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NON-WOOD FOREST PRODUCTS IN THE REPUBLIC OF SURINAME

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1 Introduction

The diversity of Suriname's fauna and flora is rich in wildlife, including 668 species of birds, 185 species of mammals, 152 species of reptiles, 95 species of amphibians and roughly 4,500 species of plants. (Source: 1,3)

The total human population of Suriname is approximately 410,000 in an area of 164,000 square kilometres. Most of these inhabitants are concentrated in the capital city, Paramaribo, and in small towns of the coastal region. Only about 5 % of the population lives in the interior. ; m m

The low population pressure on the environment makes the conservation of biodiversity in Suriname very important. Presently, the trade of wild species and wild fauna-flora is a world-wide concern, and it is considered by many the second largest threat to bio-diversity conservation after habitat loss and fragmentation. Another source of major demand for wild species is for food, whether for personal use, for trade through bartering, or for commercial trade. There is an industrial use: the large-scale utilisation of resources for the production of consumer goods. This is typified by the pharmaceutical and health care product industry, which requires and consumes huge quantities of plant and animal resources, often from the wild, used in the manufacturing of commercial drugs, medicines, and various lotions. This latter demand for industrial manufacturing is the large-scale counterpart to the harvesting of plant materials used in traditional medicines, a demand that is already spreading in Suriname. Until now there is no information available on the commercialisation of medicinal plants on the national level as well as on the export of medicinal plants (Source: 5).

In Suriname, the export of wild animal species, involving live exotic birds, reptiles, amphibians, and primates is related to the demand for these species in its principal importing partners, namely the United States, Europe, and Japan. The domestic trade in living animals is mostly limited to a few bird species that are so regarded by Surinamese people as pets. (Source: 5)

The demand for wild plants appears to be relatively low, and as noted above, there is a widespread though small-scale use of plant resources for traditional medicine purposes. The export in wild plants is extremely low, numbering less than a few hundred specimens of orchids and heliconias annually.

The dependence on wildlife species for protein by Surinamese indigenous people and its urban inhabitants creates another threat on the country's living resources, and for many species the demand for wild meat is far greater in size and seasonal impact than the live-animal trade. There also appears to be a small but steady flow of wild game meat to neighbouring countries, where market prices are much higher than what can be obtained in Suriname. All of these taken together, the combined demand for live wild species for food, sport, and the international pet trade, as well as wild plant material for industrial uses, presents a potential threat to biodiversity conservation in Suriname.

Finally, Suriname has a tremendous eco-tourism potential, and in fact, was one of the first countries to carry out successful rainforest tourism in the 1970's. Major eco-

tourism attractions include large tracts of rainforest wilderness, outstanding coastal ecosystems, and cultural attractions.

2 State of NWFP statistics

In 1947, the Suriname Forest Service (Dienst Land's Bosbeheer, LBB) was established to administer and manage the nation's forest. In fact, it was given the following directives: first, the management of the country's forest to yield in perpetuity the maximum benefits for the community by inventory of the forest estate to assess forest types. Second, the composition and growing stock. Third, the supervision of forest exploitation; Fourth, the collection of royalties; Fifth, the inspection of timber exports. Sixth, the research on forest protection; seventh, the improvement and regeneration; eighth, the investigation of the economic possibilities of minor forest products and market research and development in land and abroad.

Conclusively, the Suriname Forest Service is responsible for both forest production and management of the country protected areas. The Nature Conservation Division of the Forest Service enforces the Nature Preservation Law, the Game Law and CITES legislation, conducts estuarine and other ecological research. STINASU is responsible for the development of the nature reserves for nature tourism, public awareness campaigns with regards to nature conservation, research and management of sea turtles.

After the Suriname Forest Service was established timber production was managed under a system which granted timber concessions in state forests to timber companies, individuals or groups. Special arrangements were made to grant timber rights (in the form of Wood Cutting Licenses (WCLs)) to tribal communities. The WCLs allowed the harvesting of wood and non-wood forest products in forests near to the communities' villages.

