



# SUSTAINABLE CONSERVATION LIVELIHOODS: A CASE FROM THE ROYAL MANAS NATIONAL PARK, BHUTAN

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## ABSTRACT

In the multiple-use zone of the Royal Manas National Park, over 64 per cent of households rely on subsistence farming, with livestock rearing as the main source of household income through dairy products. The traditional practice of maintaining large cattle herds in the forests increases vulnerability of livestock to carnivore predation, intensifies competition with wild ungulates, and contributes to forest degradation, threatening livelihoods and endangered species such as tigers. To address these challenges, a self-sustaining Jersey calf-sharing scheme was introduced, distributing 'seed cows' free of cost with the condition to share any female offspring with other households. Five years after implementation, this study assessed the livelihood and conservation outcomes through a survey of 56 beneficiary households administered via the SMART (Spatial Monitoring and Reporting Tool) database. The findings indicate a 43.6 per cent increase in Jersey cows, reduced forest grazing, lower livestock losses to carnivores, and improved dairy income. The scheme enhanced equitable benefit sharing, strengthened community engagement, and fostered positive conservation attitudes. We recommend exploring similar conservation livelihood initiatives across protected areas, supported by regular monitoring to ensure long-term sustainability.

**Keywords:** Human-wildlife conflict, biodiversity conservation, community livelihoods, protected areas, improved cattle breeds, free grazing

## INTRODUCTION

Bhutan is predominantly an agrarian country with 61 per cent of the population residing in rural areas (National Statistical Bureau, 2022) and over 90 per cent of farming households practising subsistence agriculture (Yeshey et al., 2022). These communities often experience human-wildlife conflict, especially in settlements located within or adjacent to protected areas (PAs) and state forests (Royal Manas National Park, 2023; Sulistiyono et al., 2023; Yeshey et al., 2023). The risk is high because 52 per cent of Bhutan's land falls under the protected area network (Forest Monitoring and Information Division, 2025) and forests cover nearly 70 per cent of the country (Forest Monitoring and Information Division, 2023).

The protected area network in Bhutan is managed under different zonation systems, including multiple-use zones

that encompass settlements, built-up areas, privately registered lands, and designated resource-use areas for resident communities (Nature Conservation Division, 2020). In Royal Manas National Park (RMNP), 15.24 per cent (161.06 km<sup>2</sup>) of the park area is designated as a multiple-use zone and is inhabited largely by subsistence farming communities (Royal Manas National Park, 2023). Livestock rearing is an integral component of rural livelihoods, contributing to household income through the sale of dairy products, domestic consumption, and manure production (Royal Manas National Park, 2023). Amongst the livestock, cattle are predominantly reared for milk and dairy production. Farmers maintain large herds of local cattle breeds that require substantial labour inputs. As a result, cattle are often released without herders into the nearby forests for free grazing (Tshering & Thinley, 2017).



RMNP represents a pristine habitat for the Asiatic Water Buffalo besides others © Dorji Wangchuk

