Abstract

This article builds upon a rich scholarship which has proposed, though with different shades, the concept of socionatures, meaning with it the inextricable hybrid of ecological and social facts. In this article, we aim to explore in which ways the Mafia produces particular socionatural formations, entering into landscapes, becoming rivers and cities, penetrating into the bodies of humans and non-humans. We will develop our argument exploring a specific geographical area, the Simeto River, and on how the Mafia has become intertwined with its ecologies. We will analyze the appropriation of the river since the 1950s, illustrating various ways through which the Mafia has blended with its ecologies: the control of water, the touristification of the river’s mouth, and the placement of waste facilities. We argue that one crucial feature of Mafia socionatures is the attack against commons, i.e. its attempt to subdue the (re)productive properties of human and more-than-human communities to its economic interests. Thereby, we will propose the practices of commons and commoning – that is the creation of new commons – as one of the possible strategies against the Mafia.

1. Mafia ecologies

On the 18 May 2016, the president of a natural regional park in Sicily (the largest protected area of island, covering about 85,900 ha) became the target of an ambush. With a few large rocks positioned on the road, a commando forced his car to slow down and then attacked. Although riddled by bullets, the car resisted quite well to the attack protecting the man and his bodyguards. Indeed, the president of a natural park in Sicily travels on an armored car and lives under police protection. This episode did not attract massive attention in Italy, and probably it passed completely unnoticed abroad. Undoubtedly, it was not comparable to other Mafia actions which left people killed and the entire nation grieving. Nonetheless, we saw that ambush as a revealing moment, an episode uncovering the connections linking two worlds which are usually not associated with each other. Perhaps, in the global imaginary it might look odd to associate the Mafia with nature, unless, of course, one is referring to the garbage business, where the power of organized crime has become even the subject of a quite popular television show, The Sopranos. However, among activists, researchers, prosecutors, and legislators the awareness of Mafia interests in environmental matters, in a very broad sense, is extremely vivid. In particular, the Italian NGO Legambiente has been instrumental in uncovering the ways in which criminal organizations have capitalized on the destruction of the environment. Actually, Legambiente has coined the term ecomafia to signify the
complex criminal activities based on the destruction of the environment. Since 1997 Legambiente has published an annual report on ecomafia which provides data on the multiple activities through which criminal organizations accumulate profits jeopardizing the environment. More broadly, the scholarly field of “green criminology” has explored the connections between criminal organizations and environmental harms, providing the theoretical support for the implementation of specific legal tools.¹

This article builds upon a rich scholarship which has proposed, though with different shades, the concept of socionatures, meaning with it the inextricable hybrid of ecological and social facts. Critical geographer David Harvey has repeatedly argued in that direction, as, for instance, when he provocatively said that he could not see anything unnatural about New York City.² For our article, it might be more powerful to consider Harvey’s other apodictical saying that capitalism does not produce an ecology but is an ecology. Inspired by those concepts and by the epiphany of the 18th of May 2016, we aim to explore in which ways the Mafia has deeply penetrated ecologies, entering into landscapes, becoming rivers and cities, sedimenting its traces into the bodies of humans and non-humans.³ Mafia ecologies are made of trees that become concrete, of empty pipelines and water for sale, of touristic resorts on the seashore and wild construction in the urban outskirts, of sheep and contaminated pastures, of faraway cocaine plantations and local drug marketplaces.⁴

In this article we will focus on a specific geographical area, the Simeto River (see Figure 1), and on how the Mafia has become intertwined with its ecologies. We will analyze the appropriation of the river since the 1950s, illustrating various ways through which the Mafia has blended with its ecologies: the control of water, the touristification of the river’s mouth, and the placement of waste facilities. We will also briefly mention the Mafia’s control over the common grazing lands and forestry. Since this article is, at least to our knowledge, the first attempt to explore the environmental history of the Mafia, we have decided to offer a rather vast array of possible research themes with the aim of suggesting various paths of investigation. For our research we rely on five types of sources: 1) an extensive wide bibliography about the history of the Mafia and anti-Mafia in Sicily;⁵ 2) unpublished archival documents (maps, projects, dissertations) elaborated at the

University of Catania that describe the transformation of the watershed in terms of structures, infrastructures, and water flows; 3) books and articles for the general public, media reports in national and regional newspapers (such as La Repubblica, Il Fatto Quotidiano, Giornale di Sicilia), magazines, and websites (such as SudPress.it, MeridioneWS.it, S, LiveSicilia.it); 4) official reports of Parliamentary Inquiry Commissions on the Mafia phenomenon, Parliamentary Points of Order and Court Sentences related to the Mafia that have connections with the transformation of the Simeto area; 5) participant observation in the context of a long-lasting university-community partnership with a coalition of associations mobilizing around the relationship between environmental transformations and the Mafia.

2. Cosa nostra’s backyard

Attempting a review of the scholarship on the Italian Mafia is a paralyzing thought. Jstor, for instance, gives more than 11,000 entries for the word “Mafia”, limiting the search only to articles. Indeed, legions of scholars have worked on the Mafia as their field of inquiry; criminologists and psychologists (such as Colajanni, Lo Verso), but also historians (such as Pezzino, Lupo, Dickie, Renda, Santino, Benigno), sociologists and anthropologists (such as Arlacchi, Blok,
Rakopoulos), philosophers and educational scientists (such as Cavadi, Schermi, Casarrubea) and economists (such as Catanzaro, Becchi, La Spina, Asmundo, Lisciandra, D'Amato and Zoli). The situation becomes even more complicated as we consider non-academic ways of knowing the Mafia, including fiction, movies, music and other artistic forms. For this reason, we will focus on the Mafia and the environment, a more limited and almost unexplored field of inquiry. Though meager, in the last decades there has been some interest in this issue. Writers, reporters and NGOs have started exploring Mafia ecological dynamics. In terms of global impact on public opinion, Roberto Saviano's volume (Italian edition 2006, English translation 2007) has been especially relevant. The death sentence that the Mafia has issued against the writer, forcing him to live a life in hiding under protection, has amplified the resonance of his book, making it a worldwide bestseller. But also less famous writers and journalists have uncovered the connections between the Mafia and the environment, as for instance Giovanni Tizian and Alessandro Iuacuelli. Iuacuelli, for instance, already in 2007 described Mafia ecologies linking geology, the urban environment, the building economy, and industrial production in the sick circle that D’Alisa and Demaria have called accumulation through contamination:

"The most important illegal activity of the Alfieris’ family [a Mafia family] is the same of the Casalesi [name of the local Mafia from the town of Casal di Principe]; they both have the same ‘expertise’. It is not the racket or the drug, but it is the illegal building and, in general, the cement cycle, from the illegal extraction of sand in order to produce cheap cement to the construction of entire neighborhoods without any permission. The societies working in the ecological sector were also connected to the Alfieris, and


were able to mobilize their earthmoving vehicles. And then here is served the solution to the problem of toxic waste arriving in Campania: the quarries and the foundations of buildings."

