



# Policy brief: Protecting stingless bees in the Peruvian Amazon

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## Executive summary

Stingless bees are vital to the ecological, social, and cultural fabric of Peruvian Amazonian communities. They are essential pollinators, supporting ecosystem regeneration, forest maintenance, local economy, and the biocultural heritage of indigenous peoples. However, these species face severe threats from deforestation, climate change, and the excessive and inappropriate use of pesticides. This brief advocates for the establishment of Rights of Nature for stingless bees and urges support for the modification of law n.º 26305 (Peru, 1994), which seeks to recognize the intrinsic value of stingless bees by protecting them within legal frameworks. Co-authored by the Ashaninka community, it aims to empower indigenous communities and spread awareness of the crucial role they play in safeguarding Amazonian traditional knowledge and enhancing the environmental, climatic, and economic benefits provided by native stingless bees.

## Introduction

The Peruvian Amazon is home to diverse ecosystems and indigenous communities including,

but not limited to, Kukama-kukamiria, Ashaninka, Ticuna, Awajum and Harakbut. Even before the spaniards arrived in South America in 1492, the communities were well acquainted with stingless bees (Crane, 1999) and relied on them for food, medicine, and cultural practices. These communities act as guardians of biodiversity, yet stingless bee biodiversity and conservation status remains largely unknown. The close relationship between indigenous communities and their surrounding environment has been central to their cultural practices and ecological stewardship. Approximately 175 species of stingless native bees have been identified in the Peruvian Amazon, with their role as pollinators crucial for biodiversity and food security (Delgado *et al.*, 2023; Ghisbain *et al.*, 2023). The threats posed by deforestation, use of insecticides and climate change highlight the urgent need for a comprehensive conservation strategy that incorporates scientific knowledge, indigenous practices (traditional knowledge) and legal protection for stingless bees.



**175 species** of stingless native bees have been identified in the peruvian Amazon

## Overview of the research / Problem

Recent studies reveal that the Amazon's stingless bee populations are diminishing due to habitat loss from human activities, including agriculture and logging (Bax *et al.*, 2019; Zevallos *et al.*, 2022). The Peruvian Amazon, covering nearly 60 % of Peru's landscape, is rich in biodiversity, yet vulnerable to these pressures.

Indigenous communities possess intricate knowledge of meliponiculture (the stewardship of stingless bees) that has been passed down through generations (Posey, 1986). These communities are in the unique position to understand these traditions and conduct their own scientific research, playing a crucial role to ensure conservation of these species and sustainable practices that can mitigate ecological damage. As Richar Antonio, park ranger of the Ashaninka Communal Reserve and resident of the community of Centro Caparocia, states *"I dedicate myself more to research because it allows me as an indigenous person to tell the communities that as Ashaninka we can do it, we can be scientists"* (Antonio, 2024). However without the necessary legal and economic protections, sustainable indigenous management of stingless bees is in jeopardy.





In particular, a significant barrier is the lack of awareness and legal recognition for stingless bees at both national and international level. A few countries have led the way in legislating for stingless bees. For example, in Brazil some states have developed their own regulations for the breeding of stingless bees; laws in the State of Bahia provide for breeding, management, trade and transport of native stingless bees to aid the conservation, education and commercialisation of its products. Some South American countries have also identified stingless bees in their 'Red Books of fauna' or 'National Red List'– Brazil (four species), Bolivia (six species) and Colombia (two species)–, all finding the primary threat as deforestation, demonstrating the intrinsic relationship between protection of forests and stingless bees.

Given this recognition for stingless bees is relatively new there is little evidence to determine their impact, however we know that their inclusion at a national level, gives the right for legal action against their and their habitats mistreatment, and is a gateway for international recognition by IUCN and the UN, who inform decisions taken by Multilateral Environmental Agreements (Amuna), such as the revision of annexes to the Convention on International Trade in Endangered Species (Cites) and the opportunity for international market access. Honey bees, however, are widely campaigned for and protected internationally, despite the fact that outside their native range they are inappropriate as flagship species for the conservation of pollinators (Iwasaki & Hogendoorn, 2021). Unlike stingless bees, honey bees are also given marketable value through the UN definitions of honey (Codex Alimentarius). Jaffe *et al.* (2015) found that this low technical knowledge and lack of standardization in the management practices of stingless bees are two major issues facing the industry and the opportunity to develop conservation strategies around their protection.

