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Participatory development of bush control techniques to improve rangelands and food security in Borana, Ethiopia

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Abstract

Bush encroachment is a major problem in the Borana rangelands, leading to suppression of the herbaceous biomass, and thus affecting livestock productivity and food security of pastoralists. One activity of the NRM-Borana project, implemented by a consortium of NGOs led by Helvetas, was to identify grazing areas for rehabilitation. Within this framework, a participatory research project (PAR) was undertaken by YPDARC and BFH-HAFL, to develop and test jointly with the local community innovative and effective methods to control bush encroachment.

In the areas selected for improvement, experimental sites of 6 to 12 ha were delimited. Different treatments were applied during dry season: Thinning plus base burning, thinning plus debarking plus burning, stand base burning plus not thinning, and enclosure plus no thinning (control). Data collection was conducted on 20*20 m sampling plots. The number of dead bushes was recorded at end of rainy season following the treatments. Herbaceous cover, composition and diversity were sampled from 0.5* 0.5 m quadrats in each corner and at the centre of the sampling plots. A participatory evaluation was conducted, collecting community perception through individual interviews and focus group discussions.

The two treatments including base burning (with or without thinning) were the most effective, killing over 90 % of the bushes, while the thinning plus debarking treatment killed 30 % of the bushes. Stand base burning was more effective on ground branched bush species such as: *Senegalia mellifera*, and *Vachellia drepanolobium*. Thinning the bushes had a positive effect on herbaceous basal cover and biomass production.

Thinning plus base burning was found to be very effective by communities in killing encroachers and regenerating grass cover, but more labour intensive than stand base burning alone. The thinning plus debarking technique was the least preferred because it was not effective in killing bushes and the workload was higher. The strong involvement of the beneficiaries into the problem identification, trial design, implementation and monitoring/evaluation were considered as success factors by the communities and the researchers. The inclusion of traditional knowledge led to effective and successful co-development of new techniques for bush control in Borana Lowlands.

Keywords: Bush encroachment, Ethiopia, invasive woody weeds, rangeland rehabilitation