Spruce-fir moss spider
Microhexura montivaga

Spruce-fir spider, Fred Coyle

Status: Endangered

Description: The spruce-fir moss spider is one of the smallest members of the primitive suborder of spiders popularly referred to as "tarantulas." Adults of this species measure only 0.10 to 0.15 inch (about the size of a BB). Coloration of the spruce-fir moss spider ranges from light brown to yellow-brown to a darker reddish brown, and there are no markings on its abdomen.

Habitat: The spruce-fir moss spider only lives on the highest mountain peaks in the Southern Appalachian Mountains of western North Carolina, eastern Tennessee, and southwest Virginia. The high elevation forests where this spider is found are dominated by Fraser fir with scattered red spruce. This forest type is commonly referred to as spruce-fir forests. The typical habitat of this spider is damp, but well-drained moss mats growing on rocks and boulders in well-shaded areas within these forests. The moss mats cannot be too dry (the species is very sensitive to desiccation).

Range: The spruce-fir moss spider is limited to a handful of mountains in western North Carolina, eastern Tennessee, and southwest Virginia

Listing: Endangered, February 6, 1995. 60 FR 6968 6974

Critical Habitat: Designated, July 6, 2001. 66 FR 35547 35566

Threats: The surviving populations of the spruce-fir moss spider are restricted to small areas of suitable moss mats on a few scattered rock outcrops and boulders beneath fir trees in the spruce-fir forests. Destruction of the moss mats (or even a portion of the mats) or damage to the surrounding vegetation shading the mats could result in the loss of the entire population or even extinction of this species.

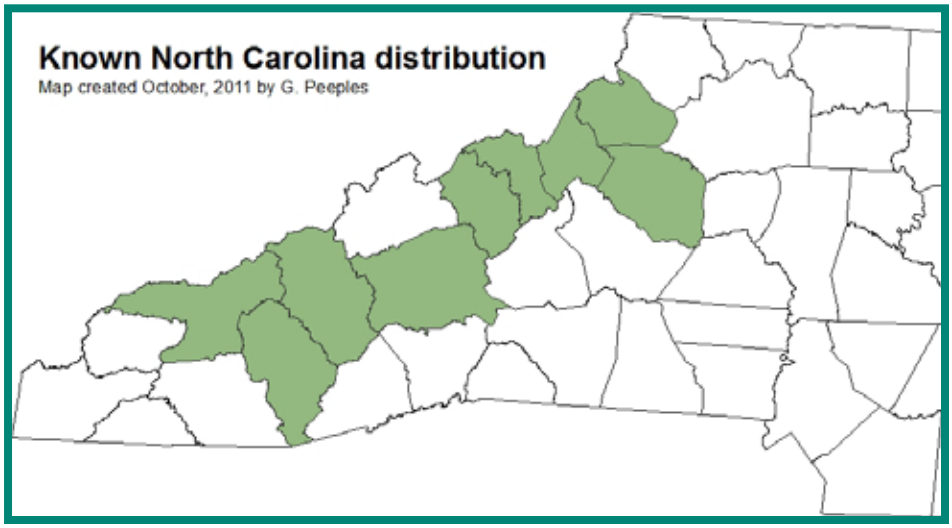
In recent years, Fraser fir trees throughout the Southern Appalachian Mountains have suffered extensive mortality due to infestation by the balsam wooly adelgid, a nonnative insect pest believed to have been introduced into the United States from Europe. Most mature Fraser firs are easily killed by the adelgid, with death occurring within 2 to 7 years of the initial infestation. The remaining trees become more susceptible to exposure, wind, and storm damage. The red spruce trees are not damaged by the insect.

Furthermore, during the past century, most of the Southern Appalachian spruce-fir forest has suffered extensive changes and declines in size and/or vigor because of past logging and burning practices, storm damage, air pollution, climate changes, disease, insect damage, and exposure shock.

As the spruce-fir forest decreases in health and size, the death and thinning of the tree canopy results in locally drastic changes in the microclimate, including increased temperatures and decreased moisture. This leads to the drying of the moss mats on which the spider depends for its survival. The spruce-fir moss spider is very sensitive to desiccation and requires climates of high and constant humidity. As the mats dry out, so does the spider.

Why should we be concerned about the loss of species? Extinction is a natural process that has been occurring since long before the appearance of humans. Normally, new species develop through a process known as speciation, at about the same rate than other species become extinct. However, because of air and water pollution, forest clearing, loss of wetlands, and other man-induced environmental changes, extinctions are now occurring at a rate that far exceeds the speciation rate.

All living things are part of a complex and interconnected network. We depend on the diversity of plant and animal life for our recreation, nourishment,



many of our lifesaving medicines, and the ecological functions they provide. One-quarter of all the prescriptions written in the United States today contain chemicals that were originally discovered in plants and animals. Industry and agriculture are increasingly making use of wild plants, seeking out the remaining wild strain of many common crops, such as wheat and corn, to produce new hybrids that are more resistant to disease, pests, and marginal climatic conditions. Our food crops depend on insects and other animals for pollination.

Healthy forests clean the air and provide oxygen for us to breathe. Wetlands clean water and help minimize the impacts of floods. These services are the foundation of life and depend on a diversity of plants and animals working in concert. Each time a species disappears, we lose not only those benefits we know it provided but other benefits that we have yet to realize.

What you can do to help:
Tread lightly and stay on designated trails. Vegetation on popular high mountains has virtually been destroyed by human trampling.

Visit arboretums, botanical gardens, and parks and learn all you can about endangered species and the causes of their declines.

Participate in the protection of our remaining wild lands and the restoration of damaged ecosystems.

Prepared by:
U.S. Fish and Wildlife Service
Asheville Field Office
160 Zillicoa Street
Asheville, North Carolina 28801
(828) 258 3939

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