

<b>AFOCELCA</b>	An incorporated joint venture of The Navigator Company and the ALTRI Group
<b>AGIF</b>	Agency for Integrated Rural Fire Management
<b>ANAFRE</b>	National Parish Association
<b>ANEPC</b>	National Emergency and Civil Protection Authority
<b>ANMP</b>	National Association of Portuguese Municipalities
<b>ANQEP</b>	National Agency for Qualification and Vocational Education and Training
<b>ASC</b>	Air Support Centre
<b>BUPI</b>	Digital Land Registry
<b>CAPVI</b>	Unit to Support the Planning of Rural Fire Surveillance and Detection Actions
<b>CCOM</b>	Joint Command for Military Operations
<b>CDOS</b>	District Command for Relief Operations
<b>CIM</b>	Intermunicipality Community
<b>CNAF</b>	Portuguese National Forest Agents Corps
<b>COS</b>	Land Use and Occupation Map
<b>COSsim</b>	Simplified Land Use and Occupation Map
<b>CPE</b>	Structural Prevention Coordinator
<b>CRUS</b>	Land Use Type Map
<b>DCIR</b>	Rural Fire Prevention
<b>DECIR</b>	Directive for Forest Fire Fighting
<b>DFCI</b>	Forest Fire Prevention
<b>DGAV</b>	Directorate-General for Food and Veterinary Medicine
<b>DGDAR</b>	Directorate-General for Agriculture and Rural Development
<b>DGS</b>	Directorate-General for Health
<b>DGT</b>	Directorate-General for Territorial Development
<b>DL</b>	Decree-Law
<b>DRA</b>	Regional Directorate for Agriculture and Fisheries
<b>DSA</b>	Declarations of State of Alert
<b>EA</b>	Extended Attack
<b>EAFRD</b>	European Agricultural Fund for Rural Development
<b>eBUPI</b>	Task Force for the Expansion of the Simplified Land Information System
<b>EMSGIFR</b>	Task Force for the Installation of the Integrated Rural Fire Management System
<b>FB</b>	Fuel Breaks
<b>FCP</b>	Forestry Conservations Programmes
<b>FCT</b>	Fundação para a Ciência e a Tecnologia
<b>FEB</b>	Special Firefighting Unit
<b>FEPC</b>	Special Civil Protection Unit
<b>FFAA</b>	Armed Forces
<b>FFMC</b>	Fine Fuel Moisture Code
<b>FFP</b>	Permanent Forest Fund
<b>FIMET</b>	Forestry Information Maintenance and Exploitation Teams

<b>FMB</b>	Fuel Management Bands
<b>FME</b>	Forest Management Entity
<b>FORESTWISE</b>	Collaborative Laboratory for Integrated Rural Fire Management
<b>FPO</b>	Forest Producer Organisations
<b>FSLST</b>	Fire Suppression Logistics Support Teams
<b>FST</b>	Fire Suppression Teams
<b>FWI</b>	Fire Weather Index
<b>GNR</b>	Republican National Guard
<b>GTF</b>	Technical Forestry Office
<b>GTRI</b>	Ignition Reduction Working Group
<b>I&amp;D</b>	Research & Development
<b>IA</b>	Initial Attack
<b>IALCM</b>	Intra-Annual Land Cover Maps
<b>ICNF</b>	Institute for Nature Conservation and Forests
<b>ICP</b>	Incident Command Posts
<b>ILMA</b>	Integrated Landscape Management Areas
<b>ILMO</b>	Integrated Landscape Management Operations
<b>IMT</b>	Institute for Mobility and Transport
<b>IP</b>	Infraestruturas de Portugal, S.A.
<b>IPMA</b>	Portuguese Institute for the Sea and Atmosphere
<b>ITC</b>	Independent Technical Committee
<b>LIDAR</b>	Light Detection and Ranging
<b>LL</b>	Lessons learned
<b>LSO</b>	Local Security Officer
<b>MAAC</b>	Ministry of the Environment and Climate Action
<b>MAI</b>	Ministry of Home Affairs
<b>MFF</b>	Multiannual Financial Framework
<b>MMP</b>	Municipal Master Plan
<b>NAD-AIR</b>	Centre for Decision Support and Analysis of Rural Fires
<b>NAP</b>	National Action Plan 20-30
<b>NATO</b>	North Atlantic Treaty Organization
<b>NOD</b>	National Operations Directive
<b>NUTS</b>	Nomenclature of Territorial Units for Statistics
<b>OP</b>	Operational Programme
<b>PCIR</b>	Rural Fire Protection
<b>PIT</b>	Permanent Intervention Teams
<b>PLIS</b>	SGIFR Interoperability Platform
<b>PNGIFR</b>	National Integrated Rural Fire Management Plan
<b>PNPOT</b>	National Spatial Planning Policy Programme
<b>PoAF</b>	Portuguese Air Force
<b>PPE</b>	Personal Protective Equipment
<b>PRGP</b>	Landscape Restructuring and Management Programme
<b>PSP</b>	Public Security Police

