Romanian livestock raisers the financial damage is relatively severe. From our survey resulted that the person responsible for the organization of a camp has an average income of 106,6 US$ per month. The main costs in a shepherd camp are the salary (52US $/month) and the food (56US$/shepherd/month) for the shepherds, and the food for the shepherd dogs (5,6US$/dog/month). We calculated that in 1998 and 1999 in our study area the economic damage due to the depredation of livestock of animals made out round 80,6% of the total income of the person responsible of the organization of the camp and 12% of the whole expenses of the shepherd camp. In 2000 that damage was smaller, 24,8% of the salary of the responsible for the shepherd camp and 3% of the total expenses of the camp. It is unknown how much of the damage the shepherds have actually to come up for.

Livestock protection methods in Romania are still quite well preserved, with dogs and shepherds always guarding the flock and the sheep being penned at night. However, several kinds of problems make so that guarding is not always done optimally:

1. The livestock guarding dogs are not actively trained. As soon as they are big enough, the pups are put in the flock together with the adult dogs and they are supposed to learn from the other dogs how to guard the sheep. But in winter, when the flocks are broken up and the animals are dispersed to the different owners, the dogs stay with their owners (mostly the shepherds), without the flock. Like this, the dogs are socialized with the sheep to a certain point, but they are also very referred to the owners and are not actually really trained to protect the sheep. Thus, many dogs do not learn basic rules such as never to leave the flock unattended. Also, the dogs are fed only boiled corn flour and whey and so they often leave the flock to go to look for additional food.

2. The salaries and the food for the shepherds and the rent of the pasture are expensive compared with the incomes from livestock raising. That is why often not enough shepherds are present to guard the sheep and, as the rented pasture is often not enough, the sheep are kept in the forest, being more exposed to attacks of predators. In Romania public economic support for livestock raisers is insignificant. A compensation system is not recommendable as public capital is not available. Furthermore, livestock raisers are still independent in coping with large carnivore population, whereas with a compensation system the protection methods risk to degenerate, and the farmers, relying too much on the system, would probably to become financially too dependent from the state. Rather, we are testing (1) the use of an insurance for the livestock and (2) the creation of a local Community Development Fund, funded with revenues from eco-tourism, donations, and grants to co-fund livestock protection methods.

References:

Mertens A. and C. Promberger. Economic aspects of large carnivore-livestock conflicts in Romania. Submitted to *Ursus*.

Electrical fences against large predators

by
Maria Levin
maria.levin@nvb.slu.se

Electrical fences effectively prevent attacks from large predators on domestic livestock. This experience has been made in Sweden, where the populations of wolves, bears and European lynx have increased considerably during the past ten years.

In a study in 1997 the Wildlife Damage Center at Grimsö Research Station in Sweden tested the impact of electrical fences on bears feeding on honey from beehives. Since honey is extremely attractive to bears, beehives in areas where bears are expanding are exposed to damage which causes serious practical and economical problems. The large study area contained both fenced beehives (behind varying numbers of threads), and control grounds (without fences). The bears did not get inside any of the fenced areas, but found and destroyed all beehives at the control grounds. The bears evidently had made large efforts to try to get inside the fences, e. g. severe digmarks in the soil outside, as well as torn shrubs and trees. The conclusion of the study was that electrical fences seem to be both economically and practically applicable to most conditions in Sweden.

The so called "predator-proof fences" recommended by the Wildlife Damage Center consist of four or five plain (not twisted) galvanized wires with a diameter between 1.6 and 2.5 mm. They should be of the type “High Tensile” that can take some pressure from the outside without breaking and also be long lasting. Since the experience on both wolf, lynx and bear so far is that they seem to crawl or dig themselves into enclosures the wires should be

distributed accordingly, at heights of 20, 40, 60, 90 (and 120) cm from the ground. The space between the stakes can differ, but is usually set at 4-5 m. In corners and "breaking points" in the fence, the stakes should be strong and sturdy (like old telephone poles) to secure that the wires are stretched properly. The stakes in between can be of a lighter material like plastic, fibreglass or eucalyptus. There are also springs available that allow a longer distance between the stakes when the ground is fairly even.

The voltage in the wires should be at least 5000 V, so it is important to get a unit (aggregate) that has strong enough capacity (today most of the units on the markets can make it without problems). A good unit is able to provide enough energy for a fence of 10-20 km that covers an area of about 500-2000 ha. The unit should preferably be mains-operated, this is both economically and practically beneficial. If the fences are mounted far from electricity, batteries or solar cells can be used. The pastures in Sweden are not so large; the largest electrical fence to our knowing covers 40 ha.

An estimated cost covering both wires, stakes, aggregate, etc, is 15 SEK ($1.48) per meter. There are many trademarks, some more exclusive than others, but it is not always necessary to get the most expensive. The cost will naturally increase with more difficult terrain.

It is very important to fence the area properly and not leave natural borders (i. e. rivers, ditches or shores) without fence. Sheep don´t go in the water, but predators do and we have actually had observations of lynx crossing rivers on their own initiative! It is also important to avoid trees and large rocks in absolute contact with the fence; they can be used as simple "steps" into the enclosure. The fences do require recurrent management such as keeping growing vegetation away from the wires; but if maintained properly they last for 10-20 years (depending on what material one use). Electrical fences can fundamentally be mounted anywhere, although mounting and managing is easier on flat lands than in mountainous areas. The problem is more a question of maintaining the fence (which can take a fair amount of time) than if the unit is able to keep the voltage. Also, ungulates on the outside of the fence can cause problems running into it. There are, however, solutions available in different kinds of springs and bendable stakes.

The Wildlife Damage Center oppose electrical nets of all kinds since they are expensive, don´t last for long and also are risky for animals inside as well as outside the fence. They can, nevertheless, be a temporary solution after a "first time attack", to prevent further damage that same season.

In Sweden animal keepers can be subsidized by the county administrative boards when buying a predator-proof fence. So far they have been very effective all over the country. There has not been any attack from either wolf or bear on domestic animals inside a well-functioning electrical fence of this type. European lynx has also successfully been kept outside, but there is a need for more detailed studies on lynx and electrical fences, since there is no documentation on whether they would jump between or on top of the wires or not. The Wildlife Damage Center plan to perform such a study in 2001.

This article is not complete regarding electrical fences. Salesmen in the fence trade offer a lot of different solutions to various problems that may arise. Contact your local salesman or take a look at the Internet for more detailed information. The Wildlife Damage Center has written recommendations that are distributed to authorities and private people.

www.viltskadecenter.com

Donkeys protecting livestock in Namibia

by
Laurie Marker
cheeta@iafrica.com.na

Namibia, an arid country in southern Africa, is home to the largest remaining population of free-ranging cheetahs (± 2,500 animals or 20% of the world's cheetah population). Due to conflict with larger predators in protected game reserves, over 90% of Namibia's cheetahs are found outside protected reserves on open range commercial livestock farms where cattle, goats and sheep are raised. Over 80% of the countries agriculture income comes from the cattle farming industry. Cattle are managed in an open range system on farms that average in size of 10,000 hectares. In addition to livestock, over 70% of Namibia's large mammal species are found on these livestock farmlands thus providing an adequate prey base for cheetahs. However, cheetahs have been considered vermin and killed in high numbers. Between 1980 and 1991, CITES (1992) reported nearly 7,000 cheetahs removed from these farmlands by Namibian farmers, thus halving this cheetah