



Everglades Treasure under Threat, the Arthur R. Marshall Loxahatchee National Wildlife Refuge

The issue at-a-glance

On August 11, 2016 the Governing Board of the South Florida Water Management District (SFWMD) voted unanimously to issue a notice of default to the U. S. Fish and Wildlife Service (USFWS) the agency that has operated the Arthur R. Marshall Loxahatchee National Wildlife Refuge (LNWR) for 60 years, through a licensing agreement between the two agencies. The SFWMD is citing failure to control two invasive exotic plant species as required by the licensing agreement. This could result in the loss of one of Florida's largest national wildlife refuges in as little as six to nine months. While the SFWMD owns the majority of the land that make up the Refuge, the USFWS owns 2,550 acres where the Visitor Center is located.



ARM Loxahatchee National Wildlife Refuge, photo credit Ian Shive

ARM Loxahatchee National Wildlife Refuge is unique

A remnant of the historic Everglades in Palm Beach County, the Arthur R. Marshall Loxahatchee National Wildlife Refuge (LNWR) provides crucial habitat for wildlife and birds like the endangered and threatened Everglades Snail Kite and the Wood Stork. The Refuge is home to 250 species of birds and provides critically important habitat, especially during the pre-nesting stage. During the summer of 2016, LNWR welcomed the largest active wading bird colony in the Everglades with over 7,000 active nests.

The LNWR is located on state-owned land in what is known as Water Conservation Area 1. The Refuge was established in 1951 under the Migratory Bird Conservation Act via a 50-year lease agreement between the



Snowy Egret, photo credit U.S. Fish & Wildlife Service

SFWMD and USFWS. It spans 143,954 acres making it Florida's second largest national wildlife refuge- second only to the mostly under water Key West National Wildlife Refuge. The 50-year lease agreement was renewed in 2002, setting a series of thirteen performance measures for USFWS to meet through cooperating with the SFWMD, as a tenant of the land. The performance measures stipulated in the lease agreement are unique to this Refuge, and the type of arrangement among the two agencies is the only one of its kind in Florida.

LNWR is also a gem for the community of Palm Beach County attracting 300,000 visitors per year, producing \$1.9 million in sales tax revenue and creating more than 100 local jobs. USFWS Staff provides excellent interpretative and educational opportunities for the

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community that enhance the enjoyment of the environment and raise awareness of Everglades restoration through their packed calendar of events that includes guided bird, butterfly and plants walks, guest lecturers and an annual art and photo contest. The Refuge's environmental education program reaches 5,000 school children every year. With every dollar spent on the Refuge translating into \$6.81 dollars of economic activity in the region associated with recreational activities in the Refuge, LNWR is clearly a win-win for South Florida's economy, the community and wildlife¹.

Invasive exotic species are a real threat to native ecosystems

USFWS is currently meeting 12.5 out of the 13 performance measures stipulated in the 2002 agreement, but is failing to meet the 2017 deadline to control Melaleuca and Old World Climbing Fern (*Lygodium microphyllum*) in the Refuge. The spread of *Lygodium* and other invasive exotics is having a significant impact on much of Florida's public and private lands, including not only the LNWR, but on all of the Everglades Water Conservation Areas managed by SFWMD as well. Combating invasive exotic species is crucial to protect the integrity of the Greater Everglades Ecosystem, but it is not reason enough to lose a national wildlife refuge. Revoking the lease agreement will not solve the challenge of controlling and combatting invasive exotics in the Refuge by itself.