<b>PTP</b>	Landscape Transformation Programme
<b>RCM</b>	Resolution of the Council of Ministers
<b>RF</b>	Rural Fire
<b>RFM</b>	Rural Fire Management
<b>RNPV</b>	National Lookout Tower Network
<b>ROP</b>	Regional Operational Programme
<b>RPAS</b>	Remotely Piloted Aircraft Systems
<b>RRP</b>	Recovery and Resilience Plan
<b>SAMA</b>	Administrative Modernisation Support System
<b>SEAAF</b>	Secretary of State for Fiscal Affairs
<b>SEADR</b>	Secretary of State for Agriculture and Rural Development
<b>SECNFOT</b>	Secretary of State for Nature Conservation, Forests and Spatial Planning,
<b>SEPNA</b>	Nature and Environmental Service
<b>SEVI</b>	Secretary of State for the Development of Inland Regions
<b>SGIF</b>	Forest Fire Information Management System
<b>SGIFR</b>	Integrated Rural Fire Management System
<b>SGO</b>	Operations Management System
<b>SIC (CAE)</b>	Standard Industrial Classification
<b>SIOPS</b>	Integrated System for Protection and Relief Operations
<b>SIRESP</b>	Integrated System for Emergency and Safety Networks in Portugal
<b>SMOS</b>	Land Occupation Monitoring System
<b>SMPC</b>	Municipal Civil Protection Service
<b>SNIC</b>	National Land Information System
<b>SSR</b>	Special State of Readiness
<b>TO</b>	Theatre of Operations
<b>TOB</b>	Technical-Operational Briefings
<b>UAV</b>	Unmanned Aerial Vehicles
<b>UEPS</b>	Emergency Protection and Relief Unit
<b>UFCD</b>	Short-Duration Training Units
<b>UGF</b>	Forest Management Unit
<b>ZIF</b>	Forest Intervention Areas

# EXECUTIVE SUMMARY

The year 2021 saw a decrease in the impacts of rural fires, with fewer human lives lost (6), fewer fires (8,223) and a smaller burned area (28,415 ha), 34% of which due to the occurrence of three fires spanning more than 500 hectares (0.04% of the total).

The year 2021 confirms the change in risk behaviour of the population – nearly all fires are caused by humans – with 8,223 fires recorded, representing a reduction of 15% compared to the previous year and consolidating the reduction to more than half compared to the previous decade. This reduction is the result of a 38% decrease in arson-related fires, particularly in the northern and central regions of the country, whereas the other three southern regions recorded an increase, explained by the use of agricultural or forestry machinery. The use of fire also contributed to an increase the number of incidents in 2021, in springtime only, that is, on less dangerous days.

In fact, in recent years most people have adapted their behaviour to the risk, particularly north of the Tagus River, opting to light fires on milder days (54% less fires on high fire danger days, compared to the period 2011-19), and also showing a greater concern in the management of vegetation around their homes. The GNR's awareness-raising and monitoring actions have contributed to this behavioural change, with increased patrols on higher fire danger days, risk communication such as through “Portugal Chama”, the citizen information helpline (808 200 520), and the platform for authorisation for prescribed fires and extensive burns, initiatives that, in 2021, have reinforced the path from consolidation to normalisation.

