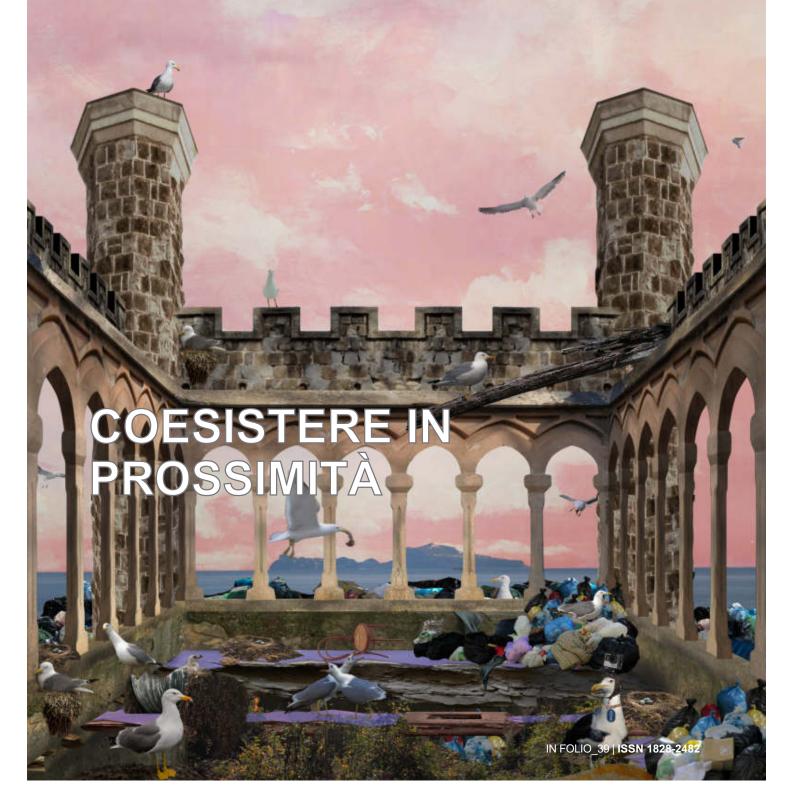
RIVISTA DEL DOTTORATO DI RICERCA IN ARCHITETTURA, ARTI E PIANIFICAZIONE

DELL'UNIVERSITÀ DEGLI STUDI DI PALERMO - DIPARTIMENTO DI ARCHITETTURA

39





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La Rivista

In folio è la rivista scientifica di Architettura, Design, Urbanistica, Storia e Tecnologia che dal 1994 viene pubblicata grazie all'impegno dei dottori e dei dottorandi di ricerca del Dipartimento di Architettura (D'ARCH) dell'Università di Palermo (UNIPA).

La rivista, che si propone come spazio di dialogo e di incontro rivolto soprattutto ai giovani ricercatori, è stata inserita dall'ANVUR all'interno dell'elenco delle riviste scientifiche dell'Area 08 con il codice ISSN 1828-2482. Ogni numero della rivista è organizzato in cinque sezioni di cui la prima è dedicata al tema selezionato dalla redazione della rivista, mentre le altre sezioni sono dedicate all'attività di ricerca in senso più ampio. Tutti i contributi della sezione tematica sono sottoposti a un processo di double-blind peer review.

Per questo numero il tema selezionato è:

"Coesistere in prossimità"

Le discipline che si occupano della pianificazione, progettazione e costruzione dello spazio sono costituite da codici che mettono in continua relazione esistente e progetto, artificialità e naturalità, essere umano e altre specie viventi, mondo fisico e digitale, generazioni distanti e generi diversi.

Piani e progetti non solo interagiscono con complessità macroscopiche (come cambiamento climatico e ambientale, fame energetica e conseguenti crisi geopolitiche), ma si occupano della prossimità fra elementi che spesso sono molto differenti.

Nel momento in cui l'essere umano e il suo operato, in un'ottica sempre più ecocentrica, coesistono nel mondo con manufatti e frammenti del passato, con le esigenze energetiche del presente e con altre specie in drastica diminuzione nel futuro, si evince la necessità di una rinnovata riflessione sui luoghi nati dalla coesistenza in prossimità (fisica o simbolica) tra fattori differenti e spesso in opposizione.

