

Managing Religious Pilgrimage to Sacred Sites in Indian Protected Areas

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Abstract

In India, an ancient link exists between Hindu tradition and nature; and many sacred sites—among them rivers, mountains, and temples—are found within protected areas. In recent years, visitor numbers to these sites—and consequently their impacts on biodiversity—have escalated, particularly during religious festivals. India's National Tiger Conservation Authority has mandated every reserve develop plans to manage religious tourism, but the challenges of balancing conservation with community visitation rights have hindered implementation. Here we discuss the first management model to assist park authorities in meeting these challenges—developed in the Kalakad Mundanthurai Tiger Reserve. In this 'Green Pilgrimage Model', government, civil society, and religious stakeholders co-manage activities ranging from waste disposal to awareness-raising campaigns linking conservation and religion. Although challenges remain, this project has led to observed shifts in visitor attitudes and behaviours, underscoring the potential of faith-based approaches and partnerships for nature conservation in Indian protected areas.

Personal Statement: Chantal Elkin

In 2012, my work with the global organisation Alliance on Religions and Conservation (ARC) found me living in an ashram in the foothills of the Himalayas in Rishikesh, India. Based in this holy town on the Ganges River, I spent months meeting with respected religious leaders and contacting conservationists from across India in order to understand the nexus of conservation and religion. I made a surprising discovery: conservation and religion met, and often clashed, in India's tiger reserves. These reserves are home to some of the world's last tigers; as well as other globally threatened species. They also harbour some of India's holiest

Hindu sites—places where millions of pilgrims congregate to worship and offer their reverence to deities. In 2013, I happened upon a magazine article describing efforts to ‘green’ religious tourism in the Kalakad Mundanthurai Tiger Reserve by the Ashoka Trust for Research in Ecology and the Environment (ATREE), an Indian non-government organisation. In 2014, ARC and ATREE launched a partnership to refine and expand a ‘Green Pilgrimage Model’—the first national approach aimed at bringing together religious and conservation groups to help create environmentally sensitive pilgrimage in protected areas. Drs. Soubadra Devy and Ganesh Thyagarajan spearheaded this work at ATREE and hosted ARC’s newly appointed Religion and Conservation Director in India, Sanjay Rattan. Our collaboration has led to a growing network of partnerships and sites that are pioneering a green pilgrimage approach in Indian protected areas.

Introduction

On any given day in India, thousands of devotees are on pilgrimage. The vast array of religious sites create a sacred geography crossing the length and breadth of the country (Eck 2012). With rising incomes and improved access, the number of pilgrims traveling to holy sites is increasing rapidly. A pilgrimage that may have traditionally taken weeks to complete can now be done in days. As a result, the religious towns that are destinations for or associated with pilgrimages are feeling the strain on their resources and infrastructure—particularly in relation to energy, water use, sanitation, and waste.

Pilgrimage is also putting pressure on India’s nature reserves. Millions of pilgrims visit holy sites such as rivers, mountains, and caves located inside protected areas—many of which are now adorned with temples and shrines that host religious festivals (Dudley et al. 2005). In addition to pilgrims, these reserves are visited by large numbers of tourists and wildlife enthusiasts; and this near-constant presence of people impacts on both wildlife and habitat (Kaur and Balodi 2016).

In this chapter, we explore the impact of pilgrimage on India’s tiger reserves, the core areas of protection for two thirds of the world’s tigers; as well as other globally threatened species. Mass religious tourism brings significant quantities of waste to many protected area landscapes. Rivers and water sources can be polluted from open defecation; and from thousands of people washing their bodies and clothes, bathing ritually, and conducting animal sacrifice (Figure 14.1). Added to this is the cutting of

trees for fuel; as well as other disturbances to local plants and wildlife—including noise and lights from traffic and festivities—from unrestricted movement and camping in the core areas of the reserves. As such, the pressure from religious tourism can represent an overwhelming challenge to park managers.

