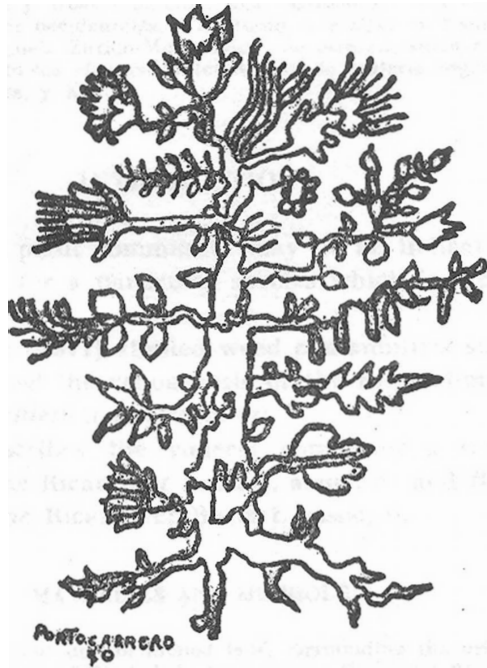


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New ruderal plant communities from Cuba*

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RESUMEN. Se reportan dos nuevas asociaciones de plantas ruderales vinculadas a lugares húmedos y áreas inundadas ocasionalmente, cuya distribución es amplia en las provincias occidentales. El estudio se realizó mediante el método fitosociológico de la escuela Zürich-Montpellier. Se ofrecen, además, los resultados de los análisis químicos efectuados (contenido de materia orgánica, pH del suelo, N y P asimilables, y K).

INTRODUCTION

The structure of a plant community may be an indication of the biotic environment for a particular species which is a component of the community.

In Cuba, Samek (1971) studied weed communities surrounding Havana; he described the cenogenesis of the association *Amarantho spinosi - Parthenietum hysterophori*.

This study describes the ruderal communities *Commelino - Phyletum strigosae* Ricardo et Bastart, assoc. n., and *Brachiario - Phyletum strigosae* Ricardo et Bastart, assoc. n.

MATERIALS AND METHODS

The study was carried out on abandoned land surrounding the urban environment and border of rivers of Ciudad de La Habana, Pinar del Rio and Matanzas provinces; these areas were greatly influenced by human activity.

The characteristics of *Commelino - Phyletum strigosae* and *Brachiario - Phyletum strigosae* associations are based on the phytosociological methods of the Zürich-Montpellier School (Braun-Blanquet, 1951). The size of plots was 16 m².

Soil samples were quickly air-dried, homogenized and analyzed; pH was estimated in soil/water ratio 1:2.5; organic matter contents, according to Spring and Klee (Thun *et al.*, 1955); assimilable nitrogen was determined by Tiurin microchromic method; P and K were performed according to Jackson (1962).

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RESULTS OF PHYTOSOCIOLOGICAL INVESTIGATIONS

1. *Commelino - Phyletum strigulosae* Ricardo et Bastart, assoc. n.
Type list: Table 1, list no. 10.

Characteristic combination of species: *Phyla strigulosa*, *Commelina diffusa*, *Alternanthera sessilis*, *Ipomoea tiliacea*, *Merremia umbellata*, *Sporobolus indicus* and *Blechnum pyramidatum*.

This association is bound to the Typical Red Ferrallitic soil in humid places, according to the Instituto de Suelos (1975), and to areas that may be overflowed by rivers. The number of total species is 26 and 8 to 11 in one list. Plant cover varies from 90 to 100%. The association could be bound to the median alkaline soils; pH, 8,1; organic matter and nitrogen contents, 7,3 and 0,39%, respectively; P and K, 7,2 and 2,5 mg/100 g, respectively.

Within the *Commelino - Phyletum strigulosae*, two subassociations:

- a) *Commelino - Phyletum strigulosae typicum* Ricardo et Bastart, subassoc. n.

Type list: Table 1, list no. 19. Without subassociation of different species.

- b) *Commelino - Phyletum strigulosae ruellietosum tweediana* Ricardo et Bastart, subassoc. n. This subassociation can be implanted in slightly dry soils and, in some cases, in cultivated and abandoned places.

Holotype: Table 1, list no. 10.

Subassociation of differential species: *Ruellia tweediana*, *Dichanthium annulatum*, *Bidens pilosa*, *Digitaria adscendens* and *Mimosa pigra*.

2. *Brachiario - Phyletum strigulosae* Ricardo et Bastart, assoc. n.
Type list: Table 2, list no. 4; equal to subassociation *typicum*.

