

A healthy city? Urban Aerobiology, Vegetation Dynamics and Intensity of Use in La Puntilla, Ecuador



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Rationale

Sustainable cities (UN SDG 11) require urban contribute to allergic reactions and respiratory diseases, countering SDG 3 on good health.

Objective

We aim to assess the urban development and natural environment quality from an Ecuador. By analyzing pollen and spore data collected in 2023, the study seeks to identif factors promoting allergic impacts and propose urban guidelines to mitigate health

Methods

MULTI-PHASED APPROACH

Urban

Aerobiology

characteristic collection using a Burkard collector at Espiritu Santo

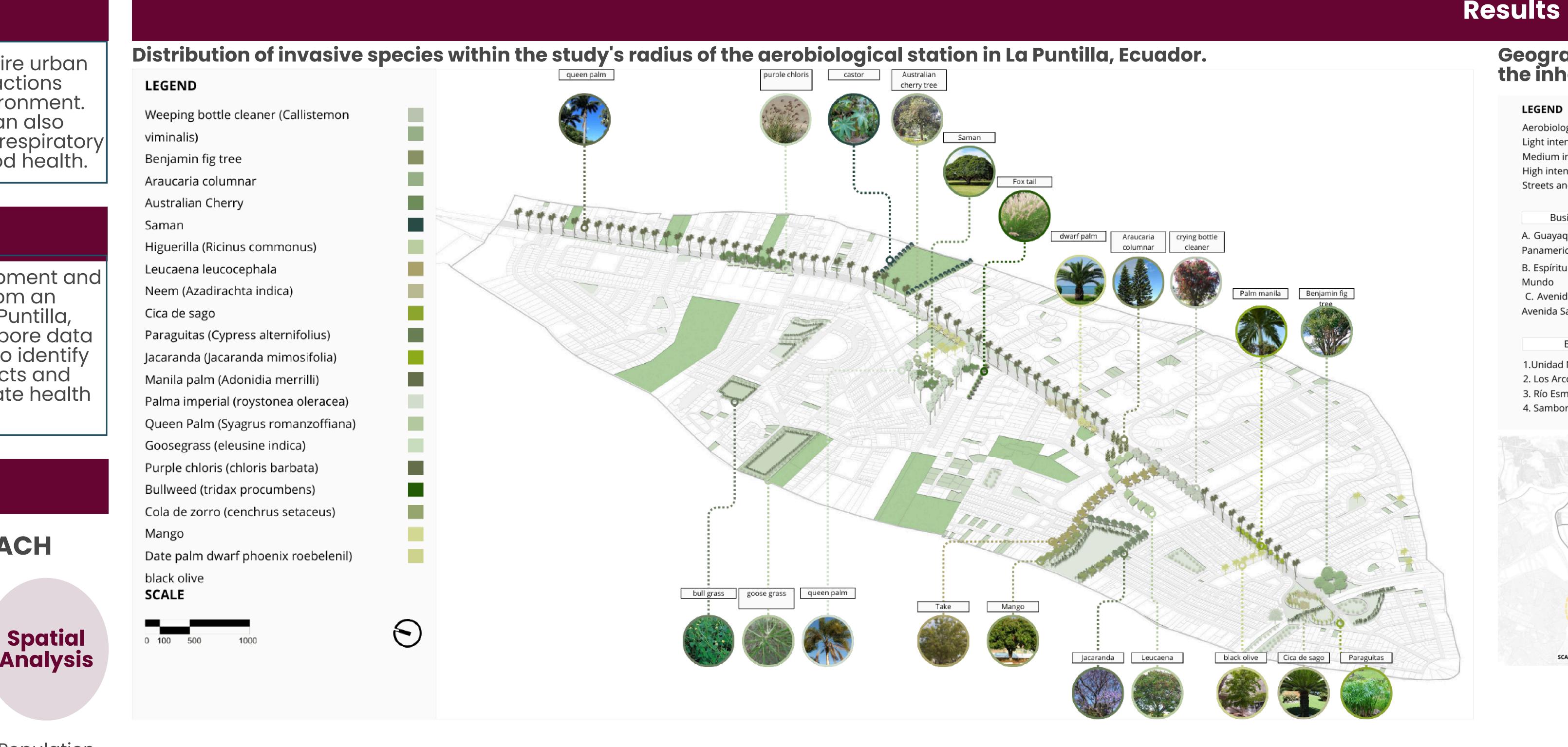
density, wind intensity of public space use, and

SAMBORONDON

Location: La Puntilla, Samborondón.

