Anthropologist documents how women and shepherds historically reduced wildfire risk in Central Italy

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Stand of maritime pine with tree heather beneath. Vorno, Monte Pisano. Credit: *Ambio* (2024). DOI: 10.1007/s13280-024-01993-x

In the last several decades, large forest fires have increasingly threatened

communities across the Mediterranean. Climate change is expected to make these fires larger, hotter, and more dangerous in the future. But fire management lessons from the past could help to improve the resilience of local landscapes.

The latest research paper from environmental anthropologist and University of California, Santa Cruz Professor Andrew Mathews explores these issues in the Monte Pisano region of Central Italy. The paper is published in the journal *Ambio*.

In particular, Mathews found that peasant women, who historically collected leaf litter in the forests, and shepherds, who grazed their flocks and conducted occasional managed burns, were critical in maintaining fire-resistant landscapes. Yet the social status of these groups meant the importance of their work went unrecognized.

In Monte Pisano and much of the broader Mediterranean, forests and other plant communities have been shaped by thousands of years of intensive human management of the land. But migration to cities since the 1960s has left rural lands increasingly abandoned. And without people to maintain them, local forests have become overgrown with highly flammable brush.

At the same time, many traditional rural land management practices that may have once reduced fire risk in the region have been systematically ignored and even criminalized over the years, to the point where they have been all but forgotten.

Luckily, though, there are a few people who still remember. Mathews and his research team sought out elderly people who were born between 1928 and 1956 in the Monte Pisano region and conducted oral history interviews to learn about traditional land management practices. In particular, the researchers asked about activities like collecting leaf litter,

livestock grazing, and managed burning, which historical records suggested may have once been common.

"The people we interviewed were actually kind of excited to tell us these stories," Mathews said. "Most people don't really ask them detailed questions about their daily lives from when they were younger, so they enjoyed retelling the stories, and they were such brilliant, thoughtful, interesting people. They were a lot of fun to talk to."

Research participants described how forests were once full of human activity. Leaves were raked for use as stable bedding and fertilizer for olive groves. Logs and brush were collected for firewood and kindling. People gathered herbs, berries, and mushrooms in the forest, and sheep ate the grasses. Every scrap of wood or vegetation had a use, so the forest floor was almost bare in some places, and forests had an open, park-like appearance.

Meanwhile, in nearby pastures and olive groves, the buildup of grasses, brush, and brambles was kept under control through a combination of livestock grazing, manual brush cutting, and occasional managed burning. And whenever a wildfire sprang up in the forest, someone was always nearby to quickly extinguish it.

These historical accounts of the landscape were "an extraordinary difference" from what Matthews observed during forest transect walks in Monte Pisano in 2014. He and a botanist assistant recorded dense scrub and thick leaf litter, plus abundant fallen branches and brush that could easily act as "ladder fuels," enabling flames to spread from the forest floor to the treetops.

Mathews wanted to estimate how much of this difference between modern and historical landscapes could reasonably be attributed to past land management practices. Since sheep were central to many of those

practices—like leaf litter raking for stable bedding and grazing herds of sheep in forests—he started by comparing accounts from his oral history interviews with historical agricultural records to estimate the historical number of sheep per hectare of land in the region.

A prior study had modeled historical biomass removal in the Valais region of Switzerland for similar activities and a roughly comparable sheep-to-land ratio. So, based on the lowest estimates from that prior research, Mathews calculated that leaf litter raking alone could have historically extracted about 30–40% of the vegetation produced annually within the forest, with additional vegetation removal resulting from grazing, firewood collecting, and other activities.

These effects would have dramatically altered the landscape, leaving very little fuel for forest fires. Yet Mathews found that most people in the region today have very little awareness of these traditional land management practices that historically reduced fire risk. The research team interviewed local residents, firefighters, and government officials and observed community events to see what people understood about the history of local fire management.

"There was almost a complete disconnect," Mathews said. "People have a general idea that landscape abandonment is a problem, but most have no idea that there was a history of controlled burning and care that made the landscape less flammable."

The causes of this collective forgetting are rooted in historical politics of classism and sexism, Mathews' research suggests.

Leaf litter raking and other land management activities were conducted by peasants, and oral history interviews further showed that it was typically women and children who did this work. The state considered peasant practices to be backwards and outdated amidst a push for

agricultural modernization. And forestry policies that focused heavily on timber production led to the banning and stigmatization of traditional managed burning.

"Leaf litter raking was disregarded by the state because no one was earning money from it, and it was 'women's work' being done by 'unimportant' people," Matthews explained. "Similarly, shepherds, who were often the ones doing managed burning, have a long history of being stereotyped and regarded with suspicion across the Mediterranean. So the government never understood what they were doing or thought it was helpful."

Mathews believes that communities around the world can learn from Monte Pisano's traditional fire management practices, as well as from the consequences of forgetting them. He says that landscape abandonment similar to what took place in Italy in the mid- to late- 20th Century is currently happening in parts of Africa and South America. With that, there's been a decrease in traditional managed burning on a global scale.

"We tend to think of fire as increasing around the world due to climate change, but at the same time, these traditional types of smaller, controlled fires are actually decreasing," he said. "We should think hard about the impacts of eliminating agropastoral burning, because, in the end, it's likely to come back and bite us in the form of much larger fires."

More information: Andrew S. Mathews et al, Wildfires as legacies of agropastoral abandonment: Gendered litter raking and managed burning as historic fire prevention practices in the Monte Pisano of Italy, *Ambio* (2024). DOI: 10.1007/s13280-024-01993-x