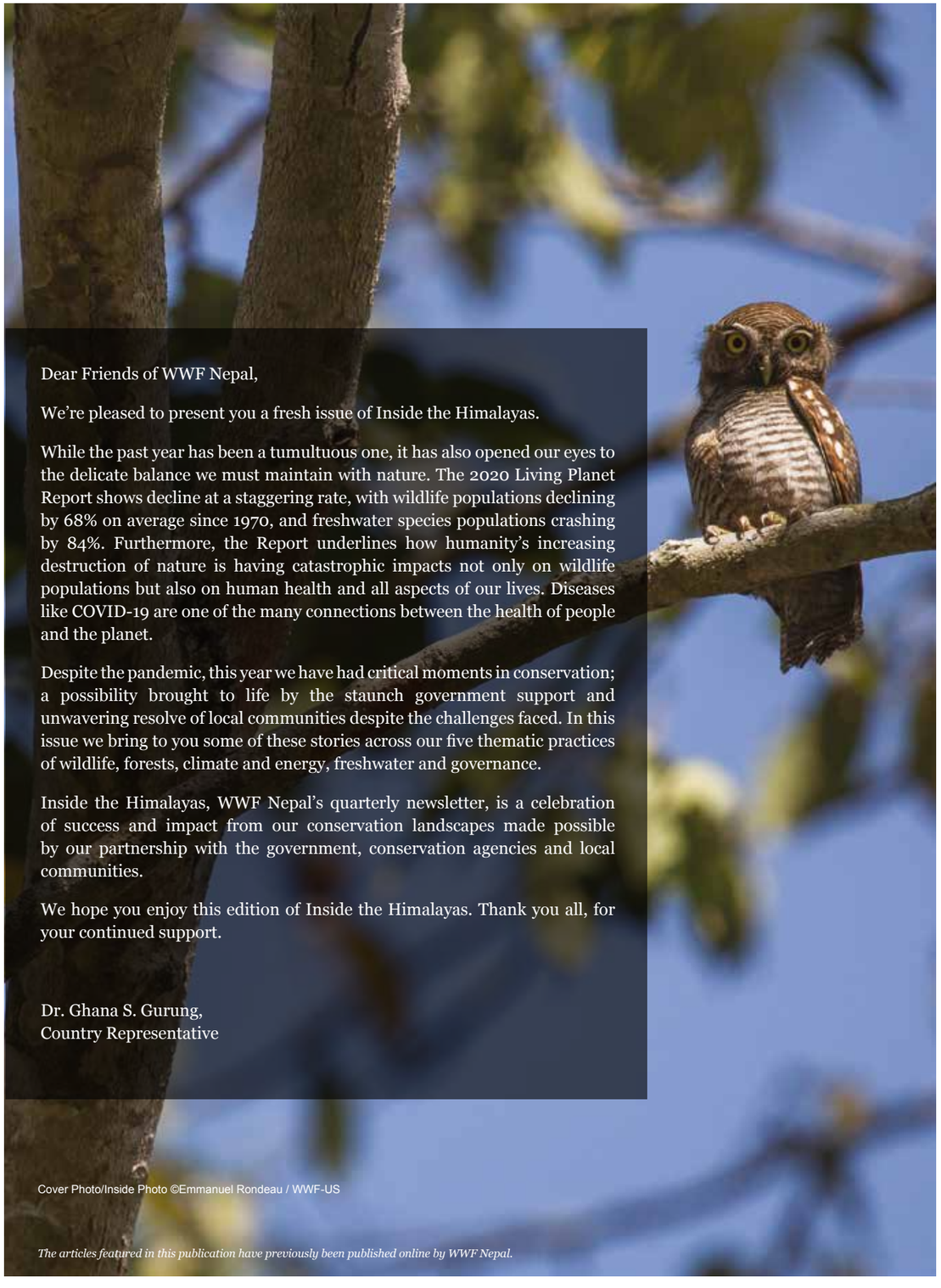
WWF

NEPAL

2020

Inside the Himalayas



Dear Friends of WWF Nepal,

We're pleased to present you a fresh issue of Inside the Himalayas.

While the past year has been a tumultuous one, it has also opened our eyes to the delicate balance we must maintain with nature. The 2020 Living Planet Report shows decline at a staggering rate, with wildlife populations declining by 68% on average since 1970, and freshwater species populations crashing by 84%. Furthermore, the Report underlines how humanity's increasing destruction of nature is having catastrophic impacts not only on wildlife populations but also on human health and all aspects of our lives. Diseases like COVID-19 are one of the many connections between the health of people and the planet.

Despite the pandemic, this year we have had critical moments in conservation; a possibility brought to life by the staunch government support and unwavering resolve of local communities despite the challenges faced. In this issue we bring to you some of these stories across our five thematic practices of wildlife, forests, climate and energy, freshwater and governance.

Inside the Himalayas, WWF Nepal's quarterly newsletter, is a celebration of success and impact from our conservation landscapes made possible by our partnership with the government, conservation agencies and local communities.

We hope you enjoy this edition of Inside the Himalayas. Thank you all, for your continued support.

Dr. Ghana S. Gurung,
Country Representative

Cover Photo/Inside Photo ©Emmanuel Rondeau / WWF-US

The articles featured in this publication have previously been published online by WWF Nepal.

