

Bird Monitoring Protocol for Agate Fossil Beds National Monument, Nebraska and Tallgrass Prairie National Preserve, Kansas

Standard Operating Procedure (SOP) # 6

Documenting Habitat Variables

Version 1.00 (July 18, 2003)

Revision History Log:

Previous Version #	Revision Date	Author	Changes Made	Reason for Change	New Version #

This SOP gives step-by-step instructions for measuring bird habitat composition and structure at Agate Fossil Beds National Monument, Nebraska and Tallgrass Prairie National Preserve, Kansas. This SOP describes the procedure for establishing habitat-sampling subplots (Fig. 6.01.1). This SOP also describes the procedure for collecting data and filling in the data form “Prairie Bird Habitat Monitoring Data Sheet” (Form 1).

Procedures:

1. The sequence plots are sampled for habitat measurements follows the order plots are selected for VCP bird counts that day. To avoid biasing bird counts, habitat sampling should begin on a plot after the bird surveyor has completed their count and moved to the next plot, or take place after bird surveys have ceased for the day. Changing habitat conditions due to plant growth and/or grazing requires habitat sampling to be completed by June 30.
2. Sampling will start as soon as the first bird-plot for that day has been completed. Observers should stay back from the plot until the count is complete to avoid disturbing the birds. It takes approximately 30 minutes to complete habitat sampling for each VCP point. Two-way radios work well to communicate when a plot is ready for habitat sampling. A minimum of two people are required for the habitat work, with the birder joining them after that day’s survey is done.
3. Habitat measurements are taken for a large (50-m radius) plot centered on the bird survey point, as well as on four permanent subplots within each plot (Fig. 6.01.1). Subplot one is centered on the bird survey plot. Subplots two, three and four are located 50 m from plot center, and at 120° angles from one another. The azimuth to subplot two was initially determined by randomly spinning a stick (surveyor’s pin). Subsequent surveys will use the same azimuths for subplots as listed in Table 6.01.2.
4. Two nested circular sampling plots, 10 m² and 78.5 m² in area, are anchored to the center of each subplot with a surveyor’s pin (Fig. 6.01.1). A rope the length of each plot radius (1.784-m and 5.0-m, respectively) is run from plot center to the perimeter. Surveyor pins work well to delineate the perimeter of the 10 m² sampling plot. Ground cover and vegetation foliar cover are recorded within the smaller plot; tree density and vegetation profile are measured in the larger plot.
5. Navigate to the coordinates of the next plot on the list using the GPS unit (if available) or a compass. The bird surveyor will have marked all completed plots with 36-in pin flags for easy visibility by the habitat crew. Pin flags will be picked up once habitat measures are taken on all four subplots.

6. Use a new copy of the “Prairie Bird Habitat Monitoring Data Sheet” (Form 1) for each habitat subplot. Record the following information on each habitat data sheet:

Park Code: A four letter alpha code unique to a particular park, “AGFO” for Agate Fossil Beds National Monument, Nebraska and “TAPR” for Tallgrass Prairie National Preserve, Kansas.

Date: The month (mm) / day (dd) / year (yy) data is collected.

Observer Initials: The initials of the first, middle, and last name of each person in the field crew collecting data.

Management Unit: Pasture name where the variable circular plot is found (i.e. Windmill, Gashouse, etc.), this can be left blank for Agate Fossil Beds National Monument.

Plot: The permanent identification number assigned to a variable circular plot. Each variable circular plot will have four 5-m radius subplots nested within them.

Riparian Corridor: Circle “Yes” or “No” depending on whether or not the plot being sampled is one specifically located in the riparian stratum.

50-m Radius Plot Attributes (Record this information for the center subplot only)

Slope: Slope of the ground across the entire 50-m radius plot is measured using an English clinometer. For slope measurements, use two poles of equal length (1 m) to sight between and read slope directly off the left-hand scale (degrees slope) of the clinometer (Fig. 6.01.2). The poles should be positioned at a distance great enough to capture the average slope of the land across the 50-m radius plot. Slope is measured in degrees the first time a plot is measured and is not recorded in subsequent years.

Var: Circle high, medium or low to describe the up and down variability in the slope across the entire 50-m radius plot.

Aspect: The slope direction of the 50-m radius plot. Compass readings will be taken with the declination set at 0°. Aspect is recorded from 0° to 359°, with 360° recorded as 0°. Aspect is measured when the plot is established and is not recorded in subsequent years.

Var: Circle high, medium or low to describe the variability in the direction of the slope across the entire 50-m radius plot.

Topographic Position: Circle the most descriptive word for the location of the 50-m radius plot relative to its local position on the earth’s surface.

- Level – level top of a plateau or valley floor or shoreline representing the former position of an alluvial plain, lake or shore.
- Lower-slope – inner gently inclined surface at the base of a slope, generally concave in surface profile. This includes toe slope, the outermost gently inclined surface at the base of a slope, commonly gentle and linear in surface profile.
- Mid-slope – (transportational midslope) – intermediate slope position.
- Upper-slope (shoulder slope) – the uppermost inclined surface at the top of a slope, typically convex in profile.
- Escarpment/face – sloping or vertical side of a stream bank or former steam bank.
- Ledge (terrace, step in slope) – nearly level shelf interrupting a steep slope or cliff face.
- Crest (interfluve, summit, ridge) – linear top of a ridge, hill or mountain; the elevated area between two drainageways that sheds water to the drainageway.

- Depression – bowl shaped or similarly depressed area.
- Draw – depressed V-shaped drainage that carries water toward a stream.

Vegetation Type: An ocular estimate of the percent coverage of habitat types on the 50.0-m radius plot. Cover is estimated within modified Daubenmire cover classes, following standard PC-LTEM procedures (Table 6.01.1).

Table 6.01.1. Cover is estimated within modified Daubenmire cover classes.

Cover class	Explanation
0	None present
1	0 – 1 % coverage of measured variable
2	1 – 5 % coverage of measured variable
3	5 – 25 % coverage of measured variable
4	25 – 50 % coverage of measured variable
5	50 – 75 % coverage of measured variable
6	75 – 95 % coverage of measured variable
7	95 – 100 % coverage of measured variable

Road Cover: An ocular estimate of the percent of ground covered by roadway (measured for 50.0-m radius plot, centered on subplot one only). Estimates of cover will be in standard PC-LTEM cover classes for both paved and pasture roads (Table 6.01.1).

Water Cover: An ocular estimate of the percent of ground covered by water (measured for 50.0-m radius plot, centered on subplot one only). Estimates of cover will be in standard PC-LTEM cover classes for both streams and ponds (Table 6.01.1).

Plot Notes: This is a space provided to record comments on the 50-m radius plot.

5-m Radius Subplot Attributes

Subplot: The permanent identification number (1 – 4) assigned to one of four 5.0-m radius circular subplots located within a plot. The initial subplot is positioned at plot center with the remaining three subplots located 50-m from plot center and 120° apart, starting from a random azimuth.

Azimuth: The azimuth direction in degrees to the associated subplot (Table 6.01.2). Directions will be taken from plot center using a compass with the declination set at 0°. Azimuth is recorded from 0°-259°, with 360° recorded as 0°. Subplot one, located at the center of the plot will have an azimuth value recorded as “C” for center-subplot. Azimuth to a subplot is established the first year a subplot is measured and is not re-established in subsequent years.

Slope: Slope of the ground across the subplot (Fig. 6.01.2) is measured using an English clinometer. Slope is measured in degrees with a clinometer the first time a subplot is measured and is not recorded in subsequent years. Clinometer use is elaborated on later in this SOP. However, for slope measurements use two poles of equal length (1 m) to sight between and read slope directly off the left-hand scale (slope) of the clinometer (Fig. 6.01. 2). The poles should be positioned at a distance great enough to capture the average slope of the land across the subplot.

Aspect: The slope direction of the subplot. Compass readings will be taken with the declination set at 0°. Aspect is recorded from 0° to 359°, with 360° recorded as 0°. Aspect is measured when the plot is established and is not recorded in subsequent years.

Tree Tally: Tree species are recorded using a code consisting of the first three letters of the individual's genus name, followed by a space and then the first three letters of the species epithet. Counts are taken on each 5.0-m radius subplot. Trees greater than 1.5 m in height will be dot tallied by species in size classes based on diameter at breast height (i.e. 1.5 m above ground).

- less than 1.0-cm in diameter
- 1.1-2.5 cm diameter
- 2.6-8.0 cm diameter
- 8.1-15.0 cm diameter
- 15.1-23.0 cm diameter
- 23.1-38.0 cm diameter
- greater than 38.0 cm diameter

Dot tallies are recorded as follow and repeated for the next count of ten trees and so on. Appendix D list common tree species by park.

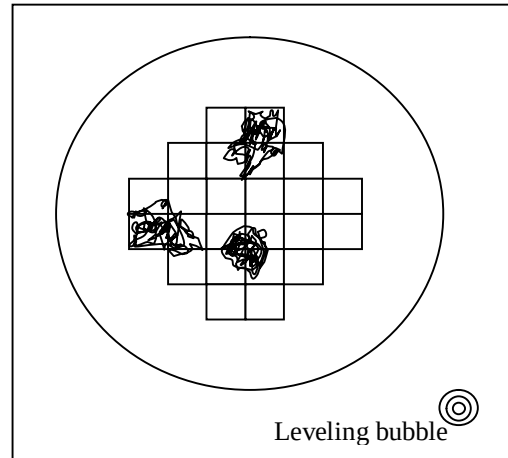
One tree	Two trees	Three trees	Four trees	Five trees
•	• •	• • •	• • • •	• — • • •
Six trees	Seven trees	Eight trees	Nine Trees	Ten trees
• — • • •	• — • • — •	• — • • — •	• — • • — • • — •	• — • • — • • — • • — •

Canopy Height: Canopy heights of hardwood and coniferous trees are measured to a 1/4 meter with a metric clinometer equipped with 15 m and 20 m scales (Fig. 6.01.03). When measured from a distance of 15 m or 20 m, tree heights can be read directly from the instrument's scales. The readings should be doubled when measuring from distances of 30 m or 40 m. The actual measurement of a tree's height is done by an observer sighting the top of the tree with both eyes open and reading the numeric value on the scale (right scale for 15 m and left scale for 20 m distance) where the hair line crosses. This gives a height of a tree (canopy) from eye level. The observer will then measures from eye level to the base of the tree at ground level. Canopy height is the height of the tree +/- the height of the tree from eye level to the ground. If the base of the tree is above eye level the value read is positive and will need to be subtracted from the height of the tree from eye level to the top of the tree. If the base of the tree is below eye level the value read is negative and it will need to be added to the height of the tree from eye level to the top of the tree. Total canopy height is the height of the tallest tree recorded, hardwood or coniferous.

