

## Southern Appalachian Spruce Restoration Initiative

### Annual Meeting Notes

August 22, 2013

The Southern Highlands Reserve, Lake Toxaway, NC

- **Agenda**

- 10:00-10:20 Welcome, Introductions, and Announcements
- 10:20-10:50 Planting Day update and logistics (*Chris Kelly, NC Wildlife Commission*)
- 10:50-11:10 Fall Cone Collection (*Chris Kelly, NC Wildlife Commission*)
- 11:10-11:30 Mapping and Planning update (*Katherine Medlock, TNC*)
- 11:30-12:00 Spruce-Fir Moss Spider presentation (*Sue Cameron, USFWS*)
- 12:00-12:30 Lunch
- 12:30-2:00 Tour of SHR grounds and greenhouses
- 2:20-2:30 Wrap-up Discussion

- **Meeting Notes**

The meeting began at 10:00 am with a welcome by The Southern Highlands Reserve (SHR) Director of Programs, Kelly Holdbrooks, and introductions following. In total there were twenty-five attendees. There were no announcements. The goals of this meeting were to bring together stakeholders and interested parties to review what has been accomplished since the first meeting last December; to tour the nursery facilities at SHR; and garner feedback for current and future efforts.

#### **Planting Day Update & Logistics (Chris Kelly)**

Chris Kelly of NCWRC kicked off the meeting presenting updates and logistics for the planting days scheduled this September in various locations on the Cherohala Skyway in the Unicoi Mountains. Chris emphasized the purpose of the plantings will be a conservation measure for the Carolina Northern Flying Squirrel (CNFS), and not necessarily a restoration project. See her presentation slides for detailed information.

The proposal is to plant spruce in clusters along the Byway where the CNFS response can be monitored. Chris had a slide showing planting areas and current nest box locations. The main focus will be in the Hooper Bald area above and below the Byway, and Santeetlah below the road. Another area they will consider if time and materials permit is Big Junction and Whigg Cove.

One topic of discussion was planting densities, which is something Chris has been consulting with CASRI about. There was a question about the current hardwood density and what we are allowed to thin out for planting spruce. Gordon Warburton mentioned that tree-fall gaps should guide the planting density, or else a high basal area will overtop the seedlings. There was also a suggestion that soil fertility might be used to guide planting density.

Miscellaneous comments and questions: SASRI is in communication with Cherokee. Are there other areas on the Byway such as Mud Gap that are being considered? Chris is open to Fir as well for CNFS conservation plantings.

Chris continued the presentation with planting day logistics. She plans to flag the planting sites in the next few weeks as a mean to aid volunteers with the planting. The planting days will be 9:00 am to 4:00 pm rain or shine, except torrential downpour and lightning. Katherine Medlock commented that the SASRI email list could be a good resource

for distributing volunteer needs. Kelly Holdbrooks offered to make contact with Brevard College, which might provide another option for student volunteers. Currently, the planting days are being staffed with volunteers from HCC. Another mentioned that some recruiting efforts could be possible with local nature and environmental clubs as needed. Gordon Warburton said he has about 8 people who can help, and to keep in mind if the planting days carry over to October that Bear Season opens October 14. Dave Casey offered that having too many volunteers to a project can be a hindrance, which was widely agreed upon in the room. He also has some folks who can help.

For release efforts and monitoring, Dave Casey offered that the method for release is best done slowly in such a way so snags are left for wildlife. Chris said there will be hemlocks and birch falling soon, which would leave some natural tree-fall gaps. Andrea Brandon said she could share CASRI's monitoring protocols.

Chris continued by saying that in the future, they will be trying to collect seeds from the areas where spruce will be planted. (i.e.-cones collected in the Unicoi will grow the spruce for planting in the Unicoi).

Day-of planting training will be provided to volunteers by SHR staff, or others who have been trained appropriately.

### **Fall Cone Collection (Chris Kelly)**

2013 is expected to be a bumper crop year. Generally want to collect in bumper crop years as there are more viable seeds. Chris' presentation slides have detailed information about known locations for the cone collection.