In this text Iacuvelli explains how the extraction of sand, the construction of illegal buildings, and the traffic of toxic waste became an integrated system in Mafia ecologies.

Roberto Saviano’s powerful account of the Neapolitan Mafia, the work of the journalist Giovanni Tizian on the presence of the criminal organization in Northern Italy, and the well-researched reports of the Italian NGO Legambiente have proved the interests of the Mafia in controlling and exploiting the environment. Recently, planning scholars have focused on how the Mafia is related to citizenries, policies and administration of urban and regional areas. Although the word “Mafia” generally identifies a bloody organization of individuals aimed at gaining and controlling goods, territories, and the entire society through violence, this paper wants to explore deeply Mafia practices beyond direct violence. The aim of the broader Mafia, including also entrepreneurs, politicians, professionals, and public officials, has not only been gaining economic and financial resources; it has been gaining control over spaces, communities and social relationships through intertwined nexuses with a variety of social actors. The political scientist Giovanni Sartori defines these mechanisms as structural parts of an invisible network of power that operates in the shadow of the visible institutions. This type of organization has been historically present in various systems of government, often supporting the official dynamics of power, always adapting to them, being the baronage of 19th century Sicily or liberal capitalism of post WWII. In these more recent years, the Mafia has adapted to and entered into the market as a form of "dark capitalism" influencing and distorting the market itself also with the use of violence. In this configuration, the Mafia plays an influencing role within the capitalistic western democracies.

The journalist Saverio Lodato and the attorney general Roberto Scarpinato describe the structures of this invisible network of power as a network of pyramids, in which the Mafia is one pyramid amongst the others, and all the vertices are connected in order to address their specific interests, in spite of their bases. It is then possible to say that the ultimate goal of the Mafia is to address particular interests of a few social actors, with illegal means, damaging collective interests. That is to say: the Mafia is not only made up of armed criminals, but it is also driven by well-respected individuals who have connections with some of the most influential leaders within the

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21 Legambiente created the expression eco-Mafia to indicate Mafia's activities aiming to make profits from the exploitation of the environment. That label has been widely employed in the public and academic discourses, becoming one those cases of activists' knowledge illustrated in Joan Martinez-Alier et al., "Between Activism and Science: Grassroots Concepts for Sustainability Coined by Environmental Justice Organizations," *Journal of Political Ecology* 21 (2014): 19-60.
23 It is restrictive to talk about the Mafia only as a form of dark capitalism since there are similar organizations in various political and economic systems (such as the Russian and the Chinese Mafia), confirming its ability to adapt.
establishment. These connections give strength to the "brotherhood society" and constitute the peculiarity of the organization itself. Already in the 1870s Leopoldo Franchetti and Sidney Sonnino had highlighted this peculiar connection linking the Mafia with the "legal" establishment, but this was widely recognized by the Italian State only between the end of the 1980s and the beginning of the 1990s, after a series of tragic massacres and the deaths of some public officers who were courageously fighting against these mechanisms.

3. The Mafia vs commons, or the making of mafio-genic landscapes

In our exploration of Mafia ecologies, we also employ the concept of mafio-genic landscapes, that is, of landscapes which are produced by the Mafia but also support the Mafia. As the Mafia is rooted deep with the social milieu where it arises, so we argue that social-ecological systems can be mafio-genic in the sense that the Mafia expropriates and exploits their “natural” resources for its purposes.

In particular, we wish to focus our exploration on a specific set of resources, those which can be considered commons, because we argue that those common resources occupy a special place in the Mafia’s appropriation of socioecological systems. Actually, for this article, we will analyze a resource, or better off, a bound of resources, which may be considered a classical example of commons: a river and its complex ecologies. In the international literature, rivers are considered commons which, according to Bruce Hooper, require sophisticated management regimes in order to define roles and responsibilities, allocate property rights, implement decisional procedures, and establish principles for a sustainable use. Moreover, aquifers, fishing areas, and seashores possess the two integrated characteristics of Common Pool Resources: subtractability of use, which is a characteristic of private goods, and difficulty of exclusion, that is, a characteristic of public goods. CPRs possess both characteristics simultaneously. This means that CPRs can be used, exploited and eroded by different actors over time (subtractability); at the same time, CPRs cannot be easily preserved and defended from being eroded (difficulty of exclusion). The definition of CPRs had been originally related to the physical conformation of a basket of resources, as well as to its forms of use and its juridical regulations. However, the definition has been extended to a broader domain. Immaterial goods such as knowledge and information are considered commons as well. The Italian jurist Stefano Rodotà considers commons all those material and immaterial “primary goods that are necessary in order to guarantee fundamental rights for citizens, to be used and managed as collective.” In regard to the present article, we believe that the extension of the commons theory to

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29 Stefano Rodotà, Il Terribile Diritto: Studi sulla Proprietà Privata e i Beni Comuni (Bologna: II Mulino, 2013): 461;
the territory/landscape at large is a crucial passage. The Italian geographer Alberto Magnaghi has proposed the concept of “territorial commons,” defining them as “collective intergenerational products which are different from the natural commons because they are created by the very interaction between humans and the environment.” For Magnaghi, the territory, with its stratification of knowledge and material structures, should be considered commons, worth being preserved for its existence value, beyond its market or even use value. The Italian jurist Paolo De Maddalena echoes Magnaghi’s reasoning about the territory as commons, introducing the concept of “non marketability” of those collective goods which cannot and should not be placed on the market. It is not by chance that Magnaghi explicitly mentions the Italian experience of “river contracts” as a case of bottom up participatory management of what he considers a typical example of territorial commons. And it is precisely a river, the Simeto, at the center of our own exploration into the environmental history of the Mafia.

More broadly, framing the Mafia’s intervention in the Simeto Valley as a matter of commons, we second the extension of that notion to the landscape at large. In particular, we agree with Avallone and Torre and De Rosa that in the presence of environmental conflicts over the use of a territory social actors may develop a vision of it as a commons and experiment with innovative practices of management. Although in this article we will not focus on those conflictive experiences, nonetheless they have been remarkable in the Simeto Valley, confirming the thesis that facing expropriation and contamination, the territory/landscape can become part of a commoning project.