Canopy Cover: The spherical densiometer consists of a concave mirror with 24, 1/4 inch squares engraved on the surface. Take four densiometer readings from the center of each subplot, one in each of the cardinal directions. Hold the instrument level over the center stake, and 12" to 18" in front of body, at breast height, so that operator's head is just outside of the grid area. Assume four equally-spaced dots in each square of the grid and systematically count dots equivalent to quarter-square canopy cover. Remember that there are a total of 96 quarter-squares represented on the mirror. That is, if you count canopy openings rather than canopy closure, subtract from 96 to obtain canopy coverage. The number of dots covered by canopy will be converted to percent canopy coverage (multiplied by 1.04) during the data summary process. Record hardwood, conifer, and total canopy cover separately.



Spherical densitometer
- photograph courtesy
of Forestry Suppliers

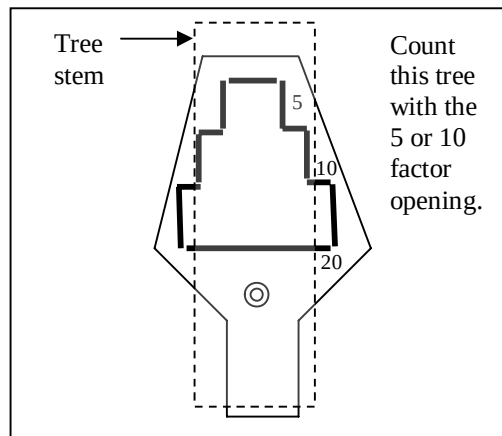


Spherical
densitometer
showing a dot
count of 20.

Basal Area: Basal area of hardwood and conifer species is estimated using a 10-factor English cruz-all. Holding the button at the end of the chain in your teeth (or against your chin), extend the cruz-all angle gauge away from your eye until the chain is taut. Keeping your eye directly over the subplot center, look through the cruz-all at every tree around you. Count trees that appear as wide or wider, at breast height, than the opening for the basal area factor you are using (10). Tree counts will be converted to basal area estimates (m^2/ha) during the data summary process by multiplying counts by 2.5. Count hardwood and conifer species separately. Total basal area is the combined basal area of hardwood and pines.



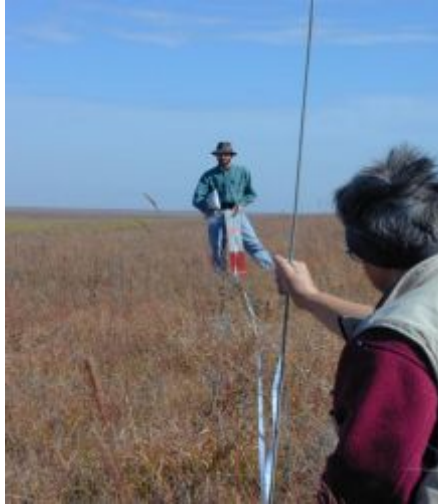
(Photograph courtesy of Ben Meadows Company)



Horizontal Vegetation Profile: Vegetation profile readings are taken by an observer located at distances of 5 and 15 meters perpendicular to the profile board (located at plot center) at an azimuth direction of 0° (compass declination is set at 0°). The area of the cover board obscured by vegetation is measured in seven height intervals using modified Daubenmire cover classes (Table 6.01.1). The observer utilizes a pole marked at 0.25, 0.5, 0.75, 1.0, 1.25, 1.5 and 1.75-m above ground, corresponding to the center of each height interval, to adjust their eye position. The observer's eye should be the same distance above the ground as the center of the height interval being measured.

Height intervals:

- 0 – 0.5
- 0.25 – 0.75
- 0.5 – 1.0
- 0.75 – 1.25
- 1.0 – 1.5
- 1.25 – 1.75
- 1.5 – 2.0



Vertical Profile of Vegetation: Vertical vegetation profile is measured using a 7.5m rod marked in meter intervals. Touches or 'hits' of vegetation against the rod are recorded in each interval for deciduous "D", herbaceous "H" and / or coniferous "C" vegetation. Measurements are taken on the periphery of each 5-m radius subplot in the four cardinal directions, north, south, east and west; therefore, the maximum number of 'hits' per increment for each vegetation type is four. See Figure 6.01.4 for an example of how to measure the vertical profile of vegetation.

1.78-m Radius Subplot Attributes

Ground Cover: An ocular estimate of ground cover is made within a 10m^2 (1.78-m radius) sampling plot centered on each subplot. Cover of the ground surface is estimated within modified Daubenmire cover classes (Table 6.01.1). Percent ground cover is estimated for the following parameters:

- **Deciduous leaf Litter;** deciduous woody leaf litter.
- **Conifer Litter;** conifer leaf litter and organic debris.
- **Grass Litter;** grass and grass-like plant litter.
- **Bare Soil;** soil surface not covered by litter, plant or rock.
- **Bare Rock;** visible rocks in the plot.
- **Woody Debris;** ground covered by woody debris including twigs and stems.
- **Unvegetated;** 100 – total basal cover of the vegetation (percent).

Foliar Cover: An ocular estimate of foliar cover is made within a 10m^2 (1.78-m radius) sampling plot centered on each subplot. The estimate is a vertical projection of foliar cover onto the ground surface. Cover is estimated within modified Daubenmire cover classes (Table 6.01.1). If a cover category is not present in the plot, enter a 0 for that parameter – do not leave empty records. Percent foliar cover is estimated for the following parameters:

- **Warm-season grasses;** warm season grasses.
- **Cool-season grasses;** includes graminoid species (e.g. sedges).
- **Forbs;** includes yucca, cactus, ferns and other herbaceous vascular plants.

- **Moss and lichen;** mosses and lichens.
- **Woody shrubs and vines;** woody shrubs and vines rooted in the plot.
- **Tree Seedlings;** includes seedlings less than 1.5-m in height.
- **Total Foliar Cover;** vertical projection of total foliar cover of living vegetation (less than 1.5 m in height) onto the ground surface.

Appendix C list plant species by park included in each foliar coverage guild.

Field Data Form 6.01.1- PRAIRIE BIRD HABITAT MONITORING DATA FORM

Park Code: _____ **Date (mm/dd/yyyy)** _____ **Observer(s) Initials:** _____

Management Unit: _____ **Plot:** _____ **Riparian Corridor:** Yes No

PLOT ATTRIBUTES: (50m radius)

Slope (°): _____ **Var:** high med low **Aspect (°):** _____ **Var:** high med low

Topographic position:

level lower-slope mid-slope upper-slope escarpment/face ledge crest depression draw

Vegetation Type:	Cover Class:	Vegetation Type:	Cover Class:	Road Cover:	Cover Class:
Upland Prairie		Other: _____		Paved	
Riparian Woodland (TAPR)		Other: _____		Pasture	
Other: _____				Water Cover:	
Other: _____				Stream	
Other: _____				Pond	

Plot Notes: _____

SUBPLOT: _____ **Random Azimuth (°)** _____ **Slope(°):** _____ **Aspect (°)** _____

TREE TALLY (by dbh size class)

Species	<1.0 cm	1.1 – 2.5 cm	2.6 – 8.0 cm	8.1 – 15.0 cm	15.1 – 23.0 cm	23.1 – 38.0 cm	>38.0 cm

CANOPY HEIGHT: (m)

CANOPY COVER: (dots covered out of 96)

BASAL AREA: (cruz-all
tree count -- use 10 factor)

Hardwood: _____

Hardwood: 1__ 2__ 3__ 4__

Hardwood: _____

Conifer: _____

Conifer: 1__ 2__ 3__ 4__

Conifer: _____

Total: 1__ 2__ 3__ 4__

GROUND COVER:	Cover Class:	FOLIAR COVER (by guilds):	Cover Class:
Deciduous Leaf Litter		Warm Season Grass	
Conifer Leaf Litter		Cool Season Grass	
Grass Litter		Forbs	
Bare Soil		Moss and Lichen	
Rock		Shrubs & Vines	
Woody Debris		Tree Seedlings	
Unvegetated		Total Foliar Cover (< 1.5 m tall)	

HORIZONTAL VEGETATION PROFILE BOARD:

5-m distance: 0.50 m: _____ 0.75 m: _____ 1.0 m: _____ 1.25 m: _____ 1.5 m: _____ 1.75 m: _____ 2.0 m: _____

15-m distance: 0.50 m: _____ 0.75 m: _____ 1.0 m: _____ 1.25 m: _____ 1.5 m: _____ 1.75 m: _____ 2.0 m: _____

VEGETATION PROFILE (D = Deciduous, H = Herbaceous, C = Conifer)

0–1 m	1–2 m	2–3 m	3–4 m	4–5 m	5–6 m	6–7 m	7–7.5 m

Subplot Notes: _____

Prairie Bird Habitat Data Form: Categories, Definitions and Descriptions.

