

## A Pristine Tropical Landscape: Yela Valley, Kosrae, Federated States of Micronesia

The freshwater forested wetland in the Yela Valley of Kosrae, Federated States of Micronesia, is the heart of an unusually pristine tropical watershed extending from ridgetop to reef. It contains the largest remaining stand of *Terminalia carolinensis* (locally known as *ka*) in the world. The immense buttresses of the *ka* support canoe-log boles and multi-layered canopies. In addition to *ka*, which is endemic to Kosrae and the neighboring island of Pohnpei, this wetland contains several other endemic plant species, and it provides habitat for the Micronesian pigeon, an endangered species. Currently inaccessible by road, the Yela Valley is the largest and perhaps the most valuable intact landscape remaining in Kosrae, despite the high value of its timber.

Kosrae's mountains receive more than 5 meters of rainfall each year. The pattern and quality of the abundant runoff in the Yela Valley are undisturbed by humans. The water in the Yela River, collected from the hillsides and the wetlands, is characteristic of a pristine watershed. It contains organic matter, dissolved nutrients, and organisms, all important food sources for fish and invertebrates that swim among the river, mangroves, adjacent seagrass beds, and coral reefs. The Yela River helps to support a productive nearshore community of fish and invertebrates.

Some of the water in the freshwater wetland seeps into the groundwater and percolates slowly downslope into the mangrove forest, where it moderates the salinity of the water. The mangrove trees that grow there are among the tallest, straightest, and most productive on the island of Kosrae. If the wetland that supplies the groundwater remains intact, this mangrove forest will continue to provide a supply of firewood and high quality timber. The outflow of organic matter and dissolved nutrients that leave the mangrove forest with the tide helps to support a favorite local fishing ground.

The Yela freshwater wetland was designated as an Area of Biological Significance in the 2002 National Biodiversity Strategy and Action Plan of the Federated States of Micronesia. The survey team that recommended the designation included Micronesians, The Nature Conservancy personnel, and other long-term residents of the islands. They recognized that this wetland, which depends on an entire watershed to maintain its characteristic flow patterns and water quality, is a unique treasure throughout the whole of the Federated States of Micronesia.

Wetlands, which cover about 5 percent of the face of the earth, are often concentrated in regions where they may account for 50 percent or more of the landscape. In the tropics, wetlands are especially common in coastal areas. The importance of mangrove forests is well recognized, but the role that freshwater wetlands play in the tropics, where they often sit directly upslope from mangroves, is poorly understood. Research about how animals in the mangrove forest, seagrass beds, and coral reef depend on the freshwater wetland is now being conducted in the Yela watershed. Because development is so intensive in tropical coastal regions, few landscapes of the quality and history of the Yela watershed remain in the world. This site is already serving as a natural laboratory for

research pertinent to the wider tropical region as well as to global issues. It can also serve the people of Kosrae as a demonstration forest and an ecotourism attraction educating people about the natural services it provides.

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