

# David Little Livestock Range Management Endowment

AT THE UNIVERSITY OF IDAHO

## **2012 Project Progress Report:**

### ***Impact of Livestock Grazing on the Primary Insect Food Items of the Greater Sage-grouse***

**By Stephen Cook, Lindsay Menard and William Sweeney**

#### **SECOND-YEAR RESULTS:**

The overall diversity of insects captured during 2012 was higher than was captured during 2011. Ants and beetles (two of the groups that dominate the diet of developing sage grouse) were the most frequently captured insect groups. Hundreds of ants were often captured at individual sites, but because of their habit of following established trails, this result was not un-expected. The ants were dominated by a pair of species that establish large colonies and one of which may be an important component of grouse diets.

#### **Ants**

Two species of ants dominated the captures in this group and they are in two very common genera, *Pogonomyrmex salinus* and *Formica obscuripes*. Both of the species establish large colonies that are very apparent on the surface of the ground. *Pogomyrmex salinus* are often referred to as harvester ants. They clear vegetation from large areas around the colony entrance and forage over relatively large areas. *Formica obscuripes* are often referred to as thatching ants because of the large thatch mounds that they produce, frequently in the cover of vegetation such as sagebrush. *Formica obscuripes* also forage over large areas where they establish and utilize trails that radiate out from the colony. It was these two species that dominated the trap catches of ants.

In both the non-grazed and grazed sites, the average distance between large colonies was 16.4 m. *Pogomyrmex* dominated the large, above-ground colonies of ants in both the non-grazed (87% versus 13% *Formica*) and grazed (77% versus 23% *Formica*) sites. Seventy-six individual pellets of grouse excrement were collected (all from adult grouse) during 2012. Of these, 31 pellets (41%) contained insect parts. The identifiable insects were predominantly *Pogomyrmex* ants. These ants comprised over 90% of the insect parts. Other ants and beetles comprised the remainder of the insect diet. The beetles appear to be from a variety of groups including small scarabs, ground beetles and tenebrionid beetles.

#### **Beetles**

Beetles were captured in high numbers at every sample site. Four families dominated the captures: ground beetles (*Carabidae*), darkling beetles (*Tenebrionidae*), leaf beetles (*Chrysomelidae*) and carrion beetles (*Silphidae*). These four families were fairly evenly distributed between non-grazed and grazed sites. Of these four families, two were found in grouse dung pellets (ground beetles and darkling beetles). The other family of beetles that were found in grouse pellets were the scarab beetles. Although few scarabs were captured in the pitfall traps many larvae were found in and beneath cattle dung. We had a difficult time getting these scarabs to mature and emerge in the laboratory (probably because we did not provide them with enough of a soil matrix in which to pupate). However, at least anecdotally, the large numbers that occurred in the dung indicate that this food resource should occur at higher densities in the grazed versus non-grazed sites.