

# Collaboration and Partnerships Are Essential to Sustain Wild Tiger Populations

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Conservation problems are social and economic, not scientific, yet biologists have traditionally been expected to solve them. Research is easy; conservation most decidedly is not. Since conservation cannot be imposed from above, it must ultimately be based on local interests, skills, and traditions.

*George Schaller (p. 24) [1]*

## OUTLINE

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In this chapter we describe two collaborations—Terai Arc Landscape (TAL) in Nepal and India, and Malaysian Conservation Alliance for Tigers (MYCAT) in Malaysia—which have been forged and shaped over the past decade by government and non-government stakeholders. These bodies joined together in an effort to sustain and recover priority tiger conservation landscapes (see Sanderson et al., Chapter 9), and to build platforms to engage the constituencies needed to recover and sustain wild tigers. These models present different collaborative approaches to conserving tigers in response to differing regional challenges. The vision motivating these collaborations is the same, notwithstanding very different environmental, political, social-cultural contexts, and technological challenges (Table 11.1) to which each must effectively and efficiently respond. The aim was to stop the killing of wild tigers and enable them to recover and flourish, while empowering local people to live in balance with natural resources and providing tangible resources to them whenever possible. Both collaborations are outcome-driven with a focus on continually improving their efficacy.

Both collaborations are inspired by the best science available in their respective biomes on what controls tiger population numbers and what affects the probability of their persistence. The strategic direction for both collaborations is that a sustainable future for people includes keeping live tigers as functional components of ecosystems.

**TABLE 11.1** Basic facts relevant to the context for tiger conservation in Nepal and Peninsular Malaysia

	Nepal	Peninsular Malaysia	Reference
<b>Tiger-related attributes</b>			
Save the Tiger Fund investment	\$1,403,882**	\$503,548	[2]
Tiger status	Vulnerable	Vulnerable	[2]
Tiger Conservation Landscape (km <sup>2</sup> )			[3]
TCL I	0	47,630	
TCL II	11,976	0	
TCL III	499	7,752	
Total	12,475	55,383	
Estimated tiger population	123 adults 350 total	>500 adults >657 total	[4, 5]
Number of publications in international peer-reviewed journals or book chapters in the past 40 years on ecology and conservation of wild tigers based on field studies*	15	2	[2, 6]
<b>Physical features</b>			
Land area (km <sup>2</sup> )	143,000	131,623	[7, 8]
Forest cover (km <sup>2</sup> )	36,360	57,833	[7, 8]
Forest cover (%)	25	44	

(Continued)

TABLE 11.1 (Continued)

	Nepal	Peninsular Malaysia	Reference
Vegetation/habitat type	Tall-grass, alluvial flood plane to high-peak mountains	Evergreen tropical dipterocarp rainforest	
<b>Human population</b>			
Human population	29 million	20.6 million	[9, 10]
Human density (population/km <sup>2</sup> )	203	157	
Population growth (%)	2.1	1.8 <sup>***</sup>	[9]
Urbanization (%)	15	65	[7, 11]
Infant mortality rate (/1000 live births)	64	17 <sup>***</sup>	[9]
<b>Socio-economy and development</b>			
Per capita GDP in Purchasing Power Parity	\$1,500	\$12,700 <sup>***</sup>	[9]
Population below poverty line (%)	31	5.1 <sup>***</sup>	[9]
Unemployment (%)	42	3.5 <sup>***</sup>	[9]
Literacy level (% >15 years old who can read and write)	49	89 <sup>***</sup>	[9]
Communication (telephone lines in use)	448,600	4,366,000 <sup>***</sup>	[9]
Transportation (paved roads in km)	9,886	80,280 <sup>***</sup>	[9]
Political stability	Unstable	Stable	
Governance (Corruption Perception Index 10–0, clean to corrupt/global ranking of cleanness)	2.5/121	5.0/44 <sup>***</sup>	[12]

<sup>†</sup>Judged by the title containing the word 'tiger'. The field research must be conducted in the country, hence excluding genetics, museum or modeling studies. Publications in the national (Nepal, Malaysia) or regional (India, Thailand, Singapore, etc.) journals are excluded.

<sup>\*\*</sup>Inclusive of the India side of TAL.

<sup>\*\*\*</sup>Inclusive of East Malaysia on the island of Borneo.

