LFG BioBlitz Operating Manual

Introduction and Background

Thanks for your interest in helping Lady Flower Garden conduct a BioBlitz to better understand thecomposition, abundance, and distribution of vegetation in the forest of New Jubilee.

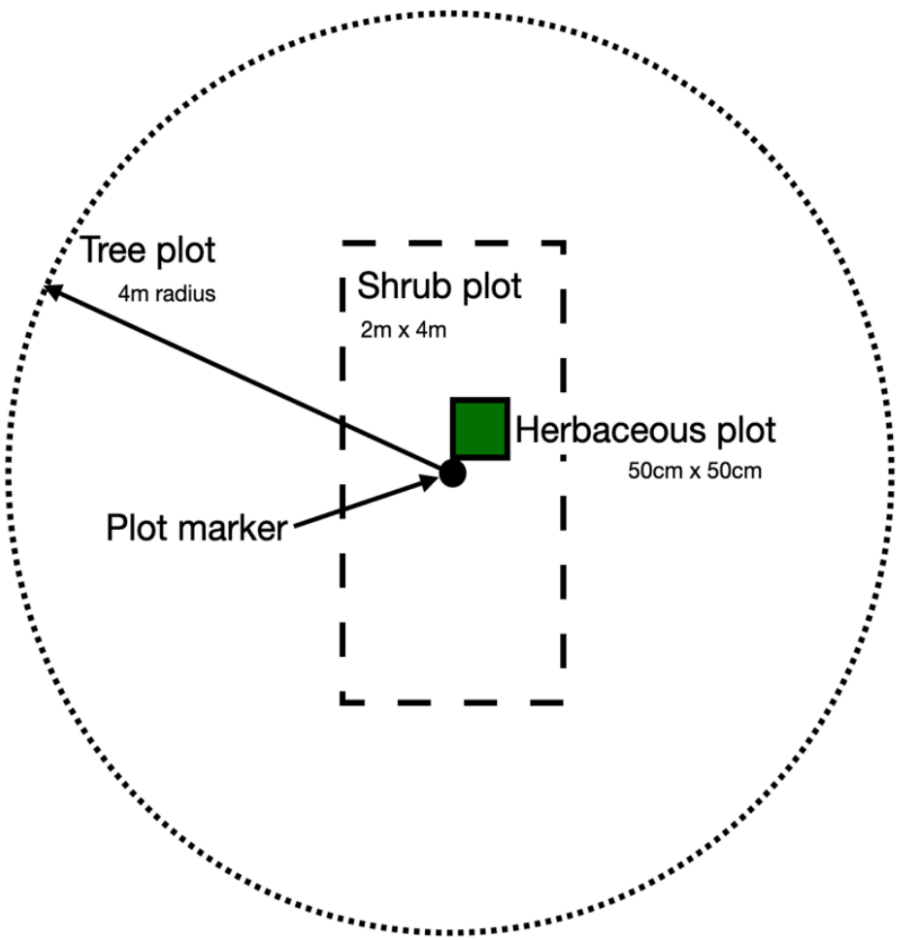
The purpose of this document is to introduce participants to the goals and methodology of this particular BioBlitz and standardize the recording of data.I apologize to experienced botanists and vegetation surveyors whomay have their own preferred methods for surveying, our attempt was tomake this as informative aspossible without a high bar for the technical skills needed to participate

BioBlitz participants will be paired up and assigned a number of plots that they will completeon theassigned day. The hope is that one of the members will act as the vegetation “expert” while the otherparticipant will act as the “recorder”. The hope is that this arrangement will also lead tosharing ofknowledge as the expert shares their answer to the inevitable question of the recorder, “how do youknow?”. Theseexperientialteaching moments are the best way to help pass ontheknowledge and skillof botanizing.

