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**GreenHeritage.**  
The impact of  
Climate Change  
on the Intangible  
Cultural Heritage



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# Climate Change and its repercussions on the emblems of Spanish Heritage: An analysis of the “Camino de Santiago” and the “Paella Valenciana”

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## 1. Introduction

Have you ever wondered whether climate change might affect some of the cultural identity of any of our countries, or whether any of our traditions are at risk for that very reason?

This problem has not only altered natural ecosystems and global economies, but has also had a devastating impact on the tangible and intangible cultural heritage of states. In Spain, two icons deeply linked to its national identity, the “Camino de Santiago” (The Way of St. James) and the “Paella Valenciana”, are being affected by global warming and its multiple effects. The “Camino”, a pilgrimage route with centuries of history, and the gastronomic recipe, a globally recognised emblem, are facing environmental challenges that could modify their essential characteristics and

cultural value, thus affecting the idiosyncrasy of the country.

Rising temperatures, rainfall variability and the intensification of extreme weather phenomena have modified the landscapes that make up the Compostela route, altering the experience of pilgrims, putting at risk the historical monuments that mark the route and modifying some of the traditions of its inhabitants. On the other hand, climate change is af-



*Camino de Santiago, by Gumer Bueno (FSMLR).*

fecting the fundamental ingredients of Paella, such as rice from the “Albufera” in Valencia and the “garrofón”, a variety of bean, which threatens the authenticity of this traditional dish.

This article explores how the climate crisis is affecting these two pillars of Spanish cultural heritage. First, it will analyse some of the screening initiatives being taken, such as the **European project “Green Heritage”** and the **Basic Plan for Adaptation to Climate Change on the French Camino de Santiago**, and how these actions are trying to mitigate environmental impacts and protect these traditions for future generations.

## 2. Actions for the Protection of Cultural Heritage

### 2.1. Green Heritage project

One of the initiatives investigating the relationship between climate change and, in this case, intangible cultural heritage is the Green Heritage project. An initiative co-funded by the European Union, through the Erasmus+ programme, it is being carried out in 5 European countries (Belgium, Greece, Italy, Latvia and Spain). It aims to develop a holistic, innovative and inclusive approach to the direct and indirect impact of climate change on intangible cultural heritage. To this end, it seeks innovative tools and methodologies capable of promoting adaptive and systemic approaches to better manage climate variation. Green Heritage aims to be a key catalyst in the implementation of policies and actions to protect cultural heritage in the face of climate change. One of its main actions is the holding of national **policy roundtables** in each of the five participating countries, which are instrumental in raising awareness of the challenges facing intangible cultural heritage and in developing innovative solutions. In particular, the roundtable held in Spain (Aguilar de Campoo, Palencia) in November 2023 brought together 29 experts from different sectors to discuss the relationship between climate change and cultural heritage. This meeting resulted in **25 recommendations**, which are included in the **Green Heritage Policy Brief**.

This document includes specific guidelines for the protection of food customs, such as the Paella Valenciana, as well as broader recommendations for the preservation of intangible cultural heritage, including



*GreenHeritage's Spanish Policy Brief.*

some guidelines that can be perfectly applicable to different issues affecting different manifestations present in the Camino de Santiago. Recommendations include the **promotion of interdisciplinary research** on the impact of climate change on cultural traditions, the creation of **economic incentives** for farmers who adopt sustainable practices, and the incorporation of considerations on this issue in heritage protection laws.

## 2.2. Basic Plan for Adaptation to Climate Change on the French Camino de Santiago

The "Association of Municipalities of the Camino de Santiago" (Asociación de Municipios del Camino de Santiago - AMCS), a Spanish non-profit organisation that represents and gives a joint voice to 114 municipalities along the traditional pilgrimage route commonly known as the **French Way of St. James**, has launched in 2024 the Basic Plan for Adaptation to Climate Change on the French Camino de Santiago. A document that seeks **three objectives**:

1. To know the basic concepts currently used in addressing climate change and its framing in the achievement of Sustainable Development Objectives.
2. To understand that landscape transformations determine the pilgrim's experience.
3. Facilitate the municipalities of the "AMCS" to make decisions within the scope of their competencies when carrying out actions in the face of climate change.

