



SWEET TREAT

FALL IS A GREAT TIME TO SHOW OFF THE BOUNTY OF MICHIGAN, AND GRAND TRAVERSE PIE CO. HAS JOINED WITH PURE MICHIGAN TO CREATE THE PURE MICHIGAN MAPLE GLAZED APPLE PIE. A2

CLIMATE CHANGE

Scientists link major carbon emitters to heat waves



One hundred and eighty major polluters, such as coal-fired power plants, are responsible for 57% of all the carbon dioxide that was emitted from 1850 to 2023, a study published in the journal Nature found. Associated Press file

Emissions from the world’s largest fossil fuel and cement companies play a significant role in extreme weather events, a study finds.

Isabella O’Malley Associated Press

Fifty-five heat waves over the past quarter-century would not have happened without human-caused climate change, according to a new study.

Planet-warming emissions from 180 major cement, oil and gas producers contributed significantly to all of the heat events considered in the study, which was published this month in the journal Nature and examined a set of 213 heat waves from 2000 to 2023. The polluters examined in the study include publicly traded and state-owned companies, as well several countries where fossil fuel production data was available at the national level.

Collectively, these producers are responsible for 57% of all the carbon dioxide that was emitted from 1850 to 2023, the study found.

“It just shows that it’s not that many actors ... who are responsible for a very strong fraction of all emissions,” said Sonia Seneviratne, a professor at ETH Zurich who was one of the study’s contributors.

The set of heat waves in the study came from the EM-DAT International Disaster

Database, which the researchers described as the most widely used global disaster repository. The Nature study examined all of the heat waves in the database from 2000 to 2023 except for a few that weren’t suitable for their analysis.

Global warming made all 213 of the heat waves examined more likely, the study found. Out of those, 55 were 10,000 times more likely to have happened than they would have been before industrialization began accelerating in the 1800s. The calculation is equivalent to saying those 55 heat waves “would have been virtually impossible” without human-caused climate change, the authors wrote.

“Many of these heat waves had very strong consequences,” said Seneviratne. She said the series of heat waves that struck Europe in 2022 and was linked to tens of thousands of deaths sticks out in her mind as one of the events with particularly grave consequences.

HOW CARBON EMITTERS INFLUENCE HEAT WAVES

Climate scientists can use complex computer programs and historic weather data to calculate the connection between extreme weather events and the planet-warming pollutants humans emit. Climate change attribution studies often focus on how climate change influenced a specific weather event, but the scientists say this new Nature study is unique because it focused on the extent to which cement and fossil fuel producers have contributed to heat waves.

“They are drawing on a pretty well-es-

tablished field of attribution science now, which has existed for about 20 years,” said Chris Callahan, a climate scientist at Indiana University who was not involved in the study. Callahan has used similar attribution methodologies in his research and said the new study is appropriate and high-quality.

Scientists say the new study could be taken into consideration in legal cases. Globally, dozens of lawsuits have been filed against fossil fuel companies by climate activists, American state governments and others seeking to hold the companies accountable for their role in climate change.

Vermont and New York have passed laws that aim to hold fossil fuel companies accountable for their emissions and the damage caused.

“For a while, it was argued that any individual contributor to climate change was making too small or too diffuse a contribution to ever be linked to any particular impact. And this emerging science, both this paper and others, is showing that that’s not true,” Callahan said.

Justin Mankin, a Dartmouth College climate scientist who wasn’t involved in the study, said the findings provide insight into the origins of the heat waves and how potential hazards from them could be minimized in the future.

“As we contend with these losses, the assessment of who or what’s responsible is going to become really important,” Mankin said. “I think there are some really appropriate questions, like who pays to recoup our losses, given that we’re all being damaged by it.”

MICHIGAN WILDLIFE

Watch out! 60 U.P. moose died in car crashes in past four years

Researchers believe the crashes are one of the factors behind the state’s stagnant moose population.

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MARQUETTE — Sixty Michigan moose have died in the past four years due to vehicle crashes on highways in the Upper Peninsula, according to a recent report.

That number represents an increase in fatal crashes and could be a factor in the stagnant moose population, which has hovered between 300 and 500 animals for a decade, according to the Michigan Department of Natural Resources Wildlife Division.

Since 1984, at least 251 moose have died in at least 266 crashes, according to statistics compiled by the DNR and Michigan Department of Transportation. But the past four years have been “particularly deadly,” officials said, with the deadliest year being 2022 when 20 moose were killed. So far this year, six have died.

One likely reason for the increase in collisions is the core moose herd in the western U.P. has shifted south over the past 10 to 15 years as the animals seek available habitat, the DNR said.

As much as 5% of the state’s moose population is killed by vehicles in any given year, said Tyler Petroelje, the DNR’s northern Michigan wildlife research specialist.

That’s “fairly significant when we’re thinking about factors that could limit moose population growth,” he said.

In the mid-1980s, when the species was reintroduced to Michigan, the goal was to have a herd of 1,000 animals by 2000. That year has come and gone with the moose population yet to reach that number.

SEE MICHIGAN WILDLIFE, A3



As much as 5% of Michigan’s moose population is killed by vehicles in any given year, according to the DNR’s Tyler Petroelje. Submitted by Michigan DNR

Michigan National Guard troops to assist at southern border

The soldiers could be deployed for up to a year.

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LANSING — About 120 soldiers from the Michigan Army National Guard were to be deployed Friday to the U.S. southern border to assist federal law enforcement.

The Michigan Department of Military and Veterans Affairs announced the move Thursday, saying the soldiers are anticipated to be deployed for up to a year.

“Under the direction of U.S. Northern Command and Joint Task Force North, their mission is to assist U.S. Customs and Border Protection,” department officials said. “The soldiers will provide mission enhancing support to CBP’s border secu-

urity operations to enable CBP agents to conduct their law enforcement mission.”

The announcement did not specify where along the southern border with Mexico the members of Michigan National Guard’s 1430th Engineer Company would be deployed, only that it would be in the southwestern portion.

The border deployment is not unusual for the Michigan National Guard.

This deployment marks state Guard members’ sixth operation at the southwest border since 2020. According to the department, Gov. Gretchen Whitmer approved previous border deployments in 2021, 2022 and 2024 under President Joe

Biden and in 2020 under President Donald Trump.

Whitmer spokesperson Stacey LaRouche declined to say whether the governor approved this latest deployment, directing comment to the Michigan National Guard.

Michigan National Guard officials said the deployment order was directed by the president, and they confirmed Friday to MLive that Whitmer approved this latest deployment.

The deployment comes amid Trump’s continued attempts to use National Guard troops as part of his crackdown on crime and illegal immigration.