Plot Layout

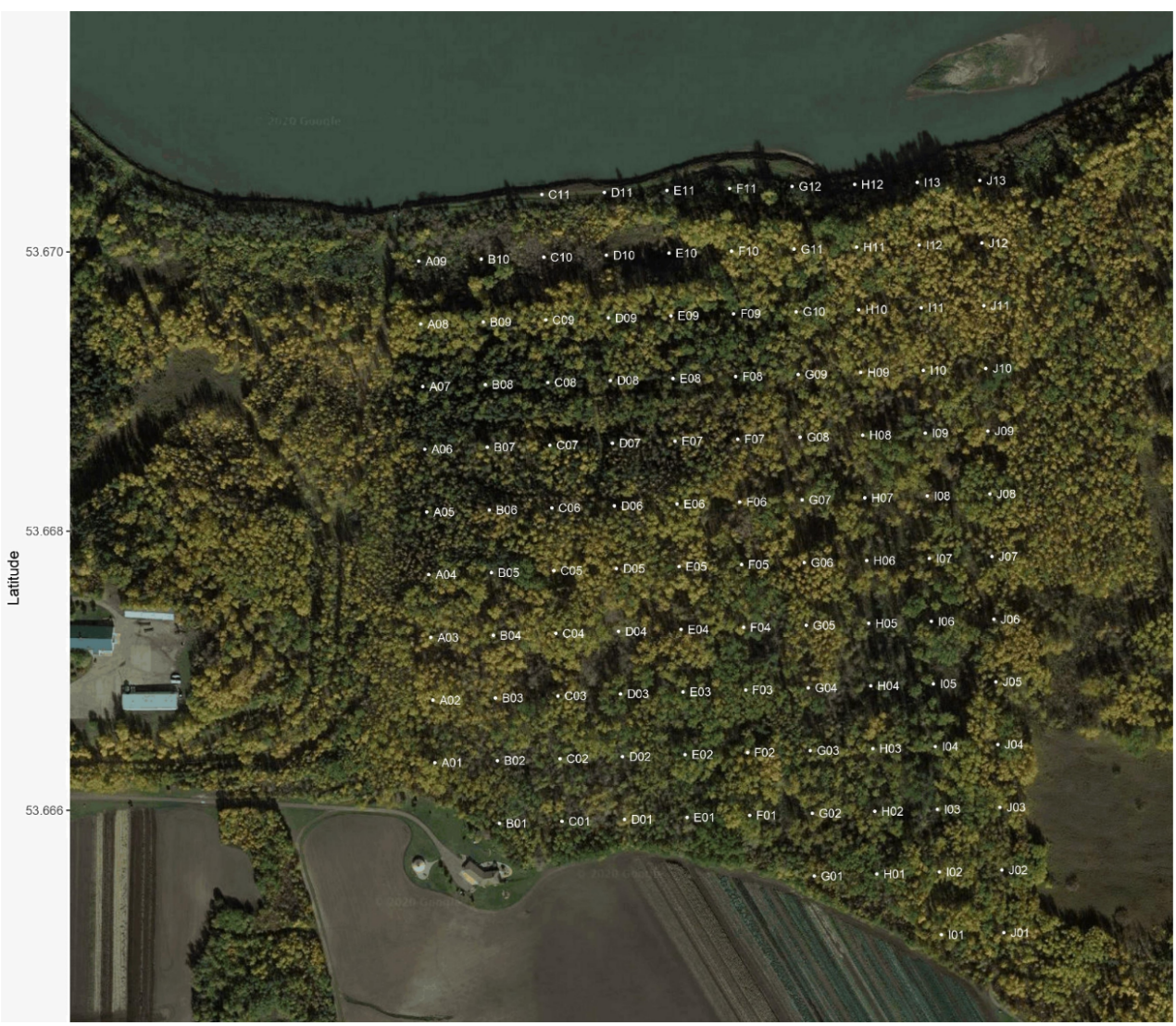
02

Each plot visited has nested within it the survey for the three plant forms--herbaceous, shrubs, and trees--each with unique methods tailored to each form(see the following figure of the plot layout drawn to scale).



03 The Map

The plots have already been placed in the forest in a regular 50 m x 50 m grid (for a total of 113 plots) and can be identified by a bamboo stake with flagging (surveyor's) tape in a bright colour with a plot identification code written on it (see map below). The plot identification code starts with a letter and has a number after it (ex. B06) to indicate its location on the grid. You are encouraged to conduct the survey in the numerical order that they appear below to avoid excess trampling at a site.