4. The evolutionary trajectory of the Mafia: a focus on the Simeto River, Eastern Sicily

Since its origins, the Mafia has shown its abilities in taking advantage of several configurations and resources in the Sicilian social-ecological systems. At the beginning in the 19th century, the Mafia started feeding itself through agricultural activities, controlling water and land. In the 20th century, especially during WWII, the Mafia expanded its domain moving into the black market of essential goods. It then continued to expand, entering the international market, specifically in the smuggling of cigarettes, arms, and lately also drugs. Between the 1950s and the 1970s, during the so-called

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33 Ivi, 34.
35 Gennaro Avallone, Salvo Torre, “Postcolonial Social Conflicts and New Perspectives on Landscape as a Common”, in Landscape as Mediator, Landscape as Commons. International Perspectives on Landscape Research eds. Benedetta Castiglioni Fabio Parascandolo Marcello Tanca (Padova: Cleup, 2015), 78.
Italian economic boom, the Mafia gained capital through the so-called \textit{pizzo} [asking for money to small businesses in exchange for protection], and focused on the concrete industry, starting impose its control on the business of construction through violence. In the 1980s the Mafia became a \textit{de facto} entrepreneurial body, gaining a growing influence on contracting public works, in a regime of almost exclusive access. In the 1990s, another crucial mutation occurred: the Mafia became able to gain a crucial role within the institutional system, no longer in a subordinate position under the political establishment. In some strategic areas as, for instance, the citrus production, the Mafia started appropriating EEC funds, destined to compensate for agricultural overproduction.\footnote{See: Giovanni Falcone and Marcelle Padovani, \textit{Cose di Cosa Nostra} (Milano: BUR Rizzoli, 1991).} Since the 2000s the Mafia has begun looking at opportunities connected with the uncontrolled dynamics of the global financial markets. In the meanwhile, the Mafia has strongly increased the misuse of EU rural investment funds and started to take advantage in the food supply chain: according to the \textit{Agromafie Reports} (reports about organized crimes connected to food supply chain published by the Italian Institute of Political, Economic and Social Studies) from 2011 to 2016, the annual revenue has grown to 16 billion €. Moreover the Mafia has started to take advantage of the dysfunction in the waste management system, assuming the shape of the aforementioned eco-mafia. In each of these phases, the Mafia has proven its strong ability to adapt and transform, thereby showing its re-organizational skills in taking advantage of institutional weaknesses and fragilities.

This article presents some crucial steps through which the Simeto watershed has been transformed into a “territory of the Mafia”, wherein the commons have been eroded in order to create a mafio-genic landscape. After presenting how the Simeto River was before being eroded and how it is today, the article describes what has occurred in the interim, in the name of development (with flood control and irrigation infrastructures, with the mining of material for producing concrete and the massive use of concrete along its bank, with the construction of resorts at the mouth, among other actions). The article then shows how the Mafia has adapted to the changes of the market, entering the political establishment, taking advantage of strategic business such as waste management and EU rural funds. In conclusion, the article summarizes in which sense the Mafia has affected the ecology of the river basin, feeding upon the erosion/enclosure of commons and how the struggles for commoning-that is for the production and maintenance of commons-can produce new and emancipatory ecologies.

Studying the effects of the Mafia on a river implies looking at water, sand, the estuary, fish and agriculture, but the ecology we wish to analyze is a political one, therefore, made also of the power structures which organize the governance of that river. In figures 3 and 4 we have attempted to graphically synthesize the levels of governance that are implied in the management of the entire Simeto River watershed. Ten Municipalities out of 63 are involved in the Simeto River Agreement (SRA), a “river contract” built with bottom up effort that has voluntarily generated an integrated
management plan for the middle course of the river. The Agreement has been structured according to seven EU Directives (2001/42/EC; 2000/60/EC; 79/409/EEC; 92/43/EEC; 2007/60/EC; 2008/98/EC; 2009/28/EC). Currently, there are not any other River Basin Management Plans operating in the Simeto River watershed. Figure 3 shows how the governing structures worked without the SRA, while figure 4 shows how the SRA has impacted the municipal level in terms of actors’ organizational structures. Those two figures show clearly the extreme complexity of the governance of the Simeto watershed; in such an intricate geography of power, we wish to point to the raising influence of grassroots initiatives, which through the SRA have established a democratic filter to the influence of the Mafia in the decision-making processes.

FIGURE 3 AND 4

5. Meeting the Simeto River

FIG 5. The Simeto River

The Simeto River is 113 km long and it drains 4.192,68 km², being the widest watershed of Sicily, creating the rich soil of its alluvial plain and generating wetlands where wildlife flourished. The river has run freely for millennia with abundant flows, being navigable up to 70 km away from its mouth, till the so-called Barcavecchia area, whose name means literally old-ship. This toponym, like others along the river, recalls the ancient boats that used to navigate and cross the watercourse as an important route for commerce. 38 In the years from 1931 until 1937 the medium flow rate was 8.87 m³/s upstream (based on the survey station of Biscari) with the highest peak of 631 m³/s in 1933, and the medium flow rate was 19.56 m³/s downstream (based on the survey station of Giarretta) with the highest peak of 1460 m³/s in 1935. The highest water depth which has been measured upstream was 6 m in 1933; the highest one which has been measured downstream was 11.6 m in 1936 (according to Regional Water Annals). At the beginning of the twentieth century, the river still supported a vital ecosystem. It supported an abundant flora, such as riverine canes, often used for handcrafts, together with a variety of ichthyic species, such as eels, big scale sand smelt fishes, tenches, Mediterranean banded killifish, freshwater blennies and frogs 39 which constituted a base for nutrition and the local economy. In some towns along the river, such as Paternò and Adrano, neighborhoods were named with reference to the fishing activities because of their crucial role in the sustenance of those settlements. Agriculture was another essential activity in the area: the variety of crops included fruit, nuts, olives, vineyards, grains, and citrus trees; the latter are at the core of the massive transformation of the river from its pristine configuration to the current status quo.