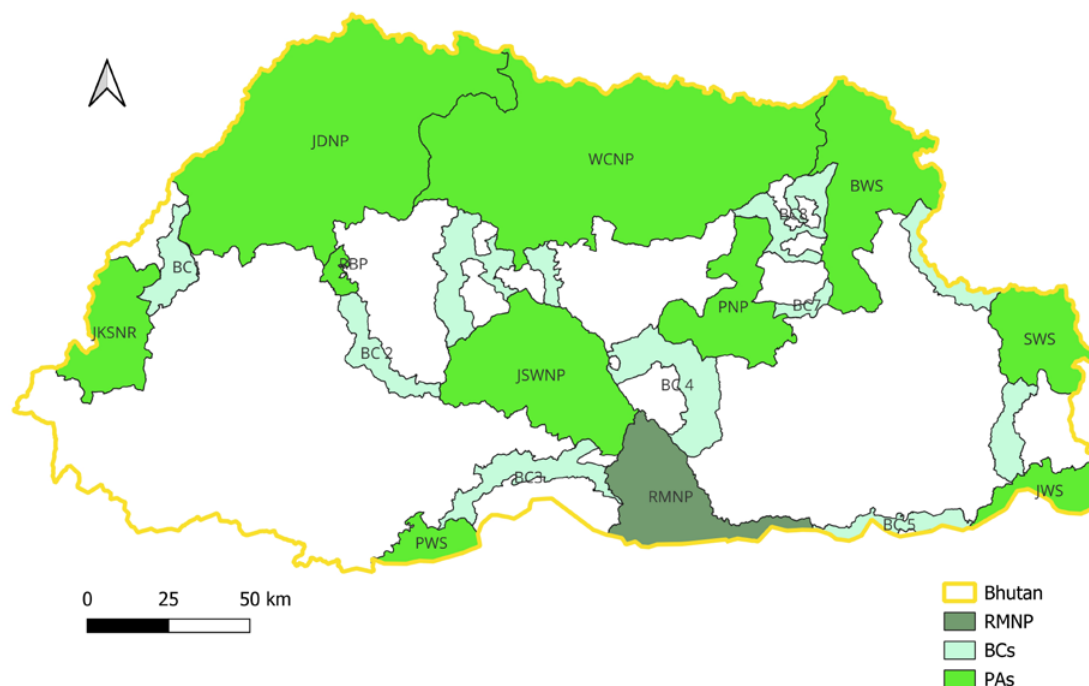
Although this practice has been reported to facilitate regeneration and reduce rodent damage in conifer forests (Roder et al., 2002), the uncontrolled grazing contributes to decline in the quality of broadleaved forests (Norbu, 2000; Roder et al., 2002). Such grazing is also recognised as a driver of forest degradation (Ministry of Agriculture and Forests, 2017). Further, these free-ranging cattle can indirectly influence large carnivore populations by competing with wild ungulates for forage, reducing the prey base of big cats (Roberts et al., 2021). Declines in wild prey availability can push Bengal Tigers (*Panthera tigris*) and other large carnivores closer to human settlements, increasing livestock depredation and intensifying human–wildlife conflict (Nature Conservation Division, 2024).

Park records indicate a steady increase in tiger numbers in RMNP since 2010 (Royal Manas National Park, 2023). The National Tiger Survey 2022 showed that RMNP harbours the highest number of tigers (29 individuals) of all Bhutan's PAs, with a density exceeding two tigers per 100 km<sup>2</sup> (Department of Forests and Park Services, 2023). Healthy populations of other predators exist, including Common Leopard (*Panthera pardus*) and Asiatic Wild Dog (*Cuon alpinus*), elevating the risk of livestock depredation during free grazing, negatively affecting community livelihoods and undermining conservation efforts through retaliatory actions against endangered species.

Balancing biodiversity conservation with rural livelihood security is a critical management priority. In response, RMNP implemented Integrated Conservation and Development Programme activities aimed at fostering coexistence between people and wildlife. Livestock depredation is the second most serious human–wildlife

conflict issue in RMNP after crop damage (Royal Manas National Park, 2023), with the traditional practice of free grazing of cattle a key driver of depredation (Tshering & Thinley, 2017). The management of cattle forms a strategic intervention for human–wildlife conflict reduction.

To address conflict reduction, park management introduced a livelihood support scheme under the banner “No cost sharing but calves sharing: A self-sustaining initiative”. The initiative involved the distribution of improved cattle breeds (hereafter referred to as Jersey cows) to local communities. This aligns with a broader national trend showing increasing farmer preference for improved breeds over local cattle (National Statistical Bureau, 2021). However, sustainability remains a persistent challenge in conservation-linked livelihood programmes. For example, the Tiger Conservation Fund, established in 2003 to compensate farmers for livestock losses to tiger (Sangay & Vernes, 2008), was discontinued in 2014 due to financial exhaustion (Tshering & Thinley, 2017). To ensure long-term sustainability and equitable benefit sharing, RMNP adopted an innovative approach which differed from an existing scheme that supplied improved breeds on a cost-sharing system, where farmers bore 70 per cent of the cost and received a 30 per cent subsidy including transport support (International Fund for Agriculture Development, 2022; Ministry of Agriculture and Forests, 2019). The new scheme supplied Jersey cows at no cost to recipient households. In return, beneficiaries were required to pass on two female calves to subsequent eligible households. This scheme was designed to be self-sustaining and community-monitored through locally agreed-upon bylaw. The programme was expected to expand access to improved cattle breeds, gradually replacing low-productive local cattle. The Jersey cows are



**Figure 1.** Location of RMNP in relation to other protected areas (PA) and biological corridors (BC).

to be stall-fed rather than free-grazed, given their higher productivity and economic value. The scheme was implemented with the following objectives.

