

The Maya Breadnut Tree: Providing Sustainable Nutrition and Forestry from the Ancient Maya Until Today

Authors: Scott Forsythe, Green Balam Forests¹; Sebastian de la Hoz, Green Balam Forests²; Andrew Puente, Journeys in Conservation³

Introduction

Cattle ranches surrounding the Maya Biosphere Reserve in northern Guatemala are the source of extensive fires which encroach into the rainforests of the core area of the Reserve. Both deforestation and climate change combine to lower rainfall and water tables, which in turn limit the feasibility of cattle ranching. Thanks to government forestry incentives, and with proper selection of native species, we can provide a working model demonstrating the long-term, economically attractive option of reforestation over cattle ranching.



Fig. 1. Geoffery's Spider Monkey, Maya Biosphere Reserve, Guatemala; Credit: BBC America

Brosimum alicastrum (Maya Breadnut Tree)

- Keystone species of lowland forests in Mexico, Central America, Amazon basin, and Caribbean islands
- Drought-tolerant with roots highly adapted to shallow, karstic soils of Yucatan Peninsula
- Seeds a staple of lowland Maya nutrition since pre-Columbian times
- Seeds highly viable in contact with soil, yet easily stored for long periods for food purposes
- Leaves and seeds are high-protein forage for livestock in regenerative silvopastoral systems
- Plays key roles in the concept of the Maya forest garden and in forest and wildlife management



Fig. 2. Ramon processing provides economy for local women; Credit: Alimentos Nutri-Naturales

Conclusion

Assisted by forestry financial incentives and international information dispersion, the Maya Breadnut Tree can support acceptance of reforestation schemes that benefit environmental, nutritional and economic circumstances at both regional and village levels.



Fig. 3. Map of Mesoamerica, Maya Biosphere Reserve outlined in red; Credit: Jeffrey Hayward

