

Was the colonial mentality of forest officials responsible for the loss of 23 tourists' lives in the Kottagudi forest fire in Theni district?

An analysis



**Tamil Nadu Federation of
Pastoral Peoples' Sangams**

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Tamil Nadu Federation of Pastoral Peoples' Sangams

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Kalkulam, Mudikkarai Post, 630 551

Sivagangai District

Disclaimer

The information and photographs provided in this publication have been taken from articles published in peer-reviewed journals and from the Enquiry report of Mr. Atulya Mishra, IAS on the Forest Fire Tragedy at Kottagudi Reserved Forests, Theni on 11.03.2018. The Tamil Nadu Federation of Pastoral Peoples' Sangam wishes to inform the public that this publication is not intended to cause any embarrassment or distress to anyone or to criticize any government official, except to inform the public about the scientific fact that removal of grazing animals from forest grasslands increases the intensity of forest fires. Publishers: Chairman, Tamil Nadu Federation of Pastoral Peoples' Sangams (Registration No: 73/2023), Kalkulam, Mudikarai Post Office, Kalaiyar Kovil 630 551, Sivaganga District.

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Forest fires emit large amounts of greenhouse gases (GHGs) and are a major contributor to climate change. Warmer climates dry out forests and reduce their quality, increasing the risk of wildfires.

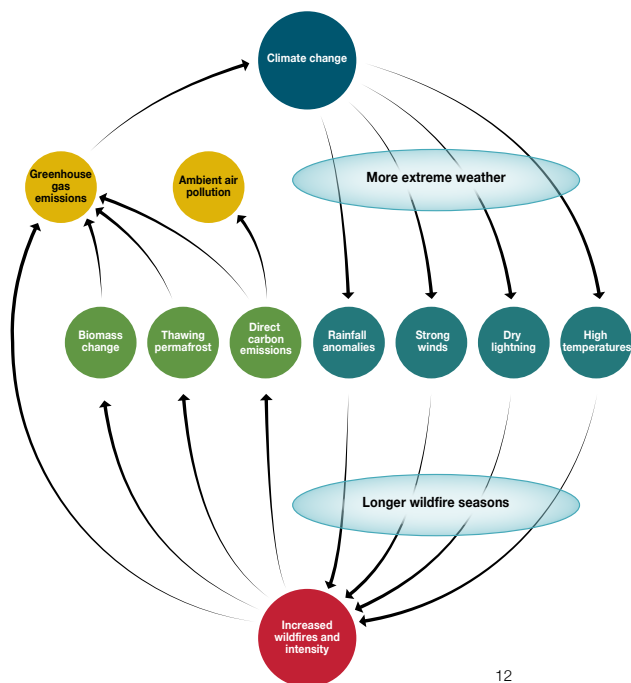


Fig. 1. Potential reinforcing feedback loop of climate change on wildfires (UNEP, 2022)

As the number and intensity of fires increase, thereby creating a positive feedback loop in generating more frequent, intense fires that in turn generate increased forest carbon emissions (WWF 2020). Wildfires globally release an estimated 2 gigatonnes of carbon, or more than 7 billion tonnes of carbon dioxide (CO₂),

each year. Researchers have found that global carbon emissions from wildfires increased by 60% between 2001 and 2023.

Impacts of wildfires on people:

Wildfires have long-term effects on both the environment and human health.

Wildfires cause acute and chronic health issues, destroy infrastructure, and degrade ecosystem services, such as water supply, nutrition, biodiversity, and carbon storage. In developing countries, an increase in damaging wildfires may reverse or delay progress towards the United Nations Sustainable Development Goals (SDGs).

