene, OR 97440

Teresa J. Wilson
Lane County Courthouse
125 E. 8th Avenue
Eugene, OR 97401

Dated this 8th day of June, 2005.



Kelly Burgess
Paralegal

Kristi Seyfried
Administrative Specialist

JUN 9 2005

AFFIDAVIT

STATE OF OREGON)
)
County of LANE)

Before me this day personally appeared Mark Minty, who, first being duly sworn, deposes and says:

1. I was a partner, with my father, of C&M Livestock Company during the period from January 1, 1978 through January 1, 1983.

2. During the subject period C&M Livestock Company grazed a limited number of cattle on property owned by Art Moshofsky in the manner, in the amount and for the purposes as stated by Mr. Moshofsky in his affidavit, dated March 15, 2005. The statements in his affidavit relating to our grazing of cattle on his property are true and accurate.

3. At no time during the applicable period, and at no time thereafter, did C&M Livestock Company own or manage property adjacent to or contiguous with Mr. Moshofsky's property or in the vicinity of that property.

4. It is my opinion, based upon our experience on the subject property, that the property is of marginal value for grazing or other agricultural production and could not be managed as a farm operation capable of producing \$20,000 annually.

Mark Minty

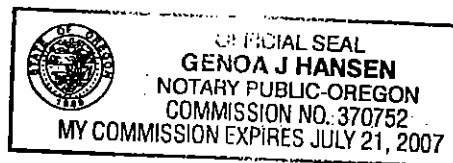
Mark Minty

Personally appeared the above-named Mark Minty, being duly sworn, who signed this affidavit in my presence as his voluntary act and deed.

Before me this 18th day of July, 2005.

Genoa J Hansen

Notary Public for Oregon
My commission expires: 7/21/07



AFFIDAVIT

STATE OF OREGON)
County of Clackamas)

Before me this day personally appeared Art Moshofsky, who, first being duly sworn, deposes and says:

1. I owned property located in Lane County, Oregon, described as Assessor's Map No. 18-04-24, tax lot 0300 and Map No. 18-03-19, tax lot 1300, during the period from January 1, 1978 through January 1, 1983.

2. On March 15, 2005, I signed an Affidavit that stated: "In 1990 I harvested 900,000 board feet of Douglas Fir on the subject property."

3. This affidavit clarifies that affidavit, a copy of which is attached hereto and by this reference incorporated herein.

4. During the aforementioned time period no merchantable timber was harvested from the subject property. The subject property was not managed as part of a forest operation on other property and I did not own any property contiguous to the subject property or in the vicinity of the subject property during the applicable period of time. The merchantable timber harvested in 1990 was cut by a contract logger and was sold to a third party on the open market.

Art Moshofsky
Art Moshofsky

Personally appeared the above-named Art Moshofsky, being duly sworn, who signed this affidavit in my presence as his voluntary act and deed.

Before me this 21 day of July, 2005.

Brandi Mc Williams
Notary Public for Oregon
My commission expires: Aug. 10, 2007



AFFIDAVIT

STATE OF OREGON)
)
County of Clackamas)

Before me this day personally appeared Art Moshofsky, who, first being duly sworn, deposes and says:

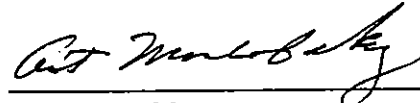
1. I owned property located in Lane County, Oregon, described as Assessor's Map No. 18-04-24, tax lot 0300, during the period from January 1, 1978 through January 1, 1983.

2. On December 17, 2003, I signed an Affidavit that stated: "At no time during the period stated in paragraph 1. above was the above described property managed as part of a farming operation. By "farm operation" I mean the employment of the subject property for the primary purpose of obtaining a profit in money. By "farm operation" I also mean all uses and activities defined as "farm use" and "current employment" of land in ORS 215.203(2)."

3. This affidavit clarifies that affidavit, a copy of which is attached hereto and by this reference incorporated herein.

4. During the aforementioned time period I allowed a third party to graze a limited number of cattle on the subject property. The number of cattle was limited and never exceeded 25 head. My purpose in allowing the grazing was to create an activity and human presence on the property in our absence. The consideration received for allowing the grazing was the activity and presence and annual fence repair. In the years that I accepted a nominal payment for the grazing, the payment and the other stated consideration never exceeded \$1,000 in annual value. At no time during the aforementioned time period was the subject property managed as part of a farm operation capable of producing \$20,000 in annual income.


5. In 1990 I harvested 900,000 board feet of Douglas Fir on the subject property.


Art Moshofsky

Personally appeared the above-named Art Moshofsky, being duly sworn, who signed this affidavit in my presence as his voluntary act and deed.

Before me this 15th day of March, 2005.

