



# Cactus Invasion; Can We Stop It?

By A. L. Brown

Invasion of grassland by woody plants has become one of the greatest obstacles to proper grazing-land management. Some of the worst offenders in the southern Arizona grasslands are certain species of cacti.

In 1937 a 12,000,000-acre survey of southeastern Arizona showed that more than 2,000,000 acres were infested with cacti. Much of this land had been invaded since the turn of the century. This invasion, which started on the drier, poorer sites, is still going on, and has moved into more highly productive rangelands. In at least one instance, accurate vegetative maps have shown that cacti have spread a distance of five miles or more in thirty-five years. Repeated photographs (see above) show a remarkable increase in cactus density over periods of time.

As the cactus invasion continues, grasses decrease in number and productivity and land values drop. Cactus invasion has the same effect on grasses as increasing the number of cattle on an area already stocked to capacity. The cactus protects part of the land from grazing, thus confining the cattle to a smaller area, which becomes over-used.

## Cholla and Prickly Pears

The two principal invaders are chollas and prickly pears. The chollas are best adapted to elevations below 3,800 feet — the lower, drier ranges. Prickly pear is common on these poorer sites also, but is more impor-

tant as an invader of the higher, more productive grassland.

Control of these species is particularly difficult because of their method of propagation and spread. If the stem joints are broken off, they drop to the ground and take root, forming another plant. They may become attached to the bodies of grazing animals and be carried to a distant spot before being dislodged.

Because of this vegetative spread, and the prolific sprouting of de-topped plants, cutting or grubbing is unsuccessful unless all joints are gathered and the entire plant disposed of.

Protection from grazing as a control measure has been tried on the theory that cattle spread the joints, and that plants become established more easily where the grass cover has been depleted by heavy grazing. This treatment was proved to be ineffective when, after eighteen years of non-grazing, prickly pear had increased several hundred percent.

Broadcast burning has been fairly effective in reducing the number of cholla plants, provided there is enough grass to carry a fire. Kills ranging from 30 percent to nearly 100 percent have been obtained by burning prior to the summer rains. Neither broadcast burning nor hand burning has given satisfactory kills of prickly pear.

Hand burning with a gasoline torch followed by close grazing has given satisfactory control of cholla. When the spines are gone, livestock take both cholla and prickly pear avidly,

▲ These photographs, taken from the same spot in 1934 (left) and 1947 (right), show the increase of cholla cactus in 13 years. Can we stop this invasion of our rangelands? Photos by U. S. Forest Service.

particularly during the dry spring months when grass forage is at a low nutritive level. Cacti, however, are low in protein, and a supplement should be used to maintain a desirable nutritive balance.

Selective herbicides appear to offer the best possibilities in controlling both cholla and prickly pear. Although this work is still in an early stage, plants sprayed with a 2,4,5-T ester appear to have been killed. Hand spraying to thoroughly wet all parts of the plant with a 2 to 4 percent solution of 2,4,5-T ester in a 4-water : 1-diesel oil emulsion gave the best results.

Other forms of 2,4,5-T were unsatisfactory, as were all forms of 2,4-D. Unfortunately, these results cannot be duplicated with a boom-type power sprayer except at extremely high volumes of fluid and/or per-acre rates of 2,4,5-T.

## Invasion Continues

The cactus invasion continues, and control methods are not yet sufficient to eradicate the pest entirely. However, the spread of the plants into good rangeland can be prevented. Grubbing or spraying of isolated plants and hand or broadcast burning of the fringe areas will slow down the movement. If care is taken to see that cattle don't carry joints from infested areas onto "clean" range, the invasion can be slowed until effective control methods are developed.

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