In questo numero sono stati raccolti contributi originali sul tema, che indagano le forme di espressione – sul piano progettuale, teorico e storico – sorte tra elementi e viventi posti in prossimità.

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Opening image: Minerality and Naturality, Milanese Urban Fringe (photo by Santus K., Sartorio S., Scaioli A.).

Enhancing structures of coexistences. Urban fringes, leftovers and climate fragilities

Sezione I – II tema

Kevin Santus

Nature has been increasingly depleted in urban areas, creating many neglected leftovers, especially in urban fringes. Nevertheless, leftovers could represent a scattered space of coexistence, where the proximity between mineral and natural spaces creates unexpressed design potentialities.

The contribution envisions the possibility of working with this coexistence condition, designing adaptive structures to counteract the climate crisis. With this perspective, leftovers could represent an opportunity where today's unstable coexistence could be transformed to enhance urban resilience.

Keywords: Climate Fragilities, Climate change, Urban Adaptation, Urban resilience, Urban fringes

Introduction

The city margins always constituted a space of changing proximity between the mineral urbanity and the external naturality. However, this relationship faced a considerable transformation during the last century, highlighting an increased spatial conflict, where the two elements merged, and the vegetation became a neglected fragment within urban fringes. This condition sharpened the perceptible distance between the vegetation and the city, making us forget the necessary coexistence relationship between the parts. Nevertheless, the climate crisis imposes a transformation of urban fringes, where extreme events seem to intensify, urging to re-establish a necessary balance between minerality and naturality [Silva, 2021].

Thus, in a perspective of the imperative adaptation of urban areas [Kabisch et al., 2017], the contribution focuses on the possibility of enhancing the coexistence between naturality and minerality within urban fringes. Specifically, the first ones could be addressed by looking at the leftovers. These residual spaces seem to have grown independently from the built context, often developing fragments of

wilderness. Yet these spaces could be key-driver in establishing renewed balance between naturality and minerality. Indeed, leftovers become opportunities in contemporary cities, where the design and theoretical plan can hinge on a relationship between strategic actions and macroscopic complexities.

The dissertation reflects on this issue by connecting a theoretical approach with a design-driven experimentation that focuses on the mentioned themes, specifically looking at the Milanese urban fringe as an example case study to notice spatial proximities and possible coexistences.

Therefore, the contribution opens with the historical perspective that defines the architectural and urban theme of the city border, in which the relation between city and vegetation is highlighted. Here the notion of urban fringe is analyzed by relating its complex morphological condition, simultaneously reflecting on the project of open spaces. Often decayed, leftovers are described starting from the residual narrative that addressed them, reflecting on the cultural meaning that such areas could have for urban life. In this perspective, the contribution proposes to frame leftovers as an ecological potential for the city where to possibly enhance the adaptation

project. To portray this possibility, the paper shows some project assumptions derived from a doctoral workshop attended by the author at the Politecnico di Milano¹. The project is discussed as an empirical reflection that could relate and ground the theoretical position presented, interpreting the role of design in shaping new relationships of coexistence and describing how leftovers can meet the needs of the contemporary city in terms of climate adaptation.

City borders as an historical proximity

Looking at the past, the European city walls clearly defined the spatial dimension of the urban limit. The architecture of the fortifications marked the edge of the city, defining a precise thickness in the territory, defining the border to differentiate the space of the urbanity, internal to the walls, mainly mineral and where to dwell, and a space outside the walls, so the unexpected, mainly rural, forested, vegetal. The construction of the border meant to physically perimeter economic and social conditions, defining not only protection to the city but placing a distance between the built environment and the wild nature [Benevolo et al., 2011; Intagliata et al., 2020].