It is not just written legal change which is needed but an overall shift in international perception on how we treat nature; whilst our existing environmental laws help slow the destruction of nature, they operate to protect human use and enjoyment of the natural world, rather than protecting nature for its own sake (Earth Law Center, 2019).

The first success of this for pollinators was seen in November 2018, where the First Criminal Court of the Circuit of Cartagena ordered the state of Colombia to protect and preserve the life of bees as pollinating agents, this has since led to further rulings protecting the species, such as T343 which prohibited the use of pesticides protecting the lives of bees and an increased number of awareness campaigns on the importance of bees, which is vital to protect their ecosystems. Peru is beginning to advance their work on stingless bees, through proposed legislative reform, promotion of scientific studies and Amazonian indigenous knowledge, sustainable breeding programmes, and the preparation of the national plan for the protection of pollinators and their ecosystem services. However, we need to ensure that these protections come into effect and that we continue to ensure their recognition at an international level to ensure native stingless bee protection across the Amazon.



**33 Billion**  
metric tons  
of CO2  
equivalent

Protecting the stingless bee is a vital climatic solution, with the Peruvian Amazon containing over 33 billion metric tons of CO2 equivalents (Rainforest Trust, 2024); the bees play an essential role in yielding better results for degraded areas, areas under reforestation (Barth & Da Silva de Freitas, 2022) and through pollination which increases food production and cleans the air, maintaining the forest and allowing water to be recycled (Delgado, 2024). However external pressures of temperature increases due to climate change, loggers and agriculture, have been detrimental to these communities and the preservation of the stingless bees, with the recent fires scorching over 3 400 hectares (Praeli, 2024) of their habitat.

Given the limited knowledge on the stingless bees of the Peruvian Amazon, the Ministry of the Environment, together with the Peruvian Amazon Research Institute have created the ad hoc pollinators group dedicated to researching and protecting these bees. Aligned with this goal, a consortium of leading scientists and indigenous experts (Amazon Research Internacional, Dr. Cesar Delgado at Instituto de Investigaciones de la Amazonía Peruana, EcoAshaninka, Federación Ashaninka de Río Ene FARE, Organización Ashaninka de Río Apurímac OARA, SERNANP, Reserva Comunal Ashaninka, Asociación de Meliponicultores de la Región Loreto and Earth Law Center) aim to map over 75 000 hectares of stingless bee populations and assess the impact of deforestation and climate change, as well as establish the first national biocultural community protocol, led by the Ashaninka community, to protect indigenous knowledge and the Rights of Nature exclusively for stingless bees and their amazonian ecosystems. Legislative reform is also underway, with amendments to Law n.º 26305, which is currently in congress, with the aim of recognising the intrinsic value of stingless bees and their ecosystems, protecting this species through precautionary and preventive principles and promoting their scientific study to revalue their economic potential in native communities.



# Examination of the findings

## Impacts on community and culture

Indigenous communities have relied on stingless bees for generations, using wax to make candles or arrows for fishing and hunting; consuming honey, pollen and larvae as food; and for the pollination of plants (Demetrio et al., 2024). They also provide a means of livelihoods for communities providing pollination of coffee plants, native fruits and production of honey, with potential earnings from pollination services estimated at \$ 6,166 per hectare annually (Sanguinetti et al., 2024). This increases the resilience of indigenous communities to defend their territories, of which they are at risk of losing rights through illicit agricultural activities, given they cannot find economic alternatives that allow them to meet their basic needs (Vit & Roubik, 2018).



**We are not sure that we can reach the national or international market without permits. It is very opportune that the breeding, production and commercialization of melipona bees and their honey can be legislated, so that there would be a basis that allows us to comply with what is required for trade to be fair and legal**

Betty Stefanie Torres Navarro, 33 years old, Kukama, City of Nauta, Loreto

The 2016 Assessment Report on Pollinators, Pollination and Food Production clearly stated that “practices based on indigenous and local knowledge can be a source of solutions to current challenges, in co-production with science, by supporting an abundance and diversity of pollinators” (IPBES, 2016). This integration of indigenous practices and science led by the consortium, has demonstrated the importance of recognising the economic, socio-cultural and holistic valuation of the pollinator in their management (IPBES, 2016) and has led to communities demonstrating sustainable harvesting methods that respect ecological integrity and align with biocultural conservation principles, which can eventually lead to the reduced vulnerability of the species. It also provides an integral role for indigenous women and children in the community in the Loreto, Junin and Cuzco regions, and fostering community resilience in the face of climate change.



