



Annual Report 2020-2021

Small Steps Towards A Tiger Future

2020-21 has been a difficult and painful year for all, throwing into sharp relief the many inequalities and inadequacies of our natural and social systems. However it has also thrown light on widespread human compassion and the power and necessity of community actions. This pandemic year has shone a spotlight on nature and the environment and opened new eyes to our essential relationship within this and to the need for us to care for our home planet in order for it to continue to support us.

Baavan—bagh aap aur van was set up with objectives of furthering our knowledge of the natural world and improving our relationship with it. One of this small trust's main objectives is to “work in close association with local communities to encourage, support and promote community-based nature conservation”. Presently its long term focus is that of extending conservation beyond the Panna Tiger Reserve, by raising ecological understanding and by introducing an appreciation of the potential economic benefit forest and wildlife preservation could bring to a wider community.

Unfortunately this clarity of vision does not seem to have fully percolated into the government system and the forests of the wider area, both inside and beyond the Panna Tiger Reserve, and within which Baavan—bagh aap aur van operates, are threatened by two major projects—the Ken-Betwa river-linking plan and the proposed Buxwaha diamond mine. Neither yet have full environmental clearances and both face enormous local opposition, yet they are hailed as “development” and presented as though it is only a matter of time before they are operational. Both would severely impact the sustainability of a continuing tiger population in Bundelkhand and this highlights the need for tiger friendly communities benefiting from the forested environment in which they presently live.

This year has sadly also seen a change in the Tiger Reserve management leading to the demise of the inclusive conservation plans for part of its buffer area that Baavan had been instrumental in developing, to the extent of also donating a vehicle to the community to enhance their livelihoods. This validates our decision to mainly direct our work at areas beyond the PA network, within the community rather than with the Forest Department whose interest in increasing tiger numbers seems to supersede their ecological understanding.

The pandemic restrictions naturally curtailed many of our activities and for quite a few months meant we had to interact with the community from afar and by proxy. However the lack field activities allowed for some quality training time and we were grateful that wildlife ecologist, Dr Rashid Raza was able to spare some weeks to take on this task. Both Baavan and Sarai staff greatly benefitted from his expertise and with him they began some research monitoring in the Panna Tiger Reserve. This was particularly beneficial as this year Baavan has taken on a new Conservation Officer; we are very happy to welcome Dileep Ahirwar, a neighbour from the local village who comes to us with several years experience with Eklavya, an M.P. NGO pioneering innovative educational programmes.

As restrictions eased we were able to have more direct interactions with the community. One result has been to prioritise and move ahead with an animal husbandry project—artificial insemination to improve their milking livestock in the long term and developing stall-feeding and other practises to help in the short term. This will also benefit the forest by reducing livestock damage to the vegetation. Our plan to provide a community centre met with enthusiasm. This will be useful both for their social occasions and as a base for Baavan to develop more livelihood enhancing and nature education programmes. So while the on-ground activities to report here may be slim, we feel strides have been made in communication and understanding between the communities and our trust.

Raghu Chundawat
President

Joanna Van Gruisen
Managing Trustee



Executive Summary



Baavan's area of interest. The solid dark green line is Panna Tiger Reserve boundary and the buffer is in green dashed lines.

In 2018 BAAVAN began a nature education programme with a view to creating tiger friendly communities around Panna Tiger Reserve. This entry level programme was planned as an annual activity to continuously engage the younger generation in nature conservation. However, in 2020, when the world was hit by the Covid-19 pandemic, leading to lockdowns, all our activities had to come to a sudden halt. As Covid cases receded and lockdown was lifted to some extent, we were able to resume some of our work. BAAVAN's health interventions, like the eye camps, and other community welfare work that the trust undertook with Daly College could not be undertaken last year but we do hope that in the coming year we will be able to resume some of these.

Since the schools were completely shut, education took a hard hit as students were forced to attend online classes. The Banki community, where BAAVAN is working intensively, has no access to a high-speed network. To help mitigate the problem and make sure students did not lose complete touch with their daily school routine, Janka, the supply teacher Baavan had engaged to assist at the government school, took extra classes in small batches in the open air. BAAVAN staff trained Janka in some educational games where students could learn through fun activities such as Origami and addition/subtraction using natural

objects. to create an environment for cognitive and creative development.

We slowly developed our engagement with the Banki community and organised several meetings with them. We had planned a very detailed discussion to share the results of the BAAVAN household survey with them and to plan future actions with the community. Since we had lost a lot of time due to the lockdown, we shared some key aspects of the survey, one of them included income from livestock. In our meetings, we discussed how to augment dairy-related income, while reducing the pressure on the forest.

Although households traditionally have kept livestock and spend large amounts of time and money on their care and provision, the contribution to their income is considerably less than labour and agriculture. However, with proper husbandry practices, there is good potential to double their income from livestock, while also reducing the dependency on forest.