- Reduce the number of low-productive local cattle through gradual replacement with Jersey cows via an equitable calf-sharing mechanism;
- Discourage free grazing in forests, thereby reducing livestock depredation and strengthening conservation outcomes; and
- Improve community livelihoods through increased dairy productivity and reduced livestock losses, decreasing dependence on forest resources and mitigating human–wildlife conflict.

The scheme was initiated in 2019 and is in its sixth year. This study aims to assess the effectiveness of the scheme against its intended objectives, document innovative lessons, and provide recommendations for improvement and long-term sustainability.

## METHODS

### Study area

RMNP is Bhutan's oldest national park. It is situated in the south-central foothills of Bhutan, between 90°35'E and 91°13'E longitude and 26°46'N and 27°08'N latitude and covers an area of 1,057 km<sup>2</sup>. The park ranges in elevation from 70.06 m to 2,714 m above sea level, with a wide altitudinal gradient that supports diverse ecological zones and forest types, including subtropical, warm broadleaved, and cool broadleaved forests. RMNP spans seven administrative blocks across three districts:

Zhemgang District, Sarpang District and Pemagatshel District. Phangkhar is the only block located entirely within the park's jurisdiction.

The park contains an extensive network of perennial and seasonal rivers and streams. The Manas River, one of the largest rivers in Bhutan, is formed by the confluence of four major tributaries: Mangdechhu, Chamkarchhu, Kurichhu and Drangmechhu, and flows through the park. RMNP supports diverse natural habitats, including grasslands, natural mineral licks and waterholes, which are concentrated mainly in the foothill areas. The management and restoration of these habitats constitute a key component of park programmes aimed at enhancing ecosystem productivity and ecological integrity (Department of Forests and Park Services, 2021).

RMNP shares a boundary with Manas National Park in India, together forming the Transboundary Manas Conservation Area (TRAMCA). RMNP is ecologically connected through established biological corridors to several protected areas: Jigme Singye Wangchuck National Park (north-west), Phibsoo Wildlife Sanctuary (south-west), Phrumsengla National Park (north-central) and Jomotsangkha Wildlife Sanctuary (south-east). Owing to its altitudinal range, habitat diversity and strategic connectivity, RMNP constitutes a critical component of Bhutan's protected area network at both national and regional scales (*Figure 1*).

The RMNP is administered through a network of range offices, beat offices and guard posts. The management is guided by a zoning system comprising core, buffer,



The four major rivers of Bhutan converge to form the Manas river, which flows through the park © Dorji Wangchuk

multiple-use and transition zones (Nature Conservation Division, 2020). Grazing is permitted in the buffer and multiple-use zones, and seasonally in designated transition areas, but is prohibited in the core zone (Royal Manas National Park, 2023).

Approximately 15 per cent of the park is designated as a multiple-use zone, where resident communities comprise 1,389 households with an estimated population of 11,755. Subsistence agriculture is the primary livelihood, supporting 64.69 per cent of the resident population. Households cultivate a range of crops for both consumption and income generation. Maize is the principal staple crop, followed by paddy, while areca nut, cardamom and orange are grown as cash crops. Livestock rearing constitutes an additional source of income through the sale of butter, cheese, milk, poultry and pork. Communities also supplement household income by harvesting non-timber forest products, including mushrooms, ferns, canes and medicinal plants.

RMNP provides critical habitat for numerous threatened species of global conservation significance, such as the Royal Bengal Tiger. In recognition of its tiger conservation efforts, RMNP was accredited as a Conservation Assured Tiger Standards (CA|TS) site in 2019 for meeting international standards of effective site-based tiger conservation. Additionally, in 2020, the park received the TX2 Conservation Excellence Award. These recognitions underscore the park's global importance as a biodiversity hotspot.

