

Chapter 1

Introduction

The Indigenous Honeybees of the Himalayas

The Himalayas are rich in honeybee diversity having four indigenous species, *Apis cerana*, *Apis florea*, *Apis dorsata*, and *Apis laboriosa*, and one exotic species, the European honeybee *Apis mellifera*, which has been introduced for honey production. All of these bees are found in Nepal. *Apis cerana* is known as the Himalayan hive honeybee, it lives in the wild but can also be kept in hives and managed for honey production. *Apis dorsata*, *Apis laboriosa*, and *Apis florea* cannot be kept in hives but their honey is collected from the wild. *Apis laboriosa* builds its nests on cliff faces and is commonly called the Himalayan cliff bee, whereas *Apis dorsata* is the 'jungle' or forest bee.

Nepal's indigenous honeybees play an important role in maintaining biodiversity in mountain areas as they are the natural pollinators for a wide variety of indigenous plants, as well as themselves representing an integral part of the insect biodiversity in the region. At the same time they play an often unrecognised role in combating soil degradation by enhancing the replenishment cycle: more pollination, more seed, more plants, more biomass returned to the soil. They also have a special, although again often unrecognised, value for local farmers as pollinators of cultivated plants, and in terms of products like honey and wax have traditionally made a significant contribution to the livelihoods of remote mountain communities. However, notwithstanding their importance, there is still little concrete information available on these indigenous honeybees. Little is known about their population status, their relationship to honey hunting communities, their contribution to maintaining biodiversity, or emerging threats to their existence.

Traditional Honey Hunting

Honey hunting is the general term given to the collection of honey from the wild after frightening off the bees, it has been practiced by different societies since time immemorial. Drawings and paintings made by the ancient Egyptians show honey being collected from wild bee colonies (Crane 1999); honey jars have been found amongst the artefacts of the oldest identified civilisation in Pakistan, the Mohanjodaro, who lived more than 4000 years ago; and cave paintings depicting honey hunting and dating back to 11,000 BC have been found in Madhya Pradesh in India (Suryanarayan 2002).

Honey hunting is still carried out in many parts of the HKH region. Honey hunters probably collect more than 50% of all the honey produced in the region: estimates in India indicate that 22,000 tonnes of wild honey are collected annually, twice the amount of honey produced in *Apis cerana* and *Apis mellifera* apiaries (Wakhle and Pal 2000). Traditional honey hunting is an important element of the lifestyle of a number of groups including Rajis in Nepal and India and Kurumbas in South India (Valli 1998 a,b; Keystone 1994). However, most of these hunters collect honey from forest bees; only a few people collect honey from the Himalayan cliff bee. Although *Apis laboriosa* is found in Nepal, Bhutan, India, and China, traditional honey hunting practices have so far only been recorded in Nepal and informally in India; in Bhutan people only collect the wax, from nests abandoned for the winter, not the honey (Ahmad and Roy 2000); the practices in India and China are less well known and will be studied during the next phase of the project.

Honey hunting is a community activity and is an important part of the culture and livelihoods of many mountain communities. Ahmad and Roy (2000), Valli (1998), and Keystone (1994) have all pointed out the important spiritual significance, in addition to the economic role, for mountain communities. Nowadays, however, the social and cultural value of honey hunting is declining.

The traditional *Apis laboriosa* honey hunters are highly skilled; their technique has evolved over a long period to exploit these local resources in a sustainable way. But, these people tend to be from poor and marginalised communities. Although highly respected within their own communities, they are usually considered by those outside to be of very low standing. In countrywide comparative terms, they belong to the very poor. They face a variety of problems, a major one being their lack of empowerment in decision-making and dealing with outside society, which makes them vulnerable to exploitation. Thus they are unable, for example, to ensure that they receive a fair share of the consumer price for any honey that they wish to sell.

The ICIMOD Indigenous Honeybees Project

The ICIMOD programme on 'Indigenous Honeybees of the Himalayas' was started in May 1991 to fill some of the gaps in knowledge about indigenous bees – originally with the support of USAID, and since July 1993 with the support of the Austrian Ministry of Foreign Affairs through Austroprojekt. The programme is using a holistic approach to promote apiculture development and support the conservation of indigenous species. It promotes both managed beekeeping using *Apis cerana* and the conservation of wild honeybees. Part of the programme involves studying indigenous honeybees and the relationships between them and the environment (flora and fauna) and communities.

