



Crested porcupine (*Hystrix cristata L.*)

**Local knowledge and collective action catalyzed by by-laws and mass mobilization can substantially improve livelihoods through reduced crop loss, reduced labor burden and improved health.**

## Mobilizing Collective Action for Vertebrate Pest Control: The Case of Porcupine in Areka

**D**uring the watershed exploration in Areka, southern Ethiopia, porcupine was identified as a priority “watershed” problem. In addition to affecting crop yield, it effects household income through labor allocated to police the fields at night and health problems stemming from sleep deprivation and exposure to extreme weather. Despite the wealth of local knowledge and techniques on porcupine control, farmers had been unable to control the pest due to the tendency to conceal this knowledge from one another and the large range of porcupine movement (with high levels of cross-contamination from adjacent farms and villages). This problem clearly demanded an approach grounded in both local knowledge and collective action.

### Mobilizing Collective Action in Porcupine Control

The approach used to address this problem consisted of two main elements—local knowledge and collective action, as follows:

1. Participatory watershed diagnosis to prioritize problems for intervention.
2. Empirical research on local methods for porcupine control.
3. Review of legislation to identify any

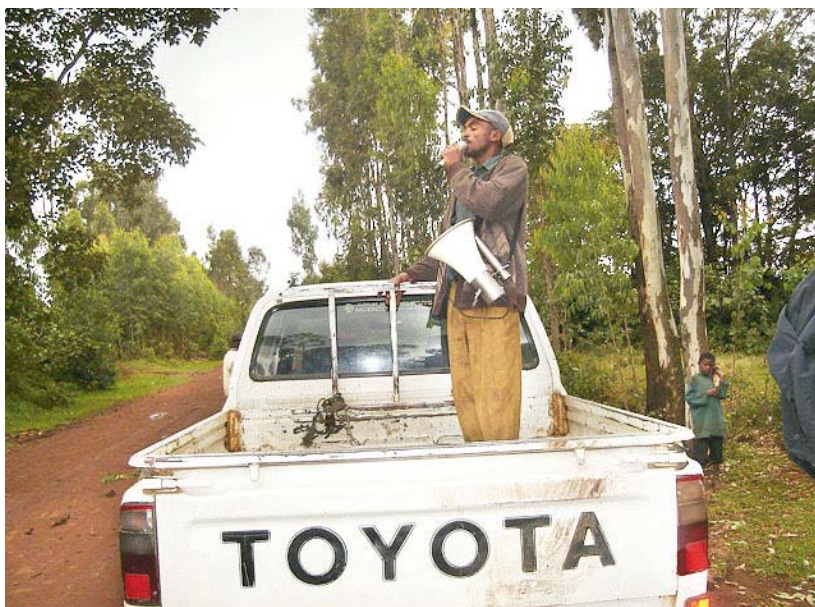


Plate 1. Mobilizing farmers for collective action in porcupine control using megaphones to announce the task ahead and to motivate farmers using traditional music.

4. Identify successful forms of collective action for mass mobilization (Development Units consisting of 25–30 households) and the area over which control must be carried out (extending beyond the watershed to an additional 3 Peasant Associations).
5. Train Development Unit leaders on the application of different control methods.
6. Develop and ensure endorsement of by-laws to govern collective contributions to porcupine control.
7. Task DUs with mobilizing collective action (including announcements with megaphones mounted on vehicles (Plate 1) and on foot, as well as using traditional horns).
8. Set development days to control porcupine (1 to 2 days/week by DU depending on severity of the problem).
9. Mass mobilization on the specified days.

**Table 1. Methods Applied by Niche and their Effectiveness**

METHOD OF CONTROL	NICHE WHERE APPLIED	NO. PORCUPINE KILLED/TRAPPED
Method 1—Rodenticide alone	In graveyards	197
Method 2—Circular ditch + rodenticide	Porcupine burrows located near graveyards	126
Method 3—3m hole at the outlet of porcupine burrows	All porcupine burrows located away from graveyards	88
Method 4—1.5m hole at the outlet of porcupine burrow + rodenticide	All porcupine burrows located away from graveyards	455
Method 5—Wire-body trap	At outlet of porcupine burrows	92

**Outcomes and Impacts**

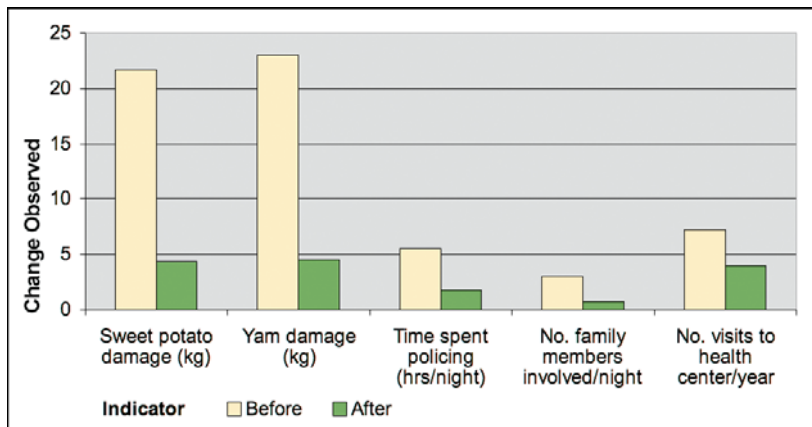
Four traditional methods for porcupine control were identified: wire body trap, circular ditches around graveyards and deep digging at the outlet of porcupine burrows (Plate 2). These were developed into different treatments to test their effectiveness relative to, and in combination with, chemical control methods. Rodenticide was tested as a means to reduce the labor associated with deep digging and as a means to avoid digging in graveyards (Table 1).

Different control methods were found to be effective for different reasons. Shallow holes dug at the outlet of the porcupine burrow combined with rodenticide were the most effective control method in terms of numbers of porcupine caught or killed (Table 1) and measured changes in local performance indicators. However, farmers



*Plate 2. Effective traditional control method involving deep digging to 3m at the outlet of the porcupine cave. The digging depth may be reduced if rodenticide is used.*

following intervention, while frequency of visits to health clinics from weather-related illness also declined. Yet one of the most important successes in the minds of farmers was the reduction in efforts required to police fields at night. The high levels of farmer enthusiasm for these outcomes may



*Figure 1. Observed Impacts from Collective Action in Porcupine Control*

are generally reluctant to use chemical control methods due to cost. In the absence of rodenticide, deep digging and wire traps may be used.

The most marked livelihood impacts for farmers were due to reduced crop damage, improved health and labor savings (Figure 1). Levels of crop damage reduced by 80%

be summarized by farmer testimonies. While eating breakfast with one family, our host stated, “If there is porcupine infestation in our village, we can’t share this breakfast with you. The porcupine would have finished it.” As stated by another farmer, “Observing our problem, God brought you to us.”

**Conclusions**

The combination of local knowledge, scientific knowledge and collective action can catalyze highly successful solutions to otherwise intractable NRM problems.

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