



Urban Delight: Mapping of Shrubs along España Boulevard at the time of the Covid 19 Pandemic

Cecilia May S. Villanueva
University of Santo Tomas, Philippines
csvillanueva@ust.edu.ph

ABSTRACT: Environmental integration looks into all organisms present in localities. Sustainable cities and urban places can be realized by looking into the diverse nature of shrubs in our neighborhoods and the ecosystem dynamic they promote.

This paper discusses the different shrubs present along Espana Boulevard during the covid 19 pandemic. The travel constraints brought by social distancing at the time of pandemic has brought neighborhoods to be more observant of the resources surrounding their residences. We now consider the utilitarian nature of these existing species to maximize benefits which may be derived from them.

A variety of uses from edible, medicinal, floral and ornamental may be derived from the different species. These diverse resources enhance the built environment that not only improve the aesthetic quality but have several environmental benefits.

KEYWORDS: Boulevard, urban delight, shrubs

1. INTRODUCTION

Boulevards have scenic qualities that engage the sensory experience of passersby. Historical places showcase the rich cultural heritage dedicated to a time that has long passed but remains engraved in our identity as a nation. A tree lined promenade, fabulous architectural masterpiece, a significant event place or coastal areas are among the interesting features that Manila's boulevards offer.

The covid 19 pandemic restricted movements of communities within their immediate neighborhoods and access to "third places" (Oldenburg, 1989) became a concern on personal wellbeing. In Manila, parks and boulevards provide a good exercise venue for walking, jogging and biking with the urban splendor of connecting with nature. España Boulevard is a gateway connecting the City of Manila to Quezon City through the Sampaloc District, a high density commercial-residential district.

2. THE STUDY AREA

Sampaloc district is a dormitory neighborhood with a high number of residents that are travelling to services industries catering to the presence of universities and institutions in the area. There is high pedestrian activity, where a number of students and workers have opted to live near their places of work and study. Espana Boulevard is a wide major thoroughfare with a five-meter-wide sidewalk that encourages people to walk, with a number of Narra trees lining this passageway. The boulevard is flanked by plant boxes on both sides where shrubs and trees are planted. The plant boxes are around one-meter-high and allow people to also sit at the edges in the absence of benches.

During the covid19 pandemic, Sampaloc district was one of the hotspots of the viral infection because of the movement of workers to various frontline essential services. Limited outdoor time had encouraged residents and their neighborhoods to appreciate the inherent details in their vicinity. Sampaloc district is characterized by esquinitas and streets that allow a more intimate setting in communities, hence a greater possibility for the covid19 virus to spread.

Historically, “Sampaloc district was characterized by tamarind trees, rice fields, and forests, with small hamlets connected by natural pathways” (Esteria, 2025). Today, creeks in Sampaloc have narrowed and some have been reclaimed or diverted with underground canals and culverts. Having been rice fields in earlier times, the soil quality is still prone to flooding, exacerbated by obstructed waterways.

Some street names have changed such as Morayta that is now known as Nicanor Reyes Street. AH Lacson used to be Governor Forbes Street. Some American and Spanish time streets have changed to notable Filipino leaders. Some names have been shortened to one name which may seem as “random” (Urban Historian, n.d.) and may have lost their historical allusion such as Eloisa, Paquita and Adelina Streets.

3. METHODOLOGY

This paper catalogues the different human-scale lower-level landscape species present in the boulevard during the covid 19 pandemic. Photo documentation of shrubs commenced on February 21, 2021 from six in the morning to eight in the same morning. Each species is assigned an identification number with the initials of the street names that border the street segment where the shrubs are located. The direction of whether east bound or westbound traffic is also indicated in the identification with corresponding initials as E for east and W for west. Initials for the streets shall be noted as follows:

Initials	Street Name	Initials	Street Name	Initials	Street Name
MC	Maria Cristina	DQ	Don Quijote	DC	Dos Castillas
AHL	Arsenio H. Lacson	PN	Padre Noval	El	Eloisa
GT	Guillermo Tolentino	A	Adelina (Álvarez-Tardío, 2021).	PC	Padre Campa
Ga	Galicia (Dizon, 2011).	M	Moret (Piedad-Pugay, 2012)	Ce	Centro
MFJ	Mariano Fortunato Jhocson (NU, 2024)	FC	Florentino Cayco (AU, 2023)	Ex	Extremadura (Garcia-Abalos, 2007)
V	Valencia	Ea	Earnshaw	Ca	Carola
Pa	Paquita	NR	Nicanor Reyes		

Shrubs are classified according to their utility and their locations mapped as local assets at a time when frugality (Villanueva et al 2022) and re-wilding became major considerations as essential activities for health and wellbeing.

The shrubs in this study were identified through the Luntiang Pook Grant – Wellbeing in Future Urban Landscapes with the National Commission on Culture and the Arts and in Partnership with the Philippine Association of Landscape Architects, with Landscape Architect Madonna Danao as a subject matter expert and Architect Juanito Malaga as adviser, both with a master’s degree in Tropical Landscape Architecture. The shrubs are further classified to their endemic and introduced qualities.

4. CATALOGUE OF SHRUBS

These small and medium size plants brought joy to passersby at a time of uncertain and volatile conditions. They augment the topmost layer of soil in the plant boxes of Espana Boulevard, offering delight at human scale that can be experienced not only visually, tactile and possibly gastronomic.