CONTENTS

©Sebika Thapa/WWF Nepal

TRAILING TIGERS TO NEW HEIGHTS

A behind the scenes look into Nepal's first documented high-altitude tiger

Sabita Malla, Wildlife Biologist and Samundra Subba, Research Officer at WWF Nepal

©DoFSC/WWF Nepal

That call came sooner than expected. Within a week after the last camera trap was set, an elated citizen scientist announced that a tiger had been photographed in one of the stations.

©WWF Nepal

Chapter One: SAMUNDRA SUBBA

From day one, the hills of Dadeldhura greeted us with the unexpected.

We arrived to find a thick dusting of snow fresh from the night before, coating the forest floors as icicles hung from branches.

Snowfall is common in the hilly district but in the context of our mission, which was to camera trap a tiger that locals had supposedly seen roaming these paths, the mid-March snowy greeting only piled on more doubt.

Our journey to the site evoked similar feelings. As we moved north, habitats shifted from sub-tropical hill mixed forests to temperate and sup-temperate forests of Chirpine, Oak, Alder, Rhododendron and Cedar—a vast difference to the established understanding of tiger habitats in Nepal. The uncertainty was also fueled by past experiences, where reports of tiger sightings proved false upon validation.

But one thing science has always taught us is to remain hopeful, no matter how vague the picture may be. So, we set our gears in motion.

My colleague Karun and I began preparing for the survey, which spanned across healthy forested patches in the region, determined by images on Google Earth. We were there to orient and train citizen scientists and forest personnel on camera trap operations, GPS handling, map reading, and camera deployment.

©Karun Dewan/WWF Nepal

With 32 pairs of camera traps to deploy across a grid of almost 130 sq.km and four teams of enthusiastic and adept citizen scientists, we dropped off all teams at their respective sites by dusk.

The teams set up camera traps over the next 2-5 days, guided by territorial marking sites, such as scrapes, scat, and pugmarks, as well as potential tiger pathways in the hilly regions, such as ridge lines and cliff trails.

With fingers crossed and a hopeful heart, I returned to Kathmandu, looking forward to a call from the citizen scientists who would be monitoring and reviewing data from the camera traps every five days over the month-long survey.

That call came sooner than expected. Within a week after the last camera trap was set, an elated citizen scientist announced that a tiger had been photographed in one of the stations.

While waiting for the images to arrive, my colleague, Sabita Malla and I eagerly discussed the many implications of this finding. From potentially linking new habitats for tigers to extending our survey to other healthy forests in the region and all the positive implications for Nepal's conservation sector—there was much to discuss.

Our conversation was cut short when the photo arrived. Upon closer inspection, we found that the camera trap had photographed a barely visible leopard cat. Our excitement was premature.

From 23rd March, the escalating COVID-19 pandemic resulted in a nationwide lockdown. However, we continued to receive a few updates from the field.

As per our earlier plan, camera trapping would end by 10th April 2020. The team collected all camera traps and memory cards in one place. With this, our quest for the tiger was slowly disappearing in the mists of Dadeldhura's forests.

Chapter Two:
SABITA MALLA

After the false alarms, challenges and capture of various other species, it was back to being a waiting game—that is until another call from a citizen scientist brought our hopes back up. Hopeful but cautious we waited for Karun to share the images.

Our eyes didn't trick us this time. Hopes turned into jubilance when we could confirm with full certainty that it was indeed a tiger. It was official: an individual tiger had been camera trapped at an altitude of ~2500m, confirming their presence in the Mahabharata range - record-breaking evidence of a tiger at such high altitudes in Nepal.

As luck would have it, it turned out that the tiger had been recorded just a week after the camera traps were set. But the image remained unchecked for around a month as the citizen scientist in charge of the grid could not review the footage due to a cell phone malfunction.


©Karun Dewan/WWF Nepal

Seeing the tiger on my laptop screen took me back to a conversation with Samundra in 2017 as we camped at Parsuram in Dadeldhura, a beautiful landscape bordering India, with the Rangoon river in the north and Mahakali river in the west. We'd been exploring forests beyond protected areas in the Terai Arc Landscape; the only landscape known to be habited by tigers in Nepal.

Pausing to marvel at the untouched forests, the dense vegetation, and lush environment, we'd passionately discussed the possibility of a contiguous habitat for tigers spanning the transboundary landscape - from the Churia forest range in Nepal, to the Boom, Danda and Champawat forest ranges in India. Back then, we had a profound wish to explore these habitats, but were constrained by official clearance.

In early January three years later, our wishes materialized, when tiger sightings in the region prompted a request from the Divisional Forest Office at Dadeldhura, to validate the anecdotal evidence. We immediately sprang into action to determine potential tiger trails and tracks, design the survey, and procure the official clearance. Given that a tiger was previously captured in lower elevations in 2017, this proved relatively easy. The Terai Arc Landscape Program, under the leadership of Divisional Forest Office of Dadeldhura, consequently launched a month-long survey along the forest range between an altitude of 1650-2550m.

SO, WHAT DOES IT MEAN?

