

# NTFP Sustainable Harvesting and Resource Management Protocol

---

## Honey



## NTFP Protocols Series

This publication is part of a series of sustainable harvest and resource management protocols to promote good practice in NTFP management.

**Non-Timber Forest Products Exchange Programme Asia (NTFP-EP Asia). 2020. ASEAN Guidelines for Sustainable Harvest and Resource Management Protocols for Selected Non-Timber Forest Products (NTFPs). Authors: Guerrero, MCS, Varghese, A., Conlu, M.T., San Jose, D. Quezon City, Philippines: NTFP-EP Asia**

The text of this publication may be freely quoted or reprinted, provided proper acknowledgement is given and a copy containing the reprinted material is sent to the NTFP-EP Asia, Quezon City, Philippines.

Copyright © Non-Timber Forest Products Exchange Programme (NTFP-EP) Asia 2020.

All rights reserved.

Cover Photo: Sophie Nengel

The full volume is also found in:  
<https://asean.org/wp-content/uploads/20.-ASEAN-NTFP-Guidelines-Final.pdf>

# Honey



*Apis dorsata* colony  
Photo: NTFP-EP  
Philippines

Understanding the social structure of bees and the architecture of their hives is very important in establishing protocols for sustainable harvest of wild honey. Honeybees produce honey by collecting nectar, pollen, and dew from plants. They bring back the honey to their hive to store as food to keep them nourished when they are unable to forage outside. Stored honey also feeds their brood in the hive, making honey harvesting a potentially disastrous activity for future generations of bees if not managed properly.

Honeybees are susceptible to pesticides and to changes in the weather, particularly when flowering patterns change. Poachers that engage in unsustainable harvesting also threaten the survival of the honey industry.

Indigenous peoples in Southeast Asia have been harvesting honey observing linked sacred rituals and sustainable traditional methods. They usually collect honey from the species *Apis dorsata*, a eusocial honeybee which has four sub-species. *A. dorsata* build a large nest as a single comb, or as congregations that can have more than 100 colonies on trees and cliffs. They migrate long distances and return to the same nesting site every season. Other common honey sources are *A. cerana*, which nest in cavities and has ten sub-species, *A. florea*, and *A. adeniformis*.

## Thumb Rules for Honey in Traditional Forest Communities



- ✓ Define colony or area ownership.
- ✓ Do not destroy the habitat of the bees, including nesting sites and foraging areas.
- ✓ Ensure that colonies are a certain distance away from chemical intensive farming activity or sources of pollutants such as haze.
- ✓ Use appropriate sustainable harvesting tools and methods.
- ✓ Harvest only mature colonies for honey.
- ✓ Harvest only the honey part of the comb, leaving the brood intact.
- ✓ Brood collection is only for community consumption and not for sale. The brood is very nutritious and is a traditional food for some indigenous groups, therefore the harvest of this should strictly be for subsistence only. To ensure sustainability, a percentage of broods should always be left behind.
- ✓ Harvest honey only on dry days so as to reduce water content.
- ✓ Do not harm the bees while collecting honey from the hive.
- ✓ Cut honey combs and drain the harvested honey; never squeeze the combs. Honey should be pre-filtered in the forest if it cannot reach the processing center in a few hours.
- ✓ Honey should be clean and meet the standards for food and health.
- ✓ Respect local customs and rituals related to honey harvesting.
- ✓ Advocate for supportive policies and programs for sustainable forest honey management and trade.

## Socio-Ecological Indicators to Ensure the Sustainability and Quality of Forest Honey



### 01 Ecological

- The forest has an abundance of nesting trees and nectar sources.
- There is a stable or increasing number of colonies in a particular area.
- Sacred sites are secured.
- There is regular flowering of pollen and nectar sources.
- Occurrence of pollination
- Climate patterns such as rainfall and humidity are stable.

### 02 Harvest

- Only mature colonies are harvested (wide, thick and visible comb; capped or sealed honey).
- Only the honey part is removed from the comb.
- Harvesting is done on dry days.
- Appropriate harvesting methods, tools, and equipment are used.

### 03 Trade and Markets

- Honey is clean and meets health and food standards.
- There is no brood for sale.
- Honey can be traced to its source.
- Honey properties indicate it has been harvested properly.



**Harvested honey**  
Photo: NTFP-EP  
Cambodia

## 04 Institutions

- Local or traditional organizations are engaged in collective trade.
- There is an effective community institution that manages honey resources.
- Community discussions are done during honey collecting season.
- Social networks or partnerships exist between harvesters and other actors in the value chain.

## 05 Policies and Regulations

- Policies for harvest and harvest areas exist.
- The ownership of colonies is defined.
- Harvesters have permits or licenses to harvest and transport honey.
- Policies for protecting the forest exist
- There are enabling local, national, and international policies for Asian honeybees in such areas as taxes, partnerships, and honey standards.
- Local, national, and international platforms such as trade certification bodies advocate for favorable policies.

