



Prescribed Fire Training and Wetland Restoration at Laguna Cartagena National Wildlife Refuge

The National Cohesive Wildland Fire Management Strategy is a national collaborative effort to bring a broad cross-section of stakeholders together to address wildland fire management challenges. The Strategy directs wildland fire planning activities and has three primary goals: restore and maintain landscapes, develop Fire-Adapted Communities, and improve wildfire response.

Activity	Impact
# acres burned with prescribed fire in 2013 at Laguna Cartagena for: firefighter training, waterfowl habitat management, and fuels reduction	250

Laguna Cartagena is the most important freshwater wetland in Puerto Rico for waterfowl and many other waterbirds and represents the only fresh water lagoon remaining on the island. Historically, this lagoon was said to have supported the largest population of ducks in the entire Island.¹ Stuart Danforth, in 1926, described the lagoon as “the most important breeding ground for resident waterfowl as well as the most important refuge for migratory waterbirds in Puerto Rico. It also supplies food for thousands of other birds, which are not primarily marshbirds. There is probably no other spot on the Island where so large an assemblage of birds of so many species can be found.”²

The lagoon is part of what once was a much larger wetland ecosystem in the Lajas Valley that included Laguna de Guánica and the Anegado. Prior to agricultural disturbance, the distinct seasons and varying rainfall levels at the lagoon resulted in a wide range of water levels throughout the year. This encouraged a diversity of unique habitats to be created, including open water in the center of the wetland, a fringe of patchy cattails, and diverse

plant species at higher elevations on slightly drier soils. Laguna Cartagena and Boquerón Wildlife Refuge (managed by Puerto Rico Department of Environmental and Natural Resources) are the remaining wetlands after an agricultural project drained the original Lajas Valley wetlands. Central drainage canals plumbed into Laguna Cartagena, which introduced fertilizer-laden irrigation runoff on a regular basis, maintained higher water levels throughout the year and reduced natural water fluctuations. Higher, more regular water levels combined with introduced nutrients allowed Cattail (*Typha domingensis*) to outcompete other plant species, resulting in a thick layer of peat. Aerial photos show that cattail growth has covered more than 90 percent of the open water area in less than 20 years.

At present, Commonwealth law in Puerto Rico does not allow prescribed fire in Puerto Rico. This has been a major setback since prescribed fire is a cost effective means for managing important bird habitats, reducing invasive species, and minimizing fuel loads that can result in costly wildfires. The law, however, does permit prescribed fire for two specific reasons: a) agricultural burning

Success stories highlight regional wildland fire accomplishments that support implementation of the National Cohesive Wildland Fire Management Strategy in the Southeast. The stories demonstrate how the Southeast is improving its “fire resiliency” through technology, education and outreach, forest management, collaboration, and more. Success stories also serve as a model for other communities to follow.

and b) firefighter training. In 2011, the Puerto Rico Environmental Quality Board issued permission to the Puerto Rico Fire Department (Bomberos) to burn under certain conditions for firefighter training³. The primary objectives of prescribed fire use at Laguna Cartagena are hazardous fuel reduction and habitat restoration, but fire also establishes partnerships, and provides a training platform for Puerto Rican firefighters on managing wildland fire.

Partners from Florida, Georgia, and Puerto Rico, were organized to facilitate and implement the project. Careful planning ensured that the prescribed fire would have minimal impact on wildlife populations and neighboring landowners while also achieving restoration objectives. To achieve this, the controlled burn would occur prior to natural flooding of the lagoon by seasonal rain.

During the summer of 2013, the refuge successfully burned 250 acres of wetland reducing hazardous fuel loads and at the same time opening up habitat for birds and native vegetation. The refuge hopes to carry out future burns to improve wildlife habitat, train local firefighters, and reduce wildfire risk.

**Text adapted from a report by Cass Palmer, US Fish and Wildlife Service. June 2013*

¹ Cardona, J. E. and M. Rivera. 1988. *Critical Coastal Wildlife Areas of Puerto Rico*. Commonwealth of Puerto Rico. Department of Natural Resources. Puerto Rico Coastal Zone Management Program. Scientific Research Area. San Juan, Puerto Rico. 173 pp.

² Danforth, Stuart T. 1926. *An Ecological Study of Cartagena Lagoon, Puerto Rico, with Special Reference to Birds*. *The Journal of Agriculture, Puerto Rico*. 10: 1-30

³ *Comprehensive Conservation Plan for Laguna Cartagena National Wildlife Refuge*. 2011. US Fish and Wildlife Service.

Additional Information:

Laguna Cartagena National Wildlife Refuge:

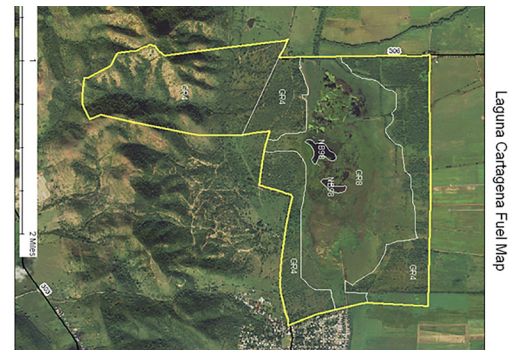
<http://www.fws.gov/refuges/profiles/index.cfm?id=41527>

Prescribed fire update at Laguna Cartagena:

http://www.fws.gov/refuges/RefugeUpdate/MayJun_2014%20HTML/prescribed_burn.html

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Partners: Puerto Rico: Department of Natural and Environmental Resources, Environmental Quality Board, and Fire Department, and Laguna Cartagena National Wildlife Refuge, US Fish and Wildlife Service Southeast Region District 6 Fire Management, National Park Service, USDA Forest Service



Laguna Cartagena Fuel Map. Laguna Cartagena National Wildlife Refuge, Puerto Rico. Credit: Josh O'Conner, Laguna Cartagena Comprehensive Conservation Plan.



Prescribed burn at Laguna Cartagena National Wildlife Refuge, Puerto Rico. Credit: Cass Palmer, US Fish and Wildlife Service.



Laguna Cartagena National Wildlife Refuge, Puerto Rico. Credit: Cass Palmer, US Fish and Wildlife Service.



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