

 CIAT
60926
COLECCION HISTORICA

ANALYSIS OF THE ENVIRONS OF CARIMAGUA
AND THE TERRAIN WESTWARD

AEU, November 1987
James P. Fairbairn and P. Jones

028489

Suggestions have been made by some members of the Pastures Team that certain trials could benefit from being moved from Carimagua to lands further westward where access and security may be better. This supposes that these lands are representative of major parts of the Colombian llanos, as is Carimagua.

The AEU has been asked to provide the following information to assist in the discussion.

Land Systems

The well drained savannas south of the Rio Meta are divided into five main landsystems, 201, 203, 204, 206 and 211. Much further east the landsystems 202 and 205 take over. These are for all practical purposes identical to 201 and 204 respectively.

All are developed on Pleistocene alluvial sediments, with the exception of 211 around Puerto Gaitán which will be described separately.

The main land facet in each is the higher land of the interfluvias which consists of well drained savanna or haplustox soils. Soil texture varies with clays predominant in the altillanura plana of 201 and 202 and loams predominant in the serrania of 203, 204, 205 and 206. The main differences are topographical (See landsystem diagrams). 206 is by far the most divided terrain with a higher proportion of woodland (SESF) than the others.

Landsystem 211 is atypical, being formed on younger Pleistocene wind carried deposits. The main facets are a low lying and poorly drained Tropaquept of loamy texture. The higher ground consists of quartzipsamments, sandy and free draining. These entisols are just as acid, nutrient poor and aluminium saturated as are the haplustox soils of the surrounding area.

The landsystem map, enlarged to a scale of 1:500,000 shows the distribution of these areas. Note that 21B marks the southern boundary of the savannas and the start of Tropical Rain Forest.

Areas of the relevant facets from the landsystems

| System (facet) | Soil | Area (ha) | Topography | Texture |
|----------------|-----------------|---------------|------------------------|-----------|
| 201 (1) | Haplustox | 424,000 | Flat | Clay |
| 202 (1) | Haplustox | 1,447,800 | Flat | Clay |
| 203 (1) | Haplustox | 720,000 | Flat to gently rolling | Sand/Loam |
| 203 (2) | Haplustox | 480,000 | Rolling-Slope < 30% | Clay |
| 204 (1) | Haplustox | 1,835,000 | Hilly-Slope > 30% | Loam |
| 205 (1) | Haplustox | 2,356,000 | Hilly-Slope > 30% | Loam |
| 206 (1) | Haplustox | 342,000 | Hilly-Slope > 30% | Loam |
| 211 (2) | Quartzipsamment | <u>81,000</u> | Hill crests | Sand |
| | | 7,685,000 | | |

Detailed Map

The Landsystem study was made at a scale of 1:1,000,000 and since land facets were not mapped it lacks precision for identifying sites within a landsystem. Although the above table of areas is correct we cannot tell precisely where each facet is.

To get round this problem we have produced the accompanying coloured sketch map which is a composite of four sheets of a more recent study made at a scale of 1:500,000 (Agustin Codazzi, 1984).

Areas coloured red on this map (designated Co) are equivalent to facets 201(1) and 202(1), possibly with the addition of 203(1). Codazzi estimates 2,333,950 ha for this information and designates it 'Altillanura plana bien drenada'. Areas marked in green are a composite of 203(2), 204(1), 205(1) and 206(1). This is designated 'Altillanura serrania' with an area of 5,038,400. These areas are very close to those estimated from the landsystem facets and give confidence that the correspondence is correct.

Please note that the roads appearing in solid red at the left of the map do not necessarily designate all weather roads. They are an artifact of the Codazzi map copying and change arbitrarily at a sheet boundary.

Climate

It has long been known that a marked climatic gradient exists between Villavicencio with over 4000 mm of rainfall and Carimagua with only just over 2000 mm. There have been few data for the area in between these points to determine the form of the gradient.

Luckily we have obtained a rainfall diagram for Cabuyaro, 22 km north east of Puerto López, which is based on 7 years of data (See Landsystem Map).