Here we describe how the Ashoka Trust for Research in Ecology and the Environment (ATREE), together with the Alliance of Religions and Conservation (ARC), evolved the Green Pilgrimage Model. The aim of the Model is to mitigate negative impacts associated with pilgrimage through a multi-stakeholder process in which religious groups—in addition to protected area managers, local government, and civil society—are engaged as key partners in the conservation of protected areas.

<FIGURE 14.1 HERE>

Figure 14.1: Pilgrims bathing and swimming in the Tamiraparani River, Kalakad Mundanthurai Tiger Reserve, Tamil Nadu State, India.

Photo credit: Ovee Thorat, Ashoka Trust for Research in Ecology and the Environment, 2017

The need for conservation-religion partnerships

In 2015, ARC supported an ATREE mapping initiative that identified more than 50 sacred sites in the 13 tiger reserves of the Western Ghats biodiversity hotspot (ATREE 2015). Figure 14.2 identifies the range in numbers of visitors during pilgrimage to these parks. Most tiger reserves and other protected areas in India have sacred sites within their boundaries (ATREE 2015; Verma et al. 2017). This echoes a global phenomenon in which reverence for holy natural sites has safeguarded them from disturbance; and, as a consequence, they have been recognised as some of the best-conserved parts of a landscape. Many such sites are contained within the core of formally protected areas (Dudley and Higgins-Zogib 2012; Verschuuren et al. 2010).

<FIGURE 14.2 HERE>

Figure 14.2: Visitor numbers during pilgrimages to 13 tiger reserves within the Western Ghats biodiversity hotspot region of India.

Source: Ashoka Trust for Research in Ecology and the Environment, 2015

Some of India's largest pilgrimages occur in the Western Ghats, including the Kalakad Mundanthurai Tiger Reserve—the focus of this chapter. Pilgrimage to the Periyar Tiger Reserve in Kerala State is perhaps the largest of all, attracting an estimated 30 to 50 million visitors annually to the Lord Ayyappa Temple during the three-month festival season (November to January). This amount of people entering the park has contaminated the river, caused animals to flee the temple forests, and has littered the park with waste. The local Forest Department—who manage Periyar Tiger Reserve—is being pressed to de-gazette sections of tiger habitat to accommodate the increasing flow of pilgrims (Kuttoo 2016).

In recognition of this growing impact, India's National Tiger Conservation Authority has, since 2012, mandated that Forest Departments responsible for managing tiger reserves draw up action plans to regulate religious tourism. The plans are required to adhere to national guidelines governing protected areas; and manage pilgrim numbers in collaboration with temple authorities. Potential strategies can include: limiting camping by pilgrims to specific days; restricting the expansion of temple premises; educating temple authorities, the public, and tourism operators on the importance of forest ecosystems; and launching a 'Do's and Don'ts' campaign for pilgrims visiting protected areas (NTCA 2012).

Very few tiger reserves have implemented these guidelines as the Forest Departments responsible are often understaffed and struggle with the enormity of the task. Some park authorities have imposed strict regulations on pilgrims and temples, which in turn has alienated some sectors of religious groups from park management. Calls for religious freedom to visit the parks without restriction compete with the need to protect threatened plants and wildlife from large influxes of people. These developments and attitudes mark a history of conflict between conservation and religious groups in many of India's tiger reserves; and pose a challenge to protected area managers and religious groups alike.

The Green Pilgrimage Model for the Kalakad Mundanthurai Tiger Reserve

Collaboration on a Green Pilgrimage Model was initiated in Kalakad Mundanthurai Tiger Reserve, located in the Western Ghats biodiversity hotspot in Tamil Nadu State (Figure 14.2). ATREE had been working here for 10 years because the Reserve is considered one of the few tracts of relatively undisturbed habitat in southern India. The Reserve's dry evergreen and riparian forests harbour high plant endemism and a range of threatened species—such as the Asian elephant (*Elephas maximus*), Lion-Tailed macaque (*Macaca silenus*), and Indian

pangolin (*Manis crassicaudata*). It is also the southernmost habitat of the Bengal Tiger (*Panthera tigris tigris*) and contains an estimated population of 16 to 18 tigers. It is one of the few places in the Western Ghats where all five Indian primate species occur; as well as all 14 endemic mammals and 14 of 16 endemic birds (Johnsingh 2001).

