

BUENOS AIRES METROPOLITAN AREA GREEN SPACE SYSTEM DEVELOPMENT, CHALLENGES AND OPPORTUNITIES

KIHÍVÁSOK ÉS LEHETŐSÉGEK A BUENOS AIRES METROPOLISZ- TÉRSÉG ZÖLDHÁLÓZATÁNAK FEJLESZTÉSÉBEN

SZERZŐ/BY: DAMIÁN A. PÉREZ, GISELA I. HIDDE, VALERIA M. MICOU,
MARTIN SIMONYAN, VANINA PERRETA DEL MISSIER



ABSTRACT

Buenos Aires metropolitan area, as other global megacities, deal with complex planning and governance problems regarding the allocation and conservation of green space.

During the second half of the XX century regional plans have considered the allocation of land for green space with dissimilar success. The preservation of green space is mainly threatened by weak governance, discontinuous planning policies, and unplanned informal development.

Flood-prone areas and public land have kept their structure mostly because of its relative unsuitability for development; however, over the years, these

remnants of open space have been shrinking constantly. Even though the urban area expansion is constant there are still some areas that could be considered as part of a future city's green space system. The lower delta of the Parana river in the north-west and the coast of Rio de la Plata in the south-east of the city are promising areas but face big threats because of unplanned development or new urbanization and infrastructure projects.

INTRODUCTION

Green space has multiple benefits and provide various services both to society and nature and plays a vital role in urban planning. Swanwick et al. (2003)¹ defined

¹ Swanwick, C., Dunnett, N., & Woolley, H. (2003). *Nature, Role and Value of Green Space in Towns and Cities: An Overview*. *Built Environment* (1978-), 29(2), 94-106. Retrieved from <http://www.jstor.org/stable/23288809>

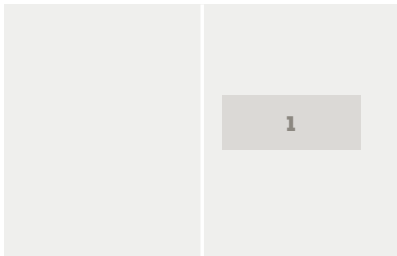


Fig. 1: Part of the planned park system for the northwest coast of Buenos Aires. Benito J. Carrasco



Green Space as land predominantly soft, unsealed and permeable that together with gray space (areas predominantly sealed, impermeable, hard) compose the external environment of an urban area.

Green Infrastructure is an emergent coherent planning concept that is increasingly used in planning. While the concept of Green Infrastructure has not a single widely recognized definition the term includes both green spaces and the fact that they are interlinked (EEA, 2011).² In this sense it could be applied to a land matrix predominantly urban (grey space) or a land matrix predominantly green (green space). Whether in an existing urban area or new planned or rural areas, green infrastructure focuses on green space and their ecosystem values and functions

and on the benefits provided to human populations (Benedict & McMahon).³

In the last decade, the city of Buenos Aires and its metropolitan area have been struggling to become more sustainable and major public investment has been made in waste management, public transportation, and the renovation of urban public space. Among other city structure features, most of the indicators of cities sustainability consider the availability or access to green space. Throughout the recent history green space have always been regarded as desirable. Despite the efforts on improving the public open space (green and grey), in the metropolitan area there are, in general, problems of availability (low quantity and poor distribution) and low quality of green space. Most

² Green Infrastructure and Territorial Cohesion. The concept of green infrastructure and its integration into policies using monitoring systems. EEA Technical Report N° 18/2011. ISSN 1725-2237
³ Benedict & McMahon. Green Infrastructure: Smart Conservation for the 21st Century. SPRAWL WATCH CLEARING-HOUSE MONOGRAPH SERIES. The Conservation Fund. 2002 Pg. 5

efforts have been directed to increase the quality of existing green space however few considerations have been given to increase their area, number and connectedness. Through history, only a few regional plans have been proposed for Buenos Aires city region. Many authors have analysed these plans although none have done it considering green space as the main object of study. A review of the plans in terms of green space allocation along with an analysis of the recent changes in the land use of the remaining large green areas are needed. Taking into consideration the city expansion tendency an analysis of the remaining large green areas in the city periphery is also needed in order to consider them for future plans.

BUENOS AIRES METROPOLITAN AREA

Situated on the bank of one of the widest rivers in the world, the city of Buenos Aires and its metropolitan area seems more like an ocean coastal city than a river city. Once called the “Paris of South America” because of its urban structure similarities with the European city, it is nowadays a vast and very complex metropolis with various social, structural, and economic challenges, although still a vibrant cultural and social lighthouse in South America. Buenos Aires metropolitan area spans over an area of 3800 sq.km and it is composed by the autonomous city

of Buenos Aires and 24 surrounding districts (municipalities) plus 6 more districts that are connected and are part of the agglomeration although they are still not fully urbanized.⁴

Around 12 million people live in the area (a third of the country) and its economic activities accumulates half of the national GDP. The city is located on the rolling pampas ecological region, one of the richest and most productive agricultural areas of the country. The topography is mostly flat except for the steep slopes of the Parana and Rio de la Plata rivers.

The agglomeration spans over the basins of three main rivers, the Lujan, Reconquista and Matanza-Riachuelo. All three of them are tributaries of the La Plata River, part of the estuary of the Parana river. Because of its proximity to the Rio de la Plata, the lower lying urban area is highly vulnerable to sea-level rise and storm surges (and from flooding from intense rainfall – because of inadequacies in provision for storm and surface drainage); the recurrent flooding, expected to become more frequent, is related with not so successful attempts to stop development on areas near the rivers and on flooding plains (Barros, 2005).⁵ In this sense, flooding plains of the three main rivers have been considered green space in many of the historical regional plans.

In Buenos Aires, the municipality (local territorial division) is the primary authority of landscape and

⁴ “¿Qué es el Gran Buenos Aires?”. National Institute of Statistics and Censuses. 2003-08-01. Archived from the original (PDF) on 2008-09-11. Retrieved 2018-05-18.