Notably, 7 of Bhutan's 9 recorded wild cat species occur within RMNP (Dhendup et al., 2016). Furthermore, the park provides an important habitat for Golden Langur (*Trachypithecus geei*), Clouded Leopard (*Neofelis nebulosa*), Asian Elephant (*Elephas maximus*), Asiatic Water Buffalo (*Bubalus bubalis*), Asiatic Wild Dog, and Gaur (*Bos gaurus*). The park also supports populations of the Critically Endangered Pygmy Hog (*Sus salvanius*) and the Endangered Elongated Tortoise (*Indotestudo elongata*). In addition to the faunal species, the park harbours globally rare and threatened plant species, including Rosewood (*Dalbergia oliveri*), Agarwood (*Aquilaria malaccensis*), Yew (*Taxus baccata*) and Brown Pine (*Podocarpus nerifolius*) which are distributed in localised pockets.

### Scheme description

The bylaw governing the scheme was developed through a participatory process involving local communities, in collaboration with the Bhutan Tiger Center, local government authorities and the livestock sector. The bylaw titled '*Supply and Management of Jersey Cows Chathrim 2019*', establishes provisions related to eligibility criteria, procurement procedures, cost and payment arrangements, distribution and sharing, monitoring and reporting requirements, legal undertakings and penalties (Royal Manas National Park, 2019). The consultative drafting process was intended to promote transparency, strengthen institutional coordination and ensure community ownership of the scheme.



**Figure 2.** Distribution of Jersey cows to beneficiary communities in the presence of community representatives in Norbugang block, Pemagatshel district.

The number of seed Jersey cows allocated to each block was determined in proportion to the number of households. Within each block, beneficiary households were selected based on joint recommendations from the local government and livestock sector. Selection criteria included household willingness to participate, size of existing cattle holdings and prior receipt of benefits from related support programmes (e.g. biogas units or corrugated galvanized iron roofing sheets). The scheme was designed to ensure progressive and equitable coverage, with all households expected to benefit over time through a structured calf-sharing mechanism.

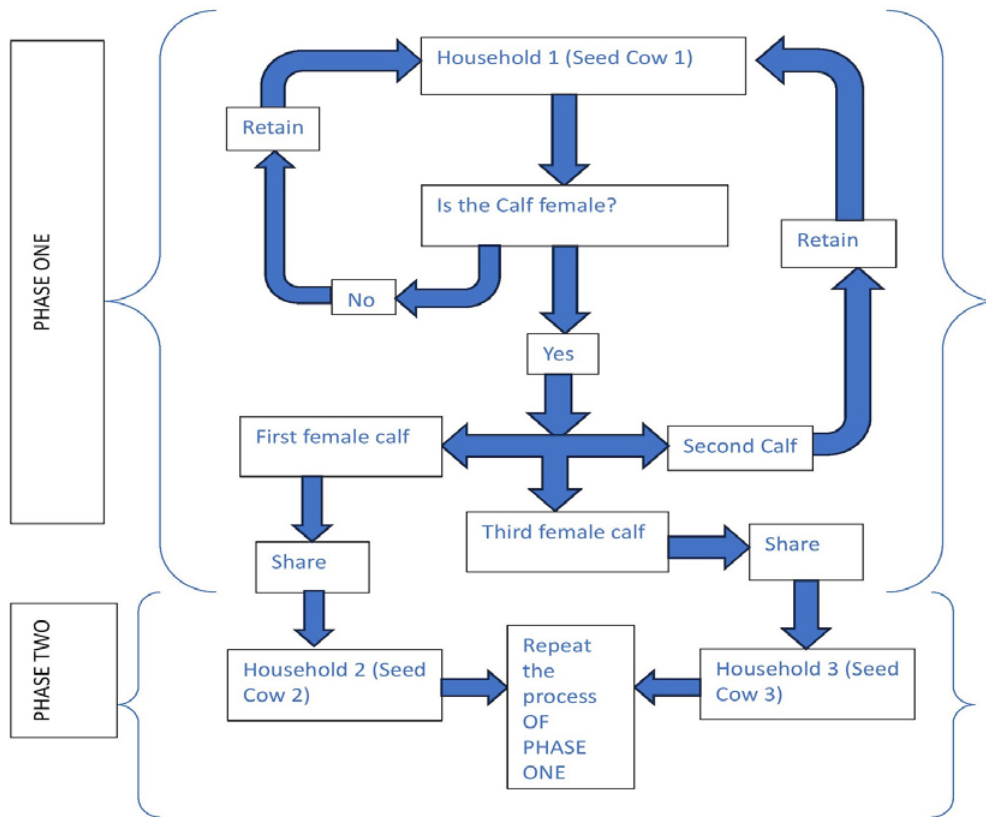
The procurement of Jersey cows was undertaken by a multi-stakeholder committee comprising the Livestock Production Officer, Livestock Production Supervisor of the concerned block, a representative from the Bhutan Tiger Center, the Regional Livestock Centre, an Accounts Officer and a representative from the park. This institutional arrangement ensured transparency, accountability and technical oversight throughout the procurement and distribution process. Technical verification by district livestock officials and the Regional Livestock Centre supported the acquisition of genuine Jersey breeds. These cows were sourced primarily from nearby districts and towns. Each animal was assigned a unique identification number, and distribution to

