

Tropentag 2015, Berlin, Germany September 16-18, 2015

Conference on International Research on Food Security, Natural Resource Management and Rural Development
organised by the Humboldt-Universität zu Berlin and the Leibniz Centre for Agricultural Landscape Research (ZALF)

Food security and livelihoods achievement through biodiversity maintenance, use, and management - The case of the *Camëntsá* indigenous community in the Sibundoy Valley (Colombia)

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Introduction

The botanist Richard Evan Schultes describes the Sibundoy Valley as the most unique place in the world, where the highest level of biodiversity among entheogen plants remains. During his first expedition in the Sibundoy Valley in 1941, he classified the *Iochroma fuchsioides*, *Methysticodendron amesianum*, and the *Desfontainia spinosa* (Davis, 2004: 204). Current assessment in regard to medicinal and entheogen plants argues Schultes's same point, and shows a diversity of 87 species in the home gardens of both the *Inga* and *Camëntsá* communities (Rodríguez, 2010: 322). Out of this biodiversity, 18 species are also food, and a few species are trees or shrubs, as most of them are herbaceous plants. In regard to illness and disease treatment, some species are used to treat more than one sickness. The biodiversity knowledge about health care and treatment is broad, with at least 40 illnesses and diseases that can be treated, related to the following systems, digestive, genitourinary, nervous, respiratory, skeletal muscle, metabolic, sensory, circulatory, blood circulatory, as well as other issues related to skin, inflammation, nutrition, poisoning, post-pregnancy, body care, and even the prevention of plagues (Rodríguez, 2010: 312-315). The Sibundoy Valley is located on the east side of the Andes Mountains and quite close to the Amazon, hence it is a transition place between mountains and jungle, where landraces and foreign species have grown together, and have been domesticated, used, exchanged, and preserved within indigenous agrarian systems. Therefore, the wise work of *Inga* and *Camëntsá* communities in managing a wide biodiversity, and geographical conditions, has led to this territory being acknowledged as a place harboring an overwhelming biodiversity.

According to Toledo (2001: 455), the quality of life of indigenous communities is linked to the biodiversity maintenance. Through a symbiotic relationship, biodiversity provides goods and services for those protecting and managing it, enabling them to maintain a high quality of life that is not limited to income. This achievement of an acceptable standard of well-being has other implicit features, and these are related to the resources and environmental quality of the water, air, soil, forest, landscape, etc., which are enhanced

through the biodiversity preservation. It should also be noted that indigenous communities are engaged with conservation (Toledo, 2001: 457-458), use, cultivation, management, and the exchange of biodiversity, as a part of their customs and livelihoods (Garí, 2001: 21-22).

Material and Methods

The Sibundoy Valley is comprised of four municipalities: Santiago, Colon, Sibundoy, and San Francisco, which are located in the Putumayo region of Colombia. The flat area of the valley has an altitude of between 2,000 to 2,100 meters above sea level; the average temperature of the valley is around 15°C. The Putumayo River passes through the valley, and is fed by many streams and rivers before leaving the valley at Balsayaco. This research was carried out in three villages of the Sibundoy municipality (Tamabioy, San Félix, and Las Cochas) and one village in San Francisco (San Isidro).

The present enquiry was based on a qualitative research strategy, where the key methodology applied was participant observation. The background knowledge acquired from previous research in the field, led to observing and corroborating the biodiversity from the indigenous agrarian systems (Bryman, 2012: 402). In addition to observation, informal interviews were conducted and linked to the results of the biodiversity data previously found.

There was a criterion sample (Bryman, 2012: 418-419) size of 20 interviews. Most of the interviewees were accurately selected through botanic and healing knowledge criteria. Informal talks with key informants were the means for reaching this criteria, and a snowball sampling (Bryman, 2012: 424) also helped to achieve the respondent selection process. In addition, walks throughout the villages were conducted in order to identify the species within the agrarian systems. The qualitative data collected in a questionnaire was transcribed into Excel and analyzed through descriptive statistics.