⁵ Barros, V. *Global Climate Change and the Coastal Areas of the Rio de la Plata*. The International START Secretariat. 2005

Development on fertile soil areas	Reduction of near city agricultural (mainly horticultural) areas.
Development on flood plains	Alters the hydric system
Banalization of landscape and loss of biodiversity	Lower biodiversity due to substitution of species and modification of structure.

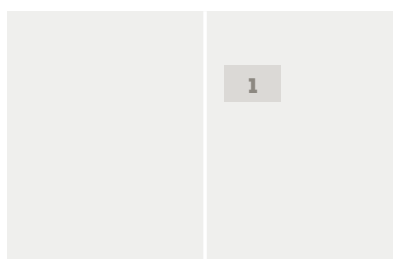


Table 1: Causes and ecosystem services disrupted by the extended creation of gated neighborhoods in Buenos Aires metropolitan area. (FERNÁNDEZ ET AL. 2009)

urban planning. Provincial laws and federal laws are above the municipal level, but the main land use decision is taken by local decision making. Nature protected areas can be of municipal, provincial, or national (federal) level. This decentralized planning scheme have brought over the years to uncoordinated efforts and disagreement on the green open areas worth to preserve.

URBAN DEVELOPMENT AND EXPANSION

The city experienced through history a strongly spontaneous development in terms of spatial distribution, and many of the plans conceived for the region were partially or never implemented. According to many authors, urban sprawl has many causes, among which population growth, weak governance, lack of a continuous public policy which transcends the different governments and property speculation stand out (Bhatta, 2010).⁶

The urban continuum has expanded in concentric rings following the regional accesses to the city, first the city expanded next to the roads then railways and later on highways. After this the interstitial spaces were consolidated following a pattern of *urban expansion* as a spreading “oil stain”

In the period between 1949 and 1960 most of the city expansion occurred

driven mainly by the internal migration of people to the metropolitan region attracted by the industrial expansion.

After 1980 and specially during the 90', the urban spread took on the form of an archipelago with the massive growth of gated communities in the suburbs, a type of development that has been favoring urban sprawl since then. These communities were created without integration to the existing urban fabric. Large tracts of land were used with the consequent creation of sensible urban contrast between neighbouring lower-class and high-class residential areas. The expansion of the urban agglomeration over productive land and undeclared green space was characterized by a lack of planning and speculative practices over the price of the land before developing (Morello et al, 2003)⁷ This process of production of the built environment by private planning and intervention, obeys mainly market principles (Pirez, 2002)⁸ and the developed residential land, although of low density and greener than other parts of the city, have massively altered the ecosystem services provided by open space (Fernandez et al., 2009)⁹ (Table 1)

Besides the developers, the other main players involved in city transformation in the last decades are: a) the informal market and the informal settlements, which frequently occupy public lands; b) the government with the establishment

- 6** Bhatta, B. *Analysis of Urban Growth and Sprawl from Remote Sensing Data. Chapter 2.* Springer Verlag. 2010
- 7** Morello, J., Mateucci, S. D., Rodríguez, A. *Sustainable Development and Urban Growth in the Argentine Pampas Region.* ANNALS, AAPSS, 590, November 2003
- 8** Pirez, Pedro. *Buenos Aires: fragmentation and privatization of the metropolitan city.* *Environment & Urbanization* Vol 14 No 1 April 2002
- 9** Fernández L.; Herrero, A. C.; Martín L. (2009) *Alteración de servicios ecológicos del urbanismo privado en la región metropolitana de Buenos Aires.* XI Jornadas de Investigación del Centro de Investigaciones Geográficas y del Departamento de Geografía, 12 y 13 de noviembre de 2009, La Plata. Available at: http://www.fuentesmemoria.fahce.unlp.edu.ar/trab_eventos/ev.818/ev.818.pdf

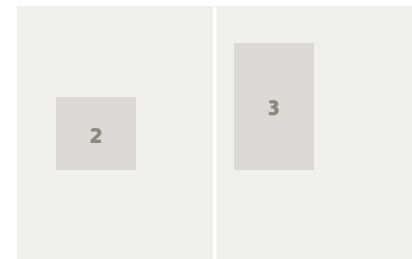
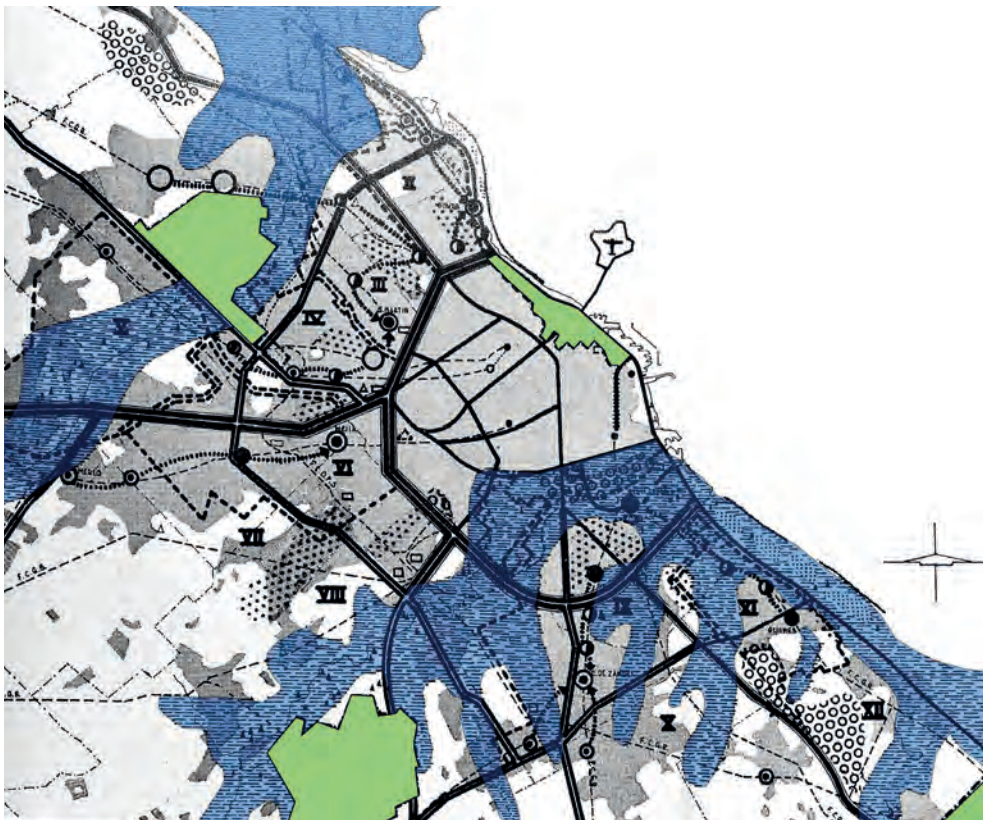


