



Xerente women volunteer firefighters participate in fire suppression training. Photo: Pedro Paulo Xerente

Breaking barriers in the Brazilian Amazon

Indigenous women's roles in climate action and fire management

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“Capacity building and awareness of gender-based norms in integrated fire management can lead women to acquire new skills and break barriers to become effective agents in climate action.”

Ana Luiza Violato Espada

Introduction

Wildfires — uncontrolled fires that burn forests, grasslands, savannas and other ecosystems — are growing in intensity due to anthropogenic climate change, land-use change, and poor land and forest management. Wildfires in some ecosystems are beneficial and have occurred for millions of years. However, wildfires are burning longer and hotter in many places worldwide, including environments where they previously did not occur (UNEP, 2022). For example, Brazilian tropical rainforests are sensitive to fire, meaning that fire is not natural to their ecological succession, but wildfires are becoming common in these ecosystems (Barlow et al., 2019). Multiple strategies, such as Integrated Fire Management (IFM), are required to address extreme fire conditions. IFM consists of planning and prevention, preparedness, response and recovery efforts that are integrated with the sociocultural

needs of local communities and the fire ecology of the ecosystems being protected. IFM also encompasses fire prevention strategies such as environmental and degraded land restoration (UNEP, 2022).

Specific efforts to include women and Indigenous communities are seen as crucial. Indigenous knowledge can bring insights to the use of fire in wildland fire management, and women commonly face discrimination in the hypermasculine culture of wildfire management (Association for Fire Ecology, 2016). Academics and practitioners acknowledge that women can play a crucial part in climate action solutions. Women are one of the most affected social groups when it comes to climate change and “women interact with, use, understand and value the environment differently than men” (James et al., 2021, p. 1). Women can be active and effective agents and promoters of adaptation and mitigation, due to this different perspective on conservation efforts (James et al., 2021).

Women still face inequalities in access to the financial and material resources, training, information and technology that are part of IFM. In addition to these challenges, women face discrimination based on gendered norms that prevent them from attaining leadership positions in IFM strategies. Capacity building and awareness of these gender-based norms can lead to more inclusive

approaches. This article reports on the Xerente Indigenous women who work as volunteer firefighters in Brazil. Their case demonstrates how fire management training and the acquisition of new technical skills led these women to carry out fire suppression, and to go beyond this to promote both environmental education and restoration within protected areas such as Indigenous lands in Brazil.

Study context

The authors conducted six in-depth interviews to gather information related to: a) motivations for and main challenges to creating the volunteer fire brigade; b) strategies established to provide institutional and technical resources that support the women-led initiative; c) main activities developed; and d) perspectives of the women firefighters. Three of the authors used participant observation to cross-check and note women's participation and the collective capabilities of the Indigenous women firefighters. Participant observation was conducted during the fire brigade training that took place from August 18 to 20, 2021, in the Xerente Indigenous Land, in Tocantins.

The state of Tocantins, located in the Brazilian Amazon region, has nine wildland fire brigades composed of 208 Indigenous people operating in five indigenous lands. These indigenous lands comprise almost 2,000,000



View of the Xerente Indigenous Land. Photo: André Dib

hectares, where around 15,000 Indigenous people have customary and legal rights to live and to use natural resources for their livelihoods. Among these territories of traditional use, the Xerente people live in two areas: the Xerente and Funil Indigenous Lands (Figure 1).

With 168,000 and 16,000 hectares respectively, the Xerente and Funil indigenous lands are located in a predominant savannah ecosystem where fire is a natural component that renews and grows vegetation. However, wildfire threats are becoming more common in the Xerente areas. Due to the former fire suppression policy and climate change, the Xerente people are experiencing heightened wildfire risks during the dry season (July–October), when temperatures can reach 38°C to 41°C. Besides the wildfires' effects on the Xerente's homes, they have also harmed the production of flowers and fruits, jeopardizing the collection of native fruits and native honey, which provide food for Indigenous people and wildlife.

