

NON-WOOD FOREST PRODUCTS

20

**Fruit trees and  
useful plants  
in Amazonian life**

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# Fruit trees and useful plants in Amazonian life

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JOEL SARTORE



“I have never planted here; I am guarding these woods.  
There is piquia in this forest.  
I am protecting it for my children and grandchildren.”

**Senhor Braz**  
Traditional Healer

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PATRICIA SHANLEY



Dedicated

To the people of the Amazon  
who are nourished by the  
fruits and plants of the forest.



## COVER OF THE 2010 PORTUGUESE VERSION

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# Preface

This book features the uncommon quality of bringing together original scientific knowledge on fruits and useful plants of the Amazon forest and the sensibility to detect the deep interaction between life, traditional knowledge of our forests and folk culture. With its language at the same time accessible, pleasant and practical, the book has become a vehicle to disseminate information that is fundamental to the future of the Amazon and to bring alive the dream of a development model that is economically and socially fair, and that respects the environment.

In this book, we from the State of Acre have the privilege of seeing our flora in a dialogue of experiences from eastern, central, and western Amazon. Mahogany, solitary açai palm and rubber – which are part of the history of our region as well as part of our struggles – along with the songs, the gestures full of local culture and universal spirit are all in the book.

I would like to draw the reader's attention to three important aspects of the work of Patricia, Margaret and Gabriel. The first one is related to the impact of this work on collective health, by strengthening the use of plants capable of substantially improving the nutritional value of our diet and, consequently, preventing the so called "illnesses of the poor". The studies developed by the authors correlated the seasonal availability of fruits in the forest with the incidence of diseases, showing that during periods of scarcity the number of cases of some diseases is highest.

The second aspect is related to a powerful characteristic of the Amazon, still under-explored and poorly documented: the role of women in the knowledge and use of the non-timber forest patrimony. The advancement of sustainable experiences in the Amazon has witnessed a strong contribution of women – especially in the reinforcement of community actions and creativity to guarantee the social and material survival of the family. Women may be the strategic leverage to provide both the cement and scale needed to create a new paradigm in the region. In this new edition, the Articulated Movement of the Amazon Women (MAMA) from Acre is studied as a personification of this role.

The third aspect I would like to highlight is the ability to associate forests and development – a true one, which instead of throwing us into the vortex of limitless competitiveness and selfishness, leads us to community, to solidarity, and to human and spiritual values as mediators of each one's goals. The reader will also find studies on community management (Center of Amazonian Workers, CTA, project, Acre), environmental education (Health and Happiness Project, Santarém – Pará State; and SOS Amazon, Acre) and other tracks that lead to integral sustainability, in which it makes sense to take care of the environment since this is the way to take care of life itself, of children and our future.

I want to again express my gratitude for this book, which is an extraordinary poem to the Amazon, which touches our emotions with the truths expressed in the simple and powerful figures of our animals, our plants, our aromas, our flavours. A sentiment arises within us, finally, and for our lives, simply and so proudly Amazonian.

**Marina Silva**

Former Minister of the Environment, Brazil

# FAO preface

Since the early 1970s, FAO has been working to support the efforts of forest communities to improve their lives by involving them in the decisions which affect their very existence. Today, an estimated 1.6 billion people around the world use forest resources to meet some of their needs for food, shelter, medicine and cash income. In fact, some 80 percent of people living in the developing world rely on non-wood forest products (NWFPs) such as fruits and medicinal plants for nutritional and health needs. These communities possess a deep knowledge of forests and their products, as well as their benefits to humankind and the environment. They are active caretakers of the forest. Today, more than ever, in the face of the multiple challenges facing the sector, FAO continues to stress the importance of involving forest communities in development initiatives.

Nevertheless, a weakness in exchange of information between the scientific community and local populations continues to hinder development outcomes. Local knowledge and indigenous taxonomy is underrepresented in development practice, where Linnaean nomenclature and scientific data reign. Often, scientists visit local communities and learn about their traditional knowledge but only report their findings to other researchers/scientists in a scientific manner. For this reason, research continues to speak its own language – one hardly accessible to local communities.

In light of this, FAO's NWFP Programme – which has long been dedicated to highlighting and disseminating information on the importance of NWFPs and the vital role they play in forest communities – was pleased to accept a proposal by CIFOR to collaborate with them on an updated and translated version of the innovative illustrated book *Frutíferas e Plantas Úteis na Vida Amazônica*. This publication is an example of how research and development can and should be respectful and inclusive. In a way that is also accessible to local people, it synthesizes ecological, market, management and cultural information of key Amazonian species in an effort to help expand the knowledge base of traditional forest communities about the value of forest resources. The updated English version, *Fruit Trees and Useful Plants in Amazonian Life*, serves two main purposes: it provides rich information on Amazon fruits and Amazon communities and shows how scientific information can be presented in an innovative and more inclusive way, one that can be adapted accordingly by other actors worldwide. This publication is particularly timely given the land-use changes affecting the forest sector in the Amazon – the most extensive tropical forest in the world – as well as in other areas. Local people are in dire need of reliable and, above all, accessible market and scientific information that can help them make informed decisions.

