

Warming Climate Could Shift Where Diseases Spread

Scientists are studying how drought, ticks, and mosquitoes may change health risks as the planet warms.



A tick on dry grass and a mosquito in warm weather represent disease risks that can shift as the climate changes.

Scientists are warning that **climate** change may help some **infectious** diseases move into new places and become harder to treat, according to reporting by Live Science. Infectious diseases are illnesses caused by germs, such as **bacteria** or viruses. The report connects warmer weather, drier soil, ticks, mosquitoes, and medicines used when people get sick. For someone in middle school, this is not only a health story. It is also a science story about ecosystems, which are communities of living and nonliving things, **evolution**, and cause and effect.

One part starts in a lab at Caltech, a science university in California. Researcher Xiaoyu Shan studied soil **microbes**, which are tiny living things in dirt. Some dishes of soil were muddy, and others were very dry. In the dry soil, the microbes were evolving, or changing over generations, to become more antibiotic **resistant**. Antibiotics are medicines that kill bacteria, and resistant bacteria can survive medicines that used to work.

The study, published in March, showed that **drought** conditions could help antibiotic-resistant bacteria become more common. A drought is a

long time with too little water. Live Science notes that most antibiotic resistance is still driven by humans' misuse of antibiotics. Misuse means using medicine in the wrong way. But the Caltech work raises another concern. Climate change could act as a **selective pressure**, which means a condition in the environment helps certain living things survive and reproduce more than others.

That matters because antibiotic-resistant bacteria are sometimes called superbugs, meaning germs that are hard to kill with normal medicine. If more of these bacteria are selected for in some places, doctors may have fewer easy options when people get infections. Live Science also points out that climate change does not affect health in only one way. It can stress supply chains, the systems that move goods from makers to users, and nutrition, which means getting the food and nutrients people need.

Another part of the story is about ticks and mosquitoes. These animals can spread vector-borne illnesses, which are diseases carried from one living thing to another by a vector, such as a tick or mosquito. In the United States, warmer tem-

peratures can let some insects and arthropods survive longer each year and farther north. Arthropods are animals with jointed legs and hard outer bodies, including ticks and insects. The Centers for Disease Control and Prevention, the U.S. public health agency called the CDC, reported in April that emergency department visits for tick bites were the highest for that month since 2017.

Live Science gives several examples of diseases or health problems that may shift as these animals spread. Lyme disease is carried by black-legged ticks. West Nile virus is spread by mosquitoes. Alpha-gal syndrome is not an infection, but it is passed by the Lone Star tick and can cause an allergy to red meat that does not go

away. Positive tests for antibodies to alpha-gal increased by 100 times between 2013 and 2024. Antibodies are proteins the body makes when it reacts to something it sees as a threat.

There is still uncertainty. Scientists do not know exactly how much tick-borne illness will change as the planet warms. The answer depends on many factors, including how often people spend time outdoors and what they do to avoid tick bites. Some illnesses may also be underreported, meaning not every case is counted. That uncertainty is important. It does not mean the risk is fake. It means scientists are still working out how big the risk is, where it will be greatest, and how communities should prepare.

Written from reporting by Live Science.

THINK IT THROUGH

1. When a health risk is real but scientists are still unsure how big it will be, how should a community decide what actions to take?

A strong answer: A strong answer should weigh caution, cost, evidence, and the danger of waiting too long.

2. How does this story show the connection between what happens in an ecosystem and what happens to human health?

A strong answer: A strong answer should connect climate, soil microbes, ticks or mosquitoes, and disease rather than treating them as separate topics.

3. What information would you want before deciding whether your town should spend more money on tick and mosquito prevention?

