

## Weathering the 100-Year Life

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Climate change is reshaping how and where we grow old, as well as the likelihood of growing old. The 100-year life will play out against this backdrop, with almost no aspect of aging left untouched. Retirement savings will be strained by the costs of disaster recovery. Aging in place might become impossible in many parts of the country as homes and communities are lost to floods or wildfires. Access to health care may be disrupted due to evacuations and lengthy dislocations. All while existing inequities will be amplified and the hardships that define old age for many – from poverty to illness – deepened.

Law and policy can help protect older Americans from climate harms. This chapter suggests how. It begins by describing the climate vulnerabilities older Americans face. It then considers relevant adaptation policies, focusing on programs that help people relocate from at-risk areas, as well as suggesting additional reforms to support those who are dislocated. The chapter closes by discussing how older people could help disrupt climate policy inertia through litigation – seeking to compel government action through claims that center the elderly’s distinct dependency on a stable climate.

### 18.1 CLIMATE AND AN AGING NATION

The US faces widespread climate impacts. Rolling heatwaves blanket vast swathes of the country; increasingly severe wildfires race across the West; more powerful hurricanes lace the eastern seaboard. The toll is severe. In 2023 alone, twenty-eight disasters claimed 492 lives and resulted in losses exceeding \$1 billion each.<sup>1</sup> Where “billion-dollar disasters” happened once every four months in the 1980s, they now occur once every three weeks on average.<sup>2</sup> Many losses are unquantified or unquantifiable – whether the disruption of indigenous cultural practices by rising

<sup>1</sup> Adam B. Smith, 2023: *A Historic Year of U.S. Billion-Dollar Weather and Climate Disasters*, BEYOND THE DATA (Jan. 8, 2024), <https://www.climate.gov/news-features/blogs/beyond-data/2023-historic-year-us-billion-dollar-weather-and-climate-disasters>.

<sup>2</sup> US Glob. Change Research Program, *Fifth National Climate Assessment: Overview* (2023), <https://nca2023.globalchange.gov/#overview>.

seas, or the mounting burdens of respiratory illness worsened by wildfire smoke or mold from flooded homes.

Climate change intersects with an aging America. More than half of older Americans live in just nine states, areas that face a high risk of hurricanes, flooding, wildfires, or extreme heat: California, Florida, Texas, New York, Pennsylvania, Illinois, Ohio, Michigan, and North Carolina.<sup>3</sup> If older Americans' current preferences regarding where to live as they age extend into the future, more will move to the southeast and southwest, along the Atlantic and Gulf coasts, and into Northeastern and Midwestern cities – all subject to extreme weather risks.

### 18.1.1 Vulnerabilities

Older people are among the most vulnerable to the effects of climate change. Vulnerability varies based on many often-intersecting factors, including age, race, gender, socioeconomic status, education, level of disability or special needs, social isolation and the presence of community and family support, mobility, and proximity to health services.

Older Americans might not remain vulnerable in the same ways over time – changes tied to birth cohort are expected. For instance, the percentage of older Americans possessing at least a high school degree is increasing. Less education is adversely linked to climate vulnerability. Meanwhile, there is a growing prevalence of elder orphans, defined by one study as “older adults living in the community who lack caregivers or surrogates.”<sup>4</sup> This can deepen social isolation, a risk factor in assessing climate vulnerability.

Place – where older Americans live – also matters. Housing intersects with socioeconomic status and race. A higher concentration of low-income older adults live in areas at risk of severe climate-related events.<sup>5</sup> Those with limited means have fewer options about where to live and are less able to move should their homes become damaged or uninhabitable by catastrophic events. Communities near hazardous industrial facilities – disproportionately home to BIPOC and low-wealth inhabitants – face a heightened risk of chemical, industrial, and other disasters *after* a severe weather event. Approximately 70 percent of Superfund sites are within 1 mile of federally assisted housing, whose residents are disproportionately people of color.<sup>6</sup>

<sup>3</sup> Emma Rubin, *Elderly Population in U.S. by State*, CONSUMER AFFAIRS (Jan. 19, 2023), <https://www.consumeraffairs.com/homeowners/elderly-population-by-state.html>.

<sup>4</sup> Regina Roofeh, Dylan M. Smith, and Sean A. P. Clouston, *Estimated Prevalence of Elder Orphans Using National Health and Aging Trends Study*, J. AGING HEALTH 1443 (2020).

<sup>5</sup> Janet L. Gamble et al., *Climate Change and Older Americans: State of the Science*, ENV. HEALTH PERSPECT. 15–22 (2013).