With positive feedback BAAVAN has already begun work with the community on this issue. Some of the first actions agreed are work on the improvement of the livestock breeds and to showcase the benefits of stall feeding by taking communities on educational tours. Fortunately, Krishi Vigyan Kendra in Chitrakoot,

a couple of hours drive away, is an ideal place for them to obtain first-hand experience and training about the various indigenous breeds and the best practices that will help increase their income from animal husbandry.

With an eye on the long term and with expressed community needs in mind, BAAVAN plans to build a community centre in Banki with support from our partners. The community are keen to have a village venue for various social activities, medical camps, workshops etc as there is no such facility in the village at present. We believe such a centre will also greatly enhance our regular engagement with them and provide space to conduct educational workshops and other planned activities. We envisage that it could also provide accommodation for associates and partners coming to work with the community.

As our work in the area is for conservation purposes, it is important that comparative and objective analysis is done yearly to understand the impact of our conservation actions on the forest and wildlife of the area. To create baseline data for wildlife abundance in the area, BAAVAN plans to conduct annual surveys. In order to do so, we invited Wildlife Ecologist, Dr. Rashid Raza to visit and conduct a capacity-building workshop for BAAVAN staff and

Sarai at Toria naturalists to train them in the basics of wildlife survey techniques. This training included an introduction on how to use different field equipment, how to make natural history observations and build on existing knowledge base. After this they were exposed to different field survey techniques such as distance sampling and line transects, camera trapping, conducting vegetation plots to assess habitat and in point counts for birds.

After training, the field team conducted a survey using "Distance Sampling" to monitor the population of tiger prey in the tourism area of the Panna Tiger Reserve, under Dr. Raza's supervision. BAAVAN plans to conduct this exercise annually with the aim of developing an understanding of the impact of tourism on tiger and its prey populations there. Since BAAVAN has access to data from 1995 to 2005 from the same area, a comparison between the two data sets would help document any changes that may have occurred.

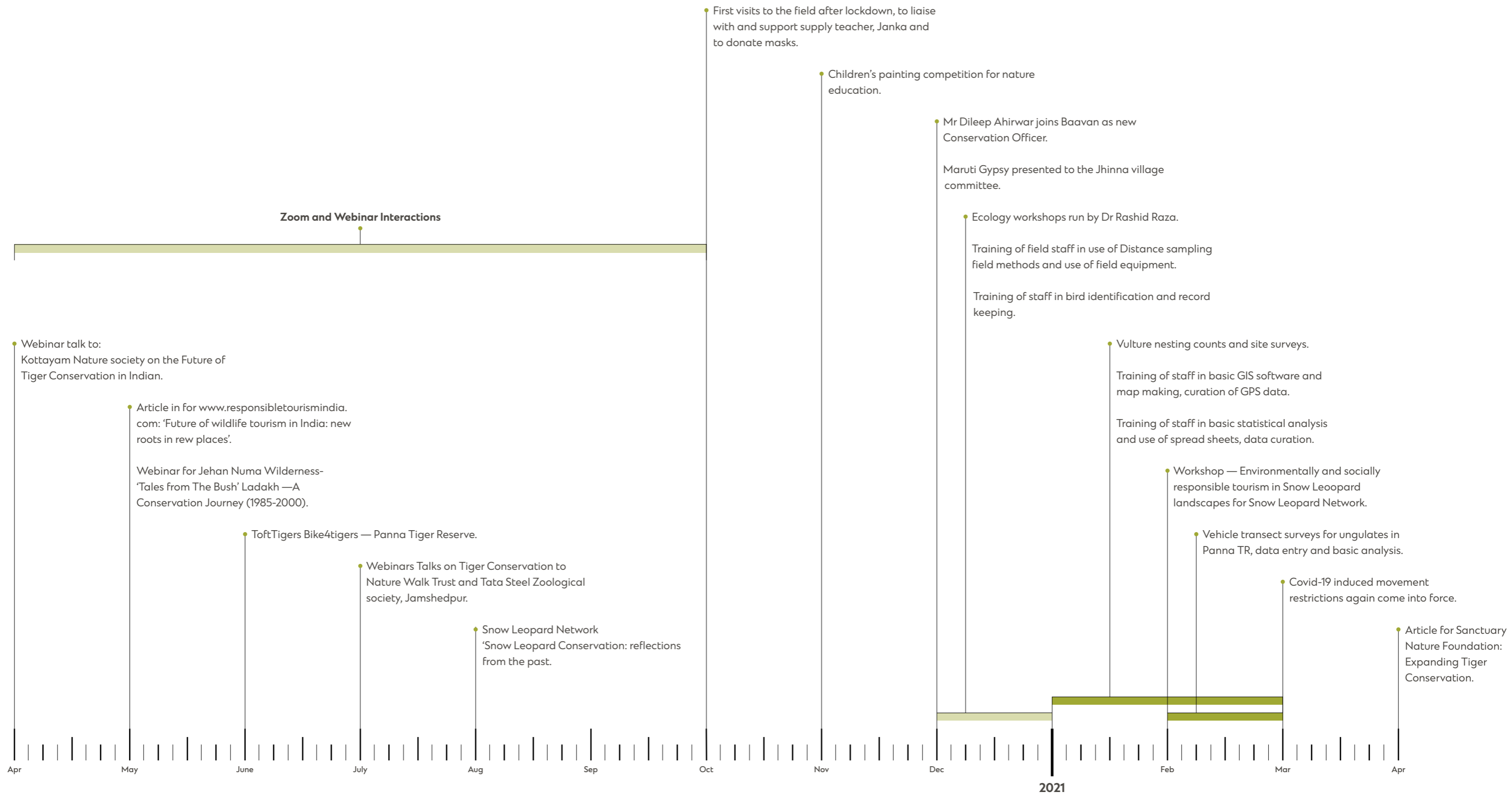
BAAVAN hopes to soon resume the one-day nature camps as part of its ongoing nature education programme along with developing other plans and introducing a number of new activities.



