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FLORISTIC INVENTORY OF VASCULAR PLANTS IN THE SHUAR COMMUNITY OF KUNKUK, ORELLANA-ECUADOR

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ABSTRACT

The communities according to study shows loss of tree species, caused by agricultural and livestock practices without planning, by the oil industry through the opening of several kilometres of roads access to extraction areas and the installation of oil pipelines facilitates the installation of settlers, that has influenced the expansion of the agricultural and livestock frontier. This research work reflects the current state of the floristic composition of the native Forest of vascular plants in the Kunkuk community, belonging to the Inés Arango parish in Orellana province (Ecuador). And it provides datas related to the density, abundance, dominance and value of use of the identified species. The results of the floristic inventory carried out in the period August 2016-January 2017, in the Kunkuk community, indicate a good conservation status of the Amazonian biodiversity. Six random transects of 2 x 30 m (60 m²) were made in which identified the species of vascular plants present. There were 11 families and 20 species registered. The best represented families were lauraceae, bombacaceae, arecaceae y mimosaceae. The Shuar community is very aware of the diversity of uses and benefits of the forest, for this reason they try to maintain and conserve these resources.

KEYWORDS: Floristic inventory, plant diversity, plant biodiversity, vascular plants.

INTRODUCTION

The various studies carried out have shown a rapid loss of global biodiversity in recent centuries, which indicates that a sixth mass extinction is taking place and the loss and deterioration of vascular plant habitat is accelerating [1]. The construction of large floristic and vegetation databases over the past century opened up new possibilities for regional, national and continental biogeographical evaluations [2].

There is a growing concern about climate change and its impact on man and nature. The gases coming from the combustion of fossil fuels, industries, agricultural activities, oil, deforestation and burning are responsible for climatic changes. Evidencing the loss of biodiversity and ancestral knowledge in the production of crops, which are being replaced by others of economic and social value [3].

In Ecuador there is a high diversity in the world with a vascular flora close to 18 thousand known species of which 1,422 species correspond to pteridophytes or ferns, 18 to gymnosperms and 16,308 angiosperms, with 186 expected species, in relation to the biological richness that It is home to its territory, although it is not studied in its entirety with a very significant vegetation cover, where a large amount of carbon is stored and which would have many negative implications at the time of being released into the atmosphere by anthropogenic activities . One of these large forest remnants that is a true carbon sink is the Yasuní National Park, which is part of the Amazon River basin [4].

At present, the Great South American Amazon houses important and strategic resources in the so-called new economy, such as biodiversity, water, soil resources and subsoil [5]. And although great efforts are made to conserve it, many of them remain only in good intentions, due to the ignorance that is close to the diversity that we have within the ecosystems, as well as the utility that emerges from this diversity; for this reason in June 1992 the "Convention on Biological Diversity (CBD)" was signed in Rio de Janeiro, which is nothing more than an international instrument that promotes the conservation of biological diversity, promotes the sustainable use of it , and seeks to share the benefits of the use of genetic resources [6].

Knowing that the Shuar have a forest culture, and that currently by natural actions of human and family survival, come cutting forests indiscriminately causing actions and nefarious reactions of nature towards humans.

The present work of elaborating a floristic inventory focuses, in the efforts to make the floristic composition of the vascular plant species of the native forest of the Kunkuk community, of the Inés Arango parish of the Orellana Province.

MATERIALS AND METHODS

Study Zone.

The present research work was carried out in the territory of Kunkuk, this is a community of the Shur Nationality, the coordinates of the study area is 00º58'15 "S; 76º56'10 "W 184, with an average altitude ranging from 184 to 300 m.s. This community is located on the banks of the Napo River 76 km away from the city Puerto Francisco de Orellana, consisting of 70 families with a total of 300 people throughout the community The dominant climate is the semicálido subhumid (A) C (w0) (w) a, according to with the Köppen classification modi□ed by García (1973). The average temperature The Shuar community of Kunkuk, which is located in the parish of Inés Arango belongs to the canton Francisco de Orellana, is considered as a zone of high environmental sensitivity and maintains a close relationship with the Yasuní National Park. The climate in the zone is unpredictable, rainy with high temperatures that oscillate between 23 and 26 ° C, in the greater part of the year; receives an average annual precipitation of 3000 mm; relative humidity 85%, which classifies it in a very premontane moist forest life zone (bmh-PM) [7]. In this Shuar community, clay soils of medium black texture, shallow, predominate, according to the new classification version of soil genesis of Ecuador, with floodplain topography, characterized by an average productivity [8]. This investigation of the floristic inventory was carried out in the period August 2016-January 2017. The study area has the following limits: to the North with the Dayuma parish, to the South with the Tiguino community, to the East with the San Carlos community and to the West with the Nunky community (Figure 1).

