

## **Morgan-Summit Sage-Grouse Update – JULY 1, 2015**

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**Project:** Habitat Use Patterns and Vital Rates of the Morgan-Summit SGMA Greater Sage-grouse Population: Conservation Implications for Managers

**Purpose and Background:** I am gathering seasonal movement data for greater sage-grouse in Morgan and Summit counties and determining survival rates, nest success rates, and brood success rates. I am also collecting vegetation data around nest, brood, and random sites. All of this information will give us a good baseline to understand the ecology of this population. To do this, I have marked 36 greater sage-grouse (31 hens, 5 males). Of the 31 hens, 10 are marked with global positioning system (GPS) backpacks and 21 are marked with very high frequency (VHF) radio collars. The males are marked with VHF radio collars.

The GPS transmitters communicate location data to a satellite, which I can download remotely to check on movements and survival from the comfort of my field trailer. To obtain these data for sage-grouse marked with VHF radio collars, we have to physically re-locate the birds in the field. This can take considerable effort, depending on the movements.

Vegetation surveys consist of the line-intercept method to quantify shrub cover, Daubenmire frame technique to classify forbs and grasses, and Robel pole measures to quantify visual obstructions at the location sites.

### **Survival:**

One of my VHF marked hens was hit by a car on Hwy 65 at the Henefer Divide. She is only the second mortality of my marked birds, so far. The other was a male who died shortly after being collared back in April. The hen did have a successful nest but lost her brood about 2 weeks later. So, she was not brooding when she was killed.

My technician, Wayne, and I have personally seen many hens and chicks near the highway and on maintained dirt roads in the morning before 9 AM and in the evening after 6 PM. They like to peck around in the dirt and rocks looking for insects. Or, maybe it's geophagia?

### **Movement Data:**

It's been really fun and interesting to watch the GPS birds move around the landscape. Of course, I do this from my couch while looking at my computer, but it's still really cool. 9 of the 10 GPS hens initiated nests and 7 of those hatched successfully. Some of the birds have moved around a lot and we even used our first couple of GPS hens as "Judas birds" to help us locate

other birds back in April when we were still trapping. As of June 29, 2015, I have 6,610 GPS locations from these 10 hens. As a comparison, I have a total of about 600 locations for the other 24 marked birds in the last 2-3 months.

None of the birds have moved very far away from their capture lek. This study area is relatively small and we haven't had any birds move more than about 4 or 5 miles. Most of them have stayed within a mile or 2 of their capture lek.

I have spoken to some of the landowners and they have seen sage-grouse here in the winter and they say that even in years of good snow, sagebrush still sticks out above the snow. I'm interested to see what happens this winter but I suspect that most, if not all, of the birds will stay here as long as sagebrush cover remains above the snow line. This is just an educated guess on my part. Let's see what the birds really do before we publish anything.

### **Nesting:**

As of May 31, we had 28 hens initiate nests. We determined that 8 were predated or abandoned and 19 total nests hatched successfully. If you're counting, that's only 27 nests. It appears that the GPS hen that was nested on the Yaryka property did hatch successfully based on the GPS movement data. I had GPS points coming from the same location for about 27 days and then she moved. Her initial movements were relatively short which indicates the nest hatched successfully and she was moving around with young chicks. Within a few days she made some longer movements up toward the Henefer Divide and onto the Taylor Hollow CWMU. I was able to physically locate her but she was with another GPS hen and 2 other unmarked hens. They all flushed as I approached. This indicates that she had lost her brood. Of course, I don't know for sure if she even had chicks since I was never able to check the nest or follow the hen until she was on a property that we had access to.

### **Brooding & Vegetation Surveys:**

These surveys are dominating our time right now. We currently have 8 hens that are still brooding. We are still locating each brood hen 2-3 times per week and doing brood vegetation surveys at one of those locations. For the most part, I let the GPS hens track themselves but I still manually locate each GPS brood hens once a week to make sure they haven't lost their broods. Hens and broods are staying relatively close to their nest sites (within 1 km). If a brooding hen moves more than a kilometer then we worry she has lost her brood. Most of them don't move very far. Some of the hens that have lost broods have made some relatively big moves (3+ km) to join up with adult groups of 10 to 15 birds.

There is still a good amount of forbs and loads of insects throughout the study area but things are starting to dry out quickly due to the almost triple digit temps we've had the last couple weeks. We are finding that the birds are condensing even more than usual into little draws and mesic

areas. This isn't that surprising but it makes it difficult to differentiate our marked hens and their broods from all the unmarked birds. We have several documented observations of several brood hens (marked and unmarked) with many chicks. There is a good chance that brood mixing is happening and that could make it hard to determine brood survival or recruitment.

Once broods are 50 days old, we do a brood flush to determine brood success. We have done these on 6 hens and 5 of those had chicks. We count that as a successful brood. Here's how it works, we find the hen during daylight hours and flush her with her brood. We then do concentric circles around that point for 20 minutes to try and flush any remaining chicks. We count all the chicks that flush to have an idea of how many chicks made it to fledgling age. This method does not always produce 100% chick detection because some chicks may not flush or because there are several hens and several chicks.

The GPS backpacks only broadcast a radio signal during a certain window during the day so we do this daytime flush for all of our marked brood hens in the hope that we can make some meaningful comparisons. Additionally, for our VHF brood hens, we go in at night and use a spotlight to locate the hen and count the chicks again. This method is supposed to produce 100% chick detection. And, by doing both methods, we may be able to get a better idea of overall recruitment for this population. It still may be a long shot because of all the confounding factors but it's better to have these data than not.

### **Landowners:**

The landowners have been great to work with. We appreciate each of the landowners and their willingness to let me do this study on their properties. They are all interested in what we are finding. It has been rewarding to build relationships with each one of them and to gain their trust. This was a part of the study that really intrigued me and I am happy things are working out for the most part. I also really appreciate the help I have received from many of you. The relationships you have already established with landowners, county officials, and livestock producers have been instrumental in gaining access to properties and working in a productive atmosphere.

### **\*\*Other Notes:\*\***

Because many of these properties are CWMUs, landowners have requested that we complete our summer field work by July 31 so we don't interfere with the start of hunting season in August. This will not create a problem because all of our marked hens/broods will have past the 50 day fledging threshold by that time. In August, we will compile data and put together some maps to provide a visual representation of movement, nesting, brooding, etc. I look forward to that. It's been a busy field season.