Fig. 2: Regional Plan 1962 - Light green: Planned green open spaces. Light blue: Flood plain open space (SOURCE: LINEAMIENTOS GENERALES PARA EL ÁREA METROPOLITANA, PLANO DIRECTOR PARA LA CIUDAD DE BUENOS AIRES)

Fig. 3: Regional plan 1967-1969 (SOURCE: ESQUEMA DIRECTOR AÑO 2000)

of social housing, on easily available public land (Perahia, 2010).¹⁰

The lack of space for democratic decisions made at metropolitan level and the inability to change the course of territorial appropriation processes are issues that affect the metropolitan governance and contribute to the open space planning and management complexity (Pirez, 2002).⁸

PLANNING FOR THE GREY AND GREEN

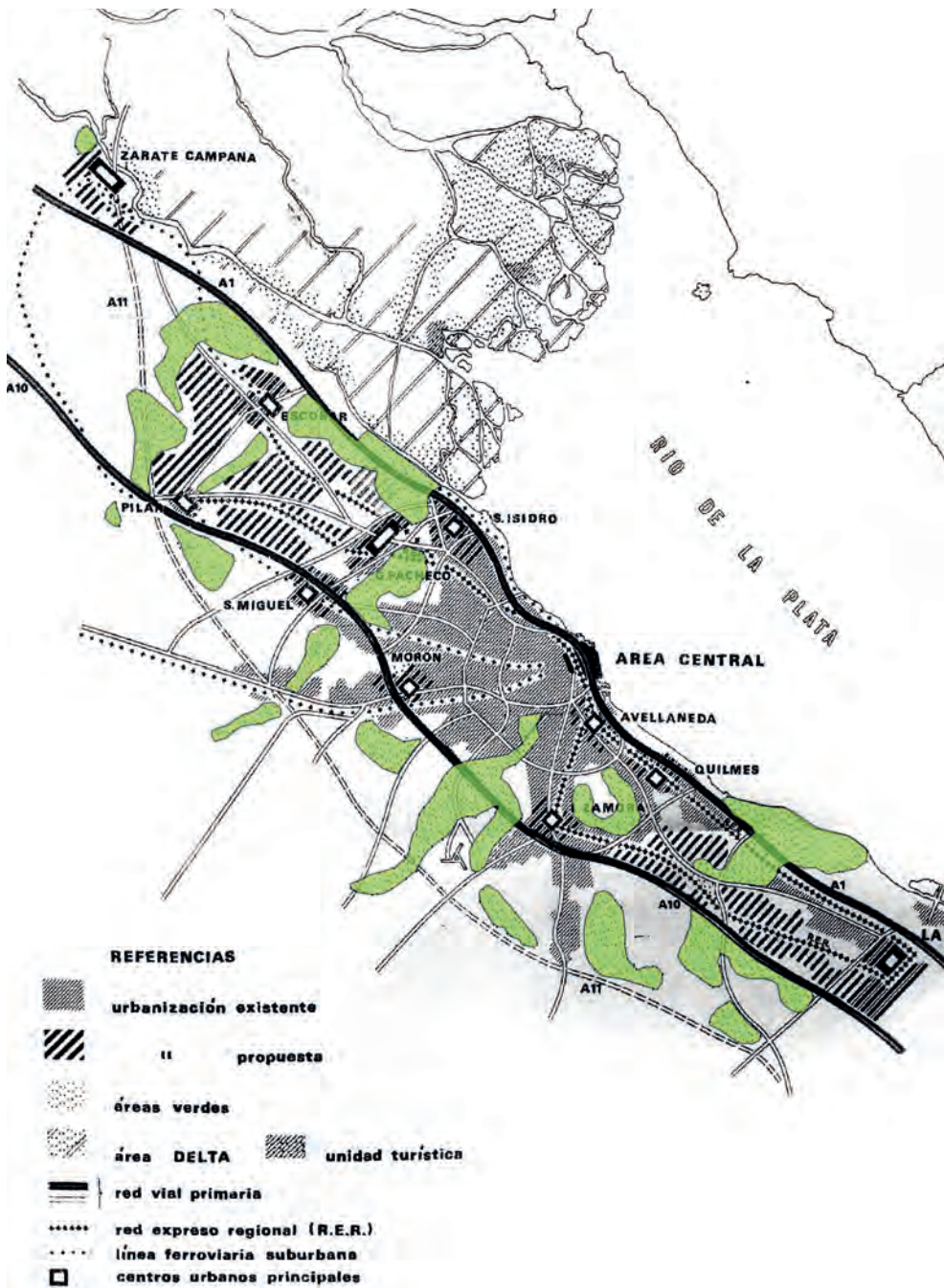
The city has faced periods of its evolution as a metropolis where the open space has been highly considered and other periods (mostly coincidental with political or economic turmoil)

where planning and open space has not been taken much into account.

Buenos Aires was a small city until few decades before the down of XX century. Around 1880 a substantial European immigration flow began and steadily increased until 1914. In 1914, foreigners accounted for about 30% of the country's population.