Since 2013, the National Center for Wildfire Prevention and Suppression (Prevfogo), has been training and hiring Indigenous people to become firefighters. Prevfogo is a specialized part of the Brazilian Institute for the Environment and Renewable Natural Resources (Ibama), which is responsible for monitoring, preventing and controlling forest fires. Through a technical cooperation agreement between Ibama and the National Indigenous Foundation (FUNAI), Prevfogo/Ibama trains and hires

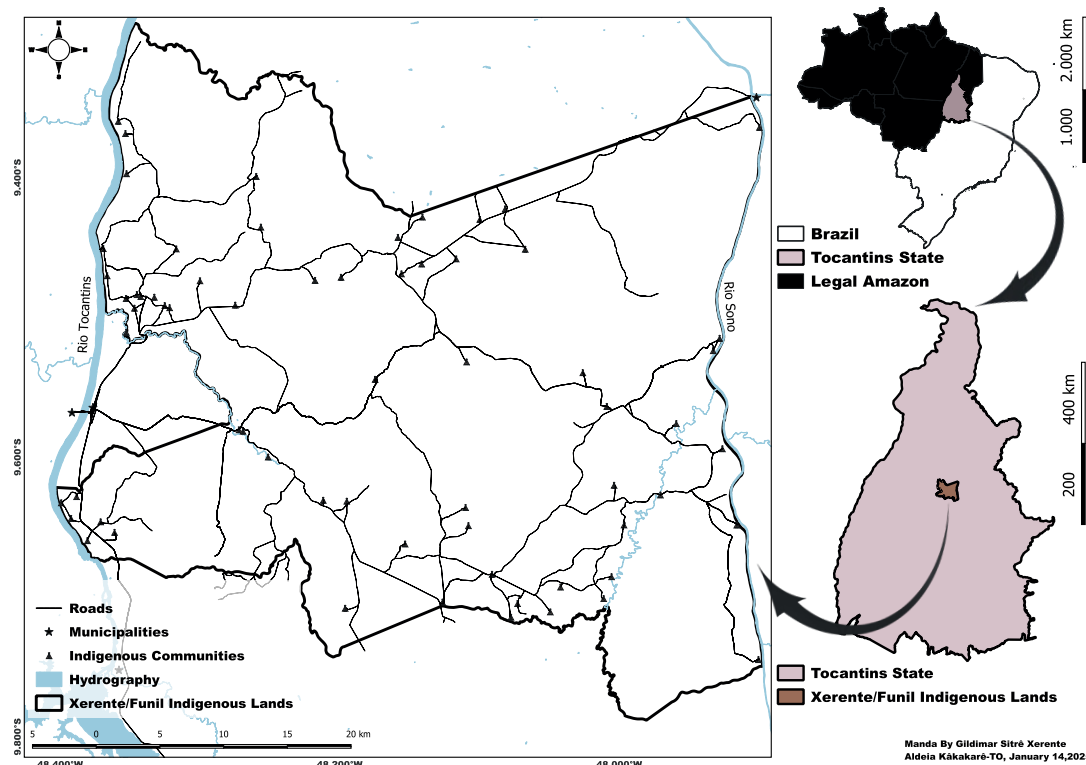
Indigenous people to become firefighters on their own lands. The agreement's aims are twofold: 1) to implement Indigenous federal wildland fire brigades in indigenous land; and 2) to carry out integrated fire management. The programme also seeks to engage Indigenous people as short-term firefighters hired by the federal government. Collaboratively, Prevfogo and its partner organizations provide technical assistance such as training and financial resources for equipment to prevent and combat wildfires.

Besides the Indigenous people who are hired for fire brigades, Indigenous volunteer fire brigades can also receive training from Prevfogo/Ibama. Up to 2021, the Xerente and Funil indigenous lands had a single hired fire brigade, made up of 22 Indigenous men. Since the formation of the brigade, men have had more opportunities than women to participate. It was common for only men to participate in the tests to join the brigade, as the gendered-base assumption was that women did not have the interest in or strength for firefighting work.