A group of students at ARM Loxahatchee National Wildlife Refuge.
Photo credit U.S. Fish & Wildlife Service

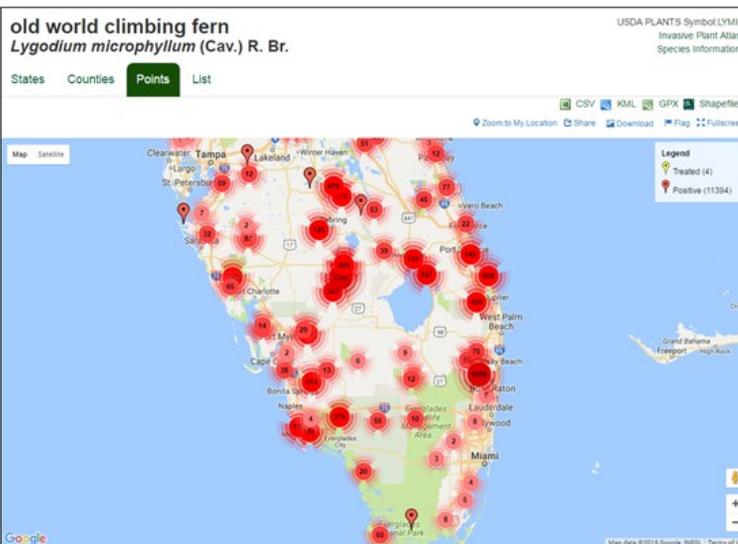


Figure 1. EDDMapS. 2016. Early Detection & Distribution Mapping System. The University of Georgia - Center for Invasive Species and Ecosystem Health. Available online at <http://www.eddmaps.org/>; last accessed September 15, 2016

As shown in Figure 1, *Lygodium* can be found all over Florida. This is presently one of the most invasive plants in Florida, rapidly spreading along highways and across private, local, state and federal lands. What makes the *Lygodium* infestation at LNWR particularly hard to combat is the ecological makeup of the Refuge. Because it has been operated as a Refuge, LNWR has the highest density of tree islands of all three of the Water Conservation Areas in the State. Ironically, this characteristic of good Everglades habitat has made the Refuge a magnet for the resilient climbing fern. This is an important distinction to make, as other affected areas where *Lygodium* removal efforts have been more effective, did not have as many tree islands as LNWR in their ecological and geographical makeup. Most of these islands are in remote areas for which there is little or no access during Florida's winter dry season, giving the invader time to grow and spread.

¹U.S. Fish & Wildlife Service. Division of Economics: *Banking on Nature*. Washington DC, 2013

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The challenge LNWR faces presents an opportunity for continued interagency cooperation through partnership to leverage the resources and manpower necessary to keep *Lygodium* in check.

No Winners if SFWMD Evicts USWFS and Abolishes the Refuge

The loss of the ARM Loxahatchee National Wildlife Refuge is bad for wildlife, bad for the community and bad for Florida taxpayers. If the lease agreement is revoked, the Refuge would return to being a Water Conservation Area where the main mission is water management, as opposed to the Refuge's mission of conservation, management and protection of wildlife.

Loss of the Refuge would result in a diminished environmental experience for the community, who would no longer be able to enjoy the wildlife protected by this natural treasure and would no longer be able to enjoy the Refuge's environmental educational programs. If the Refuge were abolished, the public access to the refuge would either be reduced or terminated, or management and staffing of public access would have to be taken on as an additional program expense by SFWMD.

This decision would pose a bigger strain on an already tight SFWMD budget that has suffered from significant budget cuts, leaving Florida taxpayers solely in charge of the bill to take care of exotic invasive species in the Refuge and overworking a reduced number of water management staff members. The State of Florida should continue the long-lasting partnership with USFWS with the common goal of exotic plant containment in the Refuge.