Conservation instincts and preliminary research have always pointed to viable north-south connectivity in Nepal. A study led by the Global Tiger Forum in 2019 identified 2213 sq.km as potential high altitude tiger habitats in Nepal. But Dadeldhura's first photographed tiger is historic for many reasons.

Tangible evidence of tigers traversing at 2500m provides solid ground for tiger conservation in the Mahabharata range (high altitude regions of Nepal). The finding also expands Nepal's known tiger distribution from the Terai Arc Landscape—widening potential tiger habitats in the country at a time when the whole world is battling to protect its existing range.

The finding also opens up avenues for further research in understanding the tiger's use of such high-altitude habitats and connectivity between Nepal and India, widening opportunities for strengthened transboundary

Tangible evidence of tigers traversing at 2500m provides solid ground for tiger conservation in the Mahabharata range (high altitude regions of Nepal).

conservation and providing a safe dispersal pathway between protected areas for tigers going ahead.

The areas for further research have also been widened—especially in understanding whether these high-altitude temperate forests were/are a source for tigers, or whether these habitats are only used temporarily. Given that these regions have not been explored previously, the historical presence of tigers in this region cannot be overruled. Many attribute climate change as the reason for their movement to higher altitudes, however tigers are one of the most adaptive species on earth, surviving in the hot, humid jungles of Southeast Asia to the snow-bound, frozen forests of Russia. However, tigers do require a functional ecosystem and climate resilient landscapes for their long-term survival.

For the past few decades, conservation strategies in Nepal have focused on the landscape-level. In doing so, the Terai Arc Landscape has been the primary focus for tiger conservation. This finding marks a critical juncture in this history by expanding hope for tiger habitats beyond the Terai Arc. Much deserved credit goes to the Government of Nepal's flagship Terai Arc Landscape Program, which has restored many such bottlenecks to make the landscape functional, but more needs to be done to ensure structural connectivity in the future.

By looking north and bringing together diverse stakeholders, we can tap into further linkages between protected areas—ultimately ensuring the viability of the species in the long run.

Something tells us that the upcoming future will be filled with more evidence of tiger pugmarks in snow throughout Nepal's lower Himalayan region.

IN ADDITION TO A TIGER, CAMERA TRAPS ALSO CAPTURED EVIDENCE OF A YELLOW THROATED MARTEN, RED FOX, HYENA, COMMON LEOPARD, LEOPARD CAT AND MORE.

RISING PRESSURE ON NEPAL'S TIGER HABITATS AMIDST COVID-19

Nepal's protected areas under rising pressure amidst lockdown

Leena Dahal, Communications Officer, WWF Nepal

©Kamal Raj Rai/WWF Nepal

While the world retreats indoors on lockdown, 27-year-old Smritee Lama has been spending little time under concrete ceilings and a lot of time under the towering forest canopies of Chitwan National Park.

As a ranger based in Chitwan, she's found herself at the frontlines of an alarming reality: A recent uptick in forest-related crimes.

The park she's currently protecting, a UNESCO World Heritage site and the first park in the world to receive accreditation for its tiger conservation efforts, has been facing immense pressure since Nepal enforced its nationwide lockdown in mid-March.

"Rangers in Nepal's protected areas have doubled their efforts to conserve nature. There's been a hundredfold increase in terms of entry into national parks despite the lockdown, as such you could say that the threats and challenges to biodiversity has also been multiplied a hundredfold," she says.

Her concerns extend far beyond Chitwan National Park.

A preliminary review of unpublished case data from 11 protected areas in Nepal conducted by the Department of National Parks and Wildlife Conservation (DNPWC) and WWF Nepal has found that human entry into protected parks has significantly risen since the lockdown at alarming rates.

The first month of the lockdown (24 March - 24 April) saw more cases of illegal extraction of forest resources—such as illicit logging and harvesting—than the preceding 11 months combined.

This data has also indicated a link between the recent impacts of COVID-19 and the rise in cases; citations of human disturbances within parks across the country have more than tripled compared to the month before the lockdown (483 cases were filed between April 2019 to March 2020 whereas 514 cases were filed within the first month of the lockdown period).

The threats are particularly evident in Nepal's tiger-bearing habitats, placing ongoing restoration efforts across more than 1.3 million hectares of critical forests and decades of globally lauded conservation efforts at risk of derailment.

This evidence poses a challenge to initial narratives in Nepal and abroad that the lockdown situation has led to a "temporary respite for nature."

The review, informed by unpublished monthly case reports generated by the Department of National Parks and Wildlife Conservation, Government of Nepal, focused on 11 protected areas, five of which were tiger-bearing. Only reports related to illicit harvesting and illegal logging were considered, as they represented a vast majority of the sample size.


© WWF Nepal


© WWF Nepal

PRESSURE ON PEOPLE, PRESSURE ON NATURE

According to experts, the rising pressure on forest resources indicates that people living in close proximity to protected areas are experiencing increased financial stress.

"Throughout decades of our involvement in Nepal's conservation efforts, we've found a key to natural resource recovery is local development of communities living alongside Nepal's protected parks, buffer zones, and critical corridors. When communities are financially secure, we have found that they have more capacity to seek sustainable livelihood alternatives to forest resources," says Shiva Raj Bhatta, Director of Programs at WWF Nepal.