A generous donation from author, Arundhat Roy enabled Baavan to purchase a wonderful selection of children's books to enhance its nature education and school assist programmes.

A Year in Review

Baavan Work Timeline



Education Programme



Lockdown schooling

“The teacher’s fundamental task is to get students to engage in learning activities that are likely to result in achieving [the intended learning] outcomes. It is helpful to remember that what the student does is actually more important than what the teacher does.” (Schuell, 1986, p.429)

When schools were closed during the lockdown, BAAVAN facilitated and encouraged ‘joyful learning’ in students. We introduced some extracurricular activities to help students understand basic educational concepts but also to help develop their cognitive ability. These activities were structured to help students in line with their existing school curriculum, overcome their fear of public speaking to connect with their teachers/peers. It was also an opportunity for the BAAVAN team to develop a bond with the students and increase their interest in nature education. Some of the activities were conducted using Origami, Poem recitation, storytelling and Mathematics such as basic additions and subtraction but using natural objects. For these activities BAAVAN hired a special teacher at the Banki village and classes were conducted at her home in small batches of seven-10 students at one time. BAAVAN staff introduced these activities to the supply teacher and students. Our staff made regular visits to Banke village to supervise the progress and to introduce new activities.

Thanks to a special donation, we were also able to procure books for children’s extra-curricular learning on topics of language development, social justice, gender, environment-friendly practices, nature education, fun with science, maths and some story books. We hope to ignite a book reading habit through some engaging activities like ‘book talk’ and by creating a mobile library. Eklavya, Kalpravisksh and Pratham books provide a wonderful selection of beautifully illustrated books for all age groups.

Origami

Origami is the ancient art of paper folding and has great relevance in today’s education, it helps understand geometry, shapes & sizes, develops thinking skills and a scientific temperament. Students are able to improve their hand-eye coordination and refine motor skills. We had the students make a boat, a house, a sofa and a supa (wheat cleaner). It was an activity which was enjoyed and repeated several times. BAAVAN now plans to build on more educational activities using Origami skills.

‘School’ in the Time of Covid



Poem recitation & storytelling

To create a conducive environment to learn language and develop speaking skills we did some poem recitation and storytelling activities. This helps improve vocabulary and pronunciation, public speaking and build confidence in students. The story telling activity also helped us understand and collect some local folk stories from the students.

‘Maths with lolly sticks’

Maths can be daunting for many students but it can be made attractive and fun through activities. To help them understand the early concepts, we did a ‘maths with lolly sticks’ activity where they learned how to add and subtract using physical objects in an outdoor space.

Other Educational Activities



Painting competitions, book making, poetry recitation and story telling.



Community Engagement



The Covid-19 second wave once again stalled our progress but between the first and second lockdown, we resumed our engagement with communities starting from October 2020. We engaged on a regular basis, to rekindle and strengthen our relationship with the community. We had had an extensive work calendar planned for the year but, due to the pandemic, it could not be done with the same vigour as projected.

We held meetings with the village community in Banki, explaining our interests and why we were reaching out to them. We also apprised them of our education initiatives in the school and described our interest in their childrens' education and the need for them to attend school.

