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The (in)visible victims of disaster: Understanding the vulnerability of undocumented Latino/a and indigenous immigrants

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ABSTRACT

As climate change advances, communities across the United States are adapting to the increased threat of wildfires, drought, heatwaves, and infectious diseases. Such disasters are expected to become more frequent and severe. Now more than ever, it is crucial to understand how these events amplify existing inequalities, and how to lessen the resulting harms. Differences in human vulnerability to disaster stem from a range of social, economic, historical, and political factors. We argue that given their social status, undocumented Latino/a and Indigenous immigrants are particularly vulnerable to disasters and require special consideration in disaster planning. They are disproportionately affected by racial discrimination, exploitation, economic hardships, less English and Spanish proficiency, and fear of deportation in their everyday lives— their pre-disaster marginalized status. In the case of the Thomas Fire in California's Ventura and Santa Barbara counties, we show that emergency response and recovery efforts ignored their needs. Resources were directed toward privileged individuals, leaving local immigrant rights and environmental justice groups to provide essential services such as language access to emergency information in Spanish and Indigenous tongues; labor protections for farmworkers endangered in the fields; and a private disaster relief fund for undocumented immigrants ineligible for federal aid. The article concludes with preliminary participant observations from the COVID-19 pandemic response in the region, indicating how lessons from the fire have informed official actions. As governments grapple with the increasing severity of disasters, understanding the differential impacts on undocumented immigrants can help improve disaster planning to protect the most vulnerable and stigmatized populations.

1. Introduction

On December 4, 2017, the Thomas Fire started north of the city of Santa Paula in Ventura County, California. It grew quickly to nearly 31,000 acres (50 square miles), spreading into Santa Barbara County in less than 12 hours. The fire lasted over 40 days, destroying 1063 structures, resulting in massive blackouts, forcing more than 104,000 residents to evacuate, and causing over $2.2 billion in damage (Climate Signals, 2018). Its explosive growth was driven by a combination of climate-related factors, including dry foliage, low humidity, and intense Santa Ana winds that gusted up to 60 miles per hour. At the time of final containment on January 20, 2018, the Thomas Fire would be classified as the second largest wildfire in California history. More than 8500 firefighting personnel were assigned to it – one of the biggest forces ever assembled for fire suppression in the state (Vercammen et al., 2017; Fovell and Gallagher, 2018; Cal Fire, 2017; Etehad and Mejia, 2017).[1]

Media outlets across the country reported on the loss of hillside mansions and impacts to wealthy homeowners and farmers (Hersko, 2018; Yam, 2017). The Thomas Fire, however, also endangered the health and livelihoods of thousands of undocumented Latino/a and Indigenous immigrants. California is home to an estimated 2.6 million undocumented immigrants, many of whom are farmworkers or are employed in service jobs such as housekeeping and landscaping. In Ventura and Santa Barbara counties, undocumented individuals are estimated to account for more than 9 percent of the population or 111,000 people (Hayes and Hill, 2017). The Thomas Fire exposed how emergency response and recovery efforts ignored their needs. Resources were directed toward wealthy individuals, leaving local immigrant rights and environmental justice groups to provide essential services

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[1] Thomas Fire is the 2nd largest in terms of acres burned. Eight month later, the Camp Fire in Butte County was the most "destructive" (i.e. lives and property lost) wildfire in California history. The fire caused 86 fatalities, destroyed 18, 804 structures, and total damage was $16.5 billion (McBride, 2018).

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such as language access to emergency information in Spanish and Indigenous tongues; labor protections for farmworkers threatened by heavy smoke; and a private disaster relief fund for undocumented immigrants ineligible for federal aid. Undocumented immigrants (particularly Indigenous individuals) usually experience socioeconomic precarity; the wildfire intensified their already difficult situation (Boyd-Barret, 2018; van Eerten, 2018; Limon, 2018).

Using the case study of the Thomas Fire, we argue that given their pre-disaster marginalized status, undocumented Latino/a and Indigenous immigrants require special consideration in disaster planning. Their differential vulnerability to disaster is mainly a consequence of structural inequality (Farmer et al., 2006; Nixon, 2011). Within a given area, these inequalities intersect along the lines of race, gender, indigeneity, immigration status, health care access, and income (Crenshaw, 1989; Davies et al., 2018). As governments attempt to address the increasing severity of wildfires, understanding their differential impacts can help inform better disaster and climate adaptation planning to protect the most vulnerable populations (Mendez, 2020).

Recent research points to the urgency of these issues and underscores how climate change is making wildfire seasons longer and more severe. On average, wildfires in the Western United States burn six times the acreage they did 45 years ago (Kenward et al., 2016; Schoennagel et al., 2017; Abatzoglou and Williams, 2016). Differences in human vulnerability to this growing threat stem from a range of social, economic, historical, and political factors (Thomas et al., 2018). This includes unequal access to disaster preparedness resources, contrasting legacies of forest management practices, and the expansion of residential development into the wildland (Davies et al., 2018; Cignarale et al., 2017).

Both disaster and climate change policy have increasingly employed the concept of "contextual vulnerability" to account for these interactions between societies and changing environments, to evaluate how they expose specific groups to greater harm, and to target responses more effectively (O'Brien et al., 2007; Hess et al., 2008; Fellman, 2012; Hess, 2018). This article examines the importance of understanding the contextual vulnerability of undocumented immigrants in responses to disasters, contending that actions taken and challenges faced by community-based groups in California's Central Coast region during and after the Thomas Fire provide an important model for more inclusive disaster planning.[2] The article concludes with preliminary participant observations from the COVID-19 pandemic response in the region, showing how lessons from the fire have informed official actions, and offer new directions for research on this unfolding crisis. Our findings and recommendations can help inform prevention, mitigation, and recovery planning, as well as reduce the impacts of disasters affecting undocumented immigrants.

2. Slow violence and contextual vulnerability to disasters

Contextual vulnerability provides a framework for understanding the relationships between the "slow violence" that environmental injustices wreak on poor communities of color over the course of decades, on the one hand, and the effects of fast-moving, dramatic disasters such as wildfires, on the other (Farmer, 2004; Ahmann, 2018; Scheper-Hughes and Bourgois, 2004). Not only are these communities more vulnerable to disaster because of the long-term cumulative harms they already face; the conditions that make slow violence possible—marginalization and disregard for them by those in power—also magnify short-term dangers. As described by Nixon (2011), the term "slow violence" conceptualizes slow-moving injurious and deadly harms, stemming from human-caused environmental degradation or climate change. It is a form of violence that is "neither spectacular nor instantaneous, but rather incremental and accretive, its calamitous repercussions playing out across a range of temporal scales" (Nixon 2011, 2). Slow violence builds on the idea of "structural violence," but emphasizes change and movement over time as well as space, extending the typical conception of violence as a fixed and immediate event (Dillon, 2015; Davies, 2019; Galtung, 1969).

For Nixon (2011), slow violence poses a problem of visibility and representation, insofar as its effects are often unseen to most people, particularly to those in positions of power (Cecire, 2015). In the case of the Thomas Fire, undocumented immigrants in the Central Coast were rendered invisible to policymakers and disaster relief organizations by systemic racism and cultural norms regarding U.S. citizenship and who is deemed a "worthy disaster victim." Society routinely treats undocumented immigrants, as well as other marginalized groups, such as the homeless, as "less than human, outside the norm and disposable" (Vickery, 2018, 137). These forms of exclusion directly shape disaster planning and response (Lerner, 2010).