Mindful that the protection of people and property also involves measures for communities that are better adapted to fire danger, the “Aldeia Segura, Pessoas Seguras” (Safe Village, Safe People) programme is of particular importance. After the restrictions imposed to fight the pandemic, the programme saw slight growth in 2021, with 2,064 villages covered, 76 more (4%) than in 2020. The desired impetus for this programme will be achieved by mobilising stakeholders, reviewing the financing model, and coordination with the “Condomínio de Aldeia”

(Village Condominium) programme, aimed at more sustainable vegetation management practices around settlements.

The urban interface map published by DGT in 2021, identifying the most exposed settlements (potential damage value vs danger), will be essential to prioritising the villages of intervention each year.

There have also been continued efforts regarding the management of vegetation in state-managed areas, in particular by ICNF, but also around infrastructures of public interest such as IP, REN and EDP. A total of around 88,000 hectares underwent intervention, 25% more than in 2020 and the largest area to date, in line with the goal of 300,000 hectares/year to be reached in 2026. These interventions continue to focus mainly on linear fuel management bands, corresponding to around two-thirds: fuel management bands (FMB), road and rail infrastructures, and private infrastructures of public interest, namely electricity and gas. For the country to be less vulnerable to severe fires (which are increasingly likely to occur in the near future), more breaks and discontinuity must be created, where other land uses and occupations enable changes in the potential behaviour of a fire. Given that the vast majority of lands are privately owned, it is essential to mobilise landowners with appropriate incentives, encouraging them to intensify thinning in specific areas (mosaics), remove surplus slash, cut back undergrowth and/or adopt grazing or prescribed fires to keep the fuel load low.

This is why the recovery of burned areas should be seen as an opportunity to drive this transformation and, therefore, the mechanisms that enable intervention in these areas, namely on private lands, should be streamlined and the funding available for this purpose made available in a timely manner, something that remains to be resolved: the large fires that occurred in July 2021 still had no funding available for emergency stabilisation interventions at the end of that year<sup>1</sup>.

All these types of scaled interventions systematically run into fragmented ownership, which limits action and holds up the productive and economic potential of the region.

To address this structural weakness, the Integrated Landscape Management Areas (ILMAs) constitute a platform for joint management by landowners, reinforcing the Forest Intervention Area association model, which has identified weaknesses in the implementation of profitable

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<sup>1</sup> Notices were issued in January 2022

business models – something ILMAs seek to address – by incorporating a new remuneration component in the form of ecosystem services. By the end of 2021, 70 ILMAs had already been created, 46 of which with signed agreements, covering an area of 140,463 hectares. Under this model, already existing areas now require implementation on the ground through the creation of operational units (ILMO<sup>2</sup>).

In addition to the efforts to group landowners via ILMAs, which will have a much localised impact (2.5% of wildlands), large part of the country is already covered by association models<sup>3</sup>. These represent 2.3 million hectares, mostly located north of the Tagus River. With the approval of the Integrated Rural Fire Management System (SGIFR – Decree-Law No. 82/2021 of 13 October), the State may outsource<sup>4</sup> tasks, such as preparation and prevention, to these management entities, which, if the appropriate funds are channelled, can have a significant impact.

Aware, however, that land, particularly north of the Tagus River, remains largely unregistered, it is worth noting the new impetus of the simplified land registration programme (eBUPi), with the opening of new help desks and a current total of 118 member municipalities, a programme that is expected to also be reconciled with the land register.

During 2021, one-third of the more than 11 million rural properties were found to be part of impartible estates, another obstacle to active management. This raises the importance of reviewing the succession regime in the Portuguese Assembly of the Republic.

Financially speaking, the system recorded expenditure of €316 million, 9% more than in 2020, with a split of 46% and 54% between prevention and suppression, respectively.