We discussed with them the survey findings and our interest in exploring ways to raise family incomes. Most of the households have traditionally kept livestock and are dependent on the income from dairy. The existing practices are only economically viable because farmers have free access to grazing in the neighbouring forests. The poor pasture quality due to excessive grazing by unproductive cattle directly competes with more



productive livestock. We explained the impact of free range grazing on productivity versus the benefits of stall feeding. The fact that stall fed domestic breeds give ten times more milk than their most productive buffaloes was hardly believable to them. Based on this feedback, we decided to expose them to good animal husbandry practices—education tours to experience first hand and learn from the best in the business would be a great motivator.

Such educational tours can give the community confidence to take the necessary steps towards improved animal husbandry and thereby enhanced livelihoods. It can help them understand how with better animal husbandry practices and breed augmentation, the family economic benefits can be improved. Through the meetings, we came to mutual agreement that improving the cattle breed through artificial insemination and vaccination against common diseases would be BAAVAN's first initiative. Later we will work with villagers to adopt stall feeding practices with better livestock breed.

BAAVAN contacted Krishi Vigyan Kendra in Chitrakoot to plan an education tour with the Banke/Ghirauli community. The main goals for these tours would be to showcase and explain the benefits of cattle breeds, stall feeding and productivity achieved through better husbandry practices.

We also discussed with the Banki community the need for a venue or large space for social workshops and health camps in the village. We proposed that BAAVAN will help build a community centre in Banki with the support of our partners. This would also help increase our engagement with them and enable us to conduct various community-level activities like training and medical camps. We hope the centre would also help accommodate external experts and partners who would visit around the year to work with the community. The community agreed and the Panchayat have passed a resolution to allocate a small piece of land for the Community Centre.



Capacity Building

Consultant: **Dr Rashid Raza**

BAAVAN plans to establish conservation baselines at the outset of its conservation journey in order to be able to compare the impact of its actions and monitor changes. In 2019-20 we had conducted a household survey to assess the socio-economic status of three villages where BAAVAN is working more intensively. We also had planned a survey to assess the biological diversity and its conservation status. Since BAAVAN has access to early data on tiger prey from the Panna Tiger Reserve that is open for tourism, we also wanted to assess possible changes as a result of increased tourism activities there. For both surveys in the winter months of 2020-21 we conducted training workshops for the BAAVAN staff to prepare them for these surveys. We invited Dr. Rashid Raza, a respected Wildlife Ecologist, to train the staff.

First lessons were about how to use commonly used field equipment like binoculars, range finders, different types of compasses, GPS and their use. This was followed by several field and classroom sessions to train the field team in how to take observations and how to record these observations and build natural history knowledge on different species, mainly focussing on bird diversity. The team were taught how to lay long straight lines of over a kilometre in the forest that has limited visibility. To assess the bird diversity and abundance in agricultural fields Dr Raza conducted several exercises to show how to plan for a survey and establish protocols. Point counts, duration of observation, how to assess the most suitable distance between two points to provide spatial independence were explained. This was followed by classroom sessions to explain how to manage field data using excel spreadsheets and the team were introduced to various software.

Field staff were trained in distance sampling methods to monitor wild ungulate populations. Importance of distance measurement and detectability bias were demonstrated through convenient field exercises such

as counting flower-heads in a few metres of transects to livestock and primates in village forest areas. This data was digitised and results were plotted on the same day to demonstrate declining detectability with distance. In addition to distance sampling, methodology to evaluate habitat and vegetation was demonstrated and practiced.

A survey for nesting sites and active nests of vulture species was conducted along the Barana river. Clusters of white rumped vulture nests in various stages of incubation and chick rearing were observed. All field staff participated in the survey and detailed records were taken of each nest. BAAVAN will continue to monitor nesting and population of vultures in the area.

Creation of basic geo-spatial database was demonstrated through QGIS platform. Plotting and archiving of GPS tracks and points on GIS and Google Earth. Measurement of map distance, area and composing a basic printable map were learnt.

After the team was trained, BAAVAN conducted vehicle-based distance sampling to monitor ungulate populations within the tiger reserve with a view to assessing the impact of increased tourism activities in the tourism area. The results will be analysed in detail and will be compared with the data set available from the late nine-ties and between 2000-2005.

All our field staff participated in the exercise and demonstrated how much they had learnt. Dr Raza appreciated the skills they had developed with the field equipment, their attention to detail, precision of measurements and above all their efficient functioning as a field unit. He reported that the staff were exceptionally motivated, had a high level of curiosity and a drive to learn. They had also demonstrated a capacity to retain the skills and put these into practice independently.



White-backed vulture survey

Nest total | 22

Active | 18

Inactive | 4

Chicks seen on nests | 8

Adults seen on nests | 18

Jhinna Eco-Development Committee



BAAVAN, with the support of Sarai At Toria, facilitated in the donation of a safari vehicle to empower the Jhinna EDC. This is helping to generate extra revenue for the committee through its use for safaris. The Tiger Reserve management is monitoring the day to day functioning of the EDC activities.