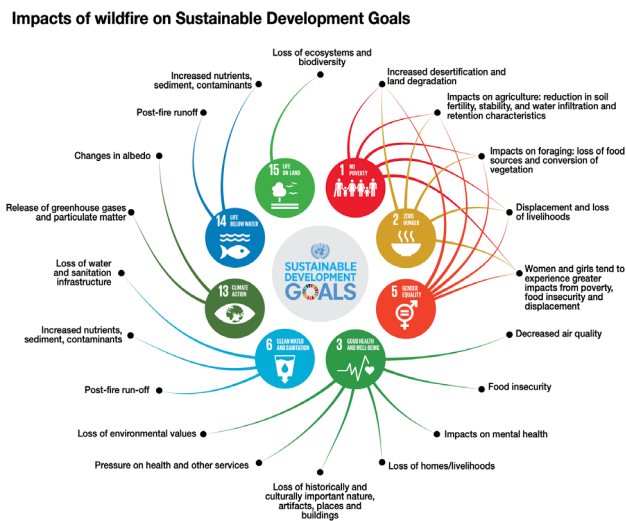


Fig. 2. Impacts of Wildfire on Sustainable Development Goals (UNEP, 2022)

When forest fires burn, large amounts of particulate matter (PM2.5) with a diameter of 2.5 microns or less are released; these particles are about one-third the width of a human hair.

Because PM2.5 particles are so small, they can travel deep into the lungs and enter the bloodstream, where they can reach all parts of the body (Feo *et al*, 2020). Globally, PM2.5 particles are estimated to have caused 4.2 million premature deaths in 2016 (Schraufnagel *et al* 2019). Exposure to PM2.5 particles has been linked to a variety of health effects, including lung inflammation, cardiovascular disease, stroke, allergies, autoimmune disorders, diabetes, Alzheimer's disease, lower IQ in children, autism, lung cancer, bladder cancer, and childhood leukemia (Wu., 2018). Exposure to wildfire smoke negatively impacts pregnancy and leads to low birth weight.

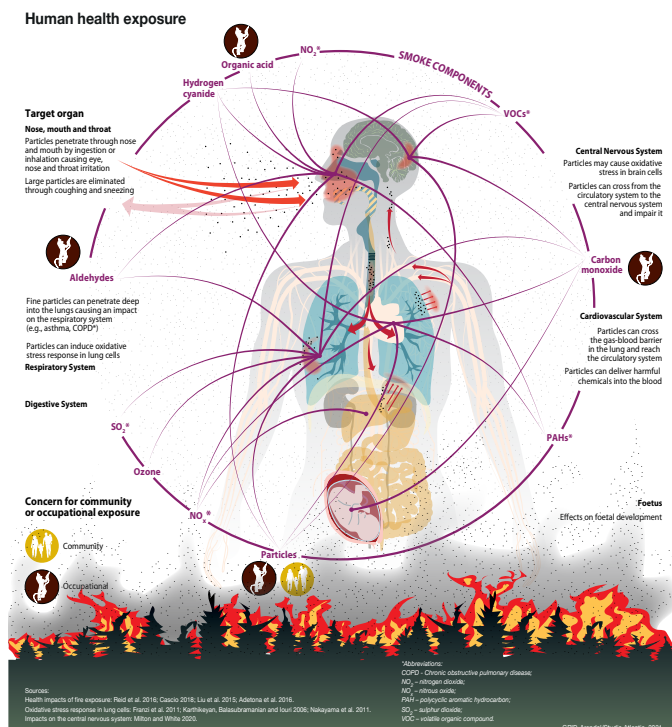


Fig. 3. Smoke particulate exposure pathways and impacts (Liu *et al*, 2015) and from UNEP, 2022.

