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HEALING FOREST ANDAILING ECONOMIES: NON-TIMBER FOREST PRODUCTS IN NEPAL

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INTRODUCTION

Hanuman, the mythical monkey god of the Hindu pantheon, knew a good thing when he saw one. As the story goes, Hanuman’s knowledge of wild flora and its medicinal properties saved the life of Laxman, the famous warrior of the Indian epic, the Ramayana. Upon learning of Laxman’s injury, Hanuman took to the skies and brought down the mountain of Kailasa, with its impressive display of Himalayan biodiversity. His efforts were rewarded: his earthworks included four samjivini, or life-giving herbs. Laxman was saved, and Hanuman went down in history as one of the Himalaya’s earliest naturopaths. In the thousands of years that followed, subsequent reincarnations of Hanuman searched out new plants with useful properties. This time, however, the motive was profit, not panacea. The trade in Himalayan flora grew into a vast, yet secretive marketing network that continues to flourish today, providing critical economic inputs to forest-dependent peasants in Nepal, India, Bhutan, and Tibet, and fueling multi-million dollar industries in India, China and beyond (Aryal 1993).

This study examines the trade in Himalayan flora in the Annapurna region of Nepal (Fig.1, below). Over a period of eight months, information was gathered on several aspects of harvesting, management, marketing and ecology. The main objectives of the study were to gather baseline data on the social and biological aspects of the trade, and to investigate potential methods of improving rural incomes and biodiversity conservation through better reserve management and marketing systems. The study was designed to parallel similar studies in eastern and western Nepal in order to develop a replicable methodology with compatible aims and results, and to improve understanding of the non-timber forest products (NTFP) trade in the national context.

NEPAL

BACKGROUND

Each year, from every ecological zone across Nepal, thousands of tons of seeds, bark, fruits, leaves, roots and other plant parts are collected in the wild for the purposes of trade to India. Over one hundred products are involved, used as raw materials for the production of essential oils, resinoids, spices and herbal medicines. Collectively known as jaributi, these products reach their destination through informal marketing channels, passing through the hands of numerous middlemen. Recent research indicates that in the rural sector alone over 10 million dollars are generated annually, distributed among a large number of collectors, porters and small traders (Edwards 1993).

MATERIALS AND METHODS

This study was divided into three main components: literature review and background policy/program research; market survey, including both small intermediary traders and large wholesalers; and field investigations. The difficult terrain, lack of roads and communication, dispersed settlements and collecting areas prompted the development of a research strategy focused on market towns at the end of the road, known as roadheads (Edwards et al. 1993). Such markets act as funnel points that “drain” a relatively discrete area in which plants are collected and traded, similar in concept to a hydrological catchment. Roadhead bazaars can be areas of intense trading activity and are a useful point of departure for gaining a regional picture of product availability, quantities, prices, historical trends, marketing pathways, and collecting hotspots.

Data collection relied heavily on rural appraisal (Poffenburger et al. 1992) and ethnobiology (Bellamy 1991) techniques. At the village level, information was gathered from a wide cross-section of people, including women and children, female birth attendants, village headmen and elders, various castes and economic classes, forest management committees and traditional healers. Considerable effort was given to documenting indigenous plant knowledge and collecting voucher specimens.

STUDY SITE

The Annapurna Conservation Area (ACA), gazetted in 1989, is a multiple-use protected area co-managed by numerous village development committees and the ACA Project (ACAP) staff. Founded on the principles of participatory management, ACAP has the dual management objectives of conserv-
ing biodiversity and promoting environmentally sound rural development. ACA's 7000 km² ranges in altitude from 1000 to 8000 meters, and provides a representative swath of central Himalayan biodiversity containing a variety of ecological zones, from sub-tropical monsoon forest to alpine steppe. It is also a region of remarkable cultural diversity; over 40,000 people comprising at least nine distinct ethnic groups reside here. The Annapurna region not only provided a fertile research site, but involved people who were truly interested in the findings.