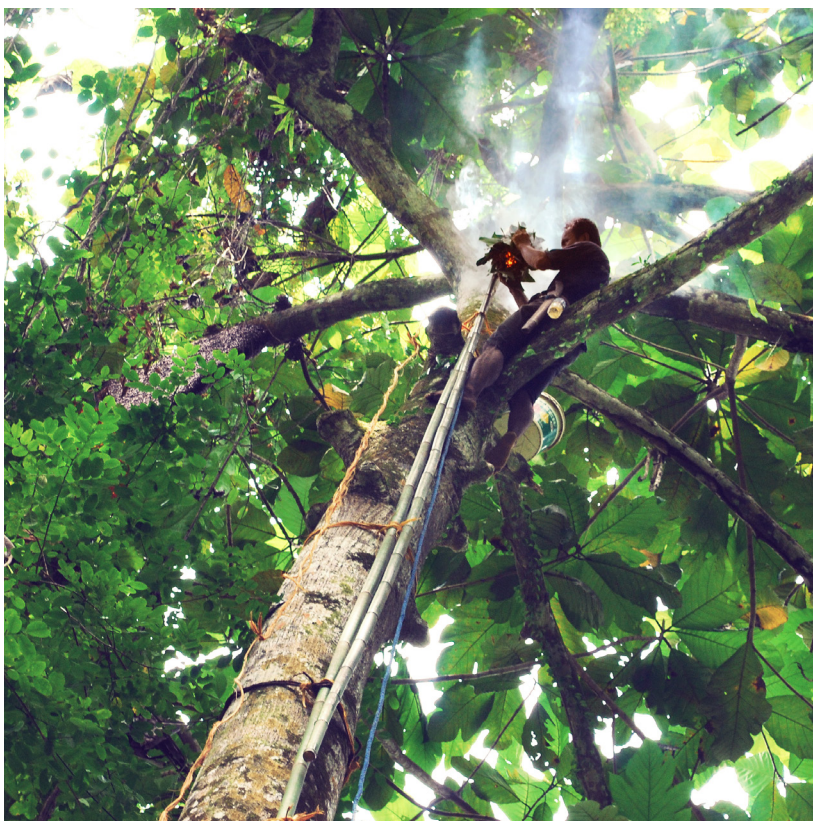
## 06 Monitoring Methods

- Resource mapping, including identification of nesting trees
- Number of colonies observed versus number of colonies harvested
- Community permanent plots recording number of colonies, number of trees with colonies, flowering trees before, during, and after each harvest season.
- Pre- and post-harvest monitoring through inspection of peer groups of non-collecting hunter group within three days after each harvest
- Community-level associations assess the quality of the honey.
- Records of where the honey is from, what are the nectar sources, who collected, and other relevant information
- Observance of adherence to harvest protocols
- Community discussions during honey collecting season
- Internal control systems and participatory certification processes checking traceability and sustainability
- Reports on progress on enabling policies for harvest and trade of honey
- Maintain observation records about animals and birds that are dependent on the bees, honey and combs.



## 07 Climate Adaptation

- Monitor if climate-related factors such as warmer temperature and stronger typhoons affect the flowering patterns of nectar sources and the migration and foraging patterns of bees.
- Ensure that traditional practices are still sustainable in light of changes in climate.
- Monitor if bee populations are declining.
- Monitor the use of chemicals in the vicinity, particularly pesticides.
- Record if honey has higher water content than previous years despite use of proper harvesting methods.



**Honey collector smoking a beehive**  
Photo: NTFP-EP Cambodia

---

## Monitoring Forest Honey in Cambodia

---

Since 2010, the Puchrey Village honey gatherers group from Pichreada District, Mondulkiri province has been monitoring forest honey. *Krom Promol Khmum Chorn Cheat Doeum Pheak Tech Prey Radang* is a member of the Cambodian Federation for Bee Conservation and Community-based Wild Honey Enterprises (CBHE), Cambodia's wild honey network focused on sustainable forest management and community livelihoods. They follow CBHE's "*Cambodia Forest Honey (Khmum Prey) Protocols and Standards*" which were developed from existing traditional knowledge and the collective expertise, research and experiences of its members who are honey collectors.

Forest honey monitoring in Puchrey is led by permanent monitoring teams. Roles of each field member are discussed beforehand and an orientation is given to familiarize them with tools and equipment used such as GPS, forest honey resource map and monitoring forms for data collection. Monitoring is conducted thrice a year (before, during and one month after harvesting season) in permanent monitoring plots (a two-kilometer transect line 50m x 50m wide) and is done at the same date and month every year. These permanent plots are important and help establish indicators per species which future communities can use.