During the first years of the 20th century many of the theories of the French "doctrine hygiéniste" were followed and applied, this included, for instance, the creation of big parks in the fringes of a (then) small city, not yet fully urbanized. The concept of green space in the city changed, it was not a recreational area for the high classes anymore; on the contrary, it was conceived as a space in which the

¹⁰ Perahia, Raquel. *Los actores públicos y privados y las transformaciones en la región metropolitana de Buenos Aires in: "Cuestiones territoriales en la región metropolitana de Buenos Aires".* Compiladoras Sonia Vidal-Koppmann y Raquel Perahia. Ediciones Facultad de Arquitectura y Editorial Nobuko, Buenos Aires 2010, ISBN 978-987-584-305



different social classes could be integrated. These big parks were meant to create better environmental conditions in neighborhoods where hospitals, landfills and marginal population were established. The park started to be part of the urbanization. They were also considered a green frontier, a way to stop the city expansion over the pampas. After a few decades, this system limiting the city grow was transformed in the quality green space of the incipient metropolitan area (Gorelik, 1998).¹¹

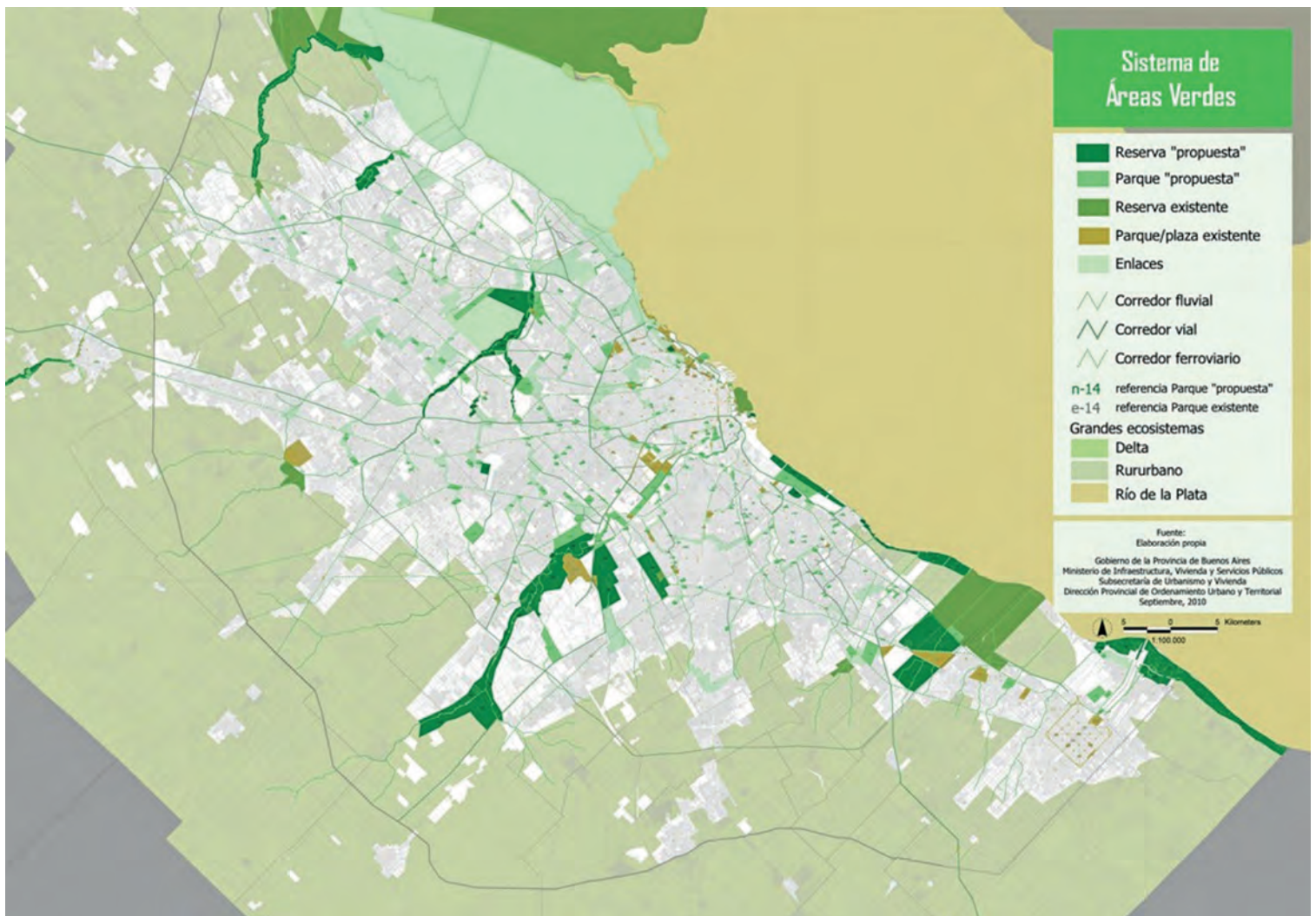
One of the first references to the city need of a planned green open space network was done by Benito J. Carrasco at the down of the XX century. Carrasco was an agronomic engineer who dedicated his academic life to the advance of knowledge and education, of green

space planning and design. He was the founder of the parks and garden department at the Agronomic School of Buenos Aires University, was also one of the most prolific designers of that era, fostering their extension throughout the city. He proposed, as early as 1910 a “park system” (Fig. 1) for the whole city and advocated for its creation till his death in 1958 (Berjman, 1997).¹²

The “Plan Director para la Ciudad de Buenos Aires”, published in 1947, was one of the first conceptual planning approaches for the area. In this urban planning project Le Corbusier proposed to concentrate the dwelling areas within the existing towns of the moment (the metropolitan area was not yet consolidated) keeping the in-between areas as green space that should be, in his

¹¹ Gorelik, Adrian. *La Grilla y el parque. Espacio público y cultura urbana en Buenos Aires, 1887-1936*. Universidad Nacional de Quilmes, 1ª Edición 1998

¹² Berjman, S. *Comp. Benito Javier Carrasco: sus textos. Facultad de Agronomía, Universidad de Buenos Aires. Cátedra de Planificación de Espacios Verdes*. 1997



view, forest, nurseries and farms. Many of the ideas and concrete proposals of this comprehensive plan were considered and followed in the subsequent decades, however the proposed regulations for green space conservation were never implemented.

Between 1947 and 1960 the agglomeration duplicates its area from 567 Km² to 1282 Km² between 1895 and 1914 the agglomeration went from 86 Km² to 241 Km² (Buzai, 1993).¹³ This produced the need to finally develop a long deferred official regional plan.

