PLOT FORM SUMMARY

2020

6

MONTANA STATE UNIVERSITY EXTENSION Forestry Program

Landowner _____ Date _____

Management Unit (MU) _____ # Plots in MU _____ # Acres in MU ____

Calculation Instructions for tables **1** (Slope), **2** (Aspect), **3** (Forest Structure), **4** (Shrub Understory), **5** (Soil Considerations), **6** (Tree Crown Cover).

Using your plot forms, count and record the number of plots in each category for tables 1-6. Use the Dot Count Method to complete "# of plots" column.

Next, complete the percent of plots column for each table. "% of plots" is calculated by dividing the number of plots in each category by the total number of plots in the MU.

Example:

	# of plots	% of plots
0-20%	• •	20%
20-40%	⁝	60%
40%+	• •	20%

The Example shows 6 of 10 plots in the 20 - 40% slope category. To calculate "% of plots", divide 6 by 10 = .6, and multiply by 100 for % (60%). So, 60% of the plots in this MU had slopes of 20 - 40%, 20% were 0 - 20% or 40%+. Check your math mentally by adding the % of plots column. It should total 100%.

1. Slope Percent

	# of plots	% of plots
0-20%		
20-40%		
40%+		

2. Aspect

	# of plots	% of plots
North		
South		
East		
West		
Flat		

3. Forest Structure

Structure #	# of plots	% of plots

4. Shrub Understory

	# of plots	% of plots
Yes		
No		

Yes No

6. % Tree Crown Cover

	# of plots	% of plots
20%		
40%		
60%		
80%+		

5. Soil Considerations

Organic Layer Depth

	# of plots	% of plots
Heavy > 2 inches		
Light < 2 inches		

Soil Depth

	# of plots	% of plots
Deep > 2 feet		
Shallow < 2 feet		
Absent 0 feet or rock		

Write any other soil comments like "active erosion issues."

Texture/Compaction

	# of plots	% of plots
Rocky		
Gravely		
Fine textured		

Drainage

	# of plots	% of plots
Well drained		
Poorly drained		

NEXT: Before going further, calculate the **"Primary"** and **"Secondary"** species **for the MU.** Go to the data in #9 on the Plot Form, the columns titled "Primary Species" and "Secondary Species." Using your plot forms, tally the primary and secondary tree species on the table below (use Dot Count Method).

	DF	LPP	PP	WL	ES	GF	SAF	QA				PRIMARY
Primary Species												
												SECONDARY
Secondary Species												

Look across the Primary Species line, the species with the highest tally is the primary species in your Management Unit. Record the species in the box on the right. Repeat the procedure to determine the Secondary Species in your Management Unit. ***This will be your Primary and Secondary Species for all future reference throughout this form.***

7. Seedling & Sapling Information

The information collected on the fixed plot (#7 on Plot Forms) is used to calculate the average number of seedlings and saplings per acre in the management unit.

To calculate seedlings per acre (next page):

1. Write the ***Primary***, ***Secondary*** and ***Other*** species abbreviations in the appropriate box in the tables on pages 3 through 7. *(Use the Primary and Secondary species determined for the large trees (above) for all calculations even if there are more seedlings of a different species).* Be sure to include **all *Other Species*** abbreviations from your plot forms.

2. Look through each plot form. Count the total number of seedlings for each condition (Good, Poor) by species. Use line 1 to record your count (use Dot Count Method). At the bottom of line 1, write the total count.

3. Divide each answer on line 1 (total number of seedlings by condition) by the number of plots in your management unit. Record the answer on line 2.

4. Multiply each answer on line 2 (Average number of seedlings per plot) by 50. Record the answer on line 3. This is the average number of seedlings/acre by condition (good vs. poor).

5. Add the "good" & "poor" seedlings. Record the total on line 4.

6. Add the Primary, Secondary and Other species. Record the total on line 5. This represents the total # of seedlings per acre (all species, all conditions).