The rainfall pattern is almost identical to Carimagua, and the total annual rainfall is indistinguishable.

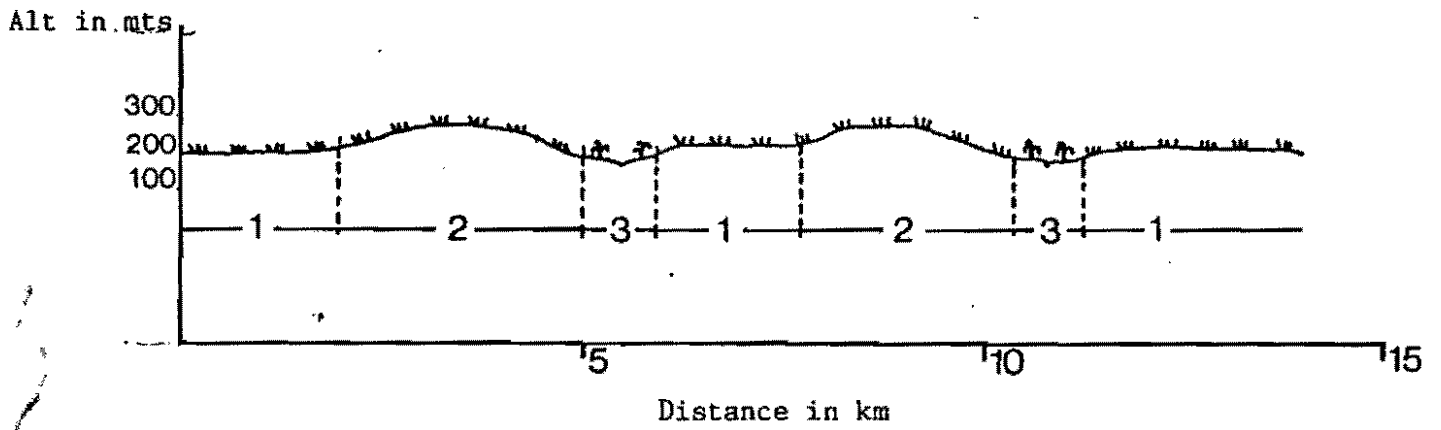
| | | | |
|---------------|--------|---------|--------|
| Villavicencio | 4°08'N | 73°34'W | 4089mm |
| Cabuyaro | 4°17'N | 72°18'W | 2200mm |
| Carimagua | 4°36'N | 71°19'W | 2194mm |
| Orocué | 4°48'N | 71°20'W | 1794mm |

This indicates that the rainfall gradient is closely related to the Andean Piedmont and it's effect does not extend beyond Puerto López.