Several temples lie in the core area of Kalakad Mundanthurai Tiger Reserve and in the adjoining buffer zone. These temples hold deep cultural and religious meanings for the inhabitants of the region. The most prominent religious complex is the Sorimuthu Ayyanar Temple located in the central part of the dry evergreen forest. It is built on the banks of the Thamirabarani River; and on an ancient penance location of the venerated sage Agastya. In the 1990s, a few thousand local villagers paid homage at this temple. However, current visitor levels are around 200,000 with pilgrims travelling from near and far to the Sorimuthu Ayyanar Temple for the annual Adi Amavasai Festival—with an additional three thousand visitors arriving every non-festival month (Devy et al. 2017). Pilgrims typically visit and camp on-site during a five to ten day period (ATREE 2015). A further 15,000 pilgrims visit the Malai Nambi Kovil Temple per year; and at least four other temples and shrines in the Reserve are visited by pilgrims numbering in the thousands (ATREE 2015).

During the annual Adi Amavasai Festival, religious devotees follow the rituals of paying homage to the sacred site and deities—a tradition handed down by their forefathers. Many devotees walk from their villages to stay near the temple during this auspicious period. They camp in the forest, receive blessings from the temple Raja (a venerated religious leader), and pray to the deity, Sorimuthu Ayyanar, for bountiful crop yields and productive livestock, general wellbeing, and blessings for their ancestors. They bathe in the holy river and offer prayers for plentiful water for their crops. They sacrifice goats and chickens and feast with family and friends, sing and perform sacred folklore, and partake in festivities—such as ritual dancing, fire walking in the presence of the Raja, and, at times, inviting possession by the local spirits.

Integrating religious actors into the Green Pilgrimage Model

In response to the Tamil Nadu Forest Department's (hereafter referred to as the Forest Department) request for assistance with managing the pilgrimage festivals, ATREE commenced the development of the Green Pilgrimage Model for Kalakad Mundanthurai Tiger Reserve in 2006. In preparing the Model, the main threats posed by religious tourism

were identified. Recommendations were then provided to the Forest Department in order to address these threats (ATREE 2010), which included:

- **Water Pollution:** Dangerous and increasing levels of E coli in river water with downstream Indigenous communities reporting dysentery, skin rashes, and food poisoning for months after the festival
- **Waste and Sanitation:** High levels of open defecation, plastic, and other litter (often consumed by wildlife), sacrificial remains
- **Disturbance to wildlife:** Noise, lights, traffic, large crowds camping and walking through core biodiversity areas
- **High fuelwood use and damage to plants from camping:** Including threat of extinction to endemic *Euphorbia susan-holmii* cacti, found only near the Sorimuthu Ayyanar Temple.

By 2014, the Forest Department had incorporated many of ATREE's Green Pilgrimage Model recommendations into the Reserve's management plans. However, relations between the conservation community and the Sorimuthu Ayyanar Temple administrators were at an all-time low, with a number of legal cases launched from both sides. Attempts by the Forest Department and conservationists to regulate the scale of the pilgrimage had caused friction with the Temple authorities—who oversee 21 hectares of Temple land within the Reserve. The Temple authorities felt some environmental restrictions were insensitive to their religious heritage; and also threatened financial donations and rent from shopkeepers from the festival that helped sustain the forest Temple throughout the year.

In response, a new dimension to the Green Pilgrimage Model emerged, which recognised religious groups as key partners in conservation; and brought them into dialogue concerning the most pressing conservation issues. As a relative newcomer, ARC was able to assist by reaching out to the Raja and other key religious actors, with requests to work together to bridge differences and create a greener, more economically, environmentally, and socially sustainable pilgrimage.