ID No.	Location	Specie	Qualities	Photo	Benefits
MCDQW1	Waiting shed corner of Don Quijote Westbound	SN: Pedilanthus tithymaloides CN: Zigzag plant	Low height around one foot; Ornamental	 Figure 1	“remediate toxic soils” (Roslen, 2017)
DQDCW2	Across Don Quijote Westbound	SN: Ixora sinensis, Dwarf santan CN:	Red flowers	 Figure 2  Figure 3	“anti-oxidant, anti-tumor, anti-inflammatory, and hepato protective effects” (Oktaviyanti,

					Nina Dewi et al., 2019)
DQDCW3	Don Quijote Footbridge Westbound	SN: Caesalpinia pulcherrima CN: Caballero	Yellow flowers	 Figure 4	“cure sores, and the seeds are said to cure bad cough, breathing difficulty, and chest pain” (Kumbhare and Sivakumar, 2017)
DQDCW4	Don Quijote Footbridge Westbound	SN: Caesalpinia pulcherrima CN: Caballero	Red flowers	 Figure 5	
DCAHLW5	Dos Castillas corner at Land Bank	SN: Caesalpinia pulcherrima CN: Caballero	Red flowers	 Figure 6	
DCAHLW6	Dos Castillas to Arsenio Lacson	SN: Ixora sinensis, CN: Dwarf santan	Red flowers	  Figure 7 Figure 8	(See DQDCW2)
DCAHLW7	Dos Castillas to Arsenio Lacson	SN: Pedilanthus tithymaloides CN: Zigzag plant	Low height around 1 foot; Ornamental	 Figure 9	“remediate toxic soils” (Roslen, 2017)
DCAHLW8	Dos Castillas to Arsenio Lacson	SN: Pedilanthus tithymaloides CN: Zigzag plant	Low height around 1 foot; ornamental, variegated species	 Figure 10	(See DCAHLW7)
AHLPNW9	Arsenio Lacson to Padre Noval	SN: Ixora sinensis, CN: Dwarf santan	Red flowers	 Figure 11	(See DQDCW2)
PNEIW10	Padre Noval to Eloisa	SN: Ixora Sinensis, CN: Dwarf santan	Red flowers	 Figure 12	
EIGTW11	Eloisa to Guillermo Tolentino	No shrubs		 Figure 13	
GTAW12	Guillermo Tolentino to Adelina	SN: Ixora Sinensis, CN: Dwarf santan	Red flowers	 Figure 14 Figure 15	(See DQDCW2)
APCW13	Adelina to Padre Campa	No shrubs		 Figure 16	
PCPaW14	Padre Campa to Paquita	No shrubs		 Figure 17	
NRPCW15	Nicanor Reyes to Padre Campa	SN: Ixora Sinensis, CN: Dwarf santan	Red flowers	 Figure 18	(See DQDCW2)

MPCW16	Nicanor Reyes to Padre Campa	SN: Sansievera trifasciata, CN: Snake plant	Ornamental	 Figure 18	“traditionally used against acne, allergy, helminthes and fungal infections” (Ukairo et al., 2025)
PCGTE17	Padre Campa to Guillermo Tolentino	SN: Sansevieria trifasciata, CN: Snake plant	Ornamental	 Figure 19	(See MPCW16)
PCGTE18	Padre Campa to Guillermo Tolentino	SN: Ixora Sinensis, CN: Dwarf santan	Red flowers	 Figure 20	(See DQDCW2)
GTPNE19	Guillermo Tolentino to Padre Noval	SN: Ixora Sinensis, CN: Dwarf santan	Red flowers	 Figure 21	(See DQDCW2)
PNGaE20	Padre Noval to Galicia	SN: Ixora Sinensis, CN: Dwarf santan	Red flowers	 Figure 22	(See DQDCW2)
GaME21	Galicia to Moret	SN: Ixora Sinensis, CN: Dwarf santan	Red flowers	 Figure 23	(See DQDCW2)
GaME22	Galicia to Moret	SN: Carica papaya, CN: Papaya	Edible fruit	 Figure 24	can be eaten ripe and cooked if unripe
MCeE23	Moret to Centro	SN: Ixora Sinensis, CN: Dwarf santan	Red flowers	 Figure 25	(See DQDCW2)
MCeE24	Moret to Centro	SN: Ipomea batatas, CN: kamote		 Figure 25	“most common edible and useful plants in the Philippines” (Dumaol, 2010)
CeMFJE24	Centro to M.F. Jhocson	SN: Ixora Sinensis, CN: Dwarf santan	Red flowers	 Figure 26	(See DQDCW2)
CeMFJE25	Centro to M.F. Jhocson	SN: Epipremnum aureum, CN: golden pothos	Yellow and green variegated	 Figure 27	“act as air biofiltration and absorbing formaldehyde, xylene and benzene” (EL Sayed, 2020)
MFJFCaE26	M.F. Jhocson to F. Cayco	SN: Ixora Sinensis, CN: Dwarf santan	Red flowers	 Figure 28	(See DQDCW2)
MFJFCaE27	M.F. Jhocson to F. Cayco	SN: ficus exasperata, CN: sandpaper plant	Sandpaper leaves	 Figure 29	“leaf extracts inhibit angiotensinI converting enzyme and contain some antioxidant phenolic compounds” (Obloh et al. 2014)

MFJFCaE27	M.F. Jhocson to F. Cayco	SN: Carica papaya, CN: Papaya		 Figure 30	(See GME22)
FCExE28	F. Cayco to Extremadura	SN: Ixora Sinensis, CN: Dwarf santan	Red flowers	 Figure 31	(See DQDCW2)
EVE29	Extremadura to Valencia	SN: Ixora Sinensis, CN: Dwarf santan	Red flowers	 Figure 32	(See DQDCW2)
VAHLE30	Valencia to AH Lacson	SN: Pedilanthus tithymaloides CN: Zigzag plant	Low height around 1 foot; ornamental, variegated species	 Figure 33	(See DCAHLW7)
AHLEE31	AH Lacson to Earnshaw	SN: Ixora Sinensis, CN: Dwarf santan	Red flowers	 Figure 34	(See DQDCW2)
AHLEE32	AH Lacson to Earnshaw	SN: Talinum paniculatum CN: Talinum	Pink flowers	 Figure 35	“traditional medicine, particularly in the treatment of type-2 diabetes, inflammatory skin problems, gastrointestinal disturbance, general weakness and reproductive disorders” (Thanamool, 2013).
AHLEE33	AH Lacson to Earnshaw	SN: Ipomea batatas, CN: kamote		 Figure 36	(See MCE24)
AHLEE34	Earnshaw to Dos Castillas	SN: Canna generalis, CN: Bandera espanola	Yellow Orange flowers	 Figure 37	“high potential for wastewater treatment” (Tran, 2019)
AHLEE35	Earnshaw to Dos Castillas	SN: Cucurbita maxima or Cucurbita moschata, CN: kalabasa	Edible vegetable	 Figure 37	“possess antidiabetic and antioxidant” (Suwannapong et al, 2023)
AHLEE36	Earnshaw to Dos Castillas	SN: Moringa oleifera, CN: Malunggay	Edible vegetable	 Figure 37	“antioxidant, tissue protective (liver, kidneys, heart, testes, and lungs), analgesic, anti-ulcer, anti-hypertensive, radio protective, and immune modulatory actions” (Stohs and Hartman (2015).