## SAVING WILD TIGERS IS A 'WICKED' PROBLEM: COPING STRATEGIES

The perceived extent and character of the challenges and contexts (see Table 11.1) to saving wild tigers have been reflected in the structure and character of the coping strategies that partnerships and collaborations have employed in different regions over time. We provide a brief discussion of how conservationists have responded to the challenge presented by 'saving wild tigers' as background, leading to the formation of the two models we describe.

Forty years ago, 'saving the tiger' was conceptualized as a 'tame' or linear problem. Maintaining tiger subspecies in zoos with their genetic diversity intact is an example of a tame problem that has largely been resolved. Zoos now act in partnerships to maximize the

tiger population viability by maintaining genetic diversity in demographic stable populations for each subspecies [13] (see Traylor-Holzer, Chapter 21). Initially, saving wild tigers was conceived as a tame problem with two components. The first was to redefine wild tigers as charismatic icons, threatened with extinction requiring direct conservation interventions to save them, by replacing the prevailing perspective of most people at the time that tigers were powerful, dangerous predators to be feared, hunted, and killed. The second component is exemplified by the steps taken in India's Project Tiger. Prime Minister Gandhi's government experts and NGO partners employed the extension of her power to: (1) stop the killing of tigers with tougher and more comprehensive laws and enforcement capabilities; (2) establish dedicated reserves for tigers to be freed eventually of human disturbances through resettlement programs; and (3) secure the financial resources to make it happen [14]. This authoritarian approach to addressing what was thought to be a 'tame' problem, appeared to be successful initially, and tigers were deemed recovered, at least in India, by the mid-1980s [15].

Our theoretical and practical understanding of the enormous complexity and the strategies needed to save wild tigers has deepened over the last 30 years or so. Traditionally, in natural resource management, authoritative coping or top-down strategies are viewed as taming strategies that placed problem solving in the hands of a few stakeholders with the authority to define the problem and derive a solution. Other stakeholders have to transfer their power to the few and abide by their decisions. If the experts in authority have defined the problem adequately and not ignored or missed important issues and considerations, this can work, at least initially. However, the more authoritarian the coping strategy, the less buy-in you are likely to achieve with the other stakeholders [16]. Also, as human populations grow and natural resources decline, the tendency is to use increasing levels of top-down, authoritarian management with unforeseen and undesirable consequences that can result in a 'pathology of resource management' [17].

By the late 1980s, many of the complexities not addressed initially by the authorities engaged in saving wild tigers began to emerge. Just as previously, centralized political power was being more broadly shared within nations, and the role of the marketplace was establishing the conditions under which conservation efforts, such as saving wild tigers, could operate in most tiger range states. The institutions needed to support tiger conservation were weak. They were weighed down with insufficiently trained manpower and resources, and ill-prepared to take on wildlife and forest protection and the mentoring responsibility for creating sustainable livelihoods for local people displaced by tiger conservation activities [18]. The hemorrhage in wild tiger numbers continued to be driven by an international demand for tiger parts and products for traditional Asian medicines and décor [19]. The widespread decimation of tiger prey from many Asian forests ('empty forests') became apparent. Many protected areas designated for tigers still had substantial populations of people engaged in unsustainable activities.

For tigers, protected areas constitute core breeding zones. By the mid-1980s scientists had established that tigers are solitary-living, territorial, and need to kill at least the equivalent of one large deer a week to survive, necessitating extensive areas for their survival (see Sunquist Chapter 2, and Karanth and Nichols, Chapter 18). When tiger populations are not subjected to extensive poaching, their numbers are established by the productivity of habitats to support prey populations. For example, elephant grass habitats in the India-Nepal Terai support

about 10 times the density of tigers (~15+ tigers >1 year old/100 km<sup>2</sup>) than Malaysian tropical rainforests (~1.5+ /100 km<sup>2</sup>) [20, 21]. Protected areas covered less than 20% of the tiger's occupied range by the mid-1990s [22] with many more tigers living in the forests outside the specially designated tiger reserves than in them. Because most of the small insular parks of Asia are unable to contain tiger populations large enough to be considered viable, managing tigers as metapopulations in large landscapes with protected areas connected by corridors became a major conservation objective.

