

LITERATURE REVIEW: POPULATION DEMOGRAPHICS AT RISK TO WILDFIRE

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Some common demographics reported to influence a population's risk to wildfire found in a literature review are given below and summarized in Table 1.

- Children under 5
- Elderly (60 or 65 years or older)
- Lower-income individuals
- Non-English speakers
- Individuals with special needs
- Single-parent households (family structure)
- Less educated (less than a GED)
- Native Americans
- Lack of vehicle access

Morgan et al. (2024) stated that 28 variables were identified but they only used six in their study. The following points provide some elaboration on each of these demographic variables.

1. Population growth increases the demand for housing, which then causes cities to expand out into the WUI. This makes new homes more susceptible to wildfire (Gaither et al., 2010). This is a risk due to vegetation as farmland/woodlands/grasslands are in closer proximity to homes. Additionally, Gaither's paper goes on to state that a home's proximity to the wildland urban interface (WUI) in the peri-urban areas is a risk factor due to ignition caused by humans and proximity of dwellings.
2. Another form of risk is evacuation and mobility: "Similarly, following evacuations, people with a disability often face major challenges in finding temporary housing that can accommodate their needs" (Palaiologou et al., 2019)
3. Higher populations in an area with a limited number of ingress and egress points is a risk (Gaither et al., 2010). If there is only one way in and out of a subdivision, evacuate is increasing difficult and potentially hazardous.
4. According to Lambrou et al. (2023), higher-income individuals have the ability to evacuate and absorb the risk of fires, with better insurance and faster rebuild times for their homes. In contrast lower-income individuals simply can't afford to lose their homes because they have less insurance coverage, etc. In addition, lower-income individuals might not have anywhere to go during or after a fire.
 - Socially vulnerable populations generally experience greater and longer-lasting harm (because of the limited ability to absorb loss)
 - Lower income and poverty are major drivers of vulnerability (lower-income households often have fewer resources for home maintenance, vegetation removal, insurance evacuation, temporary housing)

- Older adults 65 and older have the highest risk. (Especially those with disabilities and people without transportation)
- Language barriers, minority status, immigration status, and social marginalization can limit access to proper warnings and assistance
- Housing and transportation conditions can strongly affect vulnerability. For example, mobile homes can limit evacuation time, spread fires faster, and increase the likelihood of injury, displacement, and property loss.
- Rural, Tribal (Native American groups), and even small communities, have increased risk. This is due to less funding and fewer mitigation resources, smaller tax bases, and only having small volunteer fire departments if that.
- Wildfire mitigations efforts should be directed not only to high-fire-risk but also to areas with high fire social vulnerability as well. (Most wildfire study's look at fuels, weather, topography while overlooking the people aspect in those areas). Note, vulnerability exists and should be considered before a wildfire occurs.

Table 1. Summary of specific population demographics with increased risk to wildfire

Demographic	Gaither et al	Modaresi et al	Morgan et al	Palaiologou et al	Lambrou et al	Kreidler et al
Elderly (≥ 65) ($n = 6$)	Yes	Yes	Yes	Yes	Yes	Yes
Children (≤ 17) ($n = 1$)				Yes		
Lower-income ($n = 5$)	Yes	Yes		Yes	Yes	Yes
Non-English speakers ($n = 4$)		Yes		Yes	Yes	Yes
Individuals with special needs (disabled) ($n = 5$)	Yes	Yes	Yes	Yes		Yes
Single-parent households ($n = 3$)	Yes		Yes	Yes		
Less educated (less than a GED) ($n = 2$)			Yes	Yes		
Native and African Americans (race/Ethnicity) ($n = 5$)	Yes		Yes	Yes	Yes	Yes
Lack of vehicle access ($n = 2$)				Yes		Yes

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