DCCE37	Dos Castillas to Carola	SN: Ixora Sinensis, Dwarf santan	CN: Red flowers	 Figure 38	(See DQDCW2)
CDQE38	Carola to Don Quijote	SN: Ixora Sinensis, Dwarf santan	CN: Red flowers	 Figure 39	(See DQDCW2)
CDQE39	Carola to Don Quijote	SN: Carica papaya, Papaya	CN: Edible Fruit	 Figure 40	(See GME22)
DQMCE40	Don Quijote to Maria Cristina	SN: Ixora Sinensis, Dwarf santan	CN: Red flowers	 Figure 41	(See DQDCW2)
DQMCE41	Don Quijote to Maria Cristina	SN: Carica papaya, Papaya	CN: Edible Fruit	 Figure 42	(See GME22)

Most of the shrub species were planted by the Department of Public Works and Highways, however there are species and plantscapes that may have been introduced by residents, some are also endemic or naturalized, and may have been brought by birds and other animals or insects. There were ninety-six photos taken during the documentation period and forty-four photos are of good quality to represent the species from Maria Cristina Street westbound to Paquita Street, and Nicanor Reyes Street to Maria Cristina Street east bound of Espana Boulevard. A total of forty-one shrub clusters were identified and there are eleven distinct species noted.

There are eleven distinct shrub species that provide various environmental benefits in cooling outdoor temperature and possibly improving air quality. There are nine species with aesthetic value for their color, flowers and distinct characteristics that stand out in the urban setting. There are nine species with documented medicinal benefits and four species that are edible. However, the exposure to roadside pollution may render these edible shrubs unsafe for consumption.

Dwarf Santan

The most popular shrub along Espana Boulevard is the Ixora Sinensis, with the common name of dwarf santan. This was widely planted by the Department of Public Works and Highways in place of canna generalis, with common name bandera espanola that had wide leaves which may allow mosquitoes to breed in. Whereas the ixora had small leaves which mitigates collection of stagnant water.

Ixoras are known to have medicinal qualities as “antioxidant, anti-tumor, anti-inflammatory, and hepatoprotective effects” (Oktaviyanti, Nina Dewi et al., 2019). The cluster of small flowers are easily plucked and nectar can be drawn from them. Considering the minute of the flowers, there are minimal drops that can be collected from each. “Ixora is known to be native in the Philippines” (Royal Botanic Gardens 2017).

There are around twenty clusters of ixora found in the twenty-one street segments documented in the boulevard. There are a variety of colors that the ixora can produce. However, only red flowers are present in the study area. These can be found in the street segments from Don Quijote to A H Lacson and Adelina Streets westbound and Morayta to Valencia Streets, AH Lacson to Earnshaw Streets and Dos Castillas to Maria Cristina Streets east bound.

Zigzag Plant

Zigzag plant is the common name for pedilanthus tithymaloides. They are ornamental plants with tolerance for heat and neglect. They are also known to “remediate toxic soils” (Roslen, 2017). There are four clusters of the zigzag plant in the study area. There are variegated species with hints of white in the edges of the leaves that strike interest to passersby because of their lighter colored leaves. “Pedilanthus tithymaloides, is exotic” (Flores, 2020) in the Philippines and also known as “luha and luhang-dalaga” (Stuart, 2010). These can be found from Don Quijote to AH Lacson Streets westbound and AH Lacson to Valencia east bound.

Caballero

There are three clusters of caesalpinia pulcherrima which is more commonly known as caballero. These caballero plants are known to “cure sores, and the seeds are said to cure bad cough, breathing difficulty, and chest pain” (Kumbhare and Sivakumar, 2017). They strike interest with their yellow, orange and red flowers. “They have elongated pods that are noted as may be one of the mechanisms by which this herbal medicine is effective in

several free radical mediated diseases” (Hsu, 2012). Caballeros can be found from Don Quijote to A H Lacson streets west bound.

Morning Glory

Ipomea cairica with common name morning glory is located at the corner of Dos Castillas Street. It is a refreshing vine with large purple flowers. They are known to “have remarkable larvicidal properties” (Ishak et al, 2014). The “short period of residual effectiveness of crude acetonilic extract of *Ipomea cairica* leaves with high percentage of larval mortality on the first few days, endorses fewer concerns of having excess residues in the environment which may carry the risk of insecticide resistance and environmental pollution” (Thiagaletchumi et al., 2013). It may be “used as carminative agent and lessens inflammation, and is useful in fever, jaundice, biliousness, bronchitis, liver complaints, it can also be used for treatment of Japanese encephalitis because of its antioxidant and anti-inflammatory properties” (Srivastava and Shukla, 2015). Once “naturalized, it has the potential to out compete native plants” (Stuart, 2022).