Xerente Indigenous women's volunteer fire brigade

Motivations and main challenges

In 2021, the Xerente women created the first women-only Indigenous volunteer fire brigade in Brazil, a milestone for all Indigenous women in the country. The main motivation for the Xerente women was that, in 2015, for the first time, a





Xerente women volunteer firefighters train in prescribed fire practices. Photo: Pedro Paulo Xerente

woman, V.S. Xerente, enrolled in the Prevfogo/IBAMA hiring process to be part of the contracted fire brigade. Ms. Xerente felt the need for women to participate in the hiring process and she decided to be a role model. Her initiative stood out, considering that it was common at the time for the Xerente women to be on the sidelines of the hiring process, watching the physical fitness tests and cheering for their men relatives. According to one Xerente woman: *“She was one of the inspirations for us, to start seeing the capability that we have and things we can and should do. When we were in the fire brigade course, [she] was mentioned several times by the female firefighters. I used to say: I’m wary of talking, because for me she’s already an inspiration for a lot of things, and I’m still too young to talk; she’s practically an old woman, I used to joke like that.”*

The Xerente women knew that it was not likely that this woman would pass the physical tests. First, she had some health issues, and second, the interviewees perceived that the men competing with her were physically stronger and more agile than her. Even so, the Xerente women were inspired by her ambition, cheering for this woman who became their role model.

There were two physical tests for the hiring process. The first was the Physical Aptitude Test (TAF), which requires a person to walk for 2,400 metres carrying a backpack pump filled with water, weighing approximately 24 kg, in 25 minutes for men and 30 minutes for women. The second test, Skills and Management of Agricultural Tools (THUFA), consists of a person cutting grass and raking an area of three metres by five metres in 20 minutes for men and 24 minutes for women. The applicant needs to completely clear the vegetation, according to the practice of clearing down to the mineral soil.

“It was kind of an unprecedented thing in the history of the [Xerente] indigenous women. When she got back from the physical tests, she fainted; she didn’t pass the TAF and THUFA.”

A Xerente woman

To become firefighters, the Xerente women faced discrimination from relatives who did not approve of women participating in a fire brigade, as it was viewed as a workplace only for men. In fact, some women were

discouraged from participating altogether. As one Xerente woman said:

“We have a huge barrier to deal with: sexism. Some people think they shouldn’t count on women because we are not capable, but they are wrong. We can run a house, take care of our kids, and do five or six things at the same time. Now they believe in us. They’ve given us visibility and recognition.”

A Xerente woman

Strategies to support the initiative

The Xerente women pursued the idea of becoming firefighters by having a man who was a firefighter as an ally, who was the president of the Association of Xerente Indigenous Firefighters (ABIX). Together with him, they created partnerships with technical organizations to provide training to 29 women. They participated in a three-day training session for a women-only fire brigade. The training (see photos, page 124 and 127) was held

between August 18 and 20, 2021, by Prevfogo/Ibama, in partnership with the U.S. Forest Service (USFS) and ABIX, and with support from the U.S. Agency for International Development (USAID).

Working collaboratively with partner organizations, who assisted them with technical expertise and institutional visibility, the Xerente women were able to develop more partnerships; for instance with the private sector, to access fire equipment.

Main activities

After the Xerente women received training to become volunteer firefighters, four of them continued capacity building in IFM through a sequence of virtual courses offered by partner organizations. These women participated in five different virtual courses, amounting to 74 hours total.

The head of the Xerente women firefighters has participated in meetings and training outside her indigenous land. For instance, in 2022 she participated in an environmental education course on preventing



Xerente women working with plant seedlings. Photo: André Dib



Xerente women firefighters working with plant seedlings. Photo: Andressa Anholete

wildfires during the critical fire season. The course included topics related to climate change and its impacts at the global and local scales. It also included mitigation and adaptation actions regarding wildfires, flooding and dry weather. The course prepared her to understand the global climate change scenario, and how people can deal with it at the local scale. She also worked closely with ABIX and the fire brigade on an exchange for 20 Gavião Indigenous women from Maranhão state. They visited the Xerente women to share experiences as firefighters, and the Xerente women discussed their strategies for overcoming gender discrimination and other barriers. These included making alliances with the men firefighters and gaining support from them to implement IFM. One example was the environmental education meetings with community leaders to explain that fire could be used, but only with appropriate techniques during the critical fire season.

