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Building partnerships with communities for biodiversity conservation: lessons from Asian mountains

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INTRODUCTION

Applied ecology lies at the intersection of human societies and natural systems. Consequently, applied ecologists are constantly challenged as to how best to use ecological knowledge to influence the management of ecosystems (Habel et al. 2013). As Hulme (2011) has pointed out, to do so effectively we must leave our ivory towers and engage with stakeholders. This engagement is especially important and challenging in areas of the world where poverty, weak institutions and poor governance structures conspire to limit the ability of local communities to contribute to biodiversity conservation. These communities often bear disproportionate costs in the form of curtailed access to natural resources, ecosystem services, and developmental programs, and also suffer wildlife-caused damage, including injuries or loss of human life, and economic and psychological impacts (Madhusudan and Mishra 2003).

It is well-recognized that conservation efforts in large parts of the world historically have been perceived to be discriminatory by local people (Mishra 2016). The need for engagement with local communities is therefore embedded in the 2020 Aichi biodiversity targets and is widely thought to be critical to the success of conservation efforts. However, although the need for engagement is clear, as ecologists and practitioners we often have

47 little formal training in how we should engage with local communities and how we can
48 recognise the pitfalls and opportunities provided by developing genuine partnerships. The
49 practical challenges of achieving effective engagement are considerable (Agrawal & Gibson,
50 1999; Waylen et al. 2010), and such forays are fraught with difficulties and ethical
51 considerations (Chan et al. 2007). When they are done badly, conservation interventions
52 can damage relationships and trust, and lead to serious injustice to local people and
53 setbacks for ecological outcomes (Duffy 2010).
54
55 Much has been written on knowledge exchange and participatory research approaches (e.g.
56 Reed et al. 2014 and refs therein). This Practitioner's Perspective seeks to focus on the next
57 logical step: the elements that practitioners and researchers need to consider when
58 engaging with communities to effect conservation. Engagement around the management of
59 protected areas has been discussed and formalized (e.g. Dudley 2008). Considerable
60 literature has also emerged, particularly from Africa, on the use and co-management of
61 natural resources, commonly referred to as community-based natural resource
62 management or CBNRM (e.g. Fabricious 2004, Child and Barnes 2010, Roe et al., 2009).
63 There have been attempts to draw general principles for CBNRM (e.g. Thakadu 2005, Gruber
64 2010). In the related field of community-based conservation, however, while there have
65 been efforts to draw lessons (e.g. Berkes 2004), little exists in terms of frameworks or
66 guidelines for effectively working with local communities to effect biodiversity conservation
67 in multi-use landscapes (Mishra 2016).
68
69 The eight principles for community-based conservation outlined here (Figure 1) build on
70 ideas developed in fields as diverse as applied ecology, conservation and natural resource

management, community health, social psychology, rural development, negotiation theory, and ethics (see Mishra 2016). They have been developed, challenged and tested through 20 years of community experience and our own research on the endangered snow leopard *Panthera uncia* and its mountain ecosystems, in South and Central Asia. We suspect that with contextual adaptations, their relevance for applied ecologists and practitioners may be universal.