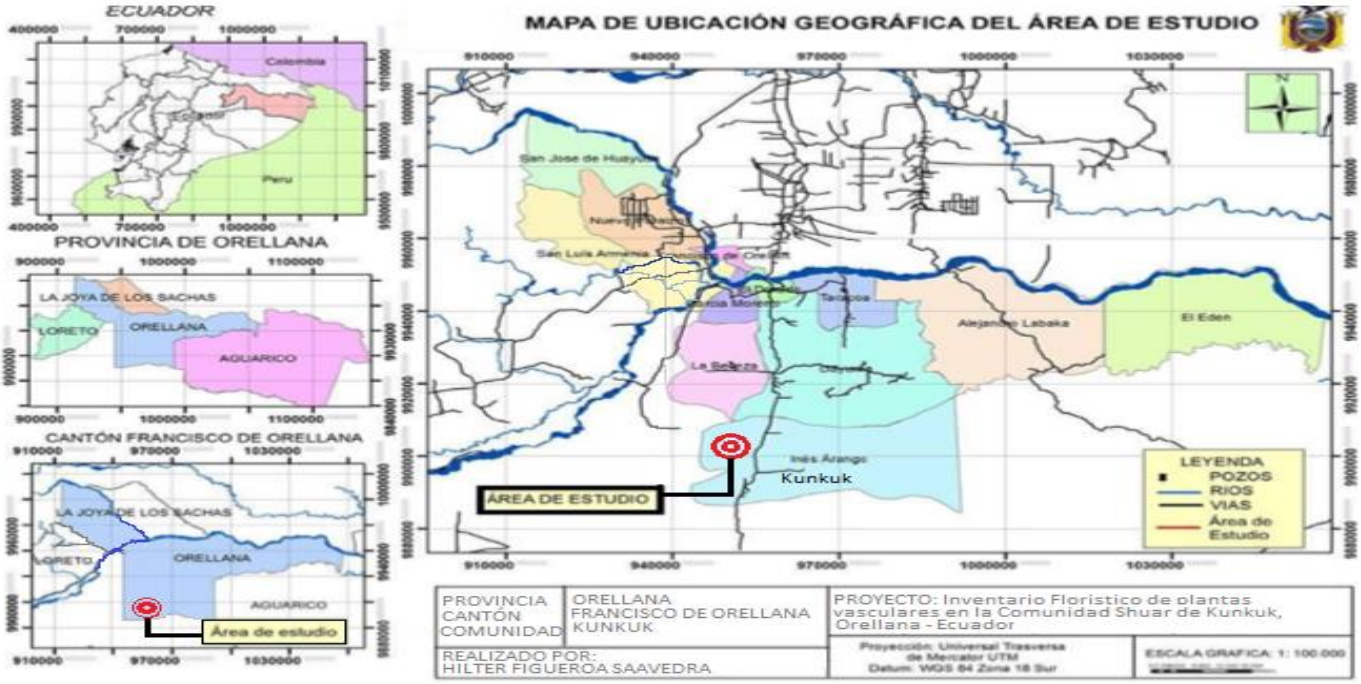

Fig. 1. Location of the community Kunkuk / Kunkuk community location.

METHODOLOGY

The herbaceous plants are completely harvested (root, stem, leaves, flowers and, if possible, fruits). Shrubs and plants with deep roots are not removed to avoid damaging the walls; Only the branches with flowers and, if possible, the fruits are harvested. We take a lot of photographic documentation of substrates colonized by plants for illustration [9]. The identification of the species was carried out based on some documents such as "La Flore Pratique du Maroc" [10]. "La nouvelle flore d'Algérie et des régions méridional désertiques" [11] And thanks to some websites known as Tela Botanica (www.tela-botanica.org).

Fig. 2. Field measurement of the DAP to species identified in the study area / DAP field measurement of species identified in the study area.