<sup>6</sup> EMILY COFFEY ET AL., POISONOUS HOMES: THE FIGHT FOR ENVIRONMENTAL JUSTICE IN FEDERALLY ASSISTED HOUSING (2020).

Illness shapes climate vulnerabilities and can be exacerbated by severe weather events. Disasters have been linked to worse outcomes for older adult cancer patients, with researchers citing disruptions to timely treatment and continuity of care.<sup>7</sup> Mental health burdens from extreme weather events manifest long after the immediate impact of a storm and may be more pronounced among older people.<sup>8</sup> One study found that adults over sixty-five had higher stress levels relative to younger adults three years after Hurricane Katrina.<sup>9</sup> A meta-analysis of studies addressing the psychological effects of natural disasters found that older adults were 2.11 times more likely to develop posttraumatic stress disorder and 1.73 times more likely to develop adjustment disorders relative to younger adults.<sup>10</sup>

A growing number of older Americans suffer from cognitive impairments that can impede their ability to prepare for a disaster and accept assistance. Nearly 5.8 million Americans currently live with Alzheimer's disease – a common type of dementia. This number is expected to rise to 14 million by 2050, with evacuations posing a unique risk. A study found that nursing home residents with severe dementia who were evacuated during Hurricane Gustav in 2008 experienced increased mortality risk thirty to ninety days after evacuation.<sup>11</sup>

Vulnerabilities overlap and compound. A 2014 study found that older Americans with less education, lower incomes, or physical disabilities had worse overall preparedness for disasters.<sup>12</sup>

### 18.1.2 Impacts

Climate harms adversely impact older people – threatening to transform the later stages of the 100-year life into a period of risk and uncertainty for some while robbing others of old age entirely.

The year 2023 was the warmest year on record by a wide margin. From June through December of that year, global temperatures shattered records from the past century and a half. When compared with geological evidence reflecting a deeper

<sup>7</sup> Kathleen A. Lynch & Alexis A. Merdjanoff, *Impact of Disasters on Older Adult Cancer Outcomes: A Scoping Review*, JCO GLOB ONCOL. (2023).

<sup>8</sup> James M. Shultz et al., *Public Health and Mental Health Implications of Environmentally Induced Forced Migration*, DISASTER MED. & PUB. HEALTH PREP. 116 (2019).

<sup>9</sup> Francis O. Adeola & J. Steven Picou, *Social Capital and the Mental Health Impacts of Hurricane Katrina: Assessing Long-Term Patterns of Psychosocial Distress*, INT'L J. MASS EMERG. & DISASTERS 121 (2014).

<sup>10</sup> Georgina Parker et al., *Mental Health Implications for Older Adults after Natural Disasters: A Systematic Review and Meta-analysis*, INT'L PSYCHOGERIATRICS 11 (2015).

<sup>11</sup> Lisa M. Brown et al., *The Effects of Evacuation on Nursing Home Residents with Dementia*, AM. J. ALZHEIMER'S DIS. OTHER DEMEN. 406 (2012).

<sup>12</sup> Tala M. Al-Rousan, Linda M. Rubenstein & Robert B. Wallace, *Preparedness for Natural Disasters among Older U.S. Adults: A Nationwide Survey*, AM. J. PUB. HEALTH 506 (2014).

history, 2023 appears to be among the warmest in at least 100,000 years,<sup>13</sup> an unsurprising finding given that atmospheric carbon dioxide concentrations have risen to a level unequalled in at least 4 million years.<sup>14</sup> Heatwaves put older people at an increased risk of hospitalization and death. One study found that summer heatwaves in Europe in 2022 led to the death of over 61,000 – with women over eighty facing a particularly high mortality burden.<sup>15</sup> In Japan, the first nation where more than 20 percent of the population is sixty-five or older, an average of 1,295 heatstroke-linked deaths were reported between 2018 and 2022 – compared to 201 between 1995 and 1999. Over 80 percent of those who died from heat-related causes were sixty-five or older.<sup>16</sup>

Similar trends are playing out in the US. Some older Americans are not habituated to using air conditioning. The Pacific Northwest, which traditionally experienced cooler summers, offers a bracing example. This region experienced a punishing “heat dome” in 2021 – an event that scientists found to be “virtually impossible” in the absence of human contributions to global warming<sup>17</sup> – that claimed an excess 600 deaths during one June week in Oregon and Washington alone, according to an analysis of preliminary mortality data.<sup>18</sup> Cooling shelters may be of little help to those who are socially isolated or with limited mobility. And retirees living on fixed incomes in a time of surging energy prices may not be able to afford the expense of buying, running, or repairing air-conditioning units. As elsewhere, the impact of heat falls disproportionately on communities of color, women, and those with limited means. One study found that formerly redlined neighborhoods in cities across the country experienced temperatures nearly 13 °F hotter than wealthier districts mere blocks away.<sup>19</sup>