The proximity between the inside and outside defined a break in the territory. However, a different relationship of closeness between nature and the city could also be identified inside the walls. As can be observed in various representations from the Middle Age onwards [Fig. 1], vegetation spaces persisted inside the walled cities, primarily for production purposes, designed as reserve in prolonged sieges. The need for these spaces becomes evident, observable in the need for new urban walls in the moments of total filling of the spaces inside the walls, highlighting the necessary coexistence between the two elements for urban life, especially in times of

Therefore, we can understand how this relationship of interdependence and internal proximity to the walls sanctioned a balance between minerality and

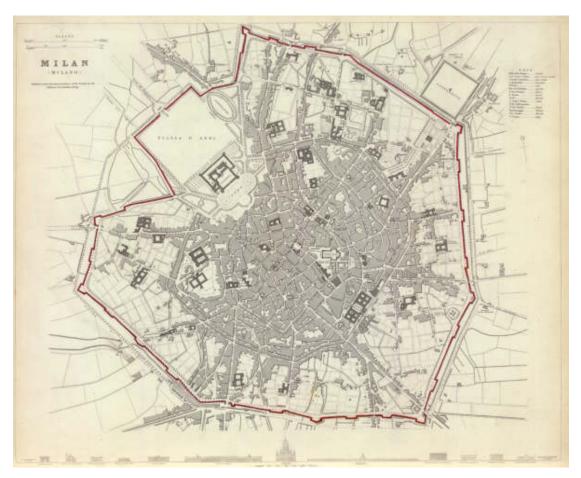


Fig. 1. Milan. Inside the perimeter of the city wall it's possible to notice various agricultural areas, defining the urban texture, 1832 (drawing by Barnhard Clarke W.).

vegetation, where nature was a controlled urban element to provide food and somehow allow the urban metabolism.

In the 19th century, following the demographic pressure, as well as the changed economic condition of cities, several of the leading European cities saw a fundamental restructuring of the urban edges, with a frequent dismantling of the walls, in the face of a subsequent expansion of the urbanized area towards the campaigns [Gravagnuolo, 1991].

In this way, the previous balance between minerality and naturality within the urban perimeter gradually blurred, defining new urban morphologies and new relationships with the territory.

The voracious consumption of soil caused by the construction of new parts of the city, and the sudden increase in infrastructural spaces, sanctioned a conflictual relationship between vegetation and mineral spaces, whose traces we can still observe today. The space on the margin became a mixed place where complex forms of the territory intersect between rural fragments, infrastructures, and inhabited islands.

The city's limits gradually transformed into a city edge, defining the so-called "urban fringes".

What could be perceived as a defined limit became a space that experienced extreme growth, especially in the 20th century [Benevolo et al., 2011], producing transition areas between the urbanity and the rural external territories, shaping a peri-urban space composed of heterogeneous forms and functions [Vizzari et al., 2015]. Indeed, these new parts of the city embodied a set of new uses and relations, opening the city to the external territory and hosting production plants, infrastructures, and new residential areas. In between these new spaces, residual ones remain as they were, losing specific usage, disseminating the urban fringes of leftovers. These often represent the last element of interaction between minerality and vegetation, a possible coexistence space that is frequently neglected and introverted.

Due to the complexity of this unique assemblage of spaces, various threats arose in connection with spatial fragilities related to the usage of the space and the embittered environmental condition. Indeed, with the increasing changing balance between the built space and the vegetation, another element started to act on the urban fringes. The rise of climate change as a perceivable factor saw a significant spread of spatial fragilities in the outskirt. Increasing events related to the climate crisis started

to affect these areas due to their spatial condition [Bulkeley, 2013], implying a series of new problems and risks at the physical [Dawson, 2019], social, and economic levels [Balducci et al., 2020]. The wild soil consumption, ground and water pollution, and presence of neglected spaces exacerbate the climate fragilities, making it essential to reflect on the urban fringes from a double perspective: addressing them as transition areas and fragile contexts [Fontanella, 2021].