Cattle grazing for wildfire control:

Grasses are highly flammable and burn quickly. Most wildfires start in grasslands; from there, the fire spreads to shrubs, then, from ground vegetation and finally to higher vegetation and tree canopies. This is why livestock grazing is a key component in efforts to reduce the fuel load in forests. In areas that are too vast, steep, rocky, or remote to control the fuel using machinery or chemicals, livestock grazing is a cost-effective option. Grazing reduces the length and intensity of fires; it can also convert grasses, which are highly flammable and spread, into natural fire barriers. This change has both ecological and security benefits. In developing countries, livestock farming and forest grazing are important livelihood activities for marginalized communities. There are instances where corporations such as Bayer, Yahoo, and Google have used goats and sheep to clear bush on their campuses, restore the landscape, and protect them from wildfires without using fossil fuels. As a wildfire prevention measure, the Ronald Reagan Presidential Library used 500 goats to clear bush around its campus that was highly flammable.

Kottagudi forest fire accident – Observations and findings of the inquiry officer:



Fig.4 Map showing Kottagudi in Theni District of Tamil Nadu

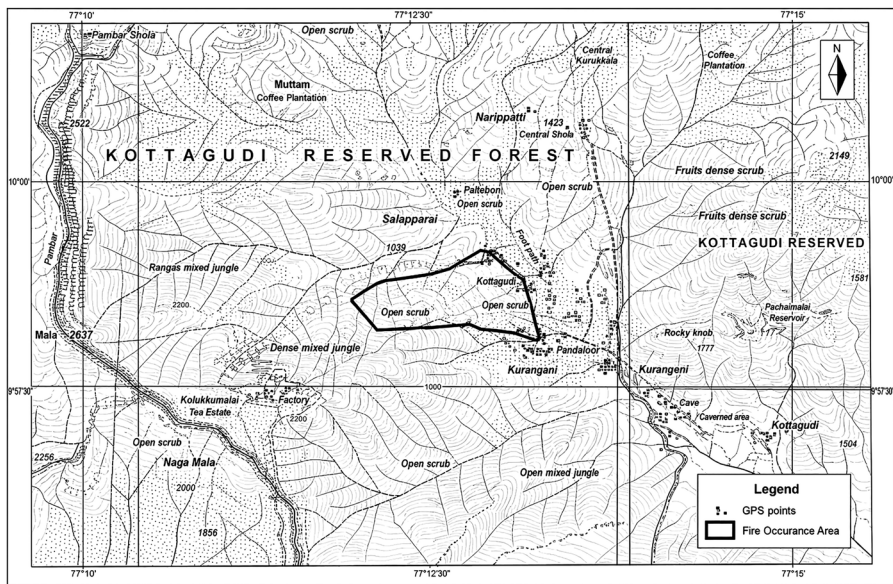


Fig. 5 Area burnt in the Kottagudi forest fire on 11-03-2018

23 innocent tourists lost their lives in a horrific forest fire that broke out in the Kottagudi reserved forest area of Theni district on 11.03.2018. Out of the 23 deceased, 6 were men, and 17 were women. All the victims were between the ages of 23 and 40.



SAD TWIST

These two young couple (left) Vibin and Divya; (right) Vivek and Divya are victims to the fire incident. Vibin and Vivek breathed their last on Monday, while their respective better halves continue to battle for their life | EXPRESS. Page No. 001 Annexure III (Press File) of the Enquiry Report.

The list of persons who died in the Kottagudi Forest Fire Tragedy

Sl. No	Name and address	Age/ Gender	Remarks
1.	Akhilandeswari D/o. Krishnamoorthy	27/F	Died at the incident spot 95% burns
2.	Hemalatha D/o Thirugnanasambantham	30/F	Died at the incident spot 100% burns
3.	Punitha D/o. Jeyasankar	26/F	Died at the incident spot 91% burns
4.	Suba D/o Selvaraj	29/F	Died at the incident spot 88% burns
5.	Divya D/o Muthukumar	28/F	Died at the incident spot 88% burns
6.	Arun Prabhakar S/o Raghuraman	28/M	Died at the incident spot 88% burns
7.	Vibin S/o Bodhidharma	30/M	Died at the incident spot 99% burns
8.	Vivek S/o Natarajan	26/M	Died at the incident spot 99% burns
9.	Tamilselvan S/o Thangaraj	26/M	Died at the incident spot 100% burns
10.	Nisha D/o Tamilozhi	30/F	Taken for treatment but succumbed at Hospital 90% burns
11.	Divya W/o Vivek	29/F	Taken for treatment but succumbed at Hospital 90% burns
12.	Divya Viswanathan W/o Vibin	28/F	Taken for treatment but succumbed at Hospital 100% burns
13.	G. Kannan S/o Giri	26/M	Taken for treatment but succumbed at Hospital 65% burns