The monitoring tool does not look into annual volume of harvest and migration of bees but gives an indication on the types of flowering trees during each month, the kinds of trees frequented by bees, compliance to sustainable harvesting, and estimates on density of bees in a certain habitat. Data on weather, other habitat disturbances, number of colonies, size of the hive, and whether hives are filled or empty, are also recorded.

Information like annual harvest records are collated and triangulated with information collection through other means, including data from the monitoring tool. Community monitoring has also helped provide data on nectar sources that are needed for planning and restoration, which the group has been able to share with relevant authorities. While full compliance to the harvest protocols have yet to be achieved, the monitoring visits have helped the team call the attention of erring parties.

Over time, the monitoring team have observed how erratic climate patterns affect volume of honey produced. This highlights the importance of upholding and implementing the community protocols. As a way forward, Participatory Guarantee System (PGS) processes for honey are also being explored built on traceability and quality standards on hygienic harvesting and processing.



Capacity-building measures and collaborations with stakeholders on honey standard certifications are being sought out.

There are strong prospects for growth and value of forest honey in Cambodia. Benefits can be increased through improved production, inputs for improved quality and perceived value, specialty honey positioning and market access 6. Monitoring changes over time helps not just in the characterization of their honey, which is important for marketing and livelihoods, but also in forest and NTFP conservation. By paying attention to harvest and quality standards, it is hoped that community enterprises will be able to penetrate wild honey into a larger commercial market while at the same time, ensuring sustainability of forest resources.

# References

- [ASEAN] Association of Southeast Asian Nations. 2020. ASEAN Guidelines for Sustainable Harvest and Resource Management Protocols for Selected Non-Timber Forest Products (NTFPs). Authors: Guerrero, MCS, Varghese, A., Conlu, M.T., San Jose, D. Jakarta, Indonesia.: ASEAN Secretariat.
- Belcher, B., & Schreckenberg, K. (2007). Commercialisation of non-timber forest products: A reality check. *Development Policy Review*.25(3), 355-377. [dx.doi.org/10.1111/j.1467-7679.2007.00374.x](https://doi.org/10.1111/j.1467-7679.2007.00374.x)
- Berkes, F. & Berkes, MK. (2009). Ecological complexity, fuzzy logic, and holism in indigenous knowledge. *Futures* 41(1), 6-12.
- Cambodian Federation for Bee Conservation and Community-based wild honey Enterprises (CBHE). (2016). Cambodia Forest Honey (Khmun Prey) Protocols and Standards: 2nd edition. Cambodia.
- CBHE. (2010). Cambodia Wild Honey (Khmun Prey) Protocols and Standards. Phnom Penh, Cambodia.
- Chao, S. (2012). Forest peoples: numbers across the world. *Forest Peoples Programme*, 27.
- Chinh, PH. (2019). Sustainable Forest Honey Harvest in Vietnam
- Cunningham, A. (2001). Applied ethnobotany: people, wild plant use and conservation. Earthscan.
- De Beer, J. & McDermott, M. (1989). The economic value of non-timber forest products in Southeast Asia: with emphasis on Indonesia, Malaysia, and Thailand.
- Dransfield, J., Uhl, N.W., Asmussen, C.B., Baker, W.J., Harley, M.M. & Lewis, C.E. (2008). *Genera Palmarum: The evolution and classification of palms*. Kew: Royal Botanic Gardens.
- [FAO] Food and Agriculture Organization of the United Nations. (2010). *FAO Forestry Paper 163: Global forest resources assessment 2010*. Rome, Italy: Food and Agriculture Organization of the United Nations.
- Fortune. (2019, November 5). Consumers say they want more sustainable products. Now they have the receipts to prove it. Retrieved from <https://fortune.com/2019/11/05/sustainability-marketing-consumer-spending/>.
- Gadgil, M. (1992). Conserving biodiversity as if people matter: a case study from India. *Ambio* (1992), 266-270.
- Guerrero, C. (2019). Policy and Trade in NTFPs in ASEAN: Examples of what is supportive of sustainable community-based NTFP management and what is not
- Harvard Business Review. (2019, June 19). Research: Actually Consumers Do Buy Sustainable Products. Retrieved from: <https://hbr.org/2019/06/researchactually-consumers-do-buy-sustainable-products>.

