

Exotic Species List

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Exotic Species Background Information

Native trees, such as mangroves and cypress, are being replaced by exotic (introduced) species from other countries. Melaleuca, Australian pine, and Brazilian pepper are all serious problems in Everglades National Park. Florida largemouth bass share their nesting beds with tilapia and oscars, fish imported from Africa and South America. To date, there are 140 exotic plant species found in Everglades National Park in addition to the 342 exotic animal species.

The introduction of exotic animals and plants into South Florida began in the late 1800's and has escalated ever since. These newcomers were originally introduced as pets, food sources, ornamentals, or as biological controls. Because these species have few limiting factors in their new home, their numbers often become unmanageable. Exotic species often displace native flora and fauna by competing with them for space and food. Most exotics are extremely difficult to eradicate.

Many non-native animals have also been detrimental to the natural habitat of South Florida. In misguided acts of mercy, citizens have turned loose their no longer wanted pets in what they consider a "good home." Parakeets, parrots, and other unwelcome animals have been observed in Everglades National Park. Feral hogs have also increased in numbers. Their digging disrupts native vegetation and important archaeological sites.

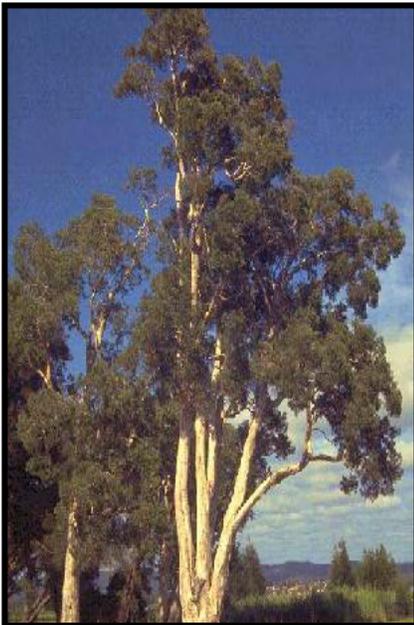
Blue and spotted tilapias, oscars, and Mayan cichlids, exotic fish which have invaded the Everglades, pose a threat to native fish populations through predation and competition for nesting sites. Eradication of these fish is close to impossible, and no effective control method has yet been found.

PLANT PESTS

Brazilian Pepper, *Schinus terebinthifolius*

(Also known as Florida Holly)

This plant is from the coast of Brazil and was introduced as a decorative plant. This plant grows quickly and can easily take over an area. The berries that grow on it are eaten by raccoons and birds, which then defecate the seeds. The seeds grow quickly in that new area and eventually take over. Brazilian pepper competes with native plants for light, soil nutrients, and moisture. Eventually the native trees die because they are unable to survive. Brazilian pepper also releases a chemical from its leaves, which stops the growth of native plants.



Melaleuca, *Melaleuca quinquenervia*

(Also known as “Paper-bark” or “Punk Tree”)

This plant was introduced from Australia as an ornamental plant and to help dry the Everglades in the early 1900’s. Melaleuca is an aggressive invader that can grow in almost any habitat, such as sawgrass marshes, wet prairies and sloughs. Melaleuca turns these habitats into dense forests that almost nothing can get through. In one year, one tree can reproduce enough to create a melaleuca forest that is 600 feet in diameter (across). A mature tree can produce more than one million seeds per year and store an estimated 20 million seeds. Both wind and water can disperse these seeds. This is a true terror in the Everglades. Melaleuca is very dangerous for the sawgrass prairies. The trees can quickly dry up an area because melaleuca trees use 4 to 5 times more water than sawgrass. There are now several million acres of melaleuca forests in the Everglades ecosystem and no easy way to get rid of them. Any disturbance (fire, drought, and herbicide) to the tree causes it to release its millions of seeds.

Australian Pine, *Casuarina equisetifolia*

(Also known as “Iron Wood”)

This plant was introduced from Australia in the 1800’s for ditch and canal stabilization, lumber, and shade. Since then the trees have spread rapidly because of their ability to flower all year and their seeds are dispersed by wind. The pine is fast growing (5-10 feet per year) and quickly produces a dense, shady area covered in a thick layer of pine needles. Because of this the ground below a stand of trees becomes sterile and no longer provides food for native wildlife. The stands of trees also displace native plants that grow on dunes and beaches, which include mangroves. When the trees blow over during storms, they also increase the erosion of dunes, which interferes with nesting of endangered sea turtles. By changing the light, temperature, and soil chemistry of an area, the Australian pine displaces native plants and destroys habitats for native animals.