Snake Plant

Sansevieria trifasciata with common name snake plant is a neighborhood introduced plant in recycled tire pots that can be found in the segments of Nicanor Reyes, Padre Campa to Guillermo Tolentino Streets. *Sansevieria* are “traditionally used against acne, allergy, helminthes and fungal infections” (Ukairo et al., 2025). “*Sansevieria trifasciata*, a native plant of India has no recorded medicinal use in the Philippines and is customarily used as an ornament and air purifier” (Lontoc et al., 2018)

Kamote

Ipomea batatas with the common name “kamote are the most common edible and useful plants in the Philippines” (Dumaol, 2010). “Various parts of the crop have been reported to contain both organic and mineral nutrients including vitamins A and C, zinc, potassium (K), sodium, manganese, calcium (Ca), magnesium (Mg) and iron (Fe)” (Woolfe, 1992; Antia et al., 2006; Leighton, 2007; Oduro et al., 2008; Ofori et al., 2009; Abubakar et al., 2010; Meludu, 2010; Ingabire and Vasanthakaalam, 2011; Ukom et al., 2011; Hue et al., 2012 as cited by Away et al 2012). It is also a “valuable medicinal plant having anti-cancer, anti-diabetic, and anti-inflammatory activities” (Mohanraj and Sivasankar, 2014). These can be found in the street segments of Moret to Centro Streets and AH Lacson to Earnshaw streets eastbound.

Golden Pothos

Epipremnum aureum also known as golden pothos is found in the segment of Centro to M.F. Jhocson Streets. This may have also been introduced by property developers in the area as these are ornamental plants that are easy to propagate. Golden pothos act as “air biofiltration and absorbing formaldehyde, xylene and benzene” (EL Sayed, 2020). Their leaves are shiny and smooth and have variegated colors of green, yellow and white. Golden pothos can easily survive indoor settings and are used for green walls.

Sandpaper Plants

Ficus exasperata are more commonly known as sandpaper plants. They are traditional local plants, whose leaves are used for washing and cleaning pots as they possess scouring properties. Their “leaf extracts inhibit angiotensinI converting enzymes and contain some antioxidant phenolic compounds” (Obob et al. 2014). “Crude extracts have been reported to exhibit a wide spectrum of in vitro and in vivo pharmacological activities like, antidiabetic, anticonvulsant, anti-inflammatory, antimicrobial, hypolipidemic, antioxidant, antiulcer, anxiolytic and hypotensive” (Ahmed, 2012).

Talinum

Talinum paniculatum with the common name Talinum is an interesting plant because of pinkish and purple flowers. They are considered as “traditional medicine, particularly in the treatment of type-2 diabetes, inflammatory skin problems, gastrointestinal disturbance, general weakness and reproductive disorders” (Thanamool, 2013). In “Brazilian folk medicine, this species is used as aphrodisiac, to treat gastrointestinal problems, and as a cardioprotective agent, however, there are no reports in the literature proving its cardiovascular effects” (Tolouei, 2019).

Bandera Espanola

Canna generalis also known as bandera espanola was a beautiful cluster of leaves and flowers that used to dominate Espana Boulevard. It was probably attributed to the street name and their yellow flowers alluded to the presence of the University. However, their large leaves and flower petals were considered to be holding stagnant water during the rainy season and might be a breeding ground for mosquitoes. Environmental benefits of these reeds are their “high potential for wastewater treatment” (Tran, 2019).

Malunggay

Moringa oleifera with common name malunggay was present at the Earnshaw to Dos Castillas street segment. *Moringa* is known for its properties as “antioxidant, tissue protective (liver, kidneys, heart, testes, and lungs), analgesic, antiulcer, antihypertensive, radioprotective, and immunomodulatory actions” (Stohs and Hartman (2015). *Moringa* is an edible, extremely safe plant. Its tree could “easily and cheaply be cultivated and grown” (Mahmood, 2010).

Carica papaya is “rich in fiber, antioxidants, and vitamin C, it lowers the cholesterol in the arteries; prevents arthritis; reduces aging, cancer, macular degradation, risk of cardiovascular diseases, and stress; increases platelet count; controls dengue fever; facilitates digestion, and lowers body weight” (Koul et al, 2022). During the “last few decades considerable progress has been achieved regarding the biological activity and medicinal application of papaya and now it is considered as a valuable nutraceutical fruit plant” (Krishna et al., 2008).

Kalabasa

Cucurbita maxima or *cucurbita moschata* also known as kalabasa possess “antidiabetic and antioxidant” (Suwannapong et al, 2023). They also have orange flowers that are also edible and their vegetable is a “source of α and β -carotene, lutein, vitamin C, dietary fiber, minerals, and phenolic compounds” (Jacobo-Valenzuela et al, 2011). *Cucurbita maxima* is a sweet vegetable that can also be used to make bread. Pumpkin seeds are commonly considered as waste but they have a “high content of fatty and amino acids, which when used as a by-product or ingredient can add value to food products” (Lemus-Mondaca, 2019).

5. FINDINGS

Edible varieties found along Espana Boulevard are *carica papaya*, *ipomea batatas*, *cucurbita maxima*, “*talinum paniculatum*” (Achieng, 2024) and *moringa oleifera*. Given that these plants are located at roadside and exposed to various pollutants. It would be best to have them tested, washed and cooked first before consumption. Recommendations of Prof. Nappy Navarra, Dr Engg that “ornamental plants can be planted with edible plants to screen-off pollutants”.

There are nine species of shrubs with medicinal properties along Espana Boulevard. These are *ixora sinensis*, *caesalpinia pulcherrima*, *sansevieria trifasciata*, *carica papaya*, *ficus exasperate*, *moringa oleifera*, *cucurbita maxima*, *ipomea carica* and *caesalpinia pulcherrima*.

Ornamental plants in the study area are “*pedilanthus tithymaloides* and *epipremnum aureum* which are known to remediate toxic soils” (Roslen, 2017) and act as air “Bio-filtration and absorbing formaldehyde, xylene and benzene” (EL Sayed, 2020).