The Timber Ordinance of 1947 regulated the exploitation of timber and other forest products except *Manilkara bidentata*, *Aniba rosaeodora*, *Dipteryx odorata* and *Copaifera guianensis*.

In 1992, a new Forest Management Act was passed. This act stipulated that the forest should be classified into three categories; Permanent Forest, Conversion Forest (areas to be clear-cut and converted to other land use i.e. agriculture) and Forest to be Preserved temporarily.

Between 1947 and 1982 accurate statistics on forest products were recorded. In those days the production of the forests reached a maximum in 1979. The data collected by Suriname Forest Service was based on timber products because the non-wood forest products became less important. Due to political instability, the country became isolated in 1982, vastly reducing the amount of foreign investment and assistance. By 1986, the issuing and renewing of concessions was stopped due to internal conflict and pending the promulgation and enactment of a new forest law (finally passed in 1992). Between 1985 and 1987 LBB's facilities in the field were destroyed by the civil war (which ended in 1992). Continuing economic difficulties have led to the present situation where LBB is facing acute shortages of trained staff and facilities. Because of these situations much of the domestic forest

production went unrecorded, as LBB has neither the staff nor the resources to collect data or control the operation. By 1992 when the forests were reopened for production, timber and other products became readily available. The statistics were by that time recorded but were not accurate. Up until now, there has been a lack of available data on Non Wood Forest Products.

3 Trends of consumption (utilization)

Was it ever so that NWFP, especially the plant-based products, were used mostly by the tribal communities in Suriname, currently NWFP are being utilised by all sections of the population. The products are being used as medicines, cosmetics, spices, food, in steam and/or hotwater baths, in rituals, etc.

3.1 Non Wood Forest Products (NWFP)

In this section a case study “ The marketing and economic importance of Biodiversity in Suriname” was done in 1994 by Ms. Yvette E.A. Merton. The case study focused on the use of Non-wood Forest Products on a local level as food, medicinal plants, animals and other plants. Some of the results are summarised in table 1 and 2.

Table 1. Examples of Non-wood forest Products used at a Local level

Surinam Name	Scientific name
Fruits	
Kumbu	<i>Oenocarpus bacaba</i>
Kasju	<i>Anacardium occidentale</i>
Spices	
Masusa	<i>Renealmia apinia</i>
Nengrekondrepepre	<i>Aframomum melegueta</i>
Medicinal herbs	
Kunami	<i>Clibadium surinamense</i>
Neku	<i>Longchocarpus chrysochyllus</i>
Sneki – wiwiri	<i>Eryngium foetidum</i>
Isri – wiwiri	<i>Ceropteris calomelanos</i>
Colorants, dyestuffs	
Koesoewé	<i>Bixa orellana</i>
Oils	
Krappa-olie	<i>Carapa procera</i>
Hoepel-olie	<i>Copaifera guyanensis</i>
Walaba-olie	<i>Eperua falcata</i>
Maripa-olie	<i>Miximiliana maripa</i>
Awarra-olie	<i>Astrocaryum segregatum</i>
Medicinal plants	
Kwasibita	<i>Quassia amara</i>
Jarakopie	<i>Siparuna guyanensis</i>

Source: 3,4,6,7 Note: non-available data

Table 2. Mammals in the diet of forest-based- communities

Family	Common name	Scientific name
Agoutidae	Paca*	<i>Agouti paca</i>
Bradypodidae	Three toed sloth	<i>Bradypus tridactylus</i>
	Two toed sloth	<i>Choloepus didactylus</i>
Callithricidae	Golden-handed or midas tamarin	<i>Saguinus midas</i>
Cebidae	Brown capuchin monkey	<i>Cebus apella</i>