This report is another example of how concrete steps are being taken to protect cultural and natural heritage from the climate. The plan, developed by environmental, tourism and heritage experts, addresses both environmental concerns and the needs of pilgrims and local communities.



*Basic Plan for Adaptation to Climate Change on the French Camino de Santiago.*

It includes a series of **adaptation measures**, such as reforestation of areas affected by fires, the construction of more resilient infrastructure and the creation of alternative routes for pilgrims in the event of extreme weather conditions. It also promotes biodiversity conservation along the trail by restoring natural habitats and protecting endangered species.

The plan encourages the active participation of **local communities** in the protection of the Jacobean route, highlighting the importance of **collaborative management** involving all relevant stakeholders, from pilgrims to farmers and policy makers.

### 3. Camino de Santiago: Visible Impacts of Climate Change

The Compostela route is traveled every year by a multitude of pilgrims, it has been a space where history, culture and faith have converged for over a thousand years. Throughout the centuries, from the Middle Ages to the present day, the different routes have preserved and transmitted customs, rites, dances and stories that are part of its intangible cultural legacy. Many of the elements declared **Intangible Cultural Heritage** by **UNESCO** are present within the Camino. However, the effects of climate change are altering the landscapes, infrastructures and traditions that are part of this emblematic route. The Ministry of Culture of the Kingdom of Spain, at the beginning of 2024, has opened the file for the **declaration of the traditional Jacobean welcome** as a Representative Manifestation of the Intangible Cultural Heritage. This recognition focuses on safeguarding the fraternal system of hospitality that characterizes the pilgrimage, an essential element of the Jacobean phenomenon that has endured since the Middle Ages. Jacobean hospitality, with its austere and voluntary character, is one of the most fragile values of the Camino, threatened not only by commercialization, but also by the impacts of climate change that affect the environment and the spiritual experience of pilgrims.

#### 3.1. Changes in landscapes and biodiversity

One of the most obvious effects of climate change on the Compostela route is the rise in temperatures and the increasing frequency of extreme weather phenomena, such as heat waves, storms and forest fires. These events are not only degrading the natural landscapes, but are also jeopardising the safety of pilgrims and altering the spiritual experience that has characterised this route for centuries. In the same way, some traditions or ways of life that develop in this territory are disappearing or are being modified by these same circumstances.

**Forest fires**, in particular, have devastated large forested areas





*Forest landscape on the Camino de Santiago, by Gumer Bueno (FSMLR).*

along the route. **Reforestation** of these areas has become an urgent task, as the fires have not only destroyed the vegetation, but also altered the local biodiversity. The forests along the route are vital not only for the aesthetic experience of pilgrims, but also for the ecological balance of the region. The disappearance of these ecosystems not only affects native species, but also accelerates the process of **soil erosion**, another problem that has been exacerbated by torrential rains associated with climate change.

Basic Plan for Adaptation to Climate Change on the French Camino de Santiago has identified erosion as one of the main threats to the Camino's infrastructure. Increasingly heavy rainfall is wearing away certain sections of the route, some of which are impassable for long periods of time. This phenomenon not only alters the route, but also puts at risk historical monuments that were not designed to withstand extreme weather conditions. In addition to erosion and fires, biodiversity loss is a critical challenge. Areas of the Camino that were once home to rich fauna and flora are suffering due to the loss of natural habitats. The disappearance of endemic species and the invasion of non-native species, which thrive in warmer climatic conditions, is altering local ecosystems and changing the ecological dynamics of the Jacobean route.