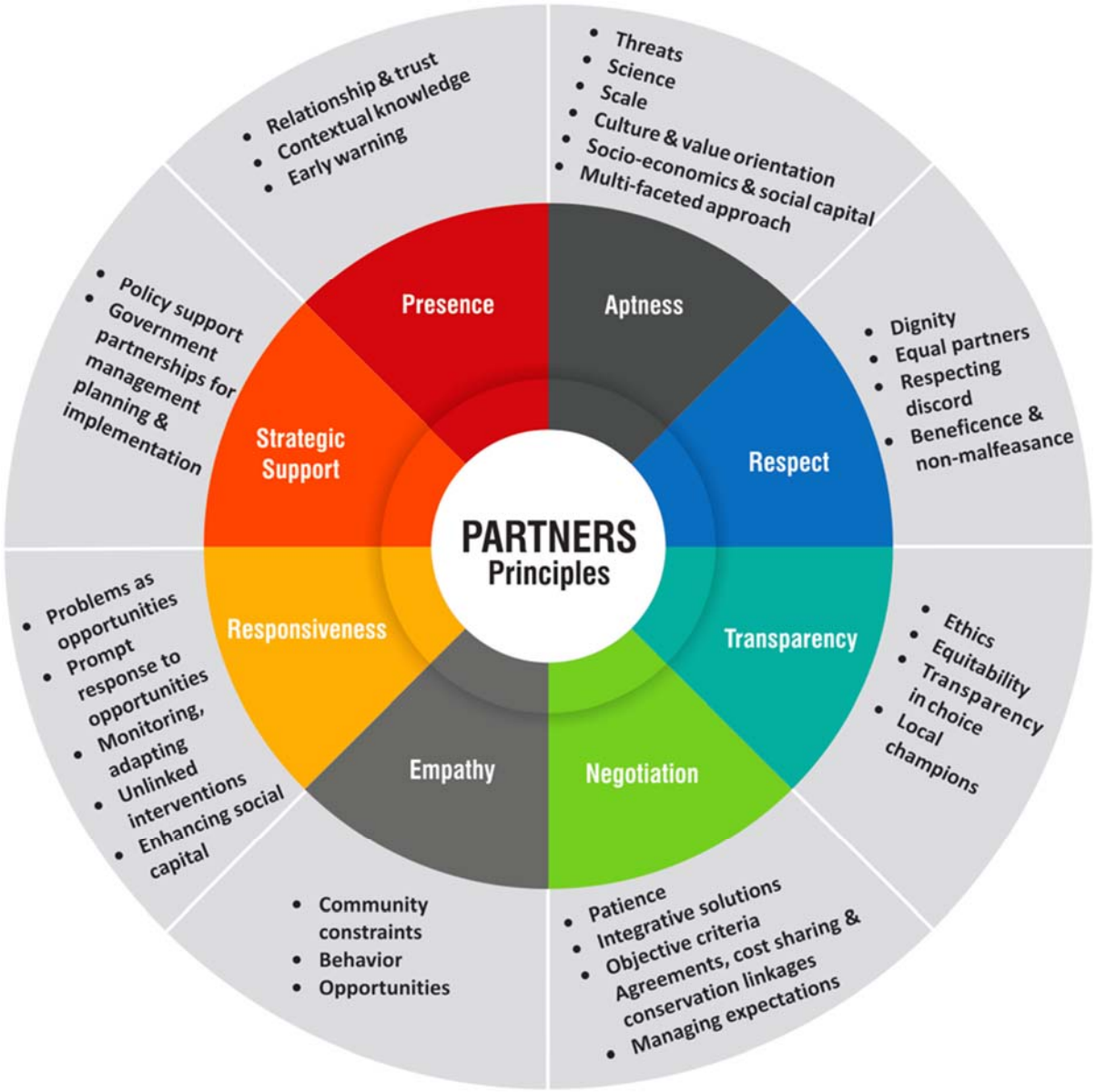

Figure 1. The eight PARTNERS principles for effective community-based programmes: Presence, Aptness, Respect, Transparency, Negotiations, Empathy, Responsiveness, and Strategic support (Mishra 2016).

STUDY SYSTEM

The work of the Snow Leopard Trust and its partner organizations, the Nature Conservation Foundation (India), Snow Leopard Conservation Foundation (Mongolia), Snow Leopard Foundation (Kyrgyzstan), Snow Leopard Foundation (Pakistan), and Shan Shui (China), has been spread over Asia's important snow leopard habitats. Snow leopards have a tendency to kill livestock, and communities can bear a heavy cost from these depredation events (Mishra et al. 2016). As a consequence, snow leopards often suffer from retribution killing across their range. We sought to develop programmes with communities, so that conditions for wild snow leopards and their prey were improved, whilst the impact of predation by snow leopards on pastoralists' livelihoods was minimised, leading to a cessation in retribution killing (Mishra et al. 2003). The objective therefore was to build partnerships with communities to improve both biodiversity and social outcomes. We use the term community to denote a hamlet or village, a collection of individuals or households who identify themselves as a group, live in the same area, and share systems of local resource use, traditions and governance (Mishra 2016). The principles outlined here were arrived at through personal reflection and conceptualization by one of us (CM) who started applied research in snow leopard landscapes in 1996, piloted and implemented community-based efforts in the Indian Himalaya since 1998, and has closely worked with and advised field teams in the other four countries since 2008. The authors have been collaborating with each

other and with our range-country partner teams. Our community-based work and the formalization of these principles have been influenced by our research findings as well as literature from diverse fields including applied ecology, conservation and natural resource management, community health, social psychology, rural development and negotiation theory (e.g., Cohen 2001, Coleman 1986, 1999, Fisher et al. 1991, Gambrill 2012, Gerdes and Segal 2011, Hinsz and Matz 2003, Jones and Wells 2007, Karp 1996, Mishra 2016, Portes 1998, Smutko 2005).