While ensuring that there are continuous improvements focused on promoting effective and efficient management of the already adequate levels of funding for suppression, it is important to point out the need for improvements in prevention such that thus spending is consistently,

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<sup>2</sup> Integrated Landscape Management Operations

<sup>3</sup> ZIF, FME and vacant plots

<sup>4</sup> Article 4(5) of DL 82/2021 of 13 December 2021 providing for outsourcing to public or private entities.

in line with the guidelines set out in Resolution of the Council of Ministers No. 12/2019 of 21 January and the strategy for the 20-30 National Plan for Integrated Rural Fire Management (PNGIFR).

The suppression crews defined by ANEPC were reinforced in 2021, with more firefighters and forester-firefighters, that largest corps in terms of human resources since 2017, with about 12,000 personnel and 59 aerial resources managed by the Air Force, the procurement process of which has remained stable. Performance indicators are above NAP targets, with 93% of fires extinguished in initial attack and with an average time of arrival of 16 minutes to the theatre of operations. Another relevant indicator that can be associated with the quality of suppression operations is the rekindle rate, standing at 2%, thus exceeded the 5% target.

The National Qualification Programme for the SGIFR (PNQ\_SGIFR) was submitted to the Government and the SGIFR core entities on the established date, with the mapping of functions, key activities and training units required for the performance thereof, covering all stages of the process chain. In parallel, the training of priority profiles was completed in 2021: safety, fire behaviour and aerial coordination, through ANEPC/National Fire Service School, GNR and IPMA, with more than 64,000 hours of training and 5,700 SGIFR agents trained. In addition to joint training, GNR trained 155 Forest Rangers to investigate the causes of rural fires, and ICNF trained the 40 members recruited in 2021 for the Forester-Firefighter Brigade.

In July 2021, after incubation at AGIF and specialised training in rural fire management, planning, project management and leadership, 36 senior technicians migrated to ICNF, bringing command and control capacity to an operational department dedicated to implementing the rural fire management work process.

The increased investment seen in 2021, besides in the suppression crews, included investment in the diversification and development of the rural economy, promoted by the Secretary of State of the Development of Inland Regions, investment in projects to support agriculture in vulnerable areas, by IFAP and PDR2020, and in products developed by the Directorate-General for Territorial Development.

Four years after the tragic fires and improvements<sup>5</sup> made to operational management in forest fire prevention, 2021 was the founding year of the Integrated Rural Fire Management System (SGIFR). After a collaborative drafting process and public consultation, the National Action Programme (NAP) was published on 8 June and the legal instrument establishing the SGIFR and its rules of procedure was published on 13 October.

The NAP, with its 97 programmes and a budget of €7 billion, projects a decline in several key programmes at regional and sub-regional level. Since March 2021, three pilot regions<sup>6</sup> have been conducting a thorough test of the coordination between the various entities and also simulating the new SGIFR governance structure.

In 2021, with the publication of Decree-Law No. 82/2021 of 13 October 2021, the new system – the SGIFR – was established, the principles of which had already been approved in October 2018 and published in early 2019<sup>7</sup>. Taking a polycentric governance approach, at the end of 2021 the National Committee for Integrated Rural Fire Management and the four regional and two sub-regional committees were formed primarily to design the action programmes for the respective territorial areas.

With the entry into force of the SGIFR on 1 January 2022, a new cycle in integrated rural fire management begins, aspiring to a more diverse, cohesive and impact-oriented transversal governance model, with solid pillars in planning and monitoring capabilities and in continuous improvement systems, in qualification and in the public disclosure of the physical and financial results of the SGIFR as a whole.

<sup>5</sup> Resolution of the Council of Ministers No. 157-A/2017 of 27 October 2017, among others

<sup>6</sup> Resolution of the Council of Ministers No. 25/2021 of 22 March 2021 (Municipalities in Alto Tâmega, Coimbra and the Algarve)

<sup>7</sup> Resolution of the Council of Ministers No. 12/2019 of 21 January 2019