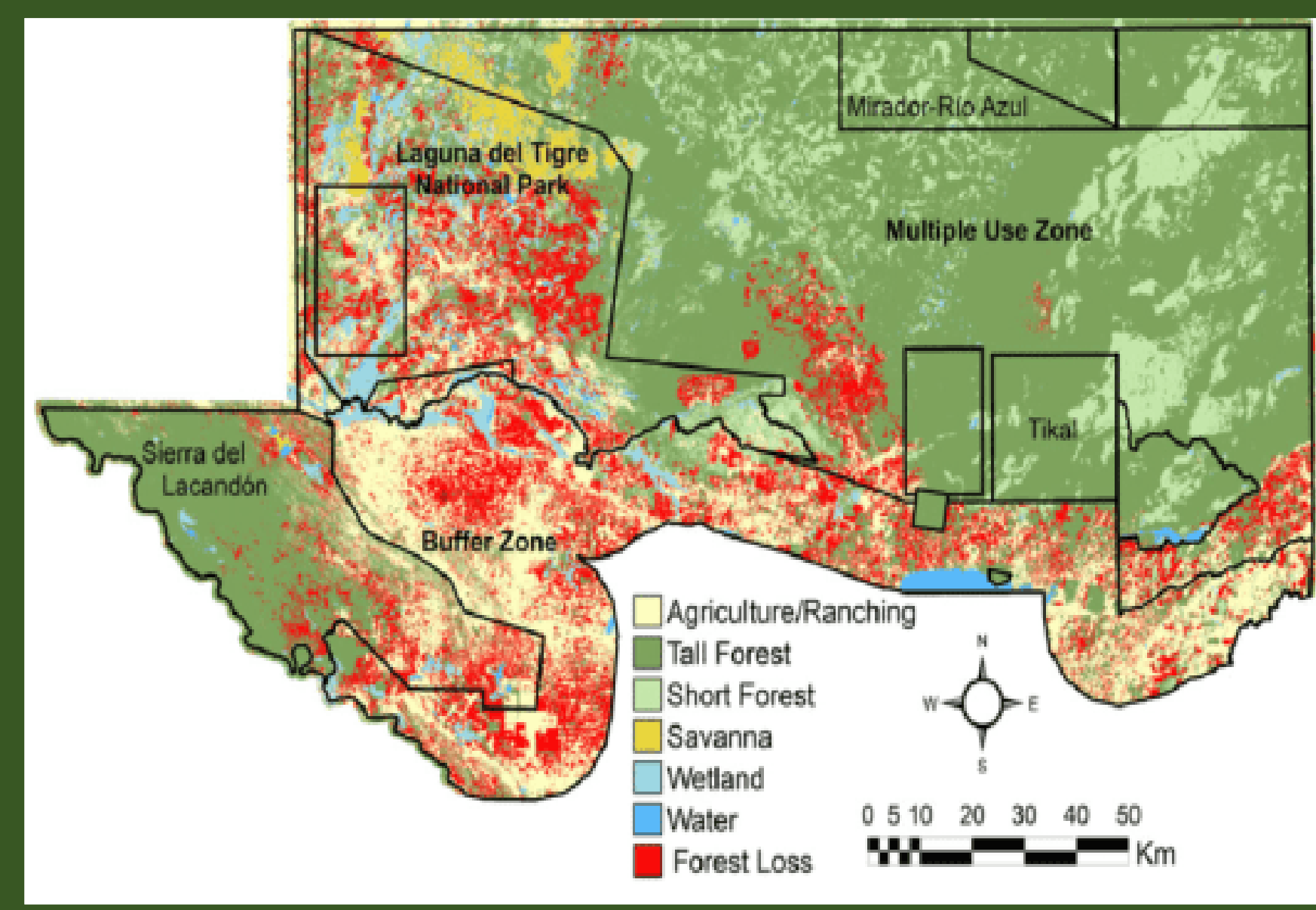
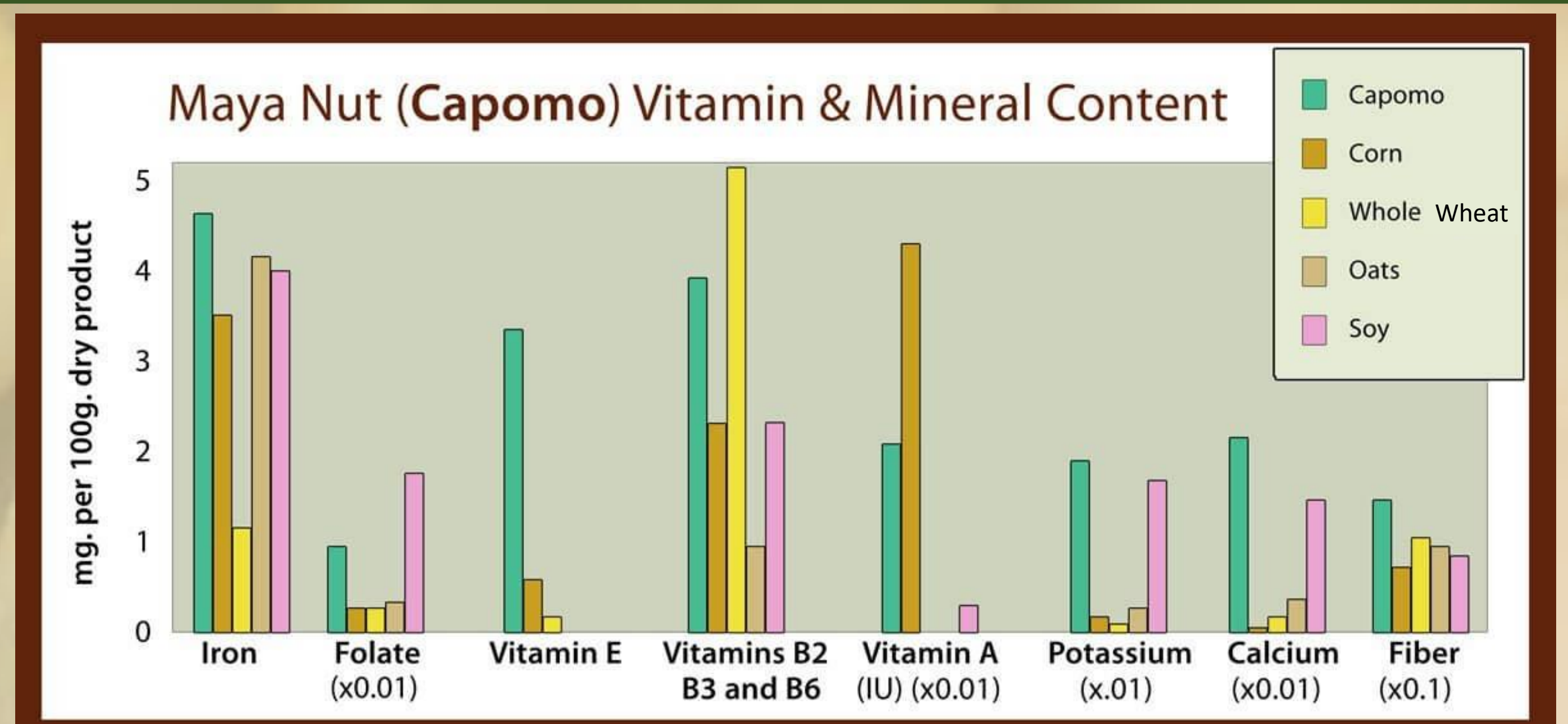


Fig. 4. Deforestation in the Maya Biosphere Reserve over 15-year period (2000-2015) marked in red; Credit: Rainforest Alliance

Methods

We chose *Brosimum alicastrum* (Maya Breadnut Tree, Ramón) as the predominant species in our agroforestry strategy. We reforest abandoned cattle pastures with a mixture of 30 native, economically useful species. Local use and familiarity, high germination and survival rates, drought resistance, plus high food value for man, wildlife and domestic animals are the reasons to rely on this tree.