THE 'PARTNERS' PRINCIPLES

The development of effective engagement with communities can be a daunting task. We provide a set of eight general principles that should be considered when working in such situations, characterised by the acronym 'PARTNERS' (Figure 1, Table 1).

Table 1. Lessons learned from the development of PARTNERS Principles over 20 years of fieldwork. Each of the eight principles is characterised here through Do's and Don'ts.

PARTNERS Principle	Do	Don't
Presence	Build strong relationships with local people through sustained field presence and immersion Train and hire local people in the team	Forget that people's emotions can be as or more important than other motives
Aptness	Assess rather than assume threats to biodiversity Design and evaluate contextually appropriate interventions to address specific threats Be aware of gender issues in community and team Reach out to the majority of the community, but work with relatively small groups Invest in social capital	Ignore social and cultural contexts when implementing programs Focus solely on program participants forgetting to build in a role for the entire community in the intervention portfolio Create new groups within the community for program operations, instead of traditional ones Focus solely on community land for landscape species conservation

Respect	Treat community members with respect Seek to create an equal partnership Engage in open and honest communication Take note of societal divisions and individual differences within the community	View local communities as recipients of aid or providers of services Use societal divisions and individual differences within the community to advance the conservation agenda
Transparency	Disclose your purpose and clearly communicate goals Reiterate your aims of beneficence and non-malfeasance Maintain transparency whenever making choices, such as the selection of households for a pilot intervention, or hiring of community members as program staff Interact with a broad set of community members, not just leaders or local program coordinators.	Withhold information from communities, especially about potential negative impacts of interventions Make decisions and choices without consulting the community Hire local champions as paid program staff
Negotiations	Employ transparent, objective criteria or fair standards in negotiations with communities Discuss potential interventions individually with community members before formal negotiation with the community Involve community members in the design of interventions Record details and nuances of a community-based intervention through written agreements Include mechanisms that allow to revisiting and making changes to signed agreements Build in incentives and tangible stakes Bring third-party mediation if negotiations aren't moving forward.	Haggle or bargain for a bigger piece of the pie Push the community to make urgent decisions Withhold information Walk away from the community if negotiations aren't moving forward
Empathy	Try to look at issues from the community's perspective Take both rational and emotional aspects into account when making decisions Make the effort to increase our capability for empathy Assume that most community members – like most other people – are decent and intelligent	Forget that our own behaviour can often be irrational or irresponsible Walk away because of perceived inaction on part of the community, rather than catalyzing action
Responsiveness	Monitor threats, interventions and impact Adapt and improve interventions whenever possible or necessary	Assume that threats and priorities remain stable

	Help communities when they have urgent needs unrelated to biodiversity Look for ways to assist communities in biodiversity unrelated needs with interventions that are linked to biodiversity	Forget that problems are opportunities to improve conservation interventions Make promises and create expectations that one cannot keep Get directly involved in biodiversity-unlinked interventions if the team lacks the necessary expertise
Strategic support	Collaborate proactively with government officials and share expertise Facilitate cooperation and communication between various government sectors Act as a bridge between local communities and wildlife managers Compromise and reconcile, while being prepared to oppose the government when warranted	View the government as anathema for community-based conservation Assume there is no role for the practitioner in policy formulation, management planning and implementation

1. ***Presence*** *of practitioners in the local community*

Effective community-based programmes rely on strong and resilient relationships between practitioners and local people. These relationships are built through sustained presence in the field, not occasional meetings and workshops. Sustained presence helps generate trust, useful contextual knowledge, acts as an early warning system to identify and tackle new and emerging issues, and increases the support for conservation programmes by local communities. People often choose to participate in such programmes not just for personal gain, but because of the relationships with practitioners and with the programme through long-term contact. Failure to invest the time and effort involved in long-term relationship-building can lead to limited community support. In an Eastern Himalayan region, for example, in the absence of such presence and relationship building, we were unsuccessful in starting programmes that could have obviously benefited communities, while in other sites, similar programmes were readily embraced by communities who were familiar with us (Mishra 2016). Likewise, many communities where people had initially appeared reluctant,

132 came forward to develop conservation partnerships with us over time as we built
133 relationships with them. Even when a relationship is established, if people are pushed for
134 urgent decisions or action without sufficient trust in the practitioners, this is usually a deal-
135 breaker in community-based efforts.

