

Forum for debate and proposals for action for the management of large wildfires in Spain

Spain is facing a complex problem which cannot be tackled with simple solutions based on beliefs and myths, nor through biased or outdated discourses. The huge wildfires that occurred in Castellón-Teruel at the end of March 2023 and those that occurred in the summer of 2022 (Sierra de la Culebra, Navarra, Bejís, Vall d'Ebo and Sierra Calderona) have confirmed what the wildfire community has always stated: future fires (already present) are more intense and bring unprecedented ecological and social consequences. Examples from past years and in different countries were already signalling a warning of this change of trend – Australia (2009 y 2019), Portugal and Chile (2017), and California (2018).

Given this new scenario, the Pau Costa Foundation considered necessary to offer the wildfire community, with sound accumulated knowledge and experience, the chance to voice their concerns and draw up proposals for the review, updating and establishment of a new common focus for effective and safe wildfire management. To consolidate this position the Foundation set up a public participatory process by means of the *Forum for debate and proposals for action for the management of large wildfires in Spain*, which was held on 29 and 30 March 2023 in Madrid. This space for dialogue brought together 58 members of the wildfire community with different profiles and professional and social perspectives. Discussions were held from a

broad and inclusive perspective to identify the most sustainable way of managing large wildfires in the short, medium and long term in Spain.

Their conclusions were then passed to a large number of other specialists who also offered suggestions. While maintaining the highest possible levels of technical and scientific rigour, a broad consensus was achieved on the approaches required for wildfire management both immediately and in the short, medium and long term, not only in Spain but also in Europe. This work marks the start of an open participatory process in the longer term. Several actions will take place during this process to compile opinions and/or inputs to update and define this declaration.

The wildfire community identifies 10 thematic axes and 10 challenges for addressing the management of large wildfires in Spain. Below, there follows a list of the seven main axes:

1. Management of forest ecosystems

CHALLENGE: Create an alliance for adaptive management of forested areas in the face of large wildfires.

2. Territorial planning

CHALLENGE: Plan diverse, resistant and resilient landscapes that support safer wildfire management.

3. Living rural communities

CHALLENGE: Promote a living rural society, with a primary sector of high socio-environmental value that is viable and which contributes to generating more sustainable ways of dealing with fires.

4. Uses and ecology of fire

CHALLENGE: Recover the function of fire as a natural process in ecosystems.

5. Communication, education and awareness-raising

CHALLENGE: Offer society the means for learning to live with fires.

6. Knowledge and needs regarding wildfire suppression

CHALLENGE: Recover the initiative in the management of emergencies.

7. Future scenarios in the medium and long term

CHALLENGE: Prepare society and the territory for extreme wildfire episodes.

We also consider three cross-cutting axes that are interrelated to the main axis. These transversal axes were taken into account and discussed within each of the main axes:

1. Politics and governance

CHALLENGE: Assign joint responsibility to all actors involved in wildfire management.

2. Nature conservation

CHALLENGE: Guarantee that fire prevention management is compatible with the conservation of biodiversity and include fire prevention actions as a key element for the preservation of protected natural spaces.

3. Climate change

CHALLENGE: Work towards the adaptation and resilience of the fire services, society and biodiversity.

AXIS 1 | Management of forest ecosystems

Large wildfires are one of the main factors affecting the stability and continuation of forest ecosystems and their natural, cultural and productive values. Progression towards forest spaces that are more resistant and resilient to fire is one of the great challenges that we face. The focus is on forestry structures that can reduce fire intensity, while considering the value of the forest and the conservation of biodiversity (in other words, ensuring and improving the provision of ecosystem services). To do so we need good examples of sustainable and multifunctional forest management which include management and conservation. Integrative and resolute policies are also needed, which can drive the management of forest ecosystems within a framework of aligned planning measures. Which management references or silviculture models? Priority management areas? Economic viability? What, where and how?

CHALLENGE 1 | Create an alliance for adaptative management of forested areas in the face of large wildfires.