VEGETATION TYPE

TAPR		AGFO	
	Prairie		Upland prairie
	Riparian woodland		Upland disturbance
	Brome fields		Western wheatgrass prairie (river terraces)
	Upland disturbance		Annual-dominated floodplain disturbance
			Willow shrubland
			Wetland (cattail-iris marsh and rush-sedge wetland)

COVER CLASS DEFINITIONS AND CUTPOINT DESCRIPTIONS

Cover class	Definition	Upper cutpoints for 50 m radius plot	Upper cutpoints for 5 m radius plot	Upper cutpoints for 1.78 m radius plot
0	None present			
1	Trace to 1 %	A circle of radius 5.00 m	A circle of radius 0.50 m	A circle of radius 0.18 m
2	1 – 5 %	A circle of radius 11.18 m	A circle of radius 1.12 m	A circle of radius 0.40 m
3	5 – 25 %	A circle of radius 25.00 m	A circle of radius 2.50 m	A circle of radius 0.89 m
4	25 – 50 %	A circle of radius 35.36 m	A circle of radius 3.54 m	A circle of radius 1.26 m
5	50 – 75 %	A circle of radius 43.30 m	A circle of radius 4.33 m	A circle of radius 1.54 m
6	75 – 95 %	A circle of radius 48.73 m	A circle of radius 4.87 m	A circle of radius 1.73 m
7	95 – 100 %	Full plot radius	Full plot radius	Full plot radius

Table 6.01.2. Azimuths from center plot to bird habitat subplots at Agate Fossil Beds National Monument and Tallgrass Prairie National Preserve.

PLOT	SUBPLOT	AZIMUTH	COMMENTS
AGFOTweety1	1	C	
AGFOTweety1	2	340	
AGFOTweety1	3	220	
AGFOTweety1	4	100	
AGFOTweety2	1	C	
AGFOTweety2	2	340	
AGFOTweety2	3	100	
AGFOTweety2	4	220	Horizontal vegetation profile read from south.
AGFOTweety3	1	C	
AGFOTweety3	2	290	
AGFOTweety3	3	170	Horizontal vegetation profile read from south.
AGFOTweety3	4	50	
AGFOTweety4	1	C	
AGFOTweety4	2	300	
AGFOTweety4	3	180	
AGFOTweety4	4	60	
AGFOTweety5	1	C	
AGFOTweety5	2	58	
AGFOTweety5	3	178	
AGFOTweety5	4	298	
AGFOTweety6	1	C	
AGFOTweety6	2	123	
AGFOTweety6	3	243	
AGFOTweety6	4	3	Subplot partially on pasture road.
AGFOTweety7	1	C	
AGFOTweety7	2	330	
AGFOTweety7	3	210	
AGFOTweety7	4	90	
AGFOTweety8	1	C	
AGFOTweety8	2	86	
AGFOTweety8	3	346	
AGFOTweety8	4	206	
AGFOTweety9	1	C	
AGFOTweety9	2	162	
AGFOTweety9	3	282	
AGFOTweety9	4	42	
AGFOTweety10	1	C	
AGFOTweety10	2	268	
AGFOTweety10	3	148	
AGFOTweety10	4	28	
AGFOTweety11	1	C	
AGFOTweety11	2	310	
AGFOTweety11	3	70	
AGFOTweety11	4	190	
AGFOTweety12	1	C	
AGFOTweety12	2	69	
AGFOTweety12	3	189	
AGFOTweety12	4	309	
AGFOTweety13	1	C	
AGFOTweety13	2	306	
AGFOTweety13	3	66	
AGFOTweety13	4	186	
AGFOTweety14	1	C	
AGFOTweety14	2	172	
AGFOTweety14	3	52	
AGFOTweety14	4	292	
AGFOTweety15	1	C	Subplot in gravel wash.
AGFOTweety15	2	210	
AGFOTweety15	3	330	
AGFOTweety15	4	90	
AGFOTweety16	1	C	
AGFOTweety16	2	270	
AGFOTweety16	3	30	
AGFOTweety16	4	150	

Table 6.01.2 continued.

PLOT	SUBPLOT	AZIMUTH	COMMENTS
AGFOTweety17	1	C	Horizontal vegetation profile read from south.
AGFOTweety17	2	173	
AGFOTweety17	3	53	
AGFOTweety17	4	293	Horizontal vegetation profile read from south.
AGFOTweety18	1	C	Horizontal vegetation profile read from south.
AGFOTweety18	2	256	Horizontal vegetation profile read from south.
AGFOTweety18	3	136	
AGFOTweety18	4	16	Subplot in Niobrara River, not sampled.
AGFOTweety19	1	C	
AGFOTweety19	2	122	
AGFOTweety19	3	242	
AGFOTweety19	4	2	
AGFOTweety20	1	C	Horizontal vegetation profile read from south.
AGFOTweety20	2	325	Horizontal vegetation profile read from south.
AGFOTweety20	3	205	
AGFOTweety20	4	85	
AGFOTweety21	1	C	
AGFOTweety21	2	131	Subplot partially in water.
AGFOTweety21	3	251	
AGFOTweety21	4	11	
AGFOTweety22	1	C	Subplot partially in water.
AGFOTweety22	2	308	Subplot in Niobrara River, not sampled.
AGFOTweety22	3	188	Horizontal vegetation profile read from south.
AGFOTweety22	4	68	
AGFOTweety23	1	C	Horizontal vegetation profile read from south.
AGFOTweety23	2	162	
AGFOTweety23	3	42	
AGFOTweety23	4	282	Subplot partially in water.
AGFOTweety24	1	C	Horizontal vegetation profile read from south.
AGFOTweety24	2	167	
AGFOTweety24	3	287	Horizontal vegetation profile read from south.
AGFOTweety24	4	47	
AGFOTweety25	1	C	Horizontal vegetation profile read from south.
AGFOTweety25	2	173	
AGFOTweety25	3	53	
AGFOTweety25	4	293	
AGFOTweety26	1	C	Horizontal vegetation profile read from south.
AGFOTweety26	2	93	
AGFOTweety26	3	213	
AGFOTweety26	4	333	Subplot partially in water. Horizontal vegetation profile read from south.
AGFOTweety27	1	C	
AGFOTweety27	2	290	Subplot in Niobrara River, not sampled.
AGFOTweety27	3	170	Subplot partially in water.
AGFOTweety27	4	50	
AGFOTweety28	1	C	Subplot partially in water. Horizontal vegetation profile read from south.
AGFOTweety28	2	37	
AGFOTweety28	3	157	Subplot in Niobrara River, not sampled.
AGFOTweety28	4	277	Horizontal vegetation profile read from south.
AGFOTweety29	1	C	Subplot partially in water. Horizontal vegetation profile read from south.
AGFOTweety29	2	159	
AGFOTweety29	3	39	Horizontal vegetation profile read from south.
AGFOTweety29	4	279	
AGFOTweety30	1	C	
AGFOTweety30	2	202	Horizontal vegetation profile read from south.
AGFOTweety30	3	82	
AGFOTweety30	4	322	
AGFOTweety31	1	C	
AGFOTweety31	2	140	
AGFOTweety31	3	260	Subplot north of highway.
AGFOTweety31	4	20	Subplot north of highway.
AGFOTweety32	1	C	
AGFOTweety32	2	90	
AGFOTweety32	3	210	
AGFOTweety32	4	330	

Table 6.01.2 continued.

PLOT	SUBPLOT	AZIMUTH	COMMENTS
AGFOTweety33	1	C	
AGFOTweety33	2	54	
AGFOTweety33	3	174	
AGFOTweety33	4	294	
AGFOTweety34	1	C	
AGFOTweety34	2	330	Subplot north of highway.
AGFOTweety34	3	90	Subplot north of highway.
AGFOTweety34	4	210	
AGFOTweety35	1	C	
AGFOTweety35	2	350	
AGFOTweety35	3	110	
AGFOTweety35	4	230	
AGFOTweety36	1	C	Subplot on top of underground sewage tanks.
AGFOTweety36	2	215	
AGFOTweety36	3	335	
AGFOTweety36	4	95	
AGFOTweety37	1	C	
AGFOTweety37	2	160	
AGFOTweety37	3	40	
AGFOTweety37	4	280	
AGFOTweety38	1	C	
AGFOTweety38	2	305	
AGFOTweety38	3	65	
AGFOTweety38	4	185	Horizontal vegetation profile read from south.
AGFOTweety39	1	C	
AGFOTweety39	2	43	
AGFOTweety39	3	163	
AGFOTweety39	4	283	
AGFOTweety40	1	C	
AGFOTweety40	2	175	
AGFOTweety40	3	295	Horizontal vegetation profile read from south.
AGFOTweety40	4	55	
AGFOTweety41	1	C	
AGFOTweety41	2	185	
AGFOTweety41	3	305	
AGFOTweety41	4	65	
AGFOTweety42	1	C	
AGFOTweety42	2	30	
AGFOTweety42	3	150	
AGFOTweety42	4	270	
AGFOTweety43	1	C	
AGFOTweety43	2	100	
AGFOTweety43	3	220	
AGFOTweety43	4	340	
AGFOTweety44	1	C	
AGFOTweety44	2	185	
AGFOTweety44	3	305	
AGFOTweety44	4	65	
AGFOTweety45	1	C	Subplot partially on highway.
AGFOTweety45	2	350	
AGFOTweety45	3	110	
AGFOTweety45	4	230	
AGFOTweety46	1	C	
AGFOTweety46	2	25	
AGFOTweety46	3	145	
AGFOTweety46	4	265	
AGFOTweety47	1	C	
AGFOTweety47	2	115	
AGFOTweety47	3	235	
AGFOTweety47	4	355	
AGFOTweety48	1	C	
AGFOTweety48	2	300	
AGFOTweety48	3	60	
AGFOTweety48	4	180	

Table 6.01.2 continued.