136 It is of course impossible to be present everywhere. However, in our experience, having a
137 base in a relatively large community in the focal landscape, combined with periodic visits to
138 other communities, has been useful in building strong relationships. Training and hiring
139 individuals drawn from local communities helps strengthen local presence, bringing in more
140 knowledge, and adding value to the team, but this does not absolve the practitioner from
141 the need for immersion in the communities.

142 ***2.*** *The **Aptness** of specific community-based interventions*

143 Conservation interventions must address specific threats to biodiversity, and need to be
144 developed in a way that is appropriate for the local community and local conditions. This
145 means considering the inherent complexity of communities (Waylen et al. 2010), and asking
146 whether the interventions are: (i) founded on a scientific understanding of the problem and
147 designed to address the problem at the appropriate scale, (ii) sensitive to local knowledge
148 and cultures, (iii) sensitive to gender equity and other universal values to the extent
149 possible, and (iv) tailored to the local socio-economy, social capital and available skill sets.
150 For example, if wild prey populations are limited by excessive livestock grazing (e.g. Mishra
151 et al. 2004), having better anti-poaching efforts is unlikely to elicit an increase in their
152 abundance. Or, while trophy hunting may be successfully implemented in an Islamic
153 community with a strong tradition of hunting such as in Northern Pakistan (Nawaz et al.

154 2016), it would be highly inappropriate to propose it in a Buddhist area where wildlife is
155 protected out of a sense of religious duty (Li et al. 2014).

156 In one of our program areas, due to the nature of our interventions and the society in
157 question, women from the local communities remained peripheral to the program for many
158 years despite our efforts. Our research showed that women had relatively negative
159 attitudes towards wild carnivores compared to men (Suryawanshi et al. 2014). We then
160 specifically initiated Snow Leopard Enterprises in the region, our handicrafts program aimed
161 mainly at women (Bayarjargal et al. 2016).

162 Similarly, it is important that a clear role is identified for the entire community or its
163 representatives and not just for those directly involved. We have achieved this by having
164 multiple interventions within a community, or having elements in the intervention that can
165 benefit the entire community (e.g. microcredit, community development fund etc.). It is also
166 useful to recognise that this is a partnership and considering alternative solutions together
167 may ultimately deliver better outcomes rather than implementing one-sided solutions,
168 however strong the views of the communities or practitioners on what should be done.
169 Collaborative generation of knowledge with active participation of and information sharing
170 with community members on relevant issues (such as understanding spatio-temporal
171 variation in wildlife caused damage and identifying most affected families) can be very
172 helpful in developing shared knowledge and shared solutions.

173 One of the challenges for community-based interventions is how to scale up when effective
174 interventions need to be contextually appropriate. Acknowledging that specific solutions
175 that are applicable everywhere are unlikely can encourage the testing of new interventions,

176 critically evaluating ongoing interventions, accepting shortcomings and adaptively evolving
177 programs.

178

179 ***3.*** *A relationship that views the community with dignity and* ***Respect****, and interactions*
180 *based on beneficence and non-malfeasance*

181 Interactions with local people must be fair, honest and respectful, and local communities
182 need to be viewed as equal and autonomous partners rather than receivers of aid. In one
183 case, a community in Western Himalayas that had been partnering with us for more than a
184 decade suddenly and surprisingly decided not to renew its conservation agreement. It
185 turned out that during earlier discussions, our team members had ended up communicating
186 that if the community members were not interested in renewing the agreement, we could
187 choose to work with another community in the region. This negotiation tactic to hasten a
188 decision from them had made the community members feel disrespected. Although over
189 the next few months we managed to salvage the situation and our partnership with this
190 community is now nearing two decades, the fact that this community considered
191 discontinuing a long-lasting program due to perceived disrespect was an important lesson
192 for us.

193 Respect is not simply about external conduct and civility, but the practitioners' psychological
194 orientation towards local communities, which can, knowingly or unknowingly, have a
195 considerable influence on behaviour. The challenge lies in seeing the dignity of local people
196 even when their behaviour may seem unethical or illegal (e.g. killing a snow leopard). If our
197 stance makes us view local communities as the recipient of aid in the interaction, there will
198 be no equality in the partnership. This is a problem, as the very starting point of pragmatic,

community-based conservation is the pursuit of fairness (Mishra 2016). It is helpful, and even humbling, to consider that in many ways, the communities are the main provider in this interaction, in the form of their potential support for biodiversity conservation that we are seeking.