The stress on natural resources has been especially prevalent in Terai, Nepal's low-lying plains that stretches across the southern border between Nepal and India. The region also encompasses the Terai Arc Landscape (TAL), a world renown conservation landscape that extends across 14 protected ecosystems. Almost all of Nepal's known prime tiger habitats are found within TAL.

Since the brink of the lockdown, scores of Nepali migrants—who collectively contribute nearly 30% to Nepal's GDP in the form of remittances—have returned to the country, many now rendered jobless. A vast majority of these repatriated migrants have returned to villages throughout Terai.

This, coupled with the loss of income sources and lucrative livelihoods such as tourism, may have led to further reliance on natural resources—such as firewood, timber, and grass—due to a constrained supply and a lack of alternative options.

For Shiv Raj Bhatta, Director of Programs at WWF Nepal, the situation demands urgent responses that consider the long-term effects on both people and nature.

"COVID-19's impacts on both people and nature are long-ranging which is why economic revival is urgently required to enhance their financial, medical, and social resilience. In doing so, we can ensure that Nepal can retain its status as a stronghold for tiger recovery."


© WWF Nepal

GROUNDS FOR POACHING

While available data does not show a marked increase in poaching incidents compared to past months, experts warn that this documented growth in forest-related criminal activity—against the backdrop of rising global economic uncertainty—may entice poachers into taking advantage of the crisis, further endangering Nepal's most vulnerable species.


©Emmanuel Rondeau / WWF-US


©Emmanuel Rondeau / WWF-US


©Shayasta Tuladhar/WWF Nepal

"Despite our preparedness on various fronts, poaching continues to pose a significant risk to our achievements in wildlife conservation, which is why we must remain vigilant and continue on the ground protection interventions during this time to deter the possibility of such outcomes and ensure the safety of wildlife," says Narayan Rupakheti, the warden of Chitwan National Park.

The immediate impacts of the lockdown are already visible. Poachers killed an elephant and three critically endangered gharials within the first 10 days of the lockdown. Six musk deer were also killed in Sagarmatha National Park, and four rhinos in Chitwan National Park resulting in one of the worst cases of wildlife poaching the region has seen in recent years.

With forest-related crimes on the rise, protection and patrolling measures have been intensified. Frontline staff in protected areas have ramped up the total time and range covered in their daily patrols, according to data obtained from Real Time SMART Patrol systems.

HEALTH RISKS TO FRONTLINE STAFF

Back in Chitwan, Smritee continues to conduct her extended daily patrols—growing more uncertain everyday about the safety of the forest she works to protect, as well as the health of her family.

"We used to meet for certain periods of time but under these circumstances, meeting my family has been difficult, So I guess that has caused stress." she says.

With Terai emerging as an epicentre for Nepal's documented COVID-19 cases, Smritee and other frontline staff protecting forests, buffer zones, and critical corridors are facing considerable health risks as they carry on their duties.

The spike in cases also indicates a worsening trend for those working on-the-ground in major tiger-bearing areas. As Provincial governments respond to geographically concentrated spikes in case numbers, further restrictions on movement may be placed in the region, which would pose further challenges to frontline staff.

Meanwhile, Doma Poudel, a 28-year-old Community-Based Anti-Poaching Unit Member (CBAPU) from Mirgakunj Buffer Zone Community near Chitwan National Park, says the situation has not deterred youth and other community stakeholders in her area in continuing their work while abiding to government measures. With her community-led team, Doma maintains her daily patrols, coordinating with protection authorities on efforts to secure buffer zones from illegal wildlife crimes. *"We are all playing our part here in Chitwan,"* she says. *"But in other areas that lack resources, these threats could become more of an issue."*

While she's concerned about the rising threats to both people and nature, Doma remains optimistic about Nepal's capacity to respond.

"If all stakeholders-including community members, youth, government agencies, non-government organizations-come together, we can remain united in this effort. By playing out our individual roles, we can minimize the threats and risks in our areas."

Nepal's track record in achieving conservation success, despite continuous natural, political, and social disasters in the past, gives Doma confidence in the existing conservation apparatus. But she stresses the global and long-term nature of this crisis, which, she says, the country must prepare for.

FUELING CHANGE

A transformative tale of four women - Indra, Prem, Rima, Sumitra – bound by a common thread, of greening both lives and the environment.

Shayasta Tuladhar, Head - Communications and Education and
Leena Dahal, Communications Officer

Would you believe that the simple act of cooking a regular meal could take as much as 3-4 hours? Such is the reality for the women in Rasuwa, where meal preparation begins outside the kitchen, starting with firewood collection, and ending in a smoke-filled home.

73-year old Indra Kumari Acharya has spent a lifetime living such an existence. However, a simple combination of livestock dung and sunshine has made Indra a very happy woman. Six years ago, her family installed a biogas plant with support from the local Buffer Zone Conservation Savings and Credit Cooperative, and since then Indra has been able to cook whatever catches her fancy without worrying about the smoke affecting her health while also having time to pursue other productive activities.

Prem Kumari, Indra's 51-year-old daughter-in-law is all smiles too. Gone are the days when she spent hours collecting firewood, followed by cooking over tear-inducing fuelwood fumes and later scrubbing the black ashy residue off the kitchen utensils.

