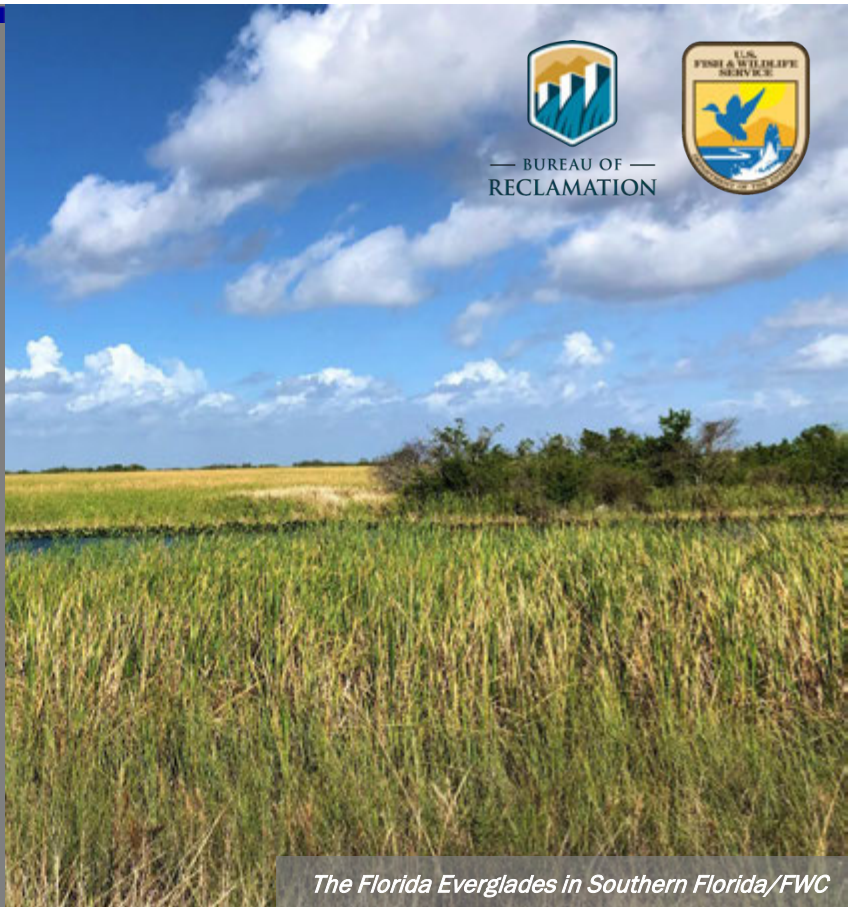


ACTIONABLE SCIENCE

Managing Non-Native Burmese Pythons in Southern Florida



Southern Florida encompasses a vast landscape that houses a network of wetlands, marshes, and swamps that support a diversity of wildlife. Starting in 1975, individuals participating in the live pet trade brought over 180,000 Burmese pythons (*Python molurus bivittatus*), a constricting snake native to southeast Asia, to Florida. Many pythons either escaped or were released into the wild, and by the 1980s, Burmese pythons were likely established in southern Florida (Wilson et al. 2011). Since their introduction, Burmese pythons have disrupted the ecosystem by contributing to drastic native mammal declines. In 2021, 15 federal, state, and local agencies, tribes, and one non-governmental organization completed the Florida Python Control Plan (FPCP) that addresses the need for a unified, interorganizational plan for the control of Burmese pythons.



The Florida Everglades in Southern Florida/FWC

KEY ISSUES ADDRESSED

Burmese pythons are generalist predators and cryptic, making them highly successful invasive snakes. They are known to consume native mammals, birds, and other reptiles. In addition, Burmese pythons compete with native species by reducing their prey base and carry a non-native lung parasite (*Raillietiella orientalis*). Education, paired with enforcing rules and regulations, is necessary to prevent further introductions. Eliminating Burmese pythons in southern Florida is challenging because these snakes are exceptionally cryptic, making them difficult to detect. The probability of a person detecting a python is less than 1%. Further research is needed to find more efficient means of detection.

PROJECT GOALS

- Implement and evaluate innovative tools and techniques to improve detection and removal of Burmese pythons in southern Florida
- Coordinate with partners to control Florida python populations
- Prevent the spread of Burmese pythons by increasing awareness about their impacts to the ecosystem



FLORIDA PYTHON CHALLENGE®

This Burmese python removal competition raises awareness of their negative impacts and engages the public in conservation efforts. In 2021, competitors removed 223 pythons during the Challenge!

LESSONS LEARNED

Detection dogs were limited to searching about five miles per day due to the heat. Interpretability of eDNA due to water flow and other factors can be problematic. Additionally, a human still has to pinpoint the location of a snake after confirmation with eDNA or a detection dog. More research is needed to determine if pheromones will be an effective way to lure pythons into traps. Citizen science data are useful, however, nearly all sightings occurred on canal levees or private roads, a very small percentage of the region. Approximately 15,000 pythons have been reported to the FWC and removed since 2000, with over 9,000 removed by contractors using visual survey methods. Ultimately, a combination of detection methods is necessary to successfully locate and control Burmese python populations. Collaboration is necessary to increase awareness and control Burmese pythons in southern Florida. Regular communication is crucial to keep all partners informed about Burmese python control.

NEXT STEPS

- Enhance detection and removal tools for Burmese pythons
- Conduct research to understand Burmese python biology
- Continue communicating and working across organizations throughout southern Florida
- Increase public engagement and education to enhance awareness about the impacts of non-native species
- Publish a peer-reviewed synthesis to aid management and research efforts

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PROJECT HIGHLIGHTS

Detection Techniques: Researchers successfully deployed detection dogs and eDNA sampling to detect pythons in southern Florida. In Everglades National Park, detection dogs had slightly higher detection rates compared to human search teams in the same area. Researchers are also using radio telemetry on “scout snakes” that lead them to other snakes during breeding aggregations where the snakes are subsequently captured and humanely killed. Researchers are also conducting research on the effectiveness of pheromones and other lures as attractants into traps that are developed to avoid non-target animals.

Team Effort: National South Florida Water Management District (SFWMD; Python Elimination Program), and Florida Fish and Wildlife Conservation Commission (FWC; Python Action Team Removing Invasive Constrictors) support a network of paid contractors who are trained to identify, search for, and safely capture and remove Burmese pythons throughout southern Florida’s public lands. Several other agencies have staff who conduct removal in the region.

Raising Awareness: The National Park Service implemented Don’t Let it Loose signage in the park to raise awareness about invasive species, and partner agencies continue to spread these messages. FWC started an Exotic Pet Amnesty Program that allows owners to relinquish their exotic pets, including those held illegally, without fees or penalties.

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