A LARGE CARNIVORE INITIATIVE FOR EUROPE

Carnivore Damage Prevention News

No 4 / October 2001

Notes from the Editors

This issue of the CDP*News* covers a keynote article by Rodney Jackson, Darla Hillard and Rinchen Wangchuk. The authors widen the angle of carnivore damage prevention into questions of human dimension and public involvement – aspects that we all feel to be of fundamental importance and that we all need to incorporate in our work. And thoughts of comprehension that we all feel are more important in these days than ever before.

We furthermore make a proposal for a carnivore damage prevention statistics and give an example for lynx damages in Switzerland. This topic has been discussed within the LCIE for quite a while, and we feel that we now need to have a feedback from the readers of the CDP*News*. It is clear to us that such a statistics can only be implemented if everybody participates in the supply of data. Please think about our suggestions and let us know your opinion!

Besides the rubrics that we already had in the earlier issues of the CDP*News* such as meetings of interest or damage prevention websites, we have added two more headings: *Market place* and *Coming topics*. Under market place, we want to circulate information on where to purchase materials we need. It is sometimes very time-consuming to find a certain distributor, and you can be sure that somebody has solved this problem earlier. Please make use of the "*Market place*" and do not forget to share your secrets with your colleagues in the CDP*News*.

The articles of non-native English speaking authors in this issue may be somewhat less elegant in regard to the language than usual. John Linnell, the linguistic conscience of the CDP*News* is at the moment horseback riding in Montana. The rest of the editorial team wishes him well and hopes that the horses in Montana do not need new damage prevention measures by now…

The Editors:
Christof Angst, ch.angst@kora.ch
Jean-Marc Landry, landry@vtx.ch
John Linnell, john.linnell@ninatrd.ninaniku.no
Urs Breitenmoser, Breitenmoser@ivv.unibe.ch

Contents

Encouraging Local Participation in Efforts to Reduce Livestock Depredation by Snow Leopard and Wolf in Ladakh, India

by
Rodney Jackson, rodjackson@mountain.org
Darla Hillard;
Rinchen Wangchuk, rinchen@nda.vsnl.net.in

Introduction

Livestock and crop damage by wildlife is rapidly emerging as a leading cause of conflict between local communities, protected areas and park managers across the Himalaya (Kharel 1997, Mishra 1997). In a comprehensive survey of 79 households in 15 settlements of Hemis National Park (Ladakh, India), at least half of the households lost 1-12 % of their domestic stock to predators over a 14-month period—a total of 492 animals valued at USD $ 23,500. Snow leopard (Uncia uncia) and wolf (Canis lupus) were associated with 58 % and 32 % of presumed depredation incidents respectively, with sheep and goats constituting 81 % of the stock lost, followed by yak-cattle (12 %) and horses (4 %) (Bhatnagar et al. 1999; Jackson and Wangchuk, 2001). Nearly half of all losses resulted when a snow leopard entered a poorly constructed night corral and killed the confined animals. Yet these losses occurred in just 29 of the total depredation incidents (219) tallied. Furthermore, three settlements (31 households) incurred 54 % of all depredation losses. The primary root causes for depredation were lack of adequate daytime guarding and nighttime housing of livestock in corrals which had not been predator-proofed.

In 1996, the wildlife department implemented a compensation scheme in response to increasing complaints from local herders, but by 2000 this programme was consuming almost 60 % of the department's annual operating budget. Claims took as much as two years to settle, and would often return less than 30 % of the animals' estimated market value. Not surprisingly, relations between local people and the park authority plummeted, with retaliatory killing constituting an emerging threat to both snow leopard and wolf.

Since local livelihoods are intimately bound with long-standing patterns of agro-pastoralism, relocation of people or the exclusion of livestock from Hemis National Park is not a feasible solution (Jackson and Wangchuk 2001). Rather, local people's willingness to co-exist with predators hinges on reducing depredation to an acceptable level, while also improving incomes to help offset unavoidable losses of livestock. This paper describes our approach for involving local people in finding alternative solutions for reducing loss of livestock. It is based on the precept that remedial measures are far more likely to succeed if local communities are involved from inception in planning and decision-making.

Engaging Local Communities

Since natural resource management has traditionally been the responsibility of governmental agencies, why should we encourage participation by local people? There is a rapidly expanding literature on the role of local communities in protected areas management and endangered species conservation indicating that multiple benefits accrue to both parties (e. g., Stolton and Dudley 1999; Borrini-Feyerabend 1996; Sanjayan et al. 1997; Wells and Brandon 1992; Western and Wright 1994). Further, it is increasingly apparent that community involvement is essential if effective remedial measures, policies and strategies are to be formulated for resolving people-wildlife conflicts in or near protected areas. Box 1 lists some benefits of such collaboration.

Box 1: Some Benefits of Local Participation in Collaborative Management & Conservation-Development Initiatives

- Empowers communities
- Builds local institutional capacity
- Cost-effective and efficient for government and natural resource managers
- Promotes gender equity, social equity, and social justice
- Better ensures long-term sustainability of rural communities

Table 1 describes levels of participation from "passive," in which the community has no opportunity to affect outcomes, to "self-mobilization," in which people take positive action on their own. Increasingly, planners are recognizing the benefits of the "bottom-up" approach to project design and implementation (Stolton and Dudley 1999; Western and Wright 1994).

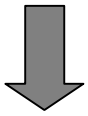
The Snow Leopard Conservancy's (SLC) Ladakh Stewardship Program engages local people using a bottom-up process, known as *Appreciative Participatory Planning and Action* (*APPA*) (The Mountain Institute, 2000). *APPA* combines concepts from *Appreciative Inquiry* (used in business leadership training), along with traditional *Participatory Rural Appraisal* (*PRA*) and the accompanying activities in *Participatory Learning and Action* (*PLA*) (Pretty et al. 1995).

Through the innovative engagement approach of *APPA*, local communities (1) take a leadership role; (2) focus on their opportunities rather than problems—the *glass half-full* point of view; and (3) build on past community successes rather than failures. This leads to better self-confidence, community pride and self-reliance instead of continued dependency (Jackson, In Press). *APPA* relies on two simple but highly complimentary premises. Firstly, what one seeks is what one will most likely find—"*if you look for problems, then you will find more problems."* Conversely, "*if you look for success, then you will find more successes."* Secondly, what a person or community believes in is what matters most—"*if you have faith in your vision or ideas for the future, and if these are believable, then you'll be able to achieve success without waiting for an outside agent to get you there."*

Table 1: Scales of Community Participation and the Continuum toward Greater Self-reliance (adapted from Pretty 1994).

