

DIVERSITY OF PALMS BETWEEN PERUVIAN NEOTROPICAL HIGHLANDS AND LOWLANDS

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INTRODUCTION

Upon wandering the neotropical rainforests of Peru, one will discover a diversity of habitats and vegetation among them. There is no way to study all types of vegetation at once. Therefore, this study, along with two adjacent studies, compared the highland vegetation to the lowland vegetation of two trails surrounding the Los Amigos Research Station along the Madre de Dios River in neotropical Peru. This study specified upon the *Arecaceae* family, with collections of *Cyclanthaceae* as well.

Geonoma, of the *Arecaceae* family, is one of the most common palms found in the Amazonian region. There are at least 51 species widely dispersed throughout the American Tropics. It has been found in an elevation range of 0 to 3150 meters above sea level. Though it is common, it can be hard to identify species within this genus because of much morphological variation. There are a few species complexes, one specifically found in this study. This includes *G. macrostachys*, *G. maxima*, and *G. stricta*. (Henderson, 1995)

Geonoma is a very important species in that it is being considered as a Non Timber Forest Product (NTFP). It is commonly used as roofing for Peruvian homes, and its cultivation does not require destruction of the rainforests (Janovec)

One species that the *Arecaceae Geonoma sp.* can be easily confused with at first sight is *Chameadoreia sp.* However, the major difference is in the presence of small pits in the flowering branches of the *Geonoma*.

The objectives of this study include identifying what species are found in highland and lowland habitats of the Los Amigos area. Therefore, the question posed is: Is there any difference between the species of palm found in the upland and lowland habitats surrounding the Los Amigos research station? Also in question is whether any species complexes exist in these habitats.

MATERIALS AND METHODS

On January 12, 2003, three 25m by 4m collection transects were run on the Trocha Plataforma, representing the upland area. However, the transects only proved to be preliminary work because of lack of proper representation of pristine forest. It was later discovered that the transects were found to have been conducted in secondary forest, which would not have provided for a proper comparison to the lowland habitat.

On the morning of January 13, two 4m by 50m collection transects were conducted along the Castañal Trail, which represented a more primary upland forest than the day before. In the afternoon, two equivalent transects were conducted along the Cocha Lobo trail in the primary lowlands.

The data for the first day was not included in the results for previously explained reasons. The collections for the second day were brought back in plastic bags to the lab, layed out, and identified for the presence of species complexes and for the purpose of the objective comparison of the habitats.

RESULTS

Table 1. Summary of palms identified in the highlands and lowlands

Family	Species	Lowland	Upland	
Arecaceae	<i>Bactris hystrix</i>		*	
	<i>Bactris sp.</i>		*	
	<i>Chameadorea pinnatifrons</i>	*	*	
	<i>Euterpe precatoria</i>	*	*	
	<i>Geonoma deversa</i>		*	
	<i>Geonoma macrostachys</i>	*	*	
	<i>Geonoma maxima</i>		*	
	<i>Geonoma oligoclona</i>		*	
	<i>Geonoma stricta</i>	*	*	
	<i>Iriartea deltoidea</i>	*		
	<i>Oenocarpus sp.</i>	*		
	<i>Socratea sp.</i>	*		
	Cyclanthaceae	<i>Asplundia sp.</i>		*
		<i>Cyclanthus sp.</i>	*	
<i>Thoraccocarpus sp.</i>		*		



Figure 1. The species complex of *Geonoma maxima*, *Geonoma macrostachys*, and *Geonoma stricta* (From left to right respectively)



Figure 2. *Chameadorea sp.* - commonly confused with *Geonoma sp.*

DISCUSSION

As hypothesized, *Geonoma* was found in both habitats, with a wider diversity of species in the upland habitat. The fact that *G. macrostachys* and *G. stricta* were found in both habitats supports the idea that they make a species complex, along with the *G. maxima* found in the upland. *Chameadoreia*, which was said to be easily confused with the *Geonoma* genus, was found in both habitats as well. This suggests that it may also be a common family in the neotropics. A question still posed refers to why *Geonoma* is so diverse in the upland. Are there different pollinators there? Perhaps there is an environmental influence that provides for genetic mutation that is not present in the lowlands. the newest species of *Geonoma* found was the *oligoclona* in the upland.

CONCLUSION

It is difficult to make any definitive comparison based on this initial study. There were different species in each habitat, as well as some of the same species, as seen in the chart. However, for future investigation, a greater number of larger transects would be quantitatively studied in order to properly represent all of the palms present in each habitat. This would provide for better analysis of species complexes, such as the *Geonoma macrostachys*, *maxima*, and *stricta* presented earlier. It would also more accurately indicate the abundance of these palms in order to determine proper use of them for NTFPs. These palms are currently being studied by Henderson, referenced earlier, and a follow-up to this study in the Los Amigos area is in the planning (Janovec 1/16/03).

WORKS CITED

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