Regional plan 1962

Inspired on the 1945 Abercrombie' plan for London, in 1962 a plan for Buenos Aires city that included guidelines on how to structure the metropolitan region was approved (Fig. 2). This plan strongly advocated against urban development on lowland and flooding prone areas and the recalling of areas for green space on the coast of Rio de la Plata. Unfortunately, the

plan was not mandatory for the metropolitan area districts. Part of this unsuitable land was finally built up, bringing major hazards to the population even nowadays, subsequently the considered open areas, part of an incipient green space network slowly diminished (Suarez, 1994).¹⁴

Regional plan 1967 - 1969

The "Esquema Director Año 2000" was the first study which was done for the region at national level. It took the spontaneous spatial evolution of the metropolitan area and developed a scenario for the year 2000. The plan set aside big green areas mainly in the Matanza and Reconquista rivers' floodplains. The proposal was set in order to duplicate the park area in the metropolitan region (Fig. 3).

Strategic Guidelines for the Metropolitan Region of Buenos Aires - 2007

In-between the 70' and 2000 many provincial level laws were passed to regulate land use allocation,¹⁵ urban

¹³ Buzai, Gustavo. *Buenos Aires 1869-1991: Análisis SIG de su evolución espacial*. 1993

¹⁴ Suarez, Odilia. *Planes y Códigos para Buenos Aires 1925-1985. Serie Ediciones previas. Ediciones FADU-UBA*. 1994. ISBN: 950-29-0172-X

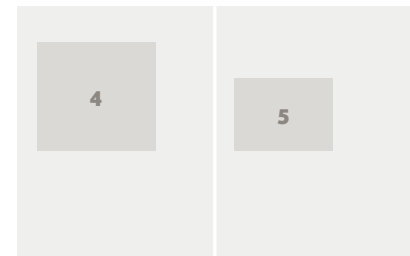
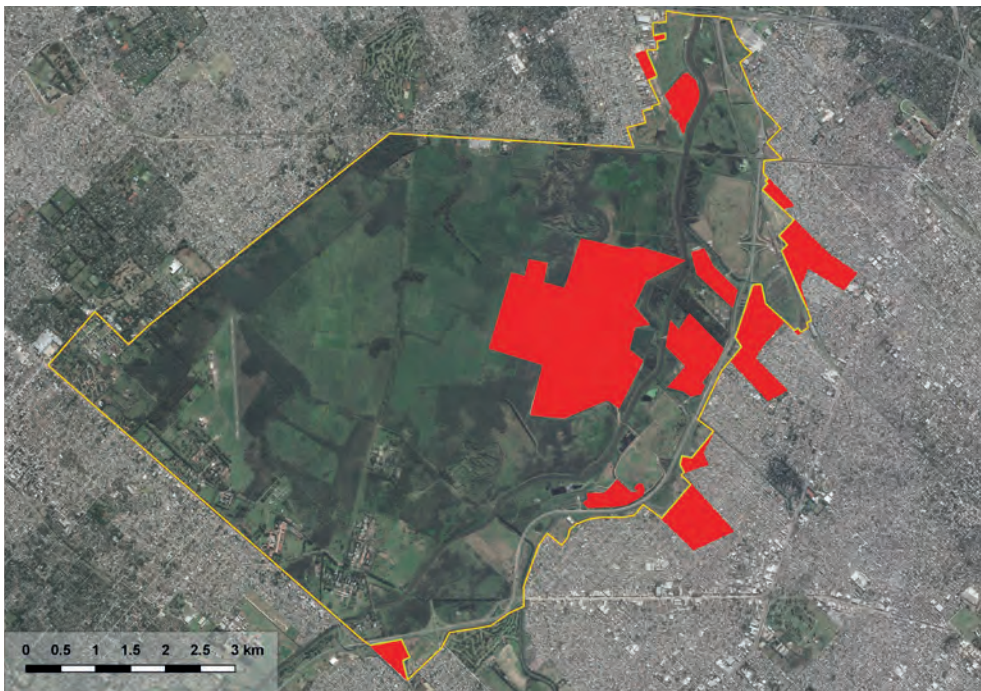


Fig. 4: Metropolitan Green Space System (SOURCE: GOBIERNO DE LA PCIA. DE BUENOS AIRES. DIRECCIÓN PROVINCIAL DE ORDENAMIENTO URBANO Y TERRITORIAL. 2010)

Fig. 5: Campo de Mayo, changes in the land use. The yellow line corresponds to the green space in 2018 imagery, red polygons highlight the changes between 1984 and 2018 (SOURCE: GOOGLE/LANDSAT/DIGITALGLOBE.)

forest preservation¹⁶ and protection of landscapes and green spaces.¹⁷

It wasn't until the 2000's that a true effort to create a system of green space was done. In 2007 the provincial government outlined a complete plan for the area: the Strategic Guidelines for the Metropolitan Region of Buenos Aires. On this document, in which representatives from the Federal, Provincial and Municipal levels were included, a series of programs were proposed among which there was one related to the development of a public green space system, including the protection and management of strategic ecosystems. In the proposal riparian areas, wetlands, vacant open space in-between the urban fabric, areas of landscape or leisure value and green corridors were considered for protection for reasons of natural resources conservation, hydrologic regulation, aquifer recharge, flood control, pollution reduction, habitat provision and biodiversity preservation. A Metropolitan Green space system was proposed (Fig. 4),

seeking to incorporate 6800 Has. of green space. The proposal would have changed the green space per inhabitant ratio from 3,2m²/inh to 8,3m²/ihn. To implement this system legislation changes were suggested along with a draft masterplan for green areas and ecological corridors, management plans for the three main watersheds of the region, legal regulations on the use of riparian areas, and finally, a body for metropolitan green area management (Garay et al., 2007).¹⁸ Unfortunately, neither of these proposals have yet been implemented.

THE "SHRINKING" GREEN SPACE

The percentage of urban green spaces (ratio between the area of urban green space and the area of built-up area) has been used as an indicator of green space availability. Huang et al. (2017)¹⁹ studied availability and accessibility to green space in megacities and found that for Buenos Aires the

¹⁵ Ley Provincial N° 8912/77 de Ordenamiento Territorial y Uso del Suelo.