Map of the plots in the forest of New Jubilee

Detailed Methodologies

04

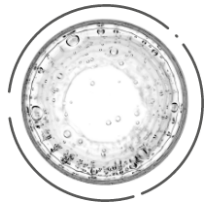
A specific designed is used for each plant form. It will be best to do the surveys in the order that they are presented (again to avoid trampling). Please refer to the site layout diagram to see the spatial nestedness of the design.

Herbaceous vegetation

This term encompasses all the non-woody plants, including forbs and grasses, that typically form the understorey in forest. We will be surveying them with a quadrat 50 cm x 50 cm (0.25 m2) constructed out of wood or PVC pipe. This quadrat will have been strung with rope/wire at regular intervals to form a grid with 49 intersections (see representative image).

A representative image of an herbaceous vegetation sampling qudrat with wire “crosshairs” for determining species abundance.

05 Quadrat protocol



When you arrive at a plot please be careful to minimize disturbance. Hold the quadrat at about waist height (above the herbaceous vegetation) anchoring the bottom left corner of the quadrat to the plot marker stake facing north, this will standardize where the measurements are taken and will remove bias associated with wanting to place it over a plant of interest.

Only if this location is not possible, for instance a tree is in the way, anchor the top left corner of the quadrat to the marker stake. With the quadrat frame being held in the correct position look directly down at each intersection of wire/string in the frame and identify the plant present (think of it as crosshairs) counting this as a “hit”. One plant or one plant species may be tallied for numerous hits. This will give us a sense of the relative contribution of a species to a site as a percentage of total hits.

For instance, if at my quadrat I sight down and see dandelion under 18 of the 49 crosshairs (numbers not reflective of the real quadrats) it will make up 37% of the vegetation at that location. Bare ground, litter, moss, and coarse woody debris (CWD) are possible hits if no vegetation is present.

Shrubs

06

Shrubs are plants with woody stems that generally speaking do not form the overstorey (although they may be taller than you) and include “saplings” of the dominant tree types as they grow up to join the overstorey.

For ease we will include only saplings less than 10 cm in diameter in this portion of the survey. Keep in mind some shrubs are very low and have very thin stems (i.e., some blueberry). Shrubs will be counted in a quadrat that is 2 m x 4 m (8 m2) and centred around the site marker.

Each of you will have rope quadrats of this size that can be laid out to delineate the shrub quadrat.

In this quadrat your job is to tally the shrubs, by species, based on the number of emergent stems. As an example, an individual raspberry plant may form a cluster of shoots that are connected underground but for ease we will measure each of those shoots as an individual.

The species and stem count for each species will be recorded on the field sheet. It is best to go species by species rather than stem by stem in the plot so that it is easier to keep a running tally of one species in your head rather than forget where you were at for a number of species. Since there are like 3 people in the world (okay that’s hyperbole, but still…) that can tell willow (*Salix*) species apart we will deal with them generically (*Salix* spp.)