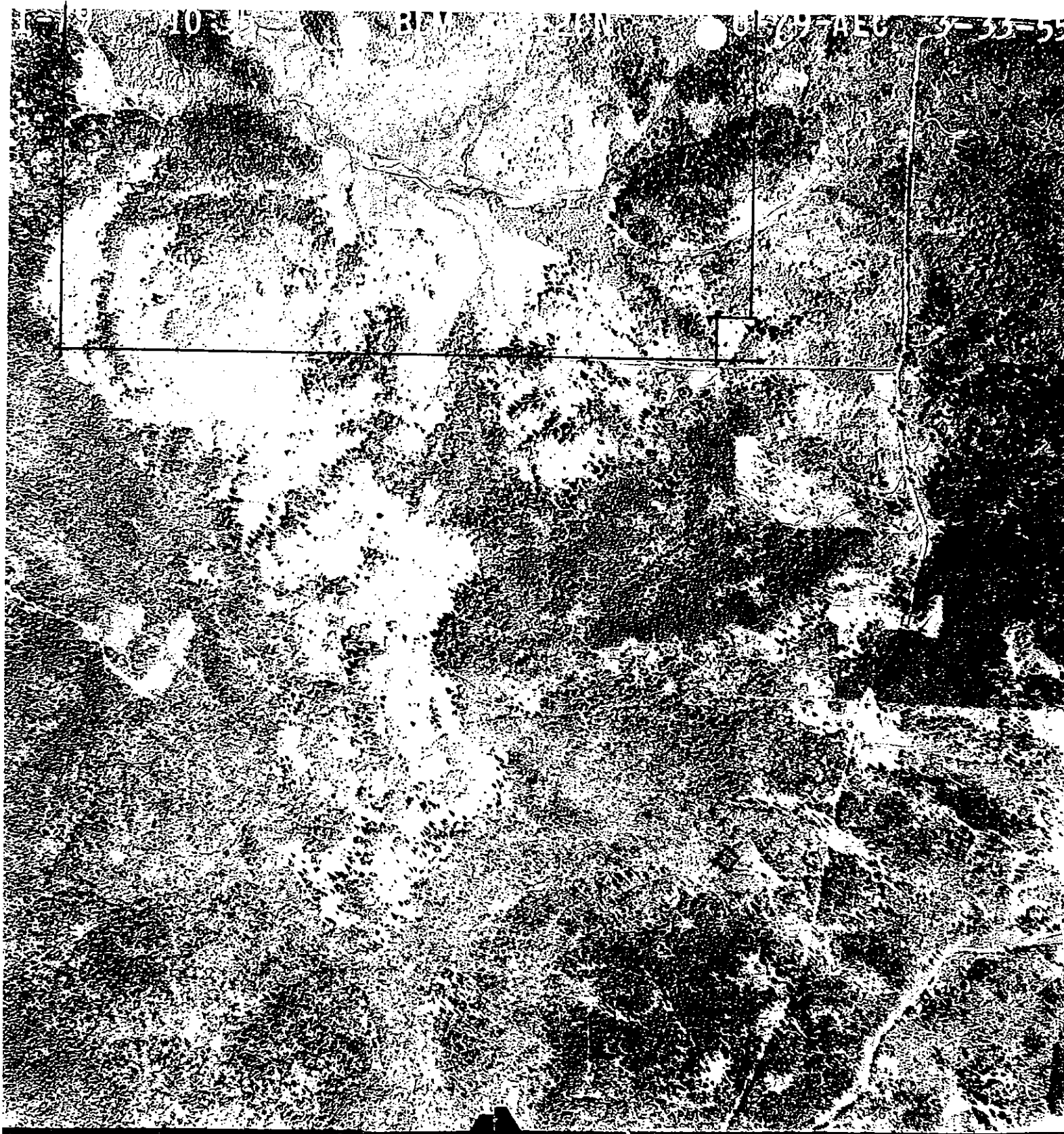



Notary Public for Oregon
My commission expires: Nov 15, 2008

DAHLEN PROPERTY
T18S-R4W-SEC 24
EXHIBIT 4
1996 PHOTO



DAHLEN PARCEL
T18S-R4W-SEC 24
EXHIBIT 3
1990 PHOTO



DAHLEN PARCEL
T18S-R4W-SEC 24

EXHIBIT 2

1979 PHOTO



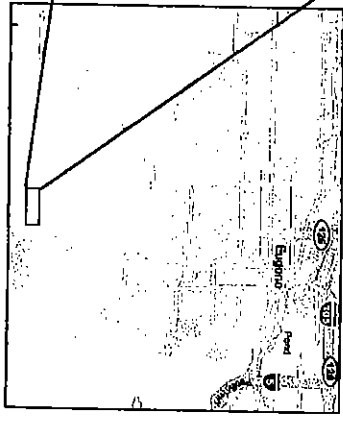
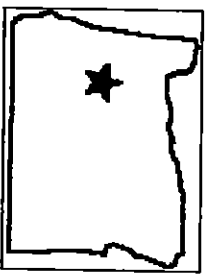
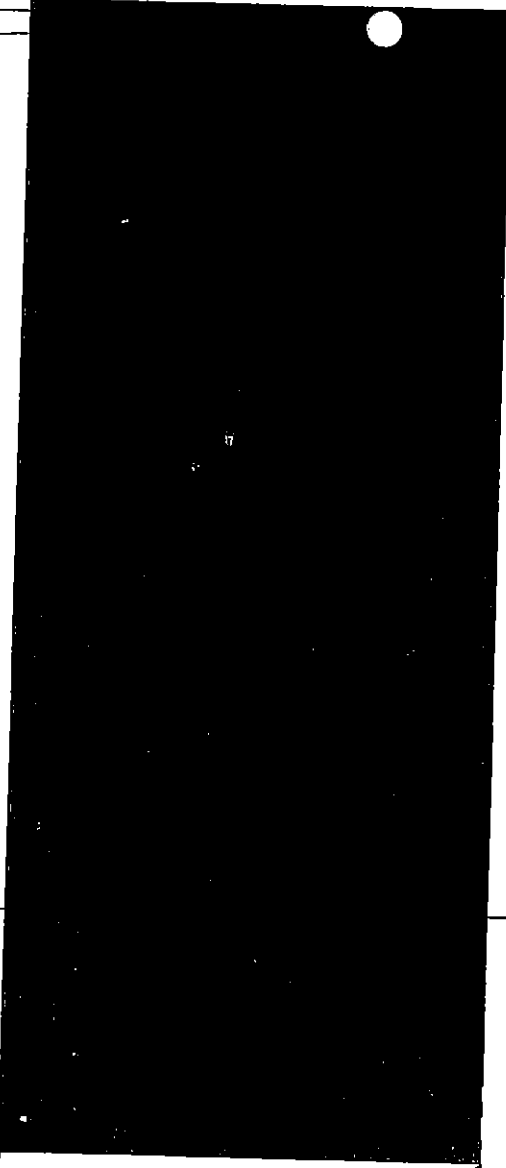
DAHLEN PROPERTY
T18S-R4W SEC 24

EXHIBIT 1

1952 PHOTO

Section 24 Twp. 18S. R. 4W.

Section 19 Twp. 18S. R. 3W.



Location Map

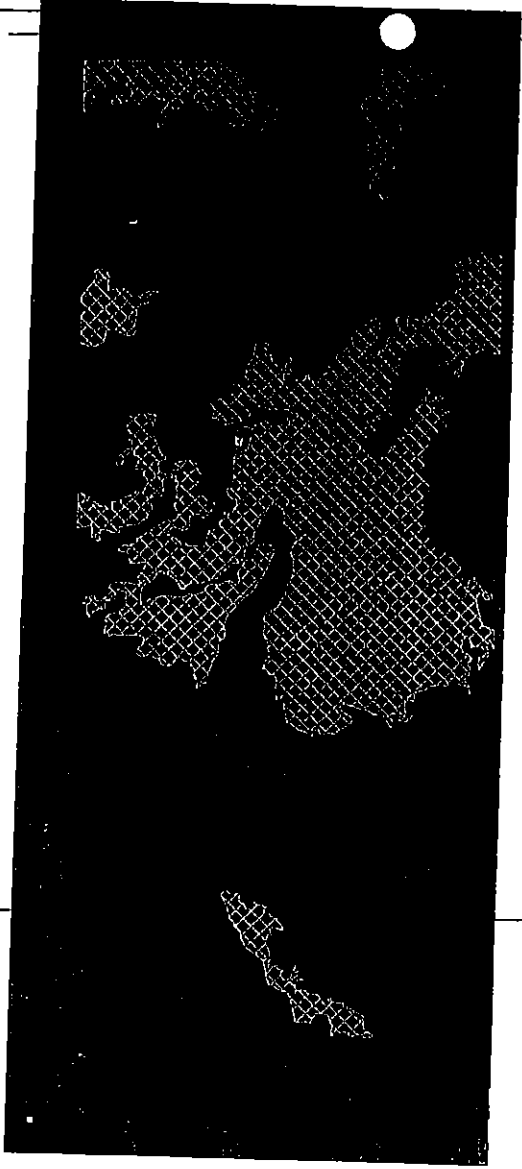
Dahlen Property
Map No. 18-04-24 #300
Map No. 18-03-19 #1300



Prepared by:
Agronomic
Analytics

Section 24 Twp. 18S. R. 4W.