The Project is in the process of building up a knowledge bank of information related to these bees. Studies have been initiated to provide more detailed information about their habitats, indigenous patterns of (sustainable) exploitation like honey hunting, changes that may be threatening their existence, and ways of including them in integrated development plans. This publication describes the first results of a study of *Apis laboriosa* Smith more commonly called simply *Apis laboriosa*, the Himalayan cliff bee.



Listi Mai cliff next to the Nepal - China Highway: a large number of combs can be seen hanging under protruding rocks



Honey hunting group from Taprang village: the women may watch and share the honey but do not take part in the honey hunting itself

The Himalayan Cliff Bee: *Apis laboriosa* Smith

The Himalayan cliff bee *Apis laboriosa* Smith is the world's largest honeybee measuring up to 3 cm long. There is little concrete information available on the bee. For many years it was considered to be a type of *Apis dorsata*; only in 1980 was it identified and named as a separate species (Sakagami et al. 1980). The existing reports (some from times when it had still not been clearly identified) indicate the following. So far it has only been identified for certain in the mountainous areas of Nepal, Bhutan, India, and the western Chinese province of Yunnan (Summers 1990, Batra 1995, Ahmad and Roy 2000) at altitudes of between 1,200 and 3,500 masl (Underwood 1992). Recent unpublished observations suggest that it may also inhabit other parts of the Himalayas. Previous reports suggest that it mostly nests at altitudes between 2,500 and 3,200m and forages up to 4,100m (Roubik et. al. 1985, Valli and Summers 1988), and that, in general, it only builds brood nests under overhangs on vertical cliffs (Underwood 1986,1992, Roubik et al. 1985, Sakagami et al. 1980). In the cold season, minimal nests may be built for protective purposes in other places.

This bee's large size is a sign of its adaptation to the cold and low oxygen climates in which it lives, where there is a need for increased muscle mass among other characteristics (Summers 1990). The bee's foraging area is larger than that of most other honeybee species; it can fly up to a radius of three kilometres in thin air. It produces a large quantity of honey and beeswax making honeycombs up to 3m long and 1.5m high. As a result of its massive foraging, it plays a vital role in pollinating mountain crops and wild flora. *Apis laboriosa* live on cliff faces, except for the coldest months when they move to places that are more protected. From around early February to early December, the colonies are found more than 10 metres above the ground on the cliffs, with typically up to a 100 or more colonies, each of which builds a single nest, at one cliff site. Between late November and early December, at the start of the cold period, the colonies abandon the cliff sides and either move to protected locations beneath rocks, logs, or similar, or move to lower altitudes. The colonies tend to move to the same rock faces each year and these sites have become established for honey hunting. Ahmad and Roy (2000) have also reported the existence of *Apis laboriosa* bee nests two to three metres above ground in Bhutan, while Midge Gurung, a renowned honey hunter in Nepal, has observed the over-wintering of bee colonies in clusters without a comb on low rocks surrounded by grass.

The nests

Each honeybee colony comprises a group of worker and drone bees with one queen, who live together to supply each other's needs and co-operate to raise the offspring. Each colony builds one nest consisting of a single large wax comb with a thick honey storage area at the top and thinner brood portion below. Pollen is stored in a band separating the honey storage from the brood comb. The honey portion is usually around 15 cm thick, depending upon the overall size of the comb and the nectar flow potential of the area. Workers and drone brood are placed in cells of the same size and are interspersed throughout the brood comb.

Apis Laboriosa honey

Essentially there are three different types of *Apis laboriosa* honey. Spring honey collected at high altitudes – the so-called red honey, spring honey collected at mid and lower altitudes, and autumn honey from any site.



Apis laboriosa in a mustard field



Honeycomb ready for tasting

The red honey is valued for its special properties. It results from the collection of nectar from the white rhododendron (Ericaceae family), from *Aconitum* spp, and from *Entada scanders*, which only grow at altitudes of around 2000m and more. This honey has intoxicating and relaxing qualities, which, however, decrease with storage time. It is not consumed locally because of its high price and market value, honey hunters prefer to sell it for highly needed cash. Hive bees are not kept at these altitudes, and *Apis laboriosa* is the only bee species that collects this intoxicating nectar. The end-consumer price of red honey has increased considerably in recent times. The wholesale price of freshly harvested red honey is generally around 1000 to 1500 NRs per kg (US\$ 13 to 19), around five times the price of hive honey, although the honey hunters themselves generally receive considerably less per kilo than this. Large amounts of *Apis laboriosa* spring honey are exported from Nepal to Japan, Korea, and Hong Kong. The red honey is prized in Korea for its medicinal value and intoxicating qualities and fetches a premium price. Nowadays Korean companies buy up much of this honey in advance.