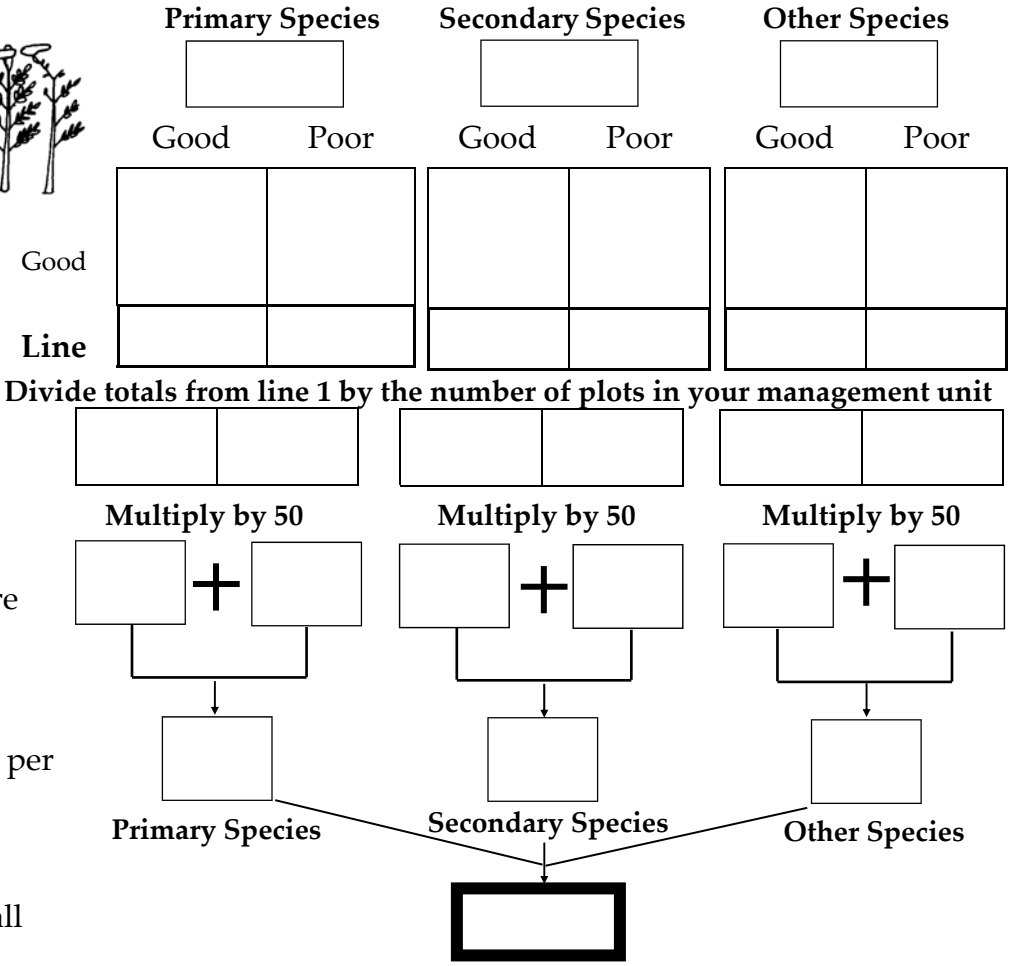
Line 1.
Number of seedlings found on all plots by condition.

Line 2.
Average # of seedlings per plot.

Line 3.
Average # of seedlings per acre by condition.

Line 4.
Total (good & poor) seedlings per acre, (by species).

Line 5.
Total # of seedlings per acre (all conditions, all species).



Use the same procedure to calculate saplings per acre:

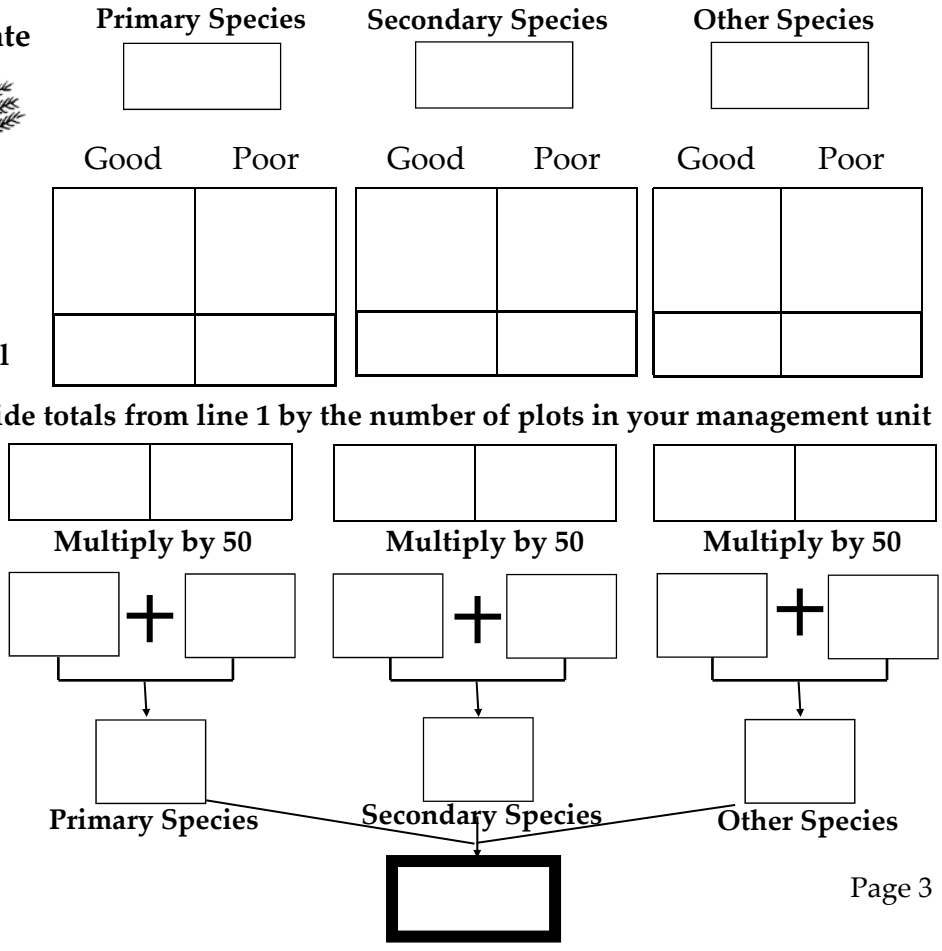
Line 1. Number of sapling found on all plots by condition.

Line 2. Average # of saplings per plot.

Line 3. Average # of saplings per acre by condition.

Line 4. Total (good & poor) saplings per acre, (by species).

Line 5. Total # of saplings per acre (all conditions, all species).



7. Large Tree Information

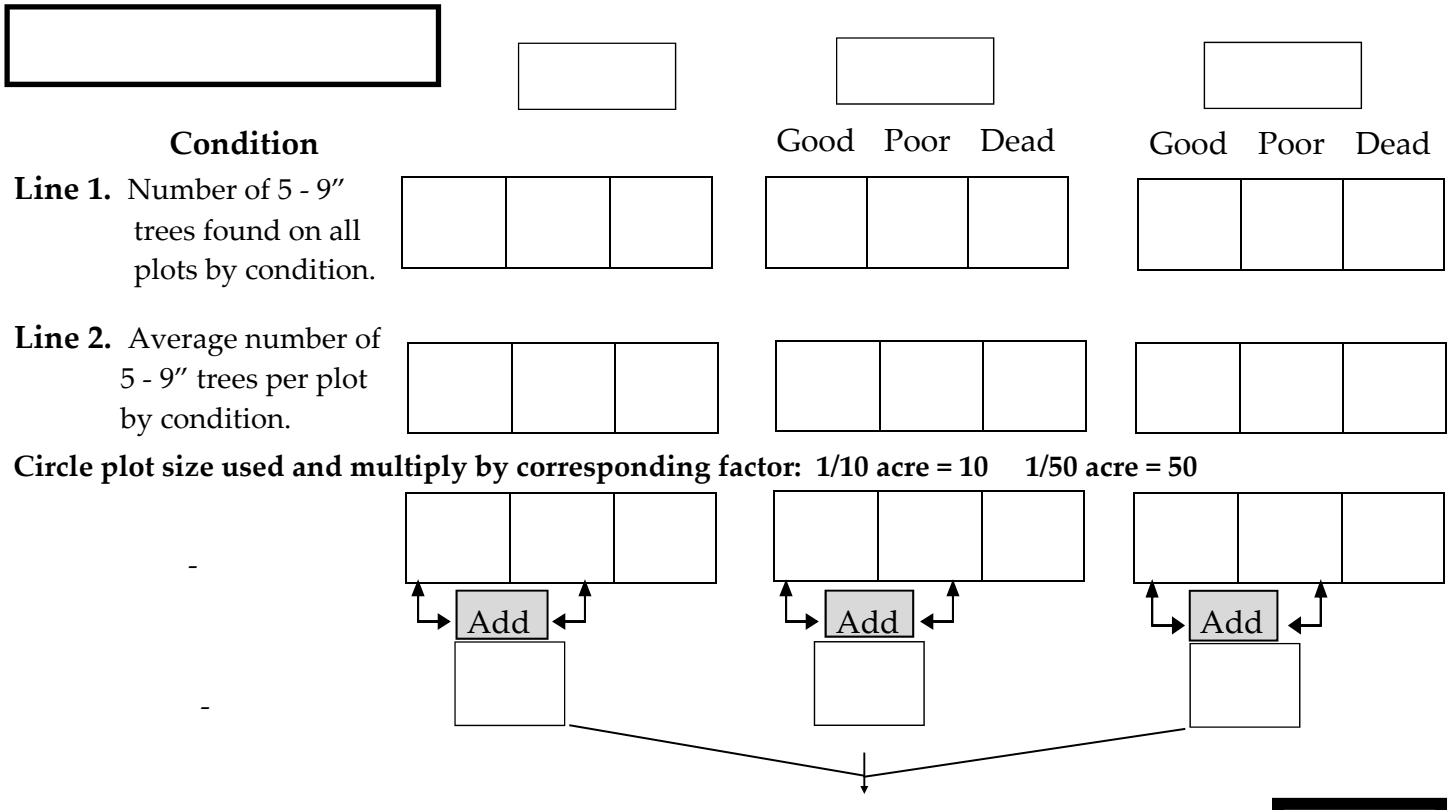
Information from the fixed plot large trees (#8 on Plot Forms) is used to calculate the average number of 5 to 9", 9 to 15", 15 to 20" and 20"+ trees per acre in the management unit.