The above nutrition facts are derived from studies by the Maya Nut Institute in conjunction with Silliker Food Safety & Quality Solutions.

Fig. 5. Maya Breadnut nutrition comparison to other staple foods; Credit: www.bluezones.com

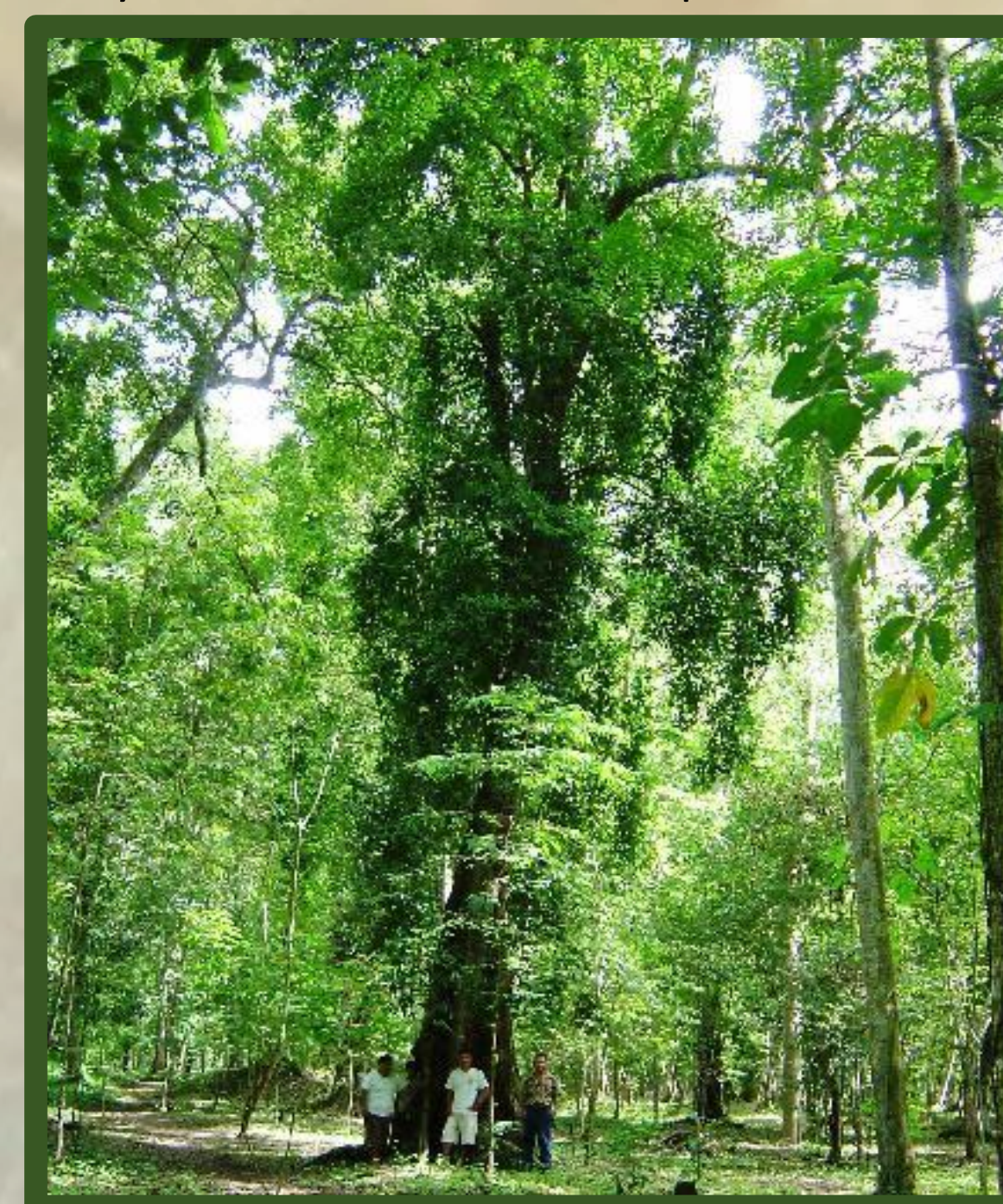


Fig. 6. Mature *Brosimum alicastrum*; Credit: Maya Nut Institute

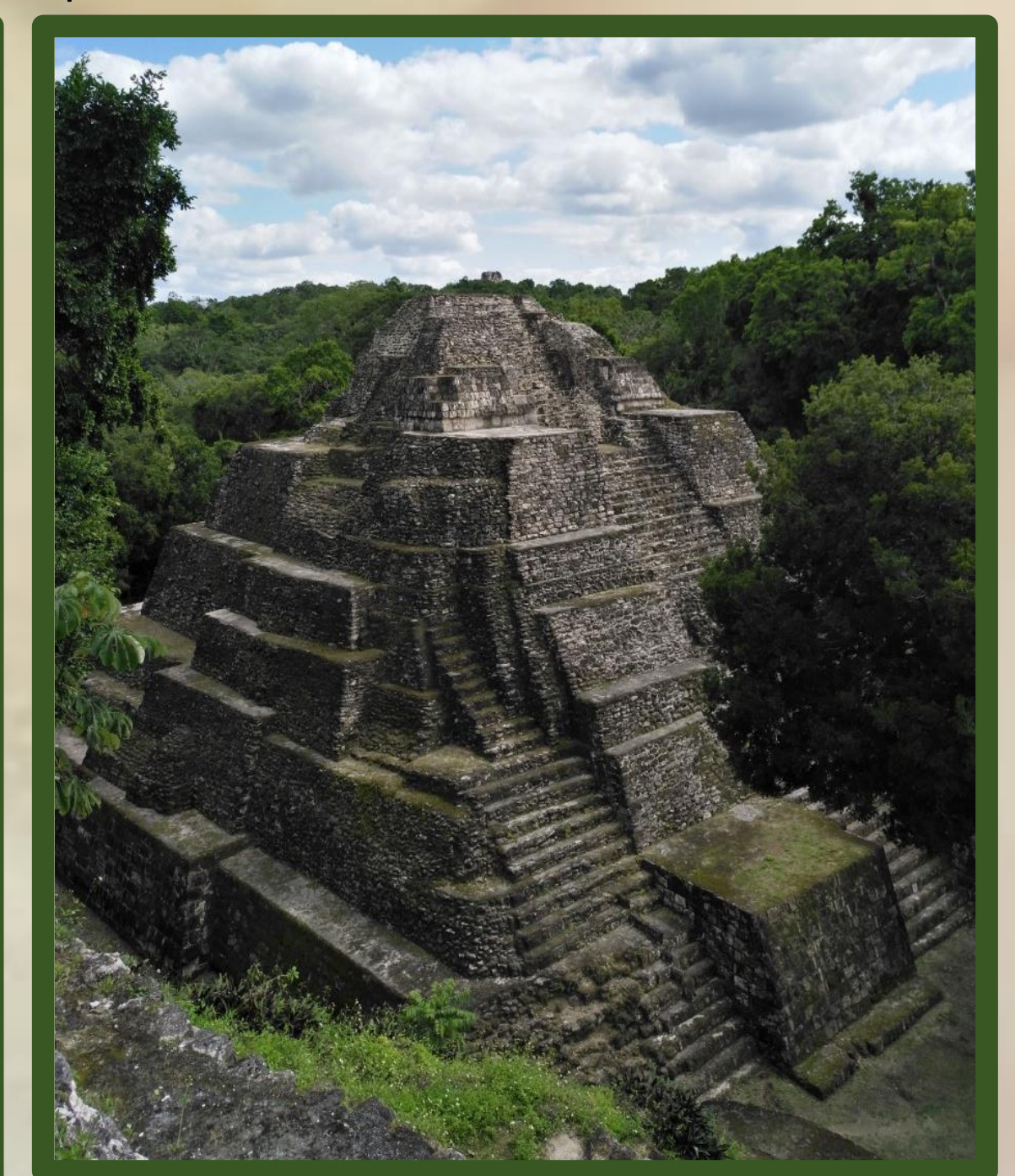


Fig. 7. *B. alicastrum* at Yaxha archaeological site; Credit: Sebastian de la Hoz

Harvesting and Industrial Process

One adult Maya Breadnut Tree can produce up to 200 kg of food per year for over 100 years. Today, there is international demand for the tree's prolific, highly nutritious seeds when processed into flour or into a coffee substitute drink, thus providing income for village cooperatives. Seeds are collected by hand, solar dried, toasted, and ground for added nutrition in baked goods, ice cream or drinks. One pound of packaged breadnut product sells in Guatemala for \$4 USD and in USA for approximately \$20 USD.