■ Short-term objectives:

- Define and agree on management tools and references (e.g. vulnerability maps, silviculture models, codes of good practices, participatory processes, PORF¹, etc.), in the framework of planning at different scales (i.e. landscape, mountain, property, stand) to implement the best possible forest management in each case, identifying the actors involved and placing the focus on forest owners.
- Integrate/align the planning on different scales and sectors (PORF, PORN², PRUG³, fire prevention plans, etc.) with large wildfires.
- Identify the high risk zones (ZAR⁴) or strategic management areas (PEG⁵), for each Autonomous Region for the suppression/prevention of large wildfires and define a specific legislation for the strategic management areas.
- Identify funding sources, tax incentives, etc. for recognising the value of spaces and forest products (timber and non-timber).
- Post-fire recovery. Recovery does not mean returning to the situation prior to the fire. Re-

¹ PORF: Forestry Resources Management Plan

² PORN: Natural Resources Management Plan

³ PRUG: Master Plan for Use and Management

⁴ ZAR: Denominated areas of high fire risk in Spain

⁵ PEG: Strategic Management Point

covery should value the impact of the fire based on technical criteria and consider the ecology of species and their relationship to fire, natural dynamics, the forest habitat, future scenarios, climate change, demands of the local population, etc. as well as guaranteeing the monitoring of the proposed recovery measures.

- Produce recovery guidelines and protocols, taking existing documents as a reference.

■ Medium term objectives:

- Integrate forest management policies and plans into policies for conservation and the prevention of forest, urban and agricultural fires.
- Include domestic and wild herbivory and the use of fire in forest management models, taking into account the social component and the actors in the territory.
- Change the coefficient of admissibility of pasture land of the CAP⁶ to promote herbivory and extensive livestock farming.
 - Adapt the rules to facilitate the presence of herds of horses or cattle in the “*super-extensive*” mode in low productivity forest ecosystems.
- Implement priority strategic management areas (PEG) on the land for the suppression/prevention of large wildfires.
- Adopt decision-making support mechanisms (creation of technical and scientific committees) for post-fire recovery, taking into account natural dynamics and cost efficiency.

⁶ Common Agricultural Policy

AXIS 2 | Territorial planning

Mitigating the impact of large wildfires and conserving and protecting the values of our ecosystems and landscapes involves a cross-cutting approach. This should involve an effort to align and integrate strategies for agricultural and forestry management and the protection of nature, goods and people. Forest and agroforest landscapes should offer safe opportunities for the intervention of the firefighting services while maintaining the social and environmental values and provision of resources. Territorial planning that includes agricultural and forest management strategies to reduce the vulnerability of the landscape to large wildfires contributes to advancing towards making landscapes more resistant and resilient for the whole of society. At the same time, it makes them safer for firefighting tasks and more integrative of socioecological dynamics which contribute to a landscape that is more biodiverse and alive.

CHALLENGE 2 | Plan diverse, resistant and resilient landscapes that support safer wildfire management.

■ Short-term objectives:

- Diagnosis of planning instruments from an interdisciplinary point of view and considering fires from a cross-cutting perspective. Reaching 80% of the Autonomous Regions with the revised instruments by 2025.
- Multilevel cross-sectoral forum to address a common strategy on integrated and multi-functional territorial planning. Dialogue should have a dynamic perspective on landscape, population, environmental services, fire regime and climate change scenarios.
- Develop and approve a strategy for comprehensive planning that includes wildfire risk.

■ Medium-term objectives:

- Legislate in favour of the incorporation of the forest fire perspective in land-use planning and management, and in all sectoral policies, in a comprehensive and cross-cutting manner, which is binding for decision-making.
 - Review the legislative and legal framework. Assess the need for a comprehensive basic regulation on forest fire risk management (consider what it should contain, overlap with other sectoral regulations, with wildfire regulations themselves, etc.).
- Adapt RD 7/2015⁷ to these strategic principles or create a new instrument to substitute it.

⁷ Royal Legislative Decree 7/2015, of 30 October, which approves the recast text of the Law on Land and Urban Rehabilitation.

- Strategic plan for productive landscapes and adaptation of territorial planning to the new principles.
- Have a leading agency that can facilitate and coordinate on integrated territorial planning, including wildfires.