The Sorimuthu Ayyanar Temple administrators and leaders are gradually taking responsibility for some green pilgrimage actions. In recent years, for example, the Raja has supported a waste management program within the Temple lands; and faith-based conservation messages are now included in the Green Pilgrimage Model's pilgrim awareness campaigns. We anticipate and are optimistic concerning increased participation in green pilgrimage activities by the Temple in years to come—as long as relations between the conservation and religious communities continue to improve.

We have found that cooperation and conservation action with religious actors are most effective when they emphasise respect for Hindu cultural practices and principles that speak powerfully to care for the earth. In Hindu tradition, these principles include *sama-darshana*—equality of all living beings regardless of race, creed, or species. This vision and concept links everything to God, and consequently with each other; and asks devotees to respect all life. *Ahimsa* is another guiding principle that calls on the faithful to act in ways that cause the least harm; while *Dharma* asks devotees to consider the *loka-sangraha*—the welfare of all beings (Rishi Das 2017).

Religious leaders issuing faith-based conservation messages have the potential to galvanise millions of people to protect India’s threatened habitats and wild species as a matter of religious responsibility and devotion. Swami Chidanand Saraswati—Spiritual Leader of the Parmarth Niketan Ashram in Rishikesh, and host of the first Hindu Green Pilgrimage Network meeting in 2012—provides an example:

A pilgrimage is a divine experience. Every moment of a pilgrimage is *puja* (worship), not only that which we perform in the temple upon arrival. However, rather than treating our pilgrimage areas as temples, we are actually causing harm to natural places as we venture forth on our holy pilgrimages and engage in religious celebrations. We forget that other people and other creatures live in the places we are visiting on our pilgrimage, and that we must respect their homes.

The Green Pilgrimage Model: Methodology

This section outlines the methodology developed and implemented as part of the Green Pilgrimage Model approach. We include this brief overview because we argue that it has application to a wide range of places in India; and other parts of the world.

Step 1: Research the dynamics of religious tourism in tiger reserves and impacts and threats to biodiversity

- Assess waste levels, sanitation, river and water quality, traffic and road kill, animal movements, and threatened plant status—in order to identify the key threats posed by religious tourism within tiger reserves.
- Conduct socio-economic surveys with pilgrims to collect data on frequency and duration of visits, length of time in core biodiversity areas, weekly/annual pilgrim flow to temples, transport used, fuelwood use, open defecation, perceptions of pilgrimage and the

environment, opinions concerning regulations, and the impacts of awareness campaigns.

- Create and prioritise mitigation measures—such as regulating traffic, preventing forest degradation, and preventing or reducing forest fires.
- Establish a monitoring regime by determining environmental and social indicators; measure indicators and use results to inform management decisions—that is, an adaptive management framework.

Step 2: Make recommendations for improved management of the reserve(s) before, during, and after pilgrimages

- Based on the information collected, issue reports—in our case to the Forest Department—outlining the key threats to local biodiversity posed by religious tourism and pilgrimage; making recommendations on ways to mitigate these threats and monitor them over time; and proposing strategies for reaching out to and working with religious groups, civil society groups, and communities via management action plans and awareness campaigns.

Step 3: Support the establishment of multi-stakeholder committees to develop and launch co-management plans for a more conservation friendly pilgrimage

- Establish mechanisms for open dialogue with key stakeholders concerning green pilgrimage—for example: the Forest Department; local municipality/district officials; religious institutions; civil society non-government organisations; educational institutions; shopkeepers; tourism operators; village governing bodies; and local communities. In the case of the Green Pilgrimage Model for Kalakad Mundanthurai Tiger Reserve, open dialogue resulted in the creation of a multi-stakeholder committee that reached agreement on a green pilgrimage management plan that addressed issues including waste, sanitation, biodiversity protection, camping activity, and awareness and education; and that shared management responsibility among all actors.