LatherLeaf, *Colubrina asiatica*

This Asian plant was brought to Jamaica in the 1850's and from there spread to Florida, probably by hurricanes or high winds. Latherleaf grows quickly and produces a thick mat of tangled vines that can be several feet thick. The thick mass of vines then destroys any native plants on the ground by blocking the sun. This plant's habitat of preference is the coastal hardwood forests. This habitat is unique and has several rare species, many of which are listed as threatened or endangered. LatherLeaf destroys ideal habitat for native wildlife and interferes with the water and nutrient cycles.



Seaside Mahoe, *Thespesia populnea*

This plant was introduced as a salt and drought tolerant tree for decoration in yards and gardens. Seaside mahoe grows on shorelines and forms dense stands that nothing is able to get through. It crowds and shades out native vegetation, keeping it from growing. The fruit are able to float which enables this plant to spread to islands off shore.



Old World Climbing Fern, *Lygodium microphyllum*

This fern was introduced to Florida in the 1960's as an ornamental plant. Since then the plant has spread and now affects about 39,000 acres in Florida (as of 1997). This is a climbing fern that forms dense thickets that can grow to cover trees, eventually smothering them, and eventually entire forests! They also form mats on forest floors that can be up to 4 feet deep. These thick mats can prevent any new plants from growing in a forest. The roots also alter the flow of water in streams and wetlands. Because the ferns climb so high, they also create a fire danger. The ferns burn easily and can take a small, low fire high into the canopy of a forest, completely killing all the trees. This plant can also cause a fire to burn into flooded cypress swamps where normally a fire wouldn't burn. This is an aggressive species that will likely spread further.

ANIMAL PESTS

Monk Parakeet, *Myiopsitta monachus*

(Also known as “Quaker Parakeet”)

Florida has the largest population of monk parakeets in the United States. Introduced from South America, Florida now has an estimated population of 50,000 to 150,000 birds over a range of 52 counties. These birds are mainly found in urban areas. The monk parakeet rarely affects native birds since they tend to stay in urban areas, but they have been seen killing robins and blue jays. The monk parakeet could impact native birds since native birds need every advantage they can get in urban areas. If native birds are already stressed in an urban area, the addition of the monk parakeet could cause more problems. Population biology predicts that monk populations will increase in size and their range will spread beyond the urban areas. If this happens, the monk parakeet could cause damage to agricultural fields like they have in Argentina. Monk parakeets also damage transmission lines by causing them to short circuit.



Myna Birds, *Acridotheres spp.*

(Also known as “Indian myna” or “House myna”)

Florida has at least 3 different species of myna birds: Crested myna, Common myna, and the Jungle Myna. The myna birds are originally from southeastern Asia. They have been introduced into almost every tropical or subtropical area of the world. In Florida, the populations tend to stay in human developed areas, like shopping mall parking lots. The myna birds may nest in cavities or as large groups in trees, taking away nesting sites from native birds. They also attack purple martins and take over the purple martin houses that Floridians build. The myna bird population can grow quickly and since they are omnivores (eating both plants and animals) they can also become a serious pest of agricultural fields. They can end up eating not only the fruits in orchards, but also the insects, which pollinate the plants. The myna birds have also been known to carry bird malaria, which can spread to people.

European Starling, *Sturnus vulgaris*

(Also known as the “Common starling” or “English starling”)

A man who wanted all the birds mentioned in William Shakespeare’s works to be found in the United States introduced the starling in New York City in 1890. All 200 million starlings now found in this country are from the first 80-100 birds released. The starling was not seen in Florida before 1950, but is now found statewide. They potentially hurt native bird populations by displacing a number of native cavity-nesters. Starlings travel in large flocks that can total well over 1000, and can damage the trees they roost on. The flocks are also so noisy that most people find them disturbing. The large amount of droppings that these flocks leave behind can damage vehicles and structures where the birds are present. Large numbers of starlings in agricultural areas will also cause significant damage to livestock feed, stored grain and fruit crops. They can also spread diseases to livestock, causing another problem and loss of money for agriculture. The starlings can also cause health-related problems in humans through the transmission of parasites and pests.