The urban fringes: places of unstable coexistence

L'urbanizzato, in particolare nelle aree metropolitane, ha profondamente modificato il paesaggio, alternando storia e contemporaneità, densità e dispersione, spazi naturali e rurali, dando luogo alla produzione di un territorio a bassa densità, con forti compenetrazioni e sconfinamenti entro il sistema dei valori paesaggistici [...]. Dunque il metabolismo produce scarti anche in termini di paesaggio: edilizia abusiva e ammassata, spazi senza qualità, senza accessibilità, senza porosità, senza identità. Il periurbano è esito di un incrocio critico tra reti infrastrutturali, ecologiche e ambientali, ma anche città diffusamente abitata, spesso luogo della marginalità urbana e sociale [...]

With this image, Michelangelo Russo [2018, 42], in his text «Rethinking resilience», describes the city through its metabolism, focusing the attention precisely on that strip of territory between what is urbanised and what is not, describing a complex territory heavily influenced by the anthropic project. Urban fringes could present an intricate and layered space. These portions of territory host a variety of elements which define the peculiarity of fringes. Since they represent the transition between urbanity and rural areas, highways, motorway junctions, airports, and similar facilities draw cuts in the territory, where a set of special functions is often located. Power plants, water treatment plants, large out-oftown shopping facilities, large hospitals, factories, and dumps represent a vast set of urban elements which could be found in urban fringes, where the relation between nature and minerality often seems to fade. Moreover, in between this already complex set of spaces, residential areas, parks, and leftovers define a stratified structure of the territory.

Reading the intersection between these elements could portray a variety of unexpected and contradictory relations of proximity, which could often produce unstable dynamics of coexistence. Besides, fringes could be considered intermediate territories; they are located at the city's perimeters [Fig. 2] but excluded by it, and at the margins of

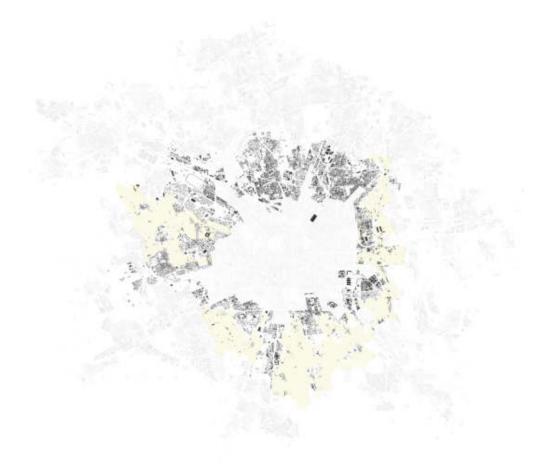


Fig. 2. Milanese urban fringes, A marginal thickness defines the complex border of Milan (drawing by Santus K., Sartorio S., Scaioli A.).

rural/natural areas, but detached from them too. This character constitutes a physical issue that should be considered in relation with the series of urban elements mentioned above. From this point of view on the city, we could look at fringes considering their position as in-between territories, revealing the potentiality of being systems of «legatura» [Secchi, 1984, 13], so working as binding territories with the city also in an ecological perspective.

Also because of this possibility, fringes are nowadays seen as spaces of transformation. Nevertheless, we should not consider only the potential improvement of the spatial qualities of the city and landscape. Undoubtedly, the project's theme must necessarily confront global issues such as climate change, scarcity of resources, etc., identifying in those marginal places an opportunity to act on the abandoned spaces as resources for urban adaptation to counteract the climate effects. Hence, the project must start reconsidering the observation of urban fringes, where the design action can portray the difference between living and building within

a territory, or living with the territory, in which the project can interpret and work in a perspective of enhancing the existing coexistence, understood as the co-evolution of space and its dynamics.

Specifically, this essay focuses on the possible value seen within urban fringes, considering the possible coexistence displayed by the leftovers. Indeed, these areas show an implicit layered space, where the proximity between mineral infrastructure, vegetation, and biodiversity could characterise a necessary relationship.

Revealing and acting on the ecological potential of leftovers means having a perspective upon the necessary rebalance between minerality and green spaces, where design could work toward a more resilient space, embodying a renewed sense of care for these areas. In this concept, the project could address the climate crisis, so relating and understanding how to operate on the urban ecological structures, to counteract climate hazards such as floods or heat island effects, starting from the diffused leftovers.

