Taking the Bite out of Wildlife Damage

The Challenges of Wildlife Compensation Schemes

By Philip Nyhus, Hank Fischer, Francine Madden, and Steve Osofsky

With flaming torches lighting the night sky, a young man with a whip rushes toward a massive bull elephant moving through his rice field. Chased by the cracking whip, exploding firecrackers, drums, and screams of villagers, the pachyderm, a regular visitor looking for an evening meal, lumbers away into the darkness of its home in one of Sumatra's last protected lowland rainforests. The elephants, protected by Indonesian law as an endangered species, cannot be killed legally. "If we kill an elephant, we go to jail," says one villager angrily. "If an elephant kills one of us, all the family will receive is a box of noodles to compensate for the death." Weeks earlier, two elephants trapped in a canal built along the forest edge to protect villagers from the crop-raiding animals were doused with petrol and fatally burned, almost certainly in retaliation for the recent trampling of a farmer.

As with jaguars in Argentina, snow leopards in Bhutan, and wolves in the United States, so goes a story repeated around the world. People living near dangerous but protected wildlife are asked to directly or indirectly assist with their conservation despite considerable economic burden and personal risk.

Too often the solution to the problem of wildlife damage comes from the barrel of a gun or a bag of poison. In response, conservationists have been experimenting with measures to mitigate human-wildlife conflict, including compensation schemes that directly pay individuals or their families to offset wildlife threats to crops, livestock, property, or personal safety. Full or partial payment is made in the form of cash or other assistance, or as help with dam-

age prevention measures. In some cases, people are compensated just to tolerate these animals on their lands.

But do compensation programs really help endangered species in conflict with humans? Are conservationists armed with adequate information to apply these programs effectively? Literature about compensation schemes in places like North America isn't hard to find. But relatively few analyses exist for remote areas of Africa, Asia, and Latin America.

Three years ago, World Wildlife Fund (WWF) recognized that field staff, even those familiar with compensation schemes, had limited information to guide them in developing or monitoring such programs. So WWF brought us together to survey more than two dozen international experts in large mammal conservation to evaluate common pitfalls associated with running a compensation program and the resources managers need to succeed.

Clear and Convincing Evidence

When you see a tiger dragging your screaming goat into the forest, you know what happened. But what if the evidence is less clear? And it often is.

Spoor and other evidence of predation can disappear quickly. Even when investigation ensues immediately, the true cause of death may never be found. This is one of the most critical compensation challenges currently being addressed in many areas. Research carried out by the State of Wyoming using radio-collared livestock showed that for every verified livestock loss from grizzly bears, the equivalent of another two-thirds of an animal are never found.

Endangered carnivores sometimes take more than their share of the blame. A survey respondent in Switzerland noted that sheep breeders frequently claim that sheep that die or are missing have been killed by wolves and lynx. During the summer, these sheep are free ranging, and for economic and traditional reasons, the sheep owners are reluctant to change this system. Yet when researchers studied this problem, they found that the same numbers of sheep are lost in areas *with and without* these large carnivores. Unless they have private insurance, which most do not, farmers are only compensated for livestock losses due to large carnivores—not lightning, falling rocks, or unidentified dogs. This leads to conflict between farmers and the game wardens who have to verify the cause of death on the spot and can strain relationships with carnivore researchers, who may be called in to make an expert judgement when verification is difficult.

However, ignoring or delaying verification can be a recipe for disaster. In one area of India, it reportedly takes months before anyone officially verifies an attack—if at all. "Unless it is a rare instance of multiple killing, the losses are usually not verified by officials," said one researcher in India familiar with a state-sponsored compensation program for snow leopards and wolves, "so the actual payment of compensation is rather corrupt and whimsical."

Overall, the most effective compensation programs are fair, transparent—and most importantly, fast. They quickly and efficiently verify reports of loss, sometimes within 24 hours and almost always within a week. Timely payment can help victims to get over their anger or urge to retaliate. To ensure transparency, avoid abuse, and build local trust, such programs commonly separate the verification arm of the program from the arm actually making the payment. Proper training helps ensure that verifiers can actually identify which species caused the problem and accurately assess how much damage was really done. Verification by impartial outside experts or trusted designated local people protects against fraudulent claims and tempers allegations that wildlife damage estimates are too high or too low.

How Much is Enough?

