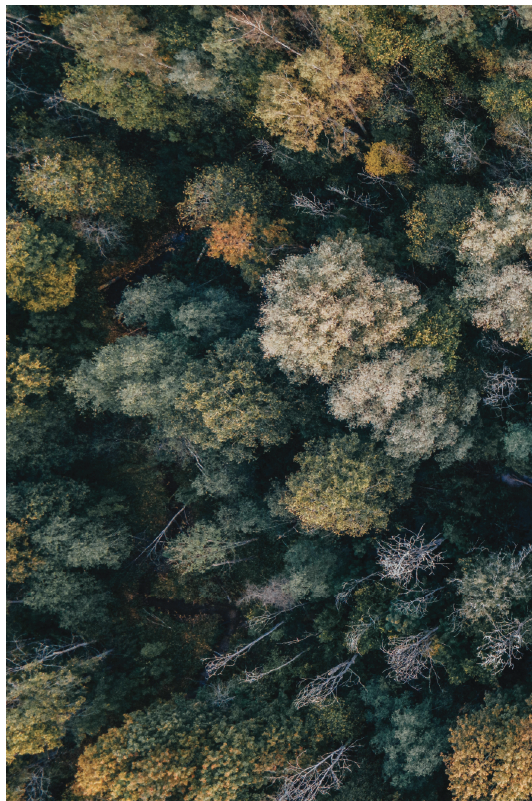


B E A T I N G

T H E

H E A T

IN 50 YEARS,
NEARLY A FIFTH OF
THE PLANET WILL BE
TOO HOT FOR HUMANS.
MIDWEST CITIES, LIKE
DES MOINES, WILL
LIKELY BECOME A
PRIME DESTINATION
FOR CLIMATE
REFUGEES.
WILL THE CITY BE
READY?



words
NATE EISENMANN
photo **MICHAEL CUMMINGS + RIHARDS SERGIS**
design **KAILI JIMEI**

More wildfires. More hurricanes. More floods. More days where the sun bakes the Earth to a crisp. And more money required for repairs. We know it's coming. In some ways, it's already here. This is what climate change looks like. We've ignored the warnings and failed to step up to the challenge. And now we're starting to feel its effects—some of us more than others.

This is concerning for a lot of people, especially city planners like Clayton Ender. Why? Because when Californians are coughing because of thick smoke from another wildfire, or Floridians are rolling up their pants after another flood, or Arizonians have yet another record-breaking temperature, they're going to realize something: there are places not dealing with this, like Johnston, Iowa, where Ender works. He knows scientists are already predicting that over the next 30 years there will be a great wave of people trying to move to more temperate climates.

"They might be suffering from some emotional distress. They might be scared," Ender said. "We just gotta do our best to protect everyone."

That won't be easy. A rush of people north could be bad for newcomers and current residents alike. "If growth happens too fast, quality could suffer and we could end up with unintended consequences," Ender said. Schools will be overcrowded. First

responders could be spread too thin. Hospitals risk being stretched to the breaking point. Cities that aren't planning for dramatic population growth are in danger of not being able to support their citizens.

Except the Des Moines metro is already growing quickly. The city of Johnston grew by 30% between 2010 and 2019, according to the U.S. Census Bureau. Nearby suburbs like Waukee and Grimes are growing rapidly. Ankeny is one of the 10 fastest-growing cities in the country. This rapid growth will only continue as people begin to face the growing problem that is climate change, and people like Ender need to step up to the challenge.

WHERE WE'RE HEADED

Climate change is old news. In the words of the late ecologist David M. Gates, "The climate is changing, the climate has always changed, the climate will always change. The real question is: how much, how fast, and how come." He said that back in the 1960s. Gates was famous for being one of the earliest to warn of the dangers fossil fuels, pesticides and fertilizers pose because of how they dramatically accelerate climate change. And while changes to the Earth's climate take effect through a variety of mechanisms, scientists agree increases in the severity and frequency of events like wildfires,

hurricanes, and floods are a result of global warming.

Sea level rise is just another one of these effects. Water expands by about four percent when heated, which means sea levels around the globe will rise due to heating alone. This doesn't even account for the fact that glaciers will melt, leading to even more water in the oceans. According to the National Oceanic and Atmospheric Administration (NOAA), sea levels rose about 0.14 inches per year between 2006 and 2015. That was 2.5 times the average increase of the previous century. It's only going to get worse; in 2017, the NOAA predicted sea levels could rise by as little as 12 inches or as much as eight feet by the year 2100. Eight feet means a significant portion of places like Florida's coast will be underwater.

That's just one state. Right now, about 40% of the U.S. population lives in what is called a "shoreline coastal county." The NOAA defines a shoreline county as one that is directly adjacent to the open ocean, large estuaries, or the Great Lakes and therefore is subject to any coastal hazards.

Dr. Mark Welford, professor of geography at the University of Northern Iowa, explained why the Gulf and Atlantic coasts will feel a more drastic change in sea level rise than the Pacific coast. "When you look at the south coast of Texas all the way up to New York City, the coastline itself is very flat. If you go to California, [...] there are steep mountains right down to the

coast, so if you get a tiny bit of sea-level change, it doesn't really do much," Welford said. But, he added, where the coast is flat, it can mean miles of dry land lost due to a rise in sea level. "You don't need to increase the sea level by much—six inches means the surge when you get hurricanes is now amplified."