Balsams: Will have good crop, but it would be great to have historical information about the spruce plantation progeny. Possibly WV, which is not ideal for restoration plantings in NC and TN.

Black Mountains: Spruce along Commissary Ridge Trail are loaded

Unaka: Keep eyes open for crops

Long Hope: Crop is looking good

Some collection logistics can be found on the presentation slides. It is a little late to apply for permits, but Chris does not think it will be a problem to renew her permits. Permits are needed for the Smokies and the Parkway. Forest Service areas should be fine without a permit. Chris has a seed collection sheet that others can use. It is ok to collect cones off the ground. Chris had slides with examples of good and bad ground cones, as well as avoiding Norway Spruce cones (much larger). If you use volunteers, track their hours and teach them about distinguishing good from bad cones.

Question: Where to send the seeds? To SHR and a seed repository with Barb Crane.

Barb asked if the cones are grouped together based on location or by mother tree? Chris said usually by location for ground collection. Barb said direct collection from mother-tree is needed for genetic work.

Chris said there are no logistics in place for cone collection, but that help is needed. We should collect as many as possible during a bumper year. They only occur once every 7-8 years! Someone wanted to know how long the seeds are viable in storage. No one knew.

Dave McGee has some suggestions for places to collect cones. There was also commentary that we need to determine what is truly native versus plantation trees to ensure we are collecting as local as possible. It will be probably best to avoid collection in the known plantations in the Balsams, where the trees have little regeneration most likely because it is not a native seed source.

### **Mapping & Planning Update (Katherine Medlock)**

Goal is to put forward a single effort to get mapping done across the region. See the slide presentation.

Some key points:

#### Current Conditions

-Outside of forest service lands, location knowledge is spotty, which need to rely on local knowledge and coarse scale FIA data. Large areas have been logged and burned, as well as plantations with unknown seed progeny. Current modeling is not accurate enough for our needs.

-We do not have a region-wide understanding of the current spruce extent.

-Currently, restoration occurring in known locations with high visibility

-Need to figure out what is the high priority... where is the next spruce dollar going to be?

#### Where we would like to be

-all information compiled in a central location on a single map-set

-defined reasonable accuracy

-prioritizing restoration based on site selection

-define a 5-10 year timeframe and goals: what are the goals, and how much area are we trying to plant? That will determine how much we need to grow.

#### How do we get there- elements needed to develop a good working plan

##### 1) Mapping current conditions

Use SE GAP + FS VEG.

##### 2) Development of restoration criteria and priorities

Gordon Warburton said there should be more bullets here because this is a complex topic. Katherine agreed but said for the purposed of the presentation, she boiled it down, but that also the perception for what else should be added under the development of criteria here has to do with one's specific interests and if one manages land.

Hugh Irwin said there is some good mapping available with SE GAP. Chris Kelly agreed, but said SE GAP maps of Unaka for example maps hemlocks for an area that is definitely spruce, so it can have poor data. SE GAP also does not provide historical data.

Hugh also shared that TVA maps from the 1920s might be a good source for historic information, but they are in an archive and possibly heavily damaged. It is unknown if they are in the TVA archive or have been moved to Washington DC. They have not been digitized.

##### 3) Estimate capacity needs

-Need to categorize restoration priorities: planting vs. release

General discussion: Dave Jordan asked if there is any intention to layer the spruce information with other data (for example with the CNFS, other animals, soils, etc)? Chris said they are in the process of defining a probably of occurrence map for the CNFS that could be shared, but that other animals such as birds (northern saw whet owl, magnolia warbler, etc) could be more difficult to map. Andrea said that CASRI does use many layers to help ID priority areas. Taylor Ladd (SHR staff on the SASRI mapping team) adds here that it is standard to use multiple data layers and overlays to generate priority maps and display information. The SASRI mapping team will note the need to collect other data information along with spruce location mapping. There is a definite interest in linking spruce data to other information about species of concern, including beech, which Dave Jordan noted is known to suppress spruce development. Spruce are being reintroduced in Beech forested areas, though, because CNFS nests in Beech.

Chris said there is effort to do bird protection with spruce in mind through linking AMJV and SASRI.