Vision for the Future

Developing Dairy As Conservation Friendly Economy

The need

The household survey that we had conducted last year indicated that income from dairy related sources in the villages is low—on average around 15%. More than 150 households keep livestock—each one owning 6-8 buffaloes and cows. Such a large number of livestock cumulatively can and does create heavy grazing pressure on neighbouring forests. The ecological impact of heavy grazing on forests and wildlife is well documented as an important source of habitat degradation. Heavy grazing not only intensifies habitat degradation, but the disturbance created by livestock presence limits wild ungulate prey densities.

This is not a new idea but a renewed vision for BAAVAN.

We believe that that with better animal husbandry practices, grazing pressure on the forest can be minimized while at the same time helping families to double their dairy income. After research and discussion with experts and with concerned community members, we plan to work with them on a husbandry project with the aim halving the number of livestock while doubling milk production and reducing grazing pressure on the forest. We hope that this reduction in pressure will lead to arresting of the ecological degradation and restoration of the habitat, thus creating a suitable environment for the recovery of wildlife populations.

The milk production from the community's livestock is very poor and clearly one positive step would be to improve or replace their unproductive breeds. The selection of suitable breeds for the central Indian climatic condition will be first priority and BAAVAN will help community representatives to engage with experts for deciding on the most suitable breeds. When the community were told that there are breeds of buffaloes and cows that can produce ten times more milk than their existing breed, they could hardly believe it. The second priority then was to conduct several educational tours to expose the farmers to various breeds and their management and thereby provide them first hand experience.

Tours are planned to take villagers to the Chitrakoot-based dairy farm to showcase different domestic cow breeds, their production potential and the animal husbandry practices that help to achieve high milk production. Simultaneously they will be exposed to

and see how proper composting can also add to their income.

Community Centre

BAAVAN has plans for conducting various educational workshops in the villages so have identified a need for appropriate space where this can happen. At present this is not available in the village. The community and BAAVAN have also discussed the need for a community centre for them. These needs coalesce so after some deliberation, the community has allocated a piece of land to BAAVAN for construction of a Community Centre. Next year we plan to raise funds for this centre and hope to start work as soon as possible so that we can move ahead with educational workshops to help prepare villagers to adapt to the changes being agreed with us. One of the big changes that BAAVAN envisions is to adopt stall-feeding of cattle; this will require plenty of support. One of the issues that has been raised is about nutrition and the need for proper fodder. Making silage and producing other sources of nutrition that can be locally made or sourced will be explored and such issues will be addressed with help from community and outside expertise.

BAAVAN will continue to work with children nature and basic education, health camps for adults.

We plan to do an intensive biological survey of the neighbouring forest to establish a conservation baseline. BAAVAN staff is now fully trained to undertake such an activity. This monitoring will be conducted every two years.