Acts of slow violence thus do not begin with malicious intent but are usually the result of neglect or ignorance concerning the most marginalized populations (Rice, 2016)—an observation confirmed by our experience with this research. Following our November 2019 briefing on wildfire impacts to undocumented immigrants at the California Office of Emergency Services, one senior official commented, "before all these fires, I had no idea so many of the farmworkers were Indigenous" and discussed the need for more nuanced approaches in disaster planning. This is despite the fact that Indigenous peoples from Mexico have migrated to California's agricultural regions in large numbers since the 1960s (Maxwell et al., 2018; Kresge, 2007). The homogenization of immigrants here shows how biases can be embedded within disaster policy.

According to a State Auditor's report, released the following month, emergency officials routinely overlook the state's most vulnerable populations, as they make preparations for foreseeable wildfires, floods, and other disasters (Howe, 2019). The audit focused on the emergency alert, evacuation, and shelter plans adopted by the California Office of Emergency Services and Ventura, Sonoma, and Butte counties prior to wildfires in 2017–18. "Given the weaknesses we identified in the three counties' plans and the struggles local jurisdictions have had in assisting people with these needs," the audit said, "the state must take a more active role in ensuring that local jurisdictions maintain effective plans for responding to natural disasters" (Howe, 2019, 15). Echoing Nixon's account of "slow violence," a migrant community organizer commented on the report, "I don't think it's any sort of nefarious plan, I think it is more implicit bias and not including vulnerable communities in the [planning] process. Disasters are exacerbating the hardship of people who already were bearing the brunt of inequality" (Serna, 2019).

The specific ways in which disasters exacerbate existing inequalities can be described and addressed in practical terms through the lens of contextual vulnerability (O'Brien et al., 2007).[3] In an extensive study, Davies et al. (2018) have shown that vulnerability to disaster is the result of the socioeconomic context in which the event occurs. Access to resources and the ability to reduce exposure and recover from wildfire are not uniformly distributed. The researchers found that communities of color – specifically those census tracts with a majority Black, Latino, or Native American populace – are 50 percent more vulnerable to wildfires compared to other census tracts. Traditional analyses often obscure these differences, which stem from multiple intersecting factors (Maldonado et al., 2015; Johnson, 2008). For example, according to Cox and Kim (2018), older adults of lower-income status, particularly Blacks and Latinos, are less prepared for a disaster than their younger counterparts due to the stratification of access to disaster preparedness knowledge and resources. Similarly, another study (Baldassare et al.,

[2] The Central Coast includes six counties: from south to north, Ventura, Santa Barbara, San Luis Obispo, Monterey, San Benito, and Santa Cruz.

[3] For definitions of vulnerability as a product of the risk of exposure, sensitivity, and adaptive capacity, see Fischer and Fraizer (2018); and Adger (2003).

2014), found that "whites [in California] are twice as likely as Latinos to say they are knowledgeable about disasters even though Latinos (48%) are by far the most likely group to be very worried (27% Asians, 21% Blacks, and 15% whites)." In California's rural, low-income, and immigrant communities, residents often do not have the required resources to pay for insurance, rebuild, or invest in fire safety, which increases their vulnerability to wildfire. In recent years, these disparities have made recovery from wildfires even more difficult, as some landlords engaged in price gouging in regions that were already facing a housing shortage (Fixler, 2018). Such outcomes have major environmental justice implications, in that certain populations, due to their socioeconomic status, must live with a disproportionate share of impacts and suffer the related health and quality of life burdens (Mendez, 2020; Agyeman et al., 2003).

Understanding the vulnerability of communities is increasingly urgent because the risks of wildfires, drought, extreme weather, and infectious diseases associated with climate change are materializing sooner than projected (Bedsworth et al., 2018). In response to these threats, environmental health scholars (Boyce and Pastor, 2013) argue for approaches to climate change policy that adopt "contextual vulnerability" as part of a multidimensional view of such climate–society interactions (Morello-Frosch et al., 2012; Shonkoff et al., 2011). From this perspective, "reducing vulnerability involves altering the context in which climate change occurs, so that individuals and groups can better respond to changing conditions" (O'Brien et al., 2007, 76). To fully understand the complete picture of vulnerability to disasters associated with climate change, it is necessary to utilize approaches that recognize that any complex system involves multiple variables (physical, environmental, social, political, cultural, and economic) (Fellman, 2012, 45; Cardon et al., 2012).

A contextual vulnerability framing also can address the ways in which wildfire intersects with various aspects of human identity. In the social sciences, the concept of "intersectionality" has been used to highlight how categories of culture and identity overlap, heightening the effects of discrimination, exclusion, social inequality, and systemic injustice in the lives of specific individuals (Crenshaw, 1989; Dhamoon, 2011; Brah and Phoenix, 2004). An intersectional approach to wildfire emphasizes how certain people suffer worse effects because of overlapping factors that are often measured separately (Kaijser and Kronsell, 2014; Bauer, 2014). Little empirical research exists on undocumented immigrants' differential vulnerability to disaster. This study complements research by Davies et al. (2018), Collins (2008), Collins and Bollins (2009), and Wigtil et al. (2016) that explores the associations between race, place, and wildfire.[4] Building on the concepts of contextual vulnerability and slow violence, we offer a more holistic view of wildfire, one that simultaneously explores the intersection of human identities with the specific geographies and varying temporalities of disaster and environmental change.

The case of the Thomas Fire especially underscores the complex intersection of race, class, indigeneity, gender, and immigration status as they relate to wildfire vulnerability. Our research moves beyond the homogenization of immigrants as a vulnerable group to analyze their unique intersectional identities that together generate disparate disaster outcomes. Toxic smoke from wildfires, for example, has extremely harmful effects for undocumented immigrants working outdoors without access to protective equipment such as masks. These individuals are already exposed to pesticides, and their immigration status, economic precarity, and lack of transportation can prevent them from receiving health care or regulatory relief. Moreover, they are often afraid to seek help and restitution during and after a disaster, largely because US government agencies routinely subject them to surveillance, detention, and deportation. In this context, factors such as Limited English and Spanish Proficiency, and heightened discrimination toward undocumented immigrants, can also have profound effects (Fussell et al., 2018; Grabovschi et al., 2013). The response of community-based groups during and after the Thomas Fire points to ways in which deliberately crafted disaster planning and climate adaptation policy can help alleviate, rather than reinforce, these existing disparities.

3. Methods

This research was undertaken through a case study of Latino/a and Indigenous immigrant workers, residents, and community leaders who lived in Santa Barbara and Ventura counties during the Thomas Fire. An interpretive approach utilizing qualitative methods was adopted to enable in-depth examination of the experiences of respondents during and after the wildfire (Yanow and Schwartz-Shea, 2006; Bevir and Rhodes, 2005; Rhodes, 2014; Drennan, 2017).

The study's interpretive methods included three components: participant observation; semi-structured interviews; and archival analysis. Participant observation involved the coauthors, Flores-Haro and Zucker, residing in the study area and conducting fieldwork during 2017–19 with the Indigenous migrant rights group Mixteco/Indigena Community Organizing Project (MICOP), and the environmental justice organization Central Coast Alliance United for a Sustainable Economy (CAUSE), respectively.[5] The research team conducted semi-structured interviews with 30 respondents. Interviews were selected by assessing the professional networks the team developed while working in public policy in the region.[6] These networks provided a degree of trust and personal connections that resulted in greater access to key stakeholders. Several of the people interviewed remain involved in climate change and disaster planning or engage in the local economy as undocumented workers.

