

Yasmin Smith, *Terra Dei Fuochi*, 2021

**artist statement**

The work presents the physical form of poplar tree trunks as cast ceramic reproductions. These were made by making plaster moulds of real poplar trunks and slip-casting the ceramic reproductions. The original poplars were then burnt and the ashes of the trees collected to make a ceramic ash-glaze which I applied to the outside of the ceramic poplar. The colour and aesthetic of the ash-glaze is a result of the chemicals that are in the ashes of the trees, as the tree derives these chemicals from the soils and water where it grows.

These poplar trees come from a phytoremediation plantation within the so-called Terra dei Fuochi, or Land of Fire. Geographically this area comprises mainly the area between the North of Napoli and the South of Caserta, in the region of Campania in Southern Italy. It is an urban landscape mixed with agricultural and other commercial industries. The area is known to have been heavily polluted through the mismanagement of urban waste disposal and an illegal Camorra-led waste disposal enterprise, these activities beginning as far back as the 1980's. The name Terra dei Fuochi describes the fires and plumes of black smoke that were commonly seen in agricultural fields and along road-sides where waste was illegally burnt and buried. This was an environmental crime that led to a proliferation of Potentially Contaminated Sites of soil, sub-soil, water and crops creating an environmental and health emergency effecting food crops and the health of local citizens as well as disrupting the local economy through government- imposed bans on farming food crops in the region.

I began my project in mid-2020, looking for collaborators who could provide vegetation to the project, specifically, trees that had been growing in contaminated soils in the Terra dei Fuochi. Through a collaboration with the Professor of Agronomy, Massimo Fagnano I was able to access poplar tree trunks from a phytoremediation plantation set up by the Professor as a part of the LIFE- Ecoremed Program and the University of Napoli Federico II. The plantation is an open-air laboratory called San Giuseppiello in Giugliano 30 mins north of Napoli city.

The land of San Giuseppiello was among the hectares that really suffered the spillage of toxic waste, six hectares of splendid orchards managed for years by the Vassallo family, of the Bidognetti clan. The same clan managed the Novambiente landfill near this land. When the waste from Northern Italy could not be dumped in the landfill, the clan buried it among the orchards, polluting the soil with heavy metals and chromium, which then reached a very high concentration. <https://informareonline.com/san-giuseppiello-la-terra-della-rinascita/>

This land was seized by the government in 2008, after much preparation and testing of soils, groundwater and existing flora, the process of phytoremediation began in 2015 with the planting of 20,000 poplar trees. In Phytoremediation, particular species of plants are chosen for their ability to accumulate certain heavy metals. These plants are called hyper-accumulators. In this way the trees clean

the contaminants out of the soil in a process of phytoextraction where the plants draw the contaminants from the soil through their roots. In the case of this poplar plantation at San Giuseppeello there is a 'hot spot' of very dangerous cadmium contamination and poplar trees are known to hyperaccumulate cadmium so were chosen for this task. However, it would be incredibly dangerous and illegal from me to be allowed to collect and burn this cadmium contaminated crop for my project. For this reason, Professor Fagnano suggested I use poplar that has been in the plantation as a phytostabilizer. that is, their root systems and planting proximity avoid the suspension of contaminated soil particles into the air. The soil is polluted with chromium and zinc in the section of the plantation from where these poplars were harvest, however, the contaminating heavy metals is a form of chromium that is non-soluble therefor the poplar trees cannot take it into their roots. In this way, these tree's act as barriers between the contaminated soil and humans. Through this experimental plantation it was discovered that the chemical and physical richness of the soil of Campania Felix filled with negative chemical particles absorbs and holds onto the cation (positive ion) of contaminants. The very mineral rich volcanic soils have played a part in suppressing the bioavailability of the potentially toxic form of chromium and zinc contamination, through the cation exchange mechanism of the soil.