Spring honey from lower altitudes and autumn honey also command a good price, although less than red honey, as a result of the diverse nectar sources, strong flavour, and 'organic' qualities. The present (2002) wholesale price is around 200 - 500 NRs per kilo.

The *Apis laboriosa* Field Study

Prior to the field studies on *Apis laboriosa* Smith, the project team together with Pratim Roy of the Keystone Foundation, India, developed a basic concept and guidelines on the type of information to be collected and the possible sources that could be used. The study focused on the location of *Apis laboriosa* nesting sites, and their relationship with the local communities' culture and livelihoods. It set out to explore the importance that the local communities attached to honey hunting and to discover how it fitted into their overall livelihoods. The study also aimed to increase our understanding of the relationships between forests, people, and honeybees.

The main objectives were:

- to investigate and document the status of *Apis laboriosa* nesting sites; and
- to locate honey-hunting communities and investigate their status, their level of dependence on honey hunting, and the challenges they face.

Preliminary survey

A preliminary survey was carried out in the six Nepalese mountain districts of Dolakha, Sindhupalchowk, Kaski, Lamjung, Gorkha, and Rasuwa to discover whether and where there were active *Apis laboriosa* nesting sites and to help in the selection of the most appropriate area for detailed study. The study team consulted government officials, local NGOs, honey hunters, honey traders, and consumers to assess the situation of honeybees and honey hunters in each district, the accessibility of sites, the law and order situation, and the presence of a potential local partner institution. Kaski district was chosen as the most feasible district for carrying out an in-depth study.

The local focal point in Kaski was a local activist, Major Ram Prasad Gurung (a retired officer from the British Gurkhas) who was concerned about the conservation of wild bees and had an



Honey hunter from Chhomrong village carrying a tango and saaton

extended knowledge of bee cliffs and close links with the honey hunter communities. He was supported in his efforts to establish a formal group for advocacy and action related to bee conservation: the NGO 'BEENPRO'. This NGO then became ICIMOD's partner organisation for these studies.

As a first step, the ICIMOD team and BEENPRO held discussions with representatives of all the known honey hunting communities in Kaski district (many of whom are also members of BEENPRO) to identify all the known and exploited active nesting sites of *Apis laboriosa*. A total of 26 cliffs with active nests were identified. The honey hunters took team members to each of the cliffs so that they could assess the practical needs and make detailed arrangements for holding the survey.

Appreciative Participatory Planning and Action APPA

Before working with the communities, members of the ICIMOD team were trained in using Appreciative Participatory Planning and Action (see Box). APPA is a tool used in local development planning and is considered to be a powerful way of helping communities and organisations to transform. The exercises involved working with the honey hunters to facilitate discussions through consideration of the 4Ds of discovery, dream, design, and destiny. A structured questionnaire was also developed that could be used within this approach.

The questionnaire

The questionnaire focused both on the indigenous honeybees themselves, and on the cliff honey hunting system. The first part included information about the area, district, VDC, village, latitude and longitude, altitude, rainfall, ecology and vegetation, types of bees, bee habitat and nesting details, local migration of people, adjacent village farming activities, and schematic drawing of the habitat. The second part included the name of the area, name of the cliff, time taken to reach the cliff site from nearest settlement, name of nearest settlement, vegetation, floral analysis, height of the combs from the bottom of the cliff, distance to the water body, type of ethnic community involved, number of colonies found on the cliff, nesting season, out-migration season, annual honey yield, beeswax production per year, colour of bees, size of bees, shape of comb, and volumetric calculation of honey and brood storage. Further questions were related to cultural and anthropological information, honey hunting technology, and socioeconomic information.

The field survey

In repeated visits to Kaski district over a one-year period (September 2000 to August 2001), the team carried out APPA exercises with a representative group of more than 20 honey hunters drawn from the different nesting areas. The team also visited each site to make physical measurements and for direct observations.

The latitude and longitude of the cliffs (map location) were recorded using a global positioning system instrument (GPS). The aspect of the cliffs, the distance from a water source, the number of nests per cliff (i.e. the number of bee colonies), and the distance above the ground were also recorded and a qualitative assessment made of the composition of the surrounding vegetation.