Leftovers: fragile fragments between abandonment and climate action

The issue of leftovers is a long-lasting theme in architecture and urban design. Indeed, since the previous century, many contributions have reflected addressing their role and features. For example, in the 70s, the geographer Ray M. Northam studied the vacant urban lands in transition areas, describing them as residuality and small-scale spaces, often presenting environmental hazards such as floods. Nevertheless, he stated the potential for future developments of these areas in a possible relation between the natural and built environment [Northam, 1971].

In a broad framework, leftovers result from the 20th-century growth, where the planning and design of new urban areas transformed the urban margins with new infrastructures, fragmenting the territory and leaving unused spaces.

During this territorial modification, the role of open green areas was often marginal, resulting in being neglected, describing a set of isolated and not designed green spaces, mainly used as buffer areas between infrastructures and built spaces [Trancik, 1986].

It is evident how the proximity between the neglected nature of leftovers and the rest of the city results to be a difficult coexistence, making it hard to clearly identify a relationship between the parts.

This complex characteristic of leftovers followed a subsequent ontological understanding, interpreted by the Spanish architect Ignasi de Solà Morales with the concept of *terrain vague* [de Solà Morales, 1996, 36-38]

It is impossible to captate in a single English word or phrase the meaning of French terrain vague.

In French, the term terrain has a more urban quality than the English land, so that we must note here that terrain is in the first instance an extension of the precisely limited round, fit for construction, of the city. [...] At the same time, the French word terrain also refers to lager and perhaps less precisely defined areas of territory, connected with the physical idea of a portion of land in its expectant state, potentially exploitable but already possessing some kind of definition in its property to which we are external.

As for the second of the two words which make up the French expression terrain vague, we should note that the term vague has a double Latin origin as well as a Germanic origin. This latter, from the root vagr-wogue, refers to sea swell, waves on the water, and carries a signification that is by no means irrelevant here: movement, oscillation, instability, fluctuation.

[...] The relationship between the absence of use, of activity, and the sense of freedom, of expectancy, is fundamental to understanding all the evocative potential that the city's terrain vagues have accrued as part of the very perception of the city in recent years. Void, then, as absence, and yet also as promise, as encounter, as the space of the possible, expectation.

Following this idea, considering the leftovers as terrain vague, we could study them as in-between spaces [Azhar et al., 2016], where the project could gaze at the spatial and design possibility to enhance the physical features of the place. With this perspective, it is possible to describe the leftovers considering their relationship with the city:

They are its margins [of the city], lacking any effective incorporation; they are interior islands voided of activity; they are forgotten, oversights and leftovers which have remained outside the urban dynamic. Converted into areas that are simply un-inhabited, un-safe, un-productive.

In short, these are places that are foreign to the urban system, mentally exterior in the physical interior of the city, appearing as its negative image as much in the sense of criticism as in that of possible alternative. [de Solà Morales, 1996, 39]

Thus, leftovers show their character as residual spaces, often gravitating around railways and infrastructural margins, building edges and interstices as places of proximity between urbanity and the indeterminate [Fig. 3]. Limits and inner margins, subverting the conventional separation between suburbs and urban centers, generate many fragile spaces in which the project could play a role in the rediscovery of space, translating the proximity into a factual coexistence.

When approaching these fragments, the open question of the project should refer to the possibilities that they

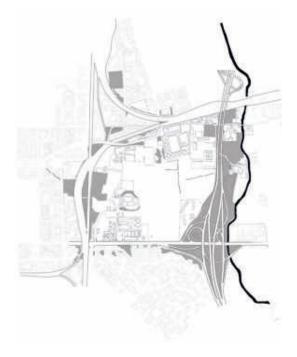


Fig. 3. Urban Leftovers. The image focuses a portion of the eastern Milanese urban fringe, highlighting the presence of leftovers along the main infrastructures (drawing by the author).

could address. The present essay, part of a broader doctoral research, proposes an instrumental possibility for leftovers to become the first element of interaction to define new urban ecological structures.