- Increased potential for disagreement or conflict among stakeholder groups
- Greater dependence upon external agency
- Affected community not vested with any role or decision-making authority

Top-Down Planning Approach



Passive Participation: People participate by being told what is going to happen or what has already happened. Unilateral action taken by administrative or project management, with no opportunity for local people to offer their feedback or make recommendations

Participate in Information Giving: People participate by answering questions posed, but have no opportunity to influence decisions; information or project findings are not shared with the local community

Participation by Consultation*:* People participate by being consulted by external agents who listen to their views. Project agents define problems and solutions and consider the community's views, but actions are taken without shared decision-making.

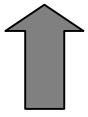
Participate for Material Incentives: People accept incentives offered by the project in return for their cooperation. Time-bound, as participation usually ends when the incentives run out

Functional Participation: People form resource user groups to meet pre-determined project objectives, usually later in the planning and decision-making process. Decision-making authority rests largely with outside agents

***Interactive Participation*:** People participate in joint analysis (information gathering, planning and decision-making) leading to the formulation and implementation of action plans. Local groups take control over selected aspects and thus have a stake in maintaining specified structures and practices into the future

Self Mobilization: People develop initiatives largely independent of external institutions, with outside agencies providing technical support and playing a facilitating or catalytic role, rather than directing activities

Bottom-up Planning Approach



- Community assumes significant responsibility for decision-making and action, with technical support from outside agencies
- Least dependence upon external agency; enhanced potential for self-reliance
- Reduced potential for damaging or irreconcilable conflict among stakeholder groups

APPA is practiced through a reiterative cycle known as the "*Four Ds*." These steps are:

1) *Discovering* the community's strengths and valued assets or resources;
2) *Dreaming*, or envisioning short-term (one year) and long-term (five or more years) future development scenarios, provided that feasible resources are suitably mobilized and the community acts in concert
3) *Designing* an action plan for linking community development with stewardship of a species or its habitat, emphasizing what the community already knows and can do on its own without relying substantially on outside financial sources or technical know-how; and
4) *Delivering* – spurring participants to initiate community-improvement actions *immediately* rather than waiting for some future time or depending on a government subsidy that somehow is always delayed for lack of funding.

Using tools borrowed from traditional *PRA* (Pretty et al 1995), such as hand-drawn pictures, brainstorming, and group discussion etc., project proponents and stakeholders gain useful insight into the root causes of livestock depredation or crop damage in a way that involves both literate and illiterate community members. For example, community pasture and resource maps indicate locations of depredation hotspots or preferred pastures, while trend lines show change over time (whether historical or the desired future). Pair-wise matrix ranking is be used to compare traditional and modern remedial measures, and to select those approaches most appropriate with respect to effectiveness, cost, technical and practical feasibility and compliance with protected area regulations. The same technique is used to rank other mortality sources that herders tend to forget or under-estimate in terms of their significance. This helps to put depredation losses into a more realistic perspective. Ranking of income sources highlights the relative importance of animal husbandry to the community, as well as identifying alternative sources of income to help off set unavoidable depredation loss.

Semi-structured interviews are used to explore the root causes of depredation, and to assess options for avoidance. Telling stories is a good way of sharing experiences, while case histories from other areas can be used as the basis for promoting new perceptions, approaches and expanding the boundaries of the possible. This involves thinking "outside the box" using the open process of "provocative thinking" in which dreams and ideas are shared without any overriding expectation by the players. Lessons from past policies and practices can help predict future change, and lay the basis for public acceptance for new ideas. When carefully applied, such tools and techniques help to resolve conflicts between local people and government over land tenure rights and access to natural resources, to facilitate the incorporation of indigenous knowledge in management planning, and empower local communities to effectively implement and sustain ecologically sound natural resources management regimes.

The way problems are defined by the affected parties has a huge effect on their resolution and the scope of possible solutions. This is illustrated by the U.S.'s experience with re-introducing wolves in Yellowstone National Park. This initiative remained stuck while ranchers and environmentalists debated traditional arguments for and against the presence of wolves. Progress came when a rancher finally commented, "You need to understand one thing. It's not the wolf we're really worried about. We can deal with him if we need to. What we're concerned about are all the restrictions on how we do our business that come along with the wolf" (Yaffee and Wondolleck 2000).

Instead of "how can we get rid of snow leopards that prey upon our livestock," the SLC and local communities ponder the question, "how can we better protect our livestock from depredation, protect snow leopards according to the law, and yet reduce conflict among sheep herders and wildlife or conservation interests?" Collaborative, equitable resolutions to contentious people-wildlife issues are more attainable when both perspectives are examined and the emphasis is placed on creative problem solving. So we follow the initial question with the more provocative, "What if having snow leopards in this area were seen as an asset to the community instead of a problem? How could we all make this dream reality while also meeting your concerns and needs?"

Stakeholders are likely to be more open to sharing expertise, acquiring new information and formulating creative solutions when a highly participatory engagement process such as *APPA* is employed. By focusing on the positive, *APPA* makes it easier for all players to take a nonadversarial approach. As noted by Yaffee and Wondolleck (2000), individuals involved in successful collaborative processes were

often entrepreneurial, and able to "make things work" in the face of unwieldy regulations and bureaucracy. Their programs were built on human relationships that fostered long-term partnerships and created a shared sense of ownership of the problem and its solutions. We have seen the level of ownership in our Stewardship Program grow through early and substantive stakeholder involvement, and we have seen how *APPA* can motivate Ladakh's villagers to think creatively.