AXIS 3 | Living rural communities

Spain faces rural depopulation, the intensification of agriculture and farming, together with the abandonment of traditional land uses and the lack of forest exploitation. All these factors give rise to landscapes that are more vulnerable to the spread of fires. The maintenance of diverse and sustainable agriculture, forestry and extensive livestock farming, through the valorisation of their products and appropriate use of public funds, contributes to generating territories with natural, social and economic value, that are more resilient to large wildfires. Moreover, it contributes to the demographic challenge in rural and mountain areas.

CHALLENGE 3 | Promote a living rural society, with a primary sector that is viable and has great socioenvironmental value, which contributes to generating more sustainable forest fire regimes.

■ Short-term objectives:

- Generate a country-wide legal framework to fund a diverse, local and sustainable primary sector. For this, High Nature Value (HNV) silviculture, agriculture and livestock farming, grazing, transhumance and the fight against depopulation must be championed under the paradigm of sustainability.
- Simulate the creation of participatory structures on different scales that support the HNV primary sector, offering them the technical capacity to develop and implement communal and profitable management plans on the landscape scale, which guarantee production and conservation in the long term.
- Promote the consumption of local, seasonal and ecological products, as well as payment for ecosystem services, establishing fair compensation for the provision of environmental services.
- Invest in professional training, multidisciplinary public advice and guidance, adapted to the needs of each region which is country-wide and regulated.
- Carry out a census of unused agricultural and forest lands and stimulate their use. Autonomous Regions and local governments should carry out an inventory of all abandoned agricultural and forest plots. This should be followed by the development of a participatory plan of the most adequate extensive agricultural and forestry uses to diversify the landscape, under the paradigm of agroecology. Land banks and territorial contracts would be a good tools for this.

■ Medium-term objectives:

- Review the European legal framework with funding (e.g. CAP, the Mediterranean CFP⁸) with the aim of supporting a diverse, local and sustainable primary sector. In the same sense, take advantage of the new CAP programmes to launch pioneering, multi-agent and bottom-up projects, thus stimulating agricultural and forest use sustainably, accompanying the projects with innovative tools, such as those mentioned above. Incorporate learning and promoting exchanges of experience among the ad hoc working groups of the CAP network.
- Coordination, investment in R&D&I and adaptation to climate change.
- Recognition of diverse rural identities.

⁸ Common Forestry Policy

AXIS 4 | Uses and ecology of fire

Fire is a natural process in our ecosystems and is also part of the history of anthropic action. It has been used as a land management tool, with recurrent impacts on natural and cultural landscapes. Excluding fire is not ecologically realistic. Using fire with adequate planning is realistic, for instance in recovering a sustainable fire regime using prescribed and controlled fire, and implementing wildfire management (without suppression necessarily). This requires management of the use of fire under a socio-ecosystemic lens, assuming the confluence of social and ecological factors.

CHALLENGE 4 | Recover the function of fire as a natural process in our ecosystems

■ Short-term objectives:

- Training:
 - Adapting the curriculum to understand the environment and the dynamics of ecosystems and fire.
 - Specific training for sectors that are key and promoting train-the-trainer strategies.
- Promote regulations that facilitate the use of fire and wildfire management to assist the managers.
- Design strategic plans that include scalable directives adapted to the territorial realities and are compatible with the objectives of biodiversity conservation.

■ Medium-term objectives:

- Include professional firefighters, farmers and land managers in coordinated actions on the use of fire and land management.
- Promote the use of fire as a management tool by the firefighting teams of all the Autonomous Regions and local government.
- Promote the use of fire as one of the key tools for generating heterogeneity in the landscape, restoring biodiversity and maintaining ecosystem services.
 - Establishing monitoring and review protocols for every practice that is conducted. Support the protocols with indicators to determine the ecological impacts of the practices which use fire.

AXIS 5 | Communication, education and awareness-raising

Raising societal awareness with a clear and common message is key to changing perceptions in the face of the new scenarios of large wildfires. Creating resources and making them available to professionals working in communication, education for raising awareness about the use of fire and wildfires with the objective of providing rigorous and high-quality information to society during the whole emergency cycle. The information generated during a fire is as important as the information offered all year round. The latter should be used to highlight the value of the work done in the primary sector, or the risks of living in the urban-forest interface and the associated self-protection measures. Also important is an understanding of concepts of forest management, fire ecology and the role of fire in different ecosystems to help society to see beyond the flames.