Accordingly, observing these spaces means interpreting coexistence phenomena, defining a type of space in which the project's action is still open to invention.

This process could envision leftovers in hosting the coexistence between vegetation and minerality within the city, being refuge spaces for the current scarce urban biodiversity, increasingly poor, and at the same time, offer drainage spaces also in densely built fabrics.

Specifically, when we tackle the issue of climate action, we are mainly referring to projects aimed at adapting or mitigating. These two macro-interventions are composed of specific technics, environmental effects, and spatial implications that the design practice should embrace. Indeed, the issue of how the increasing climate fragility should go beyond the only technical approach, also considering how we could enhance territorial structures toward an adaptive horizon.

Acting on leftovers could foster this project framework, where they could be an asset to promote urban adaptation, so acting on a long-term condition of climate resilience. The abandoned urban fragments, as well as the low spatial quality of leftovers, could be tackled by reintroducing these fragments with an ethical approach to see them as possible elements that support the city



Fig. 4. An ecological structure. Connecting the leftovers could produce a new ecological structure for the city of Milan, where the urban fringe reconnects the consolidated city and the outskirts, in a necessary coexistence between minerality and naturality (drawing by the author).

in resisting the climate stress, creating green corridors, enlarging green areas, and thus thinking of a renewed urban space livability.

Leftovers could embody an ecological value [Németh et al., 2014], representing a possibility for the city's margins to reshape the balance between minerality and naturality, where the latter is a space that could acquire spatial values in terms of renewed urban landscape. A project of leftovers regeneration should recognize their possible role, not in their complete transformation, but rather in enhancing the quality that spontaneous nature has created. In this sense, the project becomes a vehicle to establish new forms of coexistence.

What is the role of the project? Interpreting the coexistence for an adaptive urban structure

Reflecting on design is essential when talking about urban fringes and leftovers. Indeed, as already mentioned, these spaces are the results of how the territory was designed in the previous decades. Thus, talking about the role of the project means to establish both the perspective for these areas, but also the attitude with which we look at them [Valente, 2011]. Indeed, the possible coexistence is already a design interpretation, that through this mediated version of the reality could enhance the physical characteristic of the space.

Working in a perspective of an ecological structure, made by fragments, in a renewed coexistence between minerality and vegetation means to re-measuring the distance between the two elements, composing new urban figures. Hence, approaching the construction of an urban imaginary made by wedges of green spaces in the city.

The architectural project thus becomes the ability to systematize, at various scales, those "molecules" of cities, fragments left over from years of development and land consumption.

In this sense, the coexistence of these spaces with the minerality of the city is a necessary relationship. They represent a starting point from which reconsider a new type of balance between the parts, to build new adaptive infrastructures, shaping possible ecological reservoirs in the city.

This idea of working toward the generation of adaptive urban structures is embodied in a research project, developed within the doctoral workshop at the Politecnico di Milano. The design-driven research tried to define a possible structure for the Milanese eastern fringe, to reconnect a series of leftovers, envisioning a changing condition for the city [Fig. 4]. The project, seen as urban strategy, synthesizes a keen reading of neglected spaces that together could work in a perspective of new coexistence with the city. Here, working through the usage of nature-based solutions, so enhancing the vegetation and green quality of the space, means to act both on the permanence of the green fragmented space, but also to define an inner green structure within the city [Lemes, 2020]. This action could generate not just a proximity of elements, but a necessary co-existence between them. Indeed, a green structure needs people to taking care of the space, in a form of appropriation of the naturality, that could be framed as inclusion and welfare area [Sennet, 2018]. At the same time, the urban mineral city needs to reconsider the presence of nature in the city as a space to counteract the global climate crisis. Subsequently, from the urban structure the project moved on an intermediate scale. Here the morphological studies disclosed the consistency and the measures of leftovers [Fig. 5], also revealing their operability regarding design action to apply. Experimenting with the possibility of addressing an adaptive role to leftovers, the design actions were thought to work mainly with the ground design: implementing raingardens, foresting specific areas, and other actions to reimagine the space of leftovers [Fig. 6]. At the end, the naturality displayed it is not only a technical nature-based solutions, instead, it tries to work with the unexpressed potentiality of the

fringe, enhancing the urban quality and giving new shape to the urban space.