In order to address sensitive issues, many of the interviewees requested anonymity. In such circumstances, the references indicate only the type of work the individual engages in. The interviews were used to collect qualitative data that answered explanatory 'how' and 'why' questions (Yin, 2003) about the wildfire response and recovery experiences of immigrant communities. Archival analysis focused on a review of policy literature, grey literature, relevant government/non-governmental websites, and news articles to assess gaps in government disaster response for undocumented immigrant communities in the region. This research was supplemented by a January 2019 workshop held at the Yale School of Forestry that convened California policymakers and environmental justice/immigrant rights advocates together to conduct a scoping analysis of the fire's impact to undocumented immigrants (Arksey and O'Malley, 2005; Anderson et al., 2008; O'Brien et al., 2016). The researchers also conducted a follow-up briefing with the California Office of Emergency Services in November 2019. The findings from the scoping analysis were utilized by the Office of California Governor Gavin Newsom (2019) to help develop $50 million in disaster planning grants for vulnerable communities at high risk for disasters.

The transcripts of the informant interviews and scoping analysis were content analyzed for key themes using inductive coding (i.e., themes were not predetermined but emerged from the data through review and comparison) (Thomas, 2006; Glaser and Strauss, 1999; Ritchie et al., 2003). To increase the reliability of coding, content was

[4] See also Davis (1999) for a history of race and class politics of wildfires.

[5] MICOP unites indigenous leaders and allies to strengthen the indigenous migrant community. CAUSE seeks to invoke environmental justice for people in the Central Coast through research, organizing, and advocacy.

[6] 15 interviews were conducted by Flores-Haro and Zucker as part of their employment with MICOP and CAUSE and were completed prior to the start of this research project. These interviews with immigrant workers/residents were given pseudonyms to protect their identities. Méndez conducted 15 interviews between August 2018 and May 2019, with local/state government officials and staff at community-based organizations involved in providing services to immigrants.

Table 1
Key themes identified by informant interviews.

	Access to Emergency Response Information	Air Quality and Occupational Health	Transportation and Housing Impacts	Disaster Relief Aid	Disaster Exacerbates Existing Inequalities
Government Officials n = 5	5	3	1	2	2
Community and Nonprofit Officials n = 10	9	8	6	9	10
Immigrant Workers and Residents n = 15	15	10	12	15	12

reviewed independently by each researcher and themes identified were compared, reconciled, and compiled (Burnard, 2011; Pope et al., 2006). Reconciled themes were transcribed into a spreadsheet for analysis (see Table 1 for summary).

Through an interpretive approach (Yanow and Schwartz-Shea, 2006), we sought to understand not only the impacts themselves but how perceptions and the experience of impacts translate into actions to improve disaster and climate adaptation planning (Alkon, 2004). This approach is supported by fire social science literature that has focused on the feedbacks between social groups, governments, and the landscape to better inform the development of inclusive vulnerability reduction strategies (Paveglio et al., 2018; Toman et al., 2013; Carroll et al., 2006). Data developed through this approach, moreover, facilitated an understanding of the lived experience and intersecting identities of undocumented immigrants and how these factors shaped their disaster outcomes. This is particularly important, since relatively few studies have analyzed the disaster impacts of undocumented immigrants from their own perspectives.

4. Snapshot of California's farmworker and Indigenous migrant communities

The Central Coast is home to a large proportion of California's multi-billion-dollar agriculture industry; Ventura and Santa Barbara counties annually generate $2.1 billion and $1.5 billion respectively (Williams, 2019; Fisher, 2019). Data from the US Census Bureau (2017) indicates that there are 24,000 farmworkers in Ventura County and 18,000 in Santa Barbara County. These figures likely underestimate the size of this population, due to the difficult nature of counting undocumented farmworkers through the Census (Farm Bureau of Ventura County, 2016).

Estimates further suggest that although it employs fewer workers than California's San Joaquin Valley, the Central Coast supports some of the most profitable-per-acre farming in the state, making the hardships facing farmworkers all the more glaring (O'Connor, 2019). Dire socioeconomic conditions and health hazards exist for many California farmworkers, particularly undocumented Indigenous immigrants. The following indicators from the most recent California Agricultural Workers Health Survey (Villarejo et al., 2000)[7] and the National Agricultural Workers Survey (Hernandez and Gabbard, 2018) provide an overview of these inequalities:

- The mean and median personal annual income for farmworkers in the United States were in the range of $17,500–$19,999 (Hernandez and Gabbard, 2018).
- 40% of farmworkers in the United States have no health insurance (Hernandez and Gabbard, 2018).
- One in five male farmworkers in California has risk factors for chronic disease: high serum cholesterol, high blood pressure, or obesity (Villarejo et al., 2000).
- Of California farmworkers, 25% of men and 13% of women have never had a medical or clinic visit (Villarejo et al., 2000).
- The median educational attainment for farmworkers in California is 4th, 5th, or 6th grade (Villarejo et al., 2000).
- Where California farmworkers live, the number of residents per dwelling unit is 4.3 (Villarejo et al., 2000). For Central Coast farmworkers, there are 7 persons per dwelling unit, as compared to

[7] The last comprehensive health assessment of California agricultural workers was completed in 2000. In 2019, the California Senate Budget Committee approved funding for an updated survey (Dinger, 2019). Current phone surveys of farmworkers do not adequately address health issues because sample sizes in rural areas are too low and reaching immigrant farmworkers is difficult. Moreover, the National Agricultural Workers Survey only addresses limited health issues with long delays in releasing data results (Dinger, 2019).

an overall 3.23 in the region (Wadsworth, 2018).
- Nearly 50% of hired crop workers in the United States are not authorized to work in the country (Hernandez and Gabbard, 2018).

According to a CAUSE report (2015), of nearly 600 local farmworkers surveyed in the Central Coast, two-thirds believe their working conditions are dangerous or harmful to their health. Previous research has shown that farmworkers also live in some of the worst housing in the region. In their work with this population, MICOP and CAUSE often encounter families occupying dilapidated homes and trailers or converted garages that lack access to clean water, proper drainage, and electricity. Because they are "already at substantial physical risk by virtue of working in agriculture, exposures from housing could place their health in additional jeopardy" (Quand et al., 2015, 24). The existing research on housing conditions and their associations with farmworker health, however, is limited (Maxwell et al., 2018, 2015; Kresge, 2007).

The California Indigenous Farmworker Study (Mines et al., 2010) further estimates that in the Central Coast, 46% of farmworkers are from a Mexican Indigenous group (for example, Mixteco or Zapoteco). It is estimated that over 25,000 Indigenous people from southern Mexico live in Ventura County, while Santa Barbara County is home to a population of 29,000 (Mines et al., 2010; CAUSE, 2015). Climatic change, soil erosion, drought, and socio-economic issues in their ancestral Mexican farmlands, as well as economic opportunity in California, have drawn Indigenous migrants to the Central Coast in search of agricultural work (Roge et al., 2014; Roge and Astier, 2015). Concentrated in labor-intensive sectors such as row crops (i.e., strawberries and raspberries) and cut flowers, Indigenous migrants perform an increasing amount of the arduous labor which contributes to the profitability and affordability of fresh fruits and vegetables (Maxwell et al., 2018; Kresge, 2007). Of the 8000 individuals served annually by MICOP, 80% are from the Mixtec community, with 10% coming from the Zapotec community, and the other 10% from Indigenous groups such as the Purepechas from Michoacan, Huave and Otomi from Oaxaca, Maya from the Yucatan, and Nauhatl from Central Mexico.

