



# Flat Laurel Spruce Collaborative Project

September 2017



U.S. Fish and Wildlife Service

The N.C. Wildlife Resources Commission, along with partners, is planting red spruce trees on the Pisgah National Forest to help speed recovery of this high-elevation forest. They will be planting spruce trees in an area of the forest located in Haywood County, north off the Blue Ridge Parkway. Prior to its acquisition by the U.S. Forest Service, the forest here was impacted by historic logging and wildfires in the early 1900s. Hardwood trees recovered faster than spruce in burned areas. Planting spruce trees will benefit many rare species of wildlife, including the Carolina northern flying squirrel, red crossbill, brown creeper and northern saw-whet owl. The Carolina northern flying squirrel eats truffles, the fruiting bodies of mycorrhizal fungi associated with the roots of red spruce trees. The red crossbill, a stocky red or greenish finch, eats spruce seed and has a specialized bill that pries open cones to extract seed. More projects of this nature will be conducted across other parts of the Southern Appalachians.

## Project Objectives:

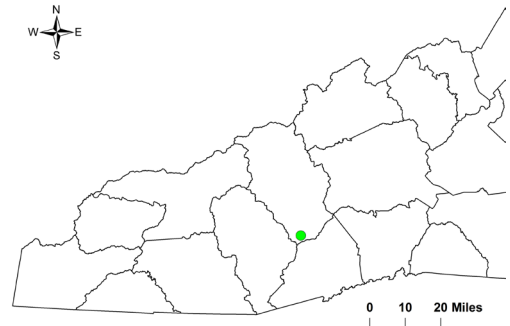
- Plant red spruce trees to boost the conifer component and resiliency of high-elevation forest within Pisgah National Forest, in Haywood County.
- Benefit the federally endangered Carolina northern flying squirrel, and rare bird species such as the red crossbill, brown creeper and northern saw-whet owl.

## Partners:

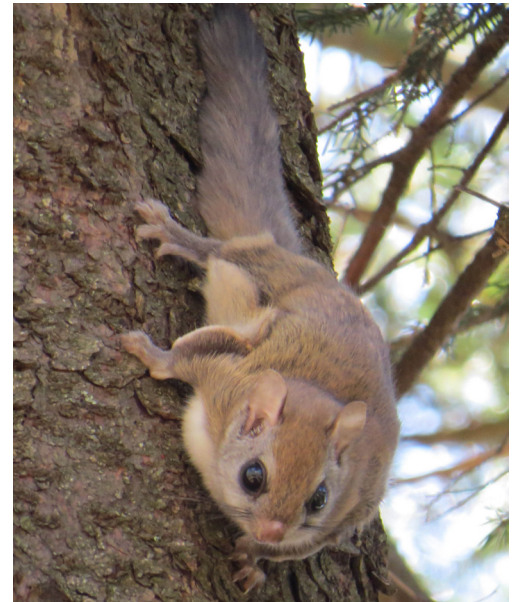
- This project was initiated by the N.C. Wildlife Resources Commission and developed with the U.S. Forest Service and Warren Wilson College.
- Valuable input was provided by members of the Southern Appalachian Spruce Restoration Initiative (SASRI) and other partners in the conservation community including Southern Highlands Reserve, Southern Appalachian Highlands Conservancy, The Nature Conservancy, NC Natural Heritage Program, MountainTrue, The Wilderness Society, and Defenders of Wildlife. This restoration project is the first for SASRI.

## Methods:

- The source of these seedlings is seed collected from red spruce cones in North Carolina by SASRI partners.



The green circle indicates the site of restoration, which is located in Haywood County.



Carolina northern flying squirrel (Clifton Avery)



Haywood Community College student planting spruce seedlings (U.S. Fish and Wildlife Service)



### Methods (continued):

- Seedlings are grown at the Southern Highlands Reserve, a native plant arboretum and research center in Transylvania County. Their staff and volunteers extract, clean, and germinate seeds, and pot the seedlings. The gallon-potted seedlings being planted are 12 to 18 inches tall.
- The restoration site is 1 mile down the Flat Laurel Branch Trail. One-thousand seedlings will be carried in, on foot, by Wildlife Commission personnel, SASRI partners, and volunteers from organizations such as The Pisgah Conservancy, The Climate Times, and Southern Appalachian Wilderness Stewards
- Forestry, Wildlife and Conservation Biology students from Haywood Community College and Warren Wilson College are planting the seedlings using a technique called “underplanting,” which means the seedlings will be planted under the hardwood canopy. Ensuring seedlings survive being planted under a hardwood canopy means they need tall stems and well-developed roots. They will be left to recover from the shock of transplant for a few years. After a few years, selected, small hardwood trees will be girdled to provide more sunlight to the growing seedlings.

### What's next?:

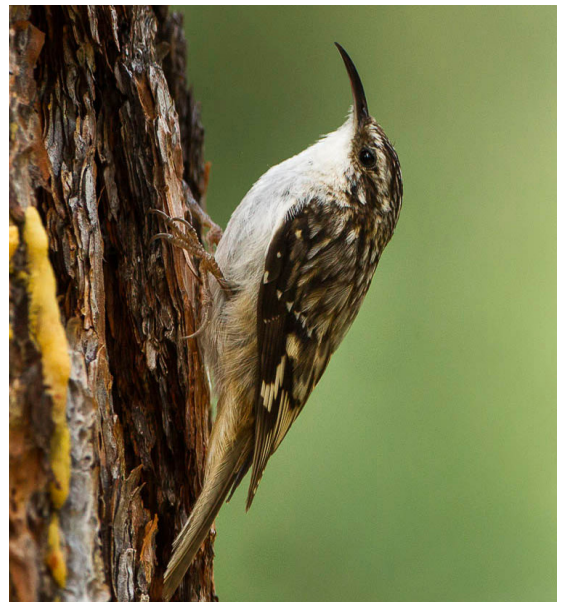
- Wildlife Commission staff and SASRI members will monitor the effect of the restoration project by conducting surveys on birds and flying squirrel populations. Forestry students will help monitor seedling growth and survival.
- SASRI is holding a Spruce Workshop in Gatlinburg, Tenn., on Nov. 14-16, 2017 that will bring together researchers, land managers, horticulturalists, and species experts to share information and experiences and identify needs and gaps that will advance the restoration of spruce forests in the central and southern Appalachians.

### For more information, please contact:

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*Juvenile (top) and adult male red crossbill (A. Lenk)*



*Brown creeper (Francesco Veronesi)*