PLOT	SUBPLOT	AZIMUTH	COMMENTS
AGFOTweety49	1	C	
AGFOTweety49	2	130	
AGFOTweety49	3	250	
AGFOTweety49	4	10	
AGFOTweety50	1	C	
AGFOTweety50	2	60	
AGFOTweety50	3	180	
AGFOTweety50	4	300	
AGFOTweety51	1	C	
AGFOTweety51	2	50	
AGFOTweety51	3	170	Subplot partially in water. Horizontal vegetation profile read from south.
AGFOTweety51	4	290	
AGFOTweety52	1	C	
AGFOTweety52	2	156	
AGFOTweety52	3	276	Subplot on cliff face, not sampled.
AGFOTweety52	4	36	
AGFOTweety53	1	C	
AGFOTweety53	2	320	
AGFOTweety53	3	80	Horizontal vegetation profile read from south.
AGFOTweety53	4	200	
AGFOTweety54	1	C	
AGFOTweety54	2	230	
AGFOTweety54	3	350	
AGFOTweety54	4	110	
TAPRTweety1	1	C	
TAPRTweety1	2	14	
TAPRTweety1	3	134	
TAPRTweety1	4	254	
TAPRTweety2	1	C	
TAPRTweety2	2	320	Subplot partially in water.
TAPRTweety2	3	200	
TAPRTweety2	4	80	
TAPRTweety3	1	C	
TAPRTweety3	2	144	
TAPRTweety3	3	24	
TAPRTweety3	4	264	
TAPRTweety4	1	C	
TAPRTweety4	2	60	
TAPRTweety4	3	300	
TAPRTweety4	4	180	
TAPRTweety5	1	C	
TAPRTweety5	2	243	
TAPRTweety5	3	123	
TAPRTweety5	4	3	
TAPRTweety6	1	C	
TAPRTweety6	2	223	
TAPRTweety6	3	103	
TAPRTweety6	4	343	
TAPRTweety7	1	C	
TAPRTweety7	2	245	
TAPRTweety7	3	5	
TAPRTweety7	4	125	
TAPRTweety8	1	C	
TAPRTweety8	2	359	
TAPRTweety8	3	239	
TAPRTweety8	4	119	
TAPRTweety9	1	C	
TAPRTweety9	2	15	
TAPRTweety9	3	135	
TAPRTweety9	4	255	
TAPRTweety10	1	C	
TAPRTweety10	2	10	
TAPRTweety10	3	130	
TAPRTweety10	4	250	

Table 6.01.2 continued.

PLOT	SUBPLOT	AZIMUTH	COMMENTS
TAPRTweety11	1	C	
TAPRTweety11	2	128	
TAPRTweety11	3	8	
TAPRTweety11	4	248	
TAPRTweety12	1	C	
TAPRTweety12	2	164	
TAPRTweety12	3	44	
TAPRTweety12	4	284	
TAPRTweety13	1	C	
TAPRTweety13	2	18	
TAPRTweety13	3	258	
TAPRTweety13	4	138	
TAPRTweety14	1	C	
TAPRTweety14	2	66	
TAPRTweety14	3	306	Horizontal vegetation profile read from south.
TAPRTweety14	4	186	
TAPRTweety15	1	C	
TAPRTweety15	2	223	
TAPRTweety15	3	103	
TAPRTweety15	4	343	
TAPRTweety16	1	C	
TAPRTweety16	2	70	
TAPRTweety16	3	190	Horizontal vegetation profile read from south.
TAPRTweety16	4	310	
TAPRTweety17	1	C	
TAPRTweety17	2	3	
TAPRTweety17	3	243	
TAPRTweety17	4	123	
TAPRTweety18	1	C	
TAPRTweety18	2	68	Horizontal vegetation profile read from south.
TAPRTweety18	3	308	
TAPRTweety18	4	188	
TAPRTweety19	1	C	
TAPRTweety19	2	133	
TAPRTweety19	3	253	
TAPRTweety19	4	13	
TAPRTweety20	1	C	
TAPRTweety20	2	210	
TAPRTweety20	3	90	
TAPRTweety20	4	330	
TAPRTweety21	1	C	
TAPRTweety21	2	40	
TAPRTweety21	3	160	
TAPRTweety21	4	280	
TAPRTweety22	1	C	
TAPRTweety22	2	148	
TAPRTweety22	3	268	
TAPRTweety22	4	28	
TAPRTweety23	1	C	Horizontal vegetation profile read from south.
TAPRTweety23	2	177	
TAPRTweety23	3	297	
TAPRTweety23	4	57	
TAPRTweety24	1	C	
TAPRTweety24	2	40	
TAPRTweety24	3	280	
TAPRTweety24	4	160	
TAPRTweety25	1	C	
TAPRTweety25	2	315	
TAPRTweety25	3	195	
TAPRTweety25	4	75	
TAPRTweety26	1	C	
TAPRTweety26	2	293	
TAPRTweety26	3	53	
TAPRTweety26	4	173	

Table 6.01.2 continued.

PLOT	SUBPLOT	AZIMUTH	COMMENTS
TAPRTweety27	1	C	
TAPRTweety27	2	95	
TAPRTweety27	3	215	
TAPRTweety27	4	335	
TAPRTweety28	1	C	
TAPRTweety28	2	10	
TAPRTweety28	3	130	
TAPRTweety28	4	250	
TAPRTweety29	1	C	
TAPRTweety29	2	10	
TAPRTweety29	3	130	
TAPRTweety29	4	250	
TAPRTweety30	1	C	
TAPRTweety30	2	248	
TAPRTweety30	3	128	
TAPRTweety30	4	8	
TAPRTweety31	1	C	
TAPRTweety31	2	43	Subplot on pasture road.
TAPRTweety31	3	283	Horizontal vegetation profile read from south.
TAPRTweety31	4	163	
TAPRTweety32	1	C	
TAPRTweety32	2	72	
TAPRTweety32	3	192	
TAPRTweety32	4	312	
TAPRTweety33	1	C	
TAPRTweety33	2	129	
TAPRTweety33	3	9	
TAPRTweety33	4	249	
TAPRTweety34	1	C	
TAPRTweety34	2	145	
TAPRTweety34	3	265	
TAPRTweety34	4	25	
TAPRTweety35	1	C	
TAPRTweety35	2	295	
TAPRTweety35	3	175	
TAPRTweety35	4	55	Subplot on pasture road.
TAPRTweety36	1	C	
TAPRTweety36	2	20	
TAPRTweety36	3	140	
TAPRTweety36	4	260	
TAPRTweety37	1	C	
TAPRTweety37	2	253	
TAPRTweety37	3	13	
TAPRTweety37	4	133	
TAPRTweety38	1	C	
TAPRTweety38	2	282	
TAPRTweety38	3	42	
TAPRTweety38	4	162	
TAPRTweety39	1	C	
TAPRTweety39	2	245	
TAPRTweety39	3	125	
TAPRTweety39	4	5	
TAPRTweety40	1	C	
TAPRTweety40	2	258	
TAPRTweety40	3	18	
TAPRTweety40	4	138	
TAPRTweety41	1	C	
TAPRTweety41	2	197	
TAPRTweety41	3	317	
TAPRTweety41	4	77	
TAPRTweety42	1	C	
TAPRTweety42	2	52	
TAPRTweety42	3	292	
TAPRTweety42	4	172	

Table 6.01.2 continued.

PLOT	SUBPLOT	AZIMUTH	COMMENTS
TAPRTweety43	1	C	
TAPRTweety43	2	304	
TAPRTweety43	3	184	
TAPRTweety43	4	64	
TAPRTweety44	1	C	
TAPRTweety44	2	142	
TAPRTweety44	3	262	
TAPRTweety44	4	22	
TAPRTweety45	1	C	
TAPRTweety45	2	4	
TAPRTweety45	3	124	
TAPRTweety45	4	244	
TAPRTweety46	1	C	Was Not Sampled In 2001
TAPRTweety46	2	272	Was Not Sampled In 2001
TAPRTweety46	3	152	Was Not Sampled In 2001
TAPRTweety46	4	32	Was Not Sampled In 2001
TAPRTweety47	1	C	
TAPRTweety47	2	6	Subplot located in deep ravine.
TAPRTweety47	3	126	
TAPRTweety47	4	246	Horizontal vegetation profile read from south.
TAPRTweety48	1	C	
TAPRTweety48	2	4	
TAPRTweety48	3	124	
TAPRTweety48	4	244	
TAPRTweety49	1	C	
TAPRTweety49	2	318	
TAPRTweety49	3	78	
TAPRTweety49	4	198	
TAPRTweety50	1	C	
TAPRTweety50	2	195	
TAPRTweety50	3	75	
TAPRTweety50	4	315	
TAPRTweety51	1	C	
TAPRTweety51	2	358	
TAPRTweety51	3	118	
TAPRTweety51	4	238	
TAPRTweety52	1	C	
TAPRTweety52	2	17	
TAPRTweety52	3	257	
TAPRTweety52	4	137	
TAPRTweety53	1	C	
TAPRTweety53	2	203	
TAPRTweety53	3	323	
TAPRTweety53	4	83	
TAPRTweety54	1	C	
TAPRTweety54	2	312	
TAPRTweety54	3	192	
TAPRTweety54	4	72	Horizontal vegetation profile read from south.
TAPRTweety55	1	C	
TAPRTweety55	2	26	
TAPRTweety55	3	146	Subplot partially on pasture road.
TAPRTweety55	4	266	
TAPRTweety56	1	C	
TAPRTweety56	2	119	
TAPRTweety56	3	239	
TAPRTweety56	4	359	
TAPRTweety57	1	C	
TAPRTweety57	2	204	
TAPRTweety57	3	84	
TAPRTweety57	4	324	
TAPRTweety58	1	C	
TAPRTweety58	2	8	
TAPRTweety58	3	128	
TAPRTweety58	4	248	

Table 6.01.2 continued.

