

DRY STONE WALLS

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DRY STONE WALLING IS A BUILDING TECHNIQUE THAT DATES BACK TO PREHISTORIC TIMES AND CAN BE FOUND IN EUROPE, ASIA, AFRICA, AND THE MIDDLE EAST.

Besides contributing to a truly unique and visually appealing scenery, these historical structures also provide important cultural, historical and ecological values to the landscape (Cornu 2019). They have been used both as a building element (housing, roads, hydraulic and sacral structures) and as agricultural elements (enclosures and terraces) (Čurović et al. 2019).

In the Mediterranean regions, dry stone walls are very common in mountainous regions, but can also be found in plains, coastal areas and on islands, where they are mainly used to mark the boundaries for grazing lands and terraced agricultural fields (Kizos & Koulouri 2006). They have shaped many agricultural and farming landscapes in the Mediterranean region, and can be found for example in olive groves, vineyards, almond orchards. The skill of dry stone walling is increasingly being recognised as an important heritage in Mediterranean countries (Goncalves et al. 2017).



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THREATS TO THE PRACTICE

During recent years, many dry stone walls have not been maintained and have collapsed (Manenti 2014). An even more alarming matter is that there are hardly any people left with the knowledge to repair these walls. Many of the active dry stone masters are no longer as fit and active as before and their knowledge has not been passed on to younger generations. Although the technique is still forceful in some Mediterranean countries, dry stone walling is generally seen as a complex and meticulous process, impossible to mechanize and with high costs in production and labour (Kizos & Koulouri 2006).

The subsequent lack and high costs of experienced craftsmen leads to the use of cheap modern materials to create stone walls, which are often made from non-local stones with binding material (Kizos & Koulouri 2006). Meanwhile, the dry stone walls are neglected and no longer repaired, allowing nature to take over again, closing up this cultural landscape and leading to uncertain effects on the environment (Cornu 2019).

RECOGNITION AND FUNDING

Increasing action is being taken to preserve this valuable knowledge for future generations. In 2018, the art of dry stone walling knowledge and techniques has been included on the Representative List of Intangible Cultural Heritage of Humanity by UNESCO for several European countries (Croatia, Cyprus, France, Greece, Italy, Slovenia, Spain & Switzerland). With the ‘greening’ obligations of the Common Agriculture Policy (CAP), funding is available by the EU to halt the loss of traditional landscape and providers of cultural landscapes (Assandri et al. 2018).

But the real action is being taken at the local level, with several projects being implemented to combat the disappearance of the dry stone wall and to train younger generations in the art of dry stone walling in several Mediterranean countries (HERCULE, TERRISC, PATTERN, ALPTER, PROSIT) (Goncalves et al. 2017). Another more recent project, called STONEWALLSFORLIFE and funded by the LIFE Programme “Climate change adaptation”, aims to showcase the environmental and socio-economic benefits in dry stone terraces in Italy and Spain. Finally, the EU has set up a short-term European Voluntary Service Project, called Dry Stone Wall Extravaganza 3 to train young volunteers in the art of stone walling.

1. CULTURAL SUSTAINABLE LAND-USE PRACTICES

Dry stone walls are a traditional construction form for which no binding material, such as mortar or plaster, is being used between the stones. These walls remain stable due to the correct placement of the stones and the friction between them. It is a technique that cannot be mechanized and therefore requires a lot of man power to construct and maintain. But it is a completely sustainable method as it makes use of the local stone that is cleared from the fields (Cornu 2019).

Dry stone walls serve many purposes for the local communities, both agricultural as cultural. They prevent livestock from fleeing, they protect crop fields both to livestock as well as atmospheric agents, such as the wind. The dry stone walls also provide a unique system to mitigate erosion, hold the soil and slow down the runoff of water. Finally, they serve an important role in the preservation of biodiversity, as they provide favourable conditions for several species of flora and fauna, including natural enemies of pests.

TECHNICAL DETAILS



Necessary material

Hammer, chisel, pickaxe, plumb line, level measuring instrument, string to limit the foundation



Time period

Favourable conditions to collect and put stones. Most importantly, avoid working in the rain, since mud-stained stones no longer provide the necessary grip and it is impossible to judge the correct form



Traditional *mandra* system in Vigla, Lemnos © MediNA

RESEARCH BY THE ALLIANCE FOR MEDITERRANEAN NATURE AND CULTURE (AMNC)

Although dry stone walls are as extensively widespread as other landscape structures (hedgerows and woodlands), they have received considerably less attention in empirical studies (Collier 2013). They are an important part of the expanding field of urban ecology and there is an increasing interest in understanding the effects of walls on biodiversity (Francis 2011). However, there is a lack of studies investigating both the ecological and cultural values of these landscape structures (Collier 2013).