It is important to be aware of local divisions and disputes within and between local communities as these can have unintended consequences. However, using any such divisions and disputes within the community for promoting conservation is both unethical and counter-productive in the long term. Similarly, practitioners need to be especially aware that any real or perceived factionalism, discrimination or favouritism can be very damaging. More generally, beneficence and non-malfeasance form important guidelines of any community-based work (Gambrill 2012).

*4. **Transparency** in interactions with local communities*

Transparency implies disclosure about our goals and purpose. It is the practitioner's responsibility to clearly outline the shared conservation objectives, norms and rules of interventions, the roles and responsibilities of all involved, why choices are made and what their potential effects may be – including any weaknesses or uncertainty. Community members must be provided with opportunities either in a group or individually to seek explanations and share their advice and misgivings regarding the programs. Such transparency ensures that the community makes choices collectively and based on transparent and equitable community systems. As part of a transparent approach it is equally important to openly consider failures with communities as well, so that lessons can be learned and approaches adapted.

When choices are to be made, such as which households would be involved in a pilot program, or whom from the local community should be hired to support or coordinate the conservation effort, it is important to make those choices transparently. Ideally, the choices should not be made by the practitioner but collectively involve community representatives.

More often than not, the disproportionate influence of one or more individuals (or 'champions') from the community is behind the successful implementation of interventions at the community level. There is often the temptation to hire such individuals as a convenient short-term arrangement, but this is not usually a good idea. The potential positive influence of local champions on the community tends to erode when financial compensation for their time and effort gets involved, even if entirely legitimate.

5. *Integrative **Negotiations** with local communities and interventions based on formal agreements and linkages*

Effective negotiation regarding the intervention between the community and the practitioner is central to community-based conservation efforts. Positional bargaining, a common form of negotiation where both parties start from relatively extreme opposing points and find a mutually acceptable solution, can be ineffectual and harm the relationship between communities and practitioners. Positional bargaining may also be unethical, as it usually involves withholding information (Fisher et al. 1991). A better option is to take an integrative approach by sharing information, having truthful and open communication, and focussing on the interests of the parties rather than their positions. Such negotiation also promotes peoples' ownership over any intervention. The resilience of partnerships and interventions relies heavily on the extent to which people feel ownership over the design and implementation of the interventions. In the absence of integrative negotiations, and,

244 therefore, ownership, community members may feel predisposed to increasing immediate
245 return instead of considering future costs and benefits.

246 We have found it helpful to discuss the intervention ideas individually with key community
247 members before making formal proposals and initiating negotiations with the entire
248 community. Discussing ideas individually with people who are expected not to be supportive
249 can also be beneficial to get insights on the concerns and opposition one might face, and
250 how to address them, thereby better preparing the practitioner for negotiations. Some of
251 the ideas obtained in this way can make the intervention more apt, help generate support
252 and promote ownership, especially amongst people whose inputs have been sought in
253 advance.

254 While in standard negotiations, walking away may make sense if the best potential
255 agreement is poorer than the Best Alternative to a Negotiated Agreement (BATNA), in
256 community-based conservation, this is often not a desirable option. If there is no
257 agreement, further communication and relationship building must continue. There will still
258 be situations when the negotiations do not move forward despite effort, time and
259 communication. Under such situations, third-party mediation, for example by a respected
260 member from another community in the same region, may be useful. Finally, innovation and
261 site specificity are valuable in negotiations.

262 When there is broad agreement on the need and scope of any intervention, clear
263 identification and distribution of responsibilities and regulations is essential. Written signed
264 agreements help formalize the system, ensure tangible financial stakes for the community
265 and increase ownership towards the programs. Such agreements, written in a positive tone
266 and emphasizing incentives, should also include pre-agreed mechanisms to respond to

breaches and instances of conservation unfriendly behaviour that the program is designed to address.