<sup>13</sup> Raymond Zhong & Ketih Collins, *See How 2023 Shattered Records to Become the Hottest Year*, N.Y. TIMES (Jan. 9, 2024), <https://www.nytimes.com/2024/01/09/climate/2023-warmest-year-record.html>.

<sup>14</sup> *Carbon Dioxide Now More Than 50% Higher Than Pre-industrial Levels*, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (June 3, 2022), <https://www.noaa.gov/news-release/carbon-dioxide-now-more-than-50-higher-than-pre-industrial-levels>.

<sup>15</sup> Joan Ballester et al., *Heat-Related Mortality in Europe during the Summer of 2022*, NAT. MED. 1857, 1864 (2023).

<sup>16</sup> Tomoko Otake, *In Japan, Extreme Heat and an Aging Population Are a Deadly Mix*, JAPAN TIMES (July 30, 2023), <https://www.japantimes.co.jp/environment/2023/07/30/climate-change/climate-change-heat-waves-aging-society/#:~:text=Recent%20data%20also%20shows%20over,t%20use%20an%20air%20conditioner>.

<sup>17</sup> *Western North American Extreme Heat Virtually Impossible without Human-Caused Climate Change*, WORLD WEATHER ATTRIBUTION (July 7, 2021), <https://www.worldweatherattribution.org/western-north-american-extreme-heat-virtually-impossible-without-human-caused-climate-change/>.

<sup>18</sup> Nadja Popovich & Winston Choi-Schagrin, *Hidden Toll of the Northwest Heat Wave: Hundreds of Extra Deaths*, N.Y. TIMES (Aug. 11, 2021), <https://www.nytimes.com/interactive/2021/08/11/climate/deaths-pacific-northwest-heat-wave.html>.

<sup>19</sup> Jeremy S. Hoffman, Vivek Shandas & Nicholas Pendleton, *The Effects of Historical Housing Policies on Resident Exposure to Intra-urban Heat: A Study of 108 U.S. Urban Areas*, CLIMATE 12 (2020).

Extreme weather events, including storms and hurricanes, significantly burden older people. Almost half of those killed during Hurricane Katrina's initial impact were older than seventy-five, while elderly Medicare beneficiaries constituted one-fifth of the displaced population.<sup>20</sup> Similar outcomes mark more recent disasters, including Superstorm Sandy in 2012 (older adults constituted more than half of those who died from the storm, which saw a surge in visits to emergency departments by older people – particularly those at or over eighty-five)<sup>21</sup> and Hurricane Maria in 2017 (people sixty-five and older were found to have the greatest mortality risk).<sup>22</sup>

### 18.1.3 Aging Upended

Taken together, climate change is transforming aging in America – from the viability of retirement to where we grow older.

Paying for old age, already a challenge, will become more difficult. Anne Alstott has noted that many lower earners reach traditional retirement age without sufficient funds to retire, forced to continue working as a result.<sup>23</sup> In this volume, Sara Greene suggests we may face an elderly poverty epidemic without significant reforms to our retirement system. Meanwhile, older Americans face the prospect of exhausting what savings they have as the costs of nursing homes, assisted living facilities, and in-home care rise. Absorbing the financial shocks of losing one's home to disaster and being forced to rebuild or relocate on a fixed income will compound this crisis, especially as insurers abandon high-risk areas like Florida and California.

Those able to afford nursing homes face acute challenges as well. Adults living in nursing homes during a hurricane were found to have a 2.6 percent higher risk of ninety-day mortality.<sup>24</sup> Strained energy infrastructure puts this population at further risk. A 2017 power failure in South Florida following Hurricane Irma left more than 3 million Floridians in the dark, including 160 nursing homes. Eight residents died in one home, ranging in age from seventy-one to ninety-nine.<sup>25</sup>

Receiving medical care is threatened as healthcare networks struggle with climate impacts. Almost 250 California hospitals lost power in 2019 in an intentional power

<sup>20</sup> *Mortality Impacts of Hurricane Katrina*, BULLETIN ON AGING & HEALTH (2018), <https://www.nber.org/bah/2018no4/mortality-impacts-hurricane-katrina>.