**I would like to ask local and regional authorities to support us so that they recognize us as melipona breeders**



Testimony of Apu Pascual Tiviito Taype, 35 years old, Asháninka Marontoari native community, Cuzco

## Impacts on Health

Honey and other stingless bee products are used in traditional medicine, primarily attributed to treating respiratory tract diseases including the flu, bronchitis, cough, sore throat, and asthma (Delgado & Espinoza, 2023), possessing unique nutritional and medicinal properties, making it a valuable resource for local healthcare (Sanguinetti et al., 2024). In fact, Delgado and Espinoza (2023) explain that the honey of the *M. eburnea* (known as neronto in the Ashaninka language) and the *Tetragonisca angustula* (known as shinkenka) species are known to contain molecules with potential antimicrobial, anticholesterol, antiviral, anti-inflammatory, antidiabetic, antioxidant, antibacterial or analgesic activities. The loss of these bees could lead to diminished access to natural remedies, affecting the health and well-being of indigenous populations.



**With COVID-19 we made a honey syrup, together with other natural ingredients that we boiled, and so I took a spoonful of honey and a spoonful of my boiled medicine...Three days of treatment, there was no fever anymore, we were cured**

Heriberto Vela Cordova, 56 years old Kukama San Francisco native community, Loreto

## Impacts on biodiversity and climate change

Meliponiculture practiced by indigenous communities is a crucial mechanism for mitigating climate change, due to the ability of bees to pollinate native plants and keep the forest in balance, contributing to ecosystem resilience and carbon sequestration (Ocaña, 2023). Their decline due to habitat loss exacerbates climate change impacts and undermines efforts to preserve biodiversity (Hernández, et al, 2022).



**“ At 70 years old, I saw how the forests changed. When I was a child, I had a lot to eat. Now, there is almost nothing. There is a lot of hunger. The loss of our forests and animals is the fault of the settlers. Just as they came to damage our forests, they should help to care for and protect our forests’.**

Testimony of Martha Serina Naco, 70 years old, Asháninka Pitirinquini central native community, Cuzco.



Stingless bees are also a key mechanism for communities to adapt to climate change and its threats to food security and community resilience, by improving the supply (quantity and quality) of food/crops (Campbell *et al.*, 2022) and fostering community cohesion through the preservation and revitalization of traditional practices (Gonzalez, *et al.*, 2021). For instance, the loss of these pollinators can threaten the production of native fruits such as camu camu, whose yield can increase by up to 44 % with their presence (Delgado *et al.*, 2020) and they play a vital role in Peru's coffee production, which relies on insect pollination for 28 % of its yield, with seven species of stingless bees identified as key contributors. Empirical observations by the ashaninka partners suggest that stingless bees also benefit other crops, including wild grape and wild cacao. Therefore, stingless bees not only play a role in protecting biodiversity but providing additional food security and economic value of crops to communities.

**This fruit comes from a natural, native plant that gives us its harvest today. Without these bees, we wouldn't have this fruit. We need to cultivate awareness and promote this activity (native beekeeping). That way, we will have even more fruits; if today I have 5, tomorrow I'll have 10. With this mindset, we will strive to preserve and nurture this forest for generations to come.’**

Testimony of Apu Alex Mendoza Lopez, 30 years, Asháninka Tincareni native community, Junín.





# Policy Recommendations

To ensure the protection of stingless bees and the indigenous knowledge associated with them, we recommend the following actions:

## 1. Recognise rights of nature

Develop a holistic legal framework led by indigenous knowledge that acknowledges the intrinsic value of stingless bees and their Amazonian ecosystems, based on the principles of respect, precaution, interconnection and responsibility. A robust legal framework that recognizes the intrinsic value of stingless bees not only preserves ecological spaces and species but also safeguards the deep connections indigenous communities have with their environment, worldview, and cultural heritage. Without such protections, these communities remain vulnerable to illegal activities and other threats, with opportunities for timely action slipping away. To advance the protection and sustainable management of stingless bees it is key to introduce multiple values and knowledge systems into the decision making.