In terms of estimating capacity needs, Gordon said there should be a component of release that should be included with talking about growing and planting.

Jesse Pope from Grandfather Mountain spoke about a pilot project proposal for a seedling release project at Grandfather Mountain to monitor before and after long-term (10-20yr) results. They already have seedlings in the ground ready to be studied. He just would need help with the science and research development. Can link the study to CNFS and NSW. He proposes setting up a nest box grid down an elevation gradient. Would be a good test site for researching spruce release. SHR is also about to release some of the spruce on their property and could add to the dataset.

Katherine continued with asking everyone if we can get agreement from SASRI today to proceed with the planning effort along with commitment to participate in the planning effort she has outlined in the presentation. She asked for any ideas for grants or pots of money that might be out there to help fund the planning... and growing. This is open for discussion and she asked the group to be thinking about the resources that might be available in-house or otherwise.

Katherine asked: Is this planning effort something we should undertake as a group? Jesse Pope said getting mapping done should be a priority. Hugh offered that a basic idea of historical ranges can be discerned enough with existing information (Southern App Assessment is a good starting point for this). If there are glaring errors, the first basic map can be a living map that is able to be updated as more information becomes available. The sooner we can get something, any history together, the better. And, it can be refined. Chris said that a historic map can be a great benchmark. Kendrick Weeks said that what we need to take what we have that is current and historical and determine something, and get an idea of how big an area we have to work with. This will then point to how much work there is to do, as well as guide further refining efforts.

### **Spruce-Fir Moss Spider (Sue Cameron)**

Key points as follows. See the slide presentation for details.

- Spruce-Fir restoration defined as a need for restoring this species of spider.
- Distributed mostly on public land, except the Plott Balsams, which are private.
- Just looking for the spider can destroy its habitat.
- Current genetic research using shed legs collected by Dr. Coyle on his 2007-2009 surveys.
- Closing thoughts: There is opportunity for Spruce-Fir restoration to contribute to research and restoration efforts for the spider.

### **Post-Tour Wrap-Up Discussion**

Tour conversations:

- Mycorrhizal fungi root inoculation.
- Hauling and transporting gallon pots from SHR to planting sites in Unicoi. Discovered "bulb" crates" at SHR that can carry 6 at a time.

Miscellaneous ideas:

- Barb said a good option for growing is the tube-like containers. These take less space requirement, are easy to transport, and easy to plant out of. Growers at SHR said there is some problem, however, with die back in seedling branches that are touching as they grow. Packing them together into a tight space is not ideal.

-Katherine asked for any ideas for funding or further contacts to be sent out. We need funds for

1) Planning efforts

2) SHR nursery spaces for growing

-Is there an option for planting out from 2-inch or 4-inch containers instead of waiting for gallons?

-Jesse Pose said they have space for heeling in 1 gallon spruce and trucks for transport

- Mary Archer Vann has space for growing from seed to gallon.
- Andrea said that CASRI gets plugs that are sometimes frozen and can sit for weeks to a month before planting. Key is to get them dormant.
- Taylor: It might be a good idea to consider growing plugs. It would save time and money in resources to plant out from plugs.
- What is a plug?: In the nursery trade, plugs are grown in Styrofoam blocks with a grid of 2-inch holes. The other option is like what SHR has been doing with transferring germinated seeds to 2-inch containers.
- Any thoughts for the next SASRI meeting? Twice a year is great. We should have another meeting in the winter to review the planting day and mapping efforts.
- Volunteering suggestions:
  - Dave Jordan-Master gardeners and master naturalists are retired folks who can work mid-week, are adults and have expertise
  - Andrea-For matching grants, always record volunteer hours!
  - Jesse-NC Enviro Education Certification: participants required to complete a 60-hour capstone project, and have community service hours to fulfill

**September planting dates with Chris Kelly were updated through the course of the meeting:**

- Pick-up and move: September 13
- Plant: September 17 with 20 HCC students from 9-4
- Plant: September 19 with 12 HCC students from 9-4
- Pick-up and move: September 23
- Plant: September 24 with 20 HCC students from 9-4
- Plant: September 26 with 12 HCC students from 9-4
- No dates in October.