Section 19 Twp. 18S. R. 3W.

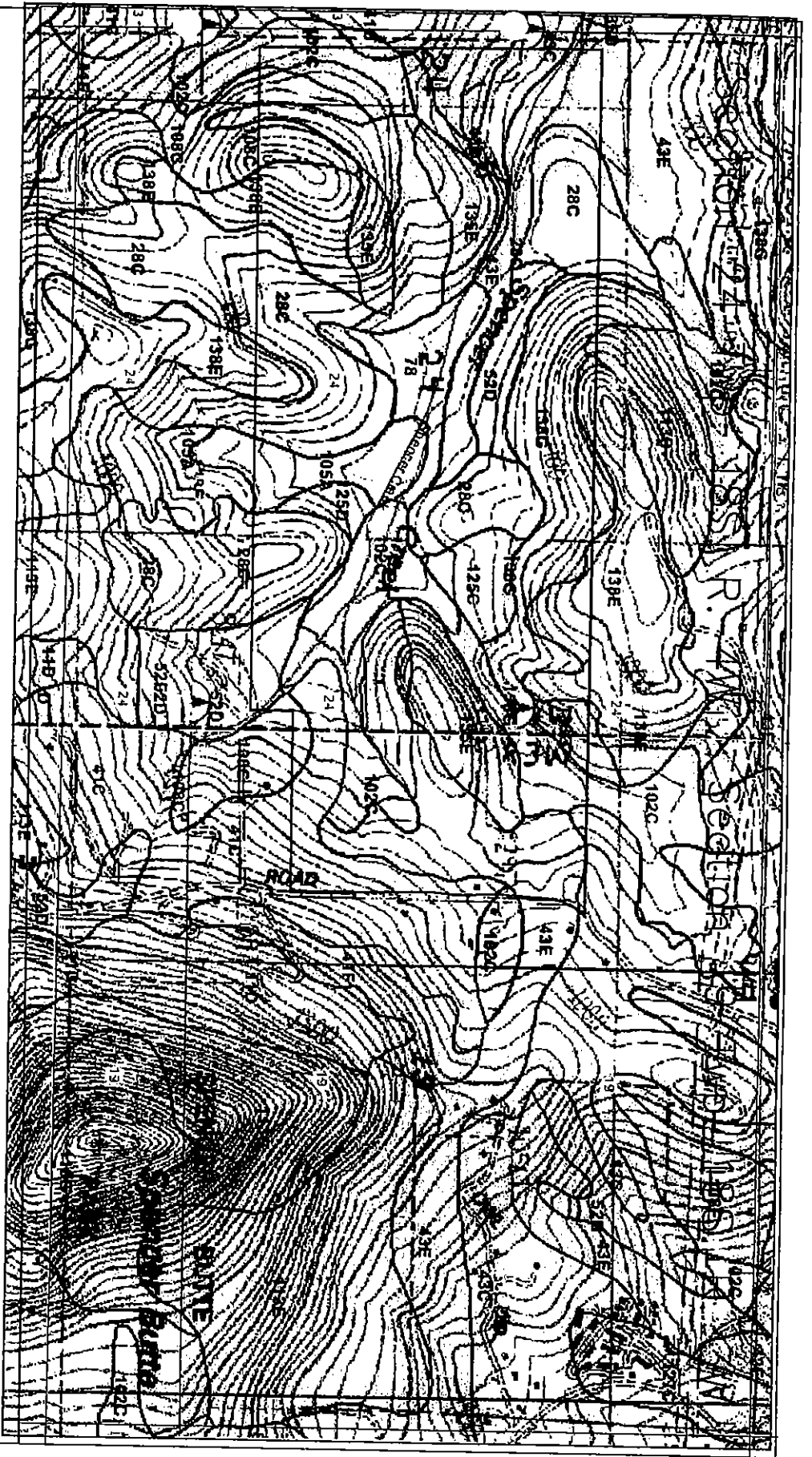


Landuse Map

Dahlen Property
Map No. 18-04-24 #300
Map No. 18-03-19 #1300

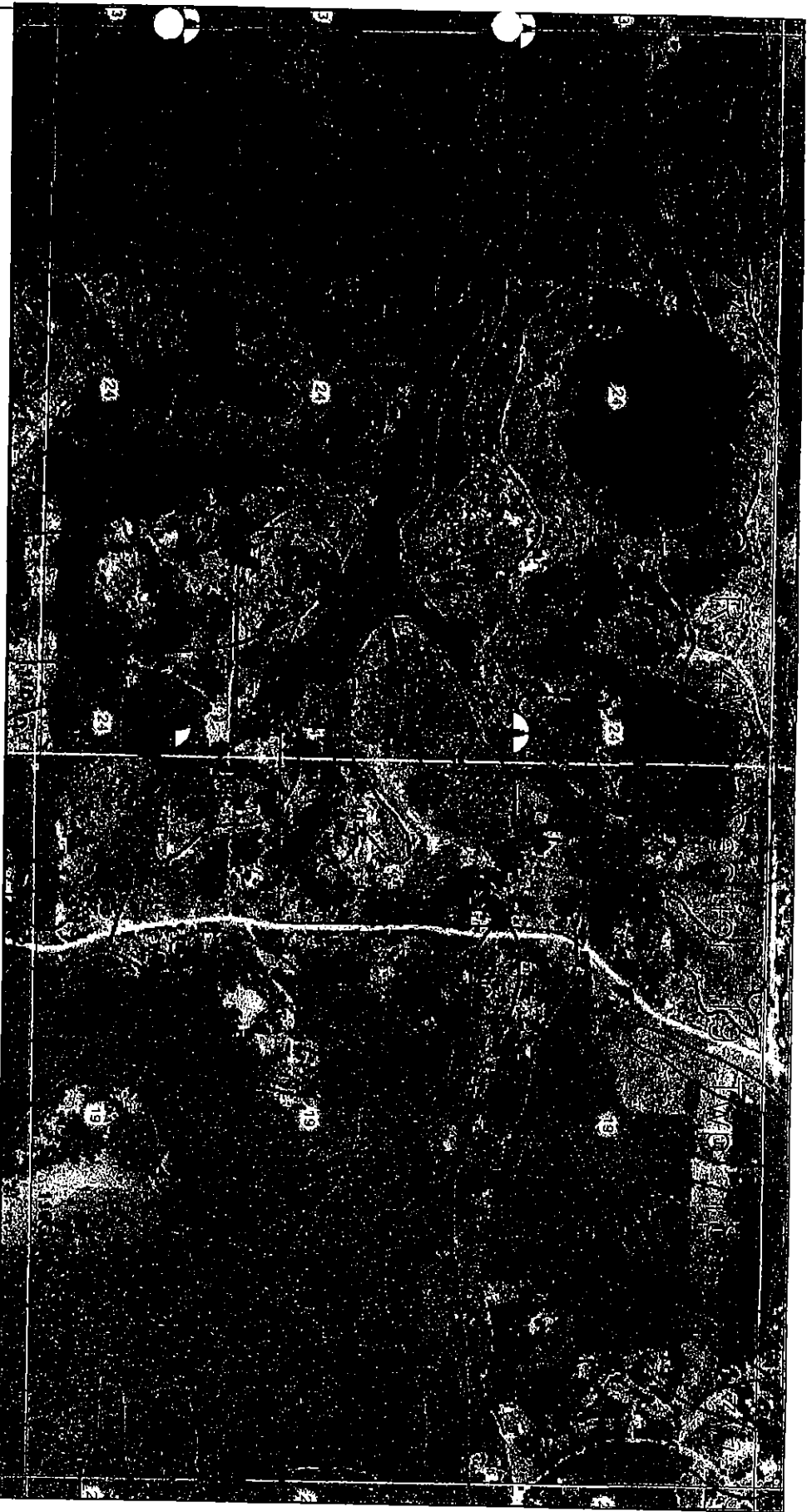


- Open Areas, Predominantly Grasslands
- Mixed Open Areas and Trees, Grassland, Brush, Young Trees
- Forested Areas, Predominantly Second Growth, Some Older Trees



Dahlien Property
Map No. 18-04-24 #300
Map No. 18-03-19 #1300

7.5 Topo Map
Creswell Quadrangle



Dahlen Property
Map No. 18-04-24 #300
Map No. 18-03-19 #1300

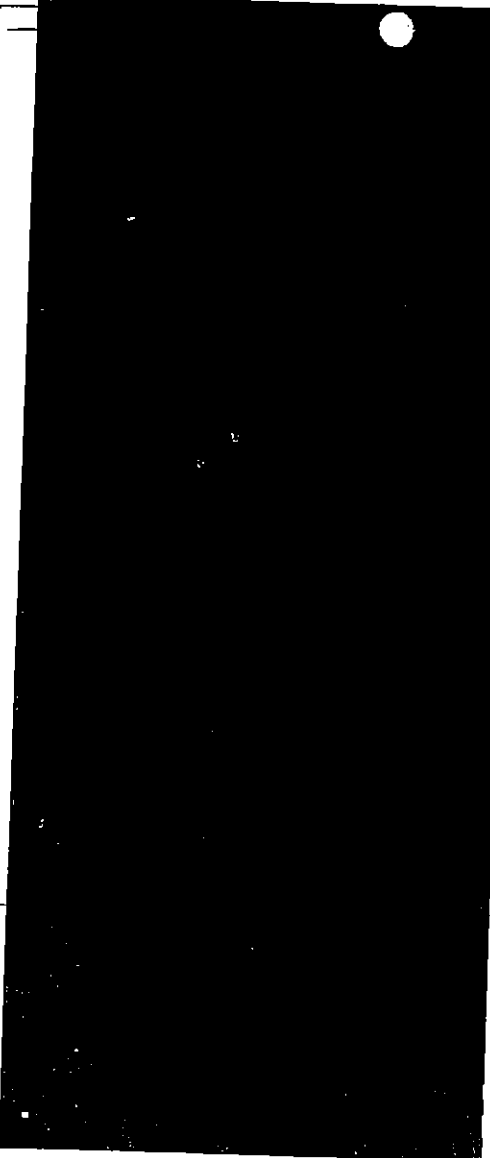
USDA Soil Survey of Lane County Area, Oregon
1987. SCS. Excerpt from Page 103

Section 24 Twp. 18S. R. 4W.

Section 19 Twp. 18S. R. 3W.

Augerhole Soil

Depths



- No. 1 - 13 inches
- No. 2 - 14 inches
- No. 3,4 - 18 inches
- No. 5 - 5 inches
- No. 6 - 13 inches
- No. 7 - 20 inches
- No. 8 - 28 inches
- No. 9 - 11 inches
- No. 10 - > 57 inches
- No. 11 - 11 inches
- No. 12 - > 57 inches
- No. 13 - 12 inches
- No. 14 - 27 inches
- No. 15 - 24 inches
- No. 16 - 7 inches
- No. 17 - 21 inches
- No. 18 - 23 inches
- No. 19 - 10 inches

Augerholes

⊙ Augerholes

Dahlen Property
Map No. 18-04-24 #300
Map No. 18-03-19 #1300

Section 24 Twp. 18S. R. 4W.

Section 19 Twp. 18S. R. 3W.