¹⁶ Ley Provincial N° 12.276/99, de Arbolado Público.

¹⁷ Ley Provincial N° 12.704/01 "Paisaje Protegido de Interés Provincial" o "Espacio Verde de Interés Provincial" This could have been a very important legal instrument, related with the IUCN category 5, protected landscape. Sadly, the application of the law is very difficult because of the way it was implemented.

¹⁸ Garay et al. Lineamientos Estratégicos para la Región Metropolitana de Buenos Aires. Subsecretaría de Urbanismo y Vivienda. Dirección Provincial de Ordenamiento Urbano y Territorial. Pdf. pg. 267-264. 2007. http://www.mosp.gba.gov.ar/sitios/urbanoter/planurbana/Lineamientos_RMBA.pdf. Retrieved April 2018.

¹⁹ Huang, Conghong; Yang, Jun; Lu, Hui; Huang, Huabing; Yu, Le. Green Spaces as an Indicator of Urban Health: Evaluating Its Changes in 28 Mega-Cities. Remote Sensing. 2017, 9, 1266

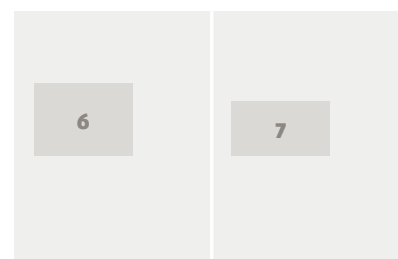


Fig. 6: Large green areas in the metropolitan region. Yellow outline: Consolidated shrinking spaces. Red outline: Areas of interest for preservation (SOURCE: LANDSAT 7)

Fig. 7: Typical wooden piers to access weekend houses on the Parana river delta

availability has been increasing very slowly (1.11%) between 2005 and 2015. This strongly contrast with the 26% expected grow of the urbanized area if the actual tendencies are sustained and the population increase 10% in the next 10 years (Lanfranchi et al, 2018).²⁰

Metropolitan non-developed areas provide unique opportunities to enhance the availability of green space and the provision of ecosystem services depending on the scale. During the evolution of the city, the once planned green space has slowly but steadily been shrinking, its structure has changed, and many ecological services were lost. To check if the tendency holds true, a visual analysis of an area situated in the Reconquista river flood plain has been done using photo interpretation techniques (Fig. 5). The military purposes of the area kept it aside from city development for many decades. The study used easily available Landsat and Google / DigitalGlobe's remote imagery from the

years 1984 and 2018 respectively. Polygons have been drawn with QGIS software on the green areas of the imagery for different years and the enclosed grey spaces have been differentiated when located in a green matrix. Year-to-year area differences have been highlighted for comparison reasons.

Although not quantified, the land use change is significant and a modification in the green space to grey space ratio has been verified. A detailed analysis reveal that the transformation can be divided into three main categories: urban infrastructure (recycling plant, penitentiary), dwelling (slums, state built housing and closed neighborhoods) and industrial. This shrinking phenomenon can be seen in the recent evolution of the land use of many of the areas historically deemed as green.

Many green areas of metropolitan Buenos Aires are facing change lately, the characterization and analysis of

²⁰ Lanfranchi, G., Duarte, J. I., y Granero Realini, G. (enero de 2018). *La expansión de los Grandes Aglomerados Urbanos argentinos. Documento de Políticas Públicas/Recomendación N°197*. Buenos Aires: CIPPEC.



them could help point to truly sustainable development and to the preservation of the structure and services provided by them. A first step to this is to reveal the recent changes and consider the challenges and opportunities for each of the areas.

UNDEVELOPED GREEN AREAS FACING CHANGE

There are still large green areas in the metropolitan region (Fig. 6) that could be part of a green space system, two of them are deemed as of greater value for their size and relative nearness to the denser parts of the city.

The Delta of the Paraná River is one of the largest coastal wetlands systems of Argentina spanning through 300km from Santa Fe province to Buenos Aires. The lower delta is located beside the north part of the metropolitan area of Buenos Aires. The sediments transported

by the river increases the length of the delta at a rate of 50 to 100m per year. It is an area that “remains under the dichotomy of the wild condition of its islands and the urbanized growing processes of its edges” (Zagare, 2014)²¹

The lower delta has traditionally been used as agricultural land to produce fruits, nowadays the main agricultural production is wood. For this reason, it has been highly intervened and large parts of the original vegetation have been replaced, nonetheless the landscape structure has not changed much.

It is divided into different parts belonging to three metropolitan municipalities, which makes difficult the management of the area as a whole. The lower delta can also be divided between an insular part and a continental part. The insular part nearest to the city has been inhabited for more than a hundred years being one of the metropolitan touristic hot spots since

²¹ Zagare, V. M. E. (2014). *Dichotomous Delta: between the natural and the metropolitan. The case of the Parana Delta, Argentina. Built Environment, 40(2), 213-229.*

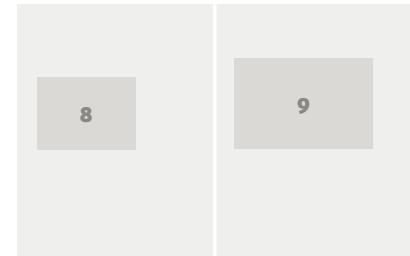


Fig. 8: Casa Museo Sarmiento a protected heritage building in the lower Parana Delta / Niels Mickers / Wikimedia Commons / CC-BY-2.0

Fig. 9: Gated neighbourhoods on mainland wetland area. Red outline: Parana river lower delta (SOURCE: GOOGLE EARTH/DIGITALGLOBE)

1900' (Fig. 7). Many protected and unprotected heritage buildings are in this area (Fig. 8). The permanent residents have a very strong sense of belonging, shown in the quickly organized demonstrations against threats to the area.

In the “continental” area of the delta, the wetlands lying on the coast of Lujan River has been one of the most heavily urbanized by private investors (Fabricante et al., 2012).²² The landscape structure has been deeply changed mainly by modifications in the topography. In almost all the urbanizations the wetland has been drained by creating islands and lakes landscapes with the aim of raising the level of the areas to develop. (Fig. 9)

Despite all this anthropogenic change, the landscape of the island side remains mostly unchanged, although in the last two decades there have been several attempts to start the developing of gated neighbourhoods with the same unsustainable criteria.