The Xerente women also created communication strategies within the indigenous lands to bring together women firefighters from villages that are geographically distant from each other — the Xerente Indigenous Land has 90 villages and Funil has seven. They created a WhatsApp group that included 31 women from various communities. Through this group, they created a social bond whereby the women can share concerns about

relatives not agreeing with their participation, and can communicate their professional aims, such as continued education to further their knowledge and enrich their curriculum. They also encourage each other to participate in free courses with certificates available on the internet. As the women's group strengthened their work relationships, they started to plan activities at the local scale to raise awareness about the critical fire season. For instance, they planned to visit each community within the two indigenous lands to develop an annual calendar. The calendar identifies the periods when families usually use fire to prepare the land for their crops. Knowing this helped the firefighters to be alert and support the communities with adequate equipment to prevent uncontrolled fires.

The Xerente women conducted environmental education in three ways: 1) they listened to the elders about the local way to use fire; 2) they talked about climate change; and 3) they reflected on new ways to integrate both ancient and technical knowledge in IFM. These women helped define the role of fire brigades within their territories: the hired fire brigade works predominantly on fire suppression, while the women-only volunteer brigade works on fire prevention. The women's work includes prescribed burning, degraded land restoration, and visits to local communities to raise awareness of the critical fire season.

The Xerente women were also part of efforts to restore degraded land in areas affected by extreme fire. They received training in seedling production and nursery management, focusing on seedlings from locally collected seeds. Plant species included those that grew naturally in their lands; for instance, *Mauritia flexuosa*, which is found near watercourses. The women were responsible for collecting seeds from the natural vegetation in their territories, and for preparing plants and planting seedlings. To date, they have restored approximately two hectares to protect a waterhole that is a water source for their homes and local wildlife. They also invite local schools in order to involve children and youth. The Xerente women were not paid to implement the restoration activities, but they received logistical support from external partner organizations (e.g., government agencies) to monitor the degraded areas.



Xerente women firefighters carry out fire management activities.
Photo: Andressa Anholette

Other activities

The Xerente women continued to develop their activities as a volunteer group. However, they also sought economic support for their role. Due to the technical skills they acquired — and their leadership, which was acknowledged by partner organizations, particularly Prevfogo/Ibama — in 2024 and 2025 eight women were hired by the federal agency to work as firefighters on prescribed burning as part of fire prevention strategies. In addition, the Xerente women sought to continue being an example to other women firefighters. They supported the creation of a regional network of Indigenous women firefighters. Within this network, three more women-only indigenous brigades were created, one in each of three indigenous lands in Tocantins and Maranhão states. In November 2023, the Xerente brigade met with the three new brigades in a regional meeting to reflect on the main challenges and strategies for women who work as firefighters.

Discussion

This pioneering initiative in the Brazilian context could be an example for scaling in different contexts around the world to break barriers in gender roles in workplaces dominated by men. First, the Xerente women overcame the Xerente people's perspective that only men were able to work in fire management; to do so, they created a women-only fire brigade. Second, these women improved their technical skills with training in integrated fire management. Third, they created alliances with the men firefighters, showing that men and women could work together, instead of competing, on common goals such as preventing wildfire in their territories.

Gender discrimination is typically underreported in wildland fire management workplaces; the Xerente women found venues to deal with this challenge in their culturally patriarchal society. Although reporting gender discrimination is important in order to change the attitude toward women working as firefighters, the Xerente women avoided direct confrontation with members of their villages and families. Instead, they organized themselves, at first with help from local allies (such as ABIX) and later with external partners (such as Prevfogo/Ibama and the U.S. Forest Service), which provided training and continued education on integrated fire management. Working closely with men allies, the Xerente women also secured fire management tools and equipment to

perform their tasks. Their strategies have the potential to motivate women in other men-dominant cultures to shift their roles in climate action.

The Xerente women who work as volunteer firefighters can serve as role models for other Indigenous women, helping them to act on climate change mitigation and adaptation. Indeed, some representatives of the Xerente women have been disseminating their message and providing lessons learned to other women in the Brazilian Amazon.

The Xerente Indigenous women promoted awareness within Brazilian federal agencies and partner organizations regarding gender-based discrimination

in integrated fire management approaches nationwide. This case shows how intentionally including women in technical training can break barriers and provide a more inclusive workplace for climate change action.

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