We realize now that saving wild tigers is a very complex or 'wicked' problem that requires a host of considerations and disciplines, knowledge, and understanding from various stakeholders. In 'wicked' problems there are no clearly defined objectives and no definitive formulations. There are diverse and contradictory approaches, no stopping rules, no tests for solutions, and problems cannot be separated from issues of values, equity, and social justice [16]. In the 1990s, the realization that wild tigers were facing a species-terminal crisis was apparent. However, disagreement among experts in both governmental and non-governmental organizations and between NGOs as to the actual nature of the problems to be overcome resulted in competing strategies on how to cope with the different problems [16]. Competitive coping strategies emerged and, even today, saving wild tigers continues to be handicapped by competition between the various stakeholders who own a particular piece of 'the problem.'

The two models that we describe below are based on the premise that collaboration and cooperation trump competition; collaborative (working together) coping strategies can accomplish more than the sum of independent actions. The working hypothesis for both models is that saving wild tigers requires supportive tiger range governments to work in partnerships with NGOs and individuals who understand and value the tiger's ecological survival requirements. They need to be engaged in continuous actions at multiple scales to reduce threats over the long term, and they need to have sustainable financial and human resource commitments by societies that tolerate, or benefit from, the very existence of wild tigers.

## TERAI ARC LANDSCAPE IN INDIA AND NEPAL

At the base of the Himalayas, from the Yamuna River, India, to the Bagmati River about 1000 km to the east in Nepal, lies a 49,000 km<sup>2</sup> green ribbon of forest and tall grassland called the Terai (Sanskrit for 'lowlands') Arc (see Wikramanayake et al., Chapter 10). One of the world's most diverse landscapes, it is also one of the most imperiled. In a sense, the protected areas of the Terai Arc frame a big idea—that tigers, elephants, rhinos, and humans can live together along the base of the Himalaya. The lowland of Nepal is a highly populated place. Over 30% of the population in Nepal lives below the poverty line, and 85% of them reside in rural areas, with an estimated 3.6 million people and 3.3 million livestock living in the TAL (Table 11.1).

The first national park in Nepal was only established in 1973. Since 1999, government, academic, and NGO-based conservationists have worked to restore, reconnect, and manage the wildlife population that links the 12 wildlife reserves and national parks which harbor wild tigers in the TAL [23]. Tiger occupancy in the TAL have been described for India [24] and for Nepal [25]. Significant breaks in the forest create at least three tiger subpopulations

where connecting corridors need to be restored [26]. The goal is to manage the tigers as a single metapopulation where dispersal between core refuges can maintain genetic, demographic, and ecological integrity and provide sustainable livelihoods for the people living within the TAL.

The planning and implementation of the TAL program is more advanced in Nepal. The Government of Nepal made it a priority through landscape-level planning, biodiversity conservation, and sustainable livelihoods as a major strategic direction of the Nepal Biodiversity Strategy [27]. More than 11 bilateral and multilateral agencies work in Nepal's 14 TAL districts. From 2000 to 2002, the NGO investment in tigers and related conservation projects, including non-government costs supporting park management, anti-poaching, monitoring, research, and habitat restoration was just under \$1.4 million (\$25/ km<sup>2</sup>), or 10% of what the Government of Nepal earmarked for conservation in the region in 2004 [28].

The program areas for the TAL include policy and advocacy, institutions and coordination, sustainable forest management, sustainable development, species and ecosystem conservation, Churia Hills watershed conservation, and awareness and education. The TAL—Nepal Strategic Plan [27] has three components: broad strategy development, partnership plans, and the business plan. The principles of the TAL monitoring and evaluations include:

1. adapting lessons learned from programs and feeding the results back into program-planning and implementation;
2. documenting and sharing lessons learned with implementing partners and stakeholders;
3. participating in the process of monitoring, involving communities, the implementing government bodies, and other organizations; and
4. ensuring that the programs are transparent to local communities, local government, donors, and the general public.