CHALLENGE 5 | Offer society the means for learning to live with fires

■ Short-term objectives:

- Incorporate an educational plan in schools that includes wildfires, landscape management and bioeconomy, beginning at primary level and then secondary level.
- Include fires and forest management in political and media agendas in a cross-cutting manner.
- Encourage society to value and support payment for ecosystem services.

■ Medium-term objectives:

- Develop a national communication strategy for wildfires that can generate rigorous, true and verified information.
- Achieve the elimination of the urban-rural barrier by sharing a common story to reconnect rural areas with the urban environment.
- Change society's view of forest management and the use of fire. Support the view of fire as a management tool in accordance with defined objectives and their implementation by those qualified to do so.
- Work towards changing the simplistic societal perception that fire or wildfires are catastrophes.

AXIS 6 | Knowledge and needs regarding wildfire suppression

In the context of Global Change new scenarios of wildfires and megafires with extreme behaviours are emerging and generating major civil emergencies. This type of wildfire is now affecting new latitudes and regions. The speed with which the situation is evolving on a global scale and involving new areas of the planet makes it more difficult for the firefighting services to adapt and provide an adequate response using their experience and knowledge. We are facing the current limits of knowledge and science due to the present inability of research and innovation to generate tools for understanding these extreme events, and how and when they will occur – something which, for now, is unpredictable.

CHALLENGE 6 | Recover initiative in the management of emergencies

■ Short-term objectives:

- Allocate €1,000M/year⁹ for the management of 1%¹⁰ of forest land nationally – in other words for 260,000 hectares¹¹ annually, with the aim of having a territory that is ready to face forest fires and which can generate opportunities for the firefighting teams, prioritising Strategic Management Areas (PEGs).
- PEGs should have their own regulations which recognise their status as prevention infrastructures and which prioritise their execution, management and maintenance functions.
- Adapt and modernise the firefighting services. Promote training by competencies.
- Promote a programme for R&D&I.
- Develop a national programme of lessons learned.
- Design a common communication strategy for emergencies, and the professionalisation of this communication.
- Promote long-term contracting of firefighting support staff.
- Create an Observatory on Large Wildfires (OGIF, in Spanish), focussed on supervising investments in prevention infrastructures, and monitoring their execution and their operative functionality.

⁹ According to sources from the Ministry for Ecological Transitions and the Demographic Challenge (MITECO, in Spanish) and the Autonomous Communities, in 2019 €600M were allocated to firefighting tasks.

¹⁰ The percentage must be adapted to the socio-ecological reality of each region and landscape. Study of reference: Finney Mark A., Seli Rob C., McHugh Charles W., Ager Alan A., Bahro Bernhard, Agee James K. (2007) Simulation of long-term landscape-level fuel treatment effects on large wildfires. *International Journal of Wildland Fire* 16, 712-727

¹¹ Approximately 650,000 acres.

■ Medium-term objectives:

- Maintain and increase the 1% of forest land managed annually at the national level.
- Maximise self-protection in urban-forest interface areas. Plan and manage self-protection in at least 25% of all wildland-urban interfaces in Spain.
- Effectively integrate wildfires in state, European and sector policies (cross-cutting approach).
- Develop a framework for certification of competencies at the national level.
- Include objectives related to biodiversity conservation in prescribed burning plans.
- Standardise national meteorological and vulnerability risk indexes.
- Within the OGIF, develop national statistics to compare between investment in prevention, percentage of execution and investment in suppression.
- Develop national regulations that support and facilitate the deployment of the figures of the Emergency Management System.
- Carry out studies to quantify impacts of firefighting actions on carbon sequestration and develop regulatory frameworks that permit its monetisation.