Burmese Python, *Python molurus bivittatus*

This snake is originally found in Southeast Asia. It is a popular snake to have as a pet, but some people release the snake into the wild when it outgrows its welcome. The Burmese python has been reported in South Florida since the 1980's. Breeding in the wild in South Florida has been suspected since the mid-1990s. This snake will prey on reptiles, amphibians and fish, but primarily eats mammals and birds. Since it is so large (up to 24'), it can threaten a large variety of animals, including endangered species. Biologists have been examining captured

pythons to see what they have been eating in the wild. From the stomach contents, scientists have found the remains of white ibis, marsh rabbits, squirrels, cotton rats, raccoons, pie-billed grebes and limpkins. By eating these native animals, pythons are competing with native predators like the bobcat. Alligators have been observed eating pythons and may help control this snake.

Green Iguana, *Iguana iguana*

This lizard is a native of Central and South America. It is a very popular pet but it often escapes or is released by people who cannot care for it anymore. The iguana rarely survives in the wild except in extreme southern Florida. This reptile can now be found on Key Biscayne and in urban areas. It isn't known what problems the iguana can cause on native species. Adult iguanas are herbivores, so they do not compete for food with our native lizards. Due to their voracious appetite, they can be a significant pest around gardens and landscape plantings.



Cuban Brown Anole, *Anolis sagrei*

The brown anole is native to Cuba and the Bahamas. It was first seen in the Florida Keys in 1887 and arrived in South Florida during the 1940's. Ships carrying merchandise from Cuba probably transported this species here. This anole is the most abundant in South Florida and populations can be found in every county in Florida. The brown anole is responsible for decreasing the native green anole populations. The brown anole takes over ideal habitat for the green anole and male brown anoles prey upon the smaller green anoles.

Indo-Pacific Gecko, *Hemidactylus garnotii*

This gecko is native to southeastern Asia and many South Sea Islands. It can now be found in many urban areas of South Florida and also in natural habitats such as mangrove forests, sand pine scrub and pine rocklands. Out of the 7 introduced gecko species, this one has the widest range in Florida. The gecko is expanding its range rapidly. One of the reasons it could be expanding so quickly is through shipments of palm trees. Although this gecko has a large range and is established through most of south Florida, no one knows what impacts it may have on native species.





Blue Tilapia, *Oreochromis aureus*

This species was introduced into Florida through fish farm releases and by the state for weed control. Originally from Africa, they are now widely spread through Florida and have large local populations. They have a high tolerance to cold, which gives them the ability to survive in much of the Florida peninsula. Blue tilapia are one of the most common exotic fish in South Florida waters. Tilapia are responsible for the lower numbers in shad populations in Central Florida and they compete with other fishes for breeding areas and food. Their aggressive behavior also changes the native community structure where tilapia occur in large numbers. Tilapia feed on algae and detritus. The species has been successful because the males

mate with many females. The female protects eggs and young by carrying them in the mouth, known as *mouth brooding*.

Pike Killifish, *Belonesox belizanus*

Pike killifish are originally from Central America and were introduced into a Miami canal in 1957 after a research project ended. They are now found throughout South Florida in shallow fresh waters and in mangrove swamps. They can tolerate water that is low in oxygen, which gives them an advantage over many of the native fish species. The populations of pike killifish continue to spread. They prey on native fishes, particularly mosquitofish. Pike killifish are locally common in mangroves and marsh communities. They are actually viviparous fish that give birth to live young.



Oscar, *Astronotus ocellatus*

This species, originally from South America, was purposely introduced in the 1950's by a fish farm. Since then, they have spread throughout South Florida. The oscar has become one of the most popular sport fishes in southern Florida. Large populations of oscar can commonly be found in canal habitats and in the Water Conservation Areas. The extent of impact that the oscar has on native fishes isn't known. However, the oscar is known to prey on native fishes and invertebrates. It is aggressive and may affect native fish nesting by using the same habitats for breeding.