Sl. No	Name and address	Age/ Gender	Remarks
14.	M. Anuvidhya D/o Muthumalai	25/F	Taken for treatment but succumbed at Hospital 90% burns
15.	Sakthikala W/o Saravanan	40/F	Taken for treatment but succumbed at Hospital 99% burns
16.	P. Devi D/o Palanichamy	29/F	Taken for treatment but succumbed at Hospital 70% burns
17.	R. Satheesh Kumar S/o Ramasamy	29/M	Taken for treatment but succumbed at Hospital 60% burns
18.	E. Jeyashri D/o Elangovan	35/F	Taken for treatment but succumbed at Hospital 80% burns
19.	Sai Vasumathi D/o Krishnamoorthy	26/F	Taken for treatment but succumbed at Hospital 60% burns
20.	E. Nivya Prakuruthi D/o Ethirajan	24/F	Taken for treatment but succumbed at Hospital 45% burns
21.	S. Parkavi D/o Suriyanarayanan	23/F	Taken for treatment but succumbed at Hospital 60% burns
22.	M. Sivasankari D/o Murugaboobathi	26/F	Taken for treatment but succumbed at Hospital 50% burns
23.	Swetha W/o Dinesh	28/F	Taken for treatment but succumbed at Hospital 50% burns

The Government of Tamil Nadu has appointed Dr. Atulya Misra, I.A.S., then Principal Secretary, Revenue and Disaster Management Department, as the Inquiry Officer to enquire into the circumstances leading to the tragic incident and submit a

report with recommendations to prevent recurrence of such forest fire accidents in forest areas. The Inquiry Officer conducted a detailed inquiry into the incident and submitted his report to the Government of Tamil Nadu in accordance with the Order No. 58 of the Environment and Forest Department (FR14) dated 13-03-2018. The following are the observations and findings of the Inquiry Officer regarding the Kottagudi forest fire tragedy:

“The Kurangani Ecotourism site was developed under the Tamil Nadu Biodiversity Conservation and Greening Project (TBGP) in 2014-15, with the development of a trail from Kurangani to Top Station, a distance of 11.40 km and a width of 7 to 10 feet. A watchtower for the use of ecotourists was also constructed at the site (Page 27 of the report)”. “Kurangani village is situated at the base of the valley and at an altitude of 727 meters amsl. The path towards Kolukkumalai is quite steep, initially passing through a dry deciduous forest, then entering a large grassland dominated by lemon grass (*Cymbopogon citratus*) and *Phoenix humilis*. It is in this grassland that the trekkers were caught in the tragic forest fire (Page 28 of the report)”.

“Due to the presence of *Phoenix humilis* and grass species (dominated by *Cymbopogon citratus*) and the lack of tree saplings, the area is regularly swept by fires. Beyond this grassland patch, the right of way passes through forests ranging from moist deciduous to semi-evergreen types of forests and then through a *Eucalyptus grandis* plantation to the Kolukkumalai tea estate (page 30 of the report).”

The District Forest Officer (DFO), Theni in his report No. 2190/2018D dated 20.04.2018 has mentioned that though the exact cause of the forest fire could not be established, considering the field situation right after the fire on 11.03.2018, it is highly probable

that the fire was started by a passerby while moving in one of the right of way near the patta lands close to the stream bed in the valley and that the fire moved up rapidly in the grassland (page 65 of the report)". "In his final report of the Theni forest fire, the District Forest Officer (DFO), Theni in his note No. 2190/2018/D dated 17.05.2018 has reported that an area of 95.2 ha. was burnt in the fire (page 66 of the report)."