- Henderson, A. & Rustiami, H. (2019). New species of Calamus (Arecaceae; Calamoideae; Calaminae) from Sumatra. *Phytotaxa* 415(3), 117–129.
- Husnu Can Baser, K., & Buchbauer, G. (2010). *Handbook of Essential Oils: Science Technology and Application*. Boca Raton, Florida.
- JMHI. (2009). *Pedoman Organisasi JMHI (Guidelines for the JMHI Organization)*, Guideline 6: Honey Product Standards. Luwu Utara, Indonesia.
- Keystone Foundation (2009). *Non-Timber Forest Products: Protocols for Harvest*. Kotagiri, Tamil Nadu, India.
- Khorn, S. (2019). *Forest Honey Monitoring by CBHE presented during the Madhu Duniya 2019*.
- Leo, R. – Keystone Foundation India (2019). *Social Behavior of Bees and Honey Hunters*
- Maling, A. (2020). *Honey Collection Monitoring in Cambodia*. [Webinar 4 May 2020]
- Matius, P. (2020). *Rattan Gardens: Traditional Wisdom of Benuaq Tribe to Manage Biodiversity Conservation*
- Morsello, C., Ruiz-Mallén, I., Diaz, M. D. M., & Reyes-García, V. (2012). The effects of processing non-timber forest products and trade partnerships on people's well-being and forest conservation in Amazonian societies. *PLoS One*, 7(8), e43055. doi:10.1371/journal.pone.0043055.
- NTFP–EP. (2014) *Gabay sa Sustenableng Pamamahala ng Pukyutan Para sa Consolidator ng Pulot (Consolidators Guide for Sustainable Management of Forest Honey)*. Quezon City, Philippines.
- [NTFP–EP Cambodia] *Non-Timber Forest Products Exchange Programme Cambodia*. (2019). *Country Update on Forest Honey presented during Madhu Duniya 2019*.
- Odochao, S. (2019). *Harvest with the Karen Indigenous Knowledge: Slowdown for the Earth*
- Personal communication with Khorn Sokhom, CBHE President. Sept. 23–26, 2019. *Experts Group Consultation in Ho Chi Minh City Vietnam*
- Peters, C.M., Gentry, A.H., Mendelsohn, R.O. (1989). Valuation of an Amazonian rainforest. *Nature* 339(6227), 655–656.
- PFHN (2013). *Mga Balangkas ng Panuntunan Para Maabot ang Mataas na Kalidad ng Pulot-Ilang (Procedures to Achieve Quality Forest Honey)*. Quezon City, Philippines.
- Rustiami, H. & Henderson, A. (2017). A synopsis of Calamus (Arecaceae) in Sulawesi. *Reinwardtia*, 16(2): 49–63.
- Shackleton, C., Shackleton, S., & Shanley, P. (2011). Building a holistic picture: An integrative analysis of current and future prospects for non-timber forest products in a changing world. In: *Non-timber forest products in the global context* (pp. 255–280). Springer, Berlin, Heidelberg.
- Sodhi, N.S., Posa, M.R.C., Lee, T.M., Bickford, D., Koh, L.P., & Brook, B.W. (2009). The state and conservation of Southeast Asian biodiversity.

Biodiversity and Conservation, 19(2), 317-328. doi:10.1007/s10531-009-9607-5.

- Spellerberg, I.F. (2005). *Monitoring ecological change*. Cambridge University Press.
- Stockdale, M. (2005). *Steps to sustainable and community-based NTFP management: A manual written with special reference to South and Southeast Asia*. NTFP Exchange Programme for South and Southeast Asia.
- Ticktin, T. (2004). The ecological implications of harvesting non-timber forest products. *Journal of Applied Ecology*, 41(1), 11-21.
- Ticktin, T. & Shackleton, C. (2011). Harvesting non-timber forest products sustainably: opportunities and challenges." In *Non-timber forest products in the global context* (pp. 149-169). Springer, Berlin, Heidelberg.
- Turner, N.J. & Berkes, F. (2006). Coming to understanding: developing conservation through incremental learning in the Pacific Northwest. *Human Ecology* 34(4), 495-513.
- [UNDP] United Nations Development Programme. (2019). *Human Development Report Cambodia 2019: Sustaining Natural Resources for All*. Authors: Saito Jensen, M., Colin Marshall, et al.,. Cambodia: UNDP. Retrieved from: [http://hdr.undp.org/sites/default/files/nhdr\\_cambodia.pdf](http://hdr.undp.org/sites/default/files/nhdr_cambodia.pdf).
- Varghese, A. – Keystone Foundation India (2019). *Socio-ecological Framework for NTFP Protocols*
- Vedeld, P., Angelsen, A., Sjaastad, E., & Berg, G. K. (2004). Counting on the environment - forest incomes and the rural poor. *Environment Department Papers*. doi:10.1177/1420326X04041346
- Vu, N.L & Luu, H.T. (2009). *Research on conservation, development and sustainable use of Non-Timber Forest Products in Nui Chua National Park, Ninh Thuan province*. Unpublished technical report.
- Wazar & JMHI (2019). *Protocols Harvesting Forest Honey and Storage – Indonesian Forest Honey Network*
- Wunder, S. (2014). Forests, livelihoods and conservation : Broadening the empirical base. *WORLD DEVELOPMENT*, xx. doi:10.1016/j.worlddev.2014.03.007

**ntfp.org**