RESULTS AND DISCUSSION

20 floristic species were identified within the study area, located in 11 botanical families; finding a total of 87 plants, the total number of plants found, as well as the families to which they belong, is presented in table1.

Table 1. Floristic list and abundance of the species identified in the Kunkuk community. / Community Kunku's floristic list and abundance of species

Of the total of identified tree plants and according to their abundance, it was observed that the families that were better represented by the number of specimens were (In order of importance) The family lauraceae, bombacaceae, arecaceae and mimosaceae, while the families that were represented by a minimum number of specimens were burseraceae, meliaceace and zingiberaceae (Figure 3).

Common Name	Scientific name	Family	Frequency
Laurel	Cordia alliodora (Ruiz & Pav.)	Lauraceae	16
Balsa	Ochroma pyramidale URB	Bombacaceae	7
Ceibo	Ceiba pentandra L. GAERTN.	Bombacaceae	3
Guarumo	Cecropia peltata L.	Cecropiaceae	5
Uva de Monte	Pourouma minor BERG. C.	Cecropiaceae	1
Pambil	Iriatea deltoidea Ruiz&Pav.	Arecaceae	6
Chambira	Astrocaryum Chambira Burret.	Arecaceae	3
Hunguragua	Oenocarpus bataua ; Mart.	Arecaceae	5
Sangre de Drado	Croton lechleri Muell. Arg	Euphorbiaceae	7
Guarango	Prosopis pallida Kunth	Mimosaceae	5
Guayacan	Minquartia guianensis AUBL	Mimosaceae	3
Chuchuguaso	Maytenus laevis; Reissek	Flacourticaceae	5
Cedro	Cedrela adorata L.	Meliaceae	3
Caoba	Swietenia macrophylla King	Meliaceae	1
Tamburu	Vochysia leguiana J.F. Macbr	Zingiberaceae	3
Caña	Gynerium sagitatum Aubl.	Poaceae	2
Guadua	Guadua angustifolia Kunth	Poaceae	5
Copal	Dacryoides peruviana (Loes.) J.F. Macbr	Burseraceae	2

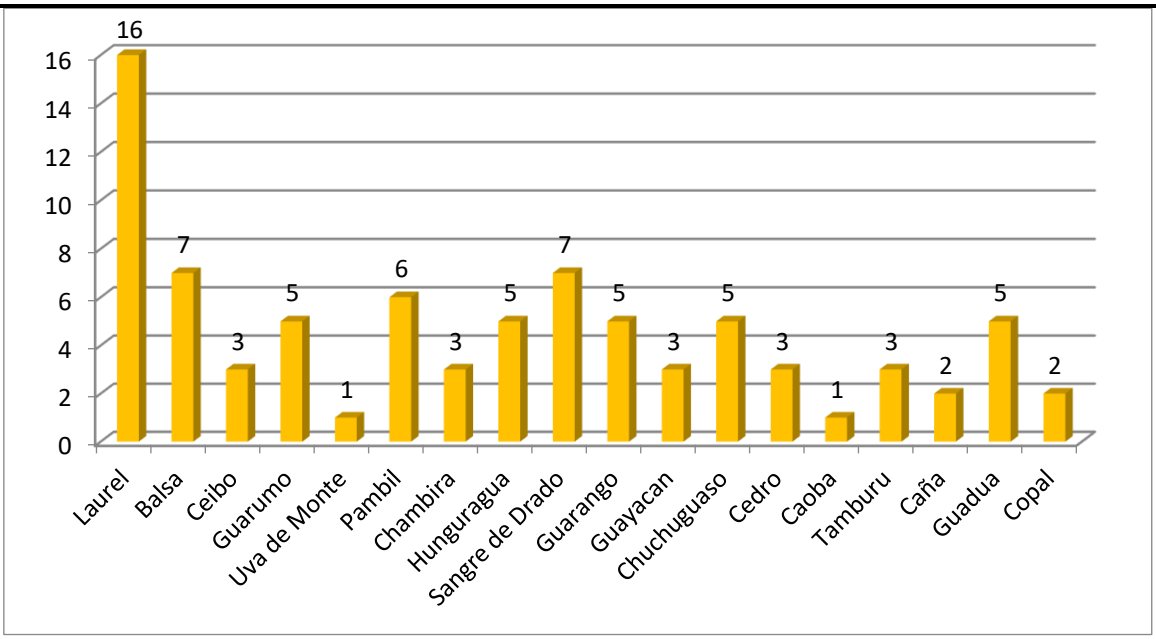

Fig. 3. Frequency of occurrence of botanical families in the study area / Frequency of occurrence of plant families in the study area.