Preliminary Results

Products and Volumes

In 1992, at least fourteen products were collected in large quantities (Table 1, below). According to local informants, ten trucks containing approximately 40,000 kg left the Besi Sahar roadhead. Products collected in the greatest volumes included the bark of *Cinnamomum tamala*, a small subtropical tree, and the tubers of *Dioscorea bulbifera*. *C. tamala* is used as the main adulterant of true cinnamon (*C. zeylanicum*); *D. bulbifera* is used for treating gastro-intestinal ailments. Two new products also emerged on the market: the leaves of *Taxus bacchata*, the Himalayan cousin to the Pacific Yew, famous for its anti-cancer properties, and *Saussurea gossypiphora*, an alpine herb whose end-use is unknown but is used locally for medicinal purposes. The value of trade in 1992 at the Besi Sahar roadhead is estimated to be on the order of US $15,000.00. Edwards (1993) observed that market prices for jaributi correspond to the distance between collection area and roadhead and the degree of difficulty encountered while harvesting. High altitude products tend to fetch higher prices, whereas low altitude products tend to be priced more cheaply. While this is somewhat true for the Annapurna region, the prices appear to be elastic in response to market demand.

**Prices**

<table>
<thead>
<tr>
<th>Latin name</th>
<th>Family</th>
<th>Local name</th>
<th>Part</th>
<th>US$/kg dried**</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Trichosanthes</em></td>
<td>Cucurbitaceae</td>
<td>indreni ko biu</td>
<td>seed</td>
<td>2.00</td>
</tr>
<tr>
<td><em>Swertia</em></td>
<td>Gentianaceae</td>
<td>chiraito/tithe</td>
<td>leaves, stem</td>
<td>2.00</td>
</tr>
<tr>
<td><em>Piper</em></td>
<td>Piperaceae</td>
<td>pipla</td>
<td>fruit</td>
<td>2.00</td>
</tr>
<tr>
<td><em>Valeriana</em></td>
<td>Valerianaceae</td>
<td>sugundhawala</td>
<td>root</td>
<td>0.70-2.00</td>
</tr>
<tr>
<td><em>Paris</em></td>
<td>Liliaceae</td>
<td>satuwa</td>
<td>root</td>
<td>1.00</td>
</tr>
<tr>
<td><em>Cinnamomum</em></td>
<td>Lauraceae</td>
<td>dalchini/sincauli</td>
<td>bark</td>
<td>0.50-1.00</td>
</tr>
<tr>
<td><em>Rubia</em></td>
<td>Rubiaceae</td>
<td>majiu/cheroor lahar</td>
<td>stem</td>
<td>0.20</td>
</tr>
<tr>
<td><em>Dioscorea</em></td>
<td>Dioscoreaceae</td>
<td>kukur tharul</td>
<td>tuber</td>
<td>0.20</td>
</tr>
<tr>
<td><em>Delphinium</em></td>
<td>Ranunculaceae</td>
<td>nirmasi</td>
<td>tuber</td>
<td>2.00</td>
</tr>
<tr>
<td><em>Nardostachys</em></td>
<td>Valerianaceae</td>
<td>jatamansi</td>
<td>rhizomes</td>
<td>1.20</td>
</tr>
<tr>
<td><em>Aconitum</em></td>
<td>Ranunculaceae</td>
<td>bikh</td>
<td>tuber</td>
<td>1.00</td>
</tr>
<tr>
<td><em>Rheum</em></td>
<td>Polygonaceae</td>
<td>padamech</td>
<td>root</td>
<td>1.00</td>
</tr>
<tr>
<td><em>Picrohiza</em></td>
<td>Scrophulariaceae</td>
<td>kurkti</td>
<td>rhizome</td>
<td>0.70</td>
</tr>
<tr>
<td><em>Orchis</em></td>
<td>Orchidaceae</td>
<td>panchaunle</td>
<td>tuber</td>
<td>4.00</td>
</tr>
</tbody>
</table>

**Prices converted to equivalent in US dollars**

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Markets and Marketing

Traders at the roadhead and along the main trails are the critical link between jaributi and the market. They receive market information on species and price along with cash advances from large wholesalers near the Indian border, and they are the first major point of transaction for local collectors. There are at least seven permanent traders who double as shopkeepers, lodge operators, and farmers. In addition, a number of opportunistic buyers from large Indian firms periodically visit the region in search of more direct supplies.