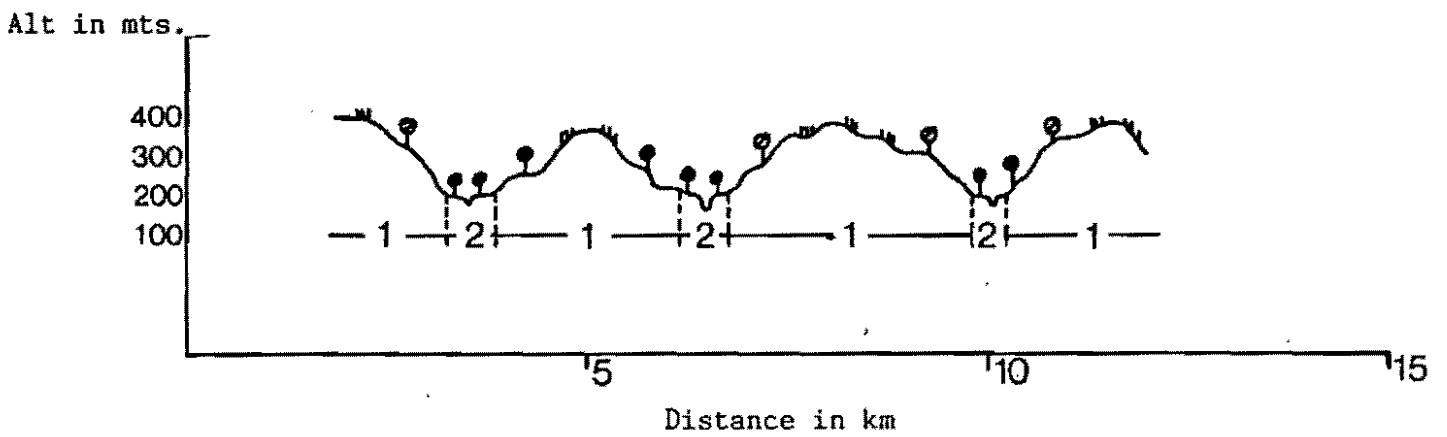
REFERENCES

- H. TAMAYO (1975). Los Llanos Orientales de Colombia; estudio descriptivo. Estudio realizado con el apoyo financiero del CIID, Centro Internacional de Investigaciones para el Desarrollo. Oficina regional para América Latina. Bogotá, D.E.
- D. BRUNNSCHWEILER (1972). The Llanos frontier of Colombia. Environment and changing land use in Meta. Latin American studies centre. Monograph No.9. Michigan State University.
- T.T. COCHRANE, L.G. SANCHEZ, L.G. DE AZEVEDO, J.A. PORRAS and C.L. GARVER (1985). Land in Tropical America. A guide to climate, landscapes and soils for agronomists in Amazonia and the Andean Piedmont, Central Brazil and Orinoco.
- INSTITUTO GEOGRAFICO "AGUSTIN CODAZZI" (1984). Mapa de Zonas Agroecológicas Homogéneas 1:500,000. Ministerio de Hacienda y Crédito Público. Instituto Geográfico "Agustín Codazzi", Subdivisión Agrológica. Convenio con Ministerio de Agricultura. Instituto Colombiano Agropecuario ICA. Subgerencia de investigación y transferencia agropecuario.
- SAMMDATA (1984). South American mean monthly meteorological data. Versión 3.01. Agroecological Studies Unit Database. CIAT.