selected households was conducted through a lucky dip system to maintain fairness and transparency. Animals were handed over in the presence of community representatives creating awareness about the bylaw (*Figure 2*).

To ensure long-term sustainability beyond the project period, a structured calf-sharing mechanism was introduced (*Figure 3*). Beneficiary households received one Jersey cow free of cost under the condition that female calves would be transferred to subsequent eligible households. Each recipient is required to share the first and third female calves, while retaining other female calves and any male calves. The transferred female calves are distributed to households on a waiting list to serve as seed cows for the new recipients. This cascading mechanism is repeated by successive beneficiaries, thereby facilitating gradual and equitable distribution of livestock assets across participating households.

### **Data collection and analysis**

The project documents and relevant background information including project objectives, implementation modalities and beneficiary records were reviewed to formulate the study design. A review of relevant literature and scientific publications further guided the methodological framework. Survey questionnaires were



**Figure 3.** Sustainability of the scheme is ensured through the calf-sharing process implemented in accordance with the bylaw (Royal Manas National Park, 2019).

developed in alignment with the scheme objectives and comprised both open and closed-ended questions which were refined through team discussions and incorporation of feedback to enhance clarity and internal consistency.

The questionnaire was digitised using the Spatial Monitoring and Reporting Tool (SMART) and piloted in a small number of households to assess consistency, usability and reliability for data collection. Lessons from the pilot phase were incorporated, and the SMART database was subsequently finalised for full-scale data collection.

SMART is a widely used conservation platform designed to collect, manage and analyse field-based data to improve conservation effectiveness. It is routinely used by RMNP staff to record wildlife observations, document illegal activities and track community services conducted by patrol staff, thereby supporting evidence-based patrol planning and threat analysis. Therefore, the SMART application was already installed on the smartphones of field personnel, and staff were familiar with its operation, which provided an efficient and standardised platform for survey data collection. The customised survey database was shared with nominated technical staff responsible for data collection.

The survey sample included households that had received Jersey cows across three generations of the calf-sharing scheme. First-generation recipients were households that directly received seed Jersey cows from park management. Second-generation recipients obtained cows through calf sharing from first-generation beneficiaries, while third-generation recipients received cows from second-generation households. Only female Jersey cows were considered, as the bylaw mandates sharing of female calves. Households with deceased Jersey cows were excluded from the study.

A total of 56 households were interviewed, comprised of 30 first-generation, 22 second-generation and 4 third-generation recipients. Interviews were conducted with the household member primarily responsible for managing the Jersey cow to ensure genuine responses. Beneficiary lists generated from the survey were cross-checked against official distribution records maintained by the park. Of the 56 respondents, 37 were male and 19 were female. Respondent ages ranged from 21 to 77 years, with a mean age of 45 years. The survey was conducted between May and June 2025.