APPA with villagers

Appreciative Participatory Planning & Action (APPA)

Appreciative Participatory Planning and Action, or APPA, is a highly participatory planning process that significantly extends the more traditional rural development tools such as Participatory Rural Appraisal. APPA was developed and pioneered by The Mountain Institute (TMI) as a community-action and learning tool, and has been applied successfully by a number of organisations, for example The Snow Leopard Trust. APPA combines concepts from Appreciative Inquiry (used in business leadership training) and Participatory Learning and Motivation, in a collective inquiry and planning process that fosters effective group action.

APPA operates on two simple complimentary premises.

What you seek (in a community, organisation, or individual) is what you will find – “if you look for problems, then you will find more problems,” or conversely, “if you look for successes, you will find more successes.”

What you believe is what matters most – “if you have faith in your vision or ideas for the future, and if these are believable, then you’ll be able to achieve success (substantial progress) without waiting for government or an outside donor to help take you there.”

APPA is practiced through an iterative (repeated) cycle known as the ‘Four Ds’.

discovering the community’s strengths, characteristics, and valued assets or resources

dreaming, or envisioning, what could be possible in the short and long term – if adequate and realistic resources were mobilised and the community acted in concert

designing a plan for guiding action towards future goals and objectives, emphasising what the community already knows and can do on its own without relying substantially on outside financial sources or technical know-how

delivery – by implementing the action plan, spurring participants to initiate community-improvement actions immediately rather than wait for some future time

The major characteristics of APPA that contribute to successful community planning and implementation are stakeholder participation, the community-based approach, and sustainability through community empowerment and capacity building. APPA has been applied to community-based conservation initiatives in Nepal’s Makalu-Barun Conservation Area, in Sikkim’s Khangchendzonga National Park, in Tibet’s Qomolangma Nature Preserve and India’s Hemis National Park. Supported by TMI, community organisations in India, Nepal, and China have used APPA to develop community plans that they are now implementing with their own resources. It has empowered communities to learn from their successes instead of focusing on their problems, mobilised individuals and groups toward concrete actions which they can start immediately, and initiated long-term change toward self-reliance. APPA is relatively quick and easy for villagers to learn and implement by themselves.

During the APPA exercises and other informal interviews, information was collected from local people on the productivity of different nests, nest predators, and the defensive behaviour of the *Apis laboriosa* populations. Special attention was paid to those sites where local people indicated that the *Apis laboriosa* population was declining due to non-ethical honey hunting practices like harvesting all the nests indiscriminately rather than leaving a number to facilitate replenishment, and/or to changes in agricultural practices.

Appreciative Participatory Planning and Action (APPA) exercises were also used to collect socioeconomic and technical information on honey hunting. This included the perceived status of honey hunting, the level of dependence of the hunters and communities on honey hunting and the challenges they face in a changed socioeconomic and ecological scenario; and information about honey hunting equipment and techniques, rituals, and other associated beliefs.

A detailed field exercise was carried out in Taprang village in Kaski district involving all the honey hunters from Taprang and nearby villages, twelve in all. The field exercise was intended both as a means of gathering information and as a capacity building exercise for the honey hunters that would raise their awareness of the situation and help them to develop and implement constructive approaches to conserving *Apis laboriosa* whilst increasing their own profit from honey hunting activities. The objectives of the exercise were first discussed and the APPA approach explained. The participants learned that APPA is a way of seeing and being in the world. It is a co-evolutionary search for the best in people, their communities and organisations, and the world around them. APPA builds self-confidence and pride, empowers people to take independent actions, and helps mobilise communities towards the achievement of their future vision. After this conceptual sharing, the field exercise was carried out following a simple 'discovery, dream, design and destiny', or 4Ds, planning and action cycle.

Following the initial APPA exercise, the questionnaire was used as a guide during interviews held with individuals and groups in the area over an extended period of time.

Community development

The APPA field exercises constituted an iterative and interactive process. As well as generating information for the study, these exercises were designed to build the capacity of the honey hunters in the fields of conservation and apiculture. Essentially the process was one of empowerment, helping the honey hunters to discover how to mitigate the threats to the bee that is the basis of their tradition, how best to retain and maximise the benefits of honey hunting to their communities, and how to interact to their advantage with the 'outside world' (middle men, tour operators, government organisations, and similar). The aim was to engage the active involvement of the honey hunters in the protection of *Apis laboriosa*.

These efforts enabled us to develop a team of activists who are now involved in an organised campaign for the conservation of *Apis laboriosa* and are protecting the bee from external business interests.