The bottom line, however, is that any planning or conflict resolution process must ensure stakeholder accountability with respect to the law and resource regulations. It should incorporate independent science and appropriate performance measures. Toward this end, we have developed a set of criteria upon which collaborative programs are designed and funded (Jackson In Press; Jackson and Wangchuk 2001). Accordingly, the SLC offers its full support only when the following provisions are met:

1) **Conservatio**n—Biodiversity conservation is the primary motivation behind external investment, and therefore all project activities must be implicitly linked with clearly defined conservation objectives, especially protection of snow leopards and other rare "problem" species;
2) **Participation**—the active and equitable involvement of each stakeholder group is promoted throughout the project to ensure all affected households will benefit and to encourage participation irrespective of gender, age or economic status;
3) **Reciprocity**—All stakeholders, whether outside donor, local NGO, government, or villagers are expected to make a reciprocal contribution within their means (e.g., cash, materials, labor, or in-kind service);
4) **Responsibilit**y—The beneficiary community must be willing to assume responsibility for meeting the conservation objectives and for maintaining any infrastructural development. There should be clear penalties for infringement by any of the participants; and
5) **Monitorin**g—Stakeholders should employ simple but realistic indicators for monitoring project impact and performance, described in the Action Plan prepared jointly and signed by the key parties.

"Best Practices" planning and operational guidelines help ensure remedial actions that are environmentally responsible (i.e., compliant with park regulations and species/habitat management requirements); economically sustainable within the local context; socially responsible (e.g. building on proven traditions and cultural values which protect nature); and that are implemented under a mutually agreed-to, signed work-plan that sets forth the responsibilities, contributions and obligations of each partner.

Conclusions

When people are not involved in change, they will resist it. With increasing human populations and continuing habitat fragmentation, collaboration between government and the general public is critical if ecosystem management is to be ensured. Successful collaboration between stakeholders encourages information exchange and builds understanding of shared and individual concerns. It produces better, mutually acceptable, sustainable decisions, and a win-win situation rather than 'win-lose' litigation or an unresolved 'lose-lose' impasse (Stolton and Dudley 1999; Yaffe and Wondolleck 2000).

Participatory processes like *APPA* offer a good way of facilitating the sharing of experiences and values, leading to the kind of learning that is so essential to resolving conflict and embracing new ideas. The more local people participate in the planning and decision-making process, the greater their ownership of the particular protected area or proposed set of management and protection actions. With increased ownership, the potential for conflict is significantly reduced, and although some irreconcilable differences may remain, these can usually be addressed over time as understanding and mutual respect grow.

See also *Snow Leopard Conservancy* home page: www.snowleopardconservancy.org

References:

Bhatnagar, Y.V., R. Wangchuk, and R. Jackson. 1999. A survey of depredation and related wildlife-human conflicts in Hemis National Park, Ladakh, Jammu and Kashmir, India. Unpublished Report, International Snow Leopard Trust, Seattle. 20 pages.

Borrini-Feyerabend, G. 1996. Collaborative Management of Protected Areas: tailoring the approach to the context. Vol. Issues in Social Policy. IUCN - The World Conservation Union, Gland, Switzerland. 67 pages.

Jackson, R. In Press. Managing people-wildlife conflict in Tibet's Qomolangma National Nature Preserve. In: Proceedings of Second International Wildlife Management Congress. Edited by R. Field, R. J. Warren and H. Okarma, Hungary, June-July 1999.

Jackson, R. and R. Wangchuk. 2001. Linking Snow Leopard Conservation and People-Wildlife Conflict Resolution: Grassroots Measures to Protect the Endangered Snow Leopard from Herder Retribution**.** Endangered Species UPDATE 18(4):138-141.

Kharel, F.R. 1997. Agricultural crop and livestock depredation by wildlife in Langtang National Park, Nepal. Mountain Research and Development 17 (2):127-134.

Mishra, C. 1997. Livestock depredation by large carnivores in the Indian trans-Himalaya: conflict perceptions and conservation prospects. Environmental Conservation 24(4):338-343.

Pretty, J. N., I. Guijt, I. Scoones and J. Thompson. 1995. A Trainer's Guide for Participatory Learning and Action. IIED Participatory Methodology Series. International Institute for Environment and Development, London. 267 pages.

Sanjayan, M. A., S. Shen, and M. Jansen. 1997. Experiences with integrated-conservation development projects in Asia. World Bank Technical Paper 388:1-41.

Stolton, S. and N. Dudley (Editors). 1999. Partnerships for Protection: new strategies for planning and management of protected areas. Earthscan Publications, London. 283 pages.

The Mountain Institute. 2000. Community-Based Tourism for Conservation and Development: A Resource Kit. The Mountain Institute, Kathmandu, Nepal.

Wells, M.P., K. Brandon, L. Hannah. 1992. People and Parks: linking protected area management with local communities. World Bank, WWF and US Agency for International development, Washington DC. 98 pages.

Western, D. and R.M. Wright (Editors). 1994. Natural Connections: Perspectives on Community-Based Conservation. Island Press, Covelo, CA. 592 pages.

Yaffee, S.L. and J.L. Wondolleck. 2000. Making Collaboration Work: lessons from cases in environmental management. Conservation Biology in Practice 1(1): 17-19 & 22-25.

Factors Influencing Lynx Depredation on Sheep in France: Problem Individuals and Habitat

by
Philippe Stahl, p.stahl@onc.gouv.fr
Jean Michel Vandel, rezolynx@onc.gouv.fr

In recent decades, the Eurasian lynx *Lynx lynx* has re-colonized former habitat in the Jura, east of France. The French Jura, 10,000 km², holds 36,000 ewes together with 347,000 cows and 4,000 goats. In the Jura grazing system, sheep and lambs are kept in pastures from early spring to late autumn. In these pastures which vary in size from 1 to 100 ha, sheep are always unguarded and wander freely by day and night. Livestock guard-dogs are not used in the Jura. When taking the presence of this free-access food base into account, large damage to livestock could be expected. In a recent paper, we described the distribution and trend of lynx attacks on sheep during and after the expansion of the lynx in the Jura (Stahl et al. 2001a). In France, the investigation of lynx depredation events are made by trained lynx-experts who investigate each case of domestic livestock predation. Standardized identification and reliability assessment criteria have been used as of 1989 and since then an exhaustive census of lynx attacks is available covering more than 15 years, i.e. throughout the entire sheep-lynx range. We observed that there was no general lynx-livestock problem in spite of the absence of measures to protect livestock. At the regional scale, sheep losses to lynx were low, i.e. less than 0.5 % of the available stock, many flocks were not affected and, among those suffering attacks, most (70 %) were only sporadically attacked. Nevertheless, some important lynx-livestock conflicts occurred in a few small areas. These clustered attacks are the major lynx-livestock problem. Each year, 2-6 "hot spots" were identified. These hot spots concentrated 33-69 % of the attacks on 0.3-4.5 % of the total area where attacks occurred (1835-4061 km²). Hot spots often reappeared at the same sites between 1984-1998. The reappearance of hot spots at the same sites, after years of interruption and despite the removal of lynx from some sites (Stahl et al. 2001b), suggested that the ultimate factors causing hot spots were factors inherent to these sites. In recent years, further investigations have been made (Stahl et al., submitted) to: (1) know what special set of habitat features predisposes some farms or sites to lynx depredation and (2) examine if some lynx really develop a livestock-killing behaviour on a more habitual ba-