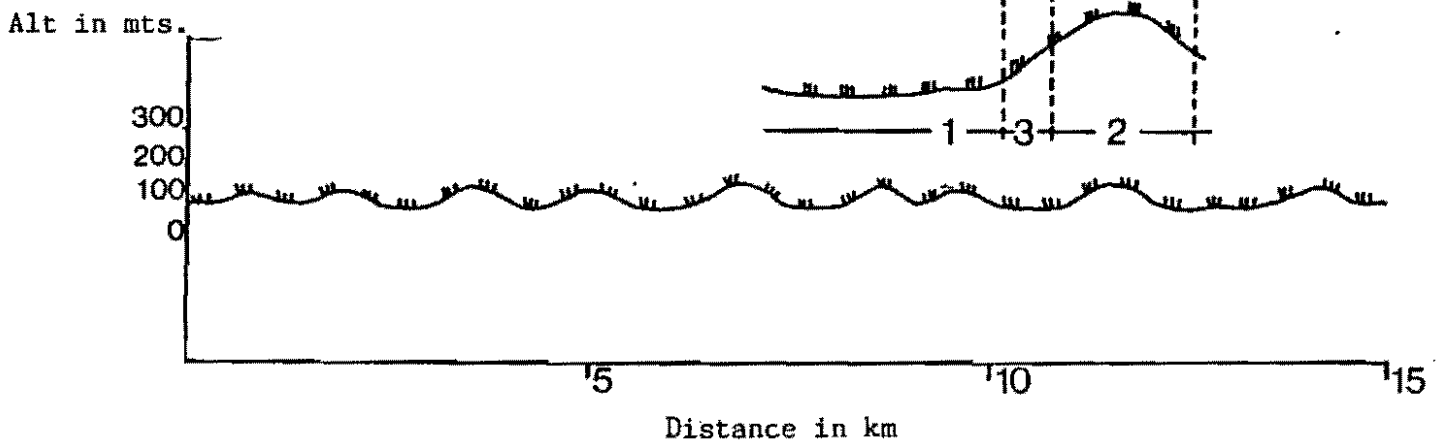
LANDSYSTEM 203



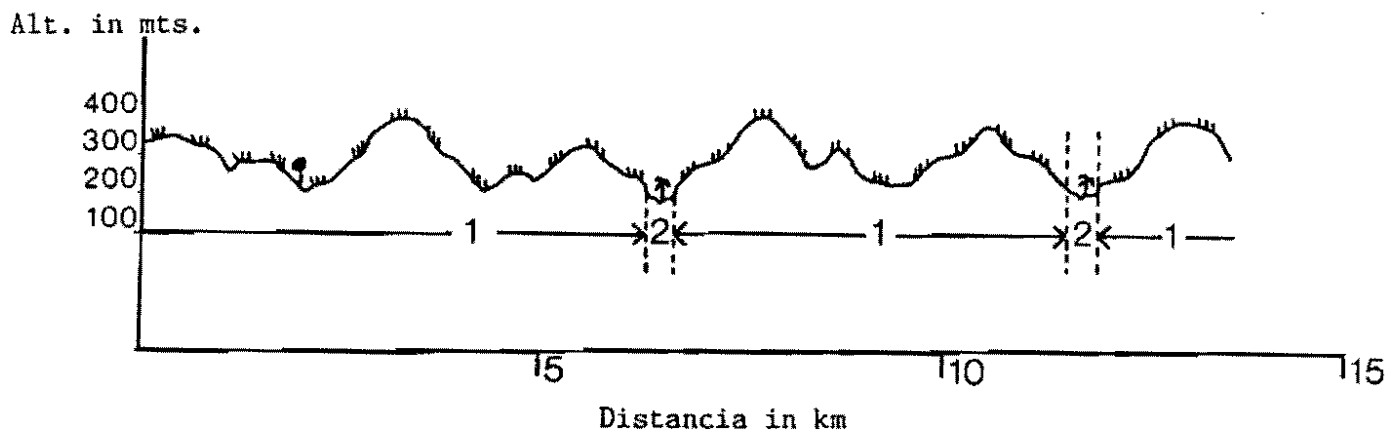