There have been several plans for the area at different administrative levels. At municipal level the Management Plan for the Tigre island Delta²³ and local zoning²⁴ successfully prevented massive development on the island side. At a national level there is also a regional plan for the strategic conservation and sustainable use of the Parana Delta, an agreement between three of the provinces where the delta is. This document has been guiding other actions and legislation since 2010 (Piecas, 2008).²⁵

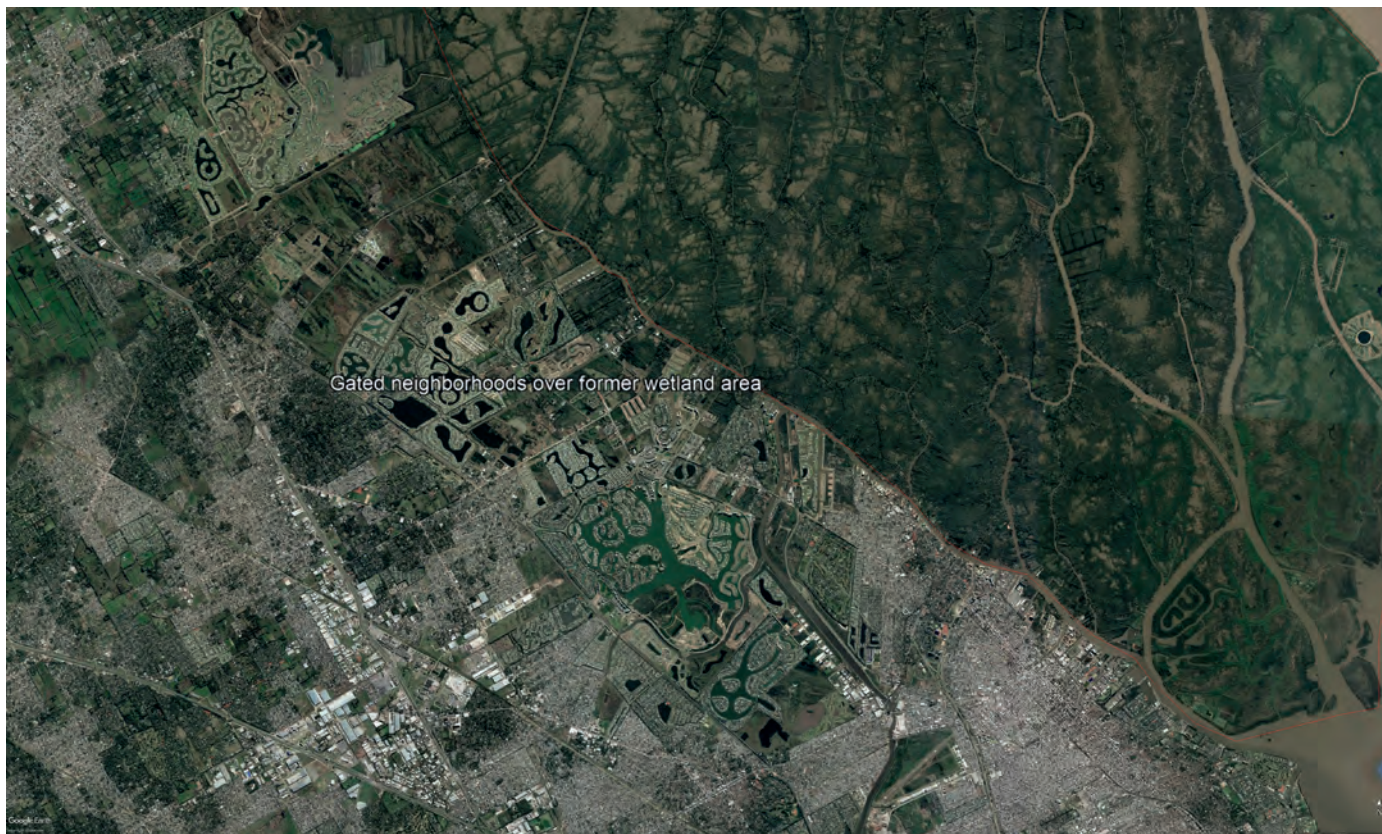
The second largest green open space embedded in the metropolitan area is the south-east coast of Rio de la Plata river between Buenos Aires autonomous city boundary and La Plata city (Fig. 6). This area has remained undeveloped until very recently, mostly because is flood prone. It is a stripe between 2 and 8 kilometres wide comprising the alluvial plain of the river. The area has been historically used for farming, there still remains some orchards producing the only local

²² Fabricante, I., Minotti, P. and Kandus, P. (2012). *Urbanizaciones cerradas en humedales. Análisis espacial en el Delta del Paraná y en las llanuras aluviales de sus principales tributarios en sector continental de la provincia de Buenos Aires, Argentina. Informe Técnico. Universidad Nacional de General San Martín (UNSAM) y Fundación Humedales / Wetlands International*

²³ Municipio de Tigre (2012). *Plan de Manejo: Islas del Delta - Tigre.*

²⁴ Municipio de Tigre (2013) *Ordenanza 3344/13 - Ordenamiento Territorial Particularizado para la Localidad Delta del Tigre.*

²⁵ PIECAS (2008) ([https://www.mininterior.gov.ar/planificacion/pdf/planes-reg/Plan-Integral-Estrategico-para-la-Conservacion-y-Aprovechamineto-Sostenible-en-el-Delta-del-Parana-\(Entre%20Rios,-Santa%20Fe,-Buenos%20Aires\).pdf](https://www.mininterior.gov.ar/planificacion/pdf/planes-reg/Plan-Integral-Estrategico-para-la-Conservacion-y-Aprovechamineto-Sostenible-en-el-Delta-del-Parana-(Entre%20Rios,-Santa%20Fe,-Buenos%20Aires).pdf))



wine. Part of the area was used as a land-fill between 70' and 90' which brought about several environmental problems.