Eight forestry field staff carried out the survey. All enumerators received prior training on the use of the questionnaire and digital data entry procedures. Updated

**Table 1.** The number of Jersey cows supplied in 2019 and changes observed in 2025 across districts and corresponding blocks. Phangkhar is wholly (W) within the park, while other blocks are partly (P) included.

Districts	Blocks	Wholly (W) Partly (P)	Number of Jersey cows		Change
			2019	2025	
Pemagatshel	Norbugang	P	6	9	+3
Sarpang	Jigmecholing	P	3	5	+2
	Tareythang	P	3	5	+2
	Umling	P	3	3	0
Zhemgang	Ngangla	P	3	3	0
	Phangkhar	W	12	16	+4
	Trong	P	9	15	+6
Blocks (N) = 7			39	56	+17

beneficiary lists, including second and third generation recipients, were obtained from village heads and provided to the respective field staff. Data were collected through door-to-door visits to each beneficiary household. Where responses were unclear, follow-up clarification was sought through telephone communication.

Survey data were downloaded from the SMART application in CSV format and transferred to computers for cleaning and verification, then cross-checked against official supply lists to ensure accuracy and completeness. Data were then analysed using Microsoft Excel to generate descriptive statistics, tables and graphical representations.

## RESULTS

### Changes in Jersey cow and local cattle populations

The study assessed changes in Jersey cow numbers and community perceptions of local cattle populations following the implementation of the scheme. The total number of Jersey cows supplied under the project increased from 39 in 2019 to 56 in 2025, representing an overall increase of 17 cows (~43.6 per cent) across the seven blocks (Table 1). Nine of the original 39 Jersey cows had died during this period. The largest increase occurred in Trong block (+6 cows, 66.7 per cent), while Ngangla and Umling recorded no change. The community perceptions of local cattle populations indicate that 71 per cent of respondents observed a declining trend, 13 per cent reported no change, and 11 per cent perceived an increase in local cattle numbers (Figure 4).

### Perceptions of trends in free grazing, livestock predation and livelihood improvement

Most households (92.5 per cent) reported a reduction in free grazing of cattle in forest areas, while 7.5 per cent perceived no change. Similarly, 62 per cent of respondents observed a decrease in predation of cattle by

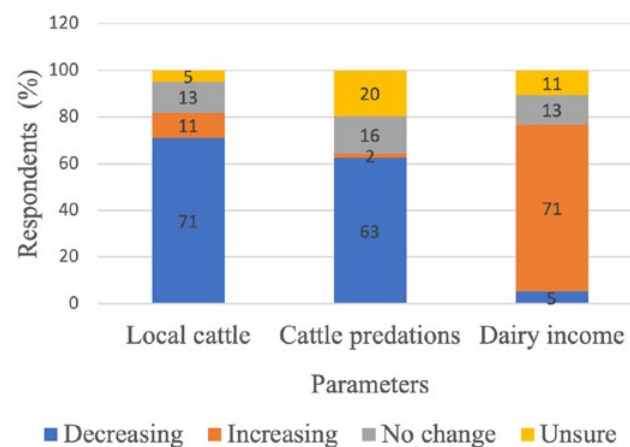
wild carnivores, 16 per cent reported no change, 20 per cent were unsure, and only 2 per cent perceived an increase (Figure 4).

The majority of respondents (>70 per cent) reported an increase in income from dairy cattle following the implementation of the scheme, while 13 per cent observed no change, and 11 per cent reported a decline. Women accounted for 33.9 per cent of those actively engaged in Jersey cow rearing. Respondents ranged in age from 21 to 77 years, with an average of 45 years. Most farmers (54 per cent, n = 30/56) belonged to the 41–60-year age group.

## DISCUSSION

### Increase in Jersey cows and trends in local cattle populations

The scheme has resulted in a notable increase in Jersey cows, directly benefiting 56 households through the calf-sharing programme, with additional households on a



**Figure 4.** Perception of surveyed households regarding changes in local cattle population, cattle predation by wild carnivores, and income from dairy cattle following the implementation of the scheme (%).

waiting list expected to benefit in subsequent generations. This outcome aligns with national policy objectives to introduce high-yielding breeds to enhance farmer livelihoods, reduce dairy imports, and minimise environmental impacts (Samdup et al., 2010). These interventions are implemented without compromising the conservation of indigenous cattle genetic diversity (Biodiversity Act of Bhutan, 2022; National Biodiversity Centre, 2008).