LANDSYSTEM 206



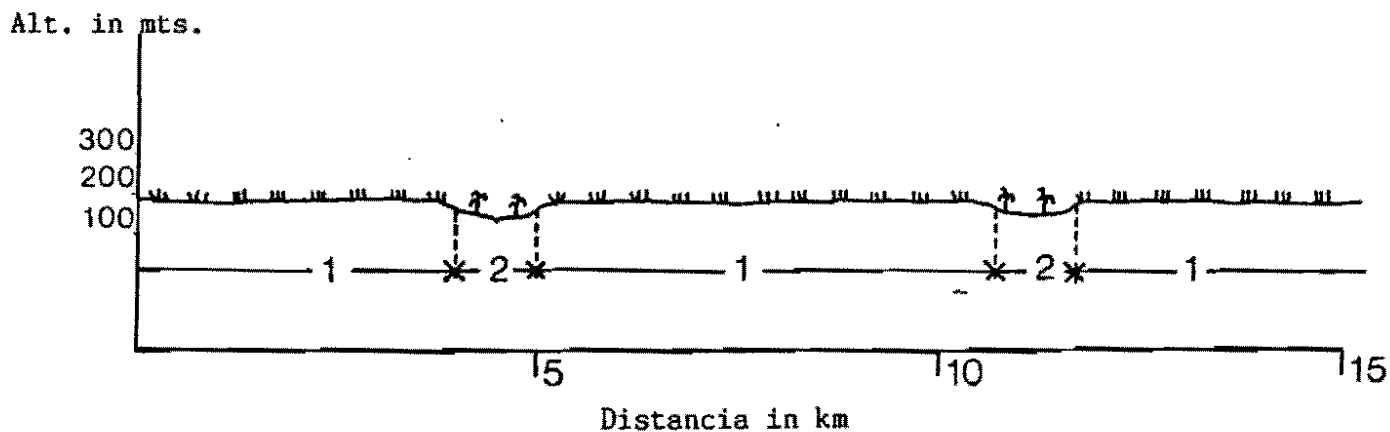
LANDSYSTEM 211



LANDSYSTEM 204



LANDSYSTEM 201