To calculate 5 to 9" trees per acre:

1. Write the Primary, Secondary and Other species abbreviations (from page 2) in the appropriate box in the table on page 4.
2. Look through each plot form. Count the total number of 5 to 9" trees for each condition (Good, Poor, Dead). On line 1 record your count (use Dot Count Method).
3. Divide each answer on line 1 (total number of 5 to 9" trees by condition class) by the number of plots in your management unit. Record the answer on line 2.
4. Multiply each answer on line 2 (Average number of 5 to 9" trees per plot) by the corresponding factor. Record the answer in the corresponding boxes on line 3.
5. Add your answers as shown on line 3 (5 to 9" trees per acre by condition) and record the total live trees on line 4.
6. Add the answers from line 4 (5 - 9" trees per acre, all conditions). Record the total of live trees on line 5. Record the number of dead trees in the box provided. This represents the total number of 5 - 9" trees per acre in the management unit (all species and all conditions).

Use this same procedure to calculate 9 to 15", 15 to 20" and 20+ trees per acre.

(Tables provided on following pages).



9 - 15" DBH Trees:

Primary Species | **Secondary Species** | **Other Species**

Condition — Good Poor Dead | Good Poor Dead | Good Poor Dead

Line 1. Number of 9 - 15" trees found on all plots by condition.

Divide total by the number of plots in management unit

Line 2. Average number of 9 - 15" trees per plot by condition.

Circle plot size used and multiply by corresponding factor: 1/10 acre = 10 1/50 acre = 50

Line 3. Average number of 9 - 15" trees per acre by condition.

Add | Add | Add

Line 4. Average number of live 9 - 15" trees per acre, (by species).

Primary Species | **Secondary Species** | **Other Species**

Line 5. Total number of live 9 - 15" trees per acre (all conditions, all species).

Total Dead

15 - 20" DBH Trees:

Primary Species | **Secondary Species** | **Other Species**

Condition — Good Poor Dead | Good Poor Dead | Good Poor Dead

Line 1. Number of 15 - 20" trees found on all plots by condition.

Divide total by the number of plots in management unit

Line 2. Average number of 15 - 20" trees per plot by condition.

Circle plot size used and multiply by corresponding factor: 1/10 acre = 10 1/50 acre = 50

Line 3. Average number of 15 - 20" trees per acre by condition.

