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SCIENCE

USGS releases first 5-year wildfire strategy

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The U.S. Geological Survey says monitoring during wildfires helps researchers understand the complex relationships among fuels, fire behavior and fire effects. Rachel Loehman/USGS

Seeking to better understand impacts of increasing wildfire, the U.S. Geological Survey announced its first-ever five-year **wildfire science strategy** this week.

The "escalation of the effects of fire across the country and its impact on people, societies and ecosystems" added urgency to the new strategy, said Paul Steblein, wildland fire science coordinator and lead on the strategy.

"It's been touched on in other strategic plans, but this is the first time a cohesive fire science strategic plan has been developed by the USGS," Steblein said.

Getting wildfire research on the same page has proved tricky in the past, with focus, methods and funding siloed across the agency.

Roughly 180 scientists and staff within USGS are involved in wildfire work, but often across different water, natural hazards, core science and ecosystems missions.

"There's not a definitive funding line for fire work," Steblein said. "It's spread out across the whole agency, and there's not a core centralized management program for fire research. It's been challenging to try and bring everything together."

Steblein said yesterday that a philosophy underlying the strategy is seeing fire as a natural part of the landscape and a key ecosystem driver.

"We need to make sure we're not demonizing fire," Steblein said. "It plays a beneficial role and a necessary role. The goal should not be to extinguish all fires, but to manage fire for its beneficial aspects while limiting its detrimental aspects."

The strategy, which prioritizes producing "state-of-the-art, actionable" fire science, engaging stakeholders in the scientific process, effectively communicating fire science information and enhancing organizational structure to better support fire science, will guide future research.

Working across silos can be a challenge for fire researchers and modelers. Problems are complex; this strategy is aimed at making interdisciplinary work easier and more applicable.

"We oriented this to make sure science was relevant and meeting the needs of those who use science," Steblein said.

The strategy emphasizes a holistic look at fire, with increasing focus on post-fire science to understand future hazards. It highlights the importance of using and developing cutting-edge technology, like computer simulations that help predict burn severity and artificial intelligence and satellite imagery to detect fire boundaries and the spread of fire-adapted invasive species. It also places understanding the impacts of climate change and changing fire regimes at the top of its goals.

The strategy also notably recognizes the importance of integrating Indigenous traditional ecological knowledge into the fold and supporting rural communities and tribes.

"Working with the tribes is absolutely a priority," Steblein said.

The document garnered initial positive support from frequent USGS partners, including land management agencies and university researchers.

Babete Anderson, a Forest Service spokesperson, said in an email that the strategy "affords an opportunity to develop new partnerships and advance wildland fire science."

Tim Brown, director of the Western Regional Climate Center and of the Program for Climate, Ecosystem and Fire Applications at the Desert Research Institute in Nevada, often works directly with USGS in his region. He praised the strategy's interdisciplinary emphasis.

"I think the strategic plan is spot on, and it will create opportunities for us," Brown said. "The fact that the focus will be on actionable science is very key, because it's been a struggle for a lot of researchers and agencies to connect their work with practitioners."

Brown's work often has a social science component, something he liked to see highlighted in the strategy.

"As we think about fire over the next decades or century, I think of it as the confluence of climate, fuels and people," Brown said. "I can see elements in this strategic plan that there's ways to address that confluence."

Ernesto Alvarado, an associate professor of wildland fire sciences at the University of Washington's Pacific Wildland Fire Sciences Laboratory, said he could see the strategy strengthening education and research programs at institutions like his that collaborate with USGS.

"In reciprocity, the universities can prepare the cohort of scientists and technical staff to support this fire science strategy," Alvarado wrote in an email.

But Alvarado was worried that budget cuts to the Joint Fire Science Program in the past could threaten the development of science and tools. Now, he said, he's hopeful the USGS fire science strategy could bring some needed consistency to meeting the "increasing challenge of wildfires in the country."

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