Concurrently, the study observed a declining trend in local cattle populations. This pattern reflects national trends, which indicate a 10 per cent decrease in local cattle from 2010 to 2020 and a continued shift towards improved milch breeds preferred by small-scale farmers (National Statistical Bureau, 2024; Tenzin et al., 2023). In the present study, households reported that improved breeds were preferred due to higher dairy production, reduced labour requirements, limited grazing availability, and a declining working-age population in rural communities. However, local cattle populations remain stable or increased in some localities, indicating spatial variation in adoption patterns. From a conservation perspective, the reduction of local cattle in forested areas reduces potential encounters with predators, thereby decreasing human–wildlife conflict (Boronyak et al., 2020).

### **Reduction in free grazing and livestock predation**

While acknowledging the small sample size, the results suggest that the shift towards stall-fed Jersey cows has contributed to a substantial reduction in free grazing in forested areas. Most households now manage improved breeds in confined conditions and use cattle dung for biogas production promoted under the same scheme. This practice discourages firewood collection, a known driver of forest degradation in Bhutan (Ministry of Agriculture and Forests, 2017) and helps maintain the integrity of wildlife habitats, including water sources that are vulnerable to drying up (Wangchuk et al., 2018).

Reduced free grazing minimises spatial overlap between domestic cattle and wildlife, lowering predation rates while maintaining prey abundance for carnivores in natural habitats. Consequently, wild animals can move freely without encroaching on human settlements, reducing both crop damage and livestock losses. This leads to reduced forest entry by cattle owners searching for stray livestock and decreases the risk of human–wildlife encounters. Historical cases, such as the 2010 tiger attack on a man in Trongsa, Bhutan (Bhutan Broadcasting Service Corporation, 2010), highlight the dangers of unregulated forest access. The current

findings are consistent with community reports indicating a decline in livestock predation over the past five years within the study area.

### **Livelihood improvement and community engagement**

The introduction of Jersey cows has increased household income through the sale of dairy products, reflecting the scheme's contribution to local livelihoods. Such improved economic conditions reduce dependency on natural resources and provide incentives for households to engage as conservation partners rather than exploiters of forest resources (Velho et al., 2019). Beneficiaries emphasised the scheme's equitable benefit-sharing mechanisms, which narrow economic disparities and contribute indirectly to the reduction of human–wildlife conflicts. The livelihood enhancement of the park communities is beneficial to conservation as poverty also drives forest degradation (Ministry of Agriculture and Forests, 2017), and increases vulnerability to illegal resource use, including poaching (Knapp et al., 2017).

Nevertheless, there are associated challenges with the scheme. The Jersey cows are more susceptible to diseases and require reliable fodder, particularly during winter, whereas indigenous cattle are more resilient to endemic and emerging livestock diseases (Tenzin et al., 2023). Both men and women actively participate in the management of Jersey cows, although some beneficiaries are over 70 years old, highlighting the declining rural working age groups and increasing rural-to-urban migration (National Statistical Bureau, 2026). Overall, the scheme demonstrates that integrating improved livestock breeds with participatory management and calf-sharing mechanisms can simultaneously enhance rural livelihoods, reduce human–wildlife conflict, and support conservation objectives.

### **CONCLUSION**

The Jersey cow calf-sharing scheme has contributed to a reduction in livestock predation by wild carnivores, primarily through decreased free grazing in the forests. Simultaneously, it has enhanced local livelihoods by increasing household income from dairy production. These outcomes have fostered more positive attitudes towards conservation among communities within and surrounding the protected area, strengthening their role as active partners in biodiversity protection. However, this study focuses on the perspectives and experiences of scheme beneficiaries, which may limit the broader applicability of the findings and indicate the need for larger-scale studies.

We recommend the continued exploration and scaling of similar livelihood enhancement interventions intrinsically linked to conservation objectives. Such initiatives can enhance community engagement, leading to long-term stewardship of natural resources. At the same time, community awareness should be reinforced to ensure that such beneficiaries understand that these benefits are facilitated through conservation funding mechanisms.