FAO is a knowledge organization and, as such, its Forestry Department is especially committed to making sure its technical expertise reaches forest communities in order to enable lasting impacts for future generations through improved livelihoods today. With this in mind, FAO gladly contributed to a publication that is a culmination of local and scientific expertise on forest fruits and related aspects, and above all an example of how it is possible for “science” to share complex ecological and market information effectively with local communities, even in the absence of a common language.

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## Editors' preface

Should science stay in the ivory tower? Do scientists have a responsibility to turn knowledge into action? Scientists are trained to present their research to a select segment of society – readers of peer-reviewed journals. But as scientists build their reputations publishing for narrow audiences, forests fall, and people and their ecosystems become more impoverished.

If there is one message this book seeks to convey it is this: scientific results can and should be shared with local people. New models of conducting research reevaluate with whom and how researchers share their findings, and reconstruct the process itself, from research design to dissemination of results. The goal is to increase the equity and effectiveness of research, and recognize that all people are creators of knowledge – forest villagers alongside scientists.

This book grew out of an earlier volume, written in 1997, to share research results with semi-literate communities along a tributary of the Amazon River. Positive response to this modest publication gave rise to a request from the Brazilian Government for a more extensive work including species from across the Amazon basin. This required the collaboration of scores of experts willing to present their research to rural villagers in alternative formats including jokes, recipes and pictures. Such a publication would not boost professional standing based on peer-reviewed journal articles, and could possibly damage their reputations. Would anyone agree to participate?

To their credit, 90 Brazilian and international researchers participated, sharing their decades-long work in simple language. In addition, scores of farmers, midwives, hunters and musicians contributed their insights and experience. Their stories reveal what numbers overlook – the struggles and joys of the people living within Amazonian forests.

The reception by Amazonians has been extraordinary with housewives, taxi drivers, students, villagers, loggers, policy makers, rubber tappers and indigenous groups, seeking copies. To meet demand, various sectors of the Brazilian government are now joining forces to print and distribute 20 000 copies, free of charge, to small producers.

This book is an updated and revised translation of its Portuguese predecessor, and is produced in order to impart to others our efforts to integrate and share traditional knowledge and scientific findings. Science should not be the territory of the well educated few. Science should be a common good, the value of which increases with each person that uses it to make more informed decisions. We offer this book as one way to bring knowledge out of the academy and into the community.