The disaster literature typically groups Latino/a and Mexican Indigenous immigrants into one large ethnic group in terms of their characteristics and experiences before, during, and after disaster. They are homogenized without consideration of the intersecting traits and contextual factors that create unequal disaster outcomes. However, scholars have noted that important differences exist within the Latino/a and Indigenous population, including variances among legal residents and their undocumented counterparts (Stough et al., 2010, 301; Hernandez et al., 2015; Farquhar et al., 2007).

Indigenous people such as Mixtecs are not of Hispanic or Latino/a descent and migrate from regions in Mexico with unique cultural and linguistic traditions. Mixtecs throughout California are culturally and linguistically isolated. Many are illiterate, and most speak neither Spanish nor English, but only their native language, Mixteco, a pre-Columbian language with a logographic writing system. There are nearly 50 variations of the language, some differing greatly from one another. These realities impede their ability to obtain appropriate health care, housing, and education, negotiate with their employers to improve their work situation, and exercise their basic civil rights (Maxwell et al., 2018, 2015; Kresge, 2007). Non-Spanish-speaking Indigenous persons, moreover, are less likely to file complaints about workplace safety or labor rights abuses, and persons who physically appear Indigenous may confront discrimination from both non-indigenous Latinos and from Anglo Americans (Lee et al., 2013). Previous studies have identified two primary areas of concern for Indigenous farmworkers: (1) disrespect and discrimination based on their unique languages and cultures, and (2) a lack of basic occupational health and safety information and equipment in their daily work lives (Farquhar et al., 2007, 1). These dire conditions also extend to Indigenous workers in domestic, landscape, and other industries in the Central Coast, who provide services to many of the more affluent hillside neighborhoods in the region (Waheed et al., 2016).

The forms of discrimination and unsafe labor conditions faced by both undocumented Indigenous and Latino/a immigrants provide a baseline condition that predisposes them to higher levels of exposure and sensitivity, as well as a lower adaptive capacity in the face of disasters. In this regard, as one informant and former resident of Santa Barbara commented, the undocumented immigrants are the invisible population living and working behind "*the Bougainvillea Curtain*." They are struggling to survive in a region of wealth and prosperity. This idiom references the fast-growing evergreen vine with an explosive magenta color visibly adoring the gates of luxurious estates for added privacy.

5. The (in)visible victims behind the bougainvillea curtain

Many specific factors related to the general conditions outlined above heightened the contextual vulnerability of undocumented immigrants during and after the Thomas Fire. These included inadequate provision of emergency response information, lack of oversight for occupational health and safety, disruption to transportation systems, exploitative practices in the housing market in the fire's aftermath, and the ineligibility of undocumented immigrants to receive federal disaster relief aid. Because of the ways in which the fire's impacts were addressed and measured, the worst-affected communities essentially became invisible to emergency services, civic leaders, and mainstream relief agencies during and after the 40 days that the fire raged. Here, we detail these forms of neglect and the ways that organizations such as MICOP and CAUSE responded to them.

5.1. Access to emergency response information

Prior to the fire, local governments had not considered the unique needs of undocumented Latino/a and Indigenous immigrants in their disaster and emergency plans. One in three residents of Ventura and Santa Barbara counties speaks Spanish or another language at home (CA Census, 2019). However, emergency warnings during the Thomas Fire—which detailed evacuation areas and shelters, road and school closures, the need for N95 respirator masks to protect individuals from unsafe air quality, and the lack of safe drinking water in some neighborhoods—were initially only available in English. Emergency information online later included an option for Google Translate in Spanish (an internet-based multilingual translation service), but the Ventura County Offices of Emergency Services failed to assign staff for live translation during a disaster event.

> *"The smoke irritated our eyes and we couldn't work because the whole sky was covered in smoke. That's when they finally sent us home. But we didn't receive information about evacuations or any emergency information before then."*
> –Hector, Farmworker, Oxnard

In response to the public agencies' inability to provide multilingual resources in a timely manner, MICOP produced translated written, audio, and video versions of public safety information on their own website, social media pages, mobile telecommunications applications such as WhatsApp (used in many immigrant communities), and their low-power community radio station throughout the disaster. It is estimated that these combined communication platforms reached over 10,000 users in the region (MICOP, 2019). Providing emergency information in various formats is particularly important to Indigenous communities. The high level of illiteracy and the oral nature of Indigenous languages such as Mixteco make radio and other audio/visual forms of communication essential to provide clear and accurate information. MICOP also collaborated with county and state partners to enhance their translation resources, and 10 days after the fire started, real-time updates were finally provided by Ventura County.

The advocacy of local community groups and the outcry over the lack of equitable language access to emergency information led the counties of Ventura and Santa Barbara to hire full-time Spanish-speaking Public Information Officers in the months after the fire. The experiences of undocumented immigrants in the region also highlighted the need for broader policy change at the state level. In response to lobbying by MICOP and CAUSE, state Assembly Member Monique Limón (along with support from the California Latino Legislative Caucus) enacted into law Assembly Bill 1877 in 2018. This bill provides state resources to counties to help translate emergency information and made some disaster related grants contingent upon the county government providing information in the most commonly spoken language other than English. MICOP and CAUSE's lobbying efforts continued the following year with the enactment of Senate Bill 160. This legislation requires counties to engage vulnerable populations when updating emergency plans to ensure that local disaster preparedness and response activities (i.e., alerts, communications, evacuations, and sheltering) are culturally competent and meet diverse needs. This bill prioritizes reaching culturally diverse communities including immigrants, and low-income communities of color, among others.

5.2. Air quality and occupational health

Some of the deadliest effects of wildfire are not the burning of neighborhoods themselves, but the acute and chronic health impacts of smoke (Black et al., 2017; Reid et al., 2016; Reardon, 2018). 15,000 premature deaths annually in the United States are attributed to wildfire smoke inhalation, a number which is projected to rise to more than 40,000 by the end of the century due to climate change (Ford et al., 2018). Wildfire smoke spreads far beyond the originating point of a fire. For example, in the Central Coast, smoke that begins in wealthy, sparsely populated foothill communities often settle in densely populated flatlands (or valleys) where many farmworkers live and work (CAUSE, 2015). Wildfire smoke disproportionately impacts outdoor workers, who perform heavy manual labor. Farmworkers, moreover, are exposed to the most densely concentrated smoke plumes, for longer periods of time, while simultaneously undertaking arduous work, and with the least effort made to monitor their exposure compared to other groups (Farquhar et al., 2017; CAUSE, 2015; Mines, 2010; Black et al., 2017)

Central Coast farmworkers were especially hit hard by the Thomas Fire. Heavy smoke filled the air for weeks. Public health officials recommended that the general public wear N95 respirator masks even when taking small trips outside. These officials further recommended that sensitive populations (those with asthma, young children, and the elderly) stay indoors, and all population groups were advised to refrain from strenuous activity. During the initial days of the fire, thousands of farmworkers continued working in the fields, the vast majority without masks, as many agricultural companies pushed a surge in labor to safeguard their crops from smoke and ash. This led to health impacts including coughing, headaches, difficulty breathing, nausea, and nosebleeds, as well as long-term effects such as respiratory illness (Black et al., 2017; Reid et al., 2016; Reardon, 2018). CAUSE, MICOP, and Future Leaders of America (FLA) volunteers distributed over 15,000 N95 masks and brought national media attention to the issue. However, on several occasions some farm managers chose not to distribute the masks and prevented volunteers from providing them directly to workers. In other instances, managers were seen only distributing the respirator masks to male workers.