PLOT	SUBPLOT	AZIMUTH	COMMENTS
TAPRTweety59	1	C	
TAPRTweety59	2	35	
TAPRTweety59	3	275	
TAPRTweety59	4	155	
TAPRTweety60	1	C	
TAPRTweety60	2	149	
TAPRTweety60	3	269	
TAPRTweety60	4	29	
TAPRTweety61	1	C	
TAPRTweety61	2	146	
TAPRTweety61	3	266	
TAPRTweety61	4	26	
TAPRTweety62	1	C	
TAPRTweety62	2	298	
TAPRTweety62	3	178	
TAPRTweety62	4	58	
TAPRTweety63	1	C	
TAPRTweety63	2	195	
TAPRTweety63	3	75	
TAPRTweety63	4	315	
TAPRTweety64	1	C	
TAPRTweety64	2	183	
TAPRTweety64	3	303	
TAPRTweety64	4	63	
TAPRTweety65	1	C	
TAPRTweety65	2	43	
TAPRTweety65	3	283	
TAPRTweety65	4	163	
TAPRTweety66	1	C	
TAPRTweety66	2	2	
TAPRTweety66	3	122	
TAPRTweety66	4	242	
TAPRTweety67	1	C	
TAPRTweety67	2	128	
TAPRTweety67	3	8	
TAPRTweety67	4	248	
TAPRTweety68	1	C	
TAPRTweety68	2	119	
TAPRTweety68	3	239	
TAPRTweety68	4	359	
TAPRTweety69	1	C	
TAPRTweety69	2	150	
TAPRTweety69	3	30	
TAPRTweety69	4	270	
TAPRTweety70	1	C	
TAPRTweety70	2	85	Subplot partially on a spring with standing water.
TAPRTweety70	3	325	
TAPRTweety70	4	205	
TAPRTweety71	1	C	
TAPRTweety71	2	123	
TAPRTweety71	3	243	
TAPRTweety71	4	3	
TAPRTweety72	1	C	
TAPRTweety72	2	57	
TAPRTweety72	3	297	
TAPRTweety72	4	177	
TAPRTweety73	1	C	Subplot partially in pond. Horizontal vegetation profile read from 270 degrees.
TAPRTweety73	2	292	
TAPRTweety73	3	52	
TAPRTweety73	4	172	Subplot in pond, not sampled.
TAPRTweety74	1	C	
TAPRTweety74	2	78	
TAPRTweety74	3	198	
TAPRTweety74	4	318	

Table 6.01.2 continued.

PLOT	SUBPLOT	AZIMUTH	COMMENTS
TAPRTweety75	1	C	
TAPRTweety75	2	259	
TAPRTweety75	3	139	
TAPRTweety75	4	19	
TAPRTweety76	1	C	
TAPRTweety76	2	263	
TAPRTweety76	3	23	
TAPRTweety76	4	143	
TAPRTweety77	1	C	
TAPRTweety77	2	140	
TAPRTweety77	3	20	
TAPRTweety77	4	260	
TAPRTweety78	1	C	
TAPRTweety78	2	16	
TAPRTweety78	3	256	
TAPRTweety78	4	136	
TAPRTweety79	1	C	Horizontal vegetation profile read from 90 degrees.
TAPRTweety79	2	7	
TAPRTweety79	3	127	
TAPRTweety79	4	247	Horizontal vegetation profile read from 90 degrees.
TAPRTweety80	1	C	
TAPRTweety80	2	227	
TAPRTweety80	3	107	
TAPRTweety80	4	347	
TAPRTweety81	1	C	
TAPRTweety81	2	88	
TAPRTweety81	3	328	
TAPRTweety81	4	208	
TAPRTweety82	1	C	
TAPRTweety82	2	229	
TAPRTweety82	3	349	
TAPRTweety82	4	109	
TAPRTweety83	1	C	
TAPRTweety83	2	296	
TAPRTweety83	3	56	
TAPRTweety83	4	176	
TAPRTweety84	1	C	
TAPRTweety84	2	15	
TAPRTweety84	3	255	
TAPRTweety84	4	135	
TAPRTweety85	1	C	
TAPRTweety85	2	160	
TAPRTweety85	3	280	
TAPRTweety85	4	40	
TAPRTweety86	1	C	
TAPRTweety86	2	25	
TAPRTweety86	3	265	
TAPRTweety86	4	145	
TAPRTweety87	1	C	
TAPRTweety87	2	26	
TAPRTweety87	3	266	
TAPRTweety87	4	146	
TAPRTweety88	1	C	
TAPRTweety88	2	317	
TAPRTweety88	3	77	
TAPRTweety88	4	197	
TAPRTweety89	1	C	Subplot partially in flowing water.
TAPRTweety89	2	3	Subplot partially in flowing water.
TAPRTweety89	3	123	
TAPRTweety89	4	243	
TAPRTweety90	1	C	
TAPRTweety90	2	200	
TAPRTweety90	3	80	
TAPRTweety90	4	320	

Table 6.01.2 continued.

PLOT	SUBPLOT	AZIMUTH	COMMENTS
TAPRTweety91	1	C	
TAPRTweety91	2	206	
TAPRTweety91	3	326	
TAPRTweety91	4	86	
TAPRTweety92	1	C	
TAPRTweety92	2	46	
TAPRTweety92	3	286	
TAPRTweety92	4	166	
TAPRTweety93	1	C	
TAPRTweety93	2	232	
TAPRTweety93	3	112	
TAPRTweety93	4	352	
TAPRTweety94	1	C	
TAPRTweety94	2	140	
TAPRTweety94	3	260	
TAPRTweety94	4	20	
TAPRTweety95	1	C	
TAPRTweety95	2	298	
TAPRTweety95	3	178	
TAPRTweety95	4	58	
TAPRTweety96	1	C	
TAPRTweety96	2	36	Subplot in pond, not sampled.
TAPRTweety96	3	276	
TAPRTweety96	4	156	
TAPRTweety97	1	C	
TAPRTweety97	2	143	
TAPRTweety97	3	263	
TAPRTweety97	4	23	
TAPRTweety98	1	C	
TAPRTweety98	2	37	
TAPRTweety98	3	157	
TAPRTweety98	4	277	
TAPRTweety99	1	C	
TAPRTweety99	2	230	
TAPRTweety99	3	350	
TAPRTweety99	4	110	
TAPRTweety100	1	C	
TAPRTweety100	2	63	
TAPRTweety100	3	303	
TAPRTweety100	4	183	
TAPRTweety101	1	C	
TAPRTweety101	2	271	
TAPRTweety101	3	31	
TAPRTweety101	4	151	
TAPRTweety102	1	C	
TAPRTweety102	2	117	
TAPRTweety102	3	357	
TAPRTweety102	4	237	
TAPRTweety103	1	C	
TAPRTweety103	2	32	
TAPRTweety103	3	152	
TAPRTweety103	4	272	
TAPRTweety104	1	C	
TAPRTweety104	2	95	
TAPRTweety104	3	215	
TAPRTweety104	4	335	
TAPRTweety105	1	C	
TAPRTweety105	2	126	
TAPRTweety105	3	246	
TAPRTweety105	4	6	
TAPRTweety106	1	C	
TAPRTweety106	2	19	
TAPRTweety106	3	139	
TAPRTweety106	4	259	

Table 6.01.2 continued.

PLOT	SUBPLOT	AZIMUTH	COMMENTS
TAPRTweety107	1	C	
TAPRTweety107	2	276	
TAPRTweety107	3	36	
TAPRTweety107	4	156	
TAPRTweety108	1	C	
TAPRTweety108	2	117	
TAPRTweety108	3	237	
TAPRTweety108	4	357	
TAPRTweety109	1	C	
TAPRTweety109	2	45	
TAPRTweety109	3	165	
TAPRTweety109	4	285	
TAPRTweety110	1	C	
TAPRTweety110	2	55	
TAPRTweety110	3	295	
TAPRTweety110	4	175	
TAPRTweety111	1	C	
TAPRTweety111	2	146	
TAPRTweety111	3	266	
TAPRTweety111	4	26	
TAPRTweety112	1	C	
TAPRTweety112	2	116	
TAPRTweety112	3	356	
TAPRTweety112	4	236	
TAPRTweety113	1	C	
TAPRTweety113	2	300	
TAPRTweety113	3	60	
TAPRTweety113	4	180	
TAPRTweety114	1	C	
TAPRTweety114	2	60	Subplot partially in spring with flowing water.
TAPRTweety114	3	180	
TAPRTweety114	4	300	
TAPRTweety115	1	C	
TAPRTweety115	2	70	
TAPRTweety115	3	310	
TAPRTweety115	4	190	
TAPRTweety116	1	C	
TAPRTweety116	2	52	Horizontal vegetation profile read from south.
TAPRTweety116	3	292	
TAPRTweety116	4	172	
TAPRTweety117	1	C	
TAPRTweety117	2	113	
TAPRTweety117	3	233	
TAPRTweety117	4	353	
TAPRTweety118	1	C	
TAPRTweety118	2	334	
TAPRTweety118	3	94	
TAPRTweety118	4	214	
TAPRTweety119	1	C	
TAPRTweety119	2	132	
TAPRTweety119	3	12	
TAPRTweety119	4	252	
TAPRTweety120	1	C	
TAPRTweety120	2	166	
TAPRTweety120	3	46	
TAPRTweety120	4	286	
TAPRTweety121	1	C	
TAPRTweety121	2	28	
TAPRTweety121	3	148	
TAPRTweety121	4	268	
TAPRTweety122	1	C	
TAPRTweety122	2	57	
TAPRTweety122	3	297	
TAPRTweety122	4	177	

Table 6.01.2 continued.

PLOT	SUBPLOT	AZIMUTH	COMMENTS
TAPRTweety123	1	C	
TAPRTweety123	2	272	
TAPRTweety123	3	32	
TAPRTweety123	4	152	
TAPRTweety124	1	C	
TAPRTweety124	2	33	
TAPRTweety124	3	153	
TAPRTweety124	4	273	
TAPRTweety125	1	C	
TAPRTweety125	2	117	
TAPRTweety125	3	237	
TAPRTweety125	4	357	
TAPRTweety126	1	C	
TAPRTweety126	2	42	
TAPRTweety126	3	162	
TAPRTweety126	4	282	
TAPRTweety127	1	C	
TAPRTweety127	2	51	
TAPRTweety127	3	291	
TAPRTweety127	4	171	
TAPRTweety128	1	C	
TAPRTweety128	2	340	
TAPRTweety128	3	220	
TAPRTweety128	4	100	
TAPRTweety129	1	C	
TAPRTweety129	2	353	
TAPRTweety129	3	113	
TAPRTweety129	4	233	
TAPRTweety130	1	C	Horizontal vegetation profile read from south.
TAPRTweety130	2	2	Horizontal vegetation profile read from south.
TAPRTweety130	3	242	
TAPRTweety130	4	122	
TAPRTweety131	1	C	
TAPRTweety131	2	142	
TAPRTweety131	3	262	
TAPRTweety131	4	22	
TAPRTweety132	1	C	
TAPRTweety132	2	60	
TAPRTweety132	3	300	
TAPRTweety132	4	180	
TAPRTweety133	1	C	
TAPRTweety133	2	45	
TAPRTweety133	3	165	
TAPRTweety133	4	285	
TAPRTweety134	1	C	
TAPRTweety134	2	193	
TAPRTweety134	3	313	
TAPRTweety134	4	73	
TAPRTweety135	1	C	
TAPRTweety135	2	131	
TAPRTweety135	3	251	
TAPRTweety135	4	11	
TAPRTweety136	1	C	
TAPRTweety136	2	20	
TAPRTweety136	3	260	Horizontal vegetation profile read from south.
TAPRTweety136	4	140	Horizontal vegetation profile read from 90 degrees.
TAPRTweety137	1	C	
TAPRTweety137	2	300	
TAPRTweety137	3	180	
TAPRTweety137	4	60	
TAPRTweety138	1	C	
TAPRTweety138	2	330	
TAPRTweety138	3	90	
TAPRTweety138	4	210	

Table 6.01.2 continued.