Step 4: Launch awareness campaigns before and during pilgrimages that includes faith-based conservation messages

- Develop and launch awareness campaigns—aimed at pilgrims, local villages (from which many pilgrims originate), and civil society—providing information on local reserve management regulations,.
- Incorporate into awareness campaigns positive, faith-based messages linking religious beliefs—for example, concerning cleanliness and purity; the interconnectedness of all beings; and the divinity present in nature; as well as specific information on reserve regulations, such as a ban on the use of plastic bags and restrictions on open defecation,

fuelwood cutting, and river use.

- Communicate messages in ways that are sensitive to religious and cultural practices. In the case of Kalakad Mundanthurai Tiger Reserve, this included well known artists putting on plays in which the Sorimuthaiyan deity appeals to pilgrims to protect his forests; appeals in the media by religious leaders; as well as artwork, folksongs sung by popular singers, education rallies with hundreds of students and non-government organisations, talks in schools and colleges and with civil society/religious groups, articles in local newspapers and social media, television advertisements, and petitions, banners and posters featuring religious messages and icons (Figure 14.3).

<FIGURE 14.3 HERE>

Figure 14.3: Example of a faith-based conservation message presented on awareness banners as part of a pilgrimage.

Source: Alliance on Religions and Conservation, 2015

Results for the Kalakad Mundanthurai Tiger Reserve

The Green Pilgrimage Model—as applied in the case of the Kalakad Mundanthurai Tiger Reserve—fulfils many of the requirements of India’s National Tiger Conservation Authority’s guidelines on managing religious tourism in tiger reserves. As the first model to systematically examine religious pilgrimage in protected areas, Ashoka Trust for Research in Ecology and the Environment’s (ATREE) and Alliance on Religions and Conservation’s (ARC) research has greatly improved understanding of the dynamics and impacts of large-scale pilgrimage within areas of high biodiversity. The research identified a range of indicators against which the Forest Department can monitor changes in the impacts of pilgrimage activities over time. It has also led to the development of practical strategies to mitigate negative impacts on the Reserve, many of which have been adopted by the Forest Department and other stakeholders. As a result of these efforts, observers and the media lauded the 2017 pilgrimage festival as the greenest ever (ATREE 2017; *The Hindu* July 2017).

This progress can be largely attributed to the shift in the management of pilgrimage in tiger reserves from solely the responsibility of the Forest Department to the concern of a diversity of stakeholder groups. Through the establishment of multi-stakeholder committees, reserve managers, local government representatives, religious authorities, and civil society groups

have, for the first time, reached agreements on co-management responsibilities for green pilgrimage activities. Critical to this success has been the ability of the reserve management administrators to engage and establish dialogue with religious groups in ways that are respectful and culturally sensitive.

Although more work remains to be done to create effective and sustainable environmental and social systems, the following divisions of responsibilities are illustrative of successful co-management to address issues of waste management.

- Clean up teams at bottlenecks along pilgrimage routes and riverbanks (responsibility of ATREE, ARC, Forest Department, volunteers)
- Tightening of restrictions on waste collection and transport (District Government)
- Ban by the Forest Department on plastics/ alcohol/ cigarettes; and searching pilgrims and tourists for these at checkpoints, along with the with distribution of cloth bags—sewn by local women’s cooperatives—for use in the collection of rubbish (ATREE, ARC, Forest Department , volunteers, women’s groups)
- Shops and stalls use dustbins and distribute non-polythene, including clothe bags (shopkeepers)
- Infrastructure provided for toilets/ dustbins / sacrificial pits for collection of human and animal waste (ARC, ATREE, Forest Department, temple, municipality)
- Temple area waste management program for cleaning and disposal, managing temporary toilets, providing banners with faith-based messages on waste, sanitation, and bans on plastics (Temple Administration, ARC, local NGO)
- Media/social media campaign (Temple Administration, religious and civil society groups, ARC)
- On-ground awareness campaigns using faith-based, cultural, and conservation messages (ARC, ATREE, Forest Department, civil society groups, schools/ universities).