"Now all I have to take care of is refilling the dung once in a while," says Prem Kumari. "My eyes don't burn, and I save time while cooking too," she adds.

This story resonates with the many other women of Rasuwa who have seen their lives transform by the simple act of installing a biogas plant. Another house down, Indra's neighbor Rima Kumari Acharya is thrilled to be saving money that would have otherwise gone towards an LPG cylinder. Already equipped with the resources to operate the biogas plant, all Rima must do is feed the plant with animal dung, water and animal urine collected in a storage tank from her livestock. Although apprehensive about the initial cost of investment of NRs 40,000; a huge amount for economically vulnerable households, a subsidy of NRs 5000 and a loan at minimal interest rates through a revolving fund provided by her local cooperative incentivized her to proceed with constructing the plant.

And she hasn't stopped there. Elsewhere in her household, Rima, along with her neighbors, have also invested in improving their cowsheds, trading the traditional wooden beams and flooring for concrete; an upgrade that eases the collection of dung, supported by the same cooperative.

"At least four trees are protected from being felled, whether from our backyard or the forest," explains Kamala, Secretary at the local Buffer Zone Conservation Savings and Credit Cooperative.


©WWF Nepal/Rocky Prajapati


©WWF Nepal/Rocky Prajapati


©WWF Nepal/Rocky Prajapati


©WWF Nepal/Rocky Prajapati

Improved cowsheds have saved families from the hassle of having to change the wooden beams every year. It saves time, money and not to forget - nature.

"At least four trees are protected from being felled, whether from our backyard or the forest," explains Kamala, Secretary at the local Buffer Zone Conservation Savings and Credit Cooperative. While there are other cooperatives in the area, Kamala claims that this one is different as its main objective is conservation and improving the adaptive capacities of local communities to climate change.

A single cowshed can cost up to NRs 150,000, but seeing the pros outweighing the cons, another Rasuwa resident, Sumitra Poudel, has also invested in an improved cowshed and a biogas plant. Taking things one step further, Sumitra also uses the slurry generated from the biogas plant and improved cowshed as bio-fertilizer and bio-pesticide for her crops. This integrated pest management system is economically beneficial to households while also reducing the risks of groundwater and soil quality degradation generally caused by chemical pesticides.

"There was no concept of vegetable farming before we were introduced to Integrated Pest Management and improved tunnel farming. But now, we have been able to grow vegetables without using chemicals and are making good money from it," says Poudel. Depending on the season and the crop she harvests, Poudel earns a minimum of NRs 25,000 per month.

The personal benefits from a biogas plant are only compounded by its benefits to nature. This low-cost strategy facilitates forest restoration by reducing grazing pressures while also contributing to carbon sequestration, with just one biogas plant alone saving more than 60% of fuelwood per household. Meanwhile, a family converting from firewood to biogas reduces its carbon emissions by more than four tons of carbon dioxide each year.

The impact of this transition to renewable energy transcends these four women, their neighborhoods and even their district. With more than 26,000 biogas units supported in Nepal's conservation landscapes, over 100,000 tons of fuelwood is saved annually and more than 100,000 tons of carbon dioxide sequestered.

FIVE WAYS NEPAL'S WETLANDS ARE UNDER THREAT

Shayasta Tuladhar, Head - Communications and Education

Covering nearly 5% of the country, Nepal's wetlands include not just the rivers and lakes, but also reservoirs, ponds, marshy lands, and irrigated paddy fields. But their role as lifelines for freshwater species, local communities and even economies are often undervalued.

The image of a sparkling blue Rara Lake nestled in a circle of green, way up in the mountains is one that incites memories for many. As does the majestic Phewa Lake with its many colorful boats dotting the coast. These sprawling wetlands are centrally connected to not only our memories but also local cultures and economies.

Covering nearly 5% of the country, Nepal's wetlands include not just the rivers and lakes, but also reservoirs, ponds, marshy lands, and irrigated paddy fields. But their role as lifelines for freshwater species, local communities and even economies are often undervalued.

However, these seemingly permanent fixtures could one day become a distant memory. Here are five ways they are under threat.

©Samir Jung Thapa

The impacts are especially evident through a bird's eye-perspective; habitat shrinkage has jeopardized Nepal's status as a harbor for more than 50,000 migratory birds.

EXACERBATED POLLUTION

From excessive use of inorganic fertilizers and pesticides to domestic sewage and industrial effluents, an ever-growing list of pollutants are reducing the quality of wetlands across the country. These pollutants have irreversible effects on all wetland inhabitants - from crocodiles to fish to bottom dwellers such as macro-invertebrates. In Ghodaghodi lake alone there has been a 50% decline in fish diversity over the last 20 years. 27 fish species were recorded in 1998, but only 13 species were found in 2017.

ESCALATION OF INVASIVE SPECIES

Excessive nutrients in wetlands often leads to increased growth of invasive plant species such as the water hyacinth, which reach our shores either through an unsuspecting human, or seeds traveling in bird poop. While the smattering of purple flowers might be beautiful to look at, left uncontrolled their quick proliferation stifles underwater ecosystems - blocking sunlight, reducing oxygen levels, breeding bacteria and other microorganisms, and resulting in fish kills. And the effects don't end there with known cases of contact dermatitis among people and cattle kills.