PLOT	SUBPLOT	AZIMUTH	COMMENTS
TAPRTweety139	1	C	
TAPRTweety139	2	350	
TAPRTweety139	3	110	Horizontal vegetation profile read from 90 degrees.
TAPRTweety139	4	230	Horizontal vegetation profile read from south.
TAPRTweety140	1	C	
TAPRTweety140	2	307	
TAPRTweety140	3	187	
TAPRTweety140	4	67	
TAPRTweety141	1	C	
TAPRTweety141	2	52	
TAPRTweety141	3	292	
TAPRTweety141	4	172	
TAPRTweety142	1	C	
TAPRTweety142	2	172	
TAPRTweety142	3	292	
TAPRTweety142	4	52	
TAPRTweety143	1	C	
TAPRTweety143	2	202	
TAPRTweety143	3	82	
TAPRTweety143	4	322	
TAPRTweety144	1	C	
TAPRTweety144	2	305	
TAPRTweety144	3	185	
TAPRTweety144	4	63	
TAPRTweety145	1	C	
TAPRTweety145	2	274	
TAPRTweety145	3	154	
TAPRTweety145	4	34	
TAPRTweety146	1	C	
TAPRTweety146	2	5	
TAPRTweety146	3	245	
TAPRTweety146	4	125	
TAPRTweety147	1	C	
TAPRTweety147	2	190	
TAPRTweety147	3	70	
TAPRTweety147	4	310	
TAPRTweety148	1	C	
TAPRTweety148	2	303	
TAPRTweety148	3	183	
TAPRTweety148	4	63	
TAPRTweety149	1	C	
TAPRTweety149	2	303	
TAPRTweety149	3	183	
TAPRTweety149	4	63	
TAPRTweety150	1	C	
TAPRTweety150	2	282	
TAPRTweety150	3	162	
TAPRTweety150	4	42	
TAPRTweety151	1	C	
TAPRTweety151	2	282	
TAPRTweety151	3	162	
TAPRTweety151	4	42	
TAPRTweety152	1	C	
TAPRTweety152	2	3	
TAPRTweety152	3	243	
TAPRTweety152	4	123	
TAPRTweety153	1	C	
TAPRTweety153	2	201	
TAPRTweety153	3	81	
TAPRTweety153	4	321	
TAPRTweety154	1	C	
TAPRTweety154	2	209	
TAPRTweety154	3	329	
TAPRTweety154	4	89	

Table 6.01.2 continued.

PLOT	SUBPLOT	AZIMUTH	COMMENTS
TAPRTweety155	1	C	
TAPRTweety155	2	51	
TAPRTweety155	3	171	
TAPRTweety155	4	291	
TAPRTweety156	1	C	
TAPRTweety156	2	252	
TAPRTweety156	3	132	
TAPRTweety156	4	12	
TAPRTweety157	1	C	
TAPRTweety157	2	192	
TAPRTweety157	3	312	
TAPRTweety157	4	72	
TAPRTweety158	1	C	
TAPRTweety158	2	225	
TAPRTweety158	3	105	
TAPRTweety158	4	345	
TAPRTweety159	1	C	
TAPRTweety159	2	12	
TAPRTweety159	3	252	
TAPRTweety159	4	132	Horizontal vegetation profile read from south.
TAPRTweety160	1	C	
TAPRTweety160	2	300	Subplot partially in Fox Creek.
TAPRTweety160	3	60	
TAPRTweety160	4	180	
TAPRTweety161	1	C	
TAPRTweety161	2	135	
TAPRTweety161	3	15	
TAPRTweety161	4	255	Horizontal vegetation profile read from south.
TAPRTweety162	1	C	Horizontal vegetation profile read from south.
TAPRTweety162	2	293	Subplot partially in Fox Creek.
TAPRTweety162	3	173	
TAPRTweety162	4	53	
TAPRTweety163	1	C	Horizontal vegetation profile read from south.
TAPRTweety163	2	99	Horizontal vegetation profile read from south.
TAPRTweety163	3	339	
TAPRTweety163	4	219	
TAPRTweety164	1	C	Horizontal vegetation profile read from 270 degrees.
TAPRTweety164	2	177	
TAPRTweety164	3	57	Subplot east of Fox Creek, not sampled.
TAPRTweety164	4	297	
TAPRTweety165	1	C	Horizontal vegetation profile read from south.
TAPRTweety165	2	43	Subplot east of Fox Creek, not sampled.
TAPRTweety165	3	163	Subplot east of Fox Creek, not sampled.
TAPRTweety165	4	283	Subplot east of Fox Creek, not sampled.
TAPRTweety166	1	C	
TAPRTweety166	2	320	
TAPRTweety166	3	80	Subplot In Fox Creek, not sampled.
TAPRTweety166	4	200	Subplot east of Fox Creek, not sampled.
TAPRTweety167	1	C	
TAPRTweety167	2	182	Subplot In Fox Creek, not sampled.
TAPRTweety167	3	302	
TAPRTweety167	4	62	Subplot east of Fox Creek, not sampled.
TAPRTweety168	1	C	
TAPRTweety168	2	96	Subplot east of Fox Creek, not sampled.
TAPRTweety168	3	216	Subplot east of Fox Creek, not sampled.
TAPRTweety168	4	336	
TAPRTweety169	1	C	Horizontal vegetation profile read from south.
TAPRTweety169	2	295	Subplot in Fox Creek, not sampled.
TAPRTweety169	3	55	Subplot in Fox Creek, not sampled.
TAPRTweety169	4	175	
TAPRTweety170	1	C	Horizontal vegetation profile read from south.
TAPRTweety170	2	105	Subplot east of Fox Creek, not sampled.
TAPRTweety170	3	225	
TAPRTweety170	4	345	

Table 6.01.2 continued.

PLOT	SUBPLOT	AZIMUTH	COMMENTS
TAPRTweety171	1	C	Horizontal vegetation profile read from south.
TAPRTweety171	2	283	
TAPRTweety171	3	143	Subplot east of Fox Creek, not sampled.
TAPRTweety171	4	163	Subplot In Fox Creek, not sampled.
TAPRTweety172	1	C	
TAPRTweety172	2	144	Subplot east of Fox Creek, not sampled.
TAPRTweety172	3	264	
TAPRTweety172	4	24	
TAPRTweety173	1	C	
TAPRTweety173	2	224	
TAPRTweety173	3	104	Subplot in Fox Creek, not sampled.
TAPRTweety173	4	344	
TAPRTweety174	1	C	
TAPRTweety174	2	359	
TAPRTweety174	3	119	Subplot east of Fox Creek, not sampled.
TAPRTweety174	4	239	
TAPRTweety175	1	C	Horizontal vegetation profile read from south.
TAPRTweety175	2	267	
TAPRTweety175	3	27	Subplot in or east of Fox Creek, not sampled.
TAPRTweety175	4	147	
TAPRTweety176	1	C	
TAPRTweety176	2	130	Subplot partially in flowing water.
TAPRTweety176	3	250	
TAPRTweety176	4	10	
TAPRTweety177	1	C	
TAPRTweety177	2	301	
TAPRTweety177	3	61	
TAPRTweety177	4	181	
TAPRTweety178	1	C	
TAPRTweety178	2	282	
TAPRTweety178	3	42	
TAPRTweety178	4	162	
TAPRTweety179	1	C	
TAPRTweety179	2	345	
TAPRTweety179	3	105	
TAPRTweety179	4	225	
TAPRTweety180	1	C	
TAPRTweety180	2	140	
TAPRTweety180	3	260	
TAPRTweety180	4	20	
TAPRTweety181	1	C	Subplot on seep with standing water.
TAPRTweety181	2	159	
TAPRTweety181	3	279	
TAPRTweety181	4	39	Horizontal vegetation profile read from 90 degrees.
TAPRTweety182	1	C	
TAPRTweety182	2	296	
TAPRTweety182	3	56	
TAPRTweety182	4	176	
TAPRTweety183	1	C	
TAPRTweety183	2	46	
TAPRTweety183	3	166	
TAPRTweety183	4	286	
TAPRTweety184	1	C	
TAPRTweety184	2	173	
TAPRTweety184	3	293	
TAPRTweety184	4	53	
TAPRTweety185	1	C	
TAPRTweety185	2	22	
TAPRTweety185	3	142	
TAPRTweety185	4	262	

Table 6.01.2 continued.