Flowering shrubs immediately exude urban delight with their variety of colors, such as the *ixora sinensis* with red flowers, *caesalpinia pulcherrima* with red and yellow flowers, *ipomea Carica* with purple flowers, *talinum paniculatum* with pink flowers and *canna generalis* with yellow and orange flowers. Flower is an important part of plants containing “natural antioxidants such as phenolic acids, flavonoids, anthocyanin and many other phenolic compounds” (Kaur et al., 2006).

The *ixora chinesis* (Royal Botanic Gardens, 2017) and *moringa oleifera* (Velasco & Canada, 2022) are both native plants of the Philippines. *Pedilanthus tithymaloides* (Stuart, 2010), *caesalpinia pulcherrima* (Stuart, 2024), *ipomea carica* (Stuart, 2022), *sansevieria trifasciata* (Lontoc et al, 2018), *carica papaya* (Fuentes and Santamaría, 2014), *Ipomea batatas* (Quispe-Huamanquispe et al., 2019), *Epipremnum aureum* (Wagner et al, 1999), *ficus exasperata* (Ahmed, 2012), *talinum paniculatum* (Stuart, 2023), *canna generalis* (Stuart, 2017), *cucurbita maxima* (Ferriol and Picó, 2008) are introduced species.

6. URBAN DELIGHT

Heaven on earth, the positive outlook in seeing the good in what exists in our communities and doing the most to make things better. Achieving spatial delight which represents the “feeling of happiness, comfort, benefit, and beauty in places” (Alkhazraj and Alshamar, 2023), can be represented in the natural attributes surrounding urban spaces. Green spaces bring a tranquil nature to the busy urban setting. The presence of shrubs helps in reducing air pollution and cooling urban heat island effect.

The gardens and shrubs at human scale have an “affective domain that stretches from raw appetite at one end to intellectual delight at the other” (Tuan, 1978). The wonder and delight in appreciating the minute living organisms in our surroundings and learning their benefits our ecosystem and human health. These shrubs cater to smaller organisms that may be present in the soil and in their own natural structure.

7. CONCLUSION

The documentation process has opened “various learnings aside from the overwhelming benefits” of shrubs in urban places (Tzoulas et al 2007). Verification of their location, such as street names and street configurations were noted to have distinct characteristics and historical significance. Streets near the border of Quezon City towards the east are more meandering. Streets are mostly gridiron type throughout the Sampaloc District area.

Behavioral patterns of people were also captured in the documentation process. A number of people enjoy the shade of higher landscape canopies along the boulevard. The shrubs planted by the Department of public works and highways were further enriched by residents, that gave way to community participation at a time of covid19 in urban space. This shows active cultivation and nurturing as activities aside from admiring and viewing the landscape elements. However, each plant species is unique and there are implications in the mix of species that grow beside each other.

According to the Forest Management Bureau -Department of Environment and Natural Resources (FMB DENR, 2022) some concerns on the “variety of the species is their appropriateness for the location and if some dominate other plant species”. Urban development drives “habitat loss and degradation, which often leads to species extirpation” (Jimenez et al, 2022). It was quite noticeable that there are areas that have no shrubs where there are thicker tree canopies, underneath foot bridges and the absence of plant boxes because of raised sidewalks due to flooding. Appropriate native species may be able to survive better in the local conditions.

Bamboo can also be explored as a planting media to break the monotony of low-level shrubs with higher clusters. Historically, bamboo and palm leaves were planted to protect the tree seedlings in Sampaloc (Gaerlan, 2011). During the early 1880’s, Alfred Marche (Lucon et Palaouan, 1886, p. 184) noted that “there are lovely walks planted with trees...” in Manila especially of the promenade de Sampaloc (Gaerlan, 2011). Picturesque dated images show a serene coexistence of nature and community. Studies show the potential of “bamboo as a carbon sink which helps lower the risks of climate change” (Pongon, 2016). Rojo (1999) reported that there are twenty-one species of endemic or native Philippine bamboos.

A sensual experience that has not been experienced in the observed street segments of Espana Boulevard are the olfactory experience. It would be nice to also smell the fragrance of flowers like kamuning plants with the scientific name *murraya paniculata*. This is indigenous to the Philippines and during the dry seasons they blossom well. The white flowers are interesting because of the strong sweet fragrance they exude despite their small size. This experience can bring a different experience of delight to passersby.

Espana Boulevard today remains as a beautiful promenade facing a number of challenges. This documented catalogue can assist future projects and improvements that stakeholders would engage in. The simplified mapping process can be adopted by local government units at the barangay level that experience logistical challenges (Villanueva, 2024). Shrubs are vital elements of the streetscape as they bring joy at human scale and they contain relatable living organisms and enrich local biodiversity.

REFERENCES

1. Achieng, George O., Omondi, Reinner, Shikuku, Victor O. et al. Quantitation and correlation of selected nutrients in the soil, foliar, stem and root of edible weed, *Talinum Paniculatum* around University of KwaZulu-Natal, Pietermaritzburg, South Africa, 21 January 2024, PREPRINT (Version 1) available at Research Square [<https://doi.org/10.21203/rs.3.rs-3877772/v1>]
2. Ahmed, Faiyaz, Ahmed, Mueen KK, Abedin, Md. Zainul and Karim, Alias A. (2012). Traditional Uses and Pharmacological Potential of *Ficus exasperata* Vahl. *Systematic Reviews in Pharmacy* January-December 2012, Vol 3, Issue 1.
3. Alkhazraji, Fouz Haider and Alshamar, Haitham Abdulhussein (2023). Spatial Delight by Third Places in the Vernacular Cities. *International Journal of Sustainable Development and Planning* Vol. 18, No. 3, March, 2023, pp. 919-92. <https://doi.org/10.18280/ijstdp.180327>
4. Álvarez-Tardío, Beatriz (2021). Adelina Gurrea and the Construction of Spanish Literature During Franco’s Dictatorship. *Kritika Kultura* 37 (2021): 364–391. Ateneo de Manila University.
5. Arellano University (2023). Florentino Cayco Sr. Arellano University, Sampaloc, Manila. Accessed from <https://arellano.edu.ph/about/florentino-cayco-sr/> on 1 March 2025.
6. Aywa, A. K., Nawiri, M. P. and Nyambaka, H. N. (2012). Nutrient variation in colored varieties of Ipomea batatas grown in Vihiga County, Western Kenya. *International Food Research Journal* 20(2): 819-825 (2013).
7. Dizon, Lino L. (2011). Cruceiro: Spanish Galicia at some crossroads in Philippine history and culture, 1521-1898. Center for Kapampangan Studies, Centro Gallego de Filipinas, 2011. Angeles City, Philippines