The implementation of similar programmes should adopt a collaborative framework, engaging relevant sectoral authorities for effective protected area management, to ensure technical support, transparency and long-term sustainability. The programme design should also account for post-project impacts and mechanisms to maintain benefits over successive generations.

Finally, periodic monitoring and evaluation of the scheme are recommended to assess long-term outcomes on both community livelihoods and conservation objectives, enabling adaptive management and continuous improvement of the programme.

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**Dorji Wangchuk** has over 30 years of experience working in the conservation sector of Bhutan. Having dedicated over 17 years in Royal Manas National Park, he is committed to adopting innovative conservation and livelihood initiatives through active community engagement. He is also an enthusiastic and passionate birder.

**Jampel Lhendup** is a Forest Ranger and conservationist leading the SMART app implementation in the conservation sector in Bhutan. In October 2025, he received the prestigious International Ranger Award at the IUCN Congress in Abu Dhabi in recognition of his contribution to biodiversity conservation.

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## RÉSUMÉ

Dans la zone à usage multiple du Parc national de Manas, plus de 64 pour cent des ménages dépendent de l'agriculture de subsistance, l'élevage constituant la principale source de revenus grâce aux produits laitiers. La pratique traditionnelle consistant à faire paître de grands troupeaux de bovins dans les forêts accroît la vulnérabilité du bétail face aux prédateurs carnivores, intensifie la concurrence avec les ongulés sauvages et contribue à la dégradation de la forêt, menaçant ainsi les moyens de subsistance et les espèces en voie de disparition telles que les tigres. Pour relever ces défis, un programme autonome de partage de veaux Jersey a été mis en place, distribuant gratuitement des "vaches mères" à condition de partager toute progéniture femelle avec d'autres ménages. Cinq ans après sa mise en œuvre, cette étude a évalué les résultats en matière de moyens de subsistance et de conservation à travers une enquête menée auprès de 56 ménages bénéficiaires via la base de données SMART (Spatial Monitoring and Reporting Tool). Les résultats indiquent une augmentation de 43.6 pour cent du nombre de vaches Jersey, une réduction du pâturage en forêt, une diminution des pertes de bétail dues aux carnivores et une amélioration des revenus laitiers. Le programme a favorisé un partage équitable des bénéfices, renforcé l'engagement communautaire et encouragé des attitudes positives envers la conservation. Nous recommandons d'explorer des initiatives similaires de conservation et de moyens de subsistance dans les zones protégées, soutenues par un suivi régulier afin d'assurer une durabilité à long terme.

## RESUMEN

En la zona de uso múltiple del Parque Nacional Real de Manas, más del 64 por ciento de los hogares depende de la agricultura de subsistencia, siendo la cría de ganado la principal fuente de ingresos familiares gracias a los productos lácteos. La práctica tradicional de mantener grandes rebaños de ganado en los bosques aumenta la vulnerabilidad del ganado ante la depredación de los carnívoros, intensifica la competencia con los ungulados silvestres y contribuye a la degradación forestal, lo que pone en peligro los medios de vida y a especies en peligro de extinción como los tigres. Para hacer frente a estos retos, se introdujo un programa autosostenible de intercambio de terneros de raza Jersey, mediante el cual se distribuían "vacas Semilla" de forma gratuita con la condición de compartir cualquier cría hembra con otros hogares. Cinco años después de su implementación, este estudio evaluó los resultados en materia de medios de vida y conservación a través de una encuesta realizada a 56 hogares beneficiarios gestionada mediante la base de datos SMART (Spatial Monitoring and Reporting Tool). Los resultados indican un aumento del 43.6 por ciento en el número de vacas Jersey, una reducción del pastoreo en los bosques, menores pérdidas de ganado a causa de los carnívoros y una mejora de los ingresos por la producción lechera. El programa mejoró el reparto equitativo de los beneficios, reforzó la participación de la comunidad y fomentó actitudes positivas hacia la conservación. Recomendamos explorar iniciativas similares de conservación y medios de vida en todas las áreas protegidas, respaldadas por un seguimiento periódico para garantizar la sostenibilidad a largo plazo.

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