> *"During the fire, I worked 3 days without a mask. It caused me headaches and watery eyes, as well as a cough. We were scared because we were very near where the fire was occurring. The masks were not handed out until the state came to regulate."*
> -Marisol, Farmworker, Oxnard

According to the Centers for Disease Control and Prevention (2018), agriculture ranks as one of the most hazardous industries due to difficult working conditions and chemical exposure to pesticides. In particular, women may face greater hazardous workplace exposures and negative health outcomes, because agriculture is predominately a male space, which can create conditions of discrimination and harassment (Habib et al., 2014; Kuang, 2019). These existing gender inequities in the workplace can be further exacerbated during disasters. According to MICOP, women in domestic work also suffered disproportionate impacts during the wildfire. One worker reported to the organization, that she was instructed to remain and safeguard a home in a fire evacuation zone as her employer fled for safety. The domestic worker found herself trapped by roadblocks and mudslides for about a week. During this time, she was exposed to unsafe air, and the threats of the fire overtaking the home. When the evacuation orders were lifted and the roads reopened, the domestic worker was asked by her employer to grab a few items from the house before she left (Shyong, 2019).

Despite the vulnerability of farmworkers and domestic workers, the California Division of Occupational Safety and Health (Cal/OSHA) closed their local offices during the first five days of the Thomas Fire. After receiving phone calls from the public and at the urging of members of the California Latino Legislative Caucus, Cal/OSHA reopened their offices. However, regulators had no legal authority to protect workers from wildfire smoke. The following year, due to advocacy by CAUSE, MICOP, and the Latino Caucus, on July 18th, 2019, the California Occupational Safety and Health Standards Board adopted emergency regulations requiring outdoor employers to provide respirator masks when the air quality index reaches the level of "Harmful" (where the level of fine particles in the air is 151 parts per million or greater) due to wildfires (Cal/OSHA, 2019).

The protection of outdoor workers from wildfire smoke faces unique challenges. During wildfires, wind speed and direction are constantly changing, making prediction of air quality difficult. Moreover, stores often run out of respirator masks during a fire. MICOP staff were told at one home improvement store that the limited inventory of masks was only being sold to "regular customers" and they were not allowed to buy in bulk to distribute to farmworkers. In another instance, volunteers distributing respirator masks were barred from entering fields, chased off by supervisors, or threatened for trespassing. Cultural complexities add to this picture. Farmworkers are accustomed to difficult and dangerous working conditions including regular exposure to dust and fumigant pesticides in the air, and often wear cloth bandanas that some mistakenly believe can protect them from fine particulate matter. Furthermore, written forms explaining the use of masks can be unreadable to farmworkers with limited literacy or who speak Indigenous languages. Above all, the complex chain of contracting and subcontracting within the agriculture industry leaves corporate leadership in faraway offices, without accountability for the conditions of their workers. For example, despite mega-agricultural distributor Driscoll's official policy of providing N95 masks, local advocates who visited many of their farms observed farmworkers picking strawberries without protection from the smoke. In other examples, farmworkers noted:

> *"The smoke ruined and affected the fruits we were picking. I also suffered from coughing and allergies all throughout the fire."*
> -Maria, Farmworker, Oxnard

> *"We all got sick. Our throats closed in from breathing too much smoke and our kids couldn't go to school. We had to buy our own masks and goggles because our eyes were irritated when we worked."*
> -Francisco, Farmworker Oxnard

5.3. Transportation and housing

Loss of housing stock and transportation infrastructure also impacted the whole region, but it particularly affected low-income renters and commuters. The city of Santa Barbara lies in a scenic location

between the mountains and the ocean, both driving its economy, while also leaving its infrastructure vulnerable to disruptions from disasters. Approximately 20,000 commuters travel the US Highway 101 from more affordable areas of Ventura County into Santa Barbara daily, with no other viable path into the city (Molina, 2019). When the highway was severed by debris flows from the Thomas Fire, thousands of commuters were cut off from their jobs. Some commuters with more resources utilized expensive alternatives like driving for hours to circle around the mountains, renting private boats, or purchasing long-distance train tickets. Schools and hospitals reported severe shortages of teachers and nurses. But daily-wage earners like housekeepers and landscapers were particularly affected. Unable to pay for transportation alternatives, they lost weeks of income, and many were ineligible for unemployment benefits.

Moreover, the fire impacted housing in a region with an already tight housing market. Many higher income homeowners inflated the rental market while their homes were rebuilt. In Santa Barbara's Eastside, a low-income immigrant neighborhood where many families work in domestic service in the expensive homes and hotels nearby, renters organized to fight their landlord, investment company Empire USA, which, the day after the fire started, raised rents by hundreds of dollars (CAA, 2018; CAUSE, 2018). While the loss of housing stock is often one of the most discussed impacts of wildfire, the ripple effect in the entire housing market can have the most consequences to low-income tenants who live far away from the footprint of the fire. Several undocumented workers noted the fire's effects on their transportation, housing, and employment options:

> *"I could not get to the homes where I worked because the streets were closed. Two of the homes I worked at were destroyed. One of my good friends was lost during the mud flow [following the fires, heavy rains caused mudslides from the fire debris]. He had only been living in Montecito for 3 weeks before he died. I myself am a cancer survivor and am the only one who provides for the family."*
>
> -Santiago, Landscaper, Santa Barbara

> *"I work as a housekeeper and it was difficult and hard to survive financially. My husband also lost income due to the Thomas Fire and debris flow. We had to ask our friends and family to loan us money in order to pay rent, food, bills and medical exams because I'm ill from a lung disorder. I need medical attention and I don't have insurance. My husband also lost tools he left in Montecito."*
>
> -Rosa, Domestic Worker, Santa Barbara

> *"The day the fire started, the sky was covered with smoke and we were sent home. The next day we didn't work because it was dangerous due to the fire. We lost power because it was cut off by the fire and we lost food and milk for the kids. During the mudslides, we couldn't get to work and were told to stay home for 2 days."*
>
> -Roberto, Farmworker, Oxnard

5.4. Disaster relief aid

One of the largest gaps in safeguarding communities from disasters is the federal exclusion of undocumented people from receiving aid from the Federal Emergency Management Agency, (FEMA) and the Disaster Unemployment Assistance program. Millions of Californians are undocumented immigrants, and disproportionately high numbers work in sectors heavily exposed to the effects of wildfire and other disasters. Their families are further exposed to disaster due to lack of language access to emergency warnings, minimal economic resources to evacuate and rebuild homes, and lower rates of health care and home insurance coverage (Stough et al., 2010; Hernandez et al., 2015; Farquhar et al., 2008). Despite being on the front lines of disaster, explicit exclusion from recovery and relief efforts leaves undocumented immigrants without a safety net in California's nearly year-round wildfire season.

