

## Vegetation and Insect Measurement Assignment

### Part I- Robel Technique for hay and powerline right-of-way

#### Whitehall Forest

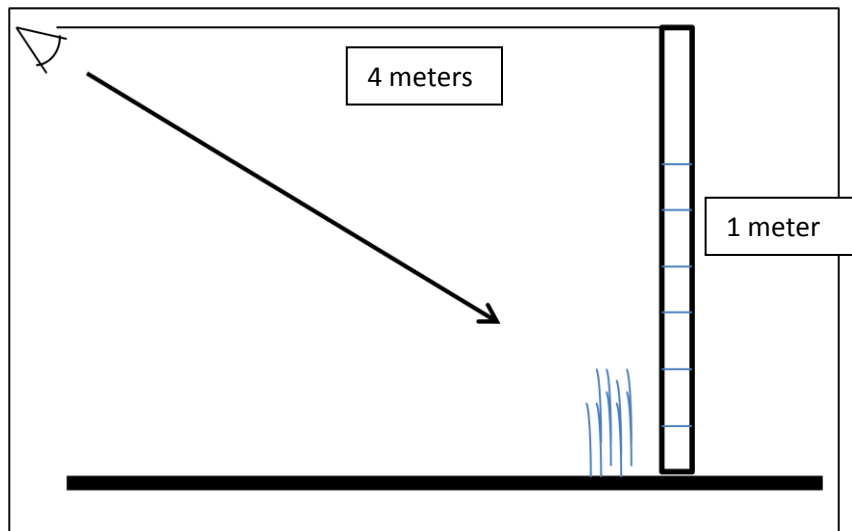
The Robel method for estimating height and density (VOR) of herbaceous vegetation has been around since the 1970s. Originally designed for pastures in Kansas, this method has been applied widely to other sorts of habitats. Linking actual amounts of vegetation and the VOR has only been tested in some of these habitats. If you look at the reading list for the course you will see an article by Jackson testing some grass types. In this lab we are going to test the method on two habitat types here in Georgia—a hay field and powerline right-of-way.

#### Equipment

Compass, Robel poles, quadrats, clippers, data sheets, pencil

#### Design

Systematic sampling of each site using transects with about 10 meters between each point. Robel pole will be the point and 4 readings at cardinal directions are used. Readings are in decimeters—lowest point of complete coverage.



On a random subset of points we will then collect all above ground vegetation from a quadrat. These will be dried and weighed. All data will be pooled for each group and provided to the grad students for the spreadsheet.

## **Part II- Insect sampling for hay and powerline right-of-way**

### **Whitehall Forest**

There are hundreds of ways to sample insects for a variety of purposes. For those of us in wildlife ecology and management we are often sampling insects as a measure of habitat quality for vertebrates. In terrestrial systems this usually means birds and is especially important in human modified landscapes such as hay or crop fields. You will see from some of the readings that there are interesting dynamics relative to the insect community present in any habitat (remember that invertebrates in general are the most important animals in habitat function), those groups of species that are beneficial to our target wildlife, those that are neutral, and those that are viewed as pest species. The latter are often the target of pest management in agricultural systems. We will be sampling insects using several methods in each of our habitats.

#### **Equipment**

Compass, funnel traps, pit traps, and sweep nets, tape measure, nontoxic antifreeze, alcohol.

#### **Design**

We will set out pit traps and funnel traps in a random format on each of habitats and allow to remain in place for one week. We will conduct 4 50m sweep net transects on each habitat.

### **Part III- Insect analysis to Order and Family for hay and powerline right-of-way**

#### **Warnell School 1-106**

Once biologists collect insects then they must be identified and other biological data collected. For bird studies biologists often simply do counts of individual taxa, but may also look at biomass. Often the Orders and Families are divided up into those that are important for our target vertebrates, such as important food items. I have included a couple of references for you that demonstrate the value of some of this for field studies. Please also note the article dealing with identification of insects that were consumed by quail chicks here in Georgia. This was done as a senior thesis by a Warnell student.

#### **Equipment**

Sorting pans, petri dishes, alcohol.

#### **Design**

We undertake complete counts and those from important chick food taxa.

#### **Data**

We will combine all of the data for both field labs using the data sheets provided. These will be used in the assignment that follows.

## **Assignment**

Using the data collected over the 3 labs you will write a JWM format article based on the following scenario. You must follow JWM manuscript format to the letter.

### **Scenario**

You have been hired as a biologist in South Dakota. There is interest there on the impact of grazing and haying on sharp-tail grouse nesting and brood rearing. As part of the project you are asked to collect data on a right-of-way and a hay field to assess their potential value to wildlife. You will need to look at the gamebird nesting and chick literature to obtain some background reference on how each of these impacts the biology of this species. Obviously the point here is a comparison of these two habitats, but in the context of the known literature. This means at least a couple of references need to be found. In addition, there are some questions as to how well the Robel technique performs in comparison to direct weight measures of veg biomass. You should also describe the amount of veg biomass per ha in each site. For the insects simply compare the two sites for overall numbers and in particular what might be best insects for gamebird chicks.

Data output should include at least 1) a regression of robel measures versus clipping weights, a table that includes Robel measures from you project and comparing some other sharptailed grouse and waterfowl studies. You should provide one summary table of insect counts.

### **Format**

Times New Roman, 12 pt font, double spaced, 1 inch margins. Three -5 pages in length. Make sure you follow JWM format for layout. Include tables and figures as appropriate. All work is to be completed on your own. I suggest you have someone else edit your paper before you turn it in. This should be short with no more than 3 pages of text.

### **Data**

Summary data from the 3 labs will be available on the class website.