

Recent hard freeze likely will be death knell for many weaker saguaros

Doug Kreutz Arizona Daily Star | Posted: Monday, February 21, 2011 12:00 am

A prolonged freeze three weeks ago almost certainly was a death sentence for some members of a prized desert species: the saguaro cactus.

Biologists say similar freezes in the past killed saguaros, but it could take months or years before affected plants succumb.

They emphasize that damage or death would be most likely in very old, very young or diseased saguaros. By no means is a large-scale die-off expected.

Monitoring effects

"We're obviously very concerned about it, and we'll certainly be looking for signs of tissue necrosis - basically rotting of the cactus," said Don Swann, a biologist at Saguaro National Park. "It could take some time for that to show up - months or years, depending on the size of the cactus and the extent of the damage."

Temperatures dipped into the teens in the Tucson area during the first week of this month. That brought the kind of hard freeze that "certainly did kill saguaros in the park in the past," Swann said.

"There was a prolonged cold spell in 1971," Swann said. "Scientists working in the park at that time documented the effects and found that the freeze caused saguaro deaths. It tended to affect the oldest and the youngest ones."

Too cold, too long

Philip Jenkins, a curatorial specialist at the University of Arizona Herbarium, said he expects "some saguaro mortality" from the freeze.

"That's because it stayed so cold that one day, with teens for two nights," Jenkins said. "Saguaros can take cold temperatures, but they can't take them for a prolonged period of time. If it drops down to 20 for six hours, say, they will be fine. But if they are subjected to sustained below-freezing temperatures - more than six or eight hours - they begin to show damage."

The big questions now, Jenkins said, are: "How bad is it, and when are we going to see it?"

He said a "full-grown saguaro with arms will often live on its inner resources for about five years after freezing - and then suddenly collapse and die."

Droopy arms

Mark Dimmitt, director of natural history at the Arizona-Sonora Desert Museum, said staff members recently observed that "the saguaros on the lower museum grounds have droopy arms, which indicates freeze damage."

Other possible signs of cold damage include a sort of bleaching or discoloration at the top of saguaros.

In addition to the apparent damage to saguaros, "ironwood foliage was killed, and some jojoba and brittlebush also froze," Dimmitt said.

Joshua Taiz, a biologist with the U.S. Forest Service, said he expects saguaros near the upper end of their elevation range - such as areas near Molino Basin in the Catalina Mountains - "would be hit the hardest" by effects of the freeze.

The scientists said they will be monitoring saguaro populations in the coming weeks and months in an attempt to determine the extent of damage.

A benefit of the freeze

There might be an upside to the recent freeze.

Buffelgrass, an invasive species that drives out local plants and poses a high fire danger, could have taken a hit when temperatures plunged into the teens.

"A hard freeze in 1983-84 destroyed large acreages of buffelgrass in south Texas, so conceivably our February 2011 freeze could have impacted buffelgrass in the area," said Julio Betancourt, a senior scientist with the U.S. Geological Survey. "We will not know how buffelgrass fared with the February freeze until this coming summer, when large patches may fail to green up after monsoonal rains."

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