113E 138E

43G

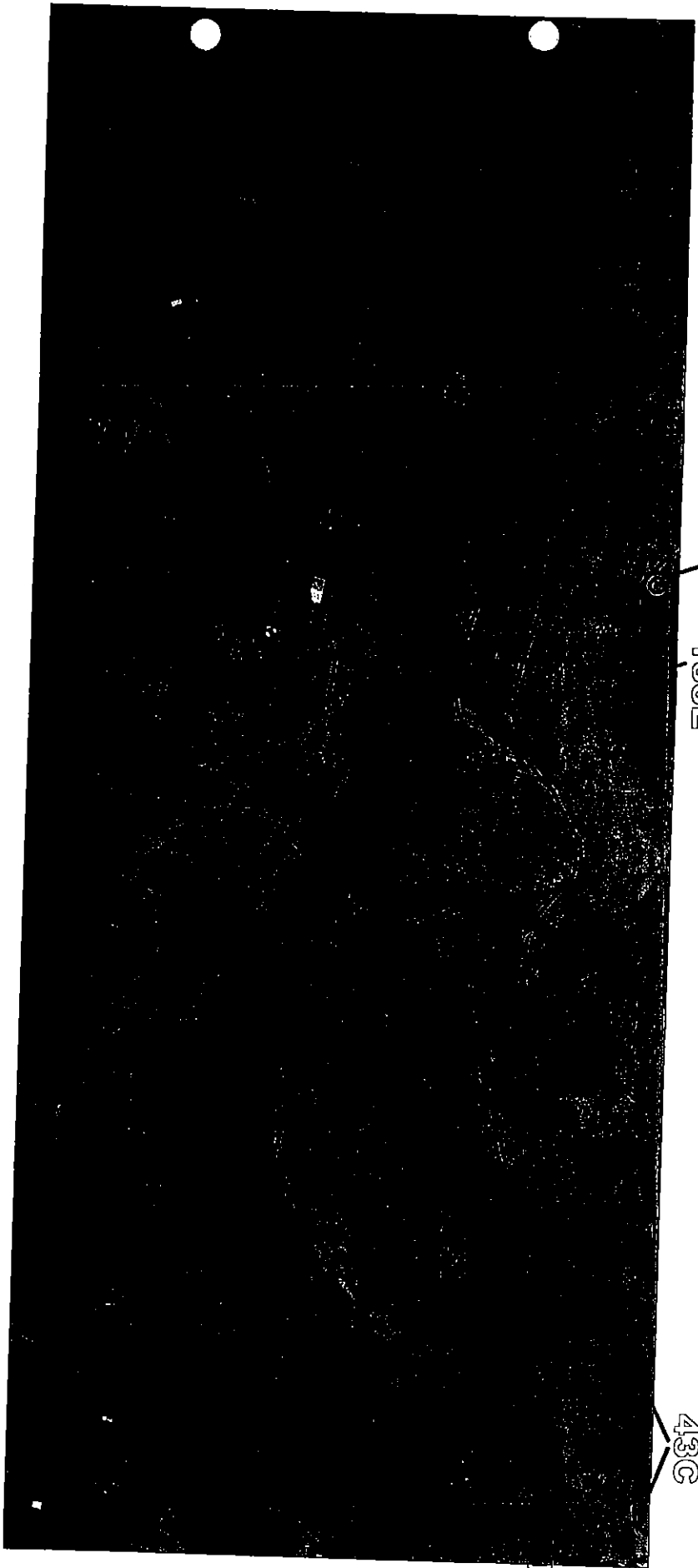
**Soils Occurring Under
Open Grasslands**

- 28C - Chehulpum silt loam
- 43C,E - Dixonville-Philomath-Hazelalr Complex
- 52D - Hazelalr silty clay loam
- 78 - McAlph silty clay loam
- 102C - Panther silty clay loam
- 105A - Pengra silt loam
- 125C,D - Stelwer loam
- 138E,G - Witzel very cobbly loam

Soil Map Units

- 28C - Chehulpum silt loam
- 41C - Dixonville silty clay loam
- 43C,E - Dixonville-Philomath-Hazelalr Complex
- 52D - Hazelalr silty clay loam
- 78 - McAlph silty clay loam
- 102C - Panther silty clay loam
- 105A - Pengra silt loam
- 108C - Philomath cobbly silty clay loam
- 113C,E - Ritner cobbly silty clay loam
- 125C,D - Stelwer loam
- 135E - Willakenzle clay loam
- 138E,G - Witzel very cobbly loam

Dahlen Property
Map No. 18-04-24 #300
Map No. 18-03-19 #1300



113E 138E

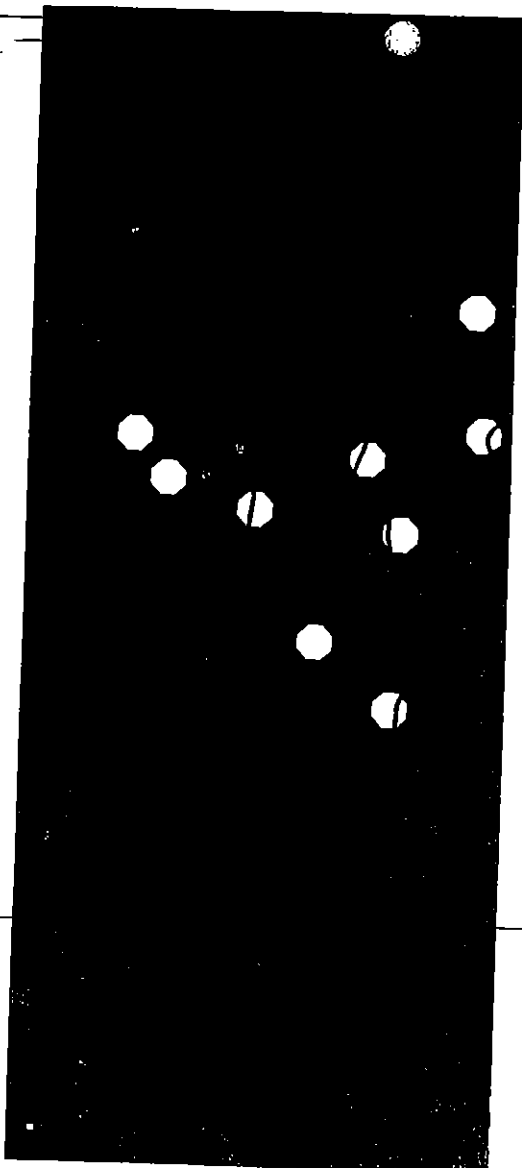
43C

02C

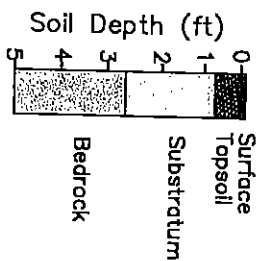
Soil Map Units w/ Augerhole Locations

Section 24 Twp. 18S. R. 4W.

Section 19 Twp. 18S. R. 3W.