Add | Add | Add

Line 4. Average number of live 15 - 20" trees per acre, (by species).

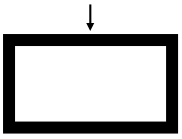
Primary Species | **Secondary Species** | **Other Species**

Line 5. Total number of live 15 - 20" trees per acre (all conditions, all species).

Total Dead

Line 3. Average number of 20″+ trees per acre by condition.

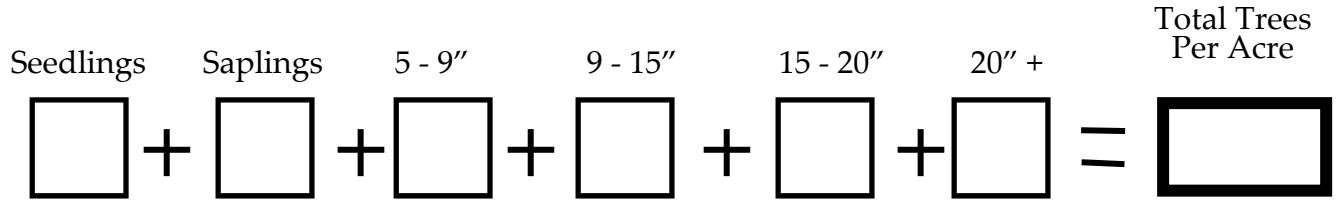
Line 5. Total number of live 20″+ trees per acre (all conditions, all species).



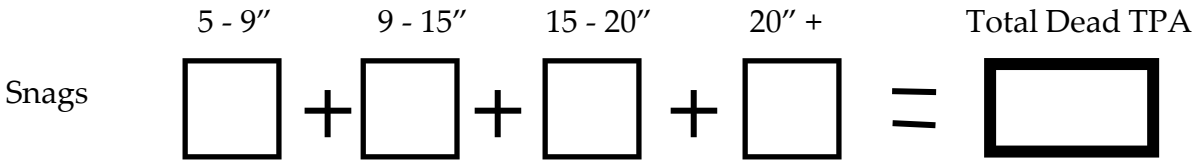
Total Dead

Total Trees Per Acre:

Use the following boxes to combine all line 5 data (total **live** trees per acre) from pages 3, 4, and 5 for Seedlings, Saplings, 5 - 9″, 9 - 15″, 15 - 20″and 20″+ trees per acre.



Count the **dead** trees in each size class and enter the number.



9. 1st Fixed Plot Large Tree

1. Record the Management Unit (MU) Primary and Secondary species **(see top of page 2)** in box A below.
2. Review the plot form data under number 9 (1st Fixed Plot Large Tree). Look for any "1st Tree" information collected about your **MU Primary Species**. *Remember, the tree species designated as your MU Primary Species may not match the Primary Species for each individual plot.* The object is to obtain and record as much DBH, Age, and rings/1 inch increment data about your MU Primary Species as possible. Repeat the procedure for MU Secondary Species.
3. Add the values for each category, and record the total in the top half of box B.
4. In the bottom half of box B, enter the # of plots for which data was entered.
5. Divide the total of each category (top of box B) by the # of plots with primary species trees (bottom of box B) to determine the average DBH. Record your answer in box C.
6. **RANGE:** Enter the <u>smallest</u> to <u>largest</u> values for each category.

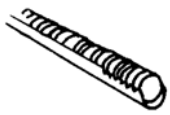
EXAMPLE: **MU Primary Species A** DF

											B		C	RANGE
DBH	9	-	8	13	18	-	12	10	11		81	=	11.6	8" to 18"
Plot #	1	2	3	4	5	6	7	8	9	10	7			small large

In the *EXAMPLE* above, the average of seven DBH values is 11.6 (Box C). It is calculated by dividing the sum of all diameters (top of Box B) by the number of plots with large trees (7) in the bottom of Box B. Blank boxes indicate that no increment bored tree on the plot was of the Management Unit's Primary Species. The **RANGE** of diameters is from 8" to 18".