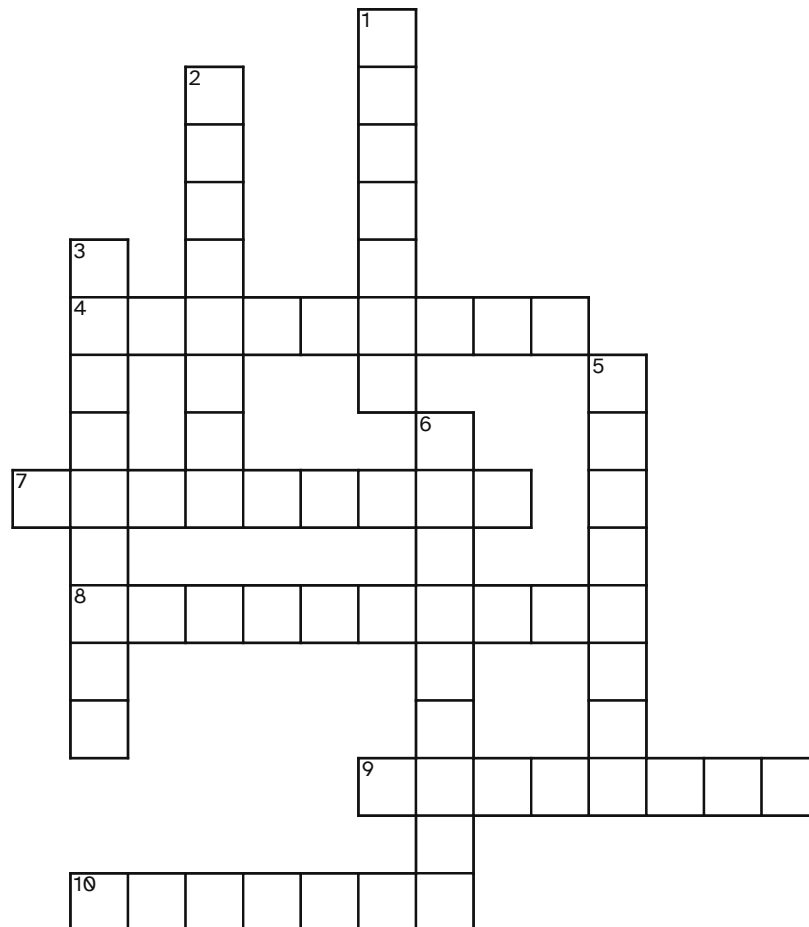
A strong answer: A strong answer should identify useful data, such as local cases, climate trends, outdoor habits, and which prevention steps work.

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BACTERIA	CLIMATE	DROUGHT	ECOSYSTEM	EVOLUTION
INFECTIOUS	MICROBES	PRESSURE	RESISTANT	SELECTIVE

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ACROSS

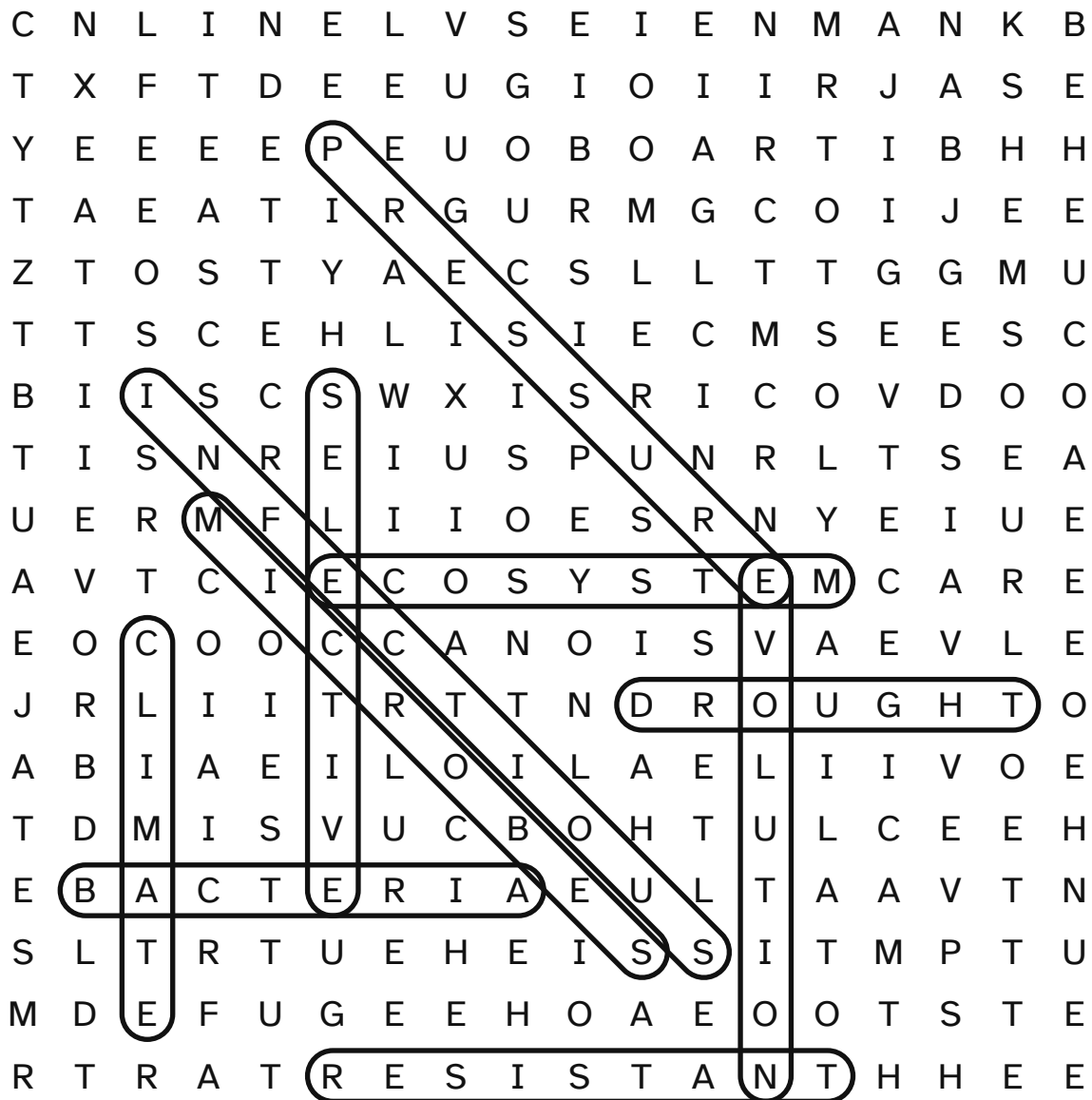
- 4 Changes in populations across many generations
- 7 Community of organisms and nonliving surroundings
- 8 Able to spread through germs from one living thing to another
- 9 Tiny living things that may help or cause illness
- 10 Long period with much less rain than normal