More than 5 times the amount invested 12 years ago. The personnel working in the protected areas amount to 1,091 people, who have been properly trained and equipped. By 2016, 735 park rangers work in the conservation of protected areas, 3.5 times more than in 2003 [16].

The following describes the uses that are given to each of the species of the families with the greatest number of copies, in the community and those that are represented by the literature.

Family Lauraceae

Ocotea sp: Species locally known as laurel or cinnamon, which has a timber use, although the literature reports antimicrobial and antifungal activity of foliar oil [12]. In addition to that the essential oil of some species is used with medicinal fons (anxiolytic, sedative, anticonvulsant, muscle relaxant, antitumor and cytotoxic [13].

Family Mimosaceae

Parkia sp .: This species known as Guarango is used in the community as timber, although other authors have reported the use of seeds [14].

Inga sp .: The common name of this species is Guaba and is used by the inhabitants as a timber tree and in food. Its medicinal use is also reported [15].

Acacia tortuosa: This species known locally as Guarango, is used preferably for its wood [16]. In addition to traditional way it has several uses such as: feeding, fodder, medicinal, ink, elaboration of perfumes and tannins to cover the skins. The flour that is extracted from the seeds has a high content of fiber and proteins, which makes them a biotic resource for human consumption [17].

Tabebuía chrysantha: Tree known as Guayacán, locally used as timber, although in the literature has reported that the extracts of the leaves, show insulin-tropic activity [18].

Arecaceae family

Euterpe precatoria: This palm known locally as Pambil, is considered by the residents of the sector as a species of ecological importance; while in Peru it has been reported a wide use as Medicinal (malaria, hepatitis, yellow fever and stomach pains). Wood is used to make walls; also the trunks are used for the fences of the fields or yards; the leaves are used for the roofing of temporary houses, or for the edges of roofs and / or cumbas in permanent homes, these are also used for the manufacture of fans and baskets. Another use of this species is the food, ripe fruits are consumed raw and / or cooked, they are also used for the preparation of beverages and the extraction of oil [19].

Astrocaryum sp .: Palm tree popularly known as Chambira, its main use is handmade. The fiber extracted from the tender leaves is used to make handbags, hammocks, necklaces, handles, dresses, strings, ropes, mats, nets or various fabrics. The fruit is also usable as food [20].

Oenocarpus batahua: Preferred palm species of apparently poor and temporarily flooded soils [21]. It is used as medicine (Against hepatitis, yellow fever, malaria and respiratory diseases). The wood is used for poles, the leaves are used to make brooms. The fruit is edible and how a drink similar to milk is prepared.

Bombacaeae family

Ochroma pyramidale: Balsa is the name by which this species is known and locally used to make handicrafts, although other uses of wood are known, which is used for models and toys, such as interior veneer in layered constructions where Strength and insulating properties are needed. It is also used as a massive and electrostatic-free insulation material on ships for cryogenic transport [22]. It is important to note that balsa wood has been used in a limited way for the production of pulp and paper [23]. They report the use of this species as an anti-inflammatory in the Caribbean area [24].

Ceiba Pentandra: Ceibo or ceiba is used by local residents for timber purposes, but other alternative uses are reported in literature, among which we can mention: the seed has nutritional, food (oil) and industrial applications (manufacture of soaps and paintings). This plant is also used for medicinal purposes, it is attributed antispasmodic properties, it is attributed antispasmodic, emetic, diuretic, anti-inflammatory and healing properties among other properties [25].

CONCLUSIONS

The information provided by this inventory will allow the Kunkuk community to become aware of the importance of contributing to the conservation of the ecosystem. Its vegetation within the community constitutes a refuge for wildlife, also fulfills the function of maintaining water regulation in natural areas.

The floristic diversity of the native forest of vascular plant species is not very high, mainly due to the anthropogenic activity that occurs in the oil industry of that area.

There were 11 families registered, with 20 tree species in the Shuar community of Kunkuk. The most representative families with the highest number of species found are: lauraceae, bombacaceae, arecaceae and mimosaceae. The Shuar community has great knowledge about the diversity of uses and benefits that the forest has, reason why they try to maintain and conserve these resources.

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