sis than others and what factors influence this behaviour. We compared sheep availability and environmental characteristics of attacked and non-attacked pastures in a 1800-km² study area. Nine lynx were radio-tracked for a total of 21 lynx-years in the same area to estimate individual killing rates on sheep and identify possible habitual livestock killers. Depending on the individual and year, the lynx depredation rate on sheep varied between 0 and 12.4 depredation events per 100 days. There was no simple relationship between depredation rates and sheep abundance or sheep dispersion in lynx home ranges. We observed that some lynx which had access to the same flocks or had the same number of flocks in their home ranges, had very different attack rates. In particular, two individuals became habitual sheep killers during respectively their third and fourth year of monitoring. Other lynx which had access to the same flocks remained occasional sheep killers. Unlike the other lynx, these two individuals concentrated their kills on a few flocks. They could be regarded as true "problem individuals".

When comparing the characteristics of attacked and non-attacked pastures, we found no difference in sheep availability between them. This was not a surprise because sheep are not protected by shepherds or guard dogs, and there is no reason for a lynx to select large flocks rather than smaller one when entering a pasture to kill sheep. On the other hand, strong differences were found in the environmental characteristics of attacked and non-attacked pastures. Only 5.1 % of 98 pastures more than 250 m from a forest were attacked by lynx. In 228 pastures adjacent or connected to large forests by cover, 39.1 % were attacked by lynx ($P < 0.01$). For these pastures, a logistic regression showed a positive effect of their proximity to major forested areas ($P < 0.01$), absence of human dwellings ($P < 0.01$), local abundance of roe deer ($P = 0.01$) and presence of attacked pastures in their vicinity ($P = 0.03$). This last factor may express a spatial autocorrelation of lynx attacks, which could be due to the presence of a sheep-killing lynx. It then became clear that, in the Jura grazing system, frequent lynx damages in some local places are explained by a predictable set of habitat features which exposes these pastures to risk, and by an unpredictable rare event, i.e. the presence of an individual developing a regular depredation behaviour on sheep in these special circumstances. No obvious causal factor (e.g. sex-biased behaviour, reproductive status, physical debilitation) could explain the differential propensity to kill livestock among individuals or lynx-years. These facts demonstrated that in a Jura-type grazing system, i.e. where sheep are concentrated in a few sites, true problem individuals may develop. This is very different from the situation found in Norway (Linnnel et al. 1999) where sheep or cattle are distributed throughout all carnivore habitats. In that situation, most individual carnivores have similar opportunities to encounter and kill livestock, and because there are no perceptual differences between wild and domestic ungulates, "problem individuals" do not appear (Linnell et al. 2000).

From a management perspective, two very different situations must be addressed in a Jura-type grazing system. For flocks which suffer rare and unregular lynx attacks (70 % of the flocks in the Jura), the implementation of protective measures is not cost-effective, and damage compensation is probably the only available tool. In that case, sheep farmers will agree with compensation assuming that the compensation takes also the indirect costs of depredation into account, e.g. the costs induced by the regular patrol of the parks to collect the corpses of killed animals. Furthermore, we believe that compensation payments cannot justifiably be conditioned by the implementation of expensive protective measures of the flocks against irregular attacks. In hot spots, which are a sporadic but recurrent problem, the situation is quite different. The presence of habitual livestock killers among lynx strongly argues against non-selective removals to reduce depredations. Undifferentiated removals, i.e. by hunting or by any other way which aims at lowering lynx densities would be totally inefficient to limit conflicts. The "site" effect also implies that selective removals will only be beneficial for a short time. The use of guard dogs in the few local sites at risk and subsidizing sheep sheltering at night when depredation events are on the increase would be the best measures to promote.

Based on these results, the French Ministry of Environment recently devised a procedure to limit damages in hot spots. It was decided that when the number of lynx attacks on sheep within a 3-km-radius area is more than 5 during the year, guard dogs and the sheltering of sheep at night will be subsidized. When protection methods are inefficient or cannot be proposed, the selective removal of a lynx can then be authorized given that a threshold in the number of attacks is reached. Currently, the threshold is set at 10 attacks (an average of 16 sheep killed) within a 3-km-radius area. All attacked pastures within this area must be located in the same continuous forested area, i.e. not be separated by valleys or open areas. The

removal can only be attempted by trapping around sheep killed by lynx or by shooting them in the most-attacked pastures. A few sites are at risk in the Jura mountains, and we expect that by this procedure very few individuals will be removed in the next years while the conflicts will be definitively solved.

References:

Linnell, J.C., Odden, J., Smith, M.E., Aanes, R. & Swenson, J.E. (1999): Large carnivores that kill livestock : do "problem individuals" really exist ? *Wildlife Society* Bulletin, 27, 698-705.

Linnell, J.C.; Odden, J., Kvam, T., Moa, P., & Andersen, R. (2000): Who did it? Age and sex specific depredation rates of Euasian lynx on domestic sheep. Carnivore Damage Prevention Newsletter, 2: 9-10.

Stahl, P., Vandel, J.M., Herrenschmidt, V. & Migot, P. (2001a): Predation on livestock by an expanding reintroduced lynx population: long term trend and spatial variability. *Journal of Applied Ecology* (in press).

Stahl, P., Vandel, J.M., Herrenschmidt, V. & Migot, P. (2001b): The effect of removing lynx in reducing attacks on sheep in the French Jura Mountains. *Biological conservation* (in press).

Stahl, P., J.M. Vandel, S. Ruette, L. Coat, Y. Coat & L. Ballestra (submitted): Lynx predation on sheep in the French Jura: influence of habitat factors, sheep availability and lynx behaviour.