The Nepal Department of Forests and the Department of National Parks and Wildlife Conservation have worked in concert with the lead NGO, WWF-Nepal, and other stakeholders to strengthen wildlife conservation in the TAL. Principal threats to be alleviated include human-wildlife conflict, over harvesting the forest, poverty, poaching of plants and animals, and limited awareness. The key wildlife conservation objectives [29] are to restore key corridors connecting protected areas, restore key species, such as rhinos and swamp deer in protected areas, curb poaching in the wildlife corridors, and strengthen the management of all 12 protected areas. The objectives should also establish agreement between Nepal and India for tracking the movement of poachers and wildlife across borders, protect and where necessary rehabilitate the TAL watershed, and create incentive schemes, especially those that empower women, so that people can profit from stewardship of wildlife. The latter is a key to the success of the entire effort. A model based on the success of small-scale projects to promote local guardianship of wildlife and forest and grassland management on degraded lands adjacent to the Chitwan National Park [29] is being implemented in lands adjacent to other protected areas and in key connecting corridors through the TAL. The long-term impact of these efforts for tigers, while encouraging, remains to be fully assessed [30]. In particular, the monitoring of tiger populations needs to be systematically addressed (see Wikramanayake et al., Chapter 10).

## MALAYSIAN CONSERVATION ALLIANCE FOR TIGERS IN MALAYSIA

Malaysia presents a contrasting socio-economical and biophysical background compared to Nepal (Table 11.1). The foundation for wildlife conservation was begun by the British before the nation's independence in 1957. In 1932, three decades after the first wildlife reserve was created, the British established the Wildlife Commission of Malaya with the purpose to review the regulations for wildlife protection. This work resulted in the creation of several state game departments in 1936. Later, in 1972, the enactment of the Protection of Wild Life Act by the Malaysian Parliament federalized all of the state wildlife departments and appointed the Director-General for the Federal Department of Wildlife and National Parks (DWNP). Decisions regarding wildlife are made at the federal level that manages the State Wildlife Departments. The State Forestry Departments that manage the majority of the remaining forests, hence tiger habitats (see Kawanishi et al., Chapter 29), function differently. Under the Malaysian Constitution, land-use is a state-level matter and therefore, the Federal government has no direct jurisdiction over the forests. However, it may legislate on common policies over land matters such as National Forestry Policy and a common system of land administration, though such legislation again has to be ratified by the respective states.

In its *Vision 2020*, Malaysia aspires to attain the fully developed status by the year 2020. By 'fully developed,' it means not only in the economic sense, but developed along all the dimensions: politically, socially, spiritually, psychologically, and culturally [31]. Among the tiger range nations, Malaysia has the highest per capita Gross Domestic Product and lowest poverty level [9]. While 45% of the land cover has been maintained as forests since the mid-1980s, 35% of the Malaysian population live in rural areas (Table 11.1), where most of them are engaged in agriculture that covers 40% [32] of the land in Peninsular Malaysia. Except for aborigines, people are not allowed to live in the forest reserves or totally protected areas, which encompass 42% of Peninsular Malaysia. Thus, the pressure on tiger habitat compared to that in Nepal or India is relatively low. Compared with the Nepalese, Malaysians enjoy social and political stability and have a high literacy rate and access to the Internet and cable TV. The majority of Malaysians recognize the endangered and protected status of the tiger.

Compared to other tiger range nations, the number of citizen groups involved in nature conservation is limited. The strict regulation and a lengthy application procedure discourage the establishment of NGOs, especially international NGOs, because a non-citizen cannot be elected to the Board of Trustees. Similar hurdles also discourage foreign researchers, and as a result, the number of scientific studies on tigers is limited compared to those in Nepal (Table 11.1).

Against this background, the Malaysian government recognized the importance of partnerships and science in biodiversity conservation in its *National Policy on Biological Diversity* [33] in 1998, yet full implementation has lagged due to insufficient staff and funds, lack of technical expertise, and frequent transfer of key personnel. In fulfillment of the fifth objective of the Policy, to enhance the scientific knowledge on biodiversity, DWNP has supported a few external tiger research projects such as those conducted by WWF-Malaysia, Wildlife Conservation Society (WCS), and the University of Florida. A loose partnership among the personnel involved in the projects was formed, but continuity was difficult to maintain with frequent changes in personnel.

Recognizing the importance of close coordination and collaboration amongst researchers, NGOs and members of the public, in 2003 DWNP initiated the Malaysian Conservation Alliance for Tigers (MYCAT), a partnership between DWNP, the Malaysian Nature Society, TRAFFIC Southeast Asia, WCS, and WWF-Malaysia; all sharing a unified vision of thriving tiger populations in Malaysia. MYCAT's primary function is to provide a formal yet flexible platform for information exchange, learning, collaboration, and resource consolidation among the conservation partners.