<sup>21</sup> Sidrah Malik et al., *Vulnerability of Older Adults in Disasters: Emergency Department Utilization by Geriatric Patients after Hurricane Sandy*, DISASTER MED. & PUB. HEALTH PREP. 184 (2018).

<sup>22</sup> Raul Cruz-Cano & Erin L. Mead, *Causes of Excess Deaths in Puerto Rico after Hurricane Maria: A Time-Series Estimation*, AM. J. PUB. HEALTH 1050 (2019).

<sup>23</sup> Anne Alstott, *Law and the Hundred-Year Life*, 26 ELDER L. J. 131, 138 (2018).

<sup>24</sup> Lisa M. Brown et al., *The Effects of Evacuation on Nursing Home Residents with Dementia*, AM. J. ALZHEIMER'S DIS. OTHER DEMEN. 406 (2012).

<sup>25</sup> Neil Reisner, Sheri Fink & Vivian Yee, *Eight Dead from Sweltering Nursing Home as Florida Struggles after IRMA*, N.Y. TIMES (Sep. 13, 2017), <https://www.nytimes.com/2017/09/13/us/nursing-home-deaths-florida.html>.

outage, part of a wildfire prevention effort,<sup>26</sup> while one study found that nearly three-quarters of hospital evacuations between 2000 and 2017 resulted from climate-related events.<sup>27</sup>

Aging in place may become difficult in communities facing extreme weather events. Where homes must be evacuated in the face of wildfires or floods, dislocation itself presents cascading risks. Reduced mobility, social isolation, and limited means may all interfere with receiving and accepting evacuation orders. Furthermore, those dislocated may be vulnerable to abuse – including financial exploitation. Limited studies indicate that older people are subject to theft, contractor fraud, neglect, and abandonment, as well as physical abuse after disasters.<sup>28</sup> All the difficulties that typically attach to reporting these harms – from depending on the abuser for support to fear of retaliation – could be exacerbated by dislocation. Ageism meanwhile can impede older peoples' involvement in disaster preparedness, response, and recovery efforts, resulting in programs insufficiently tailored to their needs.<sup>29</sup>

One climate impact alone – more frequent and severe flooding – is expected to remake the demographics of entire regions. A recent study predicts skewed out-migration from vulnerable areas to safer inland communities, impacting Florida and the coastline communities of Georgia and South Carolina the most.<sup>30</sup> Young people are more likely to relocate than their older neighbors. This core trend – the young leaving while the old remain – could increase the median age in some areas by ten years over the twenty-first century. It could also trigger a downward spiral in vulnerable communities. With fewer young people – and a lower share of working-age adults – in a community, tax revenue and property values may decline. A higher concentration of older residents could also lead to decreased investment in long-term infrastructure and public education, all of which could deter younger potential residents. Termed “demographic amplification,” the effects of this cycle on population movement are pronounced. While 1.5 million people are projected to relocate from coastal areas under a scenario where the earth warms by 2 degrees Celsius by 2100, demographic amplification could increase that number to 15 million.

In sum, we face a future where elderly people will endure increasingly severe weather and a growing threat of injury or death. Those who attempt to flee climate

<sup>26</sup> Renee N. Salas, *The Climate Crisis and Clinical Practice* N. ENG. J. MED. 589 (2020).

<sup>27</sup> Sharon E. Mace & Aishwarya Shanna, *Hospital Evacuations Due to Disasters in the United States in the Twenty-First Century*, AM. J. DISASTER MED. 7 (2020).

<sup>28</sup> Gloria M. Gutman & Yongjie Yon, *Elder Abuse and Neglect in Disasters: Types, Prevalence and Research Gaps*, INT'L J. DISASTER RISK REDUCTION 38 (2014).

<sup>29</sup> Elburg van Boetzelaer et al., *Involving Older People in the Preparedness, Response, and Recovery Phases in Humanitarian Emergencies: A Theoretical Framework on Ageism, Epistemic Injustice, and Participation*, THE LANCET: HEALTH LONGEVITY (2024).

<sup>30</sup> Mathew Hauer, Sunshine Jacobs & Scott Kulp, *Climate Migration Amplifies Demographic Change and Population Aging*, SUSTAINABILITY SCIENCE (2024).

impacts will often be forced to do so with limited or no resources absent meaningful reform to government assistance programs. Given demographic trends, the number of climate-vulnerable elders in both categories will grow.