Procedure to Selectively Remove Stock Raiding Lynx in Switzerland

by
Christof Angst, ch.angst@kora.ch

In 1997, the Swiss Agency for the Environment, Forest and Landscape (SAEFL) mandated the KORA to define criteria to selectively remove lynx specialising on livestock. The condition was that the criteria should be easily applicable for the wildlife services of the cantons authorities and yet not arbitrary.

A time series and geographic analysis of the 954 approved lynx kills from 1973–1997 revealed some clusters of lynx kills. As in the French Jura Mts. (see article above), there were some "hot spot" regions, containing the majority of damages (Angst et al. 2000). A lynx core area in Switzerland may be about 80–100 km^2. Such an area can very simply be described by a circle with a radius of 5 km. When we were overlaying all clusters of attacks with such circles, we found that a few cases contained 20 or more kills, but all the other ones less than 10. The basic idea was to remove any lynx that was merely feeding on livestock. The average kill rate for wild ungulates is one animal (roe deer or chamois) per week. As lynx often did not consume sheep entirely, we assumed that they would kill somewhat more than one sheep per week. During the average aestivation period of 15 weeks, a lynx feeding only on livestock would therefore kill about 20 animals. We concluded that we had indeed seen a few "specialists" in the past, and that the "random" attacks had never lead to more than 10 kills in the same area.

Based on the temporal and geographical analyse and the behavioural considerations we proposed the following criteria that were included into the *Swiss Lynx Concept* implemented by the SAEFL in August 2000:

- A permission to remove a lynx will be given if at least 15 animals are killed during a season of aestivation or a calendar year within a circle of 5 km radius around any killed livestock.
- If any lynx attacks occurred in the same region during the previous year, the threshold is reduced to 12 animals.
- The permission will only be given if prevention measures were applied on these pastures.
- The permission will not be given if any barrier cuts the circle in a way that it is very unlikely that the same lynx was responsible for the kills on each side of the barrier.
- Only a state game warden or a person mandated by the cantonal authority is allowed to shoot a lynx.
- A lynx can only be shot or trapped in flagranti, so at a domestic animal killed or in the pasture where the damage occurred.

From 1997-2001, eight shooting permissions have been given according to these criteria. Three lynx have officially been shot so far.

Reference:

Angst Ch., P. Olsson & U. Breitenmoser 2000: Übergriffe von Luchsen auf Kleinvieh und Gehegetiere in der Schweiz. Teil I: Entwicklung und Verteilung der Schäden. KORA-Bericht Nr. 5: 58pp. German with English executive summary. Available on: www.kora.unibe.ch

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

by
Mag. Bernhard Gutleb, b.gutleb@i-one.at

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 lynx-observations 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 bee-keepers 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.

Carnivore Damage to Livestock in Romania

by
Annette Mertens, annette@clcp.ro
Paul Gheorghe, paul@clcp.ro
Christoph Promberger, christoph@clcp.ro

Romania is the only country in Europe out of Russia where still healthy populations of all three large carnivore species, bears (5500), wolves (3000) and lynx (1800) exist (Ionescu O., Institute for Forest Research and Management, Brasov, Romania, personal communication). This, together with the presence of 9 million sheep and 3 million cattle, of which probably half are kept in the mountains during summer, makes Romania a place in which very high densities of livestock and predators live in the same range. Livestock protection is still fairly well preserved in this country - sheep are penned during night and they are always guarded by shepherds and livestock guarding dogs. Still, large carnivores manage to kill discrete amounts of livestock and this can influence negatively the attitude of livestock raisers towards the wild predators. In order to identify and implement an effective management strategy we gathered information about (1) the amount of damage caused by large carnivores to livestock in mountain camps, (2) what the vulnerability of the shepherd camps is due to and (3) if electric fences can be a good protection for livestock.

Summer 2001 was the fourth summer in which we researched the spatial distribution of livestock, monitored the attacks caused by large carnivores, and analysed the effect of these attacks on the economy of livestock raisers. According to the information provided by the shepherds of the 30 camps we monitored, this year 152 animals were killed by wild predators. Of these, 146 (96 %) were sheep, 1.4 % of all the sheep present in the shepherd camps, for an average of 5.92 sheep per flock. This damage is lower than the one we found in the first two years of our research (1998 and 1999), in which we were reported 2.08 % of all the sheep killed, for an average damage of 9.94 sheep per camp. But it is higher than the damage reported last year (2000), with 0.62 % of all sheep killed, for an average damage of 2.92 sheep per camp. All four years taken together, there resulted to be a damage of 1.48 % of all sheep. Wolves appear to have killed 64 % of the livestock, and bears 34 %. In these four years only two sheep have been reported to be killed by lynx.

Testing the data for Spearman correlation we found direct correlation between the amount of kills in the different shepherd camps and the relative number of dogs (no. of sheep/dog) present in the camps ($p=0.018$) and the relative number of shepherds (no. of sheep/shepherd) ($p=0.035$). Also in 1998 and 1999 we found direct correlation between these factors (kills vs. sheep/dog: $p=0.017$; kills vs. sheep/shepherd: $p=0.013$) (Mertens & Promberger in press.). Similarly, taken together the data from 1998, 1999 and 2001 there is positive correlation between kills vs. sheep/dog ($p=0.0014$) and kills vs. sheep/shepherd ($p=0.001$). Although this correlation does not exist in the data of the year 2000 (kills vs. sheep/dog: $p=0.1$; kills vs. sheep/shepherd: $p=0.56$), these data suggest that the vulnerability of the flocks is probably influenced by the amount of shepherds and of dogs in the camps. We found no correlation between the number of sheep killed in the camps and the distance of the camps from the border of the forest ($p=0.15$). The number of kills per camp was positively correlated to the number of sheep in the camps ($p=0.004$). This and the fact that the amount of sheep in the camps was directly correlated to the amount of dogs ($p=0.000$) and the amount of shepherd ($p=0.000$) suggests that bigger flocks are more exposed to successful predator attacks than small flocks.