39 Anguilla anguilla, Atherinaboyeri, Tincatinca, Aphaniusfasciatus, Salariafluviatilis and amphibians.
Today things have drastically changed. To date, less than 20% of the watershed is protected under EU Special Conservation Areas current regulations. The riparian forests and the majority of its wetlands no longer exist. In exchange for this, 60.5 km of artificial levees have been constructed. Other concrete structures have been built: 2 repelling groynes, 4 bridles, 2 detention basins, 7 riverbed stabilization structures, 6 hydroelectric plants. These structures constrain the natural flow of the river impairing biodiversity. They impede floods that have historically nurtured the rich soil around the river and they affect the natural sedimentary deposit in the mouth, contributing to coastal erosion. Moreover, 5 reservoirs have been built, draining water and detaining sediments within 22% of the Simeto watershed. These hydraulic infrastructures irrigate 53000 ha of land, about 13% of the Simeto watershed, for the growth of intensive agriculture (data from the Ninth Regional Water Consortium - Catania). The river’s minimum flow is thus highly affected due to the presence of the described construction; water quality is also impaired due to the inefficiency of the waste treatment plants located in 8 sections of the river, plus the runoff from the towns and the fertilized agricultural soil. Moreover, reservoirs drastically affect coastal erosion: measurements in one of the stations (the Giarretta at 22 km from the river mouth) reveal a significant change in the mean annual flow of sediments (from 177 kg/s in 1957-1958, to 44.1 kg/s in 1959-1967). In almost thirty years, from the 1930s to the 1960s, the effect of those interventions was a drastic reduction of the extension of the submerged areas as well as of the hybrid areas, periodically covered by floods. Also the flow rate decreased by almost half. In the 1970s, another reservoir – the Lentini Lake – was built further impairing the natural flow of the river. In those same years, the Simeto River underwent another dramatic transformation impacting the mouth area: the illegal building of a tourist resort. Today about 14% of that area is urbanized, mostly with illegal settlements for resorts which have destroyed the pre-existing dunes. In accordance with our critical stance on the Anthropocene universalism, which annihilates historical and social inequalities in a global human “we”, we argue that we should call those mafiogenic rather than anthropic transformations, as we will explain in the next section.

6. An Undisciplined River

The Mafia’s transformation of the Simeto River began in the 1950s, at a time when the Mafia began to structure itself in Eastern Sicily. The history of transformations of the Simeto River started with a dramatic event. On 16 October 1951, an impressive rainfall brought 200 mm of water in one single

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41 For detailed study, see Roberto De Pietro, “Riserva Naturale Oasi del Simeto”.
42 Between the 1934 (before interventions) and the 1967 (after interventions) in the wetland of Ponte Barca, the submerged areas shrunk from 23.560 ha to 11.485 ha; 33.015 ha of semi-submerged areas became 43.071 ha; 111.624 ha of overflow exposed areas became 91.778 ha, with effects on the ecosystem due to occasional flows. Moreover the flow rate (based on the survey station of Biscari) has been reduced from the aforementioned 8.87 m³/s (in 1931-1937) to 4.80 m³/s (in 1961-1967), up to 2.38 m³/s (in 1980-1986).
43 Filippo Gravagno, Dei Paesaggi di Ellenia e di Altre Storie Simili.
night; as a result 18 mln m\(^3\)/h overflowed from the river. The river overflowed in its final sections, following its ‘natural’ path, and the area around the mouth was completely flooded.\(^{45}\) There was nothing unusual in that river’s dynamic. The area around the Simeto River and especially around its mouth had always been cultivated with crops able to coexist with and take advantage of the riverine hydrologic dynamics. But something was changing in those years. Infrastructures such as railways and highways were developing in order to feed the dream of the city of Catania: becoming the New Southern Milan, i.e. an industrialized city providing development in terms of jobs, incomes, profit and the like. The effect was that those areas where the river could overflow before had become impervious surfaces, occupied by infrastructures made of concrete and iron. Those were the new infrastructural connections with the oil refineries of Syracuse, and with the Airport of Catania, where the international ships and exchanges would occur. But on 16 October 1951, the water from the river had its way: it severely damaged settlements within the river basin, and Catania found itself isolated for one week. Connections with the southeast areas of Sicily were curtailed, specifically with the industrialized area of Syracuse. This dramatic event justified the prompt intervention of the regional and national governments. In order to reclaim the land in the alluvial plain and to control the river course, economic resources were allocated involving specific agencies for promoting the economic development in Italian Southern Regions, such as the “Cassa del Mezzogiorno - Fund for the South” and “SVIMEZ - Association for Industrial Development in the South”.\(^{46}\) In 1958 the National Agency for Transport approved the allocation of 10 billion Italian lira (about 138 million € at November 2016)\(^{47}\) in order to solve the water disorder of the Simeto. Money was allocated for building infrastructures for flood control as well as for irrigation. In the following forty years, the Simeto River was heavily re-engineered through a massive employment of concrete for drainage, regimentations, and channelization, involving not only the main river course, but also its tributaries. As one would expect, such an extensive plan attracted the interest of the Mafia and entrepreneurs bound with it.\(^{48}\) In the next paragraphs we will provide one example of a heavily transformed social-ecological system within the Simeto area, thereby revealing the tangible and irremediable consequences on the mafiogenic landscapes.

Figure 6 A Chronology of Mafia’s interventions in the Simeto River

6.1 Mafia troubled waters

The Lentini Lake, 12 km\(^2\) wide, is the widest lake in Sicily and one of the largest artificial lakes of Italy. Although the Lentini Lake is part of the contiguous watershed, it can be considered as a whole with the Simeto River system, connected with it through canalsizations. We have chosen the Lentini

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\(^{46}\) The Cassa per il Mezzogiorno was created in 1950 as a special agency dedicated to the development of the Italian southern regions. In particular, the Cassa had the mandate to build infrastructures such as roads, bridges, and hydroelectric plants. It was closed in 1984.

\(^{47}\) All the conversions from Italian liras to euros have been done through the official website of the Italian Statistical Institute: http://rivaluta.istat.it/Rivaluta/

Lake as an emblematic example that summarizes the way of operating in the entire Simeto area, where megaprojects for watershed management and for economic growth have been implemented compromising long-term social-ecological benefits. The Lentini Lake has been constructed with a high rate of errors in estimating water flows, water storage capacity, and costs; it has gone through several variations of the project during its implementation; it has allowed a massive use of concrete, thereby offering profitable businesses for contractors tied to the Mafia. The significance of the example can be understood through a brief recall of the genesis and evolution of the lake.

Its origins are connected with the dam on the Trigona-Galici River, a tributary of the San Leonardo River that flows south of the Simeto. The dam had been probably constructed by Templars between the 12th and the 13th centuries in order to generate a hunting and fishing reserve. It was located in a depression formed during the Pleistocene by the movements of tectonic faults. The wetland was originally about 4 km² wide with a variable surface; it soon offered an opportunity for generating an economy based on fishing that nurtured the local society. During winter and spring, the lake had an abundance of marvelous flora and fauna. Like every wetland during summer, mosquitoes invaded it. Halfway between paradise and hell, the lake appeared to the travelers on the Grand Tour as a natural marvel, while at the same time a concern for the local inhabitants due to the spreading of malaria. In the words of a famous Sicilian writer, Giovanni Verga, the lake was “laying down like a piece of death sea.” After a long debate which began immediately after the institution of the Italian Kingdom in the 1860s, the work of drainage started at the end of the 1920s. The influential wealthy families of the Sicilian aristocracy, such as Lanza di Trabia-Borghese and Beneventano, supported the work, which lasted till the second half of the 1960s. The drainage was implemented in order to make the environment healthy as well as to serve agricultural purposes. The drainage generated a remarkable change in the social-ecological system. On one hand, it caused the loss of the wetland biotopes, destroying its flora and fauna. On the other hand, it impacted the society and its economy, erasing knowledge and traditions related to fishing and converting the landscape into an agricultural one. The conversion impacted the microclimate as well as the hydrographic assets and impaired the entire social-ecological system, opening more space to agriculture. Those events occurred during the years of the Rural Reform (1950) and of the National Plan for Agricultural Development (1961). At that time public opinion had high expectations of economic growth from the cultivation of land. Nonetheless, agriculture around the former lake did not last. In only a few years, it became evident that the area was not suitable for crops due to several factors, including soil composition containing a high presence of salt.