8. Dumaol, Oliver Shane (2010). Hepatoprotective activity of the crude leaf extract of *Ipomoea batatas* Linn. against acetaminophen and alcohol induced liver damage on Sprague-Dawley rats. The STETH Volume 4, 2010 ISSN: 2094-5906. Lyceum of the Philippines University - Batangas. 4200 Capitol Site, Batangas City. Accessed from <https://research.lpubatangas.edu.ph/wp-content/uploads/2014/10/STETH-4.5.pdf> on 27 February 2025.
9. EL Sayed, Naema I. (2020). Spray Golden Pothos and Croton Plants with Glutathione and Bilirubin to Purify the Indoor Air from Pollutants. *Journal of Plant Production, Mansoura University Journals of Agricultural Sciences*. Article 10, Volume 11, Issue 5, May 2020, Page 439-453.
10. Esteria, Primo (2025). Sampaloc, Manila: From Tamarind Trees to University Hub. The Kahimyang Project. Accessed from <https://kahimyang.com/articles/3081/sampaloc-manila-from-tamarind-trees-to-university-hub-on-7-March-2025>.
11. Ferriol, M., Picó, B. (2008). Pumpkin and Winter Squash. In: Prohens, J., Nuez, F. (eds) *Vegetables I. Handbook of Plant Breeding*, vol 1. Springer, New York, NY. https://doi.org/10.1007/978-0-387-30443-4_10
12. Flores, Precille Mae C., Fernandez, Aime I., Orozco, Kathleen Jay U., Endino, Rochelle Mae C., Picardal, Jay P., and Garces, Jake Joshua C. (2020). Ornamental plant diversity, richness and composition in urban parks: studies in Metro Cebu, Philippines. *Environmental and Experimental Biology* (2020) 18: 183–192 <http://doi.org/10.22364/eeb.18.19>
13. Forest Management Bureau, Department of Environment and Natural Resources, (2022). *Philippine Guidebook on Plant Species Suitable for Urban Greening*. Central Book Supply, Inc. ISBN 978-621-02-1962-3
14. Fuentes, G., Santamaría, J.M. (2014). Papaya (*Carica papaya* L.): Origin, Domestication, and Production. In: Ming, R., Moore, P. (eds) *Genetics and Genomics of Papaya*. *Plant Genetics and Genomics: Crops and Models*, vol 10. Springer, New York, NY. https://doi.org/10.1007/978-1-4614-8087-7_1
15. Gaerlan, Martin (2011). Promenade de Sampaloc circa 1880's. *Sampaloc Studies ~ Footnotes On The History of Manila*. Accessed from <https://sampaloc.wordpress.com/2011/09/25/promenade-de-sampaloc-circa-1880s/> on 7 March 2025.
16. Garcia-Abalos, Antonio (2007). Spanish Settlers in the Philippines 1571-1599. Grupo de investigacion: Andalucia-America-Filipinas. Unibersidad D Cordoba. P. 126 Accessed from <https://www.uco.es/aaf/garcia-abasolo/files/63df3.pdf> on 1 March 2025.
17. Hsu, F.-L., Huang, W.-J., Wu, T.-H., Lee, M.-H., Chen, L.-C., Lu, H.-J., Hou, W.-C., & Lin, M.-H. (2012). Evaluation of Antioxidant and Free Radical Scavenging Capacities of Polyphenolics from Pods of *Caesalpinia pulcherrima*. *International Journal of Molecular Sciences*, 13(5), 6073-6088. <https://doi.org/10.3390/ijms13056073>
18. Iaccarino, Ubaldo (2017). "The Centre of a Circle": Manila's Trade with East and Southeast Asia at the Turn of the Sixteenth Century *Crossroads* 16 (Oct. 2017) p. 99. Accessed from <https://lirias.kuleuven.be/retrieve/578752#page=22> on 27 February 2025.
19. Ishak, Ahmad Razali, Dom, Nazri Che, Hussain, Hazilia, and Sabri, Nur Husna (2014). Biolarvacidal Potential of *Ipomoea Cairica* Extracts Against Key Dengue Vectors. *Procedia - Social and Behavioral Sciences*, Volume 153, 2014, Pages 180-188, ISSN 1877-0428, <https://doi.org/10.1016/j.sbspro.2014.10.052>. (<https://www.sciencedirect.com/science/article/pii/S1877042814054949>)
20. Jacobo-Valenzuela, Noelia, Maróstica-Junior, Mario Roberto, Zazueta-Morales, José de Jesús and Gallegos-Infante, José Alberto (2011). Physicochemical, technological properties, and health-benefits of *Cucurbita moschata* Duchense vs. Cehualca: A Review, *Food Research International*, Volume 44, Issue 9, 2011, Pages 2587-2593, ISSN 0963-9969, <https://doi.org/10.1016/j.foodres.2011.04.039>.
21. Jimenez, Miguel F., Pejchar, Liba, Reed, Sarah E., and McHale, Melissa R. (2022). The efficacy of urban habitat enhancement programs for conserving native plants and human-sensitive animals. *Landscape and Urban Planning*. Volume 220, 2022, 104356, ISSN 0169-2046, <https://doi.org/10.1016/j.landurbplan.2022.104356>.
22. Kaur, G., Alamb, M. S., Jabbar, Z., Javed, K. and Athar, M. 2006. Evaluation of antioxidant activity of *Cassia siamea* flowers. *Journal of Ethnopharmacology* 108: 340-348.
23. Koul, B., Pudhuvai, B., Sharma, C., Kumar, A., Sharma, V., Yadav, D., & Jin, J.-O. (2022). *Carica papaya* L.: A Tropical Fruit with Benefits beyond the Tropics. *Diversity*, 14(8), 683. <https://doi.org/10.3390/d14080683>
24. Krishna, K L, Paridhavi, M, Patel, Jagruti A (2008). Review on nutritional, medicinal and pharmacological properties of Papaya (*Carica papaya* Linn.) *Indian Journal of Natural Products and Resources* Vol.7(4) [July-August 2008] <http://nopr.niscpr.res.in/handle/123456789/5695>
25. Kumbhare, Manoj Ramesh and Sivakumar, T. (2017). Phytochemical and Pharmacological Properties of *Caesalpinia Pulcherrima* (Caesalpinaceae): A Review. *International Journal of Natural Products and Marine Biology, SBT Journals*. Vol. 1 Issue 1, 2015; 16 – 23.