The terrain of the incident site: The grassland where the trekking team found themselves during the forest fire was covered with dense, dry lemon grass (*Cymbopogon citratus*). The grass was close to 2m high and was the dominant vegetation along with *Phoenix humilis*. This grass is highly inflammable and generates significant heat when burnt. The trekkers were walking down a steep slope, and they were in the middle of the triangular grassland slope when the fire started. The fire affected the grassland from its lower end and spread up the slope very fast due to the flames and strong winds. The hot smoke dries up the vegetation just above the fire, making it easier to burn subsequently. (page 77 of the report)."

Forest Rights Act 2006:

The Indian Parliament has enacted the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (FRA 2006), to recognise and record the forest rights traditionally enjoyed by people who depend on forest resources for their livelihood activities and to protect, restore, or manage the community forest resources traditionally protected by them for sustainable use. FRA 2006 is not a law that grants new rights to forest dwellers; rather, it provides a framework for recognising

and recording the forest rights they have traditionally enjoyed for generations. Further, as per Section 5 of the Act, forest dwellers have the responsibility and authority for sustainable use, conservation of biodiversity, and maintenance of ecological balance. By doing so, they ensure the livelihood and food security of forest dwellers and strengthen forest conservation practices.

Highlights of the Forest Rights Act (FRA 2006) focusing on Social Justice:

1. The traditional right to graze livestock in forests is enshrined in Section 3(1)(d) of the Act.
2. As per Section 4(1) of the Act, forest rights shall be recognized only in accordance with the provisions of the FRA 2006, irrespective of any other law for the time being in force. This Act has the exclusive power to supersede and conclude all other forest laws (Central and State) in respect of grazing rights in forests.
3. According to Section 2(a) and 2(d), this Act applies to all forest areas, including unclassified forests, undefined forest areas, reserved forests, sanctuaries and national parks.
4. If the tribals or other traditional forest-dependent people are grazing their cattle within the forest, as per section 4(5) of the Act, they and their cattle cannot be evicted/removed from the forest area, until their traditional grazing rights are recognized and recorded after following the FRA 2006 and the Forest Rights Rules 2012.

In Tamil Nadu, the colonial mentality of the forest officials, their anti-marginalist attitude, and their stance against

democratization of forest governance are the main reasons for the poor implementation of the Forest Rights Act 2006 (FRA 2006). As a result, the traditional forest grazing rights guaranteed under the Act are being denied. It is noteworthy that in Tamil Nadu, not a single charter has been issued recognizing the traditional forest grazing rights of pastoralists so far.

Identifying the root cause of the Kottagudi forest fire

The Forest Survey of India (FSI), Dehradun, has studied forest fire incidents on the basis of various factors and has categorized the districts as **‘highly vulnerable district’**, **‘moderately vulnerable district’** and **‘less vulnerable district’** (FSI, 2012). Theni district falls under the **‘less vulnerable district’** category (FSI 2012). There was no El Niño event during March 2018, nor was there a drought in the Theni district at that time. Despite these unfavorable conditions for forest fires, a massive fire broke out in the Kottagudi protected forest area, killing 23 young tourists. When examining other factors that led to the disaster, a lapse in forest management was the cause. That is, the restriction of livestock grazing resulted in an increased accumulation of flammable dry leaves and grasses (fine fuel load) in the forest, which intensified and exacerbated the fire.