The costs of maintaining a compensation program run the gamut. In Pakistan, one nongovernmental organization (NGO) spends approximately US$2,000 annually on a snow leopard project; in India, another NGO has spent US$16,000 for a tiger and leopard compensation scheme; in Switzerland, the government has spent US$30,000 for carnivore compensation; and the Italian government has spent US$2 million on compensation for wolf, feral dog, and bear damage.

The real crux of the "how much" problem is in determining fair value for losses and finding a way to sustain a payment system over time. But this isn't always as straightforward as it may seem. A farmer may be compensated for the value of a young animal killed by a carnivore but resent not receiving compensation for the value the animal could have provided if sold for meat or for breeding when mature. Even when compensated monetarily, some may perceive they are not receiving fair compensation for the trauma, time, or hardships they face protecting their assets. Overall, community participation can be key to developing fair, widely-accepted programs and to reducing conflict over how funds are dispersed.

The State of Wyoming now pays more than market value for verified losses to make up for losses that can-

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not be verified or found. Programs in France and Spain have adopted a similar policy for bear-related compensation schemes. A program in Switzerland calculated the full potential market value of livestock lost to lynx and wolves even if the animal killed was not yet mature.

To sustain compensation programs over time, conservationists might look to the insurance industry as a model. For example, detailed actuarial analyses can provide estimates of demand for and total costs of a program over space and time. Whether a program is to be insurance-based or not, a thorough pre-project assessment might conclude that a program should not be started at all. Managers of successful programs know more or less what to expect and can adapt as demand changes.

In Pakistan, an insurance-based compensation scheme for snow leopards asks farmers to contribute premiums determined by current market values and historic loss rates. Compensation based on insurance may be particularly appropriate when the scheme is community-based. A community-based scheme might decrease the likelihood of fraud if participants are less inclined to cheat their neighbors than they might be to cheat the government. An obvious pitfall is that the cost of insurance premiums will likely outweigh the average per capita cost of damage. In general, however, participants in insurance-based compensation programs are insuring themselves against catastrophic loss—those losses that are beyond "average." Insurance funds augmented by an external donor such as an NGO may be better able to address average or individual losses, but reliance on external funding may also make the scheme less sustainable.

Defenders of Wildlife

Wolf Compensation Program

By Hank Fischer

Prospects for restoring wolves to Yellowstone National Park could not have been more grim in 1984. President Ronald Reagan made his first conservation statement by appointing the notoriously anti-environmental James Watt as Secretary of the Interior.

Next, President Reagan appointed one of his former California associates, William Penn Mott, to serve as director of the National Park Service. Unexpectedly, my meeting with this positive, practical man in 1985 was a breath of fresh air.

For years, I had listened to political and agency leaders offer every conceivable reason for why Yellowstone wolf restoration could not, would not, and should not succeed. But to my surprise, Director Mott was unabashedly supportive. His rationale was refreshingly simple: "Bringing back the wolf is the right thing to do." Mott also offered a brilliant piece of advice: "The single most important action conservation groups could take to advance Yellowstone wolf restoration would be to develop a fund to compensate ranchers for any livestock losses caused by wolves," he said. "Economics makes ranchers hate the wolf. Pay them for their losses and you'll buy tolerance and take away their only legitimate reason to oppose wolf recovery."

Defenders of Wildlife made its first compensation payment in 1987 and by 1992 had established a permanent fund to pay for verified livestock losses anywhere in the northern Rockies (this was later expanded to include the Southwest). This was the first private compensation for wolves ever established in North America.

Here's how the Defenders' program works. If a rancher believes a wolf has killed his livestock, he contacts the appropriate state or federal agency. A trained biologist, usually on the scene within 48 hours, investigates to determine whether wolves were responsible, relying on necropsy techniques and the presence of tracks, hair, or scat. If the investigator verifies that wolves killed the livestock, Defenders is notified.

A Defenders of Wildlife staff member then calls the rancher to discuss the incident, explain the program, and agree on a payment amount. If there is a difference of opinion on the value of the livestock (this has occurred less than one time in thirty), the county extension agent determines the value. The rancher has no paperwork to fill out. Defenders strives to get checks to ranchers within 2-4 weeks of receiving verification of a loss.

Defenders has changed its program over time in response to concerns raised by livestock producers. For instance, some ranchers felt the standard for verified losses was too high. They cited cases where strong circumstantial information supporting wolf predation was present, yet the information did not rise to the level to support verification. Defenders addressed this issue by establishing a category for "probable" losses, for which it compensates livestock producers at half the market value.