Intervention impacts

This section elaborates on selected indicators used to monitor the impact of the Green Pilgrimage Model in Kalakad Mundanthurai Tiger Reserve. It illustrates how indicators are being used to assess the impacts of interventions under the Model.

Pilgrim attitudes

Although there is still much progress to be made, ATREE and ARC have observed positive shifts in visitor attitudes related to green pilgrimage. Awareness and understanding of environmental messages during pilgrimage is growing: in 2017, 60 percent of pilgrims surveyed recalled specific environmental messages, compared to 33 percent in 2016. This improvement is attributed to ever-improving coordinated action and messaging by stakeholder groups (Rattan 2017). Our research in 2017 also demonstrates an overall willingness among pilgrims to abide by many of the Forest Department's regulations (Rattan 2017). Most pilgrims were found to believe that the animals and plants in the reserve are protected by the Sorumuth Ayyanar deity; and should not be disturbed. These findings suggest that pilgrims are predisposed to celebrating the Festival in line with conservation goals (Rattan 2017). As such, compliance with regulations will likely improve when communicated in ways that connect to their religious values and beliefs; and when they are reinforced in ways that are respectful of religious and cultural sensibilities.

Water Pollution

Water pollution analysis undertaken near the main Temple area in 2010 and 2017 indicates that levels of faecal bacteria in the Tamiraparani River—considered holy by Hindus—remained at dangerous levels when surveyed during and after the festival. This was primarily due to animal sacrifice, defecation, and bathing along the riverbanks (ATREE 2017a). Since 2011, temporary toilets have been erected and pits dug to treat human waste and safely dispose of the remains of sacrificial animals. Our surveys showed that temporary toilet use rose from one percent in 2014 to about 50 percent in 2017 (ATREE 2017a). However, temporary toilet use and maintenance need improvement and more restrictions on access to the river by pilgrims are required. In comparison, and following access restrictions by the Forest Department to the Banatheertam Waterfalls upstream of the festival area, levels of pollutants declined dramatically from 2010 to 2017 (ATREE 2017a).

Plastic Waste

In terms of plastic waste, in 2017 we found that over 85 percent (of 220) pilgrims questioned were highly willing to comply with the ban on plastic use in the Reserve (Rattan 2017). In turn, actual behaviour has begun to align with this attitude. In 2017, we recorded a decrease in polythene bags brought into the park by pilgrims, and shopkeepers in the temple area have stopped distributing plastic bags altogether (ATREE 2017a). After a zero waste campaign in 2016 in the pilot site of Kalathimadam, one of the villages from which pilgrims to the Kalakad Mundanthurai Tiger Reserve originate, nearly 80 percent of those surveyed supported waste regulations. This same village has significantly reduced plastic usage when compared to other villages; and, additionally, has invested its own resources in creating

alternatives (ATREE 2017a). In terms of disposal of plastic bags, the burning of bags in the park decreased in 2016 versus 2010, and more pilgrims took bags home for disposal in 2016 versus 2010 (ATREE 2017a). On the negative side, more pilgrims buried their plastic bags in the park as a means of disposal in 2017 than in 2010 (ATREE 2017a). Our research shows an overall positive response to messages on solid waste including plastic, but also highlights a need to maintain enforcement and awareness efforts.