This experimentation shows how the project is a tool through which to understand the spatial features, structuring sequences of spaces that, in a form of proximity, interact with the limits, various thicknesses and different types of urban space.

The urban project toward an adaptive coexistence

The topics covered, starting with the theme of urban fringes, till the focus on leftovers and possible projects to enhance the coexistence, are part of a long and consolidated study of the respective themes. They have constituted, in a continuous and structured way, the research themes of the last forty years, however, the growing fragility of the climate crisis could be useful for a renewed reflection on these urban fragments. Indeed, architecture and urban design could work on the potential of these spaces, as areas of coexistence between nature and minerality, with renewed social and ecological possibilities. Coexisting in proximity, in this case, becomes potential to structure an adaptation project that is truly transcalar, and that can consist of few simple elements, despite the complexities of the surrounding contexts.

Urban fringes are not only the marginal spaces of the city, instead they could signify a possible area of

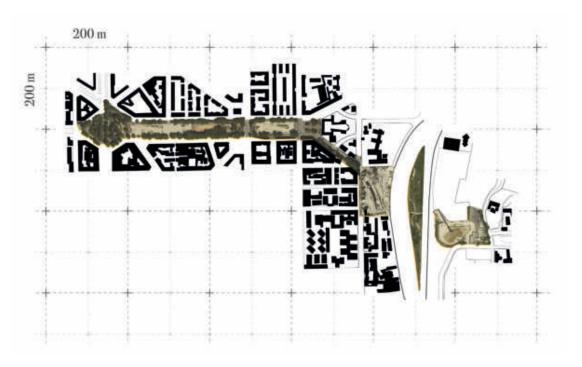


Fig. 5. A morphological interpretation. Reading measures and spatial traits of a sequence of leftovers to propose a possible site of experimentation, also to reconnect other urban green areas (drawing by the author).

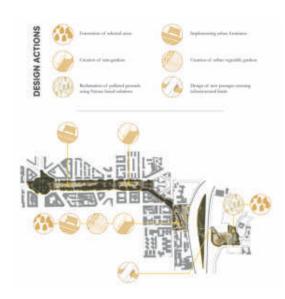


Fig. 6. Methodological project. Once the morphological analysis interpreted the consistency of a possible ecological structure, the project developed a methodological process through which a set of design actions suggest the elements necessary to regenerate and enhance the spatial sequence (drawing by the author).

intervention and transformation [Oldani, 2019], where to act in a perspective of increased urban resilience. To do this, it is essential to understand the spatial threats and hazards that characterize the fringes, and that are also provoked by the design actions of the previous decades. Indeed, «the environmental crisis is a design crisis. It is a consequence of how things are made, buildings are constructed and landscapes are used» [Van der Ryn et al., 1996, 27], which gives to the project an ethical responsibility, also relating the climate breakdown we must face. Therefore, the coexistence is something we can observe, trying to enhance the values of the leftovers through simple actions. Taking up the words of Vittorio Gregotti [(1966) 2014, 91] in «Il territorio dell'architettura», with respect to the project of the possible relationship between nature and architecture:

Ma anche di fronte ad uno spazio geografico altamente manipolato il problema resta l'individuazione del punto sensibile, l'operazione minima. Si tratta cioè di stabilire il grado di congruenza tra il materiale geografico e l'organizzazione introdotta per l'orientamento degli elementi del campo verso un'intenzione di figura e sapere se in concreto sia possibile trovare una connessione che leghi la tipologia delle occasioni operative alla tipologia degli approcci formali secondo un sistema di massimo rendimento pratico col minimo sforzo operativo.