Walking Catfish, *Clarias batrachus*

This species comes from Southeast Asia and was introduced by an accidental release from a fish farm into South Florida waters. The range of the catfish has grown throughout Florida because of its ability to ‘walk’ on land using its fins to move. It is a predator that feeds opportunistically on aquatic and terrestrial prey. During the dry season, when fish are congregated into small pools, the catfish can quickly consume other fishes to become the major surviving species. They are also able to breathe atmospheric oxygen, making



them better equipped to survive the dry season than many native fish. Walking catfish have also been known to kill largemouth bass without eating them. The walking catfish has spread throughout the southern 2/3 of the Florida peninsula. It typically nests in cavities at the beginning of the wet season.



Mayan Cichlid, *Cichlasoma urophthalmus*

It isn't known how this fish from Central America was introduced into Florida, but it has now spread throughout South Florida and is one of the most common non-native fish. It has expanded its range because of its varied diet and tolerance to low oxygen levels and variations in salinity. The Mayan cichlid has been shown to alter community structure because of its aggressiveness and predation. It competes with native fishes for breeding grounds. While the Mayan Cichlid preys upon the juveniles of native sport fish such as tarpon and snook, they are, in turn, eaten by these popular species.



Asian Swamp Eel, *Monopterus albus*

The swamp eel originated from Asia and was possibly introduced into South Florida by food-fish trade. In Asia, this species is a source of food and is commonly sold in markets. It is not known what impact this species will have in South Florida, but it has the potential to act as a predator of native aquatic species. This eel can also adapt to many aquatic environments and can potentially survive under conditions inhospitable to many native fish. The eels breathe atmospheric oxygen which enables them to move across land during rains, and exhibit sex change as they grow. There have been at least three separate introductions in South Florida.



Bromeliad Weevil, *Metamasius callizona*

(Also known as “Mexican weevil” or “evil weevil”)

This insect was introduced from Mexico on shipments of bromeliads. The weevil quickly spread and as of 2000 it was present in 17 counties in South Florida. The larva of this species drills into the leaves of bromeliads, eventually killing them. Two more species of bromeliads have been listed as endangered because of the weevil. The weevil is also present in the Everglades, where a large population of rare bromeliads exists. This insect also attacks plants in private nurseries and collections, causing a loss of money for the owners. The weevil is able to spread quickly through south Florida due to a lack of any natural predators.

Fire Ant, *Solenopsis invicta*

Fire ants are believed to have been introduced to the United States sometime between 1933 and 1945. They were more than likely brought in on plants or other imports. Fire ants first appeared in Texas and quickly spread throughout the South. Fire ants are capable of spreading much more rapidly than native ants because they have adaptations that enable them to survive during both droughts and floods. They are also much more aggressive than native ants and have a painful sting. When their nest is disturbed, they swarm and as a group, injecting their venom at the exact same time! Even though the bites aren't bad enough to kill most people, they can kill small animals such as mice or birds. They sometimes even kill newborn calves if the calves don't stand up fast enough. They are so aggressive that they can easily clear out all the invertebrates (animals without backbones...like insects), lizards and ground-dwelling birds. Besides their aggressiveness, the ants are also damaging to crops. Their mound (nest) building can damage the roots of crops, causing money loss for farmers. They can also kill bees, which pollinate our citrus trees. The ants are also attracted to electrical fields and crawl into air conditioners and wiring of traffic lights, causing them to short out. These ants have become a major problem and current research is leading the way for the introduction of its natural enemies.



Cuban Treefrog, *Osteopilus septentrionalis*

This frog is a large species of tree frog from the West Indies. It was probably brought to Florida in the 1950's through shipments of plants. They are normally found in human-altered habitats, like gardens or nurseries, but can also be found in some natural wooded areas. The Cuban treefrog is a carnivore and feeds on invertebrates (such as insects) but it also feeds on the smaller native treefrogs like the green and squirrel treefrogs. It can also interfere with the breeding of the native frogs and the growth of the tadpoles. They are capable of reducing the populations of native frogs through predation (feeding) and competition. Their skin also releases secretions that make them inedible for many birds and snakes, so they are lacking predators.