After about 55,602.52 hectares of forest area in Theni district was declared as a protected forest or wildlife sanctuary, cattle herders were not allowed to take their cattle into the forest for grazing. Due to strict enforcement and harassment by forest officials, most cattle herders sold their cattle and migrated to urban areas in search of alternative livelihoods; as a result, the population of the local cattle breed ‘Malaimadu’ declined. The main reason for

the decline in the number of native breeds in Theni district over the past two decades—with Malaimadu (hill cattle) dropping from 22,564 in 2002 to 14,810 in 2019, goats from 80,913 in 1997 to 47,699 in 2019, and buffaloes from 39,650 in 1997 to 1,423 in 2019—is the harassment of cattle herders by forest officials. The decline in the number of native cattle breeds in Theni district and the prohibition of cattle grazing in forest areas led to an increase in the accumulation of fuel materials (dry grasses and plants) in the forest; this was a major factor in the Kottagudi forest fire tragedy in which 23 young tourists lost their lives. If the Theni district administration had implemented the Forest Rights Act 2006 (FRA 2006), which recognizes the traditional forest grazing rights of cattle herders, the grasses (which are considered the main fuel for forest fires to catch and spread) and shrubs would have been removed by cattle grazing. As a result, the Kottagudi forest fire tragedy would not have occurred. The cessation of cattle grazing in forest areas increased the amount of fuel load in the forest, leading to a catastrophic forest fire.

The Forest Department of the Government of Tamil Nadu has a hierarchical structure under the leadership of the Principal Chief Conservator of Forests (PCCF) and the Head of Forest Force (HoFF), based in Chennai. He supervises specialized units, such as the Wildlife (Chief Conservator of Wildlife) and various regional/functional units including Chief Conservators, Wildlife Wardens, and District Forest Officers (DFOs). These units are structured into divisions, ranges, and beats at the lower level and implement policies at the field level through officers like Deputy Conservators of Forests (DCFs), Assistant Conservators of Forests (ACFs), Forest Rangers, and Forest Officers for protection and

management. The Principal Conservator of Forests (HoFF) is the apex officer supervising the entire department. He is assisted by a total of about 9,000 personnel including 11 Principal Conservator of Forests (PCCFs), 7 Additional Principal Conservator of Forests (APCCFs), 4 Chief Conservator of Forests (CCFs), 10 Conservator of Forests (CFs), 50 District Forest Officers (DFOs) (including Deputy Directors and Conservators of Forests), 9 Deputy Conservator of Forests (DCFs), 18 Assistant Conservator of Forests (ACFs), 539 Forest Rangers (FROs), 1146 Forest Officers (Foresters), 2053 Forest Guards, 540 Forest Watchers, Anti-poaching Watchers, Eco Watchers and other ministerial staff. Around 100 of these officers are from the Indian Forest Service, which is an the All-India Service.

The Directorate of Tribal Welfare and the District Administration are responsible for implementing the Forest Rights Act 2006 in Tamil Nadu. Due to strong opposition from the forest department, which has a staff of about 9,000, not a single village/community has been granted the traditional forest grazing rights enshrined in Section 3(1)(d) of the FRA 2006, and the title has not been granted. Thus, the removal of grazing cattle from the Kottagudi forest area, without recognizing the traditional forest grazing rights, in accordance with the FRA 2006, has led to a terrible forest fire incident there, which has resulted in the death of 23 young tourists.

Overview of studies assessing the effects of livestock grazing on wildfire mitigation

Main Findings	Reference
Livestock grazing reduced fire frequency by reducing grass biomass and enhancing the expansion of woodland.	Bachelet et al. 2000
Cattle grazing reduced fuel loads when herded. They reduced fire spread and reduced flame length.	Bruegger et al. 2016
Spatial distribution of livestock activities was negatively related to wildfire frequency in a Mediterranean area.	Kalabokidis et al. 2007
Herbivores reduced the frequency of small and large fires by reducing fuel loads and changing vegetation structure.	Kramer et al. 2003
Following a regional shrub clearing plan coupled with livestock grazing in a Mediterranean environment, there is a decrease in fire frequency.	Lasanta et al. 2018
Grazing with controlled burning reduced fire intensity under moderate moisture but not dry conditions.	Mitsopoulos and Dimitrakopoulos 2017
Analysis of temporal and regional drivers of fire ignition in Portugal shows that land abandonment, and land-use change from cultivated and grazed land explain an increase in forest fires.	Nunes 2012