MU Primary Species A ____

											B		C	RANGE
DBH												=		___ to ___
Plot #	1	2	3	4	5	6	7	8	9	10				small large



											B		C	RANGE
Age												=		___ to ___
Plot #	1	2	3	4	5	6	7	8	9	10				small large

											B		C	RANGE
Rings/1 inch												=		___ to ___
Plot #	1	2	3	4	5	6	7	8	9	10				small large

MU Secondary Species A ____

											B		C	RANGE
DBH												=		___ to ___
Plot #	1	2	3	4	5	6	7	8	9	10				small large

											B		C	RANGE
Age												=		___ to ___
Plot #	1	2	3	4	5	6	7	8	9	10				small large

											B		C	RANGE
Rings/1 inch												=		___ to ___
Plot #	1	2	3	4	5	6	7	8	9	10				small large

Questions 10 - 16: Using the Dot Count Method, tally the # of plots in each category.
Calculate the % of plots in each category

10. Stand health and Appearance

Using the Dot Count Method, tally the # of plots for Insects, Disease, Animal Damage and Appearance categories. Calculate the % of plots in each category.

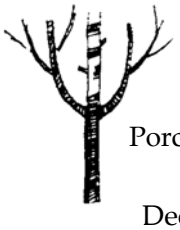
INSECT

	# of plots	% of plots
Bark Beetle		
Budworm		
Other		

DISEASE

	# of plots	% of plots
Mistletoe		
Root Rot		
Gall rust		
Other		

ANIMAL DAMAGE



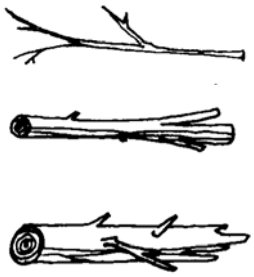
	# of plots	#% of plots
Porcupine		
Deer/Elk		
Livestock		
Other		

APPEARANCE

	# of plots	% of plots
Crook		
Sweep		
Fire Scar		
Other		

11. Down Woody Material

Using the Dot Count Method, tally the # of plots with down woody material by size class, and whether Dispersed, Piled, Solid or Decayed. Calculate the % of plots in each category.



# of plots	% of plots

	# of plots	% of plots
Contiguous		
Dispersed		
Suspended		
Piled		

SOLID		**DECAYED**	
# of plots	% of plots	# of plots	% of plots

12. Fire Hazard

Trees with fuel ladders	# of plots	% of plots
High		
Med		
Low		

Tree Crowns Touching	# of plots	% of plots
High		
Med		
Low		

Fine Fuels	# of plots	% of plots
High		
Med		
Low		

Large Fuels	# of plots	% of plots
High		
Med		
Low		

Fuel Continuity	# of plots	% of plots
High		
Med		
Low		

Wildfire Risk	# of plots	% of plots
High		
Med		
Low		

13. % Ground Cover

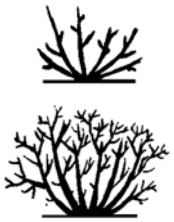
Under each category (Grasses, Forbs, Shrubs), tally the number of plots in each % of coverage group. Calculate the % for each.

	GRASSES								FORBS								SHRUBS							
	0-5%		5-20%		20-40%		40%+		0-5%		5-20%		20-40%		40%+		0-5%		5-20%		20-40%		40%+	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Native/ Acceptable																								
Weeds/ Invaders		1-5%								1-5%								1-5%						
	0	0%							0	0%							0	0%						

14. Cattle Forage Use

	# of plots	% of plots
Absent/Light		
Moderate		
Heavy		

15. Deer/Elk Forage Over-Use



	# of plots	% of plots
Yes		
No		

16. Presence of Pellets/Scat

	# of plots	% of plots
Deer		
Elk		

	of plots	% of plots
Moose		
Bear		

Questions 17 & 18: Check the presence of wildlife sign and other observations noted on each plot form. Put a check in each box under the plot where the sign was found or the observation made. Total the number of checks. List any "Other Wildlife Sign" and "General Observations." Write in the plot numbers they were found on or near.

17. Other Wildlife Sign and 18. General Observations

Plot #	1	2	3	4	5	6	7	8	9	10	% plots
Snags											
Wallows											
Wetlands											
Endangered											
Tracks											
Noxious Weeds											
Down Fences											
Rock Outcrops											
Riparian Areas											
Survey Markers											
Access Concerns											

Other Wildlife Sign	Plot #
General Observations	**Plot #**