26. Lemus-Mondaca, Roberto; Marin, Jessami; Rivas, Josefa; Sanhueza, Leyla; Soto, Yasna; Vera, Natalia; Puente-Díaz, Luis. (2019). Pumpkin seeds (*Cucurbita maxima*): a review of functional attributes and by-products / Semillas de calabaza (*Cucurbita máxima*): una revisión de sus propiedades funcionales y sub-productos. *Rev. chil. nutr* ; 46(6): 783-791, dic. 2019. tab, graf Article em En | LILACS | ID: biblio-1058142 Biblioteca responsável: CL1.1
27. Lontoc, Shelah Mae H., Soriano, Charlene F., Comia, Shiela Ann Mae M., Hernandez, Ariane Fae R. and Dumaoal, Oliver Shane R. (2018). In vitro antioxidant activity and total phenolic content of *Sansevieria trifasciata* (Snake plant) crude ethanolic and aqueous leaf extracts *Asia Pacific Journal of Allied Health Sciences*, Vol. 1.
28. Mahmood, Khawaja Tahir; Mugal, Tahira; Haq, Ikram Ul.(2010). *Moringa oleifera*: a natural gift-A review. *Journal of Pharmaceutical Sciences and Research; Cuddalore* Vol. 2, Iss. 11, (Nov 2010): 775-781.
29. Mohanraj, Remya and Sivasankar, Subha (2014). Sweet Potato (*Ipomoea batatas* [L.] Lam) - A Valuable Medicinal Food: A Review. *Journal of Medicinal Food* Vol. 17, No. 7. <https://doi.org/10.1089/jmf.2013.2818>
30. National University (2024). National University Honors Don Mariano Jhocson on His Birthday. Accessed from <https://national-u.edu.ph/nu-manila/national-university-honors-don-mariano-jhocson-on-his-birthday/#:~:text=October%20we%20celebrate%20the,indelible%20mark%20on%20our%20community> on 1 March 2025.
31. Oboh, G., Akinyemi, A.J., Osanyinlusi, F.R., Ademiluyi, A.O., Boligon, A.A. and Athayde, M.L. (2014). Phenolic compounds from sandpaper (*Ficus exasperata*) leaf inhibits angiotensin 1 converting enzyme in high cholesterol diet fed rats. *Journal of Ethnopharmacology*, Volume 157, 2014, Pages 119-125, ISSN 0378-8741, <https://doi.org/10.1016/j.jep.2014.09.029>. (<https://www.sciencedirect.com/science/article/pii/S0378874114006837>).
32. Oktaviyanti, Nina Dewi, Kartini, and Mun'im, Abdul (2019). Application and optimization of ultrasound-assisted deep eutectic solvent for the extraction of new skin-lightening cosmetic materials from *Ixora javanica* flower. *Heliyon*, Volume 5, Issue 11, e02950. <https://www.cell.com/action/showPdf?pii=S2405-8440%2819%2936609-5>
33. Pan, José Felipe Del (1887). *El aderezo de Paqueta: historieta original de costumbres Filipinas*. Manila: Imprenta de 'La Oceania española', 1887, 141 p.; 16 cm.
34. Oldenburg, Ray (1989). *The Great Good Place*. Paragon House. Paragon Publishing, New York.
35. Piedad-Pugay, Chris Antonette (2012). *The Two Faces of the 1872 Cavite Mutiny, A Response to Injustice: The Filipino Version of the Incident*. The National Historical Commission of the Philippines (NHCP). Accessed from <https://nhcp.gov.ph/the-two-faces-of-the-1872-cavite-mutiny/> on 27 February 2025
36. Quispe-Huamanquispe, D.G., Gheysen, G., Yang, J. *et al.* The horizontal gene transfer of *Agrobacterium* T-DNAs into the series *Batatas* (Genus *Ipomoea*) genome is not confined to hexaploid sweetpotato. *Sci Rep* **9**, 12584 (2019). <https://doi.org/10.1038/s41598-019-48691-3>
37. Pongon, Rubelisa S., Aranico, Edgardo C., Dagoc, Frandel Louis S. and Amparado, Ruben F. Jr (2016). Carbon stock assessment of bamboo plantations in Northern Mindanao, Philippines. *Journal of Biodiversity and Environmental Sciences (JBES)* ISSN: 2220-6663 (Print) 2222-3045 (Online). Vol. 9, No. 6, p. 97-112, 2016
38. Rojo J. 1999. Bamboo resources of the Philippines. In proceedings of the first national conference on bamboo. Iloilo City, Philippines p. 65-70.
39. Roslen, Aziera Binti @ Rosdin (2017). Morphological Identification and Molecular Characterization of *Podosphaera Xanthii* Causing Powdery Mildew Disease on Zigzag Plant (*Pedilanthus Tithymaloides*). Faculty of Agriculture, Universiti Putra Malaysia. <https://core.ac.uk/download/pdf/479156513.pdf>
40. Royal Botanic Gardens, Kew (2017). *Plants of the World Online*, First published in *Encycl.* 3: 344 (1789). Board of Trustees of the Royal Botanic Gardens, Kew. <https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:753834-1>
41. Srivastava, Deepa and Shukla, K (2015). *Ipomoea cairica*: a medicinal weed with promising health benefits. *International Journal of Information Research and Review* Vol. 2, Issue, 05, pp. 687-694, May, 2015.
42. Stohs, Sidney J. and Hartman, Michael J. (2015). Review of the Safety and Efficacy of *Moringa oleifera*. *Pytotherapy Research*. Volume 29, Issue 6. June 2015 Pages 796-804. Wiley Online Library. Wiley & Sons, Inc. Accessed from <https://onlinelibrary.wiley.com/doi/full/10.1002/ptr.5325> on 1 March 2025.
43. Stuart, Godofredo (2016). *Philippine Medicinal Plants*. <https://www.stuartxchange.org/Luha2.html>
44. Suwannapong, Apinya, Talubmook, Chusri, Promprom, Wilawan (2023). Evaluation of Antidiabetic and Antioxidant Activities of Fruit Pulp Extracts of *Cucurbita moschata* Duchesne and *Cucurbita maxima* Duchesne. *The Scientific World Journal*. Forward Series. Wiley Online Library. Wiley & Sons, Inc. Accessed from <https://onlinelibrary.wiley.com/doi/full/10.1155/2023/1124606> on 1 March 2025.
45. Thanamool, Cathareeya, Papirom, Pittaya, Chanlun, Suthida and Kupittayanant, Sajeera (2013).

