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

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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).

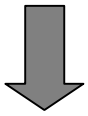
The Snow Leopard Conservancy's (SLC) Ladakh Stewardship Program engages local people using a bottom-up process, known as *Appreciative Participatory Planning and Action* (*APPA*) (The Mountain Institute, 2000). *APPA* combines concepts from *Appreciative Inquiry* (used in business leadership training), 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.

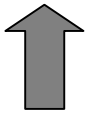
Participate for Material Incentives: People accept incentives offered by the project in return for their cooperation. Time-bound, as participation usually ends when the incentives run out

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

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

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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-