This is only a partial account of how climate will shape the 100-year life. Yet even this limited survey underscores how law and policy must adapt to better serve the needs of older people.

## 18.2 TOWARD AN ELDER CLIMATE LAW

Climate change is a threat multiplier, magnifying flaws in how we support older Americans. Adaptation policy seeks to help individuals and communities adjust to current and projected climate impacts. This section considers how select aspects of adaptation policy – managed retreat and the disaster response system – should evolve to better serve older Americans. These are but two examples of what must become an entire field of elder climate law and policy.

The section closes by discussing how older people might help catalyze this field's development by influencing the political economy of climate law and policy through litigation.

### 18.2.1 *Managing Managed Retreat*

Facing a high risk of repeat flooding, residents of some frontline communities are relocating through a process known as managed retreat. Usually administered through voluntary<sup>31</sup> buyouts of flood-prone properties by local governments, these programs demolish purchased homes and convert the remaining land to nonresidential and noncommercial uses – such as greenspaces that can help absorb flooding and storm surges.

The need is acute. While the Federal Emergency Management Agency (FEMA) estimates that nearly 13 million Americans live within a floodplain, some researchers argue that more accurate flood maps raise that total to nearly 41 million.<sup>32</sup> The elderly are among those in harm's way. One study found that 28 percent of households in the combined 100- and 500-year floodplain included older adults.<sup>33</sup> And the costs are severe. Since 1980, flood-related damages in the US exceed \$2.655 trillion.<sup>34</sup>

<sup>31</sup> The degree to which buyouts are “voluntary” – particularly for lower-income and other vulnerable populations – is contested. See Katharine J. Mach & A. R. Siders, *Reframing Strategic, Managed Retreat for Transformative Climate Adaptation*, 372 *SCI.* 1294, 1298 (2021).

<sup>32</sup> Oliver E. J. Wing et al., *Estimates of Present and Future Flood Risk in the Conterminous United States*, *ENVIRON. RES. LETT.* (2018).

<sup>33</sup> Caroline Peri et al., NYU Furman Center, *Data Brief: Population in the U.S. Floodplains* (Dec. 2017), <https://bit.ly/3P7o2co>.

<sup>34</sup> See Smith, *supra* note 1.

The federal government has funded buyouts for decades. Multiple federal agencies are involved, particularly FEMA and the Department of Housing and Urban Development (HUD). These agencies provide localities with funds *after* a presidential disaster declaration has been made – meaning after a disaster takes place. The federal government typically foots 75 percent of the bill. State and local governments make up the rest while administering the buyouts themselves – determining who should receive offers of compensation, usually tied to the predisaster value of their homes. Between 1989 and 2017, FEMA alone funded over 43,000 voluntary buyouts throughout the country, including every state except Hawaii, as well as Puerto Rico, the Virgin Islands, and Guam.<sup>35</sup>

Though increasingly widespread, managed retreat programs do not benefit everyone equally. A recent study found that wealthier, predominantly white urban regions are more likely to gain access to buyouts – though homeowners in marginalized neighborhoods are more likely to accept them.<sup>36</sup> Because homeownership is required to participate, many renters in vulnerable regions are left behind – particularly impacting communities of color. Seventy percent of white households owned their primary residence in 2021, compared to 40 percent of Black and 47 percent of Hispanic households.<sup>37</sup> Renters in vulnerable regions are more likely to be non-white, with less access to pre- and postdisaster support, including relocation.<sup>38</sup>

Even when a home is owned, establishing legal title to it may be difficult. Heirs' property – passed down from one generation to the next without a will and absent probate – offers a case in point. It has been estimated that heirs' property accounts for 30–40 percent of Black-owned land in the South.<sup>39</sup> Though FEMA recently introduced reforms meant to make it easier for individuals to prove home ownership, lacking a formal legal title may still make it difficult to access disaster aid, bank loans, and other forms of vital assistance.<sup>40</sup>

The relative wealth of communities influences the likelihood of buyouts. One recent study found that counties with higher incomes and larger populations were

<sup>35</sup> Katharine J. Mach et al., *Managed Retreat through Voluntary Buyouts of Flood-Prone Properties*, SCI. ADV. (2019).

<sup>36</sup> James R. Elliott, Phylcia Lee Brown & Kevin Loughran, *Racial Inequities in the Federal Buyout of Flood-Prone Homes: A Nationwide Assessment of Environmental Adaptation*, 6 SOCIUS 1 (2020).