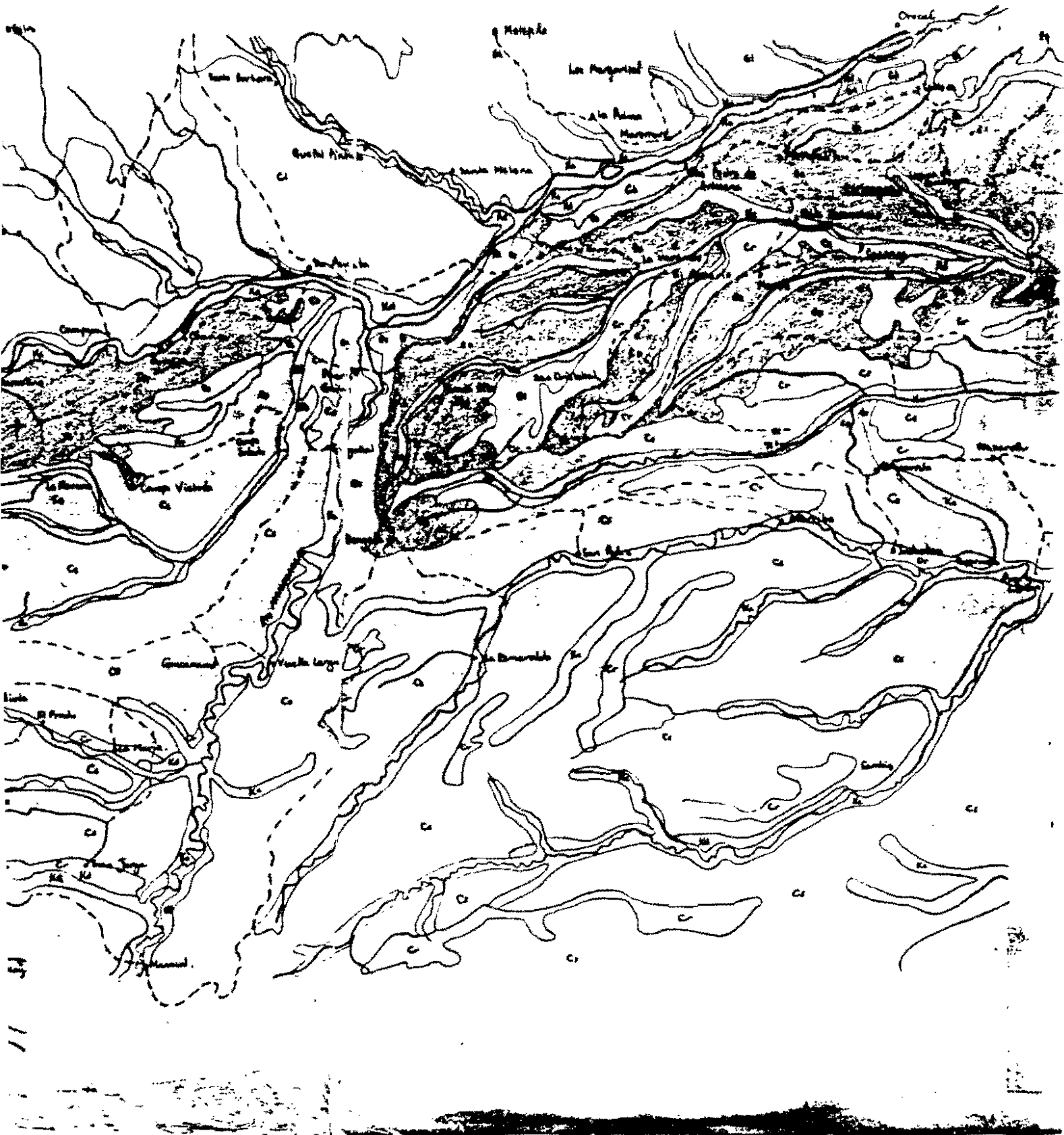
123456789

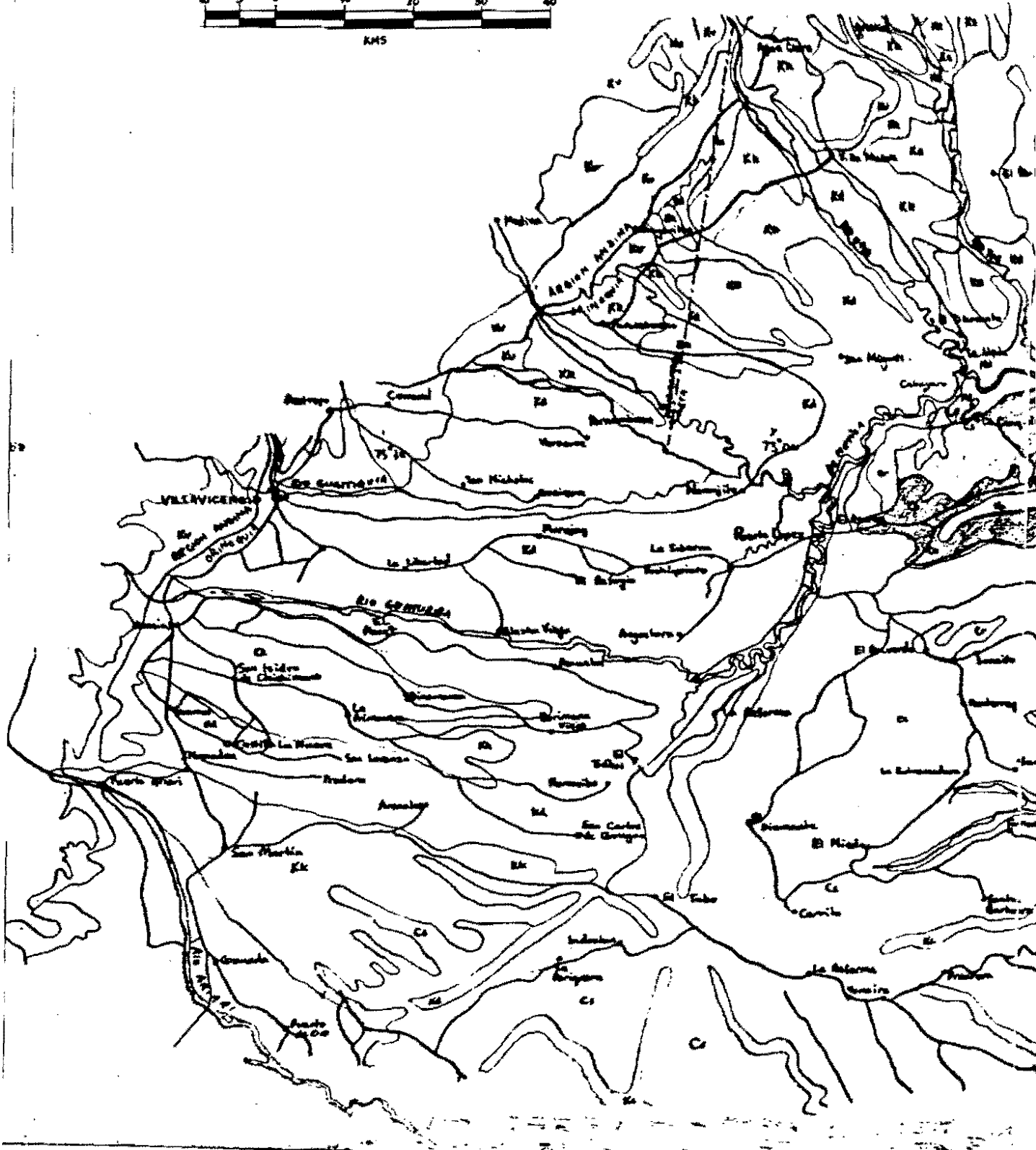