Nine-banded Armadillo, *Dasypus novemcinctus*

The armadillo expanded its range from the southwest to include northern Florida, but several were also introduced to the East Coast of Florida in the 1920's. Today, the armadillo ranges throughout the state. It isn't known what impact this species will have in Florida, but it may harm populations of native reptiles and amphibians since armadillos feed on their young. This could cause problems for native species that are already stressed from other exotic species. Armadillos can also be a nuisance because they tend to dig up lawns looking for food. They carry dangerous diseases like encephalitis and leprosy. Because they are such skilled diggers, armadillos are even capable of damaging archeological sites.



Gambian Pouch Rat, *Cricetomys gambianus*

Not much is known about the status of this large African rodent in Florida. The Gambian Pouch Rat was first found on Grassy Key in 2002. It is believed that the current population is the progeny of only a half dozen released in the area between 2000 and 2002. Since its discovery, importation of this mammal has been banned. The Gambian pouch rat can weight up to 9 pounds and be the size of a raccoon. This rodent is an omnivore and, if it escapes or expands its range past Grassy Key, could compete with native birds and mammals, including the endangered Key Largo wood rat. These rodents are so large that they don't have any natural predators in the

Keys. They will be able to quickly reproduce and spread through an area. The rats are able to have up to 5 litters every 9 months with 4 babies in each litter. That's 20 babies per female every 9 months! The pouch rat can also eat the fruits of many plants and prevent the seeds from spreading. They are also believed to be responsible for a monkey pox outbreak.

Feral Pig, *Sus scrofa*

(Also know as "wild hogs" or "wild pig")

Feral pigs were introduced in Florida starting with the early colonists, and have now spread across all counties in Florida. They have since become a game animal for hunters as well as a food source for panthers, black bear, and alligator. But they cause serious problems for native plants by rooting around and destroying roots. This behavior can also damage valuable and irreplaceable archeological sites. Feral pigs also feed on sea turtles, gopher tortoises, and shorebirds. They carry Trichinosis and have transmitted this disease to some panthers. They can also transmit diseases to livestock, causing a loss of money for farmers.





Feral Cats and Dogs, *Canis familiaris* and *Felis catus*

Feral cats and dogs are pets that were released or abandoned and are now living in the wild. Both appeared in Florida during colonial times or earlier. Many of these animals are now living in packs and breeding. The feral dogs have become predators of many native animals in Florida, including deer and rabbits. They are also carriers of rabies and can cause problems for livestock. Dogs have been known to attack sheep and calves in other parts of the country. Feral cats prey on native birds, small mammals, amphibians, and reptiles. Cats are very efficient predators and may be the cause of the decline in beach mouse populations in Florida. They have also spread feline panleucopenia virus into the native panther and bobcat populations and can transmit rabies.

Meet Python Pete

Meet Python Pete, a little beagle puppy with a big job; helping remove exotic Burmese pythons from Everglades National Park. Lori Oberhofer, an Everglades wildlife technician, purchased Pete when he was 8 weeks old. Since then he's been going through a tough training regimen.



Twice a week, Pete is trained to track pythons. His trainer, Oberhofer, puts a live python in a mesh bag and drags it through some grass, creating a scented path for Pete to follow. At the end of the trail, she leaves the snake in the bag and Pete's favorite toy. Oberhofer then puts Pete into a special harness and tells him to, "Find it!" Pete then charges ahead to find the snake and his favorite toy that's hidden in the grass. So far Pete has been successful on every trial. "He does very well on each trial and always brings me to the snake," Oberhofer said. "He continues to show improvement every time we take him out to train. It hasn't taken him long to figure out that smelling a python means playtime."



Don't worry though, every time Pete goes out hunting pythons, he will be wearing his safety harness. This will keep him safe from hungry alligators and pythons.

Lori Oberhofer got the idea of using a beagle to sniff out pythons from a program in Guam. While she was there researching brown tree snakes, she learned that U.S. Department of Agriculture officials use Jack Russell terriers to detect tree snakes in airport cargo.

Since pythons are a big problem in the Everglades, Oberhofer decided to train her puppy to help track them down. These giant pythons are breeding in the Everglades and threatening the native wildlife in the park. They may be preying on endangered species and taking over habitat of the threatened indigo snake. Visitors have even witnessed pythons battling with alligators.

From the mid-1990's through 2003, park officials removed 52 pythons from the park. In 2004, 61 pythons were removed. So it's obvious that the problem is getting worse. But there is hope in the form of a little pooch named Python Pete!