

# Biome Alert

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## What Does the Future Hold for the Desert?

We envision a bright future for the deserts of the world. As humans realize the impact they are making on these fragile biomes, they will change their behaviors. Cities in deserts will create infrastructures that are environmentally friendly, including structures that reflect heat rather than absorb it. Deserts will flourish because human visitors will appreciate their complexity and beauty while visiting, taking care not to abuse the biome.



Oxford Scientific Films/Anthony Bannister

Science jobs in the desert include:

- Land management
- Fire science
- Biologist
- Ecologist

## The Fate of the Desert Solutions for a Biome at Risk

### Solutions for the Heat Island Effect

It is well known that deserts are hot places. However, cities created by humans have impacted the deserts by making them even hotter. On warm days, air surrounding a large city can be 6-8 degrees Fahrenheit warmer than surrounding areas, creating a "heat island effect." These higher temperatures lead to increased smog and energy use, both of which pollute the environment.

We understand that it would be unreasonable to expect humans to dismantle their cities and abandon the desert in the name of environmental justice.

Thus, we propose several solutions to this heat island effect. The first is to increase the amount of vegetation within the city. This will serve to provide more shade to cool concrete streets and sidewalks. The plants will also reduce heat when they transpire. As water is released in transpiration, it cools the air while the water evaporates. The vegetation has a secondary benefit in that it reduces the amount of carbon dioxide pollution in the air as the plants go through the process of photosynthesis.

Secondly, we propose that heat reducing

structures be used in cities that exist in deserts. One such structure is a "cool roof." These roofs are light colored to reflect the light energy from the sun. Dark colored roofs absorb the sun's energy, which is in turn released to further heat the surrounding air. Some of the heat is also collected inside, requiring occupants to use more energy to air condition the building. A second structure that can be used in cities is "cool pavement." Again, light colored materials used in pavement for roads reduce the amount of light energy absorbed by the city that will be released as heat energy into the air.

### Solutions for Increased Fire Danger

#### References

- 1.Desert Foothills Land Trust:  
Fires threaten desert's natural balance,  
[www.dflt.org/awareness/fires.htm](http://www.dflt.org/awareness/fires.htm)
- 2.Heat Island Group,  
<http://eetd.lbl.gov/HeatIsland>
3. Desert Fires  
[www.cwnp.org/naturalist/hammettfire.html](http://www.cwnp.org/naturalist/hammettfire.html)

As humans have moved into deserts, they have created an increased danger of fires in this hot biome. Non-native grasses brought to human establishments have invaded some deserts, sprawling over areas that were previously uncovered creating fire hazards. Also, human behaviors such as dumping trash and building campfires have increased the amount of fires in deserts.

To combat the environmentally catastrophic desert fires, we propose the following remedies. First, we want to reduce the amount of non-

native grasses in deserts. This will be done by making it illegal to plant or grow grasses or other plants identified as being potentially invasive to the surrounding environment. Also, when trucks transporting agricultural materials enter a desert area, they should be inspected for evidence of these invasive plants. Even seeds accidentally piggybacking on a landscaping truck coming from a taiga biome may be troublesome. To help people learn about these pernicious plants, brochures will be mailed to residents of desert cities and businesses who have

agricultural interests in the area.

Secondly, we want to create strict guidelines for people who are using the desert recreationally. These guidelines will cover dumping trash and littering as well as camping rules, including campfires. A public awareness campaign will be launched to increase general knowledge of the impacts of negligent behaviors, as well as legal consequences. This campaign will heighten public awareness and hopefully save these precious biomes.