Decrease in roadkill

The influx of visitors into the Kalakad Mundanthurai Tiger Reserve during the Adi Amavasai Festival has led to an increase in the number of animals killed on the roads (roadkill) in the protected forest area. In the period 2008-2009, over 1,400 animals, mostly invertebrates, were killed by vehicles during the festival period. This represents a 300 percent overall increase in mortality during the festival compared to before the festival, with nocturnal species suffering the worst at a 640 percent increase (Sheshadri and Ganesh 2011). A similar pattern of high nocturnal species mortality was observed in 2014 (Narayanan et al. 2015). In 2017, however, roadkill in the Reserve was significantly reduced in comparison to 2009 (387 kills/km versus 47 kills/km over the three busiest festival days) (ATREE 2017a). This is likely due to Forest Department measures restricting night traffic and—for the first time in 2017—prohibiting private vehicles entering and parking in the reserve. Public transport was provided and used by over 60 percent of pilgrims surveyed, compared to 38 percent in 2010 (ATREE 2017a). Reduced rainfall during recent festivals may also have played a role, as rain often leads to an increase in animal deaths.

Recommendations to protect wildlife

Wildlife disturbance has been a difficult issue to resolve due to large crowds in the core area of the Reserve, with the ripple effects of festivities extending to a radius of 4.5 kilometres from the Sorimuthu Ayyanar Temple into the Reserve (ATREE 2010). Research shows lower encounter rates of mammals during and after the festival within one kilometre of the Temple: a 75 percent drop in encounter rates in 2010 compared to an 83 percent drop in 2017. This persisting low animal encounter rate is due to human presence in the Reserve's core area and associated noise and lights during religious festivities (ATREE 2017a). Hunting traps were found near some campsites (ATREE 2010) and there is concern about animals dying or falling ill from feeding on spoiled food refuse and plastic waste during and after the Adi Amavasai Festival (Lockwood 2006).

Protection of threatened vegetation

Pilgrims commonly cut down small trees and vegetation to establish makeshift camps and for use as fuelwood, resulting in lower stem densities in forests close to the Sorimuthu Ayyanar Temple (ATREE 2016). This leads to soil compaction and poor regeneration of the dry evergreen forests that provides the habitat for many rare species. For example, the endangered cacti *Euphorbia Susan-holmesiae*, which grows on rocks close to the Temple and Tamiraparani River, has been extensively damaged by pilgrims cooking and camping in the area. Raising awareness of its rarity among pilgrims and increasing the presence of Forest Department staff to deter cutting, has stemmed further loss of this endemic species (ATREE 2010; ATREE 2016).

Significant reduction in fuelwood usage

There has been a dramatic reduction in the use of fuelwood following Forest Department restrictions highlighted in awareness campaigns. For example, in the year 2008, almost 80 percent of the campers used fuelwood as compared to 25 percent in 2017. Correspondingly, liquefied petroleum gas (LPG) stove use has increased in 2017, with 75 percent of campers using this source to cook their food versus 20 percent in 2008 (ATREE 2017).

Discussion

Achieving a balance between protecting vulnerable biodiversity during religious pilgrimage, and respecting religious rights to access sacred sites, has proved to be difficult in India. The Green Pilgrimage Model offers the first comprehensive approach that addresses the challenges involved with achieving this balance. The Green Pilgrimage Model is now being tested with a range of local civil society and government partners at two additional sites.

The first is Ranthambore Tiger Reserve in Rajasthan State in northwest India. This Reserve—with an estimated population of over 50 tigers—is one of the most important for tiger conservation, but also one of the most visited in India. Within Ranthambore's boundaries are many sacred sites ranging from small rocks beneath trees to large temples attracting up to two million pilgrims annually from Rajasthan and neighbouring states (Government of Rajasthan 2005). The most visited sacred site within the Reserve is the Trinetra Ganesh Temple located on top of Ranthambore Fort—a UNESCO World Heritage cultural criteria site <<http://whc.unesco.org/en/list/247>>; and located within the core of the Reserve. Apart from weekly visits by pilgrims on auspicious days, the Reserve has a large and growing influx of pilgrims during the annual Ganesh Chaturthi Festival. During the two-week Festival period in August/September, over 700,000 people are attracted to the area (Government of Rajasthan

2005). Visitor numbers spike at almost 200,000 people over the principal two to three days of the Festival (Rattan, et al. 2015)