PLOT	SUBPLOT	AZIMUTH	COMMENTS
TAPRTweety186	1	C	
TAPRTweety186	2	155	
TAPRTweety186	3	275	
TAPRTweety186	4	35	
TAPRTweety187	1	C	
TAPRTweety187	2	108	
TAPRTweety187	3	228	
TAPRTweety187	4	348	
TAPRTweety188	1	C	
TAPRTweety188	2	334	
TAPRTweety188	3	214	
TAPRTweety188	4	94	
TAPRTweety189	1	C	
TAPRTweety189	2	340	
TAPRTweety189	3	220	Subplot in Gas House pasture.
TAPRTweety189	4	100	
TAPRTweety190	1	C	
TAPRTweety190	2	318	
TAPRTweety190	3	198	
TAPRTweety190	4	78	
TAPRTweety191	1	C	
TAPRTweety191	2	85	
TAPRTweety191	3	205	
TAPRTweety191	4	325	
TAPRTweety192	1	C	
TAPRTweety192	2	14	
TAPRTweety192	3	134	
TAPRTweety192	4	254	
TAPRTweety193	1	C	
TAPRTweety193	2	215	
TAPRTweety193	3	95	
TAPRTweety193	4	335	
TAPRTweety194	1	C	
TAPRTweety194	2	25	
TAPRTweety194	3	145	
TAPRTweety194	4	265	
TAPRTweety195	1	C	
TAPRTweety195	2	224	
TAPRTweety195	3	104	Horizontal vegetation profile read from south.
TAPRTweety195	4	344	Horizontal vegetation profile read from 270 degrees.
TAPRTweety196	1	C	
TAPRTweety196	2	120	
TAPRTweety196	3	240	
TAPRTweety196	4	0	
TAPRTweety197	1	C	
TAPRTweety197	2	68	
TAPRTweety197	3	188	
TAPRTweety197	4	308	
TAPRTweety198	1	C	
TAPRTweety198	2	310	
TAPRTweety198	3	190	
TAPRTweety198	4	70	
TAPRTweety199	1	C	
TAPRTweety199	2	27	
TAPRTweety199	3	147	
TAPRTweety199	4	267	
TAPRTweety200	1	C	
TAPRTweety200	2	269	
TAPRTweety200	3	149	Subplot in Windmill pasture.
TAPRTweety200	4	29	Horizontal vegetation profile read from south.

Table 6.01.2 continued.

PLOT	SUBPLOT	AZIMUTH	COMMENTS
TAPRTweety201	1	C	
TAPRTweety201	2	133	
TAPRTweety201	3	13	Subplot in Gas House pasture.
TAPRTweety201	4	253	
TAPRTweety202	1	C	
TAPRTweety202	2	48	
TAPRTweety202	3	168	
TAPRTweety202	4	288	
TAPRTweety203	1	C	
TAPRTweety203	2	350	
TAPRTweety203	3	230	
TAPRTweety203	4	110	
TAPRTweety204	1	C	
TAPRTweety204	2	178	
TAPRTweety204	3	298	
TAPRTweety204	4	58	
TAPRTweety205	1	C	
TAPRTweety205	2	68	
TAPRTweety205	3	188	Subplot partially in stream, Horizontal vegetation profile read from 90 degrees. Subplot partially in stream.
TAPRTweety205	4	308	
TAPRTweety206	1	C	
TAPRTweety206	2	30	
TAPRTweety206	3	150	
TAPRTweety206	4	270	
TAPRTweety207	1	C	
TAPRTweety207	2	123	
TAPRTweety207	3	243	
TAPRTweety207	4	3	
TAPRTweety208	1	C	
TAPRTweety208	2	136	
TAPRTweety208	3	256	
TAPRTweety208	4	16	
TAPRTweety209	1	C	
TAPRTweety209	2	105	
TAPRTweety209	3	225	
TAPRTweety209	4	345	
TAPRTweety210	1	C	
TAPRTweety210	2	338	
TAPRTweety210	3	218	
TAPRTweety210	4	98	
TAPRTweety211	1	C	
TAPRTweety211	2	275	
TAPRTweety211	3	155	
TAPRTweety211	4	35	
TAPRTweety212	1	C	
TAPRTweety212	2	82	
TAPRTweety212	3	202	
TAPRTweety212	4	322	
TAPRTweety213	1	C	
TAPRTweety213	2	332	
TAPRTweety213	3	92	
TAPRTweety213	4	212	
TAPRTweety214	1	C	
TAPRTweety214	2	200	Subplot on seep with standing water.
TAPRTweety214	3	80	
TAPRTweety214	4	320	
TAPRTweety215	1	C	
TAPRTweety215	2	127	
TAPRTweety215	3	247	
TAPRTweety215	4	7	

Table 6.01.2 continued.

PLOT	SUBPLOT	AZIMUTH	COMMENTS
TAPRTweety216	1	C	
TAPRTweety216	2	150	
TAPRTweety216	3	270	
TAPRTweety216	4	30	
TAPRTweety217	1	C	
TAPRTweety217	2	268	
TAPRTweety217	3	28	
TAPRTweety217	4	148	
TAPRTweety218	1	C	
TAPRTweety218	2	7	Subplot in Windmill pasture.
TAPRTweety218	3	127	
TAPRTweety218	4	247	
TAPRTweety219	1	C	
TAPRTweety219	2	224	
TAPRTweety219	3	344	Horizontal vegetation profile read from 90 degrees.
TAPRTweety219	4	104	
TAPRTweety220	1	C	
TAPRTweety220	2	308	
TAPRTweety220	3	68	
TAPRTweety220	4	188	Subplot partially on pasture road.
TAPRTweety221	1	C	
TAPRTweety221	2	333	
TAPRTweety221	3	93	
TAPRTweety221	4	213	
TAPRTweety222	1	C	
TAPRTweety222	2	296	
TAPRTweety222	3	176	
TAPRTweety222	4	56	
TAPRTweety223	1	C	
TAPRTweety223	2	120	
TAPRTweety223	3	240	
TAPRTweety223	4	0	
TAPRTweety224	1	C	
TAPRTweety224	2	136	
TAPRTweety224	3	256	
TAPRTweety224	4	16	Subplot on seep with standing water.
TAPRTweety225	1	C	
TAPRTweety225	2	152	
TAPRTweety225	3	272	
TAPRTweety225	4	32	
TAPRTweety226	1	C	Subplot partially on stream.
TAPRTweety226	2	0	Subplot partially on stream.
TAPRTweety226	3	120	
TAPRTweety226	4	240	
TAPRTweety227	1	C	
TAPRTweety227	2	280	
TAPRTweety227	3	40	
TAPRTweety227	4	160	
TAPRTweety228	1	C	
TAPRTweety228	2	264	
TAPRTweety228	3	24	
TAPRTweety228	4	144	
TAPRTweety229	1	C	
TAPRTweety229	2	282	Subplot on seep with standing water.
TAPRTweety229	3	42	Subplot partially on cow trail.
TAPRTweety229	4	162	Horizontal vegetation profile read from south.
TAPRTweety230	1	C	
TAPRTweety230	2	10	
TAPRTweety230	3	130	
TAPRTweety230	4	250	

Table 6.01.2 continued.

PLOT	SUBPLOT	AZIMUTH	COMMENTS
TAPRTweety231	1	C	Subplot partially on cow trail.
TAPRTweety231	2	46	
TAPRTweety231	3	166	
TAPRTweety231	4	286	
TAPRTweety232	1	C	
TAPRTweety232	2	220	
TAPRTweety232	3	340	
TAPRTweety232	4	100	
TAPRTweety233	1	C	
TAPRTweety233	2	136	Horizontal vegetation profile read from 270 degrees.
TAPRTweety233	3	256	
TAPRTweety233	4	16	
TAPRTweety234	1	C	
TAPRTweety234	2	60	
TAPRTweety234	3	180	
TAPRTweety234	4	300	
TAPRTweety235	1	C	
TAPRTweety235	2	294	
TAPRTweety235	3	54	
TAPRTweety235	4	174	
TAPRTweety236	1	C	
TAPRTweety236	2	282	
TAPRTweety236	3	42	
TAPRTweety236	4	162	Subplot on seep with standing water.
TAPRTweety237	1	C	
TAPRTweety237	2	269	
TAPRTweety237	3	149	Horizontal vegetation profile read from 270 degrees.
TAPRTweety237	4	29	
TAPRTweety238	1	C	
TAPRTweety238	2	101	
TAPRTweety238	3	341	
TAPRTweety238	4	221	
TAPRTweety239	1	C	
TAPRTweety239	2	188	Subplot in Crusher Hill pasture.
TAPRTweety239	3	308	
TAPRTweety239	4	68	
TAPRTweety240	1	C	
TAPRTweety240	2	200	
TAPRTweety240	3	320	
TAPRTweety240	4	80	
TAPRTweety241	1	C	
TAPRTweety241	2	80	
TAPRTweety241	3	320	
TAPRTweety241	4	200	
TAPRTweety242	1	C	
TAPRTweety242	2	128	
TAPRTweety242	3	248	
TAPRTweety242	4	8	
TAPRTweety243	1	C	
TAPRTweety243	2	320	
TAPRTweety243	3	80	
TAPRTweety243	4	200	
TAPRTweety244	1	C	
TAPRTweety244	2	280	
TAPRTweety244	3	40	
TAPRTweety244	4	160	
TAPRTweety245	1	C	
TAPRTweety245	2	29	
TAPRTweety245	3	149	
TAPRTweety245	4	269	

Table 6.01.2 continued.

PLOT	SUBPLOT	AZIMUTH	COMMENTS
TAPRTweety246	1	C	
TAPRTweety246	2	45	
TAPRTweety246	3	165	
TAPRTweety246	4	285	
TAPRTweety247	1	C	
TAPRTweety247	2	250	
TAPRTweety247	3	10	
TAPRTweety247	4	130	
TAPRTweety248	1	C	
TAPRTweety248	2	70	
TAPRTweety248	3	310	
TAPRTweety248	4	190	
TAPRTweety249	1	C	
TAPRTweety249	2	109	
TAPRTweety249	3	229	
TAPRTweety249	4	349	
TAPRTweety250	1	C	
TAPRTweety250	2	2	
TAPRTweety250	3	122	
TAPRTweety250	4	242	
TAPRTweety251	1	C	
TAPRTweety251	2	40	
TAPRTweety251	3	160	
TAPRTweety251	4	280	
TAPRTweety252	1	C	
TAPRTweety252	2	250	
TAPRTweety252	3	130	
TAPRTweety252	4	10	
TAPRTweety253	1	C	
TAPRTweety253	2	244	
TAPRTweety253	3	4	
TAPRTweety253	4	124	
TAPRTweety254	1	C	
TAPRTweety254	2	303	Horizontal vegetation profile read from south.
TAPRTweety254	3	183	
TAPRTweety254	4	63	
TAPRTweety255	1	C	
TAPRTweety255	2	345	
TAPRTweety255	3	105	
TAPRTweety255	4	225	
TAPRTweety256	1	C	
TAPRTweety256	2	90	
TAPRTweety256	3	210	
TAPRTweety256	4	330	
TAPRTweety257	1	C	
TAPRTweety257	2	98	
TAPRTweety257	3	218	
TAPRTweety257	4	338	
TAPRTweety258	1	C	
TAPRTweety258	2	240	
TAPRTweety258	3	0	
TAPRTweety258	4	120	
TAPRTweety259	1	C	
TAPRTweety259	2	336	
TAPRTweety259	3	96	
TAPRTweety259	4	216	
TAPRTweety260	1	C	
TAPRTweety260	2	275	
TAPRTweety260	3	155	
TAPRTweety260	4	35	

⁸C indicates the first subplot is at plot center.