Main Findings	Reference
Wildfire ignitions are likely in landscapes with large areas of low-intensity grazing, and even more in areas with many small patches with higher grazing density.	Ruiz-Mirazo et al. 2012
Low-intensity goat grazing reduced fire intensity in a shrub-grassland habitat.	Silva et al. 2019
Simulation study indicating that pyric herbivory consistently reduces fire frequency and intensity more strongly than prescribed fires only.	Starns et al.2019
Historical evidence from Alpine Switzerland shows that livestock density is negatively related to fire frequency during 1904–1955. However, during 1956–2006, fire frequency was lowest with intermediate livestock densities	Zumbrunnen et al. 2012
Cattle grazing reduced flame length and fire intensity in a dry ecosystem by reducing the canopy height of grassy vegetation.	Blackmore and Vitousek 2000
Targeted grazing by cattle led to a significant reduction in the grassy vegetation biomass.	Diamond et al. 2009
In this experiment, fire intensity and frequency were linked to grazing. Fires were smaller in areas with a high density of livestock enclosures and high utilization by wild beasts.	Probert et al. 2019
Across the tropics, high livestock density generally correlates with lower fire frequency.	Bernardi et al. 2019

Main Findings	Reference
Fall and Spring grazing decreased fuel loads and increased fuel moisture, but spring grazing greater effect on fire spread and ignition.	Davies et al. 2017
Historical evidence of the impact of livestock numbers on fire regimes.	Guiterman et al. 2019
Presence of buffalo in savanna ecosystems contributes to patchy ecosystems and low-intensity fires as well as less frequent fires.	Trauernicht et al. 2013
Moderate grazing reduces wildfire probability by decreasing fuel amount, continuity, height while increasing fuel moisture content.	Davies et al. 2022
Livestock Grazing can be an important fire management tool and employed as a critical part of the overall strategy to reduce fire risk, frequency, size and intensity.	Devyn et al. 2022
Moderate level of livestock grazing, decreases the fine fuel loading and continuity resulting in the potential to decrease the probability, continuity, size, and severity of wildfires in sagebrush rangelands.	Davies et al. 2010
The loss of extensive grazing in Mediterranean regions over the last 60 years has led to fuel loading and a higher risk of large and extreme fires.	Mantero et al 2020

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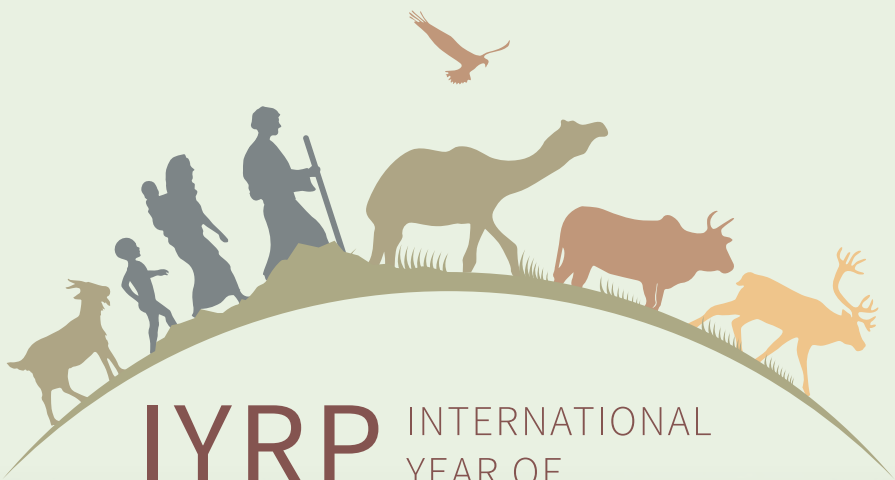
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