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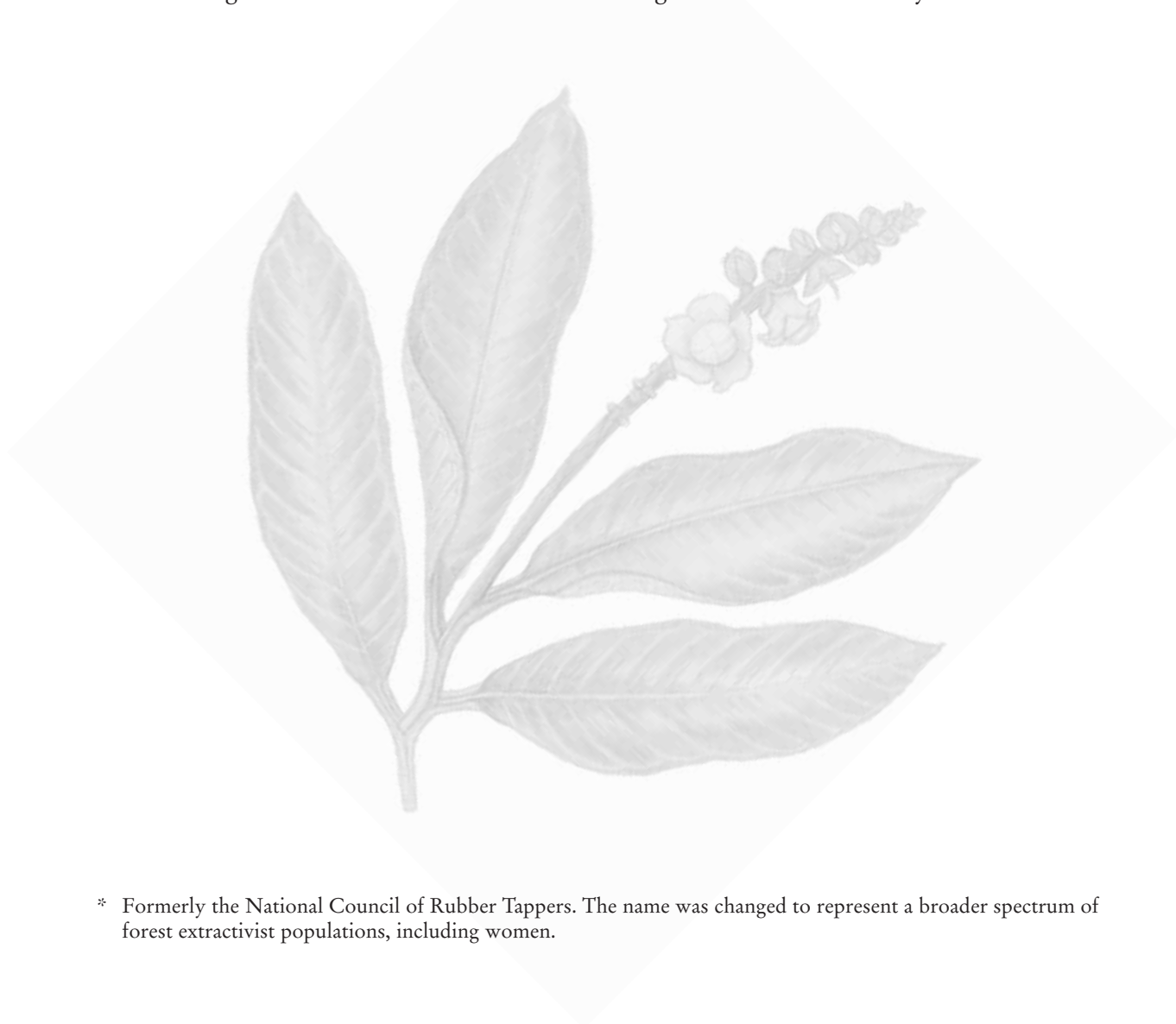
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\* Formerly the National Council of Rubber Tappers. The name was changed to represent a broader spectrum of forest extractivist populations, including women.

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## **GLOSSARY OF PORTUGUESE AND FORESTRY TERMS**

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**alqueire** – A term often used to describe a measure of land area by communities in the Amazon. One alqueire is the equivalent of 4.8 hectares, or 48 000 m<sup>2</sup>.

**apical meristem** – The growing tip of the plant, or apical meristem, emerges as a new bud or growing point of a root. The meristem tissue is composed of undifferentiated cells where growth occurs. Palm hearts are the inner core growing bud (apical meristem) harvested from certain palm species.

**Amazonia** – The Amazon rainforest or biome is known as Amazonia and includes territories from nine countries: Brazil, Bolivia, Peru, Ecuador, Colombia, Venezuela, Guyana, Suriname and French Guiana (see map on page xxiv).

**Bolivia** – Bolivia is used to designate the South American country named Plurinational State of Bolivia.

**caboclo** – Caboclos are native inhabitants of the Brazilian Amazon. Caboclos emerged from the detribalization of the Amerindians and the subsequent syncretisation of African, Portuguese and Indian peoples. The term came to be used for disenfranchised populations of mixed descent inhabiting the flood plains and terra firme regions of the Brazilian Amazon. (for more information see Brondizio 2008)

**capoeira** – Secondary forest that grows up after primary rainforest has been cleared. The Brazilian martial art got the name capoeira because the early practitioners trained in the capoeira to hide from the view of their owners.

**carimbó** – Carimbó is a rhythmic drum-based dance and music from Belém and Marajó Island regions of Pará, Brazil.

**cerrado** – Cerrado is a tropical savannah region in the interior of Brazil, extending into parts of Paraguay and Bolivia. It is characterized by tall dense grass cover with some isolated low trees and gallery forests along streams and rivers.

**crème** – Frozen desserts called crèmes are commonly made with local fruit from the Amazon, the most well known being crème de cupuaçu. Generally, fruit pulp is blended with sweetened condensed milk and cream. The mixture is spread in a tempered glass pan and placed in the freezer for several hours before serving.

**Curupira** – Curupira is a mythical creature of Brazilian folklore taking the shape of a boy with his feet on backward. He is often portrayed riding a wild boar through the jungle. He is said to protect the rainforest from those wishing to harm it by leading them in circles.

**dbh** – Diameter at breast height is a standard forestry measure used to express the diameter of a tree trunk. The dbh is usually taken at 1.3 m above the ground, approximately at an adult's breast height.