<sup>37</sup> Rakesh Kochhar & Mohamad Moslimani, *Wealth Surged in the Pandemic, but Debt Endures for Poorer Black and Hispanic Families*, PEW RSCH. CTR. (Dec. 2023), <https://www.pewresearch.org/race-ethnicity/2023/12/04/the-assets-households-own-and-the-debts-they-carry>.

<sup>38</sup> Leah A. Dundon & James S. Camp, *Climate Justice and Home-Buyout Programs: Renters as a Forgotten Population in Managed Retreat Actions*, 11 J. OF ENV'T STUD. AND SCI. 420, 426 (2021).

<sup>39</sup> Cassandra J. Gaither & Stanley J. Zarnoch, *Unearthing "Dead Capital": Heirs' Property Prediction in Two U.S. Southern Counties*, 67 U.S. FOREST SERV. 367, 369 (2017).

<sup>40</sup> Kendall B. Bargeman, *The Heirs' Property Dilemma: How Stronger Federal Policies Can Help Narrow the Racial Wealth Gap*, 27 N.C. BANKING INST. 320 (2023).



more likely to implement buyout programs.<sup>41</sup> Smaller and less well-resourced localities may lack the staff and expertise to secure and administer funds.

The emphasis on *individual* buyouts falls short for those who value preserving their community, especially indigenous groups. Government programs for relocating whole communities have been limited to date. HUD gave a \$48 million grant to Isle de Jean Charles in southeastern Louisiana, encouraging its tribal residents to move to safer ground together.<sup>42</sup> In 2022, the Interior Department committed \$135 million to help Native American tribes relocate from threatened land – with initial grants extended to five tribes in Alaska and Washington states.<sup>43</sup>

Proactive efforts to move vulnerable people *before* they are impacted are inadequately supported as access to these funds usually becomes available only after a disaster. Skewed incentives between localities and the federal government complicate the picture further. The former stand to lose residents, diminishing their tax base. The federal government meanwhile provides most of the funds for managing the aftermath of a flood or storm – absorbing the costs of potential local inactions – without being able to make critical decisions on zoning and related matters that determine where people live in the first place.

Older people risk social isolation whether they accept or reject buyouts. While most people tend to relocate close to their original homes – a 2023 study found that 58 percent of bought-out homeowners move within a ten-mile drive of their original home, while 74 percent relocate within a twenty-mile drive<sup>44</sup> – older people might find themselves too far removed from family, friends, or caregivers to receive the support they need. Driving can become dangerous if not impossible later in life, with some outliving their ability to drive by ten or more years while living in built environments with limited – if any – public transit. As Gregory Shill notes in this volume, losing the ability to drive (or be driven by nearby friends or family) can cut older people off from necessities like access to food and medical care. Moving to a new neighborhood and potentially being uprooted from existing support networks could exacerbate these challenges.

Those who remain face distinct challenges. With fewer residents constituting a diminished tax base, there are both less resources and political incentives to fulfill government obligations like providing essential services and maintaining infrastructure. As these systems degrade, older residents may become increasingly isolated and have greater difficulty evacuating should the need arise. And even if they find

<sup>41</sup> Mach & Siders, *supra* note 31.

<sup>42</sup> Coral Davenport & Campbell Robertson, *Resettling the First American “Climate Refugees,”* N.Y. TIMES (May 2, 2016), <https://www.nytimes.com/2016/05/03/us/resettling-the-first-american-climate-refugees.html>.

<sup>43</sup> Christopher Flavelle, *In a First, U.S. Pays Tribes to Move Away from Climate Threats*, N.Y. TIMES (Nov. 4, 2022), <https://www.nytimes.com/2022/11/04/climate/native-americans-relocate-climate-change.html>.

<sup>44</sup> James R. Elliott & Zheyang Wang, *Managed Retreat: A Nationwide Study of the Local, Racially Segmented Resettlement of Homeowners from Rising Flood Risks*, ENV. RESEARCH (2023).

temporary shelter, they might lose their most valued asset – their home. The finances of some older Americans may be especially hard hit, with Black and Hispanic homeowners deriving more of their net worth from home equity than white and Asian homeowners.<sup>45</sup>

The American system of disaster response and adaptation privileges costly recovery over preemptive risk reduction. This echoes our flawed approach to public health, where underfunding prevention contributes to predictable, costly, and often deadly outcomes. The 100-year life offers an opportunity for reform. Updating adaptation policy could help encourage older people to move out of harm's way well before the risk of a flood or hurricane is imminent. Relocating to places more suited to older peoples' needs – whether through better public transport, easier access to health care, or access to housing conducive to aging – should be prioritized. Communities should be encouraged to move together, preserving existing social networks that sustain older people. To do so, federal funds should become available to vulnerable regions without waiting for a disaster to strike. Relocation programs should also consider ways to enhance the administrative capacity of underresourced localities, allowing them to navigate the complex process of applying for and carrying out coordinated buyouts.