Typical Soil Profile



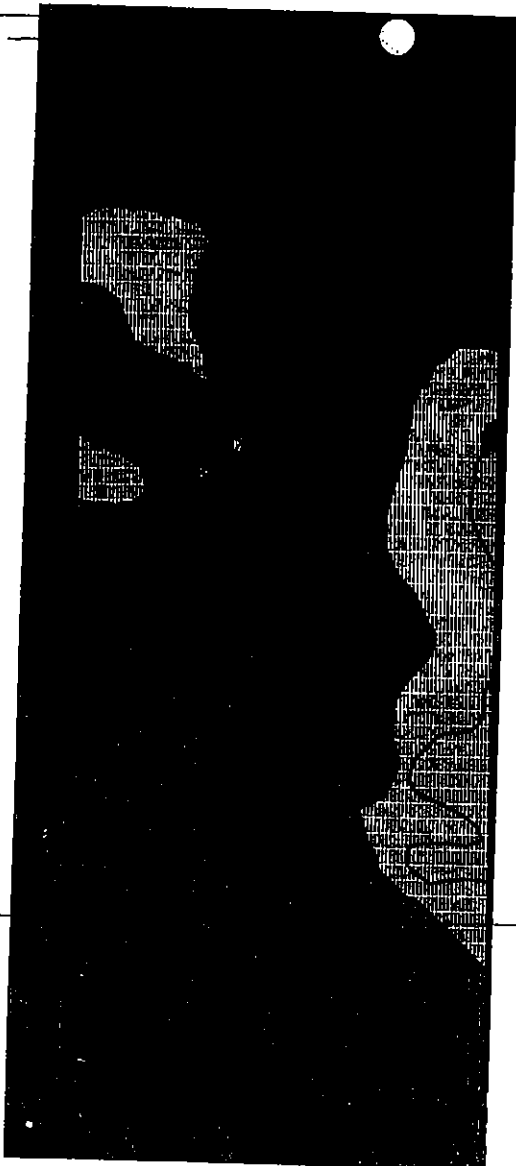
Observed Soil Depths

Dahlen Property
Map No. 18-04-24 #300
Map No. 18-03-19 #1300

- Observed Soil Depths Greater Than 20 inches
- Observed Soil Depths Greater Than 10 inches but Less Than 20 inches
- Observed Soil Depths Less Than 10 inches

Section 24 Twp. 18S. R. 4W.




Section 19 Twp. 18S. R. 3W.



Woodland Site Index

Ratings (USDA, 1987)

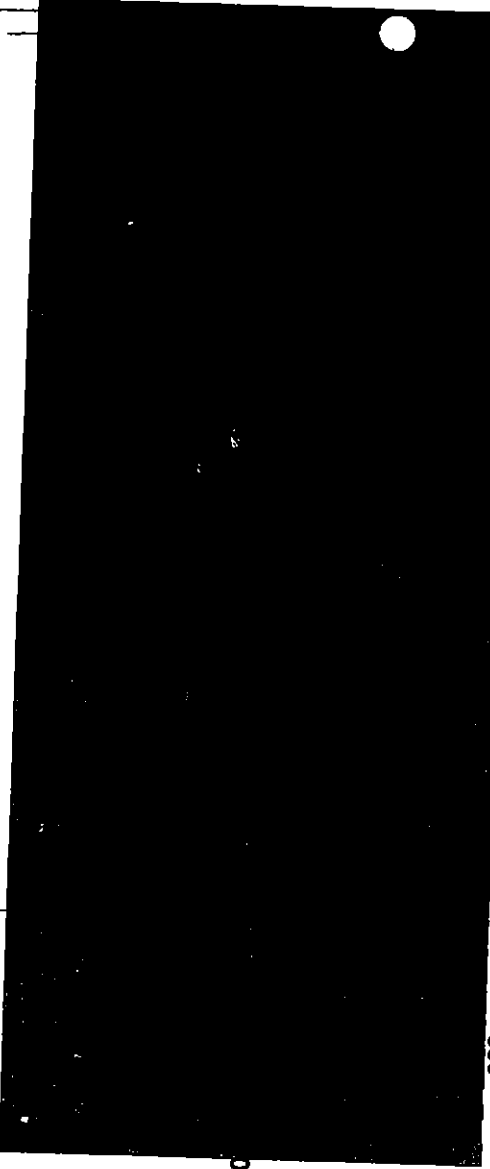
Dahlen Property
Map No. 18-04-24 #300
Map No. 18-03-19 #1300

-  Soils with Woodland Site Index Ratings Greater Than 100
-  Soils with Woodland Site Index Ratings Less Than 100
-  Soils Without Woodland Site Indexes

Section 24 Twp. 18S. R. 4W.

Section 19 Twp. 18S. R. 3W.