Characteristic combination of species: *Phyla strigulosa*, *Alternanthera sessilis*, *Brachiaria mutica*, *Blechnum pyramidatum* and *Achyranthes indica* show affinity to humid places. This association is present in abandoned pasture ground, and is richer in plant species (32) than the former association; it includes from

5 to 20 species in one list. The association could be bound to the natural skeletal scanty evolutioned soil; pH, 8,2; organic matter and nitrogen contents, 5,8 and 0,22%, respectively; P and K, 1,8 and 4,8 mg/100 g, respectively.

The following subassociations of the *Brachiario - Phyletum strigulosae* can be distinguished:

- a) *Brachiario - Phyletum strigulosae mimosetosum pudicae* Ricardo *et* Bastart, assoc. n.

Type list: Table 2, list no. 1.

Subassociation of differential species: *Mimosa pudica*, *Ipomoea tiliacea* and *Commelina diffusa*. This subassociation is implanted in places with moist soils.

- b) *Brachiario - Phyletum strigulosae melantheretosum deltoideae* Ricardo *et* Bastart, subassoc. n.

Type list: Table 2, list no. 6.

Subassociation of differential species: *Melanthera deltoidea*, *Corchorus siliquosus*, *Sida rhombifolia*, *S. spinosa*, *Ruellia geminiflora*, *Melochia pyramidata* and *Desmanthus virgatus*. This subassociation can be implanted in dry soils.

- c) *Brachiario - Phyletum strigulosae typicum* Ricardo *et* Bastart, subassoc. n.

Type list: Same as the association. Without subassociation of differential species.

Vilamajó *et al.* (in print) described the climate of the area: precipitations of 1 000 mm, one dry month, and a mean annual temperature of 25°C.

These two associations are formed by herbaceous plants, most of which are grasses; the family Poaceae was most represented.

The distribution of the plants was similar in both associations. They have strong relations with pantropical and neotropical regions. The floristic composition presents some persisting trend toward medicinal and melliferous characteristics. The distribution and utility of the species and soil pH were similar in both associations. Comparing the average contents of organic matter, N and P, values

at the *Commelino - Phyletum strigosae* association were much higher than in *Brachiario - Phyletum strigosae*.

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ABSTRACT. Two new ruderal plant communities with ample distribution in the western provinces are reported. These associations are bound to humid places and areas that occasionally may be overflowed. The study was made following the phytosociological method of the Zürich-Montpellier approach. Soil analyses are also included (organic matter content, pH, K, and assimilable N and P).

Table 1. *Commelino - Phyletum strigosae* Ricardo et Bastart, assoc. n.

List no.	11	10	15	8	13	9	19	23	18	24	Constancy
Date (1985)	3	3	3	3	3	3	3	3	3	3	
Area (m ²)	16	16	16	16	16	16	16	16	16	16	
Exposition	N	N	N	N	N	NW	NW	N	NW	NW	
Inclination (degrees)	0	0	0	0	0	0	0	0	0	0	
Cover (%)	95	95	100	100	95	95	100	90	95	95	
Height of the species (cm)	30	34	40	30	30	90	39	90	41	30	
Total species	11	11	11	10	9	9	11	11	9	9	
Characteristic combination of the species											
<i>Phyla strigulosa</i> Mold.	5	5	4	3	4	4	4	4	5	4	V(3-5)
<i>Commelina diffusa</i> Burm. f.	2	r	+	2	+	+	r	+	r	r	V(r-2)
<i>Alternanthera sessilis</i> (L.) R. Br.	2	1	+	1	2	1	r	r	r		V(r-2)
<i>Ipomoea tiliacea</i> (Willd.) Choisy	+	+	r	+	+	+		+		+	IV(r-+)
<i>Merremia umbellata</i> (L.) Hall. f.	r	+	r		r	+			r	2	IV(r-2)
<i>Sporobolus indicus</i> (L.) R. Br.	r		+	r	r		r	+		r	IV(r-+)
<i>Blechum pyramidatum</i> (Lam.) Urb.	r	r				+	+	+	+	+	IV(r-+)

(Continues)

Table 1 (continued)

