KOEN EXPERIMENTAL FOREST

Short history/brief introduction: This 720-ac Experimental Forest is located on the south bank of the Buffalo near Jasper, AR. within the Ozark National Forest. The Koen Experimental Forest (KEF) was established in 1950 to develop scientific principles for forest management. The site was named for Henry R. Koen, once the forest supervisor of the Ozark National Forest, whose conservation career lasted four decades in the first half of 1900s. Seven 4- to 24-ac watershed basins (hardwood stands) were instrumented to monitor precipitation, air temperature, barometric pressure, streamflow, and sediment. Although streamflow gauging flumes remain in place, no active hydrology research has occurred on the site since 1979. Currently, the KEF is managed by SRS-4106, Southern Research Station, and is affiliated administratively with the Buffalo RD of the Ozark-St.Francis NF.

The site is presently headquarters for a RWU-4106 research field crew who now monitors studies throughout the Boston Mountains. It also is the site of an interpretive nature trail that helps visitors identify over 40 species of trees and shrubs. The trail is wheelchair accessible and also designed to accommodate the blind. Each stop changes from a soft surface to brick with signs that have deeply carved lettering. The trail was built through local contributions, Job Training Partnership Act (JTPA) labor, Forest Service cooperation, and is maintained by local organizations and Southern Research Station personnel. There is a secluded picnic area at the entrance to the trail where visitors can enjoy a quiet outdoor family dining experience.

Climate: The Koen Experimental Forest is located in the Boston Mountains of Arkansas the forest has hot, humid summers, especially at low elevations, and is moderately cool in winter, especially on the mountains and high hills. Rainfall is normally well distributed throughout the year. Over half the rainfall usually falls from April through September. Snow falls nearly every winter, but the snow cover last only a few days.

Average Winter Temperature: 40
Average Summer Temperature: 80
Temperature range from an avg. low of 32 degrees to an avg. maximum of 92 degrees
Average Annual Snowfall: 5 inches
Average Annual Rainfall: 45 inches

Soils: *Arkana-Moko Complex:* Soils in this complex are moderately deep (Arkana soils) to shallow (Moko soils) well drained and are found on upland areas. The *Arkana* soils are low in natural fertility and moderate in content of organic matter. They are medium acid to mildly alkaline in the surface layer and strongly acid to moderately alkaline in the subsoil. The permeability is very slow and the available water capacity is low. The *Moko* soils are moderate in natural fertility and in content of organic matter. They are neutral or mildly alkaline throughout. The permeability is moderate and the available water capacity is very low. The erosion hazard is considered severe for both soils.

Other soils include Clarksville Very Cherty Silt Loam, a deep soil is formed from cherty limestone that contains from 40 to 60 percent chert fragments; the Estate-Lily-Portia complex of hillside soils that are loamy, stony and well drained; and the Noark very cherty silt loam which consists of very deep, well drained, moderately permeable soils that formed in colluvium and

clayey residuum from cherty limestones on nearly level to very steep uplands of the Ozark Highlands.

Vegetation type(s): This is mainly an oak-hickory upland hardwood forest.

Long-term data bases: Two long-term data sets exist for the site. The first is part of a study of eastern red cedar that started in the 1940 and ran through the mid 1060s. The second data set is part of a watershed study closed in the late 1970s; the data is thought to remain in possession of a retired Forest Service research scientist.

Research – past and current: Many studies were carried out at the forest beginning in the early 1940 and lasting though the late 1970s. These are some of the potentially most valuable forest research data sets for northern Arkansas if the study sites are re-established to exam long-term changes at the site. Past studies include shortleaf pine cone production, outplanting tests of hybrid pines, thinning in white oak stands, effect of stand structure on growth of white oak stands, and intensity of pine release from competing vegetation.

Major research accomplishments and impacts on management: Extensive research on regeneration, thinning and growth of White Oak and other hardwood species has been done on the SEF.

Collaborators: No currently active studies.

Research opportunities: Many studies were carried out at the forest beginning in the early 1940 and lasting though the late 1970s and could be valuable if re-established. The KEF could also provide research tours for the station, demonstration sites for the national forest and for state foresters. There is also an excellent opportunity to develop several economical studies to examine underplanting and root development.

Facilities, contact address, website address, location: Forest Service facilities include a field office, garage and a pole barn. Historically significant buildings include small stone building and a springhouse and mill site foundation.

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