

Lichens in Everglades National Park

National Park Service
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South Florida Natural Resources Center
Everglades National Park



Red mangrove roots serve as excellent habitat for a variety of lichen species.

What Lichens Are

Lichens make up a poorly understood part of the biodiversity of Everglades National Park. Unlike plants, lichens consist of a relationship between a fungus (the lichen's mycobiont) and a green or blue-green algae (the lichen's photobiont). The alga produces food by photosynthesis and the fungus provides a weather resistant protective exterior for the alga, which enables the alga to exist in full sun, thereby maximizing its ability to produce food for both. Although this relationship has long been considered beneficial to both the fungus and the alga, more recently scientists have begun to view it as a form of controlled parasitism of the alga by the fungus.

What Lichens Look Like

A bewildering variety of color and form are found in the lichens of Everglades National Park. Lichens can look like little shrubs, drape tree limbs like Spanish moss, or appear as little dots, lines, or smudges on the bark of trees. Their color range is wide: red, yellow, green, gray, and white species are found in the area. Many species are very small but others can cover large areas of tree trunk. Lichens exist in every terrestrial habitat within Everglades National Park and can be found on the bark or leaves of trees as well as on rocks or soil. Cypress, red mangrove, and other forested communities such as hardwood hammocks and tree islands frequently support large numbers of lichen species. Lichens also can be found on trees planted in parking lots and around buildings as well as along roadsides. Casual viewers often see lichens as a constituent of the bark of the trees they occupy. Closer inspection reveals a special lichen world unique to subtropical Florida.



Genera of crustose lichens growing on the bark of this red mangrove include *Pertusaria*, *Arthonia*, and orange and yellow species of *Pyrenula*. Photos by Jean Seavey, NPS Volunteer.

Growth Forms of Lichen

For taxonomic purposes, lichens are divided into four growth forms: crustose (crust-like), foliose (leafy), fruticose (shrubby), and squamulose (scale-like). Crustose lichens are the most common in Everglades National Park and are distinguished by their tight adherence to substrate, making it impossible to remove them without including part of the substrate.



White patches visible on the bark of cypress trees are crustose lichens, including the species *Cryptothecia evergladensis* Seavey.
Photos by Jean Seavey, NPS Volunteer.

Crustose form
Chrysothrix candelaris



Foliose form
Parmotrema praesorediosum



Fruticose form
Ramalina denticulata



Squamulose form
Cladonia cinerella



Close-up view of *Cryptothecia evergladensis* Seavey

Everglades National Park Lichen Project

Identification of crustose lichens is challenging work that involves examining microscopic characteristics, conducting chemical tests, and identifying chemical compounds extracted from the lichen. Despite these difficulties, a lichen inventory of Everglades National Park was initiated by highly trained volunteers in 2007. Many thousands of hours of effort and dedication have resulted in the collection and identification of about 550 species within park boundaries. Fifty of these species represent new species for the North American lichen checklist and one species, *Cryptothecia evergladensis* Seavey, has been described and published as new to science. An additional 19 species are also new to science and are either in press or have recently been published.

The tropics and subtropics have only recently been recognized as the most lichen-rich areas on Earth by number of species, and this inventory provides critical baseline information on the only subtropical wilderness in the United States.