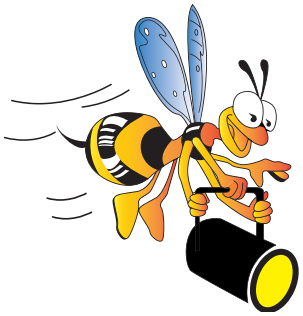

Spotlight on an Experimental Forest and Range (EFR)

Harrison Experimental Forest

In 1908, the Forest Service established a system of experimental forests and ranges (EFRs) to be set aside for environmental research. More than 100 years later, 80 of these areas are spread across the United States (figure 24). The smallest of these is 47 hectares, and the largest is 22,500 hectares. Multiply the number of hectares by 2.47 to find out the size of these areas in acres.

Much of the research on EFRs is concerned with environmental changes that occur over long periods of time, over large areas, or both. Over 30 of the areas were established at least 70 years ago. In some cases, experiments are designed to last 40 or more years.

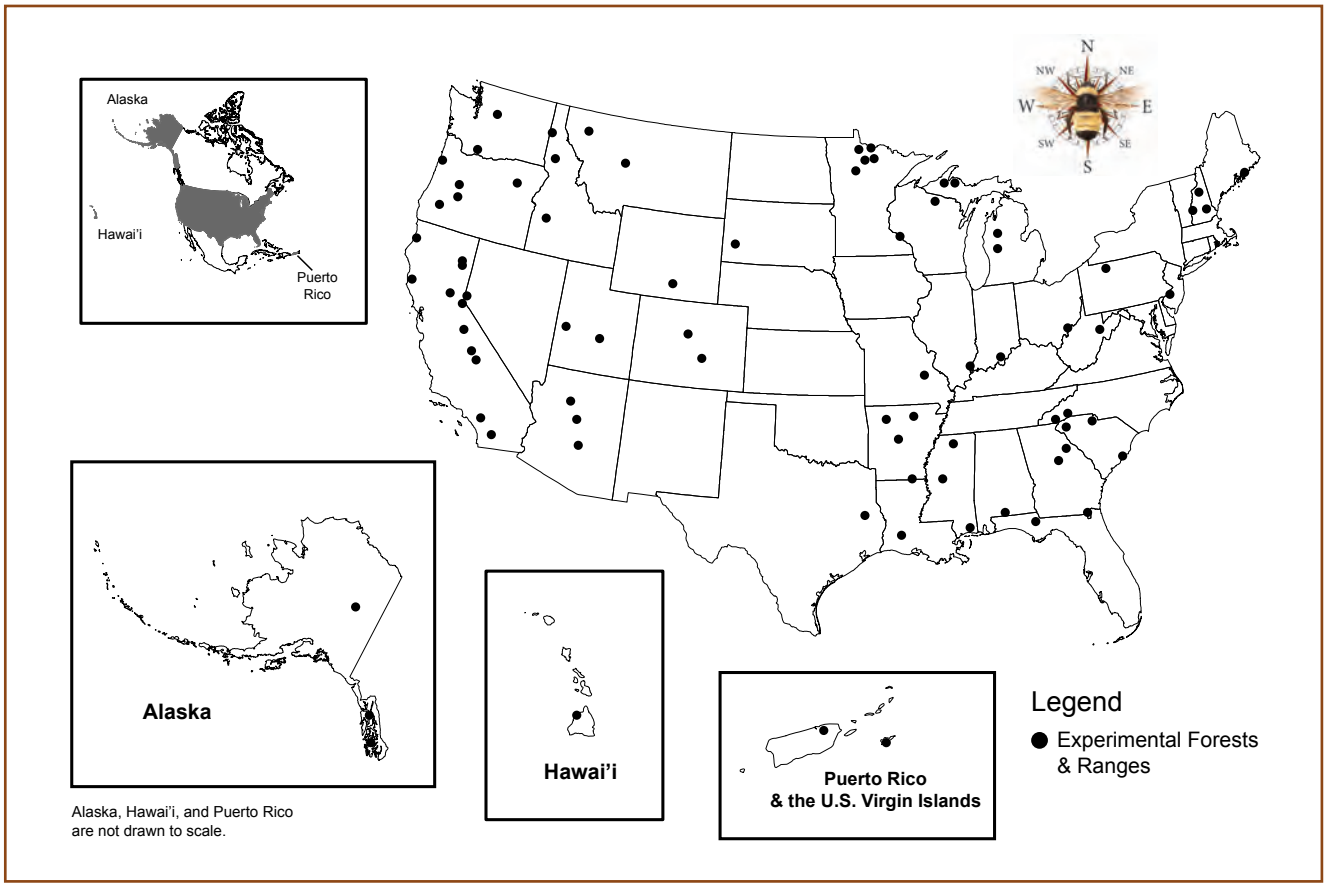

Figure 24. Experimental forests and ranges (EFRs) are located across the United States. Where is the one closest to where you live? Map by Carey Burda.

Scientists conduct a range of studies on EFRs. These studies often help forest managers across an entire region. Harrison Experimental Forest is located on the DeSoto National Forest in Mississippi (figure 25). In 1934, the Forest Service established Harrison Experimental Forest because its land was typical of the South's coastal forests. Information learned from research conducted on Harrison Experimental Forest, therefore, can be applied throughout the coastal South.

In 1956, the Southern Institute of Forest Genetics (jə **n**ə tiks) was established on Harrison Experimental Forest. Genetics is the study of how genes control the characteristics of plants and animals. Genetics research has helped scientists to understand, for example, which tree species are most resistant to disease and insects or which trees grow the fastest.

In 1961, scientists began to compare the growth of three pine species. The scientists fertilized young loblolly, slash, and longleaf pines. In 1999, the scientists observed and measured the trees. The scientists discovered that longleaf pine, while it grew more slowly at first, produced more wood than the other two species after 38 years (figures 26a and 26b).

Hurricane Katrina moved through Harrison Experimental Forest in 2005. Using observations recorded in 1999 before the hurricane, the scientists could examine how the hurricane damaged trees. The scientists found that loblolly pines were more damaged by the hurricane than slash or longleaf pines.

More recently, scientists working at Harrison Experimental Forest have begun to study how much carbon is being held by the three pine species.

Figure 25. Harrison Experimental Forest includes 4,111 acres of southern coastal forests. Map by Carey Burda.

Figure 26a. This photo taken in 1968 shows the longleaf pine first planted in 1961 for the genetics research on Harrison Experimental Forest.

Photo by Robert Doudrick, USDA Forest Service, and courtesy of the University of Southern Mississippi, Harrison Experimental Forest Collection, digilib.usm.edu.

Figure 26b. Today, the longleaf pine may look like the forest shown here.

Photo courtesy of USDA Forest Service.

All trees contain carbon. By holding carbon, living trees help to reduce the effects of climate change. The scientists planted seeds from the trees planted in 1961. The scientists are now comparing these trees with trees grown from genetically improved seeds. The scientists are studying the relationships among different genes, tree species, forest management, and the amount of carbon being held by these trees. With such information, forest managers can do the best job of protecting southern coastal forests as the climate changes.

Experimental forests and ranges enable scientists to study questions across many years. To learn more about all experimental forests and ranges, visit http://www.fs.fed.us/research/efr/. Harrison Experimental Forest is enabling scientists to study trees that live in the coastal South. For more information about Harrison Experimental Forest, visit http://www.srs.fs.usda.gov/locations/forests/index.php#harrison and http://www.srs.fs.usda.gov/compass/2015/10/08/the-harrison-experimental-forest/.