As a result of those events, in the 1970s the area started being transformed again into a lake, during a period that lasted till the 1990s. The lake was mostly an infrastructure for water storage that could be used for irrigation, still serving agricultural purposes and economic development. The public works in place for the realization of those infrastructures were controlled by an alliance between the violent Mafia families and a group of entrepreneurs in the construction sector, the so-called

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49 The Grand Tour was a form of formative traveling diffused among the European elites between the 17th and, especially, the 19th century.
“Cavalieri del Lavoro” (The Knights of Labor).52 Those two specific social groups exchanged favors and reciprocal advantages. During those years, economic resources from the “Cassa del Mezzogiorno” were used for building a water storage facility of 130 mln m$^3$ in a surface of 12 km$^2$ and a medium high of only 10 m. During the implementation of the project, everyone ignored the fact that there was insufficient water available within the natural watershed of the lake in order to fill it again. Furthermore, the shallow depth and the extensive width of the lake were generating high rates of evaporation and infiltration that would eventually result in the totally unsustainable management of water resources. In the meanwhile it was evident that the costs of implementation were growing exponentially. The initial estimated costs were about 600 billion Italian Lira (about 2,5 billion € at November 2016); this sum almost doubled at the end of the work. Money went directly into the pockets of contractors who, operating under a monopolistic regime, took advantage of the continuous variations of the project during its implementation.53 This development produced evident effects on the Simeto River minimum flow, which was already highly impaired due to the construction of the other reservoirs. As a consequence, the Simeto River lost 30 mln m$^3$/year, with a peak that reached 50 mln m$^3$/year (data from the Regional Civil Engineering Authority). As a consequence, a tremendous loss in water as well as in hydrophilic biotopes and ecosystems occurred, with the most relevant effects at the mouth of the river. That did not happen by accident. There was an invisible network of power that was operating both at the local level and on the entirety of Sicily.54 This invisible network of power allowed the phenomena of recurring inattention, omissions and mistakes which provided the opportunity for continuing the useless and damaging public works, generating at the same time high profits for the entrepreneurs and devastating effects for the environment. The water used for filling the lake, which is an example of a fragile common good, was taken from the Simeto River, affecting the biotic components (such as flora, fauna) and human activities related to the river itself. However, due to construction “errors”, there was not enough water to be used for irrigation purposes. As a consequence, the riverine social-ecological system has been highly disturbed up to the mouth of the river while the final purpose (irrigation) could not be met. In a nutshell, the results have been: less water (and less life) for the river system, not yet enough water for the lake and irrigation, and more profit for the monopolistic constructors.

The story of the Lentini Lake clearly explains how between the 1950s and 1970s the Mafia had a remarkable influence on shaping the Sicilian landscape. The Lentini case is not unique though. Recurring inattention, omissions and mistakes were repeatedly occurring in the history of tenders for public works in Sicily.55 Several judiciary investigations, including the Orsa Maggiore and Iblis...
trials, have proved how illegal tender procedures were under the control of a ruthless council binding together elected representatives, politicians, entrepreneurs and the so-called men of honor, i.e. those violent individuals who were part of the Mafia brotherhood. Public works were conducted pursuing a false myth of local development that was, on the contrary, a way for draining economic resources for the interests of the aforementioned council. This mechanism gave wealth to an élite able to gain power through the exploitation of human and natural resources, destroying the Sicilian landscape and any opportunity to pursue an effective path for local development. An example of how this exploitive mechanism worked is the case of the Oasi del Simeto resorts.

6.2. The Mafia on the beach

The amount of water transferred from the Simeto River to the Lentini Lake for irrigation purposes produced several effects on various stretches of the river. Amongst these effects, it reduced the natural river flows and its frequent floods at the mouth; as a consequence, the river mouth became more attractive for the construction of vacation houses on the seashore. In Sicily, the construction of vacation apartments is a phenomenon that has affected the entire coast of the island; the phenomenon has generated a ratio of 40% urbanized areas over the total surface within 300 m from the shoreline, 61.5% in the Catania area. These data, compared with the national average (35.8%), reveals a high inclination to construct along the coast, an option which has been easily put into practice in the local context despite regulations. Indeed, the Sicilian Regional Law No 78 of 1976 forbade building within 150 m from the shoreline, while the Italian National Law No 431 of 1985 imposed strict regulations for all construction within the 150 m from the shoreline. Moreover, the General Comprehensive Plan of Catania, approved in 1969, did not allow any construction around the Simeto River mouth area. In 1981 the Sicilian regional government reinforced the protection of the Simeto River creating a natural reserve in order to protect the river mouth’s ecosystem. Despite those norms, the growing business of “second houses” for vacation led to the construction of about 7000 illegal buildings (24000 rooms) in the Simeto River mouth area between 1970 and 1995. Even the establishment of a natural reserve has not changed the situation at the Simeto River mouth; ironically, it seems that in drawing the borders of the park the priority was not to protect nature but rather to preserve the existing buildings by keeping them outside the perimeter of the park. Most of these illegal buildings, about 10%, were also irreconcilable with the applicable regulations, despite a 1985 national law instituting procedures for regularization.

Spending the summer vacation in those illegal settlements, known as Oasi del Simeto resorts, became a status symbol in Catania, normalizing Mafia control of the river’s mouth. Part of the urban élite had a direct interest in preserving their investments in the Oasi. For a long time, the investigative bodies have tolerated the growth of those settlements, being perceived as a normal

Santapaola, as it has been proved through the Orsa Maggiore Trial. In his writings, Giuseppe Fava had denounced the network of relationships connecting the Mafia clan in Catania, the entrepreneurs in the construction business, and the establishment, including the local mass-media and judiciary.

It is common in Italy to give coded names to large criminal investigations.