EXPANDING HUMAN SETTLEMENTS

Overtime, expanding human settlements, agricultural lands, and unplanned development have zeroed in on wetlands, cutting into their boundaries at alarming rates - ultimately resulting in shrinkage. Estimates indicate that wetlands across the country have shrunk by 5.41% over the past 25 years. The impacts are especially evident through a bird's eye-perspective; habitat shrinkage has jeopardized Nepal's status as a harbor for more than 50,000 migratory birds.


©Karine Aigner/WWF-US


©Global Warming Images - WWF

Excessive nutrients in wetlands often leads to increased growth of invasive plant species such as the water hyacinth, which reach our shores either through an unsuspecting human, or seeds traveling in bird poop.

SILT AND SEDIMENT

In a 100 years or so, our beloved Phewa Lake might be nonexistent! In fact it's already shrunk in area and depth by more than 50%. Haphazard road construction triggers landslides, and unsustainable agricultural practices lead to soil erosion, which then increases sediment deposits in wetlands. These impacts may not be immediately visible, but 100 years down the line the wetland might be "nonexistent." For instance, in its current trajectory, the Phewa Lake is expected to lose 80% of its storage capacity within the next 110-347 years.

DE-WATERED ZONES

While hydropower may seem like the solution to Nepal's energy woes, water infrastructure can have negative effects on the very water bodies that they depend on. From blocking migration pathways of fish and other aquatic biodiversity to resulting in the loss of overall habitat, these concrete interruptions can ultimately create "de-watered zones" on the other side of the dam. The implications of this is far reaching, from limiting the natural flow of rivers to loss of livelihoods for agrarian communities, tourism enterprises, and others downstream.

WADING AHEAD

These threats are not unique to Nepal; human activities continue to paint an uncertain future for wetland habitats around the world. Scientific estimates indicate that 64% of the world's wetlands have already disappeared since the 1990s, with the loss even higher in Asia. Meanwhile freshwater species have recorded a decline by 83% globally since the 1970s.

But Nepal is within reach of a rare opportunity, at our most critical phase of growth, we still have time to turn the tide. As Nepal charts its development trajectory, instilling sustainability in our agricultural practices and water infrastructure development will be crucial for the survival of our wetlands. Action is urgently required if we are to save our vanishing wetlands - be it the establishment of freshwater sanctuaries, treating wastewater before discharging into wetlands, controlling sand and gravel mining, or even implementing pre-existing government strategies to maintain unhindered north-south biological connectivity in at least three major rivers across the country.

Scientific estimates indicate that 64% of the world's wetlands have already disappeared since the 1990s, with the loss even higher in Asia. Meanwhile freshwater species have recorded a decline by 83% globally since the 1970s.

©Juha-Pekka Kervinen

HIGHWAY BLUES

Pramod Neupane Senior Program Officer - Infrastructure and Priti Adhikari, Communications Officer

©Shayasta Tuladhar/WWF Nepal

At first glance, this image of an alert tiger snarling at the lens may seem like any other. But upon closer inspection, you might notice his broken canines.

Just shy of the year 2019, an over speeding vehicle collided with this unsuspecting animal while he attempted to cross a road that runs across Nepal's Bardia National Park – home to the second largest population of tigers in Nepal. Recovering from broken bones, an irreversible limp and a shattered jaw, he is now compelled to a life of captivity.

The series of unfortunate events that led him here—although tragic—are far from unusual in Nepal. Vehicle Wildlife Collisions (VWC) and drowning account for more unnatural wildlife deaths than any other cause in the country.

FRIGHTENING FIGURES

Over the years, Bishnu Prasad Paudel, Divisional Forest Officer, Chitwan, has noticed the emergence of two types of queues on the highway crossing through Barandabar Corridor: one formed by automobiles, the other by animals.

"Because of the traffic jam on the highway, animals wait on the other side of the road until there is an opening," he says, "Once they see an opportunity, they run for it—every other day, this results in at least one or two wildlife deaths."

Beyond vehicle collisions, other major contributors to unnatural wildlife deaths include drowning in irrigation canals, and electrocution - mostly caused by transmission lines. The statistics point to some alarming trends; with roadkill contributing to 83% and 93% of unnatural wildlife deaths in 2016 and 2018. In fact in 2018 alone, Banke National Park witnessed a steep rise in roadkill deaths – 72 from the earlier number of 58. This often overlooked issue has emerged as a roadblock in Nepal's continued conservation successes such as doubling wild tigers by 2022.

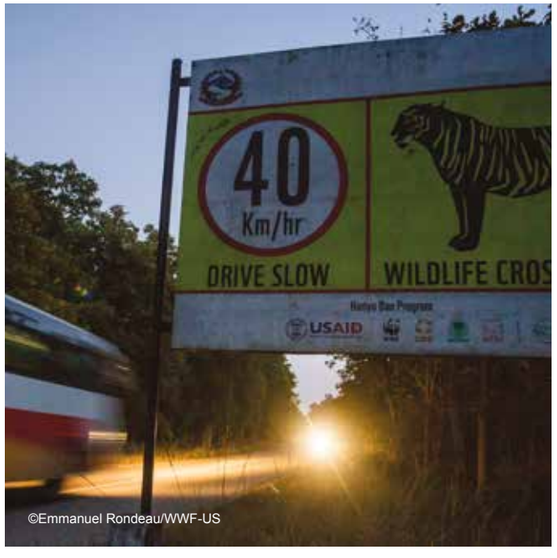
Meanwhile, planned infrastructure upgrades down the road such as four lane highways will only decrease accessibility for wildlife to freely roam their habitats.