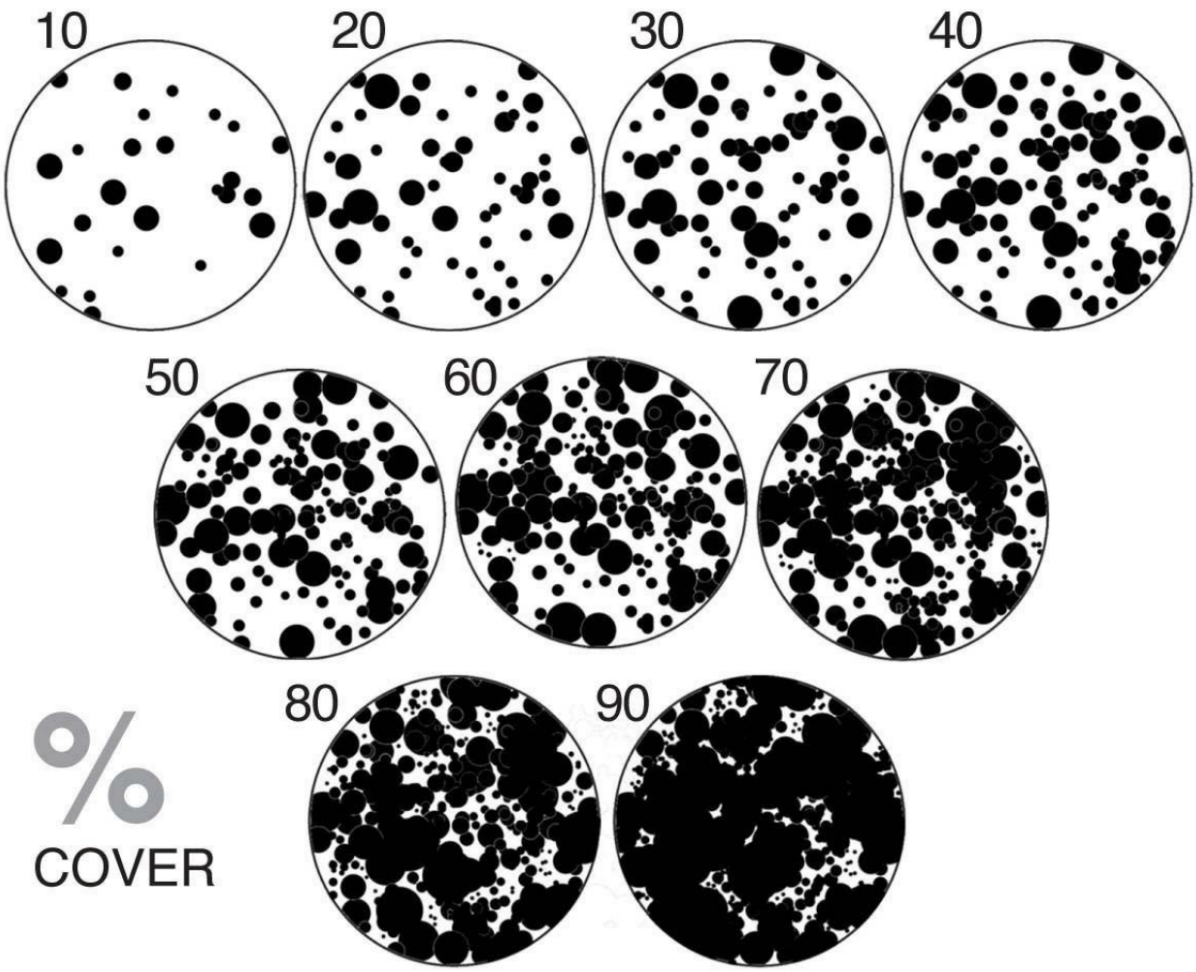
Trees

07

Trees are woody plants that form the overstorey. We will be using a circle plot with a 4m radius to survey a 50m2 area. The same rope used to layout the shrub quadrat can be used in this exercise since the shrub quadrat has a side length of 4m as well. With the “recorder” holding the rope at the bamboo site marker at waist height the “expert” will make a 360o sweep (the recorder will have to shuffle their way around the site marker in a full circle). Record in the field sheet the number of “in” trees by species. A tree is considered “in” if more than half its trunk is within the 4m radius

As another measure of forest cover, we will estimate canopy cover by estimating the coverage directly above the marked plot. Use the following figure to help with your estimation. It is good to estimate a continuous number (i.e., 73%) rather than rounding to the nearest 5% as we often want to do because it feels “safer”.

Canopy Coverage 08



A guide for the visual estimation of the overstorey canopy coverage to be estimated at each plot

09 Other Observations

We have left a section for you to note other organisms that you come across. Generally speaking, the birds are well enumerated given the bird banding station on New Jubilee. For larger mammals we encourage you to count up the scats that you see while doing the shrub quadrat.

This will give us an estimate of the occurrence, distribution and intensity of use across the forest. By tying this count to a known searched area, we will be able to extrapolate. We also encourage you to note fungi (they always seem to be left out!) as you are able to identify them.

10 Filling in the field sheet

We have tried to pre-populate some of the cells with more common species you might see. If you run out of room but have left some of the pre-populated fields blank, please scratch the unused name out and add the needed name. If you really need more space use a second sheet but please note it as 1-of-2 or 2-of-2.

1. Be sure to record the plot ID (check the flagging tape on the stake to confirm)
2. Record the participants' names, date, etc.
3. Conduct the herbaceous vegetation survey
4. Conduct the shrub survey (count scat as you go)
5. Conduct the tree survey (finish by estimating the canopy cover)