## 2. Support Legislative Reforms

Following Brazil's leadership, advocate for amendments to the law n.º 26305 to include similar protections for native stingless bee species and their ecosystems. Reforms should also build on South American progress to date to include the recognition of the stingless bee on the Peruvian, Cites and IUCN Protected Species Red List, their identification in the United Nations Codex Alimentarius as a registered food product; and stingless bee conservation in Peru's National Biodiversity Strategy Action Plan.

## 3. Empower indigenous communities to facilitate international collaboration and / or regional scaling

In accordance with the Declaration on the Rights of Indigenous Peoples (2007) and expanding on successful models such as the Amazon Indigenous Women's Fellowship, increase national and international support for Peruvian indigenous communities to strengthen their capacity for sustainable meliponiculture practices and allow best practice indigenous-led knowledge exchange across Amazonian communities, starting with the engaged Esse Ejja native community of Eyiyoquibo in the San Buenaventura Municipality in La Paz, Bolivia. This includes funding for education programs, capability building for marketing and selling bee products, and advocacy for their rights and knowledge.



## 4. Conduct Further Research

Prioritize research on the conservation status and ecological role of stingless bees in Peru, focusing on the impacts of deforestation and climate change, as well as on the study of bees as biosensors to monitor the health of the rainforest.

## 5. Raising Awareness

Raising awareness of the ecosystemic role of stingless bees and the contributions of Indigenous peoples in forums and policy discussions is crucial. Doing so not only acknowledges their invaluable knowledge and practices but also promotes inclusive, culturally sensitive conservation strategies that are essential for protecting these unique pollinators and the ecosystems they sustain.

## Concluding Remarks

Implementing these recommendations is vital to transition the goals of international environmental frameworks into action, benefitting people and the planet. At the core of the work is the protection of indigenous knowledge, its integration into biodiversity decision-making and the development of Biocultural Community Protocols (implementing GBF targets 14 & 22, the Nagoya Protocol and the Leticia Pact objective 9) which will allow for the sustainable management of the Peruvian Amazon and protection of its native stingless bees. The focus on female empowerment is crucial in building stronger, more resilient communities that are better equipped to face the challenges of climate change (delivering on GBF Targets 23, Leticia Pact objective 11), preventing the extinction of stingless bees for future generations. The right to a healthy environment (American Convention on Human Rights and the Protocol of San Salvador), and therefore the preservation of biodiversity and ecosystem functions (goal D of the Global Biodiversity Framework), is universal, but not always met, this project plays a crucial role in the realisation of this in the Peruvian Amazon, not only for the communities directly feeling the impact of its degradation but for the global population who are reliant on it.

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## **Endnotes**

1. In Brazil, the states of Amazonas, Bahia, Goiás, Maranhão, Paraná, Santa Catarina and Rio Grande do Sul all have protections for stingless native bees.
2. Brazil: *Melipona capixaba* (endangered), *M. rufiventris* (endangered), *M. scutellaris* (endangered), *Partamona littoralis* (endangered); Bolivia: (The Red Book): *M. grandis*, (endangered) *M. rufiventris*, (endangered), *M. eburnea* (Vulnerable), *M. favosa* (vulnerable), *Cephalotrigona capitata* (vulnerable), *Editha magnifica* (vulnerable); Colombia: *M. eburnea* (vulnerable), *M. Favosa* (vulnerable)
3. Starting with a natural nest extracted from the tree, 20 rational hives can be obtained per year through capability building with communities on sustainable management.
4. The consortium's work has engaged over 300 indigenous women in capacity building regarding stingless bee entrepreneurship and sustainable practices for conservation of the species and ecosystems.
5. We would recommend that the *M. eburnea* (as in Bolivia and Colombia), *M. illota* and *T. angustula* are considered for inclusion in the Vulnerable (VU) category. Similar to the other South American landscapes, the habitats of these species have been significantly reduced due to deforestation driven primarily by agricultural activities, selective logging, and their exploitation of honey harvesting. In particular, *M. eburnea* and *T. angustula* are threatened by overexploitation and unsustainable extraction practices due to the high demand for their honey.
6. A fellowship opportunity led by Conservation International for indigenous women, where women from Bolivia, Ecuador and Colombia have gathered to learn and share experiences in working with Amazonian *Melipona* bees.

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