## Experiences of 10 Years of Damage Prevention for Brown Bears in Austria by

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In 1971 Carinthia, the southernmost province of Austria bordering to Slovenia and Italy, started a compensation for damages caused by bears. A part of the income from the hunting licenses of the 11,000 hunters of the province is used for an insurance, idea an handling by the carinthian hunting association. The same for lynx, but very few lynxobservations were made last years. Meanwhile this system was adopted to more or less all bear areas of Austria. In all the 30 years and especially the last 10 years many ideas for damage prevention were collected and tried in the field.

In Austria we have 4 main damage types caused by bears: sheep, beehives, vegetable oil for chain saws and feeding sites for row deer and red deer. The last point, like damage on wildlife in general, is not accepted by the insurance but therefor causes even bigger problems in the central Austrian bear range. In summer most hunters do not feed the deer, some even do it over the whole year. Anyhow, even if they do not feed in summer, they will store hundreds of kilos of high energy food (pellets, wheat, corn...) under the roof of the wooden feeding house. This, of course, attracts bears and they can also easily open this houses. In that case the damage at the house is more critical than the loss of deer-food. In the feeding season not much can be done to prevent this damage because an electric fence will also keep off the deer. In summer the food could be cleared away or the house be fenced, and hunters could switch to for bears less attractive food. None of this methods are really accepted by hunters or show a real success.

Since several years we use only vegetable oil for chain saws in Austria. The oil is an attractive energy source and this was found out by bears very fast. We advised the foresters not to leave chain saws and oil canisters unattended in the forest but store it with a rope on a tree or to take the equipment with them when leaving. This showed some success. In general the damage on the equipment is of course much higher than the loss of oil, in one case a road-roller on a forest road was heavily damaged because it had vegetable oil in the hydraulic system. We tried a lot of chemical admixtures to the oil with zoo-bears, but none showed any effects, at least with a realistic concentration. With beehive damage prevention is relatively easy. Electric fences show good results. You have to use at least two cables one upon the other to prevent the bear from crawling under or walking over the fence. Still you have to put the cost for the electric fence together with the solar power supply in relation to the protected beehives. This measures are useful for concentrated bee-keeping with a real income for the owner. But if you have thousands of small bee-keepers, "grandfathers" that are beekeepers to supply their families with honey, like we have in our province, it is probably much cheaper to pay the damages than to try to prevent them.

In many years our major problem with bears is the killing of sheep. As a matter of fact we found no practicable prevention. In our area many sheep are set free in late spring and collected in autumn. There are no shepherds nor dogs, no fences and in many cases the sheep even live within the forest. Under this circumstances we can be glad that we loose only 10 sheep per year in average with a maximum of 50 sheep to our approximately 10 bears in southern Austria. In central Austria the situation is quite similar. The farmers are not willing and in many cases not able to fence the sheep areas and the income from this sheep would not be enough to pay for a shepherd, if one could be found at all. Leaving one dead sheep for the bear instead to clear away can reduce the number of killed sheep because the bear can feed on the carcass another night instead of killing the next. With sheep there are probably also ways to improve the compensation. At the moment we pay the same price for such a sheep the farmer could get on the market within about 8 weeks. We think that it will be more accepted and faster if we have a special subsidized flock of sheep where any farmer with a verified damage can take a sheep with him right away.

In general I think we should all look for new ways in the field of damage prevention and compensation. On the long term we could offer money to farmers that want to invest in prevention measures or change the way they keep their livestock. As a second step we could slowly decrease the percentage of compensation for those who did not set any prevention measures. By this means we might be able to reach a gentle pressure for the farmers to adapt to coexistence with bears and in general with big predators again.