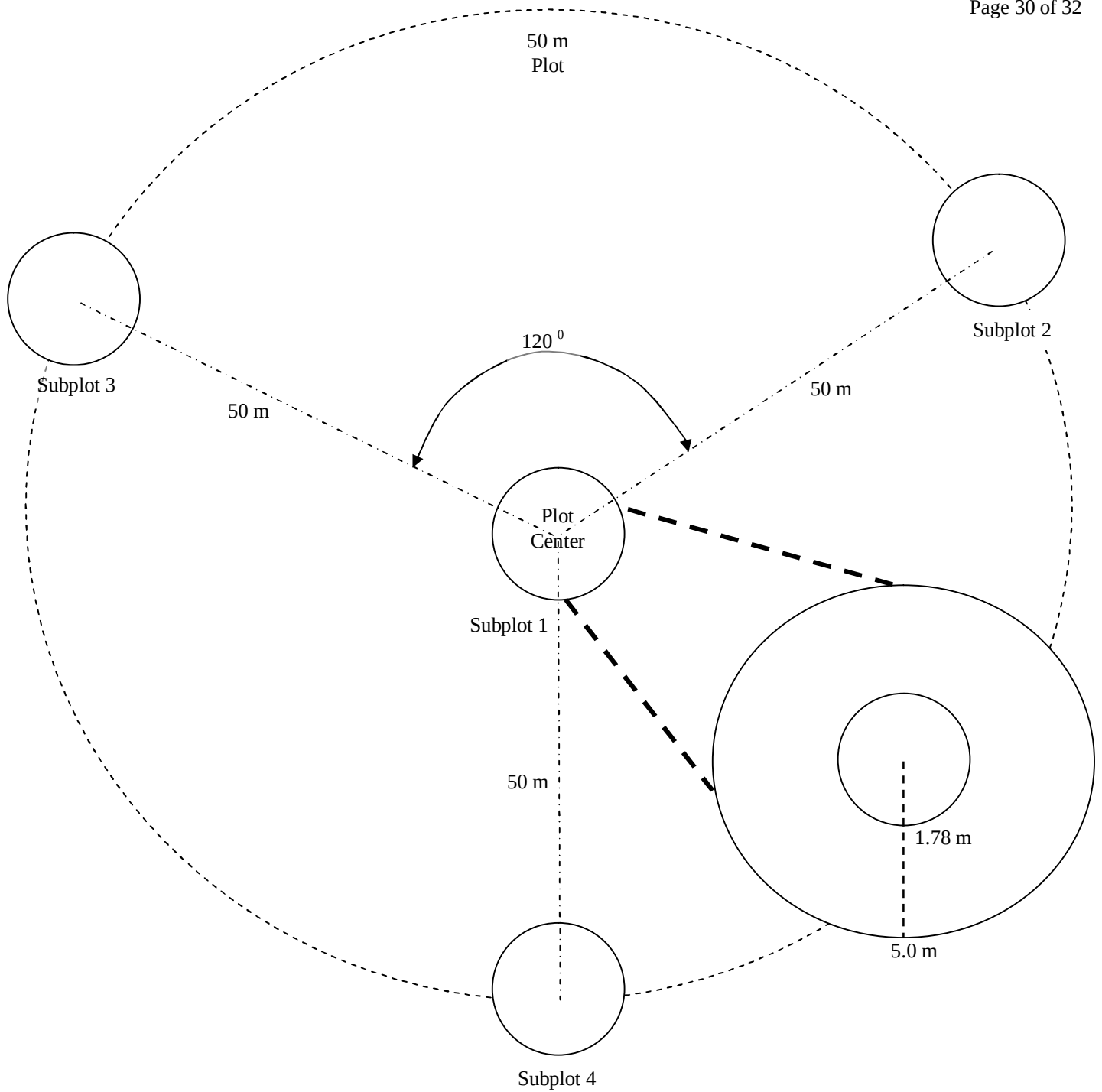


Figure 6.01.1. Spatial arrangement of vegetation subplots.

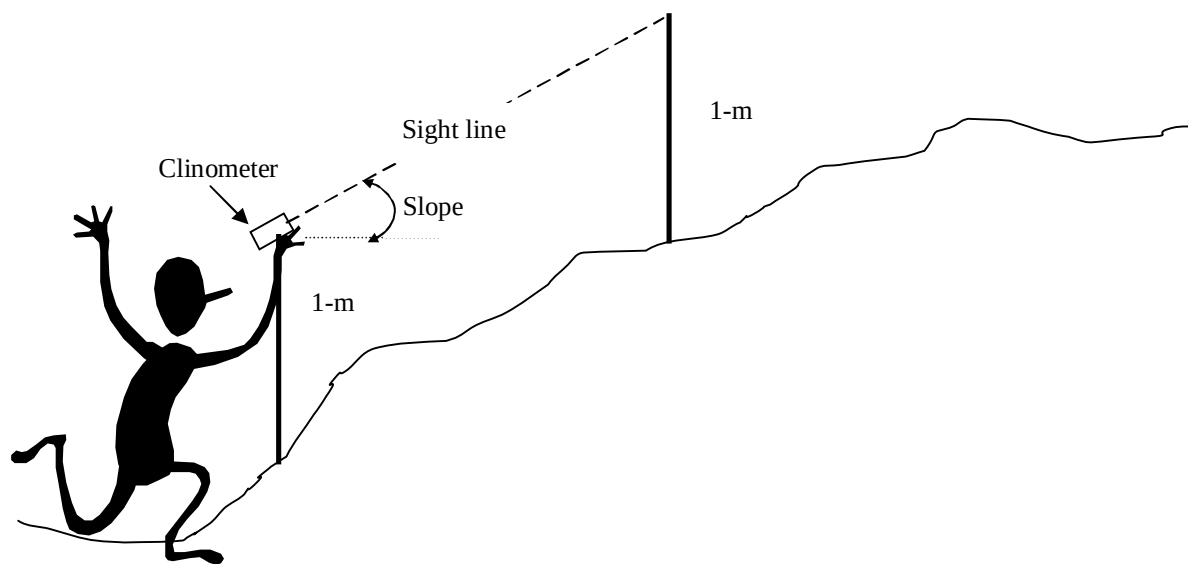


Figure 6.01.2. A diagram of measuring slope using a clinometer and sighting poles.

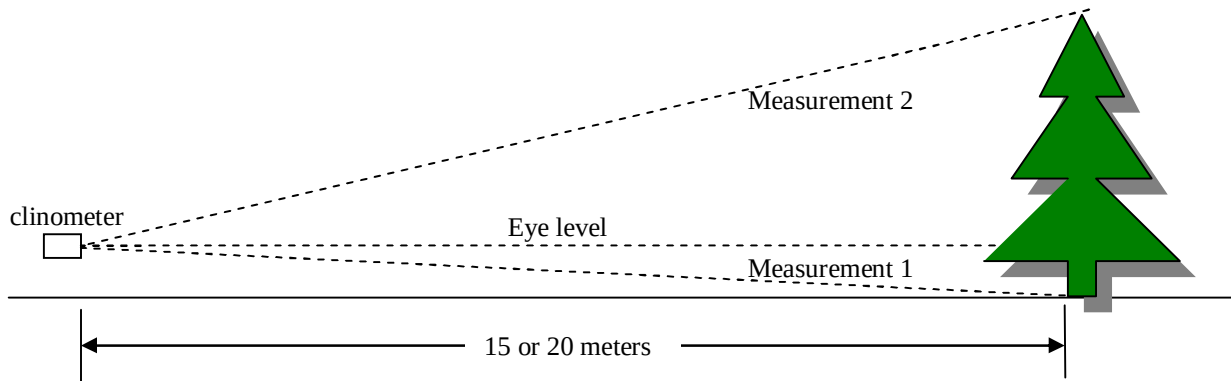


Figure 6.01.03. Using a clinometer to measure tree height. Tree height is taken at a distance of 15 (right scale) or 20 m (left scale) depending on the height of the tree. Trees greater than 20 m should be measured at a distance of 30 (right scale) or 40 m (left scale) and the clinometer reading doubled. Measurement 1 should be add to measurement 2 if it is a negative number and subtracted if it is positive to obtain tree height.

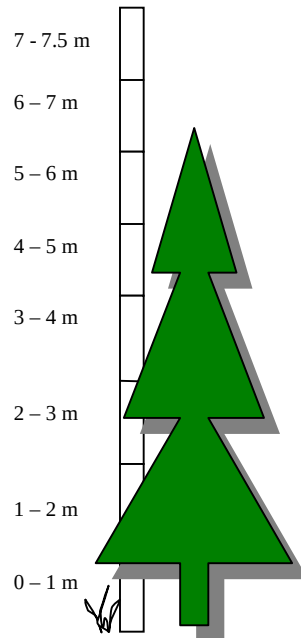


Figure 6.01.04. Using a measuring rod to determine the vertical profile of vegetation. As shown, a conifer touches the measuring rod between 0 – 1, 1 – 2, 2 –3 and 3 – 4 meter increments. Herbaceous vegetation touches the measuring rod between 0 and 1 m.