

The Fragile Desert: Living Soils



Biocrust (or “biological soil crust”) is the living ground cover of the desert. It is composed of a community of tiny organisms, including cyanobacteria, lichens, and mosses.

Magnified: Cyanobacteria binding sand grains together, preventing erosion.

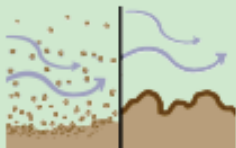


New biocrust develops slowly on soils that have been disturbed.

The crust shown above resembles bare soil now, but it will mature like the examples shown to the right.

“Old growth” biocrust.

All biocrust, both young and old, is essential for a healthy desert ecosystem.



- Prevents erosion from wind and water



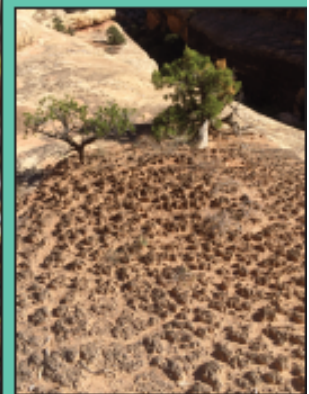
- Increases rainwater retention



- Provides plants with the Nitrogen that they need to survive.



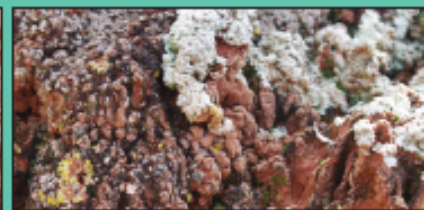
Biocrust with lichens and moss after rainfall



Juniper tree in crust garden



Black tar jelly lichen



Brown etipplecale, yellow sulfur, and white rim lichens

Lichens of every color and texture grow on the soil here: many are found no where else in the world.

Biocrust can take 250 years to reach maturity.

Biocrust is fragile.
A single footprint or bike track destroys decades of growth in an instant.



Biocrust Information Sheet

It only takes a one-time compressional force (foot, tire, etc) to break the fragile filaments that hold biocrust together and destroy it. Plants are dependent on the soil stability that biocrust provides and without it, they die and denuded areas develop. These areas take decades to recover.

Impact to soils during trail construction can be minimized by:

- Driving vehicles only on designated roads.
- Parking in previously disturbed areas where possible, and only pulling off the side of the road far enough to ensure safe, non-obstructive parking.
- When walking cross-country is required, walking on durable surfaces such as rock and wash bottoms, rather than on soil.
- When walking on soil is unavoidable, avoiding areas of mature biocrust in favor of less developed biocrust communities (examples above).

Example of Mature Biocrust Area:



Example of Immature/Developing Biocrust Area:



Example of Impacted Area (compacted soils, vegetation loss):