List no.	11	10	15	8	13	9	19	23	18	24	Constancy
Subassociation of differential species											
<i>Ruellia tweediana</i> Griseb.	r	2	2	+	2						III(r-2)
<i>Dichanthium annulatum</i> (Forsk.) Stapf.	r	r	+	+				r			III(r-+)
<i>Bidens pilosa</i> L. var. <i>pilosa</i>		r		r	r						II(r)
<i>Digitaria adscendens</i> (Kunth) Henr.	r			r	r						II(r)
<i>Mimosa pigra</i> L.	r	r	r								II(r)
Companion species											
<i>Brachiaria mutica</i> (Forsk.) Stapf.		r	+	r			r				II(r-+)
<i>Mimosa pudica</i> L.						r	r	r	r		II(r)
<i>Achyranthes indica</i> (L.) Mill.									1		I(1)
<i>Pithecellobium dulce</i> (Roxb.) Benth.							r		r		I(r)

Species only in one list

No. 3, *Cyperus alternifolius* L. r.; no. 6, *Acacia farnesiana* (L.) Willd. 1.; no. 6, *Macroptilium lathyroides* (L.) Urb. r.; no. 7, *Amaranthus spinosus* L. r.; no. 7, *A. dubius* Mart. r.; no. 8, *Ruellia geminiflora* H.B.K. r.; no. 8, *Commelina erecta* L. r.; no. 8, *Bothriochloa pertusa* (L.) Camus r.; no. 9, *Panicum maximum* Jacq. r.; no. 10, *Scleria* sp. r.

Table 2. *Brachiario - Phyletum strigulosae* Ricardo et Bastart, assoc. n.

List no.	7	6	5	4	3	20	25	17	1	2	16	22	21
Date (1985)	3	3	3	4	3	3	3	4	3	3	4	3	3
Area (m ²)	16	16	16	16	16	16	16	16	16	16	16	16	16
Exposition	S	NE	NE	N	N	N	N	NW	N	NE	N	N	S
Inclination (degrees)	0	0	5	0	0	15	0	0	0	0	0	0	0
Height of the species (cm)	70	70	73	50	50	27	30	30	50	50	70	35	37
Cover (%)	100	95	95	85	90	95	100	100	95	100	100	90	95
Total species	14	21	18	9	7	6	5	9	15	14	7	6	5
Characteristic combination of the species													
<i>Phyla strigulosa</i> Mold.	5	5	5	4	5	5	3	5	5	5	5	4	4
<i>Alternanthera sessilis</i> (L.) R. Br.	+	+	+	r	r			+	1	+	+	+	+
<i>Brachiaria mutica</i> (Forsk.) Stapf.	+	+		1	+	+		r	1	+	r		
<i>Blechum pyramidatum</i> (Lam.) Urb.	r	+	3	r	+	+	+		+				
<i>Achyranthes indica</i> (L.) Mill.		r	1	+		r	+	1	r	r			

(Continues)

Table 2 (continued)

List no.	7	6	5	4	3	20	25	17	1	2	16	22	21	
Subassociation of differential species														
<i>Mimosa pudica</i> L.									+	r	r	2	1	r
<i>Ipomea tiliacea</i> (Wild.) Choisy										r	r	r	1	
<i>Commelina diffusa</i> Burm. f.						+			+		r	+	r	
Companion species														
<i>Melanthera deltoidea</i> L. C. Rich. ex Michx.	r	r	+											
<i>Corchorus siliquosus</i> L.	r	r	+											
<i>Sida spinosa</i> L.	r	1	r											
<i>Sida rhombifolia</i> L.	+	+	+											
<i>Ruellia geminiflora</i> H.B.K.	r	r	r											
<i>Melochia pyramidata</i> L.	r	r	r											
<i>Desmanthus virgatus</i> (L.) Willd.	r	r	r											
<i>Sporobolus indicus</i> (L.) R. Br.	r	r	+				r	r				+	r	
<i>Panicum maximum</i> Jacq.	r	r					r	r			r			
<i>Dichanthium caricosum</i> L.				r	r				r	r				

<i>Sorghum halepense</i> (L.) Pers.	r		r	r	1	
<i>Eleusine indica</i> (L.) Gaertn.	r					r
<i>Bidens pilosa</i> L. var. <i>pilosa</i>	r		+		r	r
<i>Mimosa pigra</i> L.	r			r	r	r
<i>Merremia umbellata</i> (L.) Hall. f.	r	r	+			r
<i>Parthenium hysterophorus</i> L.			r		r	r
<i>Sida acuta</i> Burm. f.	r					+
<i>Euphorbia heterophylla</i> L.	r	r			r	
<i>Spilanthes beccabunga</i> DC.	1	1			r	
<i>Pithecellobium dulce</i> (Roxb.) Benth.		r			+	

Species only in one list

No. 2, *Amaranthus dubius* Mart. r.; no. 5, *A. spinosus* L. r.; no. 20, *Malvastrum corchorifolius* (Desv.) Britt. +.