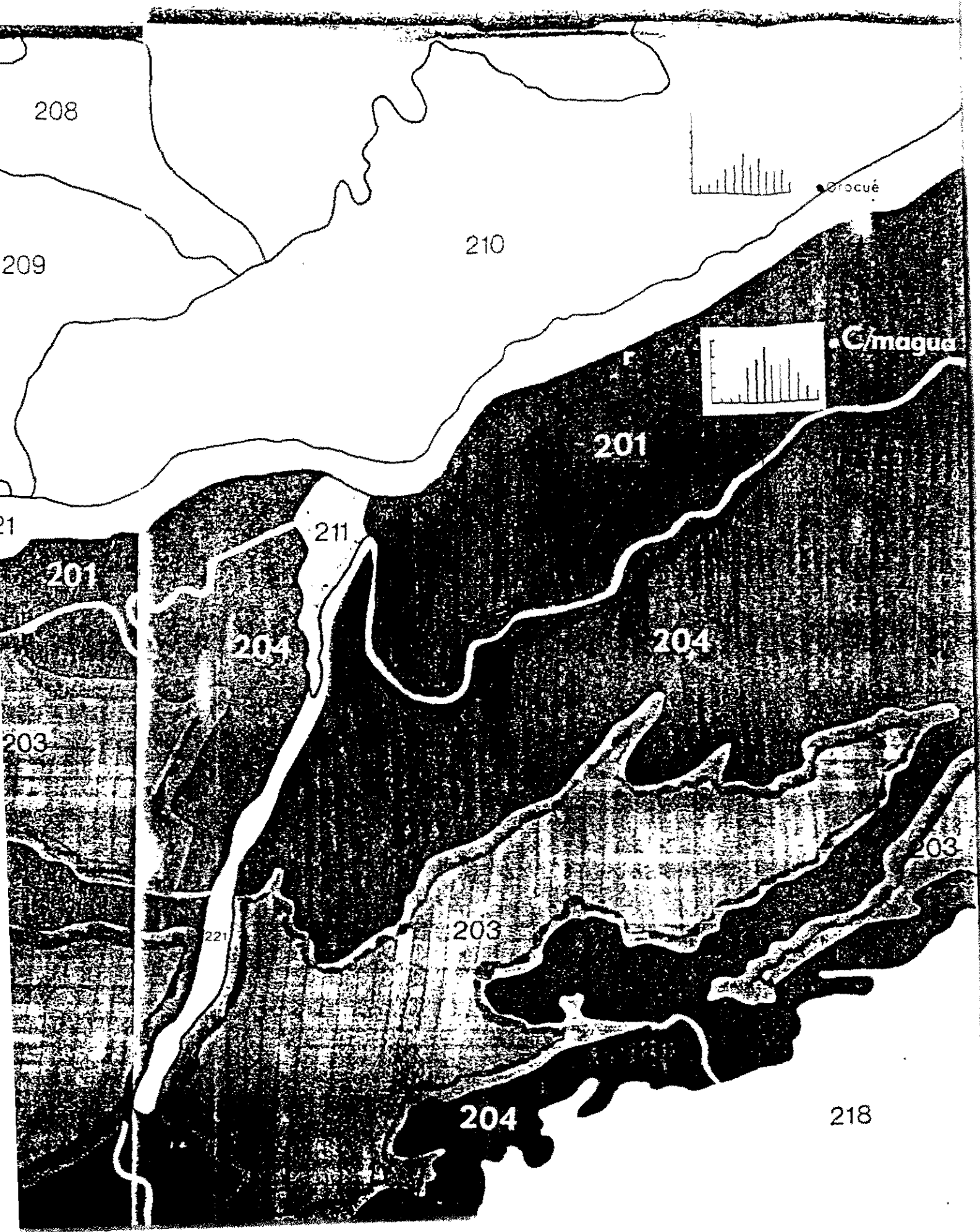
1234

ZONAS AGROECOLOGICAS HOMOGENEAS

1:500.000







LAND SYSTEMS