Other Activities

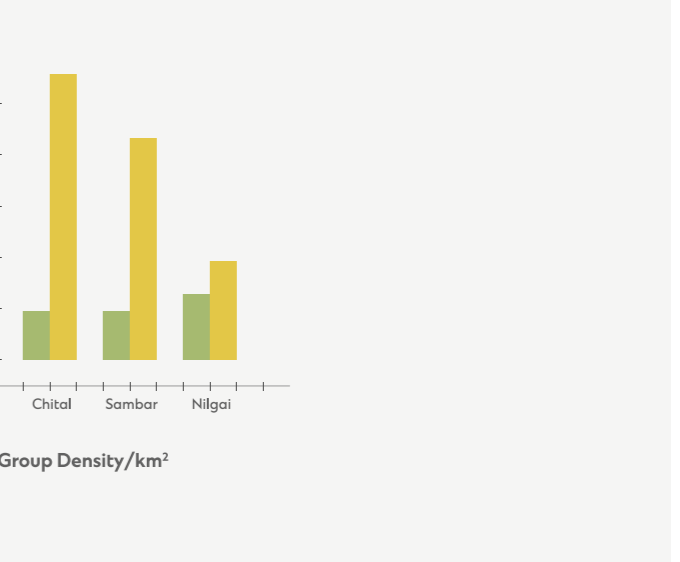
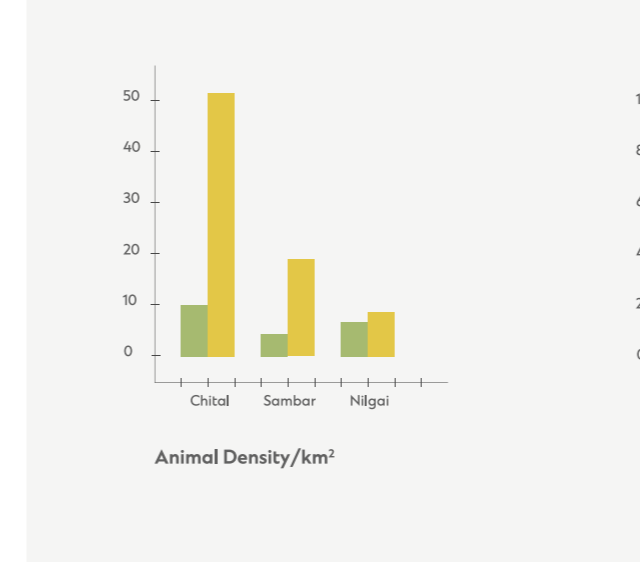
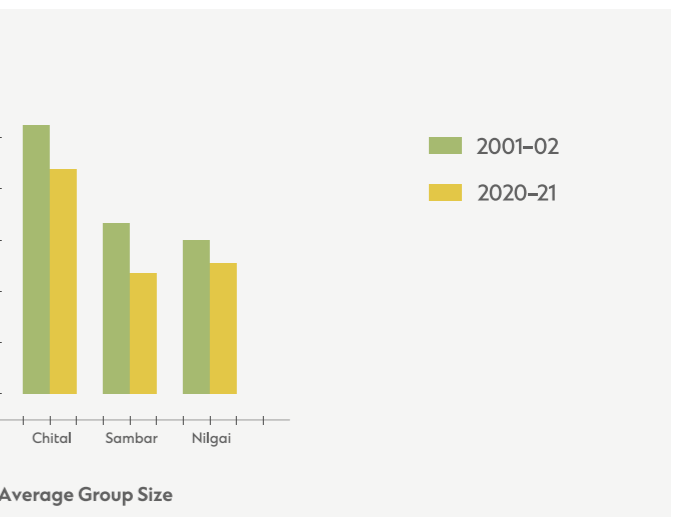
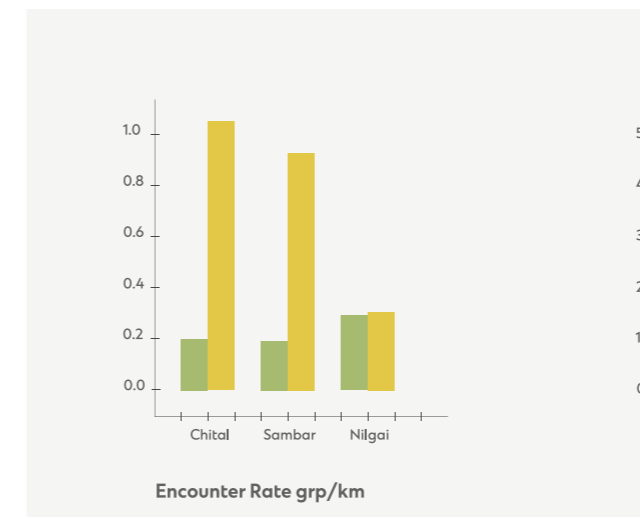
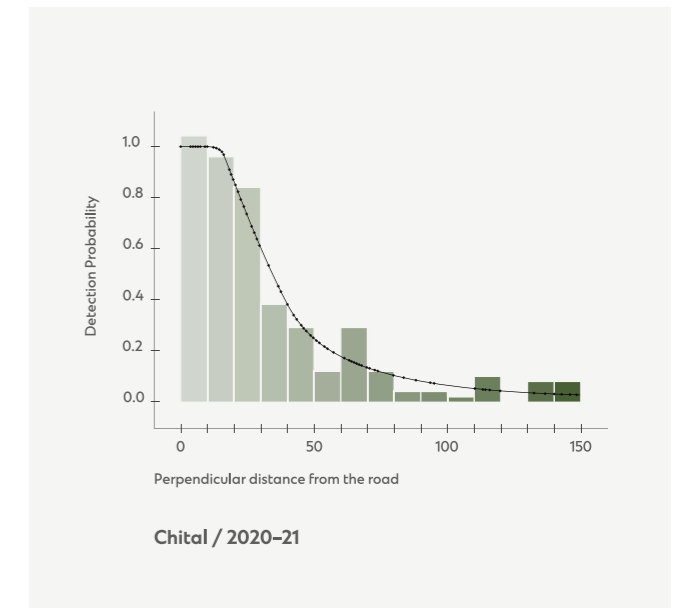
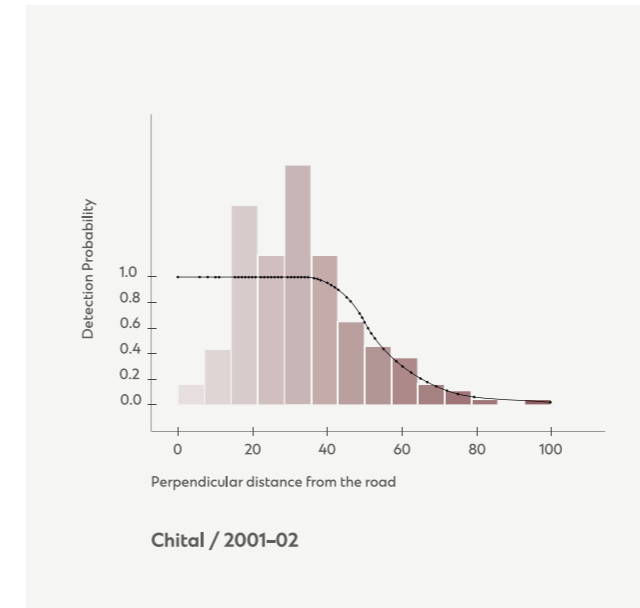