MISSION DEVELOPMENT

With four East-West Highways envisioned for Nepal, and railway plans in the pipelines, we know Nepal's infrastructural development is taking place at an unprecedented rate. While this is great news for any developing country, one cannot discount the rate at which natural landscapes are being fragmented.

Large irrigation canals that cut through landscapes - like the Ranijamara Kulariya canal which fragments the Karnali corridor, and Babai Irrigation Canal which flows through Bardia National Park - are only going to increase cases of wildlife drowning. Meanwhile, planned infrastructure upgrades down the road such as four lane highways will only decrease accessibility for wildlife to freely roam their habitats. And as development priorities grow, this issue can no more be relegated to the peripheries of public discussions and government priorities.

©Priti Adhikari/WWF Nepal



©Emmanuel Rondeau/WWF-US

©Pramod Neupane/WWF Nepal

WHAT'S BEING DONE

Measures such as the speed limit of 40 km/hr, supplemented by the timecard system in Bardia National Park have sought to address instances of roadkill, resulting in significant reduction of VWC in the area.

"These measures are immediate and short-term ideas to reduce vehicle wildlife collisions" says WWF Nepal's Santosh Mani Nepal, Senior Director-Policy and Governance. "What's required is thorough research on wildlife crossing zones, supplemented by mitigative measures such as underpasses, overpasses, and guiding fences."

Animal-friendly structures, such as the underpasses at the Narayanghat-Mugling road section and overpasses in Sikta Irrigation Project are demonstrated examples of the government's commitment towards Sustainable Green Infrastructure. The recently drafted "Wildlife Friendly Linear Infrastructure Guideline" by the Department of Roads is another example. Replication and scaling up of these initiatives, especially as Nepal forges ahead in its development is a rare opportunity within reach, if plans move beyond paper.

Back in Bardia, the injured tiger; one of the many victims, is recovering but will never return to the wild. Today, he serves as a grim and tangible reminder of how wildlife are impacted by habitat fragmentation and infrastructural expansion. Instilling sustainable green infrastructure in Nepal's development trajectory will be vital if we are to mitigate such a future for the diverse wildlife that call Nepal's forests home.

CONSERVATION CONVERSATIONS

In conversation with Judy Oglethorpe, Chief of Party, Hariyo Ban Program-I


©Karine Aigner/WWF-US

When you first came to Nepal to lead the Hariyo Ban Program-I, what did you envision?

I was really excited about the opportunity to work in Nepal on this large USAID project with a wide range of partners and experts in two huge and complex landscapes where people are so dependent on biodiversity, and where people and nature are vulnerable to climate change.

How was your experience working with such diverse and vulnerable groups on the ground across Nepal?

I was very struck by the resilience and ingenuity of the Nepalese people, and how empowering poor and marginalized groups to participate in decision-making and equitable benefit-sharing can change people's lives for the better. In the work on climate adaptation, it was great to see such active participation in climate vulnerability assessments and planning of solutions from both communities and government, and the ability of local groups to use the limited funds from Hariyo Ban and also leverage other funding to implement their adaptation plans.

Is there any moment that stands out during your time as Chief of Party of Hariyo Ban Program-I?

I vividly remember visiting sites supported by the Program for recovery work near the epicenter of the first 2015 earthquake. People had done so much to rebuild their lives and communities in such a short space of time. I also remember sitting under a tree talking to a group of marginalized women in the Terai and hearing how they had been empowered through the Community Learning and Action Center to achieve things they never dreamed were possible including tackling gender-based violence. They had even saved the snack money the project gave for their meetings to create informal revolving funds, lending the fund to one woman and then another, so they could meet household expenses and start small enterprises. I also remember workshops on climate change with protected area staff from all over Nepal – and especially their deep concern about climate risks for biodiversity and ecosystem services, and what they could do in their areas to build resilience and promote adaptation.

They had even saved the snack money the project gave for their meetings to create informal revolving funds, lending the fund to one woman and then another, so they could meet household expenses and start small enterprises.

What were the most challenging moments during your leadership?

Some of the biggest challenges involved encouraging partners with very different missions and ways of working to identify common goals and work together to achieve them. Over the five years, it was really great to see how trust and understanding was built among partners, and much credit goes to them for being open-minded, listening to each other, and finding common ground while respecting their differences.

A specific challenge was responding to the 2015 earthquake, on top of trying to complete the rest of our work. USAID-Nepal generously gave us additional funds and after supporting the emergency phase, we were able to help many communities in four of the worst affected districts to rebuild their lives for the longer term. We also worked at the national and district levels with non-traditional partners across different government sectors such as housing, water, and education to promote environmentally sound practices in recovery and reconstruction, for a more sustainable future.