CAUSE, MICOP, and FLA adopted a disaster relief model first developed in Sonoma County, in Northern California's wine country, which had been hard-hit by the October 2017 Tubbs Fire. Advocates in that region created the "UndocuFund" to aid undocumented immigrants impacted by the fire. Like the original Sonoma UndocuFund, the 805 UndocuFund (named after the area code in Ventura and Santa Barbara counties) provided direct financial relief to undocumented immigrants who lost their jobs, families who lost homes or incurred health care costs from the disaster. In total, the 805 UndocuFund raised more than $2 million to support over 1400 immigrant families in 2018–19.

The 805 UndocuFund benefited from the existing networks local immigrant rights organizations had established statewide, allowing them to connect and replicate the fund quickly. Additionally, the long-established relationships between the partner organizations and their roots within immigrant communities enabled the 805 UndocuFund to recruit dozens of volunteers and reach large numbers of affected households. Much of the financial support came from philanthropic foundations as well as individual donors. Despite the initial financial support, local organizers still had limited resources and a long waiting list of individuals requesting aid. The waiting list further increased in November 2018, when the Woolsey Fire broke out in Ventura County just east of the burn scar of the Thomas Fire. Moreover, they found it difficult to attract additional donors to fully fund their program; one foundation, concerned about political consequences, only donated on the condition of anonymity.

> *"My husband was deported just before the fire. I was really struggling to find work in the fields. I finally got hired the first week in December 2017 but was let go once the fire and smoke grew too big and the fruit spoiled. As the only breadwinner, I had to borrow money from friends and family to feed my kids. Our food went bad due to the power outage, adding to our expenses. I am grateful for the UndocuFund assistance. I am still in need of help and continue coming to MICOP for other services."*
>
> -Lorena, UndocuFund Recipient, Oxnard

> *"The disaster relief assistance was like water to me, and at last I could sleep soundly."*
>
> –Miguel, Farmworker, Oxnard

The UndocuFund also faced other significant organizational challenges. None of the founding groups had experience in delivering disaster relief services, and only 1 of those organizations had background in providing direct assistance to communities. While Sonoma County's UndocuFund provided a blueprint, local groups determined that the model needed to be customized to the Central Coast, including accounting for Indigenous language support and operating across two geographically large counties. Additionally, in developing the 805 UndocuFund, the steering committee underestimated the impact on overhead and administration costs. MICOP, as the organization housing the 805 UndocuFund, keenly felt these impacts. At any given disaster recovery assistance clinic, there would be paid MICOP staff providing language support in Mixteco, as well as completing applications alongside volunteers. MICOP was further impacted due to the high volume of checks that needed to be processed through their finance department.

This work, nevertheless, introduced the founding organizations to the disaster relief world. Following the fire, for the first time, the fund's steering committee members were invited to participate in Long-Term Disaster Recovery Meetings in Ventura and Santa Barbara counties, as well as Voluntary Organizations Active in Disaster (VOAD) workshops. Through these meetings and the operation of the 805 UndocuFund, it became clear that mainstream disaster relief organizations, such as the Red Cross and Salvation Army, were lacking in cultural and linguistic competency. While these organizations were interested in collaboration, such as pooling case and contact information in a centralized database to reduce administrative work, this could also have put

disaster aid recipients in legal peril because the proposal would have been paid for by the Department of Homeland Security (DHS), which houses Immigrations and Customs Enforcement. Staff at the 805 UndocuFund rejected this proposal, choosing not to compromise the confidentiality and trust that the community had placed in them.

From the outset, the 805 UndocuFund organizers recognized the need to fill the gap in regional disaster relief services, but they understood that larger structural changes were also required. Local community organizations lack the scale, resources, and capacity to competently fill the disaster relief gap left by local and federal governments. Moreover, other regions struck by disasters are likely to encounter more challenges because there are no immigrant-serving organizations at all. With this in mind, organizers along with the California Latino Legislative Caucus approached the Office of California Governor Newsom for assistance. As a result, in 2019, the governor included $50 million in the state budget for disaster planning grants focused on vulnerable communities at high risk for disasters.

6. Discussion and lessons learned

It is often assumed that disasters such as wildfires do not discriminate on the basis of race or social class of their victims (Davis et al., 2010; Bradley, 2017). However, as this research shows, the extent of disaster impacts has been greater in undocumented Latino/a and Indigenous immigrant communities. Our analysis illustrates how a contextual vulnerability framework can more effectively evaluate the social determinants (race/ethnicity, class, gender, indigeneity, and immigration status etc.) of a community's adaptive capacity, as well as their sensitivity and exposure to a disaster. It allows for a holistic exploration of the disproportionate impacts felt by certain populations at every stage of a disaster (Zakour and Harrell, 2004). Individuals from immigrant communities, likewise, are often negatively affected by more than one of these social determinants (Maxwell et al., 2015). These intersecting factors require policymakers to recognize that disasters exacerbate existing inequalities, and develop inclusive disaster and climate adaptation planning interventions to better safeguard immigrant communities that include: 1) drawing on immigrant community knowledge; 2) embracing immigrant communities in disaster planning; and 3) bolstering civil society organizations' capacity in disaster relief and planning efforts.

6.1. Disasters exacerbate existing inequalities

While wildfires may not discriminate, these disasters are not unanticipated, isolated "natural" phenomena. The destruction from wildfires is a product of human decision-making that often disproportionately impacts marginalized communities due to existing structural inequalities in society (Bradley, 2017; Davis et al., 2010). In this sense, every part of a disaster – including vulnerabilities, preparedness, response, and rebuilding – is to some extent a social calculus (Smith, 2006; Ahmann, 2018; Schlosberg and Collins, 2014). It follows that the question of who fully recovers is also embedded in human decisions that prioritize some lives over others (Nix-Stevenson, 2013, 1; Ahmann, 2018; Kelman, 2020).

In disaster planning, there is a strong need to better analyze the socio-cultural context and processes that produce structural inequality, and how events like wildfires can intensify existing inequities (Vickery, 2018, 137). For instance, in our case study, structural inequality in the housing market caused thousands of low-income workers from Ventura County to commute into more affluent employment centers in Santa Barbara. Such patterns can create serious economic disruption when transportation systems are severed by disasters. Existing disparities in health status due to environmental injustice (such as pesticide exposure and heat-related illnesses and exhaustion), unsafe working conditions, exclusion from health coverage, and lack of culturally competent medical care are also exacerbated by compounding health impacts from wildfires. Furthermore, prevailing economic insecurity among undocumented immigrants due to labor exploitation and exclusion from social safety net programs intensifies when workers most exposed to disasters are denied access to emergency aid due to their immigration status. According to several social justice advocates we interviewed, the most important solution to advance disaster recovery for these communities is to first address the longstanding systemic oppressions they have struggled with, spoken out about, and organized against for decades.

6.2. Limits of wildfire vulnerability mapping

When wildfires surge, undocumented immigrant communities are often hit hardest. They tend to be located in areas where it is difficult to prepare for and recover from disasters (Quand et al., 2015). Despite these disadvantages, the state of California has failed to map wildfire vulnerability based on socioeconomic status. Without an accurate identification and mapping process, the state is unable to provide local governments and community-based groups with a reliable rendering of the populations most vulnerable to the impacts of wildfire. Most importantly, by failing to identify socially vulnerable communities across California, government entities are unable to understand in advance where to target limited resources and programs (Sadd et al., 2011).