All that flooding will eventually force people to flee inland. Where they move is another question in the already complicated situation. Large populations will migrate within a short amount of time and with less available space geographically, they could flock to the same areas. Dr. Robert McLeman, Professor of Environmental Studies at Wilfrid Laurier University in Ottawa, Canada, said it's not always clear where people will end up. "In the case of Miami, people are going to have to move inland. Whether they stay in Florida or move to other states remains to be seen," McLeman said.

WILL ANYWHERE BE SAFE?

One place they might end up: here. While the Midwest won't be immune to the impacts of climate change—there will be major flooding events, droughts, and long periods of extreme temperatures—cities like Des Moines will be less at risk than those on the coast. Despite the tornados, hot summers, and the occasional derecho, Des Moines won't be flooding anytime soon, making it a likely place for people to resettle.





Travis Kraus thinks city leaders should start planning for climate migration now. An associate professor of practice at the University of Iowa School of Planning and Public Affairs, Kraus explained that when a city is facing fast periods of population growth, one of the big things to work against is urban sprawl—the uncontrolled expansion of urban areas. Basically, if a city is growing, more housing is needed. When there isn't planning ahead of time, the city begins to spread in the form of low-density housing. "Density is generally considered to be favorable," Kraus said. "It gives the city the most bang for your buck." A higher density is mutually beneficial for the city and the taxpayer because the city will receive more money and in turn, can spend that money on social services which benefit the new and old residents alike.

That's only part of the equation. People also need jobs. "We want to make sure there are employment opportunities for people locating in the Midwest," Kraus said. "In Iowa, that might be a benefit." There's currently a labor shortage in the state—over 66,000 fewer workers now than in February 2020, according to *The Gazette* of Cedar Rapids, Iowa. Besides adding to the workforce, Kraus said the population growth will likely be seen in groups other than the current, mainly white, population.

"In the long run, these types of changes are going to have some positive impacts in terms of entrepreneurship and small business growth and things that help create vibrant communities," Kraus said.

But ensuring any city can handle the predicted flood of people requires planning now. According to McLeman, some are already working on it. "The cities of Portland and Seattle have already started to plan for what may happen in the coming years as more and more Californians and Arizonans start to move northward as it becomes more and more difficult to live in the southwest," McLeman said.

They're making plans to build out infrastructure, things like affordable housing, schools, water treatment plants, sewage systems, and roads, all of which take time to put in place. A water treatment plant can take a decade from start to finish. Many climate predictions suggest that within the next two or three decades, we will begin to see major effects. "2050 from an urban planner's perspective is not that far down the road," McLeman said.

WORST CASE SCENARIO

Climate change has a domino effect on nearly every aspect of the world. Things like the border crisis can be traced back to climate change. Places like Guatemala face hurricanes and in turn, Guatemalans leave and try to resettle in the United States. They're hoping to get away from waist-high floods, crop destruction, and food shortages. The World Bank estimates

there will be 143 million climate migrants by 2050. Most of them will come from Central and South America, southern Asia, and sub-Saharan Africa. Some of this population will be considered trapped because they won't have the means to migrate and will end up stuck in their current situation. Who stays and who goes is still yet to be seen.

In 2020 alone, the U.S. government spent 99 billion dollars on repairs due to extreme weather. This year, we're already on track to beat that number. Taxpayers will see more of their money spent on restoration rather than on social services, which will already be under strain due to population increases. Police will have less funding and crime rates will increase. As Kraus explained earlier, Iowa could face loss of farmland to low-density housing. More people need to be fed and less land is available to grow crops. It doesn't take a genius to see the issue here.

IT STARTS HERE

Josh Mandelbaum, Des Moines city council member and environmental attorney, understands the Midwest will be appealing for climate migrants. "Des Moines is certainly an attractive city," Mandelbaum said. "I think that would be a natural consequence."

Mandelbaum is working to draft the first comprehensive plan of action against climate change. "Des Moines has never had one," Mandelbaum said. This includes things like a 45% reduction of greenhouse gas emissions by 2030 and 100% by 2050. One way the city is doing this is by gradually swapping diesel-run city buses with electric ones. Each electric bus means 230,000 pounds of carbon dioxide aren't released every year.

"Looking at the largest buildings and getting them to take action can make a significant difference," Mandelbaum said. Holding bigger corporations accountable is a step that must be taken. In 2016, *The Des Moines Register* reported Iowa was in the top 20 for states with the worst air quality. They also said of the top 100 polluters nationally, three are in Iowa.

Some change is happening now. MidAmerican Energy, one of Iowa's biggest energy providers, has a goal of net-zero greenhouse gas emissions. But this doesn't even include a deadline. Setting lofty goals with no target date is almost as bad as not having a goal to begin with. There needs to be accountability. Across the board, big businesses need to cut down on their emissions to slow global warming.

Regardless, there will be climate migrants, many of which are at the border right now. But we can be accepting of them, and we can also improve our existing communities. "The number one thing we can do to react to climate change or mass migration is to be proactive," Ender said. "People need to be engaged. Know what's happening in your community."