	Common squirrel monkey	<i>Saimiri sciureus sciureus</i>
	White-fronted capuchin monkey	<i>Cebus albifrons</i>
	Guianan saki	<i>Pithecia pithecia</i>
	Brown bearded saki	<i>Chiropotes satanus</i>
	Red howler monkey*	<i>Alouatta seniculus</i>
	Black spider monkey	<i>Ateles paniscus paniscus</i>
Cervidae	Brown brocket deer*	<i>Mazama gouazoubira</i>
	Red brocket deer*	<i>Mazama americana</i>
	White-tailed deer	<i>Odocoileus virginianus</i>
Dasyopodidae	Six-banded armadillo	<i>Euphractus sexcinctus</i>
	Nine-banded armadillo*	<i>Dasypus novemcinctus</i>
	Giant armadillo*	<i>Priodontes giganteus</i>
Dasyproctidae	Red rumped agouti	<i>Dasyprocta agouti</i>
	Red acouchy	<i>Myoprocta acouchy</i>
Hydrochaeridae	Capybara	<i>Hydrochaeris hydrochaeris</i>
Leporidae	Brazilian rabbit or tapiti	<i>Sylvilagus brasiliensis</i>
Tapiridae	Brazilian tapir*	<i>Tapirus terrestris</i>
Tayassuidae	White-lipped peccary*	<i>Tayassu pecari</i>
	Collared peccary*	<i>Tayassu tajacu</i>

- : Frequent used on a local level. Source: 4.

Note: For medicinal purposes the villagers are using about 300 spp. of the plants.

It is quite difficult to determine which are the most important non-wood forest products/species. Briefly some major uses and relative importance of non-wood forest products are given below in table 3 and 4.

Table 3. Non-wood forest products against fever and cold

Against fever	Against cold
Jarakopie (<i>Siparuna guyanensis</i>)	Sneki – wiwiri (<i>Eryngium foetidum</i>)
Sneki – wiwiri (<i>Eryngium foetidum</i>)	Nengrekondrepepre (<i>Aframomum melegueta</i>)
Kwasibita (<i>Quassia amara</i>)	

Source: 3,6,7

Note: non-available data

Table 4. Oils and their proper use

Product	Use
Krappa-olie (<i>Carapa procera</i>)	Treatment for Hair
Hoepel-olie (<i>Copaifera guyanensis</i>)	Treatment for wounds
Walaba-olie (<i>Eperua falcata</i>)	Treatment for rheumatism
Awara-olie (<i>Astrocaryum segregatum</i>)	Treatment for hair and also as cooking oil
Maripa-olie (<i>Miximiliana maripa</i>)	Cooking oil

Source: 3,6,7 Note: non-available data

The supply of the products mentioned above depends on the climate season and hunting season. Presently, there are no exact numbers or statistical data of these products with the exception of the export/trade of CITES-listed wild animals.

Suriname has ratified the Convention on International Trade in Endangered Species of the Flora and Fauna (CITES). Trade, export, and import are only possible by obtaining special CITES permits. Suriname has been a party since 15 February 1981.

Table 5. Unofficial export/trade data for CITES-listed wildlife (1995 – 1996)

Note: Total Quota = the total of the quotas for the species traded only; Total Exports =

From recorded export endorsements; Realization = percent of the total quota used; FOB value = based on the minimum FOB values X total exports.

Year/Type/No. of species – Genera	Total Quota	Total Exports	FOB value (US\$)
1995			
Birds (24)	23,225	11,241	844,178
Mammals (5)	1,275	572	109,635
Reptiles & Amphibians (13)	55,715	17,665	280,705
1996			
Birds (25)	25,411	8,134	618,609
Mammals (9)	1,625	794	298,102
Reptiles & Amphibians (13)	55,715	25,894	221,997

Source: 5 Note: For more detailed information see appendix 1 & 2.

4 Non – wood services

Suriname possesses a great potential for eco-tourism, both in the coastal zone and in the interior that is untouched by modern civilization. Some examples are the virgin tropical rain forest of the mountain areas; broad rivers, waterfalls and rapids; interesting geological formations; about 700 species of birds; a range of wildlife typical of the Amazon region; and the Amerindians and the Bushnegroes leading their traditional life in the jungle.

Due to internal political conflicts, Suriname had a set back in this sector during the '80s and early '90s. Fortunately, in recent years a steady growth has occurred and also

putting a significant pressure on the natural resources. Presently, no current data is available regarding this sector.