Since its inception, the Defenders program has paid over US$270,000 to more than 225 ranchers to compensate for 327 cows, 678 sheep, and 34 other animals killed by wolves. Some feel this is a huge sum to pay for wolf damage, others feel it is a tiny price. But almost all wolf experts agree that shifting economic responsibility for wolves away from ranchers and toward wolf supporters has created broader public acceptance for wolf recovery and helped pave the way for reintroductions. According to U.S. Fish and Wildlife Service wolf recovery coordinator Ed Bangs, "This program should be a model for others who want positive solutions for complex environmental issues. The livestock compensation program has made wolf recovery more tolerable to livestock producers and has made wolf recovery more easily attainable."

Unintended Consequences

When compensation is an option, people can become less risk-averse. They may be less likely to adopt new—or improve existing—management practices that discourage conflict in the first place. Bad managers can end up being compensated at the expense of those who invest in good management techniques on their own initiative.

Tying compensation eligibility to better management practices gets around the "free rider" problem. Many successful programs require participants to meet certain rules regarding livestock husbandry or human behavior before they are eligible for compensation. For example, farmers may be required to put livestock in enclosures at night or to respect grazing zones or limitations on the use of protected areas.

In a project in Switzerland, compensation for sheep farmers is not provided unless livestock owners show evidence they are guarding sheep using shepherds, dogs, or fencing. In Mongolia, local people must limit grazing during specific times and in specific locations, and illegal hunting must not have occurred during the period in question for compensation to be made.

Once a program is in place, failure to live up to expectations or attempts to discontinue a program may incur the anger of local beneficiaries. In India, a program's failure to compensate for snow leopard damage as promised not surprisingly worsened park-people relations. Programs should be designed for the long haul, unless other interventions greatly reduce or stop human-wildlife conflict so as to make the scheme unnecessary.

The ultimate measure of a compensation scheme's effectiveness, at least when used as part of a conservation program for endangered species, is whether it keeps fewer tigers, wolves, elephants, or gorillas from being killed.

Yet we found that many managers could not objectively quantify the impact their programs were having on wildlife populations or people's attitudes. In fact, the challenges of designing and managing compensation schemes are so intensive that few managers likely have the luxury of stepping back and evaluating the overall cost-effectiveness of their program in comparison to its ultimate conservation benefits. Comparative assessments of local attitudes as well as of the health and size of target wildlife population(s) before and after a program has started are sorely needed.

Globally, human-wildlife conflict is a growing obstacle to achieving conservation goals. The issues surrounding such conflict are typically a complex mix of behavior (human and wildlife), biology, socioeconomics, politics, and geography, making the resolution of these conflicts extremely difficult. To work, compensation programs need to be part of a comprehensive approach that includes options for control of offending animals, proactive mitigation measures, and in some cases, broader economic incentives for changes in land-use practices.

By shifting the economic burden away from local people, at least in part, compensation can encourage constructive participation by the people most closely tied to the future of the world's large, dangerous, and endangered species. If not carried out carefully, however, compensation can waste resources and do more harm than good. ❧

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Core Elements

of Successful Compensation Schemes

■ **Quick, accurate verification of damage.** This requires training, adequate tools to properly identify losses, and a mechanism to establish trust among all participants to ensure that the process is fair and honest.

■ **Prompt and fair payment.** Timely payment can temper the anger of wildlife damage victims and reduce retaliation against animals or conservation authorities. The compensation process needs to be transparent, protected against abuse, account for unverifiable losses (i.e., when it is difficult to determine how or how many livestock were killed), and be capable of evaluating differences in the value of different livestock or crops.

■ **Sufficient and sustainable funds.** An inadequately funded scheme may cause more problems than no scheme at all. Wildlife damage may vary considerably from year to year, and managers need to plan for contingencies, for long-term sustainability, and/or for an exit strategy. Solid baseline information is necessary to accurately predict future compensation claims and to determine if compensation makes sense in a local context.

■ **Site specificity.** Although there are some general guidelines that can aid wildlife managers in implementing effective compensation schemes, it is important to be sensitive to site, species, and culture-specific issues. A sense of shared program ownership between local people and institutions running compensation schemes can reduce the potential for conflict and abuse.

■ **Clear rules and guidelines.** Successful programs tend to have strong institutional support and clear guidelines. Compensation should be linked to sound management practices. Efforts can not be ad hoc.

■ **Measures of success.** Is a compensation scheme having its intended impact? For example, are more people supportive of wildlife and conservation? Ultimately, are fewer animals of conservation interest being killed than would have been without the program?