- Talinum Paniculatum (Jacq.) Gertn: A Medicinal Plant With Potential Estrogenic Activity In Ovariectomized Rats. Academic Sciences, International Journal of Pharmacy and Pharmaceutical Sciences. Vol 5, Issue 2, 2013. ISSN- 0975-1491.
44. Tolouei, Sara Emilia Lima, Palozi, Rhanany Alan Calloi, Tirloni, Cleide Adriane Signor, Marques, Maysa, Aline Aparecida Macedo, Schaedler, Isernhagen, Guarnier, Lucas Pires, Silva, Aniely Oliveira, de Almeida, Valter Paes, Budel, Jane Manfron, Souza, Roosevelt Isaias Carvalho, dos Santos, Ariany Carvalho, Silva, Denise Brentan, Lourenço, Emerson Luiz Botelho, Dalsenter, Paulo Roberto and Gasparotto, Arquimedes Junior (2019). Ethnopharmacological approaches to Talinum paniculatum (Jacq.) Gaertn. - Exploring cardiorenal effects from the Brazilian Cerrado, Journal of Ethnopharmacology, Volume 238, 2019, 111873, ISSN 0378-8741, <https://doi.org/10.1016/j.jep.2019.111873>.
 45. Tran, H.D., Vi, H.M.T., Dang, H., Tan, R.M. and Narbaitz, .T. (2019). Pollutant removal by Canna Generalis in tropical constructed wetlands for domestic wastewater treatment. Global Journal of Environmental Science and Management 5(3): 331-344, Summer 2019.
 46. Tuan, Y.-F. (1978). Raw Emotion to Intellectual Delight—Landscape’s Affective Domain. Landscape Architecture, 68(2), 132–134. <http://www.jstor.org/stable/44664461>
 47. Tzoulas K., Korpela K., Venn S., Yli-Pelkonen V., Kaźmierczak A., Niemela J., James, P. 2007. Promoting ecosystem and human health in urban areas using Green Infrastructure: A literature review. Landscape and urban planning 81(3), 167-178.
 48. Ukairo, Doris Ifeyinwa and Igwe, Chidi U. and Ezirim, Amanda U. and IHEME, Callistus and Ihedimbu, Chiamaka P. and Obasi, Uchechi K. and Nwifo, Chekwube K. and Mba, Blessing A. and Okenegba, Sopuruchukw. F. and Okafor, Emmanuel U., Nutrient Potentials and Bioactive Compositions of the Leaf and Root of Sansevieria Trifasciata. Available at SSRN: <https://ssrn.com/abstract=5114686> or <http://dx.doi.org/10.2139/ssrn.5114686>
 49. The Urban Historian, (n.d.). Stories behind the Street Names of Sampaloc Part 1. Tumblr. Accessed from <https://www.tumblr.com/theurbanhistorian/5897296696/stories-behind-the-street-names-of-sampaloc-part-1-on-7-March-2025>.
 50. Velasco, C. R., & Canada, M. C. B. (2022). Determinants of Farmers’ Willingness to Cultivate Moringa Oleifera: The Case of Dipaculao, Aurora, Philippines. Asian Journal of Agriculture and Rural Development, 12(4), 279–286. <https://doi.org/10.55493/5005.v12i4.4671>
 51. Villanueva, C.M.S., Mical, T.E., Malaga, J.M. (2022). Minimalism and Essentialism in Manila: Architecture and Urban Wellbeing in the Post GFC and New Normal. In: Awang, M., Ling, L., Emamian, S.S. (eds) Advances in Civil Engineering Materials. Lecture Notes in Civil Engineering, vol 223. Springer, Singapore. https://doi.org/10.1007/978-981-16-8667-2_5
 52. Villanueva (2024). Initiating an Emerald Link in the City of Manila. International Conference on Future Smart Cities. Springer Nature Switzerland. 209-230.
 53. Wagner, Warren L./Herbst, Derral R./Sohmer, S. H. 1999. Manual of the flowering plants of Hawaii. Revised edition. Bernice P. Bishop Museum special publication. University of Hawaii Press/Bishop Museum Press, Honolulu. 1919 pp. p. 1359.