### **3.2. Impact on the pilgrim experience**

Climate change not only affects the physical environment of the Camino de Santiago, but also the pilgrim's experience. The heat waves that have become more common in recent years have



*Pilgrims on the Camino de Santiago, by Gumer Bueno (FSMLR).*

made the pilgrimage more difficult and even dangerous. Travelers who are not used to extreme temperatures are at risk of heat stroke, dehydration and physical exhaustion. These episodes of extreme heat are not only affecting the health of walkers, but are also altering the very perception of the experience.

In the previous point we pointed out the problem of forest fires as the source of significant deforestation, which has also forced the authorities to close entire sections of the route during the driest months. This has interrupted the continuity of the route for many pilgrims, who are forced to change their route or even abandon their journey. Fires not only pose an immediate threat to walkers and local communities, but also have a lasting impact on the infrastructure of the Camino, such as shelters, monasteries and historic bridges.

**Water scarcity** is another problem that is affecting the traveler experience. In many rural areas, small villages that rely on water from natural springs are experiencing restrictions due to reduced rainfall. This limits the ability of albergues to provide basic services, such as drinking water, which in turn impacts on the traditional hospitality that characterises the Camino de Santiago.

In this context, local administrations are taking measures to mitigate the effects of climate change and ensure the safety and well-being of pilgrims. **Early warning systems** are being implemented to warn of dangerous weather conditions, as well as alternative routes to avoid areas most affected by extreme events.



### 3.3. Adaptations and solutions

Basic Plan for Adaptation to Climate Change on the French Camino de Santiago, implemented in response to these challenges, aims to protect landscapes, infrastructure and the pilgrimage experience from climate change. This plan includes a series of measures that address both environmental concerns and the needs of walkers and local communities.

Key strategies of the plan include **reforestation** of fire-affected areas, building more resilient infrastructure such as bridges and shelters, and creating drainage systems that prevent soil erosion. In addition, the plan promotes biodiversity conservation along the road by restoring natural habitats and protecting endangered species.

Green Heritage's Spanish Policy Brief includes the promotion of **sustainable tourism** that reduces pressure on natural resources, the **development of policies for the conservation of cultural landscapes** that protect areas of cultural and ecological value, as well as investment in more environmentally friendly infrastructure. In addition, it calls for cooperation between local communities, policy makers and international organisations to develop joint strategies to mitigate climate impacts.

## 4. Paella Valenciana: Changes in Traditional Ingredients

Paella, one of the most iconic dishes of Spanish gastronomy, faces serious threats due to climate change. Declared an Intangible Cultural Heritage in 2021, this recipe has become a symbol not only of Valencian cuisine, but also of social cohesion and tradition. However, this problem is putting the essential ingre-



*Paella, by malubeng (Royalty free and free to use image).*

dients of this dish at risk, which could alter its authenticity and, ultimately, its cultural value.

#### 4.1. Albufera rice under threat

Rice is the main ingredient and is traditionally grown in the wetlands of the “Albufera de Valencia”, a delicate ecosystem that is being severely affected by climate change. The **salinization** of water and soil, caused by rising sea levels and the reduction in the flow of the Júcar and Turia rivers, is affecting farmers' ability to grow rice in this region. The **availability of fresh water**, which is essential for planting, is decreasing due to reduced rainfall and inefficient management of water resources.

The **shortening of the rice growing season** is another direct effect of climate change. Higher temperatures and longer summers are reducing its ripening time, affecting both the quantity and quality of harvests. In addition, **rising temperatures** are affecting the amount of starch it contains, which directly influences its texture and flavour. This alters one of the key elements of the famous dish, whose traditional recipe depends on the quality of the rice. Paella, as well as being an emblematic dish, is deeply linked to the cultural and economic identity of the Valencian Community. Rice production in the Albufera is not only a key factor in the local economy, but also defines the landscape and ecosystem of the region. However, **competition from imported rice** and the effects of climate change are threatening this age-old tradition. If immediate action is not taken, the cultivation of this cereal in the territory could become unsustainable in the coming decades, which would have a devastating impact on the cultural identity and gastronomy of the region.