Shepherds and good livestock guarding dogs are often not present in adequate numbers in Romanian shepherd camps because they increase costs considerably. Salaries and food for shepherd make our 55% of the costs of a shepherd camp, dogs make 4.5%. Through the „community development and conservation fund“, supported by income through ecotourism, the Carpathian Large Carnivore Project aims to help livestock raisers to improve the quality and number of livestock guarding dogs. In addition, we wanted to test a new protection method which does not exist in Romania yet: we bought ten electric fences and installed them at livestock camps in the study area. We want to monitor the effectiveness of these fences and promote their use as protection against large carnivores. The results of this activity will be presented in the next issue of the CDPN.

See also the *Carpathian Large Carnivore Project* on: www.clcp.ro

References:

Mertens A. and C. Promberger in press: Economic aspects of large carnivore-livestock conflicts in Romania. Ursus 12.

Statistics of Damage Caused by Large Carnivores in Europe

by
Urs Breitenmoser, breitenmoser@ivv.unibe.ch
Christof Angst, ch.angst@kora.ch

When, two years ago, the LCIE decided to launch the CDP*News*, it was suggested to include statistics on the damage caused by large carnivores in European countries. The idea was to have a yearly update of the tables as they were produced for the action plan for the five large carnivores of Europe. An example of such a statistic is given in Tab. 1 for the Eurasian lynx. If possible, illustrative maps showing the distribution of damages should accompany the statistics. Since then, the topic has been controversially debated within the core group of the LCIE at several occasions. On one hand, the wish to have these statistics reappeared, on the other hand, both the feasibility and the usefulness of such statistics were questioned. In this article, we want to (1) demonstrate an example of a possible way how to present carnivore damages, (2) make a proposal for such a system covering as many European countries as possible, and (3) start an inquiry on the value of such statistics.

As an example, we use the damages on livestock by lynx in Switzerland. Although they are relatively insignificant both, in regard to the number of sheep killed per year and the economic impact, attacks on free ranging sheep and goats are a constant matter of controversy in lynx areas. The *Swiss Lynx Concept* foresees that a lynx can be removed if 15 sheep are killed within a radius of 5 km per year. The number of losses is reduced to 12 if there were any lynx attacks within the same circle in the previous year. The order for a removal is given by the canton in charge, in consultation with the federal authorities and the neighbouring cantons sharing the same large carnivore management compartment. The wildlife services of the cantons are also responsible for the assessment of damages. Such a practice implies communication and public relation, as both, the (local) people and the interest groups take a great interest in the implementation of the new *Swiss Lynx Concept*. A constant matter of critics is that the cantons would not disclose the attacks attributed to lynx before taking any decision to remove an animal. Consequently, the federal and several cantonal authorities in charge have agreed with the KORA that an online database on recent damages should be published.

A relatively simple test version of such a database can be found now under www.kora.unibe.ch/en/proj/damage/damage.html. The information released include (1) a systematically updated list of the damages reported to the KORA for the current year, (2) a topical map (based on the list) showing the distribution of the attacks, (3) a weighted map of Switzerland presenting the total of damages caused by lynx in the previous year as a comparison, and (4) a histogram of the domestic stock killed by lynx since 1970 allowing to assess the long-term trend. The system is fed by a straight-forward Microsoft Access® database and can easily be updated even without an automatic link to the website. The idea of such an information system is to reach a maximum transparency in regard to damages and lynx management. One aspect of the controversy on large carnivores has always been the access to information. Public involvement will only work if sensitive data are available to everybody at the same time.

The European countries differ considerably in regard to assessment, management, compensation, and publication of damages. Consequently, each country has different needs and possibilities to produce comprehensive statistics on carnivore damage. If we reflect on producing a pan-European damage statistics for the CDP*News*, two things must be made clear ahead: First, it will be impossible to produce a standardised and synchronised system for all countries across Europe. The differences are too big, and the "least common denominator" would be close to nothing. Second, a flexible and easily accessible statistics cannot be published within the frame of the simple newsletter. The means to do this is the World Wide Web.

What we propose to do is to establish a flexible and open system of tables, figures, databases, and links on a website allowing for each country to present the best and most recent data available, without caring too much about completeness and synchronism. As an entrance, we could produce a political map of Europe, where it is possible to see from which countries and for which most recent year any data are available. When clicking on the map, the user would get a table and/or a map summarising the statistics on large carnivore damages for the desired country. Furthermore, links to websites presenting additional material would be incorporated. Such a system would allow to present specific and readily available information for whatever country wants to join, and still have one central place for large carnivore damages across Europe. To produce a pan-European statistics for a given year seems to be useless, as the amount of lacking data in Tab. 1 clearly demonstrates.

Figure 1: Distribution of livestock (141 sheep, 17 goats, 3 fallow deer) compensated as lynx kills in Switzerland in 2000. The size of the dot represents the number of animals killed per pasture. Smallest dot = 1 sheep; largest dot = 11 sheep. Boundaries = large carnivore management compartiments of Switzerland. In Switzerland, about 250,000 sheep are aestivated on mountain pastures.