800 900 1000 1000 800 900






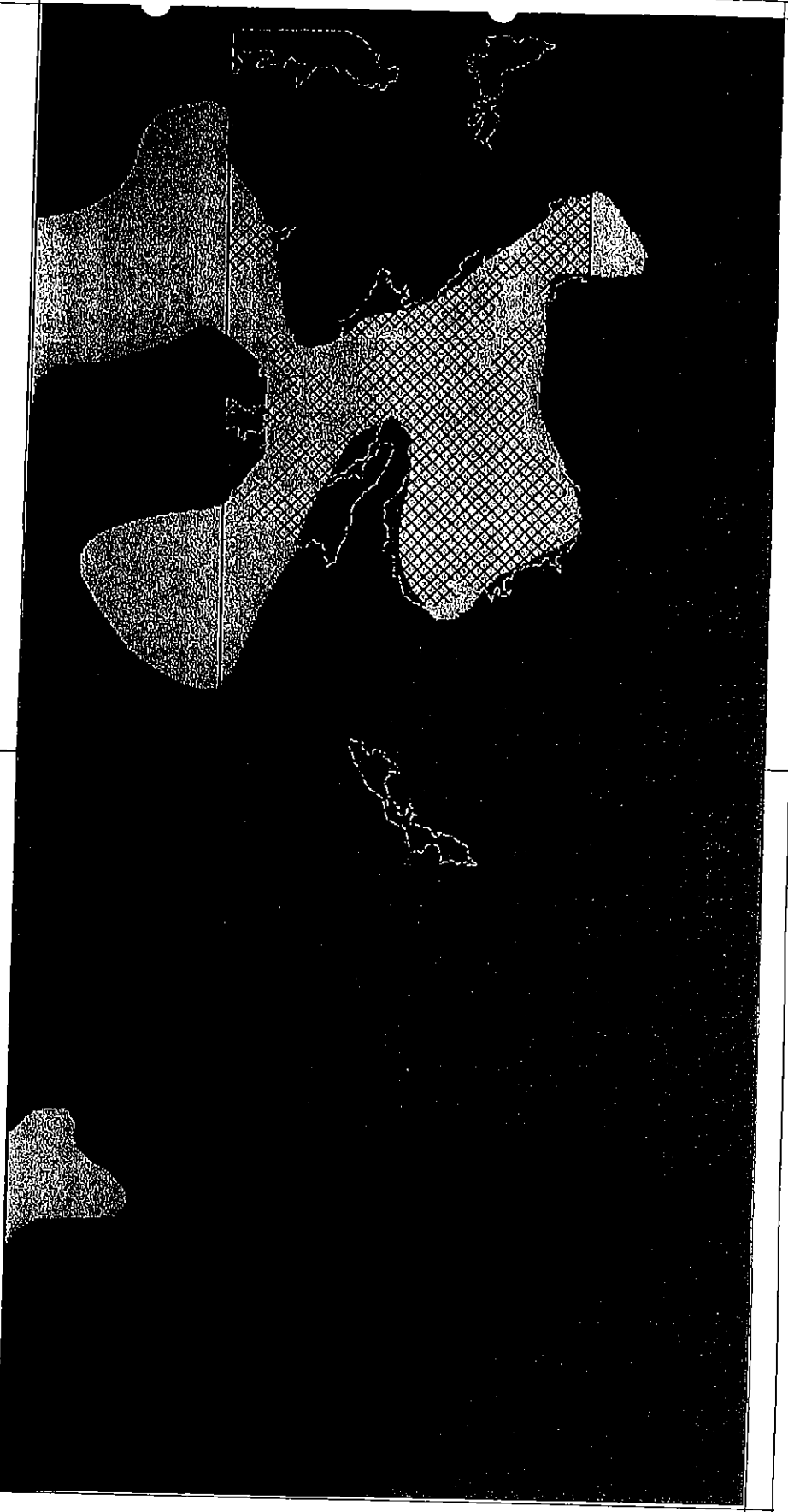
Elevation and Aspect Description

Elevations on the Dahlen Property range from a low of 730 feet above sea level in the NW corner to a high of 1080 feet in the SE corner and at the main house. Open grasslands exhibit primarily a south and southwest aspect.

Elevation Map






Dahlen Property
Map No. 18-04-24 #300
Map No. 18-03-19 #1300

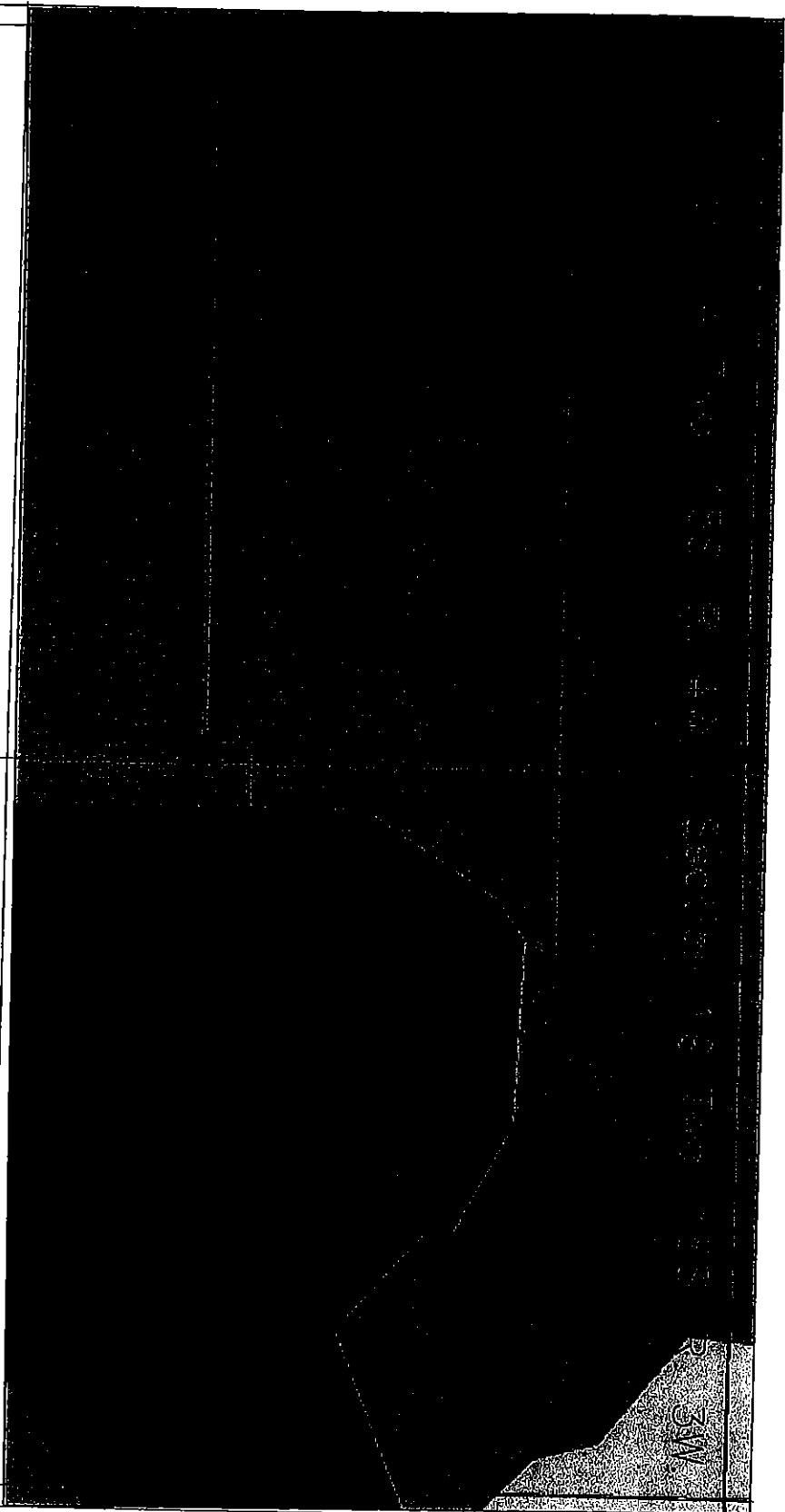
-  100 foot contours
-  20 foot contours
-  Spencer Creek



Historic Vegetation - 1909

Dahlen Property
Map No. 18-04-24 #300
Map No. 18-03-19 #1300

-  Oak - Douglas Fir
-  Oak Savanna
-  Douglas Fir
-  Grasslands - Roemer Fescue
-  Current Open Grasslands



Local Geology

Dahlen Property
 Map No. 18-04-24 #300
 Map No. 18-03-19 #1300

- Tfeb - Fisher and Eugene formations basaltic rocks Oligocene and upper Eocene basaltic rocks
- Tlb - Basalt and andesite intrusions Pliocene, Miocene, and Oligocene? Sills, plugs and dikes of basaltic andesite, basalt, and andesite; mostly represents feeders, exposed by erosion, for flows and flow breccias of units Tba and Trb
- Tfee - Marine Eugene Formation, where mapped separately Oligocene and upper Eocene thin to moderately thick bedded, coarse- to fine-grained arkosic and micaceous sandstone and siltstone, locally highly pumiceous

