ECOLOGY

Native Plants Feel Drought

Tree Leaves Small; Wildflower Blossoming Forced; "Crop Failure" Looms for Some Wild Plants

DROUGHT is taking its toll of wild plants as well as of cultivated crops, but on the whole it is hurting the wild plants less. This is true whether the plants are native grasses, other herbs, or trees. Their longer roots reach to lower soil levels where there is still available moisture, and thus they survive while the shorter-rooted introduced crop plants, which are less well adapted, perish.

This is the consensus of telegraphic reports obtained by Science Service from half-a-dozen well-known botanists occupying strategic points in the prairie region of the Midwest. There the drought is now reaching its most critical stage, after burning out the small grains and pastures in the Dakotas and other Great Plains farming regions to the west. Present drought conditions were ascertained in Oklahoma, Nebraska, Iowa, Minnesota, Illinois and Ohio.

The greater drought-resisting powers of native plants may be of considerable practical interest in future agricultural planning for drought-liable regions, particularly in view of Secretary of Agriculture Wallace's repeated recommendation that excess grain acreage should be put into permanent grass. Especial point is given by the fact that where grasses have been drought-killed, the introduced shorter-rooted species have always perished first, while the deep-rooted native plants survive.

Native trees in the drought area also have been able to "take it" with greater endurance than have planted trees in groves and along streets. Some of the latter have died, but relatively few native trees have been killed, and those only in the more exposed places. Even native trees, however, are not escaping unscathed. In general, their leaves are smaller and scantier this year than normal.

Early spring flowers in the woods had their blossoming season forced, rushing through flowering and seed production from two to three weeks ahead of their usual dates. Many plants of later spring and early summer have suffered an apparent "crop failure": they have been dwarfed and are impoverished-looking, and have either failed to blossom or to produce seed. Some of the shallower-rooted wayside weeds are already dead.

Underground, the available moisture which serves plants for life and growth is slowly ebbing to deeper and deeper levels, as the desperate roots suck the last drops out of the upper soil. When the level of available moisture sinks beneath the deepest root-point of any given plant, that plant is doomed. In drought, the survival of the fittest means, to a very large extent, the survival of the deepest-rooted.

Nebraska: Roots Determine

The moisture-bankruptcy of the soil is, of course, very unevenly distributed. In general, however, it is most severe where the midwestern prairies merge upon the Great Plains, becoming less menacing toward the eastern prairie borders.

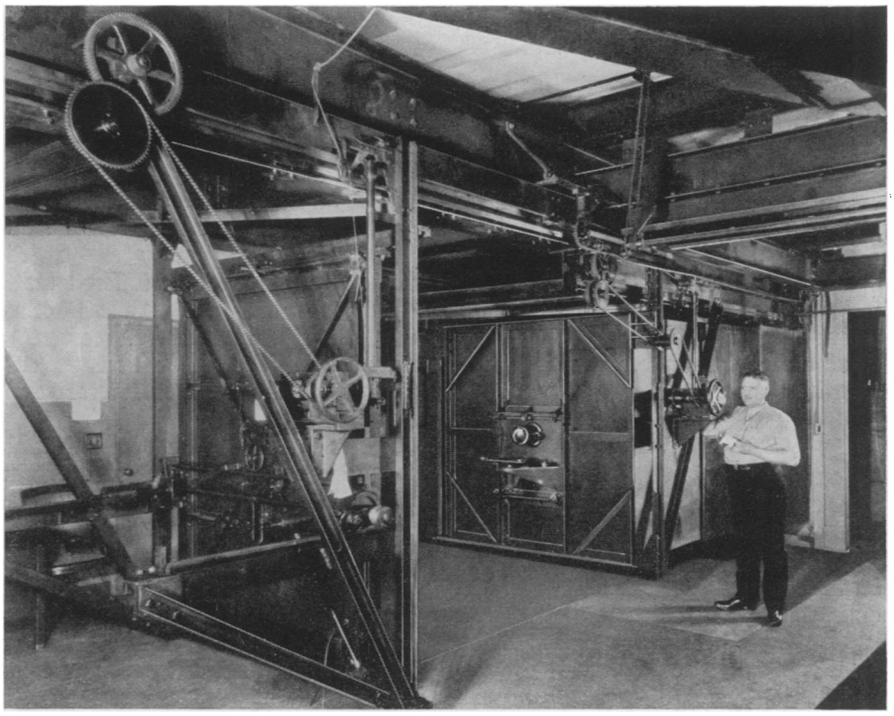
Native prairie grasses with roots four to ten feet deep have withstood continuous drought from April until the present time, Prof. J. E. Weaver, Lawrence Stoddart and William Noll, of the University of Nebraska, report.

Now, however, folded and rolled leaves are appearing on these grasses, in upland habitats.

Other prairie plants are showing the effects of the drought largely in proportion to the length of their roots. A shallow-rooted species of "everlasting," or "ladies' tobacco," is completely dried. Contrasted with this are a wild rose and two other prairie plant species with roots twelve to twenty feet deep, which are quite unharmed.

Another striking contrast appears between two sister species of the brilliant-flowered plant known as the blazing star. One, with taproots boring into the soil for seventeen feet, is still thriving; its relative, with shallow roots, is wilted and dying.

Available water in the soil has decreased markedly in the last two months.



GIANT CAMERA

This structure, not unlike a railway trestle, is a camera capable of great precision allowing the Coast and Geodetic Survey to reproduce chart revisions so accurately that they fit precisely into place on the chart of a survey. The plate-holding end is made into a darkroom so that the huge negatives can be exposed and developed without plateholders.