Monitoring Tiger Prey

After BAAVAN's field team was trained by Dr Rashid Raza, they together conducted several road transects to assess abundance of tiger prey within the tourism zone of the Panna Tiger Reserve. The three main objectives for this exercise were:

1. To build on the skill set developed in the field team so that with this experience they would be well prepared to conducted such activities independently.
2. Since BAAVAN has access to similar data from 1997-1998 and 2000-2004 from the same area, a comparison with these historical data sets can help detect and document any quantitative changes. A regular independent annual monitoring will generate important data for understanding the impact on the wildlife populations of various management actions, such as water hole creation and grassland management.
3. A comparison with historical data can also fill the gap of knowledge that exists on the impact of increasing tourism activities on wildlife populations.

All open tourism routes open were covered in this 2021 survey. The vehicle based survey was conducted using distance sampling. Since roads are not straight lines, instead of using angular sighting distances we modified the methodology by taking perpendicular distances for every sighting and these were used for the "Distance Sampling". Dr Rashid analysed the field data and estimated abundances and various other parameters. He also analysed the historical data collected during 2001-2004 and compared it with 2021 data set. The main aim for this comparison was to detect changes that have occurred in the prey communities and to document the impact of increased tourism activities on the abundance and flight distances of tiger prey, mainly chital, sambar and nilgai.



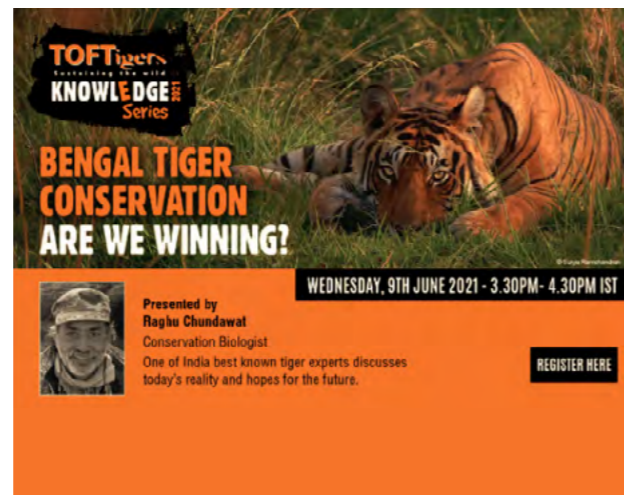
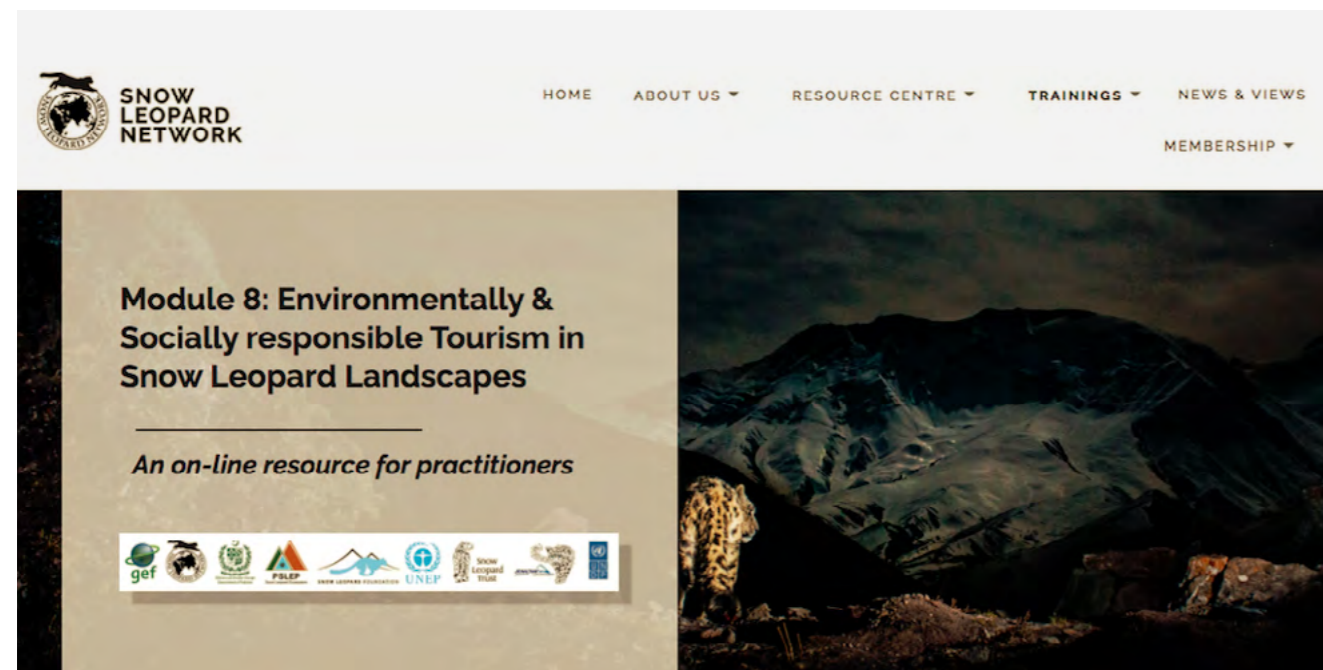
Tiger prey survival in the neighbouring forests of the Panna Tiger Reserve is contingent on the goodwill of the communities that share the same landscape. BAAVAN's focus is to work with the villagers that depend on the forest, to develop ways with them to live better and with less competition and conflict with their wild neighbours. Achieving this paves the way for more tiger populations to survive outside the Protected Areas; this can both double India's tiger population and enable small isolated PA populations to be viable over the longterm.