The Secretariat's Office, hosted in rotation by the partners, serves as a hub of communication among the partners as well as with the general public through a media network, publications, and the MYCAT e-group.<sup>a</sup> The alliance continues to expand the scope of its partnerships by collaborating on projects coordinated by the Secretariat's Office. Initially, collaborative projects were limited to general public awareness activities, but as the partnership has grown, joint projects now address long-term threats to tigers. As a government agency, DWNP is limited by procedures and regulations, which need not restrict the growing scope of the joint projects. For this administrative reason, as of 2009, DWNP is no longer an equal partner, but still continues to support MYCAT.

The Taman Negara community outreach program is an example of such joint projects. While the Secretariat's Office received financial support from the Malaysian government and an external donor, partners from a local corporate sponsor jointly raised the funds for the outreach. The program was led by DWNP in 2005 with facilitative support of WCS, WWF-Malaysia and MNS education specialists. Based on the lessons learnt, WCS is embarking on a long-term community outreach program, beginning with the capacity building of MYCAT partner organizations' personnel.

In 2007, the Secretariat's Office, in collaboration with extended partners including a local communications company and state government, began a campaign against the local trade and consumption of tigers and their prey. Employing various approaches, including the use of mass-media and booths at night markets, campaign messages are targeted at the 65% of Malaysians who live in urban areas (Table 11.1), while more focused outreach programs are conducted for aboriginal and local communities in hotspots where illegal trade in tigers and their prey occurs. The selection of hotspots is based on intelligence information from DWNP and TRAFFIC, with volunteer assistants trained by WCS staff with logistic support from WWF-Malaysia. The outreach programs are closely coordinated with DWNP's law enforcement arm—a unique approach enabled by the MYCAT network.

Another notable example of the benefit of partnership was the realization of the National Tiger Action Plan jointly developed by the government and NGOs using the MYCAT framework (see Kawanishi et al., Chapter 29). Through the collaborative platform, the conservation partners try to balance competing interests and institutional differences for the effective implementation of the Action Plan. The Secretariat's Office plays an important role of assisting the Ministry of Natural Resources and Environment in monitoring the progress.

Unlike TAL, MYCAT is a more centralized partnership, based in Kuala Lumpur, whereas partner organizations work with other stakeholders at a more local level. While such short-term project-based collaborations of restricted objectives might be established and managed easily, long-term successful partnerships to implement a national conservation strategy depend on

<sup>a</sup><http://www.malayantiger.net/>



building mutual confidence and trust requiring frequent dialogues over a long timeframe [34]. Today's fast turnover rates of personnel and projects in conservation organizations, as well as some donors' requirements for immediate measurable outputs, are counter-productive in creating long-term social changes. To some extent, MYCAT provides continuity in an effort to focus on short-term outcomes while not losing the long-term vision outlined in the Action Plan.

One of the challenges for MYCAT is to quantify positive impacts on the status of wild tigers. In the immediate future, the success of MYCAT will be reflected in implementing and monitoring the progress of the National Action Plan, which will require a greater collaboration with decision-makers from other government agencies, as well as support from the general public.

## LOOKING FORWARD

In examining and comparing TAL and MYCAT—two different types of collaboration in response to the challenges presented by different regional settings—we can identify commonality in the lessons learned:

- New knowledge and innovative sensible solutions are conceived when diverse stakeholders with different interests, knowledge, and skill sets come together to share experience, learn from one another, and participate in the decision-making process.
- Collaboration and dialogue facilitates the learning of different stakeholders, creates a deeper and shared understanding of the challenges, and thereby reduces potential conflicts and redundancies.
- In combination, these processes provide the key to solving the 'wicked' problems, the most challenging dilemmas in wild tiger conservation we are facing today.

As human populations in tiger range countries grow, wild lands and natural resources decline, and societal and cultural connections with nature become more estranged and diminished. Essential partnerships and collaborations that sustain wild tiger populations have to adjust to meet these changes. Indeed, collaborative conservation is the platform to achieve viable long-term relationships in human and natural systems that ensure the survival of life on Earth.

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