While academic studies such as Davies et al. (2018) have developed a socio-ecological mapping approach using US census tracts to measure wildfire vulnerabilities for minority and poor communities, this approach still renders some populations invisible. For example, their map shows Santa Barbara and Ventura counties as having low levels of social vulnerability due to the large proportion of economically secure households in the region. However, as shown in our study, undocumented immigrant communities were among the most impacted during the Thomas Fire. Undocumented immigrants in particular are undercounted in the US Census, and may not be reflected in such analyses, in part because they often avoid interaction with government representatives for fear of deportation (van Eerten, 2018; Fazel-Zarandi et al., 2018).

This vulnerability-mapping approach also fails to account for the complex web of impacts caused by wildfires, rippling beyond destruction of property within the perimeter of the fire itself. Toxic smoke flows down from burning mountainsides, settling in densely populated valleys below and threatening outdoor workers. Lavish hillside mansions are destroyed or evacuated, leaving low-wage immigrant gardeners, housekeepers, and caregivers unemployed. Tourism throughout the region shuts down, putting thousands of hospitality sector employees out of work. From the loss of housing and infrastructure to the closure of schools and job sites, multiple regions are impacted beyond the census tracts identified in vulnerability mapping models and landscape risk maps. For example, a low-income immigrant family living outside a burn area, who lose several weeks of wages without eligibility for disaster relief assistance, may be more impacted than a high-income homeowner who lives within the fire-risk zone. This is because their property is covered by a homeowners' insurance policy, which also pays for hotel accommodations for them in the interim.[8] The focus on threats to property rather than the disruption to livelihoods or public health perpetuates the inequities that underlie disasters like wildfires.

Through the Thomas Fire, we see how social vulnerability mapping indices can provide a limited representation of reality. Such spatial/proximity-based analyses often miss invisible populations, such as undocumented immigrants. While they offer a broad-scale picture, "they

[8] The City of Oxnard, where the majority of 805 UndocuFund recipients live, is not identified in state wildfire risk maps. Landscape fire risk is considered minimal because Oxnard is surrounded by a wide plain of irrigated agricultural fields. Conversely, in the wealthy City of Montecito, where celebrities like Oprah Winfrey live, homes are identified as the highest risk on such maps.

can also fail to capture more localized information … that is often better collected using qualitative methods" (Wigtil et al., 2016, 905; Fischer et al., 2013; Neale et al., 2016). These data limitations should caution policymakers against depending on a single framework for understanding social vulnerability. Several practitioners have argued that governments should integrate indices with the experiential knowledge from community residents through ground-truthing methods. This would help ensure that the "public processes involving the development and application of vulnerability mapping are inclusive and participatory to generate well informed decisions" (Raval, 2019, 10; Jacobs, 2018). Nonetheless, as state and local governments develop more holistic vulnerability mapping techniques, they should also be cognizant of protecting the identification of undocumented immigrants from federal authorities interested in the information for deportation purposes.

Immigration status, moreover, has received little attention in disaster vulnerability mapping research. Though a large proportion of disaster studies have considered race and ethnicity in vulnerability indices, impacts experienced by legal and undocumented immigrants require an intersectional and contextual research approach (Collins and Bollins, 2009; Wigtil et al., 2016). For example, public health studies of immigrants have found that within the same racial and ethnic group, immigrants received significantly less medical and preventive care than their non-immigrant counterparts. These studies cite language and cultural barriers, a digital divide in access to care and information, disparities in health insurance, and a lack of familiarity with the local health care system as potential factors that account for these findings (Lucas et al., 2003; Siddiqui et al., 2009; Wu et al., 2005; Davis et al., 2010). Grabovschi et al. (2013) argue that these factors are frequently combined with chronic poverty, especially for recent immigrants, and with an increase in the prevalence of chronic diseases. They conclude that "immigrant status is an important vulnerability aspect that often co-exists and may synergistically interact with other recognized factors involved in health care disparities" (2013, 9). Further research addressing these interactions beyond race and ethnicity would be beneficial for policymakers to identify the most vulnerable populations and develop appropriate solutions aimed to overcome disparities in disaster impacts.

6.3. COVID-19 pandemic

Based on preliminary research, we have found that structural inequalities similar to those exposed by the Thomas Fire were also in play during the initial months of the COVID-19 pandemic (March through June 2020).[9] These similarities, while troubling, also suggest that the precedent of the Thomas Fire can directly inform responses to other disasters and public health crises. While millions of Californians were the first in the nation to shelter-in-place to prevent the spread of COVID-19, farmworkers in the state were deemed essential and required to continue working in the fields. The pandemic impacted food supply chains throughout the state, as crops were at risk of being left unpicked, highlighting how deeply the agricultural system depends on migrant workers. Many undocumented farmworkers, however, were working in fear. They lacked proper health and labor protections, information about the risks they faced as essential workers, and were excluded from unemployment benefits should they contract the virus or lose work (Jordan, 2020).

Farmworkers are especially vulnerable to COVID-19. Many have no health insurance, and they are an ageing labor force confronting high rates of respiratory disease and hypertension – important factors that put them at greater risk of complications from the virus (Coleman, 2020). For workers on the Central Coast, spring was the worst possible time to be exposed to a novel virus. The month of May is peak strawberry season, and pay structures switch from hourly to piece rate. Farmworkers are incentivized to work fast, often risking their own health (Castillo, 2020). According to a representative from CAUSE, unlike workers in other professions, "You can't pick strawberries over Zoom" (referencing an online video platform). The representative further elaborated about the inherent challenges in the agriculture industry that during disasters are magnified. "[Through] the layers of contracting and subcontracting…messages get lost along the way. Safety directives seem like they're coming [down] strong from the top, but by the time they reach workers in the fields it's like a game of telephone" (Castillo, 2020).

Furthermore, communicating the risk of COVID-19 in the fields is particularly difficult. There is no word for "virus" in Mixtec. When the outbreak first occurred, advocates from MICOP rushed to develop linguistic and culturally appropriate communications for Indigenous communities. Their methods centered on information about an "unknown sickness" and describing the symptoms over MICOP's local radio station and social media channels (Borunda, 2020). Such messaging is important because maintaining social distancing at work to slow the spread of the virus is difficult for farmworkers. Many labor shoulder-to-shoulder without masks, gloves, or adequate sanitation facilities, and they often share buses and carpools to the fields. Overcrowded and dilapidated housing conditions also place these essential workers at greater risk for contracting COVID-19 (Coleman 2020), as do significant barriers to testing and scarcity of masks (Borunda, 2020).

Lessons learned from the Thomas Fire, however, have yielded important improvements in disaster planning and response for undocumented communities. Largely due to political pressure from advocates and the California Latino Legislative Caucus (the largest racial/ethnic caucus in the Legislature), Governor Newsom was persuaded to issue strong guidance to local governments for agricultural worker protection during the pandemic. This guidance has enabled community groups to push for masks and social distancing measures in workplaces and farmworker housing, as well as the ability to report employers not complying with public health standards.[10] But most importantly, the Latino Caucus' advocacy led to the governor establishing a temporary "Disaster Relief Fund" for undocumented immigrants, who make up 10 percent of the state's workforce (CLLC, 2020). The fund is supported by the state with $75 million, and $50 million from philanthropic partners. It provides individual assistance of $500 and up to $1000 for households. In announcing the fund, Newsom stated that undocumented immigrants not only are over-represented as essential workers, but "also pay into the system…last year paying more than $2.5 billion in taxes" without receiving benefits from government assistance programs (Sheeler, 2020).