Conclusions

Urban planning in La Puntilla should address allergenic risks by choosing low-allergenic plants, maintaining green spaces, and redesigning layouts to reduce pollen exposure.



Predominant Winds northeast. From the Daule River **Secondary Winds** On the west. They indicate the irregularity between avenues. Called runners.

Wastelands with their respective distance according to the aerobiological station located at Espiritu Santo's University. The study was carried out on a 100-, 500- and 1000-meter radius.

Radio 1000 mts.

A. Espiritu Santo University Base

0 100 500 1000

Predominant winds in La Puntilla came from the southwest of the Daule River to the northeast orientation. Secondary winds responsible for pollen mobility in the main avenues of La Púntilla are indicated in

SCALE 100 0 0 00

Geographic map that shows the intensity of use according to the activities carried out by the inhabitants of La Puntilla from km 0.5 to 4.5 of Samborondon Avenue.



Relationship Between Vegetation Type (Native, Invasive, Introduced) and Pollen and Spore Levels, and Its Location Within the **Urban Area of La Puntilla, Ecuador.**

Vegetation	Type of pollen	Pollen median	Pollen peak	Pollen Levels	Invasive N	Native	Introduced	Location	Presence on wastelands
	(tree/weed/grass)	concentration/ m3	concentration	according to NAB					(yes/no)
Weeping bottelbrush	Tree	18	may-23	Moderate			Х	urban tree areas	No
Benjamina fig (Ficus benjamina)	Tree	11	September 2023	Low			х	urban tree areas and citadels	No
New Caledonia pine (Araucaria columnaris)	Tree	0					х	urban tree areas and citadels	No
Australian brush-berry (Syzigium paniculatum)	Tree	18	may-23	Moderate			х	green areas	No
Rain tree (Samanea saman)	Tree	0					х	urban tree areas and citadels	No
Castor been (Ricinus communis)	Weed	0			х			wasteland	Yes
Leucaena (Leucaena leucocephala)	Tree	0					х	urban tree areas	No
Neem tree (Azadirachta indica)	Tree	0					х	urban tree areas	No
Saga cycas (Cycas revoluta)	Tree	0					х	green areas	No
Umbrella flatsedge (Cyperus alternifolius)	Weed	0					х	green areas	No
Jacaranda (Jacaranda mimosifolia)	Tree	0					х	urban tree areas and citadels	No
Christmas palm (Adonidia merrillii)	Tree	0					х	urban tree areas	No
Imperial palm (Roystonea oleracea)	Tree	0			х		х	urban tree areas and citadels	No
Queen palm (Syagrus romanzoffiana)	Tree	0					х	urban tree areas and citadels	Yes
Goose grass (Eleusine indica)	Grass	37	April 2023	High	х			wasteland and green areas	Yes
Purpletop chloris (Chloris barbata)	Grass	37	April 2024	High	х			wasteland and green areas	Yes
Coat buttons (Tridax procumbens)	Weed	6	September 2023	Low	х			wasteland and green areas	Yes
Fountain grass (Cenchrus setaceus)	Grass	37	April 2023	High	х			wasteland and green areas	Yes
Mango (Mangifera indica)	Tree	0					Х	urban tree areas	No
Miniature date palm (Phoenix roebelenii)	Tree	0					Х	urban tree areas and citadels	No
Black olive (Terminalia buceras)	Tree	0					¥	urban tree areas	No