*Rice field in Albufera (Valencia), by Txus71 (Royalty free and free to use image).*



#### 4.2. The “garrofón” and its difficult future

The “garrofón”, a variety of large bean that is essential in the traditional Paella recipe, is also at risk. Farmers have reported that this food has lost more than 75% of its cultivation area in recent years, mainly due to competition with other countries and the effects of climate change, which is severely affecting this crop, which requires specific climatic conditions to thrive.

Scientists and local associations have stated that it is one of the most vulnerable ingredients in the recipe. As temperatures rise and water availability decreases, farmers are struggling to maintain this traditional crop. If measures are not taken to adapt to the new climatic challenges, the “garrofón” could disappear completely from the Valencian fields, irreversibly altering the original Paella recipe.

In addition, climate change has led to an increase in the frequency of **pests and diseases** affecting “garrofón”. Farmers are finding it increasingly difficult to combat these threats, which are exacerbated by extreme weather conditions. Rising temperatures and erratic rainfall have created an environment conducive to the proliferation of pests that affect both the quality and quantity of their production.

#### 4.3. Adaptations and solutions in Valencian agriculture

In response to these challenges, local authorities and farmers have begun to implement adaptation measures to protect the cultivation of key Paella ingredients. Among the strategies proposed is **research into new varieties of rice and “garrofón”** that are more resistant to extreme weather conditions. In addition, more sustainable agricultural practices are being adopted, such as reducing the use of pesticides and fertilisers, and optimising irrigation systems to cope with water shortages.



Garden produce, by Gumer Bueno (FSMLR).

Green Heritage's Spanish Policy Brief also focuses on the protection of Paella in the face of climate change. This document includes a series of guidelines for policy makers to adapt their agricultural and environmental policies to the new climatic realities. Among the proposals are the promotion of sustainable agricultural practices that adapt to phenological changes, reducing the use of pesticides and promoting crop genetic diversity, raising public awareness of the importance of preserving traditional ingredients, and developing strategies for marine conservation and sustainable water management.

**Economic incentives** have been proposed for farmers who adopt sustainable practices, such as the use of more efficient irrigation techniques or crop diversification. These measures will not only help mitigate the effects of climate change, but will also contribute to preserving the authenticity of the recipe, a gastronomic heritage that is part of Spain's cultural identity.

## 5. Cultural Implications and the Future of Spanish Heritage

The impact of climate change on the Camino de Santiago and Paella Valenciana is a reminder of how this phenomenon is affecting all facets of life, including the cultural traditions that have defined the identity of nations for centuries. In Spain, this problem is not only putting landscapes and ingredients at risk, but also the cultural practices that form part of the country's social fabric.

### 5.1. Changes needed for cultural preservation

The preservation of cultural heritage against climate change requires a comprehensive approach that combines effective public policies, technological innovation and the active participation of local communities. In the case of the Jacobean route, this involves not only the restoration of landscapes and infrastructure, but also the adaptation of **tourism practices**, the promotion of sustainable tourism that minimises the impact on natural resources, and the protection of local communities' traditions and cultural practices.

Regarding Paella, the key to its preservation lies in supporting local farmers and implementing agricultural policies that promote more sustainable practices. Climate variation is already affecting water availability and soil quality, so it is crucial that policies are adapted to address these challenges and ensure that the key ingredients of the recipe can continue to be grown locally.

Paella is not only a meal; it is a representation of social and family cohesion. The need to protect this tradition is essential not only from a food point of view, but also because of its importance as an element of cultural identity.