The municipality of Quilmes has historically been the only one allowing permanent occupation of the area. During the first decades of XX century a watering place was established on the river coast. A riverside park, a promenade and a wooden pier were built, attracting people and fisherman from all over the city. Over several decades the area declined, and many unplanned housing areas were established by filling the wetland up with debris. Nowadays the area is flood prone and face many threats and difficulties regarding water management.

Throughout many areas of this stripe is still possible to see and experience the natural river shore as it was before human intervention, a unique feature for an area so near the city centre. Unfortunately, water pollution, both from Rio de la Plata river

and their tributaries affect the environment and the quality of the experience.

Currently, two major projects are laid out for the area, a new dense, high rise buildings urbanization to be built on the coast of the river (Fig. 10) and a coastal levee along the coast to reduce the river flooding. These actions might fundamentally change the structure of the wetlands and the access to the river as well as laying down the conditions to change the space from green to grey.

CONCLUSIONS AND VISION

Planned metropolitan scale green space has been considered in plans since the beginning of the XX century following the planning paradigm of the period, although they have not been formally introduced into policy until recently. Regional plans have considered the need for green open space although with different commitment levels. A discontinuous planning policy, property

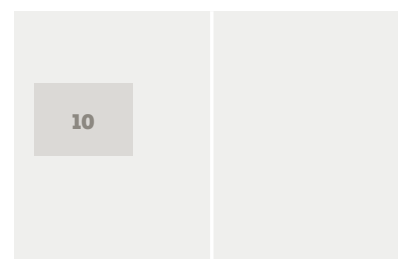


Fig. 10: Urbanization project on the Avellaneda municipality coast (grey)
(SOURCE: LANDSAT 7)

speculation, weak public governance coupled with increased demands for land have gradually deprived the city of needed open space opportunities.

The green areas set aside in different plans over the years have been slowly diminishing in size. Green spaces, as an interconnected system, have recently been considered on the regional plans. Part of the open space left aside in the metropolitan area have, for different reasons, been developed. To preserve these areas many difficult challenges related to governance should be addressed. In addition, because of relatively recent urban sprawl, huge tracts of land have been settled and the opportunities to develop a network of green spaces (a base for a true metropolitan green infrastructure) are shrinking.

Nevertheless, there are still areas that could be incorporated into a regional scale green space network. Several plans and enacted legislation affecting both these areas are threatening or

trying to preserve them. The plans drafted until recently usually present fragmented visions, lacking a holistic perspective to address the challenging environmental and social problems leading to maintaining open green space in the metropolitan area.

The concept of green infrastructure has not yet been addressed in its full potential as a strategic approach to land conservation and planning purposes but could offer a more integrative perspective for future regional plans helping to recognize the green space as the base for the provision of ecological services to finally develop a long delayed metropolitan green space system. ©

KIHÍVÁSOK ÉS LEHETŐSÉGEK A BUENOS AIRES METROPOLISZ- TÉRSÉG ZÖLDHÁLÓZATÁNAK FEJLESZTÉSÉBEN

Buenos Aires metropolisztérsége 12 millió embernek nyújt otthont. Az agglomeráció 3800 km² területet ölel fel, a nagyvárosi kerületek mellett 24 szomszédos és 6 kapcsolódó települést foglal magába. Buenos Aires más nagyvárosi metropolisztérségekhez hasonlóan komplex tervezési, fenntartási és menedzsmentproblémákkal küzd a zöldhálózatok védelmét, fejlesztését illetően.

Buenos Aires intenzív növekedése 1880 után indult meg. Sokáig koncentrikus körök mentén terjeszkedett, és a legintenzívebb növekedést 1949 és 1960 között produkálta. Az 1980-as évektől a beépített területek szigetszerű növekedése figyelhető meg a nagyváros körül. A piac vezérelte, átgondolatlan fejlesztések folyamatosan öröklték fel az ökológiai értékeket. A XX. század második felében több regionális léptékű terv foglalkozott a zöldhálózat védelmével és fejlesztésével, sajnos inkább kevesebb mint több sikerrel.

Az első átfogó, a város egészére kiterjedő parkrendszer kialakítását 1910-ben Benito J. Carrasco javasolta. Az 1947-ben napvilágot látott "Plan Director para la Ciudad de Buenos Aires" tervet Le Corbusier ihlette, melynek elsődleges célja volt a fejlesztéseket a meglévő beépített területek mentén koncentrálni, és a közties területeket természetszerű állapotban tartani (erdők, mezőgazdasági területek). Az 1962-es regionális léptékű terv Abercrombie elvei alapján készült, s igyekezett korlátozni az árvízzel veszélyeztetett, alacsonyan fekvő területek beépítését. A terv sajnos nem érte el célját. Az 1967 - 1969 között készült regionális tervben kidolgoztak egy 2000-ig mutató fejlődési forgatókönyvet, amelyben a zöldfelületek megduplázását tűzték ki célul az agglomerációban. 2007-ben készült egy javaslat "Stratégia irányelvek Buenos Aires metropolisztérségére" címmel, amely egy teljes zöldhálózat kialakítását és a zöldfelületek arányának növelését tűzte ki célul (2 m²/lakosról 8,3 m²/lakosra). Sajnos ezek a célok sem valósultak meg.

A zöldfelületeket leginkább az elégtelen hatósági szabályozás, a rap-

szodikus tervezéspolitikák és az engedély nélküli fejlesztések fenyegetik. Az árvízveszélyes és a közösségi tulajdonban lévő szabad területek megmaradása elsősorban annak köszönhető, hogy ezek valójában kevésbé alkalmasak fejlesztésre. Sajnos még így folyamatosan csökkennek ezek a szabad területek.

A beépített területek folyamatos növekedése ellenére is fennmaradtak értékes zöldfelületek, amelyek fontos részei lehetnének a nagyváros zöldhálózatának. A Parana folyó deltavidéke Buenos Airestől észak-nyugatra, valamint a Rio de la Plata partja potenciális súlyponti területek lehetnek a jövőben, azonban a tervszerűtlen beépítés, az infrastruktúrafejlesztés komoly veszélyeztető tényezőt jelentenek. ●