Dahlen Property

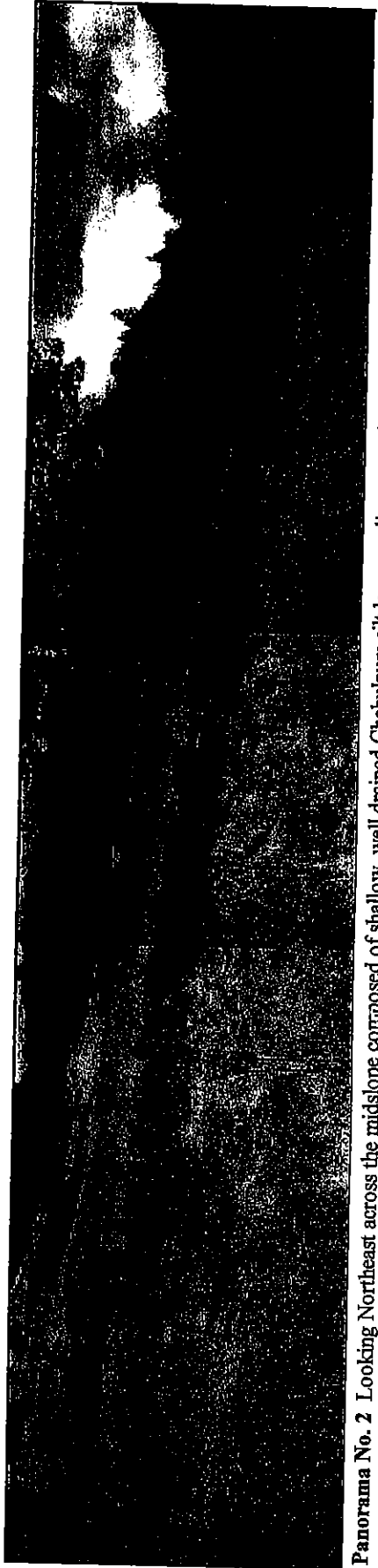
August 2005

Photographic Record

Agronomic Analytics



Panorama No. 1 Looking North from the location of the shop across the Spencer Creek floodplain composed of deep to moderately alluvial silty clay soils (McAlpin, Pengra, and Hazelat). Lower toe of the hillside composed of gradually shallower soils (Hazelat, Dixonville, and Philomath) formed over colluvium. Steep upper slopes consist of shallow soils (Witzel) formed in weathered basaltic bedrock.



Panorama No. 2 Looking Northeast across the midslope composed of shallow, well drained Chenulpum silt loam grading towards moderately deep Steiwer loam.

Dahlen Property August 2005 Photographic Record *Agronomic Analytics*



Figure No. 6 Landscape at Auger Hole # 19 looking Northwest towards Auger Hole # 15

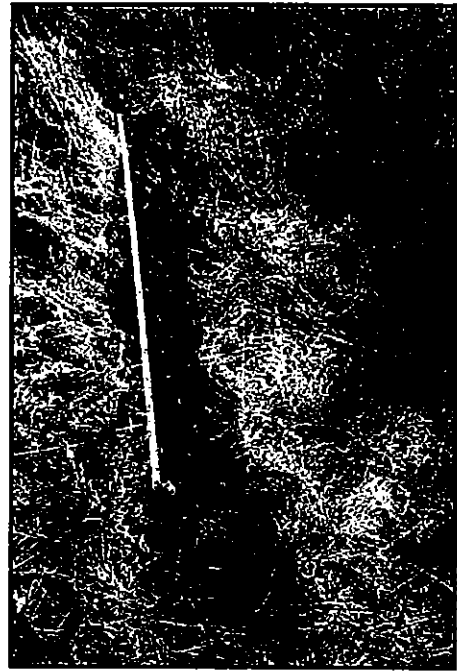


Figure No. 7 Auger Hole # 12

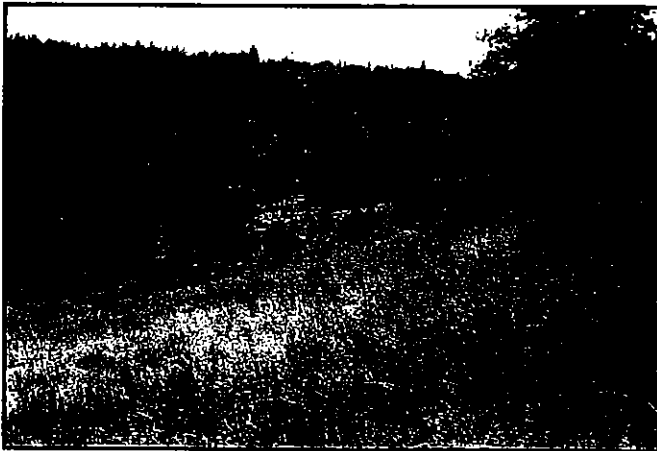


Figure No. 8 Landscape at Auger Hole # 16

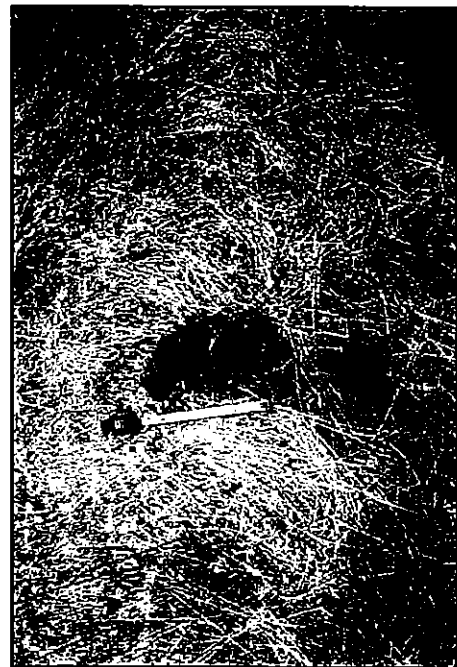


Figure No. 10 Auger Hole # 11

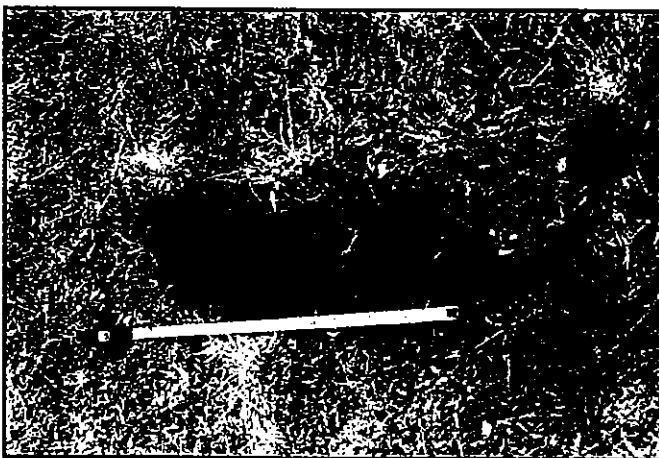


Figure No. 9 Auger Hole # 17