A recent study by AMNC on sustainable agriculture in the Mediterranean tried to close this knowledge gap. The biodiversity was surveyed in several cultural heritage sites across the Mediterranean basin, including several where dry stone walls are part of the landscape. Firstly, the island of Menorca (Spain) with a large number of dry stone buildings, including walls that stretch for 12000 km. Secondly, the island of Lemnos (Greece) that is characterized by a high concentration of mandras, infrastructures with small houses and dry stone walls around farmland. Thirdly, the agricultural terraces in the Al Shouf Cedar Nature Reserve (Lebanon) and the High Atlas region (Morocco) have dry stone walls surrounding them. In the last years, several of these terraces have been abandoned and the dry stone walls have collapsed and being taken over by nature. Finally, in the Dehesas and Montados in Spain and Portugal, dry stone walls are being used to separate the livestock areas from the crop fields.

2. BENEFITS OF THE PRACTICE

2.1. BIODIVERSITY

Besides forming terraces and delimiting parcels, dry stone walls provide a specific natural ecosystem for many species. Unlike the cemented walls, dry stone walls have crevices between the rocks where accumulated debris leads to the growth of moss, lichen and fungus (Cornu 2019). The created microhabitat allows for the growth of a rich and specific vegetation, which in turn provide a breeding and roosting site for several animals (insects, amphibians, reptiles, small mammals and birds) (Assandri et al. 2018).

In the Mediterranean climate, dry stone walls act as a temperature regulator, protecting against the summer heat and providing warmth in the winter nights (Cornu 2019). They also act as a hidden ecological corridor, providing protection against predators and enhancing the habitat heterogeneity of the agricultural landscape (Cornu 2019). The limited number of studies comparing the biodiversity in concrete walls to dry stone walls, found the latter more heterogenous and noticed their importance on the survival of many species (birds, molluscs, amphibians, lichen, insects) (Assandri et al 2018; Cornu 2019; Manenti 2014).



Dry stone walls and buildings in High Atlas, Morocco © Inanc Tekguç GDF

2.2. CULTURAL

Dry stone walls provide an important architectural element that works in perfect harmony with nature. Modern architecture often uses outside resources and completely changes the landscape, removing vegetation and changing the topography of the terrain (Čurović et al. 2019). Dry stone walling uses the local products to create elements that blend in with nature and create a unique cultural landscape that is very typical of the Mediterranean region (Čurović et al. 2019).

Talati de Dalt farms dry stone walls © GOB Menorca



The craft of dry stone walling has existed since prehistoric times, and has a special meaning for the people that practice it (Cornu 2019). Wallers have been repairing what their ancestors left them, and are constructing useful structures for their community (Cornu 2019). The art of dry stone walling is linked to their history and society, and is recognized by UNESCO as intangible cultural heritage.

2.3. CLIMATE CHANGE

With the large amounts of crevices between the stones, the dry stone walls are entirely free-draining, meaning there is no risk of surplus water remaining stuck (Cornu 2019). They also aid in combating soil erosion during snow melt, and desertification in semi-arid to arid lands (Cornu 2019). Furthermore, these walls play a vital role in the prevention of landslides, floods, avalanches and forest fires, not in the least because of the heterogeneity that they add to the landscape (Cornu 2019). The materials to make the walls are also all local, reducing the need for transportation or extra resources. Finally, whenever a part of the wall is destroyed, it suffices to focus on the reconstruction of that part of the wall, without the need to destroy and completely rebuild the entire wall.

2.4. SOCIO-ECONOMICAL

Widely used in various parts of the world, the technique of dry stone walling has an important socio-economic importance for the rural communities. Building and maintaining these structures creates a local market that offers jobs that would otherwise be mechanized or relocated (Cornu 2019; Čurović et al. 2019). Due to their aesthetic and cultural aspect, they provide an attractive opportunity for ecotourism, allowing visitors to understand the interaction between culture and environment (Goncalves et al. 2017). Possible examples could be workshops about harvesting traditional products, pedestrian or cycling paths along the walls or open-air museums to emphasize the historical and cultural heritage (Cornu 2019; Goncalves et al. 2017).

An interesting initiative was taken in Catalonia to rehabilitate the dry stone walls. Fundació e Solà in Fatarella organized workshops to teach participants the skills of dry stone walling. The participants pay a fee to participate in the workshop, they are being taught by a skilled dry stone waller to reconstruct the dry stone walls from the local farmers. Another project by Al Shouf Cedar Society (CEPF) focused on planting economically valuable shrubs and trees (fruits & nuts) in the crevices and border of the dry stone walls, as means to provide an additional source of income from these landscape elements.

3. REFERENCE LIST

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