6. *The ability to view problems, constraints and opportunities from the community's perspective with a high level of* ***Empathy***

Empathy is one of the most critical requirements for effective community engagement. It involves the perception and understanding of the ideas, cultures and emotional state of others (Gerdes & Segal 2011). Empathy enables researchers to view the situation from the perspective of the community and helps understand that while conservation may be critical for us, it may play a very minor part in the thinking of local people. Empathy can help guide us in gauging what kind of interventions would be more effective in a given situation and gives us a better understanding of why things that may at first be bewildering, irrational or irresponsible, get done – or don't – in a particular way. Our ability to empathise with local people and vice versa can be increased through immersion in a community, enabling relationships to become more accommodating, generous, patient and understanding.

7. *The ability to adaptively improve the programs and address emerging problems and opportunities with a high level of* ***Responsiveness*** *and creativity*

Timely and creative responsiveness is necessary because of the constant change in conservation opportunities and threats. Such change also brings opportunities for strengthening both the interventions and the relationship with the community. The relationship building with communities takes time, and practitioners must not push to start interventions before trust is built. However, once the community appears ready to initiate an intervention, this must be done quickly.

289 Learning while implementing community based efforts is important as it allows for course
290 corrections, and, therefore monitoring is an important element of responsiveness.
291 Furthermore, evidence for the effectiveness of community-based programs in achieving
292 biodiversity outcomes remains limited, hence the pressing need for monitoring and
293 evaluation.

294 Conservation practitioners will often need to respond to requests pertaining to important
295 community needs, such as education and healthcare that are not linked directly with
296 biodiversity conservation. How to respond in such situations? While there is no clear
297 answer, practitioners can consider the associated costs and benefits, and examine a few
298 aspects while making decisions. For example, how serious is the problem or the need? If it is
299 serious enough to have overwhelming effects on the ability of community members to
300 participate in conservation programmes, or if serious humanitarian issues are involved, it
301 could definitely be considered. For example, our teams chose to assist communities with
302 emergency relief and rehabilitation when an earthquake caused massive destruction in
303 China, or when a *dzud* (severe winter) killed large numbers of livestock in Mongolia, or when
304 floods caused damage in parts of India and Pakistan (Mishra 2016). One useful consideration
305 – though not sufficient, nor always appropriate – is to assess whether the problem or the
306 needs are chronic or episodic. Agreeing to assist the community with episodic issues
307 unrelated to biodiversity is sometimes critically important from a humanitarian perspective
308 (e.g. during a *dzud* or a flood) and could also help strengthen the relationship substantially.
309 Deciding how to respond is more difficult when the problem is chronic, like, for example,
310 inadequate access to healthcare for the communities. Multiple issues become important in
311 those instances and need to be clarified with the community, including the seriousness and
312 resource needs of the issue, our expertise (or lack of it), and the risk of creating undue

313 expectation. Managing expectations is an important part of community-based conservation.
314 Biodiversity unlinked programmes can especially create expectations amongst community
315 members that the conservation practitioner will not be able to fulfil. Such expectations are
316 easier to manage in communities with whom the practitioner has a mature, long-term
317 partnership. Finally, biodiversity unlinked interventions that lead to greater enhancement of
318 skills and social capital could be viewed preferentially compared to those that don't.

319 ***8. Strategic support*** *to increase the resilience and reach of community-based*
320 *conservation efforts*

321 Community-based conservation is embedded within larger socio-economic settings such as
322 global economic pressures and national and local development agendas. Even at the local
323 and regional levels, the role of governments remains integral. To strengthen the role of local
324 communities in conservation, it is essential to work closely with governments to create
325 supportive governmental processes and structures. These need to facilitate decisions that
326 better balance economic development needs with those of biodiversity, and strengthen the
327 voice of communities in such decision making. This requires changes in policy, including the
328 greater integration of different policy sectors, appropriate management planning and
329 implementation, a stronger legal system in support of community-based conservation, and
330 the involvement of practitioners in policy planning and implementation. Such involvement
331 can help highlight conservation needs and possible solutions, and catalyse collaborative
332 multi-sectorial efforts for biodiversity and human welfare. Partnering strategically with the
333 government can also improve the resilience and sustainability of community-based efforts.

334 In our view, conservation is about finding the common ground between the need to protect
335 biodiversity and the need for development and prosperity. By generating strategic support

of the government, we improve the chances of tilting the balance in negotiations in favour of biodiversity. Nevertheless, working with governments can be frustrating, with policies being ignored, laws being circumvented or broken by the very same bodies that are responsible for creating, implementing, or upholding them. In some cases, therefore, practitioners need to both collaborate with and oppose the government when warranted in the interest of biodiversity conservation. Good diplomacy and negotiation skills can help traverse this delicate path.