5 Conclusion

In Suriname a few activities are crucial to adequately control and regulate the trade in wildlife and plants. One of these activities involves the improvement of the implementation of effective wildlife and plant trade control and management in Suriname.

Momentarily, the controlling system of the Nature Conservation Division consists of giving permits and licenses, and inspection of legal export shipments at the national and international level (mainly for fauna). However, since establishment, the controlling system still remains on the same level. Presently, the Nature Conservation Division is unable to process and analyse trade data in a timely manner, therefore making up-to-date information on the trade unavailable to policy makers, resource managers, and the scientific community. Due to limitations in staffing, training, equipment and facilities, effective implementation of wildlife trade and plant trade controls at the national level is at a minimum. Also, the co-operation between implementation and enforcement agencies, officers, and other agencies is limited.

The consultant recommends the following activities for the development and collection of regular statistical data on NWFP:

- Meeting the needs of the Nature Conservation Division for equipment and staff facilities in the headquarters and in the field, to ensure an adequate level of services, inspections, and other enforcement activities (such as regular patrols in the field to detect and stop illegal cross-border trade, monitor national and international trade, and inspect hunting licenses and enforce the Game law and the Law on Forest Management and/or other wildlife-related trade laws and regulations).
- Computerization of the export quota system of the Nature Conservation Division. This system was created to regulate the export of fauna.
- Establish a cooperation between the Suriname Forest Service, the Ministry of Trade and Industry and Customs regarding the exportation of NWFP.
- Provide specialized training on wildlife and plant trade control, enforcement, trade management techniques, and other technical aspects within the Nature Conservation Division, together with police authorities, military police, customs (airport/border security), National Scientific Institutions and others.
- Encourage national level cooperation between agencies responsible for the management and enforcement of wildlife and plant trade controls.
- Conduct an inventory on the presence of NWFP businesses in Suriname. This should be done in close cooperation with the Suriname Forest Service in order to update their databank.

- Develop methods for sustainable exploitation of NWFP, especially the plant-based products.
- Develop a bioprospecting program to search for alternatives of currently used NWFP.
- Preserve the knowledge of tribal communities with regards to NWFP, especially that on plant-based products.

The above mentioned activities will ensure that wildlife trade control and management initiatives will be increasingly effective and efficient in the future. It is up to now that the Suriname Forest Service, specifically the Nature Conservation Division, grants permits for the collection of NWFP. It also regulates the export of fauna with the export quota system. The Ministry of Trade and Industry grants permits for NWFP. Customs see to it that all exporters comply with the terms or requirements of their permits.

Organizations involved with the utilization of NWFP especially the medicinal plants are Conservation International in Suriname and Odany Jewa. Odany Jewa is a house of medicine and healing which produces pure rainforest healing products. Until now Odany Jewa produces 75 medicines extracted of NWFP on the market, in which their utilization procedures and quantities are unknown. Conservation International in Suriname is an organization, which tries to give support to young indigenous people studying the utilization of NWFP from older medicine man – thus ensuring that invaluable knowledge of rain forest plants is passed from tribal elders to the next generation.

Also of great importance is the awareness about the value and importance of biodiversity conservation on a national level. First of all this requires all the political will and support of the government, because the importance of biodiversity conservation to a national sustainable development must be recognized throughout the government, from the highest levels downwards. Public acceptance of wildlife trade controls and management will require a greater understanding of the value of biodiversity conservation to the national economy and to specific sectors and to individual stakeholders.

The main obstacles eco-tourism faces are existing infrastructures (road, river, air), competition with government owned tourism operators and transport-operators and custom-services.

In order to aid tourism planners and managers, so that they can anticipate and prevent impacts of tourism, the following steps should be taken:

- Define and establish carrying capacity guidelines for the destinations;
- Develop tools called environmental indicators that can provide information on the healthiness and viability of destinations.

Finally, tourism could contribute as a source of income to the economy, however better management is required in order to prevent permanent damage to the fragile ecosystems as well as the undermining of the unique cultural diversity.

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7 Resource persons

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Local Market sales persons.