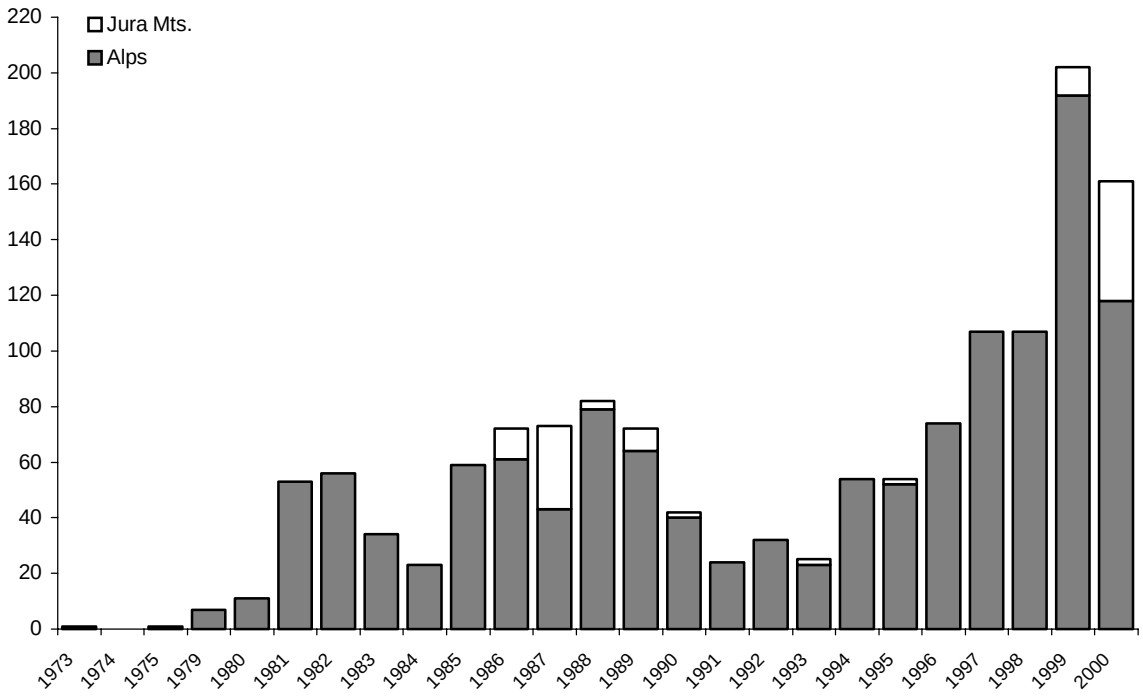


Figure 2: Livestock compensated as lynx kills in Switzerland from 1973 until 2000. The colors of the colums represent the two lynx population in the Alps and in the Jura Mts. respectively.

Nevertheless, even such a pragmatic approach implies a commitment from the folks producing the CDP*News* and from the contacts in the countries providing the information. And, of course, some funding will be needed to establish and maintain the service. Consequently, we should start this project only if we conclude that it will be useful and feasible and if a considerable number of people would be ready to contribute the data and information needed to maintain the service. We would like to inquire about these questions and ask you to answer the following questions:

Usefulness:

1. Do you think that a service as described ahead would be useful for your work?
2. To what kind of information would you like to have online access for (a) your own country, (b) for neighbouring/other countries, and (c) for the whole of Europe?

Feasibility:

1. What kind of data/information is available for your country and on what intervals?
2. Would you (or who else) be able to contribute on a regular base data and information that could be included into the carnivore damage information service?

We are grateful if you can send your reply and any other suggestion to: cdpnews@kora.ch.

Thank you!

Tab. 1. Compilation[a] of damages caused by Eurasian lynx in European countries in the mid-1990s. Countries were the species exists, but no data were available were left out. Population = population estimation for the year 1995 as published in the pan-European action plan.

Country	Period	Population	Animals killed	Compensation			
			Sheep	Goat	Reindeer	Others	(in Euro)
Albania	1991	37	17	-	-	-	0
Austria	90-95	3-5	36	-	-	-	586
Bulgaria	90-95	-	-	-	-	-	-
Croatia	1996	150-200	22	2	-	-	0
Czech Rep.	90-95	90-130	44	-	-	63	0
Estonia	90-95	500-800	-	-	-	-	-
Finland	1995	790	-	-	87	-	58,028
FR Yugoslavia	90-95	70	-	-	-	-	0
France	90-95	60-200	582	11	-	-	43,437
Germany	90-95	20-30	1	-	-	1	0
Greece	90-95	2	-	-	-	-	-
Hungary	90-95	10-20	-	-	-	-	-
Italy	1991	12	2	-	-	-	117
Latvia	90-95	703	-	-	-	-	-
Lithuania	90-95	120-150	-	-	-	-	-
Macedonia	90-95	?	-	-	-	-	-
Norway	92-95	>600	18,924	-	1,768	-	3,112,500
Poland		185	-	-	-	-	-
Romania	90-95	1500	-	-	-	-	-
Slovakia		400-500	-	-	-	-	-
Slovenia	90-95	75	75	-	-	-	8,625
Sweden	90-94	1,000	234	-	10,435	-	819,188
Switzerland	90-95	130	196	30	-	-	14,631
Ukraine	90-95	320	-	-	-	-	-

[a]Taken from Breitenmoser U, Breitenmoser-Würsten Ch, Okarma H, Kaphegyi T, Kaphegyi-Wallmann U, Müller UM. 2000. Action plan for the conservation of the Eurasian lynx in Europe. Nature and environment, No. 112. Council of Europe Publishing, Strasbourg.

New publications

Journals:

Butler, J.R.A. 2000. The economic costs of wildlife predation on livestock in Gokwe communal land, Zimbabwe. African Journal of Zoology, 38(1): 23-30.

In areas bordering wildlife reserves in Zimbabwe, agropastoralists suffer livestock depredation by wild carnivores. However, the economic value of these losses, and therefore the levels of compensation required has never been calculated. Between January 1993 and June 1996 in a 33-km^2 area of Gokwe communal land bordering the Sengwa Wildlife Research Area, 241 livestock were killed by wild carnivores. Baboons (*Papio ursinus*), lions (*Panthera leo*) and leopards (*Panthera pardus*) were the most serious predators, contributing 52 %, 34 % and 12 % of kills, respectively. Baboons only killed young goats (*Capra hircus*) and sheep (*Ovis aries*) by day, while lions and leopards jumped into fortified kraals at night and killed cattle (*Bos indicus*). donkeys (*Equus asinus*) and smallstock. In 1995, predators killed five percent of livestock holdings, double that recorded by other African studies. The annual total value of losses depended upon the degree of lion predation on the most valuable species, cattle and donkeys. The average annual loss per livestock-owning household was US$13, or 12 % of each household's net annual income. Losses could be reduced by improving kraal defences against lion and leopard predation in the dry season, when attacks were most common.

Kumar, Satish; Rahmani, Asad R. 2000. Livestock depredation by wolves in the Great Indian Bustard Sanctuary, Nannaj (Maharashtra), India. Bombay Natural History Society Journal, 97 (3): 340-348

Researchers studied the food habits of the Indian wolf in the Great Indian Bustard Sanctuary, Nannaj, India, between 1991 and 1994. Estimation of wolf depredation on livestock is essential to implement compensation, management, and conservation plans for the wolf. Blackbuck was the primary prey of the wolves in the sanctuary; goats and sheep were the major livestock taken by wolves. More goats than sheep were killed, and livestock depredation were higher during the pup-rearing period. Multiple attacks were made by wolves on livestock herds to divert the attention of guard dogs. 63 % of the kills were one to four meters from a bush or some other vegetative cover.