FINAL REMARKS

Our ability to apply our ecological knowledge to improve the management of biodiversity and natural resources is in large part dependent on the way we interact with local communities across the world. In most cases, it is not appropriate or realistic to simply impose science or policies and legislation onto communities. A more effective approach is likely to come from genuine long-term engagement, built on mutual respect and trust. In the Tost Mountains of Mongolia, for example, when mining threatened to destroy a key snow leopard habitat, we were able to immediately come to the assistance of the local community to protect it because we had a long relationship with them (Mishra 2016). We did not have to invest any time to build a partnership or trust from scratch.

We have outlined here what we consider to be the core principles to help ecologists and practitioners build such partnerships. The PARTNERS Principles have helped us to build strong and long-term relationships with communities to develop interventions based on strong science, such as: improved corrals to reduce livestock losses to predators overnight, vaccination programmes to reduce losses to disease (Nawaz and Mishra 2016),

programmes to reduce financial cost of depredation events (Mishra et al. 2016a), predator-friendly handicraft schemes to improve household income (Bayarjargal et al. 2016), and setting up voluntary 'village reserves' on community land (Mishra et al. 2016b). Retaliatory killing of snow leopards and hunting of their prey have either stopped completely or been drastically reduced in our progamme sites (see Mishra 2016). Similarly, we have detected increased wild ungulate abundance and intensified habitat use by snow leopards in some of our village reserves (Mishra et al. 2016b).

It is worth noting the spatial and temporal scale challenges associated with community-based approaches. Whilst partnerships can be locally effective, there are challenges to scaling-up to larger areas. There is no end-point, so engagement needs to be a long-term process if it is to be effective. This provides some restriction on the number of communities that can be engaged with effectively. This can partly be overcome by having the long-term goal of communities taking ownership of the schemes and running them themselves with support from practitioners as and when necessary. Such an approach has allowed us to extend our work currently to nearly 150 communities in 5 countries over 110700 km^2 of snow leopard habitat on community land.

Community engagement can be a powerful way of bringing applied ecological science together with community experience to enhance the management of natural resources and conservation of biodiversity. However, to be effective it needs to be done appropriately – through genuine partnerships of practitioners and community representatives built on the principles outlined in this paper. This is where our framework can assist practitioners.

The PARTNERS principles are a blend of two critical aspects of any community practice – the practical and the ethical – that have universal relevance for biodiversity conservation. They

have emerged from long-term (up to 20 years) partnerships with multiple communities in several landscapes across five different countries. Our work sites represent a variety of land uses and cultures. For example, our teams have worked with communities highly influenced by Islam, with strong traditions of hunting and with a religious doctrine that advocates the stewardship and use of wildlife (Bhatia et al. 2016). Elsewhere, our partner communities have been followers of Buddhism that posits the theory of dependent origination and interdependence of life. We have been able to work effectively in both scenarios. Similarly, the range of threats that our programmes have addressed has also been diverse, from traditional retaliatory killing of snow leopards due to livestock predation to emerging and irreversible threats such as mining in snow leopard habitats.

We recommend that in order to have stronger outputs, outcomes, and biodiversity impacts, practitioners consider each of the PARTNERS Principles with necessary contextual adaptations while building conservation programs.

Authors' contributions

CM conceived the ideas and designed the PRINCIPLES with support from BR and MF; JY and CM led the writing of the manuscript with support from SR. All authors contributed critically to the drafts and gave final approval for publication.

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409 Kulbhushansingh R. Suryawanshi, Lu Zhi, and Muhammad Ali Nawaz.

410

411 **Data accessibility**

412 Data have not been archived because this article does not contain data.

413

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Biosketch

Charudutt Mishra is involved in ecological and sociological research, community-based conservation and conflict management, and international cooperation and policy initiatives surrounding the snow leopards and high mountains of Asia. **Brad Rutherford** was the Executive Director of the Snow Leopard Trust from 2000 to 2015. He continues to work on behalf of the endangered snow leopard as a board member of the Trust. **Matthias Fiechter** is the Communications Manager for the Snow Leopard Trust. He aims to raise awareness and support for community-based conservation of the endangered snow leopard among various among various global and local audiences. **Juliette Young** is a social scientist working

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