

# A Southwestern Rancher's Viewpoint of Shrub Control<sup>1</sup>

FRANK S. BOICE

*Empire Ranch, Sonoita, Arizona*

I AM greatly honored to be asked to address this eighth annual meeting of the American Society of Range Management and I am very happy indeed over the subject suggested. At home I am considered somewhat of a nut on the subject of shrub control and I don't object in the least. On the contrary I wish there were many, many more people, both stockmen and technicians, who understand the desperate urgency of the problem and were, therefore, considered just a little bit cracked on the subject. The problem of controlling the spread of brush exists, in one form or another and in varying degrees of development, wherever livestock are grazed and, so far as I know, there is no method of control in use anywhere that is effective enough, inexpensive enough or fast enough to adequately meet the issue.

It is for this reason that I am glad to talk to this group, made up as it is of both stockmen and technicians. For it seems to me that we, as members of a voluntary society dedicated to the development and improvement of range

management, must spearhead the drive that needs to be made to find the answers. As stockmen working alone we are almost helpless. To be sure, we can swing a maddock without technical advice, but the maddock is certainly not a complete answer. And the researcher working alone is, I fear, too apt to be complacent, too apt to be led into interesting but unproductive channels, too apt to forget the economic and the practical aspects of the problem. But working together, consulting back and forth, arguing the wisdom of different lines of research; in short, working together as a team, the technician and the stockman can find the answers before it is too late. This American Society of Range Management is that kind of team and I am glad to be a member.

For a little over 25 years the Empire Ranch in southern Arizona has been my home. The ranch is in a perennial grass country at an elevation of 4500 feet. It is a beautiful country with rolling hills covered with grass and completely surrounded by mountains; it is also a very productive country. There is only one serious menace to its continued beauty and productivity. It is being invaded by mesquite.

The mesquite has come up the valleys from the desert to the north, it has followed up the smaller valleys and is spreading out over the ridges in every direction. This invasion started slowly about 75 years ago but as it developed it has gained momentum until now, anyone with any knowledge of grazing lands can see both the effect of the invasion and its menace. Perennial grasses are being replaced by weeds, annual grasses and brush of low forage value, erosion is being accelerated and the productivity of the area is going down.

On the Empire Ranch we plan to do some mesquite control work each year; and in following this plan it was decided in 1954 to clear a pasture of about 300 acres which was close to headquarters. About six years ago this pasture had been fenced out of a larger pasture containing plenty of mature seed-bearing mesquite trees. A casual look at this little pasture revealed a few scattered mesquites showing above the grass on the ridges with a thicker stand of older trees in the draws. This did not look like a very big clearing job but much to our surprise we grubbed out or treated with diesel oil approximately 7,000 mesquite plants—over 20 plants to the acre. Try to picture that pasture as it would have been 25 years from now if it had not been treated. The picture I see is a distressing and an alarming one; mesquite thick enough and tall enough to make the

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handling of cattle difficult and the carrying capacity down, away down. This pasture would not have been destroyed in 25 years or even, perhaps, in 50 years but as surely as night follows day it would ultimately have been destroyed.

The condition which exists on and around the Empire Ranch is duplicated in many, many areas of the Southwest. Millions of acres of good grazing land are gradually being taken over by mesquite. But mesquite is by no means the only shrub which causes concern. Only a few hundred miles to the north we find juniper doing the same things to our grazing lands that mesquite is doing in my neighborhood. It is spreading rapidly into clean areas and as the stands of juniper become denser the perennial grasses disappear and serious erosion takes over. If I were ranching in a juniper country I would be just as concerned about the future as I am now with my mesquite.

Wherever I have gone in the western part of this country I have found a shrub invasion problem. Species of shrubs differ, rapidity of spread and degrees of infestation differ but the end result, lacking effective control methods, is always the same. Shrub control on our grazing lands is a staggering problem for all of us; and for those engaged in research it is a challenge and an opportunity.

I wish it were possible to put a value on the loss that has already taken place because of the encroachment of brush on our grazing lands. Longtime records of the Forest Service indicate a sharp decrease in permitted numbers where the invasion of brush is a factor and long established ranches with a well-advanced brush problem show the same downward trend in carrying capacity. But these records are not very helpful. More conservative use of the range has been the order of the day for many years now and it is impossible to determine what part of the reduction is

due to the inroads of brush and what is due to the more conservative estimate of the true grazing capacity.

We do, however, have a startling indication of the economic importance of brush control in the records of the Salt River Valley Waterusers' Association in Phoenix, Arizona. Records of run-off from the Roosevelt watershed go back to 1889 and of rainfall over the watershed to 1900. Annual rainfall, averaged by decades, has been consistently above twenty inches. In the decade 1900-1909, 11.4% of the rainfall on the watershed appeared as run-off in the streams; in the decade 1940-1949, this percentage had dropped to 8.4. That is an average annual decrease in run-off over a fifty-year period of 375,000 acre feet based on 20-inch rainfall. With agricultural land under the project valued at above \$800 per acre it isn't hard to estimate the very great economic loss that has resulted. An examination of the watershed reveals what has happened. Of the 7.5 million acres above the dams of the project, 2.5 million acres are infested with juniper; and in addition there are large areas growing scrub oak, manzanita, pinon and jack pine. It hasn't always been that way. Those who have long been familiar with the watershed agree that the big increase in brush has come within the memory of man. There seems to be no other explanation of the decrease in run-off from this watershed except that in the past the water went down the streams and now it is used up in the production of unpalatable brush.

Many ranchers are struggling with shrub control but it is disheartening work; able to work at it, willing to work at it but always knowing full well while working that with the methods of control at hand we can't win the struggle. As I look back it seems to me that too much time and effort has been lost trying to find out why this invasion of our

grazing lands by brush is taking place; trying, perhaps, to find a culprit at whom we can point a finger and say: You are responsible! For me it is sufficient to say that the invasion of our grazing lands by brush began with use of the land for grazing and that abuse of the land accelerated the process but was not the primary cause. But having accepted this statement as reasonable or having found a culprit at whom we can point a finger, the hard fact remains that we must either find economically feasible methods of controlling brush or reconcile ourselves to the loss of vast areas of valuable grazing land.

I have one rather serious quarrel with my fellow stockmen who are faced with a brush problem. They seem to believe in miracles, at least in this field. They seem to think that something will happen to stop the invasion of brush, that the perfect method, the painless, inexpensive method will soon be developed and that we will then be able to get rid of the brush problem forever. That attitude is, I think, a mistake. It seems to me that the problem is too pressing to wait, that waiting only adds to the magnitude of the problem and makes restoration and control much more difficult for the future. I realize, as you do, that present control methods are very inadequate but let's use them, beginning now, until something better comes along. Let us, each year, put a part of the earnings of the ranch into controlling brush. We won't seriously miss the money now and such work will pay handsomely in the future. We have a saying on the Empire that goes like this: "No day on this ranch is completely lost if we kill a few mesquite." I commend that to you ranchers. And to you who are engaged in research—look around you to see what is happening, think about the enormous values involved, get the feeling of urgency that is so clearly indicated and hurry, hurry, hurry—the time, perhaps, is later than you think.