What Are Experimental Forests And Ranges?

In 1908, the Forest Service established a system of natural areas to be set aside for environmental research. One hundred years later, 81 of these areas are spread across the United States **(figure 1)**. The smallest of these is 47 hectares, and the largest is 22,500 hectares. Multiply the number of hectares by 2.47 if you want to find out the size of these areas in acres.

These areas are called experimental forests and ranges. Much of the research on these areas 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. One experiment in Oregon is expected to last 200 years! On all experimental forests and ranges, scientists continually collect information about the weather, the amount of snowfall and rainfall, the soil, and about the trees and other plants growing in the area.

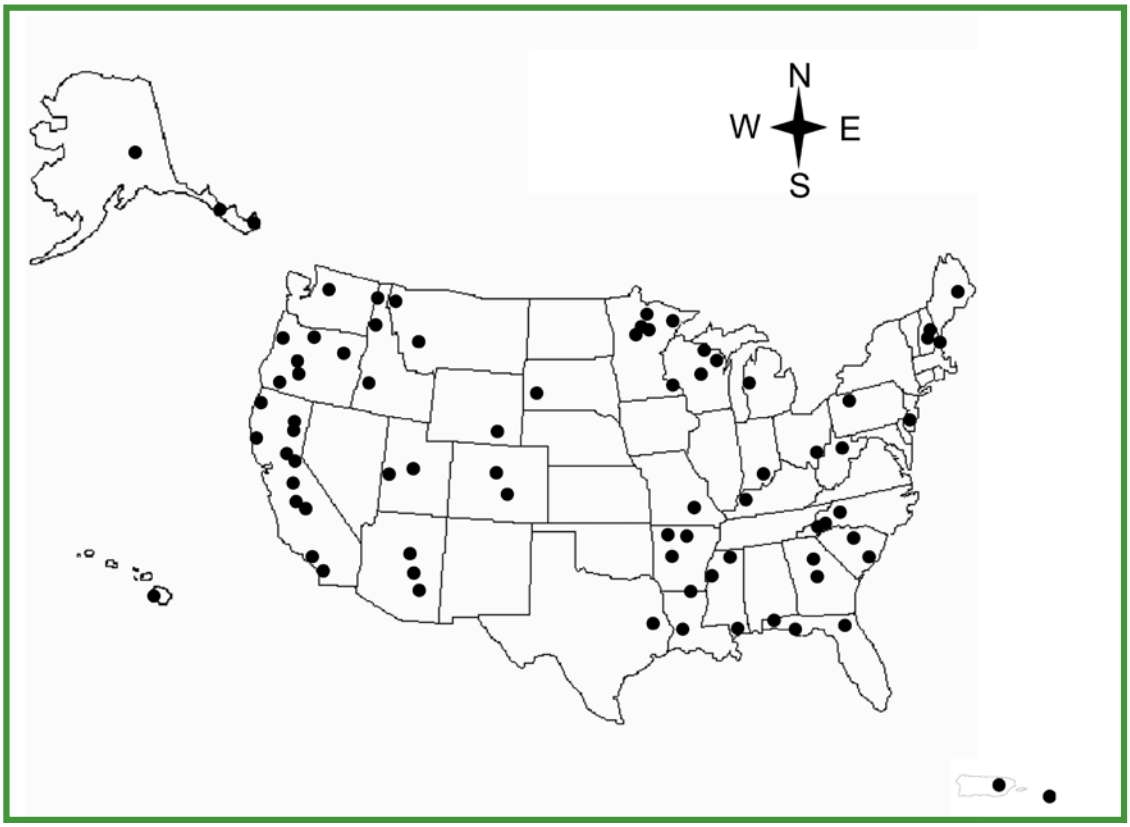

Figure 1. The system of natural areas known as experimental forests and ranges. Each dot shows the location of an experimental forest or range. Is an experimental forest or range located close to where you live?

One concern of humans everywhere is the quality of their water. In 1934, the Coweeta (kow **we** tuh) Experimental Forest was created to study how forests affect the streams that flow through them. This area covers 2,187 hectares (5,400 acres). It was established in western North Carolina because of the area's high rainfall and steep mountains **(figure 2)**. Measurement of

snowfall, rainfall, weather, and streamflow began almost immediately and continues today **(figure 3)**.

In 1948, the area was renamed the Coweeta Hydrologic (**hi** dro **loj** ik) Laboratory **(figure 4)**. Hydrologic means having to do with water. The research you will read about in this monograph was done within the Coweeta Hydrologic Laboratory's study area. It is concerned with the movement of water into, through, and out of a part of the study area. Think about how water might get into the study area. How might it leave? After you read the monograph, you will know if you were right!

On experimental forests and ranges, the most important activity is learning. Each experimental forest and range is a big outdoor laboratory where scientific experiments are conducted. Although people may visit experimental forests and ranges, their most important function is to help scientists better understand our changing natural environment.

Figure 2. The Coweeta study area is within a heavily forested area.

Figure 3. Many experiments involve streams and streamflow in the Coweeta study area.

Figure 4. One of the buildings at the Coweeta Hydrologic Laboratory. The laboratory also has a building that can house 20 scientists.