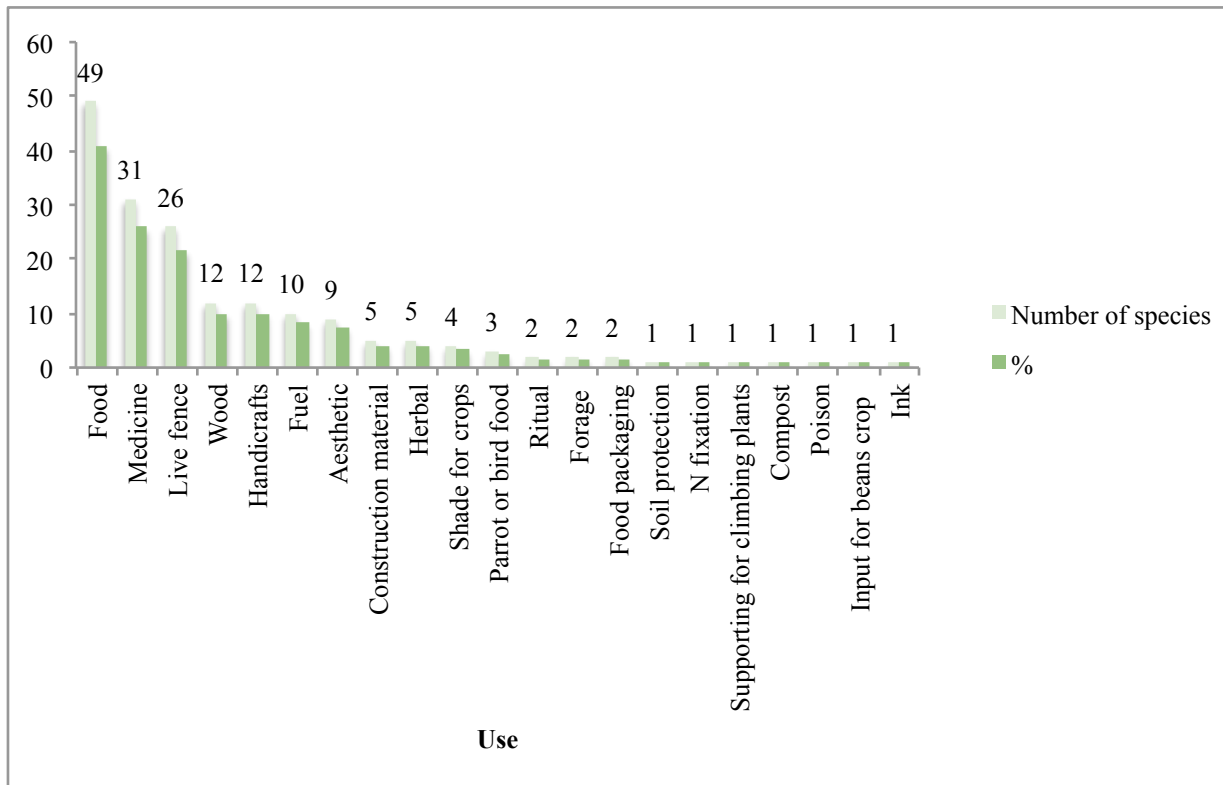
Results and Discussion

A rich biodiversity of 120 species was found in the indigenous agrarian systems of the study area. Fifty percent of the species are trees and bushes, and 50 percent herbaceous, vides, and cane plants. A relevant percentage (40.8 percent, 49 individuals) of the biodiversity found is used as food, followed by medicine and live fence (Figure 1). Some species have more than one usage; there are even a few (2.5 percent) of them (*Alnus jorullensis*, *Cestrum ochraceum*, and *Sauravia scabra* (Kunth) D. Dietr.), which have five usages assigned by the *Camëntsá* community.

Maize is the base diet of the *Camëntsá* community, while at the same time, it has a relevant meaning: it is the fruit of the indigenous force and power. *Zea maiz* still remains as an important source of nutrients for the community, and is part of a variety of recipes for everyday consumption. As a traditional beverage prepared with dry maize, *bocoy*, is consumed fresh or fermented, it is part of the daily consumption, as well as an essential drink for ceremonies, holidays, household celebrations, social meetings, household farming labor, community work, etc. *Bocoy* recipes vary as well, mainly in the ingredients added, which are often grown in the home gardens (e.g. the tubers of *Arracacia xanthorrhiza*), or

come from the warm regions of the Putumayo province, which is the case of peach palm *Bactris gasipaes* fruits, a palm grown in the lowlands. There are two traditional soups in which maize is an essential ingredient: (i) *bishana* and (ii) *mote* soup. For *bishana*, the chief ingredient is wild cabbage, *Brassica oleraceae*, with its consumption mainly at the household level. *Mote* soup is mainly prepared for celebrations and festivities, like the *Clestrinjye* carnival holidays. Finally, *envueltos* are a sort of boiled cakes prepared with fresh, grinded corn, wrapped with the leaves of *Zea maiz*, or *Canna indica*, or *Canna spp.*