DOWN

- 1 Usual weather pattern in a place over many years
- 2 Tiny living things found in soil, water, and bodies
- 3 Favoring survival and reproduction of certain organisms over others
- 5 Environmental condition that affects which organisms survive
- 6 Able to survive harm that destroys most others

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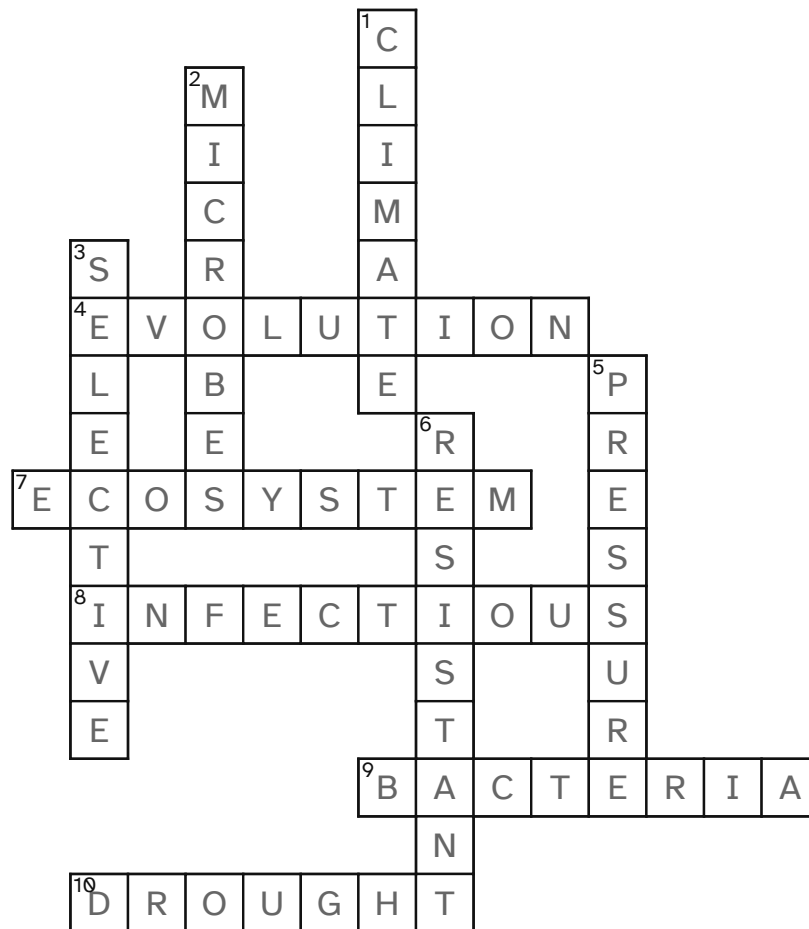
— answer key



BACTERIA CLIMATE DROUGHT ECOSYSTEM EVOLUTION
INFECTIOUS MICROBES PRESSURE RESISTANT SELECTIVE

Warming Climate Could Shift Where Diseases Spread

— answer key



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Where this came from

This article was written for 3andB from the reporting below. It is not a reprint — the wording is ours and the facts are theirs.

Live Science

“Infectious diseases will seed new ground as the planet warms — here's where they'll spread”

Published Thursday, September 10, 2026

Read by us on Friday, September 11, 2026

<https://www.livescience.com/planet-earth/climate-change/infectious-diseases-will-seed-new-ground-as-the-planet-warms-heres-where-theyll-spread>

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The article with a note on each question, a word search, a crossword, and the answer key to both.

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