These measures begin to diverge from typical conceptions of "slow violence" and inaction by the state. The invisibility of slow violence and the long-term nature of solutions needed to reduce it have normally allowed government officials (and philanthropic organizations) to ignore the resultant harm to marginalized populations without fear of repercussions from voters or other interest groups. As a result, the general political approach to slow violence can be described as "yes, but not now, not yet" (Nixon, 2011, 9; Farmer et al., 2006). California's new demographic reality as a majority-minority state, however, has made the Latino Caucus influential in passing important policy agendas in the Capitol (Mendez, 2020). Following the Thomas Fire, the Caucus

[9] Participant observations were gathered by Flores-Haro and Zucker through their work with MICOP and CAUSE. Analysis of findings, and three follow-up interviews were conducted by Méndez. The findings are not intended to be exhaustive, since at the time of writing, the COVID-19 pandemic continued to unfold.

[10] MICOP and CAUSE continue to advocate and exert political pressure at the county-level to ensure robust and equitable implementation of worker health and safety rules to prevent COVID-19 outbreaks in farms and farmworker housing.

better attuned themselves to the deficiencies in the state's disaster planning process. They funded audits of agencies and enacted several important disaster-related laws (as noted above) (CLLC, 2020). In essence, the Latino Caucus is attempting to make the "invisible" victims of disaster, "visible" to the state. Further research and analysis will be needed to establish whether these initiatives are sustained, since changes in political leadership can quickly shift policy priorities, budgets, and values.

7. Conclusion

California is a state with diverse social demographics and a history of frequent disasters. The impacts from the Thomas Fire and COVID-19 pandemic to undocumented Latino/a and Indigenous immigrant communities provide important examples of the need to proactively develop interventions to better safeguard vulnerable communities during a disaster. In light of our analysis, we recommend the following interventions that would directly address the contextual vulnerability of these communities: improved language access for emergency information; inclusive disaster and climate adaptation planning; funding for community-based organizations; the protection of workers' occupational health and safety; a permanent statewide disaster relief fund for undocumented immigrants; and the provision of health care coverage for unauthorized workers.

7.1. Linguistic and Cultural Competency

State and local governments should be required to translate emergency communications into languages most commonly spoken in an affected area, ensuring all residents receive clear, linguistically accessible communication during disasters. However, language translation alone is insufficient to ensure effective communication about emergencies. Such communication also requires an understanding of the cultural dynamics of a community: even within English-speaking communities, a lack of awareness of socioeconomic differences, diverse gender expressions and identities, educational levels, age, and religion can inhibit effective emergency planning (CJLCEM, 2018a, 2018b).

For these reasons, local governments should also be required to integrate the diverse cultural and linguistic needs of their residents during the next update to their disaster and emergency plans. Specifically, plans should address, at a minimum, how all populations within a jurisdiction are served by emergency communications; evacuation and sheltering; disaster mitigation and prevention; and preparedness. In updating these plans, local governments should collaborate with community-based organizations in order to develop culturally appropriate emergency response and planning resources. Communities often know best when it comes to living with disaster. Inclusive disaster and climate adaptation planning (including social vulnerability mapping) should take into account the knowledge and expertise of local residents. Research has shown that in areas where the community is highly involved in disaster risk reduction activities, losses from disasters are significantly lowered (Maskrey, 2011; Van Niekerk et al., 2017; Allen, 2006).

7.2. Funding for community-based planning processes

To further ensure participation and strengthen capacity, federal, state and local governments should provide appropriate funding to community-based organizations working directly with vulnerable populations. Community-based organizations have stronger cultural competency in engaging with communities of color and immigrants, greater levels of trust, and more flexibility to explicitly assist these populations. In community-based planning processes, vulnerable communities are actively engaged in the identification, analysis and interventions, monitoring, and evaluation of disaster risks. This approach helps reduce their vulnerabilities and enhance their capacities. Implementation processes can include various structural and non-structural activities such as community training, disaster response drills, community early warning systems, community-based participatory vulnerability mapping projects, etc. (Gero et al., 2011; Henly-Shepard et al., 2015).

7.3. Protecting occupational health and safety rights

States have an important role in protecting vulnerable workers from disasters through new worker protection regulations such as those passed by California to mandate that employers provide respirator masks to shield outdoor workers from wildfire smoke. Likewise, to ensure agricultural worker protection during pandemics, county governments should require masks and social distancing measures in workplaces and farmworker housing. New staffing structures should also be required to provide rapid responses during disasters and improved infrastructure for worker education and outreach. A greater level of collaboration between worker health and safety agencies, agricultural commissions, and those responsible for air quality, weather monitoring, and natural resources is also crucial. Moreover, labor protections should be extended to domestic workers during disasters. State and federal workplace safety codes do not prevent an employer from ordering a domestic worker to stay in a mandatory evacuation zone. Additionally, there is no legal protection from retaliation, including firing, if a domestic worker refuses to work in hazardous conditions caused by a disaster (Shyong, 2019).

7.4. Statewide disaster relief fund

State governments should develop and codify into law an emergency disaster relief fund for undocumented residents. Such funds would help safeguard domestic workers, farmworkers, and other low-wage, predominantly immigrant outdoor workers directly affected by disasters. State-level disaster relief funds, moreover, would help relieve the financial burdens under-resourced community-based organizations incur in the management of such funds.

7.5. Health care coverage for unauthorized workers

States should provide dedicated funding for access to health care coverage for unauthorized workers and their uninsured family members. In addition, urban planners and health officials should work collaboratively to consider the disparities in health status and access to health care for the development of more accurate disaster vulnerability assessment modeling. Disasters pose a greater threat to communities with limited resources and lacking access to health care, and acute illnesses occurring during a disaster often evolve into chronic health needs during the recovery stage. State intervention is essential to ensure that these events do not create or exacerbate existing disparities in health and health care access (Stefandou et al., 2008; Bridgewater et al., 2006).

In conclusion, current efforts to mitigate and adapt to disasters often exclude undocumented immigrants, making them more vulnerable to impacts. In this respect, we have argued that such interventions are ultimately political in nature – choices are being made that often disempower these communities and withhold vital government protections and resources. As governments confront the challenges of climate change events and other disasters, it is imperative that they help embrace and engage undocumented immigrants, who are often the most vulnerable and stigmatized in society. The work done by community-based organizations during the Thomas Fire and the COVID-19 pandemic highlights how a contextual vulnerability framework can better assist undocumented immigrants to respond and recover from disaster. To help spur policy change, activists, practitioners, policymakers, and scholars alike must continue to make such stories visible.

Credit authorship contribution statement

Michael Méndez: Conceptualization, Methodology, Writing, Review & Editing, Supervision, and Validation. **Genevieve Flores-Haro:** Methodology, Supervision, Validation, and Writing. **Lucas Zucker:** Methodology, Supervision, Validation, and Writing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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