Filippo Gravagno, Giusy Pappalardo, Alessia Denise Ferrara and Venera Pavone, “Mafia e fragilità dei beni comuni: Storie di depauperamento e riscatto nel sistema socio-ecologico Simeto in Sicilia,” manuscript in possession of the authors.
activity with the Mafia considered a marginal actor in that development plan. But it was evident that the Mafia was acting as the controller and manager of what was happening around the business of construction in those years in Catania, including for the Oasi del Simeto resorts. The Mafia was starting to manifest itself as an illegal yet recognizable force, with specific interests and direct control over illegal settlements, e.g. the control of the business of diggers and earthmoving machines, managed by an influential family, the Aiello. The Aiellos were at the head of cosa nostra in Catania; the boss, Vincenzo, was arrested in 1994 within the Orsa Maggiore investigation, the most important Mafia inquiry that has been conducted since those days. Years later, through the Iblis Trial, based on inquiries that started in 2010, connections of the Aiello family with the political establishment have been proved. In the case of the Oasi del Simeto, the building of illegal settlements nurtured Mafia economies with several satellite activities including: the business of illegal stocks of concrete; the control of the hiring of workforce and security guards; the business of illegal supply of utilities, such as water and the like. Those activities also implied control over political elections and a high degree of corruption in order to avoid public supervision. In brief, the Oasi is a mafio-genic landscape, that is, a territory where the mafio-genic dynamics –intended as the specific milieu that feeds the mutual influence between the Mafia and society– are manifested.

But in the 1990s, the business of construction declined due to the economic crisis affecting public works and the building market. Therefore, the Mafia had to find other paths of investments to maximize its profits. After a long season of massacres, the Mafia prepared to be less visible and more silent, although still active, through the nurturing of collusive relationships with decision makers. These relationships have been proved years later through several trials, such as the aforementioned Iblis conducted in the court of Catania since 2012. The Iblis trial proved the partnership among the Mafia, the entrepreneurship, and the political sector. Vincenzo Aiello was one of the Mafia bosses condemned to 22 years of detention in first degree judgment.

With the new millennium, the Mafia changed its configuration and consequently became a part of the dominant establishment. This form of the Mafia, today known as the Mafia 2.0, had already been tried years before (since the late 1980s) in Catania, where the criminal organization was more focused on businesses, as opposed to the one in Palermo, which exercised a more violent control of the territory. The change also implied a shift in the Mafia's business investments: from public works and construction, whose economies were shrinking, to the management of public services such as


59 After the assassination of General Dalla Chiesa other massacres occurred. On 23 May 1992, the anti-Mafia Attorney General Giovanni Falcone, his wife and 3 security guards were killed in Capaci, near Palermo; on 19 July 1992 the anti-Mafia public prosecutor Paolo Borsellino and 5 security guards were killed in via d'Amelio in Palermo. They both were part of the anti-Mafia pool, a team of prosecutors created in the 1980s by another prosecutor, Rocco Chinnici, also killed by the Mafia in 1983. Falcone and Borsellino were investigating the relationship between Cosa Nostra and the political establishment.

60 One of the most important facts that has been proved through the Iblis Trial was the role of political decision makers in relation with the Mafia. The regional deputy and former mayor of Palagonia, Fausto Fagone, has been condemned in first degree judgement for external participation in Mafia association (12 years). Even more important, the former president of the Catania Province and of the Sicilian Region, Raffaele Lombardo, has also been condemned in first degree judgement for external participation in Mafia association (6 years and 8 months plus one year under monitored freedom and permanent disqualification for public offices). The Iblis Trial provided compelling evidences that the Mafia has changed its strategies, moving from the massacres to the permeation inside public institution.
healthcare, energy production and distribution, transportation, and waste management. This latter activity deeply affected the Simeto Valley.

6.3 Mafia waste

According to the European Directives on waste management, the EU regions had to establish waste management plans in order to face the growing amount of garbage produced in those years. Instead of using EU structural funds to tackle the emergent challenge in Sicily, the local government kept the waste management system inefficient, with a recycling rate below 2%. The Mafia illegally managed this business, especially in terms of the transportation and dumping of waste, as shown by the Italian NGO Legambiente. Following the usual emergency pattern, the Sicilian region declared a state of emergency in relation to the management of waste. In 2001, Salvatore Cuffaro, the newly elected center-right governor of the Sicilian Region, was designated commissioner for the waste emergency. Before his election, Sicily was aiming for a recycling rate of around 50% by the year 2000, while 25% of the remaining portion of solid waste was destined for waste-to-fuel by 2004. The election of Salvatore Cuffaro and his management of the waste emergency marked a radical change in the strategy. As Saija has outlined, Cuffaro's 2002 Waste Management Plan opted for the construction of new waste-to-energy facilities instead of supporting the existing industries to implement the needed technological conversions which would have allowed them to use waste as fuel. The Cuffaro plan generated mistrust from community-based groups as well as from experts as it lowered the recycling target in order to make the waste-to-energy facilities work at their maximum potential. Moreover, it created a private monopolistic regime of the unsorted waste-treatment business. One of the main concerns was the infiltration of Mafia clans in the business. In 2005, an official report highlighted procedural anomalies in the Cuffaro planning process, with a Mafia-related enterprise included in the construction and management of the waste-to-energy facilities. Meanwhile in the Simeto Valley, regional and local institutions were authorizing the construction of one of the four waste-to-energy facilities in contrada Cannizzola (Paternò) close to the river. At that point, the communities living in the area formed a “Coalition of grassroots groups for the Simeto River” to oppose the project and the regional plan. The Coalition included various stakeholders but no administrators with the exception of the mayor of S.M. di Licodia (a small town of less than 7000 inhabitants). The campaign carried out by the Coalition marked the beginning of a conflict between governmental and non-governmental representatives, the former moved by business-related interests, the latter by a rejection of the highly exploitative plan linked to Mafia affairs. Legal actions and public protests were conducted against the regional waste management plan. The “anti-incinerator campaign”, as it

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61 We are referring to the 91/156 EEC directive amending the 75/442/EEC directive and adopted in Italy through the Legislative Decree No 22 of 5th February 1997.
62 Legambiente, Rapporto Ecomafia (Edizioni Ambiente, 2007–2011)
64 See, for example: Laura Saija, ”Proactive Conservancy in a Contested Milieu: from Social Mobilisation to Community-led resource Management in the Simeto Valley,” Journal of Environmental Planning and Management 57 (2014): 27-49, p.30.
was commonly called, extended its opposition to another waste-related and environmental controversial project: in the small town of Adrano, a factory was about to introduce hazardous waste into its production cycle. The Coalition highlighted the connection between the waste-to-energy facility (in the town of Paternò) and the Adrano "poisoning factory", as local people called it. Beneath both enterprises there was a controversial corporation, the DB Group, which showed high interest in the waste-management sector. The mobilization against the incinerator and the "poisoning factory" was successful. The construction of the incinerator was halted, and the authorization for the use of hazardous waste in the production cycle in the DB Group Adrano Factory (8 June 2007) was withdrawn. The police even closed the DB Group Paternò facility due to irregularities (12 March 2008). The newly elected president of the region Raffaele Lombardo officially rebutted Cuffaro’s Waste management plan through the Regional Law No 9, 2010. Finally in January 2011, Salvatore Cuffaro was condemned for aiding and abetting. This event shows how this "new Mafia" has been able to penetrate into the institutional system, while exploiting territories. Despite the successful opposition from civil society, the new Mafia remains deeply embedded not only within local and national politics but also at the international level, able to appropriate EU funds, while keeping control over rural activities.