### 18.2.2 *Reforming Disaster Recovery*

For those uprooted by extreme weather events, getting help entails navigating a complex web of federal and state agencies. At the federal level alone, disaster recovery plays out across more than thirty agencies and departments. Streamlining assistance should be coupled with expanding aid for older people – especially the most vulnerable among them.

A displaced older person will likely turn to FEMA for help. FEMA financial support for individuals is limited. Each eligible household typically receives grants ranging from \$1,000 to \$8,000 through FEMA's Individuals and Households Program (IHP).<sup>46</sup> IHP can provide funds up to a cap – \$42,500 for 2024.<sup>47</sup> This support is meant to cover temporary housing assistance and housing repair alongside other costs like uninsured medical expenses. FEMA's aim is not to return individuals or homes to their predisaster state; rather, it is to secure habitable housing and

<sup>45</sup> Kochhar & Moslimani, *supra* note 37.

<sup>46</sup> This applies to major disasters over nearly two decades, including Hurricane Katrina and Superstorm Sandy. Chad Calder, *How Much Can You Expect from FEMA? Disaster Grants Sure to Disappoint, Analysis Finds*, THE ADVOCATE (Aug. 17, 2016), [https://www.theadvocate.com/louisiana\\_flood\\_2016/how-much-money-can-you-expect-from-fema-disaster-grants-sure-to-disappoint-analysis-finds/article\\_22c86feo-64cd-11e6-9bb2-07f95d36ee28.html#:~:text=Although%20a%20of federal%20aid%20program,dozen%20recent%20high%2Dprofile%20disasters.](https://www.theadvocate.com/louisiana_flood_2016/how-much-money-can-you-expect-from-fema-disaster-grants-sure-to-disappoint-analysis-finds/article_22c86feo-64cd-11e6-9bb2-07f95d36ee28.html#:~:text=Although%20a%20of federal%20aid%20program,dozen%20recent%20high%2Dprofile%20disasters.)

<sup>47</sup> *Biden–Harris Administration Reforms Disaster Assistance Program to Help Survivors Recover Faster*, FEDERAL EMERGENCY MANAGEMENT AGENCY (Jan. 19, 2024), <https://www.fema.gov/press-release/20240119/biden-harris-administration-reforms-disaster-assistance-program-help>.

help people fill gaps between their savings and insurance (should they have any). Additional funding from other agencies such as HUD can take years to arrive, exacerbating inequities within and between communities.

Recent updates to FEMA's Individual Assistance Program, which went into effect in March 2024, aim to make assistance more accessible. For instance, the program will now automatically provide households affected by a disaster with \$750 to address immediate needs. Even with these improvements, however, the needs of displaced older people will remain acute. FEMA's support is unlikely to meet the cost of permanent relocation or even temporary living arrangements in old age. For those on fixed incomes and with limited if any retirement savings, the effect could be ruinous.

Several long-term policy trends converge in the 100-year life, to ill effect for many older Americans. For decades people were encouraged to move to at-risk areas, such as floodplains, by policies that opened them for development, while discriminatory zoning practices left many communities of color with little choice about where to live. This legacy endures, with a higher percentage of homes in formerly redlined areas at an increased risk of flooding today relative to traditionally white neighborhoods.<sup>48</sup> The dangers of living in a vulnerable region were sometimes underwritten by federal flood insurance. Even when homes flooded repeatedly, they were rebuilt – leading to the phenomenon described as “flood, rebuild, repeat.” Meanwhile, costs associated with care in older age began climbing precipitously, and the retirement system became increasingly insufficient for supporting a multi-decade period of diminished or no paid work.

A coherent national plan is needed to avoid a 100-year life marked by dislocation and poverty. To begin, we should consider an expanded safety net for climate-vulnerable older people alongside efforts to relocate them before disaster strikes. This could take the form of increased emergency benefits administered through existing disaster recovery programs. Building on Nina Kohn's insights in this volume, such an initiative could be tailored to the vulnerabilities of a given person – providing more support for those in greater need rather than a flat amount based on age or otherwise irrespective of need.