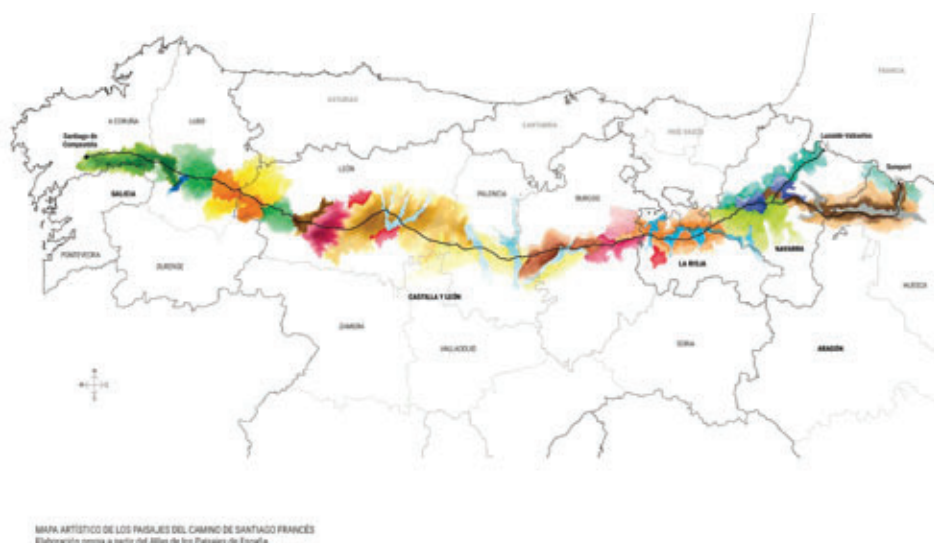


*Green Heritage Policy Roundtable, by FSMLR.*

Green Heritage's Spanish Policy Brief emphasises the importance of a collaborative approach between local, national and European governments to address the specific problems facing intangible cultural heritage in the face of climate change. This document, which was developed after extensive consultations with heritage experts, scientists and policy makers, highlights the need to create **flexible legal frameworks** that allow for the protection of both cultural and natural heritage.

## 5.2. Future proposals

Looking ahead, it is crucial that projects such as Green Heritage and actions such as the Basic Plan for Adaptation to Climate Change continue to develop and expand to address the new challenges that climate change poses to cultural heritage. **Collaboration between governments, international organisations and civil society** will be essential to ensure cultural sustainability in this context.



The Policy Brief suggests that partnerships that promote the conservation of intangible cultural heritage in relation to climate change should be encouraged. These organisations can play a key role in promoting public policies that support local communities, ensuring that they can preserve their cultural identity in the face of climate impacts.

At the global level, it is essential that governments work together to implement economic incentives to encourage sustainable agriculture, particularly in the case of Paella and other traditional foods that are directly threatened by climate change. The implementation of these policies is fundamental to ensure that Spain's traditional agriculture and cultural landscapes remain viable in the long term.

## 6. Conclusions

The detailed analysis of the effects of climate change on Spain's intangible cultural heritage, with a specific focus on the Camino de Santiago and Paella Valenciana, reveals the urgent need for comprehensive and sustained intervention. These elements are not only tangible symbols of Spanish culture, but also bear intangible values that are part of the national identity. However, this problem is exerting unprecedented pressure, endangering both the physical landscapes and the traditional practices associated with them. We have worked on these two examples, widely recognised in Spain, as a representative sample of the country's cultural heritage. However, there are many other examples, in both tangible and intangible heritage, that are also under threat, demonstrating how climate change can profoundly alter a nation's distinctiveness.

There is not only a threat to natural ecosystems, but also to intangible cultural heritage, which defines the identity and social cohesion of communities. The traditions, customs and knowledge associated with the Camino de Santiago and Paella Valenciana are intrinsically connected to their natural environments, making them vulnerable to climate impacts. Without effective adaptive measures, we risk losing not only the landscapes, but also the experiences and values they represent.

Responding to climate change must therefore be a priority for both cultural and environmental policies. The preservation of intangible values that are part of cultural heritage requires a comprehensive approach that considers environmental, social and economic dimensions. Through international cooperation and local commitment, it is possible to develop effective strategies to ensure the sustainability of these cultural treasures, allowing future generations to continue to enjoy them.