Red Shoulder Hawk pair, photo credit U.S. Fish & Wildlife Service

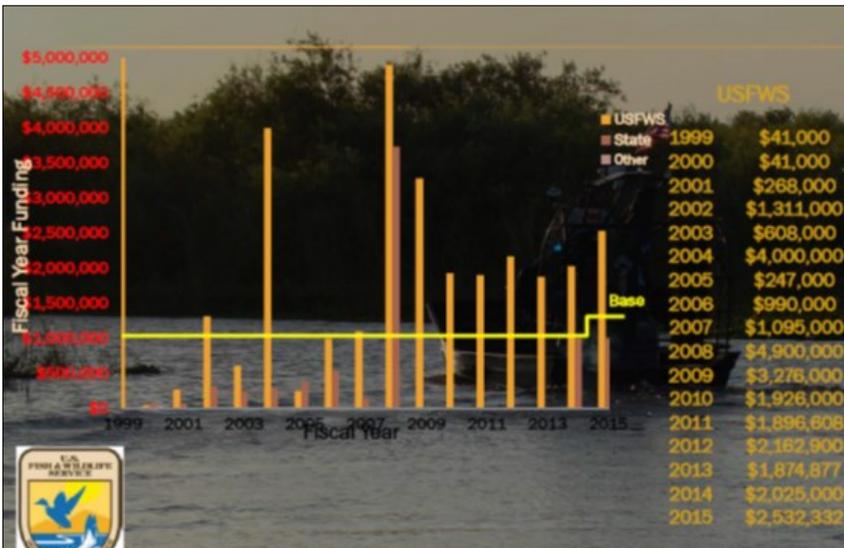


Figure 2. Annual exotic invasive control funding sources for ARM Loxahatchee National Wildlife Refuge from 1999 to 2015. Source: ARMLNWR

As seen in *figure 2*, the USFWS and partners have spent more than \$29 million on exotic plant control to date, but have not been able to keep up with the *Lygodium* problem. Unfortunately, after a very successful cooperative effort to get *Lygodium* under control in 2008, the state stopped contributing to on-going efforts for the next 5 years (2009-2013) and today, the *Lygodium* is more abundant than ever. If the state loses its federal partner who has contributed \$2 million dollars or more for each of the past 8 years, this challenge will be all the more expensive.

Should the LNWR be abolished through termination of the lease, water quality could also be negatively affected. The Everglades

is naturally an extremely low nutrient system. When higher levels of phosphorus are added to the system, the vegetation changes and habitat conditions suffer.

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Nutrient control in the Everglades is measured in part through a “consent decree” that was established to settle litigation between the federal government and the SFWMD. A limit for phosphorus set through this decree is measured in the LNWR and Everglades National Park (ENP), as the federal land interests in the Everglades. In order to reach this standard, restrictions have been placed on phosphorus discharges by farmers in the Everglades Agricultural Area (EAA) to limit the amount of phosphorus flowing into LNWR and ENP. The SFWMD has built the largest network of nutrient filtering marshes in the world to continue to remove phosphorus after it leaves the EAA but before it reaches the LNWR and ENP.



Everglade Snail Kite

The Sugar industry, which control the majority of the EAA, actively sought the nullification of the LNWR lease in the Florida Legislature during the 2000 legislative session under the belief that elimination of the Refuge would result in changes to this federal court consent decree. The assumption in turn is that this group believes that water quality requirements will be lessened without the federal interest in the Refuge.

Audubon Florida recommends:

- ⇒ Ceasing efforts to revoke the lease agreement between the LNWR and the SFWMD in order to pursue mutually beneficial cooperation.
- ⇒ Continuing multi-agency collaboration between SFWMD, FWC and USFWS to work together and pool resources directed at the successful control of *Lygodium* and other invasive exotic challenges in the Refuge.
 - When the District and FWC act proactively and work together with USFWS, the funding goals to perform this important work can be met. The estimated needed investment is \$5 million per year for 5 years. During Fiscal Year 2016 the district’s investment of an additional \$2,550,000 from FWC, combined with USFWS’s \$2,550,000 achieved the \$5 million needed to contain invasive exotic species in the Refuge. This proven successful partnership is the path forward to fund the work needed to attain containment of *Lygodium* and other invasive exotic plant species in the LNWR.
- ⇒ Increasing Congressional funding across the National Wildlife Refuge system to effectively deal with invasive exotic control across the U.S.
 - Federal funding should be increased for managing all 560 National Wildlife Refuges, including LNWR. Additional funding within the Refuge system should be allocated toward invasive exotics removal.

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