



## Disappearing Desert: Guarded Border Imperils Ecosystem

**The border between Egypt and Israel is testing the ability of ancient deserts to survive through tough political times.**

By [Emily Sohn](#) | Thu Apr 14, 2011 07:00 AM ET

On the Egyptian side of the Israel border near the Gaza Strip, armed soldiers pace along barbed wire fences, which stand three layers thick in some places, while Israeli soldiers look out from their own towers on the other side.

The goal of this high-security border is to keep out intruders. But the barriers have begun an unintentional experiment on the ability of ancient deserts to survive tough political times. And so far, things are not looking good for the desert and its creatures.

Thanks to an arbitrary line drawn in the sand, Israel's dunes are starting to crust over with green algae that make the sand hard and crunchy. Egypt's dunes, on the other hand, remain soft, yellow and rippled -- mainly because nomadic Bedouins are still allowed to graze their sheep and goats there.

The contrast is so stark that, in satellite images, the sharp yellow-green line is the most visible border in the world from above, said Yaron Ziv, a landscape ecologist at Israel's Ben-Gurion University of the Negev.

Now, as the crust slowly takes over Israel's Negev desert, Ziv and colleagues are beginning to document a surprising variety of life in the area. They have compiled a list of gerbils, snakes, beetles and other animals that live only in this corner of the world, some of which are brand new to science. And they are finding that the crusts pose a major threat to the region's biodiversity.

As their work continues, their findings apply beyond this dusty Middle Eastern border. Threats face deserts throughout the world. And even though these landscapes tend to look barren to the untried eye, deserts harbor a wealth of habitats that species have evolved to depend on.

"You go to the western Negev, and you see that most of it is covered by sand," Ziv said. "You look at that and say this is very boring, like kindergarten sandboxes. But one thing we've found out is that these environments are very heterogeneous. There are lot of sands from different eras, and there are very distinct and unique habitats."

In Israel, Ziv's research is complicated by a strong military presence and a lot of red tape. On a recent visit to his study site in a newly declared protected area, he stood on top of a blustery dune as the sun set, and described the challenges. Military jets flew overhead. Army trucks tailed his jeep on a single-track trail of sand below.

"We are in a nature reserve that is also a firing zone," he said. "It's a very complex situation. You see this grey hair? We as ecologists are having a tough time. It's almost an impossible mission."

The Negev, which covers 60 percent of Israel, gets an average of between 20

millimeters (less than an inch) and 280 millimeters (11 inches) of rain a year, depending on location. The desert's northern border occurs at the line beyond which rainfall exceeds that amount. And its eastern border is defined by the Dead Sea fault, which is also where Jordan begins.

But to the west, the Negev shares the same sand and the same climate with Egypt. And until recently, Bedouin herders roamed freely across both nations. As herds trudge through the sand and graze on plants, they keep dunes soft. Winds continue to move and reshape them.

That's still happening on Egyptian sands. But a crackdown on grazing in Israel, along with more than a decade of plant-killing drought, has allowed algae to take over 7 percent of the Negev in the last 30 years. Crusts stabilize dunes and, according to growing evidence, threaten the region's nine rodent species, 15 snake species, and plenty of other creatures, including gazelles, wild asses and insects.

While Ziv's group races to document the effects of dune crusting on biodiversity in the Negev, they are also testing strategies for making the sands active again, including ATVs that till the dunes.

These kinds of management approaches may be the only way to save the Negev, along with plenty of other threatened environments around the world, said Michael Rosenzweig, a professor of ecology and environmental biology at the University of Arizona in Tucson.

"The tendency we have as a civilization, which has been expressed now for 2,000 years, is to take the land and homogenize it," he said, mentioning American grassy lawns as an example. "We don't pay attention to the needs of other species. We don't appreciate the fact that what looks good to us doesn't necessarily look good to all species."

Rosenzweig remembers driving around the Negev in 1978 in search of research plots. One night, he went to sleep with a plan to drive to Gaza the next morning. But when he awoke, the road had disappeared under five feet of shifting sand. He had to turn around and go the other way. With Israel's current crusting problems, this is a scenario that would never happen today.

And similar kinds of rapid environmental shift are happening in places far beyond the Middle East.

"The crusts are a small part of the whole story," Rosenzweig said. "It's like the trigger of a gun. Using that lever can get to the big problems."

---