Figure 1. Number and percentage of species from the overall biodiversity destined to different usages in the Sibundoy Valley



Despite *yagé* (*Banisteriopsis caapi*) being an Amazon species, it has been adapted to the Andean conditions of the Sibundoy Valley by the healers, who have included this medicine plant within their botanical knowledge and practices, along with other Amazonian species. The sources of the biodiversity in the indigenous agrarian systems sometimes come from long distances, as is reported by Ban and Coomes (2004: 361), where coconut planting materials are purchased from nearby villages from balsa rafts that bring seedlings from the eastern slopes of the Andes. There are other plants related to the *yagé* ritual, e.g. *Cyperus ferax*, *Cyperus sp.*, *Higrophylla titta*, *Nicotiana tabacum*, *Urtica urens*, etc.

The woody perennials are the main species used as live fence, as they are the tallest and strongest trees. In general, live fence species are also valued for their wood, as a fuel, and as a raw material to elaborate handicrafts. In regard to *Arundo donax*, it is a quite useful species that serves as live fence when is in the field, but also, due to its flexibility, lightness, and toughness, serves as suitable material for construction, for bean crop support, and handicrafts, like musical instruments, when it's harvested.

The Sibundoy Valley biodiversity has several usages that benefit all the dwellers of the territory. The indigenous knowledge regarding the botany of the Valley is quite extensive: woody native species that give crops shade (*Cestrum ochraceum*, *Cestrum sp.*, *Pouteria lucuma*, *Viburnum triphyllum* Bentahm), bird breeds (*Tournefortia fuliginosa*) and parrots (*Pouteria sp.*), climbing plant support (*Pouteria lucuma*), nitrogen fixation in the soil (*Alnus jorullensis*), as well as soil protection from erosion (*Viburnum triphyllum* Bentahm, *Cestrum ochraceum*), raw material to compost (*Baccharis latifolia*), and a poisonous tree (*Smallanthus pyramidalis* (Triana) H. Rob.), as well.

Conclusions and Outlook

Biodiversity has allowed the communities to achieve food security, and, according to Creed-Kanashiro, et al (2013: 72), even when the economic resources in recent times are low. Moreover, biodiversity provides the foundation of *Camëntsá* health and wellness. The healer's wise knowledge and practices have gone beyond the boundaries of the community territory, reaching urban areas, in Colombia and abroad, where patients looking for alternative medicine possibilities are demanding these services. Exotic tree species support building houses, rural bridges, huts, and barns; provide raw material for making handicrafts and fences, and sticks for climbing crop support; and finally, provide fuel to cook. Biodiversity's empowerment is hence the tool that indigenous communities use to accomplish food security and well-being.

References

- Ban, N., and Coomes, O. 2004. Home garden in Amazon Peru: Diversity and exchange of planting material. *The Geographical Review*, 94(3), 348-367.
- Bryman, 2012. *Social research methods*. United states: Oxford University Press. 766 p.
- Creed-Kanashiro, H., Carrasco, M., Abad, M., and Tuesta, I. 2013. Promotion of traditional foods to improve the nutrition and health of the Awajún of the Cenepa River in Peru. Book chapter: *Indigenous peoples' food systems and well-being interventions and policies for healthy communities*. Canada: FAO. 53 – 74 pp.
- Davis, W. 2004. *El río. Exploraciones y descubrimientos en la selva amazónica*. Bogotá: El Áncora Editores. 639 p.
- Garí, J. 2001 .Biodiversity and indigenous agroecology in Amazonia: The indigenous peoples of Pastaza. *Etnoecológica*, 5(7), 21-37.
- Rodríguez, J. 2010. Uso y manejo tradicional de plantas medicinales y mágicas en el Valle de Sibundoy, alto Putumayo, y su relación con procesos locales de construcción ambiental. *Revista de la Academia Colombiana de Ciencias Exactas, Físicas y Naturales*, 34(132), 309-326.
- Toledo, V. 2001. Indigenous peoples and biodiversity. Book chapter: *Encyclopedia of biodiversity vol. 3*. United States: Academic Press. 451 – 463 pp.