AXIS 7 | Future scenarios in the medium and long term

Climate change is affecting ecosystems and disturbance regimes. This extreme situation carries with it great uncertainty and has resulted in some fundamental reflections on the kind of socio-ecological system that we want in the future and its relation to fire. If we do not act, the ecosystems that developed under the old climate may deteriorate and suffer a considerable loss of biodiversity. Should we allow ecosystems to adapt and transition to a new climate and include fire in these processes? Should we recognise that there are some fires that cannot be suppressed and so much of the effort should be invested in preparation and adaptation to the population and to ecosystems to be able to co-exist with the wildfires, and therefore accept that our landscapes will change drastically in the coming years?

CHALLENGE 7 | Preparing society and the territory for extreme wildfire episodes

■ Short-term objectives:

- Plan scenarios of extreme wildfire episodes, including self-protection, prioritising strategic management areas, and assuming the risk of inevitable fires.
 - Generate an international framework for the exchange of experiences and knowledge on extreme wildfire episodes.
- Develop models of adaptive management – a key element for tackling new scenarios.
- Integrate in the scenarios new rural landscapes as a result of the implementation of renewable energies and population movements from the cities to the rural areas in a context of global change, accepting high levels of uncertainty.
- Reduce tax pressures on inhabitants and managers of rural areas and promote the organisation of associations as a management tool. Consider the territorial support and participation structures of the primary sector to make it more robust and lasting over time.
- Issue communications about the medium- and long-term wildfire scenarios to close the gap between the urban and rural views of them. Emphasise the risk that they may not be avoidable despite the implementation of preventive measures in the territory.
- Improve professional qualification to facilitate the establishment of new professionals and companies to contribute to the management of the rural environment. This should be done taking into account the territorial support and participation structures of the primary sector to make it more robust and lasting over time.
- Increase funding for R&D&I.

■ Medium-term objectives:

- **Implement** adaptive management models adapted to the different forest areas and including private property.
- Close the gap between the urban and rural view of extreme wildfire episodes.
- Produce and transform local products locally (generate industry for that purpose in the rural environment). This should be done taking into account the territorial support and participation structures of the primary sector to make it more robust and lasting over time.

AXIS | Politics and governance

Fire risk management includes different measures and policies from prevention phases to preparation and response phases, or post-fire recovery in forest areas. These measures often involve different administrative units, are implemented on different territorial scales and require the participation of private actors and members of society. An integrated approach allows a connection, for example, between the benefits of prevention with a more efficient and manageable firefighting response capacity. In turn, other sector policies may influence risk factors such as the increase or decrease in the fire spread capacity (creation of a mosaic landscape) or the development of new exposed and vulnerable elements (diffuse urbanisation).

Governance seeks to articulate coordination between the competent authorities for and with the collaboration of private actors and citizens, as well as between the different sector policies. It does that in an agreed framework of rights and responsibilities while promoting adequate resources carrying out such joint responsibilities. Additionally, many of the means for mitigating and adapting fire risks can create synergies with other political agendas, such as the reduction of emissions, water supply, habitat and biodiversity improvement and the generation of bioeconomy. The governing bodies should be able to promote such synergies by incorporating, for example, aspects of funding from a perspective of avoided costs.

CHALLENGE | Assign joint responsibility to all actors involved in wildfire management

■ Short-term objectives:

- Create a wildfire community (identify new actors) and sector policies.
- Develop participatory models and procedures for connecting actors (pilot cases).
- Cover needs and resources (economic, technical and regulatory).

■ Medium-term objectives:

- Consolidate permanent and stable participation forums.
- Systematise procedures between scales in an agile and bidirectional manner (bottom up).
- Make available resources that are sustained over time (economic, technical, regulatory).

AXIS | Biodiversity conservation

Nature conservation is the series of measures and decisions that society collectively adopts to organise their activities and allow the protection of endangered species, maintain and restore habitats, improve ecosystem services and protect biodiversity.

CHALLENGE | Promote fire prevention and management that is compatible with the conservation of biodiversity and integrate wildfire prevention as a key element for the preservation of protected natural spaces.

This transversal axis does not have individual objectives, as it has been integrated into each of the main axes.

AXIS | Adaptation to and mitigation of climate change

CHALLENGE | Ensure the adaptability and resilience of the firefighting services, society and biodiversity.

This transversal axis does not have individual objectives, as it has been integrated into each of the main axes.