Other Activities

Webinars During the Lockdowns

The early lockdown due to the Covid-19 pandemic continued with restricted movement for much of the year. Schools were closed and few outdoor activities were possible between April and October. BAAVAN participated in various webinars and zoom meetings. Dr. Chundawat and Joanna Van Gruisen represented BAAVAN in many webinars, gave detailed presentations and also conducted workshops on a variety of conservation issues covering a wide range of subjects and habitats, from tourism to tigers to snow leopards, from peninsular forests to Himalayan deserts.



Our Support

Many individuals continue to contribute and help Baavan develop its projects both materially and conceptually, and we would like to take this opportunity to express our gratitude to them all. We also wish to thank WWF-India, the Born Free Foundation and SLTP for believing in us and providing funds and support for our education project. Even in these hard times the travel industry continues to support us and following the footsteps of Periplus, this year we are grateful to Emma Horne, Director of Emma Horne Travel for supporting Baavan's conservation endeavours through their donation. We are also deeply grateful to Arundhati Roy whose generous contribution allowed us to splurge on educational and fun, nature and environmental children's books. We also really value the interest and support of Dr. Niraj Badodiya and Dr. Shukla from Daly College, Indore who, while unable to participate as they had last year due to the pandemic, continue to be in touch and plan for future involvement. The Sarai at Toria provided support needed in terms of finances and logistical support, also hosting people and providing vehicles and personnel. We also thank the staff of the Sarai at Toria for their participation and for lending a helping hand whenever required—thanks especially to Piyush Richhariya who has tirelessly worked both for the Sarai and in co-ordinating Baavan activities, and to Jaipal Singh and Davendra Pratap Rai. Baavan was most fortunate to be able to enlist the academic and field expertise of Dr Rashid Raza and he has greatly enhanced the learning abilities, knowledge and scientific awareness of our staff. We are most grateful for all his work and inspiration. Dr Raza's skills and analysis has also been invaluable in bringing scientific temper to the work. While Upamanyu Raju left Baavan's employment to assist his parents through the difficult pandemic work climate, he has continued to remain involved and render support and assistance. We are also grateful to both him and Dr. Raza for their invaluable help in preparing this report. Baavan also owes a huge debt to Mickey Bardava for his artistic design of our new logo and the look and layout of our reports. Baavan recognises its good fortune in receiving his untiring support. We are also grateful to his intern, Aanchal Agrawal for her assistance in creating this report.

Last, but not in any way least, we acknowledge the dedication and enthusiastic work of our **Baavan** team—Dileep Ahirwar and Rahul Ahirwar.

Conservation partners that have supported Baavan's activities.





The Baavan (Bagh Aap Aur Van) trust was set up, as its name suggests, to further the interests of wildlife, forests and people. The emphasis is on scientific research that can enhance understanding of India's flora and fauna and on promoting wildlife conservation in association with the communities living in and around protected areas. The trust was named after a key tigress that lived in Panna National Park in the 1990s and early 2000s, so-called for the markings above her eyes that could be read as '5' and '2'.

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