Marketplace

Fence tester:
An easy way to find faults: PATKON Electric Fence Power Probe®:
simple to use - on touch operation
- Leads you quickly to the fault in the fence
- Clearly indicates the direction of the fault
- Digital reading shows the voltage and current
Price: ca. US$ 80.-
www.pakton.com.au/

Spike collars
Keller Martigny SA
Rue des Finettes 59
Case postale
1920 Martigny VS
Switzerland
Phone: +41 27 721 65 30
Fax: +41 27 721 65 31
E-mail: keller.martigny@urbanet.ch

The collars are natural leather made. The width is 7 cm, with 4 ranks of spikes.
Three sizes are available. Price if buying at least ten coallar:
1. Small 45 to 50 cm; about 30$
2. Small 50 to 57 cm; about 33$
3. Small 56 to 65 cm; about 35$

Dog training system (painless)
The collar works by triggering a harmless spray which surprises the dog and interrupts him during the bad habit you want to correct. The collar is triggered by a remote control which can send a signal even through a wall or a window.

JetCare System
51, rue Chappe
63100 Clermont-Ferrand
France
Tel: +33 4 73 42 25 50
Fax: +33 4 73 42 25 55
e-mail: dynavet@nat.fr
www.jetcare.com

Meetings of interest

4-7 March 2002
20th Vertebrate Pest Conference,
Silver Legacy Hotel, Reno, Nevada USA
For details see:
www.davis.com/~vpc/welcome.html

17- 20 October 2002
2. International Canid-Symposium
D-51429 Bergisch Gladbach (near Köln), Germany
For details see:
http://www.hundeschule-ab.de/Hundefarm/wolfsymp.html
or contact:
Gabriele Huber, Am Graben 3, D-50259 Puhlheim,
Phone and Fax: 0049/2234/8 96 97
e-mail: Canids2002@aol.com

Dezember 2002
Symposium on „Sustainable Coexistance“ with carnivores
London Zoo, Great Britain
For details please contact:R
Rosie Woodroffe
e-mail: rosiewoodroffe@aol.com

Coming topics

The focal topic of the next issue of the CDP News will be ‘electric fencing’. We want to produce a ‘tool’ for all people who are working on this subject. We are asking you to send us your experiences, including the following subjects:

- Cost effectiveness
- Problems in setting up the system
- Maintenance
- Grounding
- Durability
- etc.

We all need your experience. Please contact us on *cdpnews@kora.ch* before writing your article, so that we can send you a table of contents for better coordination. Thank you in advance.

Damage prevention on the Web

Predator FAQ:
www.members.home.com/18james/rural/predator.html
Reports on several different prevention measurements

Damage Prevention and Control
www.conservation.state.mo.us/manag/coyotes/control.html

Wildlife Solutions Online
www.wildlifesolutionsonline.com/carnivores.htm
A lot of pdf-files about all sorts of wildlife damage

Wildlife Damage Links
www.aphis.usda.gov/ws/nwrc/wildlife_damage_links.htm

The internet Center for Wildlife Damage Management
http://wildlifedamage.unl.edu
A lot of pdf-files available

Predator defense Institute:
http://www.enviroweb.org/pdi/alternat.htm

Flock & Family Guardian Network:
www.flockguard.org
Reports on different breeds of livestock guarding dogs

Working Dog Web:
www.workingdogweb.com/wdbreeds.htm
A lot of information on guarding dogs with links to other webpages

Livestock Gurarding Dogs
www.lgd.org

Llamapaedia:
www.llamapaedia.com/uses/guard.html
Provides information about Ilamas as guarding animal

Bear Biology
www.bearbiology.com

National Wildlife Research Center
http://www.aphis.usda.gov/ws/nwrc/

Vertebrate Pest Conference
www.davis.com/~vpc/welcome.html

Conditioned Taste Aversion page
http://www.conditionedtasteaversion.net/

Carnivore Conservation
http://www.carnivoreconservation.org/
A hug number of links

Please send addresses of Web sites dealing with carnivore damage prevention to:
cdpnews@kora.ch

How to get Carnivore Damage Prevention News:

There are three ways to receive CDP News:
1. As a paper copy by mail[1)]
2. By e-mail as a pdf-file
3. Download as pdf-file from the LCIE website (www.large-carnivores-lcie.org/) or the KORA website (www.kora.unibe.ch)

Please order CDP News from the editorial office by e-mail: cdpnews@kora.ch

CDP News on the Web

The CDP News can be downloaded as PDF file on:

- LCIE-homepage: www.large-carnivores-lcie.org

- KORA-homepage: www.kora.unibe.ch

CDP News on *www.kora.unibe.ch* offers the following service:
- Download CDP News as pdf-file
- Database with information about CDP-specialists (*If your coordinates on the web are not complete, please send details to cdpnews@kora.*ch)

Impressum:

Editorial: Ch. Angst, J.-M. Landry, J. Linnell, U. Breitenmoser

Editorial office:
KORA
Thunstrasse 31
3074 Muri b. Bern
Switzerland
e-mail: cdpnews@kora.ch
Phone: ++41 31 951 70 40
Fax: ++41 31 951 90 40

Financially supported by LCIE (Large Carnivore Initiative for Europe).

LCIE card

The Large Carnivore Initiative for Europe aims
"To maintain and restore, in coexistence with people, viable populations of large carnivores as an integral part of ecosystems and landscapes across Europe".

According to this mission statement, the LCIE defines four important fields of activity:
1. conservation of large carnivore populations and their habitats;
2. integration of large carnivore conservation into local development of rural areas;
3. support for large carnivores through appropriate legislation, policies and economic instruments;
4. the human dimension (information and public awareness with the aim of obtaining the acceptance of large carnivores by all sectors of society).

To solve the conflict arising from the predation of large carnivores on livestock, the prevention of damages is of high priority. For more information on the LCIE please visit the LCIE website (www.large-carnivores-lcie.org) or contact the LCIE co-ordinator, William Pratesi-Urquart (wpratesi@csi.com).

Contributions desired

Dear subscribers,
The CDP News will only thrive with your active participation. Articles should be as „down to the earth" as possible. Please send us any contribution on the following topics:

- Prevention measures
- Prevention measures that did not work
- Statistics on damage
- Compensation systems
- Technical articles
- Problem animal management
- Opinion and forum papers

[1)] The financial support by the LCIE allows us to distribute the CDP News for free. However, to minimise postal taxes, we prefer distribution by e-mail wherever possible.