**dendê** – Oil made from the fleshy pulp of the African oil palm (*Elaeis guineensis*) is known as dendê. This strong-flavoured, deep orange-red oil is commonly used in West African and African influenced Brazilian recipes.

**endocarp** – Endocarp is a botanical term for the inside layer of a fruit that directly surrounds the seed. It is often hard as in the pit or stone of the peach, olive or cherry, and the shell of walnuts, but may be a membrane as in citrus fruits. For example, in the Brazil nut the endocarp is the hard shell directly covering the edible nut.



**farinha** – The common term for *farinha de mandioca*, farinha is a flour produced through an elaborate process of soaking and roasting the tuberous roots of manioc (*Manihot esculenta*). Farinha is processed, eaten and sold as a principal source of income by most rural Amazonian families. Community or individual family work shacks called *casas de farinha* are built beside residences as places to process the roots. Manioc leaves and roots contain varying quantities of cyanogenic glucosides, which are converted into cyanide. The dangerous compounds are removed from the roots through a lengthy soaking and cooking process.

**frugivorous** – Frugivorous means fruit-eating. Fruit makes up a substantial portion of a frugivorous animal's diet. Many frugivores serve as dispersers for the fruit they eat.

**ganzá** – The ganzá is a Brazilian percussion instrument, a type of cylindrically shaped rattle, often made out of a hand woven basket or metal canister filled with beads, pebbles or seeds.

**hectare** – A hectare (ha) is a metric measure of area, 1 000 m by 1 000 m or 10 000 m<sup>2</sup>. One hectare equals about 2.5 acres.

**igapó** – Igapó is used to describe lowland Amazonian rain forest on permanently flooded land, with roots of the vegetation always submerged.

**jutaicaica** – Exudates from various species of the *Hymenaea* form a hard resin called jutaicaica. Jatobá (*Hymenaea courbaril*) is the most common source for jutaicaica, often collected in a semi-fossilized form at the base of the tree.

**Mapinguari** – The Mapinguari is a legendary three-meter tall slothlike creature believed to roam in the remote reaches of the Amazon. The monster is described as having one eye and producing a strong unpleasant odor. Many believe that the myth has been passed down from ancient encounters with the giant ground sloth, now thought to be extinct. Others believe that a giant sloth may still be surviving in the more isolated regions of the Amazon jungle but no one has been able to document its existence as of yet.

**mateiro (woodsman)** – Mateiros are timber cruisers who do field searches for timber species. They locate trees that can be logged, sometimes leaving a system of lightly cut trails and markers indicating to logging crews where trees are located, what species, and how many by cutting notches on palm leaf stems.

**measurement abbreviations** – The standard measurement abbreviations used in the book are: mg = milligram, g = gram, kg = kilogram, mm = millimetre, cm = centimetre, m = metre, m<sup>3</sup> = cubic metre, ha = hectare, ml = millilitre, oz = ounce

**NWFP or NTFP** – Non-wood forest products (NWFP) or non-timber forest products (NTFP) refer to resources or services other than timber (NTFP) or wood (NWFP) utilized from forests, other wooded lands and trees outside forests. Fruit, seed, nuts, fibres, resins, gums, latexes, medicines, fish and game are often classified as NWFPs.

**raceme** – A raceme inflorescence has a single axis containing alternating or spiralled flowers on short stalks of about equal length. The new flowers are borne towards the tip of the raceme as the central axis shoot grows.

**spathe** – Spathe is a large bract, modified leaf, that subtends a spadix or other inflorescence. In palms, the spathe is generally a woody, boat-shaped bract that ensheathes the flowers and subsequent fruit. Some other monocotyledons have showy less woody spathes.

**swidden agriculture** – A system of shifting cultivation plots often involving clearing and burning before planting, also referred to as slash and burn.



**terra firme** – Terra firme refers to lower elevation Amazonian rain forest growing on higher, solid ground that does not flood.

**tipiti** – The tipiti is a hand woven, long, narrow sieve used to squeeze the liquid and toxins out of grated manioc root in the production of farinha. The resulting liquid, called tucupi, is used in regional cuisine, as well as the starch, tapioca, which separates out of the extracted liquid.

**várzea** – Várzea refers to lowland Amazonian rain forest that floods seasonally when rivers are at their highest during or following the wet season. Várzea is also used to describe the floodplain forests which are flooded daily due to the influence of the tides.

**Venezuela** – Venezuela is used to designate the South American country named Bolivarian Republic of Venezuela.



Map of South America showing Amazonia and the major rivers in the area



<sup>1</sup> Bolivarian Republic of Venezuela

<sup>2</sup> Plurinational State of Bolivia