In 2016, a partnership with the World Wildlife Fund was launched to test the Green Pilgrimage Model at the Garijya Devi Temple in the buffer zone of the Corbett Tiger Reserve, northern India. The 1,000-year old Temple is situated on top of a rock in the middle of the Kosi River. The Temple is considered divine by devotees and houses the goddess Parvati—a Hindu goddess of fertility, love, and devotion. Fifty years ago visitation to this Temple was from nearby villages. The temple now draws an estimated 500,000 pilgrims a year from a wide geographic area, with 100,000 arriving during the main festival of *Ganga snaan* in November/December. The Kosi River corridor surrounding the Temple has some of the highest tiger densities in the world; and pilgrims increasingly move through and impact on the ecologically vulnerable river and forest zones (Rattan 2017).

Our experience with the Green Pilgrimage Model in Kalakad Mundanthurai, Ranthambore, and Corbett tiger reserves demonstrates the strength of a participatory action model. In this model, stakeholders from government, civil society, and religious groups co-manage the different activities aimed at greening large-scale pilgrimage in areas with high biodiversity values. It also confirms that awareness campaigns using faith-based messages were overwhelmingly endorsed by pilgrims, such as those employed in the Clean Ganesha-Green Ganesha campaign in Ranthambore (Figure 14.4). In our surveys, pilgrims stated that the awareness campaigns strengthened their awareness of religious beliefs related to nature conservation (Devy et al. 2015; Rattan 2017). Although our work points to attitudes and behaviours of pilgrims that are slowly shifting, many challenges remain. Waste and sanitation management are enormous problems at most sites; as is the free flow of pilgrims in ecologically-sensitive core zones of the tiger reserves.

<FIGURE 14.4 HERE>

Figure 14.4: Volunteers erecting ‘Clean Ganesha-Green Ganesha’ campaign posters in Ranthambore Tiger Reserve, Rajasthan, India, during the annual pilgrimage to the Trinetra Ganesh Temple.

Source: Alliance on Religions and Conservation, 2015

In order to have far reaching and sustainable impacts, government regulations—issued by the Forest Department, for example—must necessarily take into account the sensitivities and

priorities of pilgrims to and the caretakers of religious sites and temples. Recognising the contributions that sacred/ religious sites can make to protected area management objectives (Oviedo 2005; Verma et al. 2017) requires the implementation of strategies linking awareness of protected area management regulations to religious beliefs and values. Our research strongly suggests that pilgrims and religious groups are predisposed to supporting conservation goals. If religious groups feel their needs and rights are respected, they can be powerful allies in maintaining the integrity of biodiversity in Indian tiger reserves during pilgrimage events. If not, there is a real risk that regulatory action will be ignored; and actively and legally resisted.

Meaningful and sensitive communication between government, religious, and civil society actors is not easy to achieve. Despite their reverence for nature, religious and conservation groups typically view and speak about nature in different ways. At our pilot sites, work is underway to help bridge the communication gaps between these groups in order to encourage cooperation and sustainable actions. Actors at the local level must increasingly facilitate these relationships in order to ensure the sustainability of religious-conservation partnerships. We anticipate that as trust and relationships grow between conservation and religious groups, that temples will be more proactive in disseminating conservation messages through their teachings and outreach programs before, during, and after pilgrimage festivals. Such actions, we suggest, can honour the teachings inherent in religious traditions that point to the Divine in all creation.

The Green Pilgrimage Model has great potential for application to protected areas around India and beyond. Our hope is that India's National Tiger Conservation Authority will champion the Model and support its implementation in tiger reserves. Our work has demonstrated that it is possible to meet the National Tiger Conservation Authority's guidelines in ways that are sensitive to the complexities of modern religious tourism and that sustainably change the management of pilgrimage events. We are optimistic that replication of this approach throughout priority tiger reserves and protected areas across India will result in greater harmony between actors; and improved protection and management of Indian biodiversity.

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