7. Conclusion

In our perspective, a mafiogenic landscape is a socioecological assemblage in which the Mafia has been able to penetrate in order to appropriate resources, produce profits, and impose power. It is a landscape produced by the Mafia but also reproducing Mafia socioecological relationships. In this article we have retraced the making of a specific mafiogenic landscape, that of the Simeto River, in the last sixty years. Through three examples we have shown how the Mafia has affected the Simeto system, imposing its socioecological regime culminating in the ambush directed against the director of the Nebrodi Regional Park, which we recall in the introduction (see Figure 5).

Disciplining the Simeto River, the Mafia has imposed its order on the ecology of water, land, and people. It is more than a simple wild destruction of nature. The infrastructure put in place by the Mafia organizes the river and humans' relationships with it. We have shown that the flexibility of the river, its overflowing and re-entering into its bed, was not tolerated; instead this flexible regime was the excuse for a wide taming intervention. The re-engineering of the river embodied the developmentalist dream aiming to an industrialized Sicily where the rural towns of the island were finally transformed in modern industrial cities, as they were Southern Italian versions of Milan. Clearly, that was not a Mafia project; rather the Mafia infiltrated in a wider scheme acquiring advantages in terms of profits and power. However, by entering in these projects, the Mafia has not only acquired profits and power, but it has also affected their planning and realization, as we have

66 An example of this appropriation of EU funds as well as of commons is in the Nebrodi Mountains - upstream in the Simeto watershed - a complex territory within four district boundaries (Caltanissetta, Catania, Enna and Messina) where the regional natural park - the scene of the ambush recalled into the introduction - is located. The territory is under the control of the so-called Mafia of the Nebrodi: thousands hectares of public lands that have been controlled by Cosa Nostra for decades. The control generates a profit of 2.5 millions € per year from EU Rural Investment Funds.
shown for the case of the Simeto River where, for instance, the canalization was not a functional irrigation scheme but only a profit machine for the construction enterprises.

While damming and diverting a large part of the Simeto’s water, the Mafia redesign of the river included the development of the mouth area through an extensive construction of tourist homes, thus destroying its wetlands ecosystem. As we have argued, Mafia ecologies are radically alternative to any form of commons’ ecologies. One of the key natures of Mafia ecologies is the appropriation of the commons for the benefit of a narrow group of people, confirming the theory that the Mafia can be defined as an armed form of capitalism. The ecologies of commons imply collective values and practices which are the very antibodies of Mafia ecology. The construction of the Oasi del Simeto Resort erased the mouth’s ecosystem and its fragile equilibrium imposing a touristic monoculture at the service of various affluent urban groups. Here not only has the space been subjugated to the interest of Mafia, but the very idea of beauty has been incorporated into a mafiogenic landscape and transformed from a commons to a commodity.

The clash between Mafia and commons is also proved by the story of the ambush directed against the director of the Nebrodi Regional Park, Mr. Antoci which opened our article. The ambush was the violent reaction of the Mafia to Antoci’s attempt to restore proper management of the commons in the area. For decades the criminal families of Santapaola, Bontempo Scavo, and Riina have built a mafiogenic landscape in the Nebrodi Mountains, expropriating thousands of hectares of pastures, imposing a peculiar fire regime on the forests, and jeopardizing public health by illegally slaughtering sick livestock.\textsuperscript{67} The Mafia also exercises its power over the area through its control of the forests’ fires. The fires\textsuperscript{68} serve Mafia’s ecologies in two ways: the burned lands drive to Sicily the EU rural funds for remediation, easily appropriated by the organization, but fires are also a tool of patronage since the Mafia has been able to place many of its affiliated into the rank of the Sicilian forest guards. The ambush of Mr. Antoci is only one of the revealing clues uncovering the wider processes producing mafiogenic landscapes, or as we say, Mafia ecologies.

In the clash between the Mafia and the commons, the latter are not fated to succumb. Indeed, the case of the grassroots coalition against the incinerator in the Simeto valley is a refreshing example of the resisting possibilities which the commons’ ecologies may generate. Perhaps it is not intuitive

\textsuperscript{67} The smuggling of animals (bovines or sheep) has a two-folded explanation: it might be a consequence of refusing the payment of \textit{pizzo} or it might hide a fake ruberry of animals afflicted with \textit{Brucella} and tuberculosis infectious disease destined to the illegal slaughtering business. Mr. Antoci, in collaboration with the Police Commissioner of Messina, had recently instituted a task force in order to tackle the phenomena of abigeato and illegal slaughter. In order to avoid the control of the Mafia on the pastures Mr. Antoci, together with the Prefect of Messina, had imposed a so-called \textit{certificate of antimafia} - that is, an official document proving the absence of connections to criminal organizations - for the concession of public lands. As a consequence, 23 entrepreneurs, out of 25 applicants, had not obtained the certificate, and the Prefecture of Enna had invalidated all public land concessions in the district. Together with Antoci, Fabio Venezia, the City Mayor of Troina (another small town within the Simeto watershed), lives under police protection since the end of 2015. In the 2013, he had changed the board of directors of the Troina Forestry and Grazing Special Agency (Azienda speciale silvo pastorale di Troina) for connections with Mafia families (acts of legal action No 971/2012 R.G., Enna Court). After the attack on 18 May, a Commission of Inquiry about the meat market in Sicily has been instituted in order to verify the grazing land management, although the District of Messina is still the territory with the lower percentage of control in Sicily conducted by veterinarian of ASP (health public district).

\textsuperscript{68} The extensive fires of June 2016, which destroyed about 1.200 ha in the Nebrodi area, were probably a retaliation caused by the firing of almost 300 forest guards because of their criminal records.
to connect the struggles against an incinerator with the defense of commons, but it has been argued that in several instances socioecological mobilizations have ignited commoning practices. In this specific case, not only have the actors involved in the anti-incinerator movement articulated their mobilization in terms of commons-framing both the river valley and the public health as commons-but that experience has also been pivotal for the creation of the Simeto River Agreement, that is, of an institution of the commons. In terms of Mafia penetration, the Simeto River Agreement has resulted in being quite efficient filter in the management of the watershed, therefore, confirming the positive effects of commoning experiences (See Figure 4). In the same way we can consider the initiative taken by the president of the Nebrodi Park to regain control over the public grazing lands which led to the ambush we have recalled at the beginning of this article.