The volcanic soil "cleans " itself. If the same spillage had happened on a sandy ground, it would have led to an environmental and health disaster but because of the rich mineral soils of Campania Felix, the contaminates present are blocked at 1.2m depth by the cationic exchange, the fertility of the soil has protected it, the Professor explains, "Mineral and organic components of such volcanic soil (mainly clay and organic matter) have negative charges that adsorb cations so reducing their mobility and the consequent sanitary and environmental risks due to chromium and zinc. Furthermore, the high level of organic matter (derived by the high mineral fertility of volcanic soils that improved plant growth in the past millennia and thus the "fertilization" of such soils with plant residues) reduces the possibility that chromium turns in the more toxic hexavalent form ( $Cr^{6+}$ , with 6 positive charges), while in this soil chromium remains in a trivalent form ( $Cr^{3+}$ , with 3 positive charges) with a very low toxicity. Actually  $Cr^{3+}$  has positive effects on human health so much that it is present in many mineral supplements sold in pharmacies. All this would not have happened in a sandy low-fertility soil."

The work of the phytoremediation at the site of San Giuseppeello and other sites in the Campania region is a project still underway and the results of this is to restore this land to normal agriculture use (where possible) or to green spaces for education on the subject and an emblem of legality to remind us of the devastating results of when economic-driven human activities are undertaken with disregard for socio-environmental health.

My over-all practice is an ongoing project seeking to produce aesthetic manifestation of the combined environmental and human history of a place through the creation of ceramic forms and ash-glazes that are derived from plants. Since 2014 I have undertaken projects throughout Australia, in China, France and now Italy. In 2020 when I was invited to produce this work in Italy, the Covid-19 pandemic made it impossible for me to physically go to Italy. I was connected with a local artist, Angelica Tulimiero, and

through her collaboration and the support and studio of Basilico Lamberti and the material and research support from Professor Massimo Fagnano, it was possible to remotely research and produce the work. The experience of undertaking this project from a distance in this time of Covid was a remarkable thing.

I always follow the same methodology from one project to the next, collecting plants from a location of interest, making plaster molds of some specimens, then making exact ceramic replication of the plants part. I then burn the original vegetation down to ash to make a ceramic ash-glaze that I can then apply to the outside of the ceramic plant reproductions. The visual and aesthetic outcome of the glaze, its colour and texture, express the inorganic elements retained in the plant's ashes, and every plant and location has a unique aesthetic outcome. For plants to have life they must absorb essential nutrients from the soil and water where they grow. When a plant is burnt the organic matter of the plant is burnt away but the inorganic elements, the chemicals and minerals they have absorbed remain in the ashes. In this way the tree, and the specific ash glaze made from their remains are like record keepers of the site, both the natural geology and sometimes the anthropogenic inputs or activities that have occurred at that site. Each project I undertake is comparable to the next because the parameters I use for the glazes and ceramic process are always the same. The same glaze recipe, the same firing temperature and I always apply the ash-glaze to the cast forms of the specific corresponding plant that I have used in order to bring to the outside and make visible that which we usually cannot see locked up inside the plant's bodies. I have an interest in exploring sites that have had a heavy human influence, be that through agriculture, mining, mass habitation or radical human intervention on the landscape through things like building dams, dredging rivers or commercial-scale plantations. The environment of this specific region in Campania has been massively impacted by economic- driven human activities in the form of waste disposal both legal and illegal.

Garbage is anthropogenic. Its accumulation relates to populations of humans. Its disposal is a system managed by policy and driven by economics. In the Campania waste crisis, a framework of political ecology can be applied to understand the human political and economic circumstances that led to environmental change and in this case devastating environmental damage that continues to have detrimental effects on local communities. In the case of the Terra dei Fuochi, governmental and illegal entities in positions of power, made decisions that inevitably imposed environmental, economic and health burdens on local communities. A lack of community consultation in the decision-making process motivated a grassroots reaction to the social-environmental injustices in this area. The degraded environmental conditions in the Terra dei Fuochi are a result of human actions and decisions made for the economic advancements of certain groups of people at the expense of others. *Garbage is Gold* to some through the commodification of waste. Profiteering from this became advantageous for some, at the expense of both the local environment and the human and non-human entities that rely on it. There is a clear connection between the environmental changes in the Campania region and the value of waste as defined by both criminal and political institutions.

*Terra Dei Fuochi* expresses an environmental and human narrative, as recorded by the trees that have grown there, the intelligent and capable non-human technology helping to remediate the earth. Biological and phytoremediation shows us that the soil, plants, fungi and microorganism have the incredible ability to rehabilitate from destructive activities performed by some humans, and in this case indeed, the plants are performing a task of rescuing the site from further degradation and returning it to safe use for humans.