With this perspective, identifying the possible minimum operations in these residual spaces could imply an increasing ability of urban adaptation,

transforming spatial and climate fragilities into opportunities for the construction of a space capable of responding proactively to climate and environmental crises. Through a process of care, systematization, and reinforcement of the leftovers, it will be possible to generate new forms and structures of interdependence, and therefore coexistence, between leftovers, urban margins and built space. It's this possible relationship that could define urban assemblies of adaptation. Indeed, framing the leftovers as permeable and ecological spaces for the city, enhancing their presence, and implementing their relationship with the territory, could produce spaces of renewed essentiality for facing the climate fragilities. Indeed, heat waves, heat-island effects, floods, and many other climate perils, could be tackled only by reimagining our connection with the urban naturality in its porosity and permeability. Finding the role of the project in adapting the city also means to critically read the current urban fabric, identifying where to work, and regenerate those spaces where the project could bring quality and values to the city.

To conclude, the coexistence project in urban fringes could be synthesized in the definition of territorial ecological structures, starting with the reconnection of fragments, looking at the possibilities of an urban rebalancing between the minerality and nature. This proximity between the city and the rurality defines a never-ending relationship that reveals men's attitude in relating to nature, and nowadays, reflecting on these issues and territories could mean finding the possible adaptation, the unexpressed opportunity of coexistence.

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Notes

1. The workshop, held at the Politecnico di Milano, was titled "Fringes renewal. Enhancing urban and peri-urban fragile areas" and supervised by: Prof. Corradi Emilia, Prof. Cozza Cassandra, and Prof. Dessì Valentina Maddalena. The doctoral workshop is part of the design-driven approach proposed by the AUID Ph.D. Program, coordinated by Prof. Rocca Alessandro. This contribution present part of the work developed within the context of the workshop in a group composed by the PhD candidates: Carla Bulone, Hu Dan, Kevin Santus. The reflection proposed in this article are personal elaboration by the author, while the images are re-elaborated by the author starting from the group's work.

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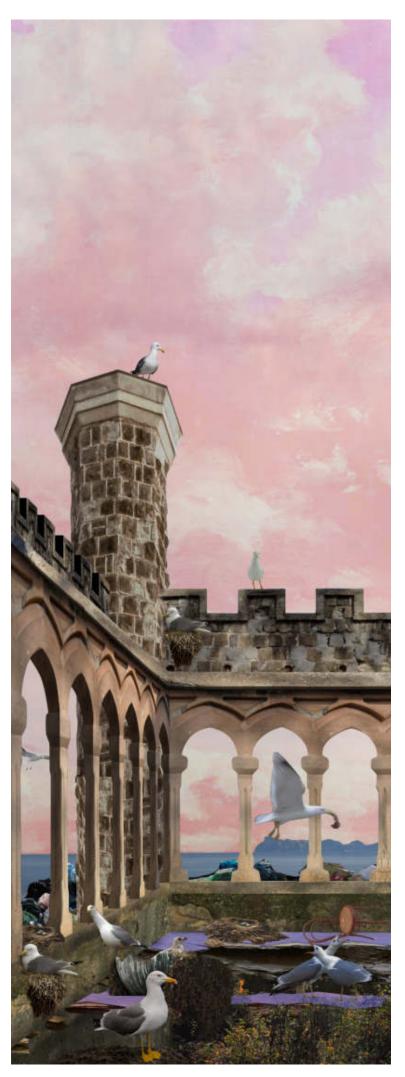
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Le proposte grafiche fanno riferimento alle questioni avanzate dalla call o a temi ad essa connessi, con l'intento di evocare una più vasta interpretazione.

I temi di indagine riguardano le forme di espressione, riuscite o non, sorte tra elementi e viventi posti in prossimità, nell'esperienza spaziale in cui l'essere umano coesiste con il pianeta.

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«In un futuro dai contorni imprecisi, la città di Napoli ha completamente abolito l'antropocentrismo strutturale delle forme convenzionali di moralità, e sperimenta pratiche di coabitazione multispecie. Questa speculazione visuale propone di stimolare l'immaginazione di nuovi mondi che garantiscano la legittimità democratica delle misure politiche a beneficio delle specie non umane».

augustofabiocerqua@gmail.com

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