Another challenge was during the closure of the southern border later in 2015, when many of our activities had to be curtailed because of lack of resources (e.g. for post-earthquake reconstruction, fuel for field visits, etc.)

Can you shed light on how the Program benefited the most vulnerable communities?

Helping poor and vulnerable people to participate effectively in forest management and improving their lives is a core component of the Hariyo Ban Program as is promoting gender equity and reducing gender-based violence. As such, the Program took an integrated approach, understanding the close connections between the wellbeing of people and the health of their environment, recognizing the unique knowledge and capacity for conservation that exists within these communities and giving them the tools to govern and manage resources, adapt to climate change, and address the underlying causes of vulnerability for those communities, households, and individuals most at risk. Many interventions were targeted specifically to help these groups of people, starting with their active participation in activity planning. Having cross-cutting components for governance, gender and social inclusion, and livelihoods was a very valuable feature that USAID designed in the program, ensuring that these were well integrated in the overall project from the start.


©WWF Nepal

What would you say are the biggest achievements of the Program over the last ten years?

Some of the biggest achievements would include, helping mainstream climate adaptation into conservation and development, from household and community level to municipalities and landscape level, supporting the development of the Chitwan-Annapurna Landscape with a river basin approach, and building environmental capacity of new local levels after the promulgation of Constitution of Nepal and resultant government restructuring and decentralization.

Beyond this, the Program also supported communities, government and other partners to restore and conserve forests, watersheds and wetlands in the two landscapes, helped conserve biodiversity and restored nature-based services to people, expanded populations of rhinos, tiger and other species, also supporting climate-smart approaches for blackbuck conservation. Responding to changing circumstances in Nepal, such as promoting green recovery and reconstruction after the 2015 earthquake and restructuring of the government was also a milestone. We very much appreciate USAID Nepal's vision and support for the Program.

Having first-hand experience working with the people and seeing the biodiversity and conservation work in progress, what message would you give to others working in the sector?

Hariyo Ban was successful because it intervened in a holistic way, based on a deep understanding of the complex web of relationships, economic, social and environmental forces at play to improve human lives and restore biodiversity in the two landscapes. In the course of this work, it has introduced new approaches, built capacity at multiple levels, generated new knowledge, supported policy development, and helped develop models that can be replicated across Nepal and the broader region. I believe this is an important legacy, although the work is never finished. Perhaps the most important part of the legacy is that communities, local government structures and NGOs are working together to carry this work forward in the future, meet new challenges and ensure healthy, climate-adapted ecosystems providing much needed ecosystem services, with participatory and equitable resource management.

HOT OFF THE PRESS

Find these informative publications on WWF Nepal's website

CLIMATE CHRONICLES

Bringing to you, stories of climate change adaptation measures undertaken across WWF Nepal's working areas that are helping locals adapt to and alleviate the impacts of climate change. From constructing embankments to conserving spring sources and conservation ponds, learn about some of the unique ways in which locals are leading change in the face of changing climate patterns.

SUSTAINABLE FOREST MANAGEMENT MANUAL

With Sustainable Forest Management (SFM) a relatively new concept in Nepal, this resource book outlines, silvicultural systems, management and application to facilitate adoption of SFM principles at the grassroot level while also creating a knowledge base going forward.

THE X FACTOR - NEPAL'S JOURNEY TO TX2

In 2018, Nepal made headlines with its new tiger population update of 235 tigers, making it the first country to almost double its tiger numbers since the global commitment to double wild tiger numbers by 2022, the next Year of the Tiger. This flagship publication highlights Nepal's tiger conservation efforts, a testament to the effectiveness of Nepal's collaborative transboundary approach.

MODEL COMMUNITY FORESTRY

The USAID funded Hariyo Ban Program introduced the concept of Model Community Forest with the primary aim of incorporating sustainable forest management as a core element of community forestry. This brochure outlines in brief the process and successes for replication in other community forests throughout the country.

USE AND EFFECTIVENESS OF WILDLIFE CROSSINGS IN NEPAL

The increasing trend of wildlife mortality due to road accidents are a growing concern in Nepal. This trend is severe along the highways that traverse protected areas and corridor forests. This study examines the use and effectiveness of newly built underpasses in Narayanghat-Mugling road that bisects the northern section of Barandabar Corridor Forest.

VIDEO FEATURES

Find these videos on WWF Nepal's YouTube page

Heartbeats of the Wild

The three-minute animation uses a unique storytelling approach to retrace Nepal's tiger journey, highlight challenges and present key milestones together with making the case for continued support for tiger conservation in Nepal.

Simsar Ko Katha (A Story of Wetlands)

Almost 5% of Nepal's landmass is covered by wetlands that sustain all forms of life – plants, animals, birds, fish and humans – but remain threatened by climate change-induced water source depletion, encroachment, pollution and more. This video raises awareness on the value and importance of wetlands as well as the need to conserve them.

Realms of Resilience: Climate Change Adaption in Madi

Madi Valley in Chitwan regularly experiences fluctuating rainfall patterns, resulting in flash floods and landslides leaving agriculture-dependent communities with an uncertain future. "Realms of Resilience" documents simple adaptation techniques that have minimized risks of climate change induced disasters, spearheaded by community leaders.