Pending broader reform, creating a service to help at-risk individuals navigate the recovery ecosystem – finding existing benefits while encouraging proactive planning – could help older people prepare, respond to, and recover from disaster. A navigator program for at-risk communities could be piloted within Area Agencies on Aging, which administers programs at the local level under the Older Americans Act, including services and supports such as meal delivery and legal

<sup>48</sup> Lily Katz, *A Racist Past, a Flooded Future: Formerly Redlined Areas Have \$107 Billion Worth of Homes Facing High Flood Risk: 25% More Than Non-redlined Areas*, REDFIN (Mar. 14, 2021), <https://www.redfin.com/news/redlining-flood-risk>.

assistance.<sup>49</sup> Ideally drawn from the local community, navigators could inform older residents about where to turn for everything from local disaster preparedness – including potential buyout programs – through how to respond to losing one’s home.

### 18.2.3 *Litigating Climate Change*

When William Butler Yeats’s protagonist went sailing to Byzantium, it was to flee a place that offered “no country” for “dying generations.”<sup>50</sup> On current emissions trajectories, the level of warming projected for the remainder of the century threatens to offer “no climate” in addition to “no country” for our older populations. Thus, in addition to adapting to climate change, every effort must be made to limit the amount of warming that does occur. There are few Byzantiums on hothouse earth.<sup>51</sup>

Litigation offers a powerful tool for compelling government climate action, with age playing an increasingly notable role. Several cases involving children and youth have been filed in the US, including *Juliana v. United States* – currently before a federal district court in Oregon – and *Held v. State*, filed in Montana state court. Internationally, a survey conducted by the Sabin Center for Climate Change Law found that approximately thirty-four cases had been brought by and on behalf of children through December 2022.<sup>52</sup>

Litigation by or on behalf of the elderly, however, has been limited despite the unique harms this vulnerable population faces – with a notable exception. In March 2023, the European Court of Human Rights (ECtHR) heard a case brought by an organization representing older Swiss women (the Senior Women for Climate Protection). This group, joined by four additional applicants (all women over eighty), sued the Swiss government alleging a violation of their human rights caused by the government’s failure to adequately address climate change.

In doing so, the applicants emphasized the unique harms they face due to their age and gender. They cited an increase in severe climate change-induced heatwaves over the past twenty years and the rise in heat-related deaths among older women. Arguing that their rights to life as well as privacy and family rights are adversely impacted by climate-amplified heatwaves, the applicants noted that worsening harms are foreseeable unless government action is taken commensurate to the threat. Some of the women testified to the hardships they already experience, including living in isolation during periods of crippling heat – unable to leave their

<sup>49</sup> DANIELLE ARIGONI, CLIMATE RESILIENCE FOR AN AGING NATION 61 (2023).

<sup>50</sup> William Butler Yeats, *Sailing to Byzantium*, in THE COLLECTED POEMS OF W.B. YEATS 163 (2008).

<sup>51</sup> Chi Xu et al., *Future of the Human Climate Niche*, PROC. NAT’L ACAD. SCI. 11350 (2020).

<sup>52</sup> Michael Burger & Maria Antonia Tigre, *Global Climate Litigation Report: 2023 Status Review*, SABIN CENTER FOR CLIMATE CHANGE LAW 40 (2023).

homes for weeks at a time, leading to anxiety and loneliness – as well as losing consciousness and a worsening of preexisting conditions such as cardiovascular illness and asthma.

In a landmark April 2024 ruling, the ECtHR held that the Swiss government breached its duties under the European Convention on Human Rights by failing to develop and effectively implement measures mitigating the effects of climate change. In so doing, the Court recognized the convention to include “a right for individuals to effective protection by the State authorities from serious adverse effects of climate change on their life, health, well-being and quality of life.”<sup>53</sup>

Litigation involving youth plaintiffs often reflects principles of intergenerational equity, highlighting the disproportionate risks younger people and future generations confront from a worsening climate. Older people face a related if distinct societal harm: They will be the last to remember the world before climate change while being among the most vulnerable to the new world’s threats.

### 18.3 CONCLUSION

Honoring the 100-year life requires mitigating further climate change and adapting to its unavoidable effects – protecting longevity for present and future generations while securing it for our most vulnerable now. If elder law and climate law do not prioritize one another in this manner, Byzantium will become a climate forever lost rather than a home still attainable.

<sup>53</sup> *Klimaseniorinnen Schweiz v. Switzerland*, App. No. 53600/20, ¶ 519 (Apr. 9, 2024), <https://hudoc.echr.coe.int/eng?i=001-233206>.