Resident traders have their own territories based on kin relations or other historical ties. They are of different ethnicities and have varying levels of business savvy and political influence. At times they may work in collusion, but most operate independently. As such, roadhead prices can be competitive, and a collector is free to sell as he pleases. Contrary to popular notions, the relationship between resident traders and collectors is not necessarily exploitative. Traders can play a very important role in village economies by providing a needed source of credit, cash and marketing assistance. Traders and collectors may also be bound together by a mutually beneficial ritual brotherhood called *mit*. On the other end of the scale, certain powerful traders may force collectors to sell exclusively to them. All these arrangements were observed in the study area.

The jaributi market is volatile and erratic. *Swertia chiretta*, known for its bitter taste and fever reducing qualities, was until recently a low value species fetching only NRs15/kg.
Its alleged use in a new Indian beverage raised the price to over $2.00/kg in today's market, stimulating larger and earlier harvests, cultivation experiments and localized attempts to control the harvest and protect the growing stock.

Tenure and Management

Tenure and management vary widely across the study area, influenced strongly by the level of market information, historical trade links, culture/ethnicity of participants and degree of government intervention. Collection areas fall into two overlapping categories of ownership and control: government land and community land. Due to the shortage of government forestry staff and the rugged terrain, this distinction is often ambiguous. Community land can be divided further into official and customary. Official community land is that which has been sanctioned and demarcated through the government Community Forestry Program; customary land may or may not have official sanction, but local people retain historical access rights. The recent incorporation of the study area into the Annapurna Conservation Area superimposes yet another layer of claims upon the jaributi resource.

Management is equally variable, determined to a large extent by feasibility. Government management is limited to the collection of royalties and periodic harvesting and export bans. At the local level, management mainly takes the form of access control, commonly accompanied by a token payment to a community fund. In practice, however, much of the region is unrestricted. Management is also hindered by the lack of market information by those controlling access, thus limiting their ability to make sound management decisions.

Biodiversity Conservation

Across Nepal, the largest concentrations of plants with useful compounds occurs in the subtropical zone (53%), followed by the tropical (49%), temperate (36%), subalpine (18%) and alpine (7%) (IUCN 1991). Over 700 species are known to have therapeutic properties. Herbs may experience a high level of endemism due to the formidable topography and microclimates which inhibit migration and induce speciation. This is relevant to the jaributi trade because large-scale collections could inadvertently cause extinctions.

Depending on the product, collection can have various effects on local plant populations. Collecting herbs, roots and tubers destroys the individual plants, whereas harvesting vines, seeds and fruits causes minimal immediate damage. Recent trends indicate that as prices and markets increase, collection occurs earlier in the season, before the plants have had a chance to seed. Unmanaged harvesting, combined with periodic market booms, appears to have had a significant negative effect on local populations.

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**DISCUSSION AND CONCLUSIONS**

Widespread poverty, rapid population growth, environmental degradation and lack of employment opportunities characterize life throughout most of Nepal. With per capita GNP at less than US$180/yr, new sources of income must be developed to meet the growing economic needs of Nepal's citizens, yet are compatible with its unique cultural and biophysical characteristics. Improving the jaributi trade may offer one alternative, especially at the primary stages of extraction and exchange. Improvements could take the form of harvesting and marketing cooperatives or village-based processing facilities. Cultivation of threatened species is certainly warranted, although potential benefits will be limited to those with the necessary land, labor, capital and time.

Common property management — instigated by villagers themselves or through government and NGO-sponsored social forestry and protected areas programs — is promising, yet many issues remain problematic. Lack of ecological data precludes the development of silvicultural prescriptions to maintain/increase productivity. The social aspects of the trade are equally formidable. Controlling poachers, establishing reliable markets, gaining access to market information and by-passing Indian hegemony are all important considerations. Given that current trade patterns are the
result of regional histories, politics, ecology and culture, site-
specific issues need to be incorporated. These include ap-
propriate mechanisms for distributing jaributi benefits and
responsibilities among community members and protecting
access rights of the poor.

The jaributi trade is an ancient Himalayan enterprise which
has expanded dramatically over the past few decades. There
is great potential to improve economic benefits and forest
management, but it is important to remember that collecting
NTFPs for trade is only one of many strategies people employ
to manage their needs; it is not a panacea. The Annapurna
study describes the trade in one area only and is not general-
izable. It does, however, demonstrate the complexity of the
issue, potential problems, and prospects for development.
The future lies not in the hands of mythical gods like
Hanuman, but in those of mere mortals, from illiterate
mountain peasants to sophisticated businessmen.

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