The landscape of Sicily is deeply intertwined with the Mafia. It might be simply said that it is a ruined landscape, managed irresponsibly by local inhabitants. Actually, this is the most common description of the regional environment. Instead, we argue that it is crucial to recognize the mafiogenic nature of that landscape. Framing it in terms of mere destruction is superficial. Mafia ecologies destroy commons' ecologies in the name of privatization of nature and maximization of profits and in a way which is not so different from 'legal' capitalist ecologies.

Interpreting mafiogenic landscapes only as ruined environments in need of remediation also presents another crucial limitation: it risks blinding us to the fact that remediation can be a lucrative business for the Mafia. Mafia ecologies should be reversed not only through technocratic approaches, not even only by a “law and order” strategy. The reverse of Mafia ecologies are commons ecologies, that is, ecologies remediating the destruction of social and biological life, (re)producing new relationships with human and more-than-human beings. The case of the Simeto River clearly shows that the best antidote against the Mafia’s control over the environment is the reactivation of the commons, or, as political economist Massimo De Angelis would say, the practice of commoning. In fact, as we have shown, the Mafia’s plan to transform the Simeto Valley into a sacrifice zone for waste disposal was stopped by a coalition of grassroots groups claiming their right to decide the ecologies of their territory. The struggle against the Mafia requires a plurality of actors and strategies in order to be effective. In this paper we have suggested that the defense of existing commons and, even more, the experimentation of commoning practices can be a relevant means in that struggle.

However, the appropriation of commons is not only a Mafia’s prerogative, rather it is a basic way of functioning of capitalism, most of the time following perfectly legal procedures. In this sense, we might provocatively ask whether commoning, that is, the practice of creating commons against the

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enclosure, privatization and exploitation of nature, people, and life, must sometimes challenge actual legal arrangements.

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Fig 1 The map shows where the Simeto Basin is located (South Italy, Eastern Sicily) and some significant places that are recalled in the article. Specifically, in the central map: in dark blue the Simeto river main course, in light blue the main tributaries; along the river course, some toponyms are highlighted, Barcavecchia is the stretch that could be reached by boats before the changes in the river course (paragraph 5); Ponte Barca is where the water is spilled in order to fill the Lentini Lake, that is represented in brown (paragraph 5); the Oasi del Simeto resorts is where the mafiogenic dynamics are manifested (in grey, the boundaries of the Special Areas of Conservation Area - SAC accordingly to the 92/43/EEC Directive - are represented; paragraph 6.2); the waste-to-energy project is the site where one of the four Cuffaro’s incinerators was planned to be built (in grey, the boundaries of the SAC are represented; paragraph 6.3); the so-called “poisoning factory” is the facility connected with the waste-to-energy project (in grey, the boundaries of the SAC are represented; ibid); the Nebrodi area is the starting point of the story (paragraph 1) and the place where complex phenomena are currently happening (in dotted green, the boundaries of the SAC in the Nebrodi Park; paragraph 7); Troina is the small town where some of these phenomena have been recently stressed (paragraph 7). The boundaries of three Municipalities (Adrano, Biancavilla and Paternò) have been highlighted in red due to the fact that these municipalities were commonly perceived as the “death triangle” during the 80s because of the frequent Mafia murders that occurred there. Source: authors’ elaboration based on Sicilian regional census GIS.
Figure 2 The evolution of Mafia’s activities

Fig 2 The diagram shows how the Mafia has evolved in Sicily since the birth of the Kingdom of Italy in 19th century. The Mafia aimed to control the listed activities/resources (y) in the present timeframe (x). Although the type of control of the Mafia has changed over the years, some changes have been more drastic (these changes are represented through dotted/continuous lines). Racket has evolved from rural to urban settings in the 1950s because of urbanization. The relation between the Mafia and politics has shifted from the subordination of the Mafia under politics to vice-versa in 1992. This figure is based on John Dickie, Cosa Nostra, Hodder & Stoughton (2004) and Salvatore Lupo, Storia della Mafia, Donzelli (1993). This evolutionary trajectory is slightly different in Easter Sicily, where the Simeto River is located, because there the Mafia started operating only in the 1950s.
Figure 3

Fig. 3. The governing structures without the Simeto River Agreement
Fig. 4. How the Simeto River Agreement has impacted the municipal level in terms of actors' organizational structures.
Figure 5 Transformation of the Simeto River and its valley

The picture on the top shows the Simeto River before changes in the 1950s, as described in paragraph 5; the caption says: "the Pietralunga sea - boat excursion - 1932"; Pietralunga is a stretch in the middle course of the river (source: private archive of a Coalition of Associations in defense of the Simeto River). The pictures on the bottom show how the Simeto river is today after the spreading of concrete infrastructures, intensive agriculture operations and trash in the basin (source: authors' private archive).
Figure 6 A Chronology of Mafia’s intervention in the Simeto River

In 1958 the National agency for transport approved the allocation of about 138 millions € today, in order to solve the water disorder of the Simeto. In the following forty years, the Simeto River was heavily re-engineered through a massive employment of concrete for drainage, regimentations, and channelization. Such an extensive plan attracted the interest of the Mafia and entrepreneurs bounded with it.

Between 1970 and 1995 the business of “second houses” for vacation led to the construction of about 7000 illegal buildings in the Simeto River mouth area. The Mafia was acting as the controller and manager of the business of construction in those years in Catania, including in the river mouth area (Oasi del Simeto Resorts). This was nurturing the Mafia economies with several satellite activities.

In the 1990s, the business of construction declined due to the economic crisis which was affecting public works and the building market.

In 2002, the Sicilian Waste Management Plan has been issued by the Cuffaro’s Regional Administration. The Plan created a private monopolistic regime around the undifferentiated waste-treatment business. One of the four waste-to-energy facilities had to be located in the Simeto Valley, a Special Area of Conservation. The Cuffaro’s Waste Plan has been officially rebutted through the Regional Law No 9, 2010.

Connections have been highlighted between the waste-to-energy facility in Paterno and a factory that was about to introduce hazardous waste in the production cycle, in Adrono. Both were halted between 2007 and 2008.

The Mafia starts penetrating the international finance and the EU funding system, while keeping control over rural activities. [...] Antoci’s ambush.

Fig 6. The timeline summarises the main events related with the presence of the Mafia in the Simeto area, that are presented in the paper.