Iguana Technical Assistance Workshop





Photo credits: FWC

Goal: Remove Or Deter Iguanas On Your Property

The FWC s technical assistance workshop aims to empower homeowners to remove nuisance iguanas from their own private property.

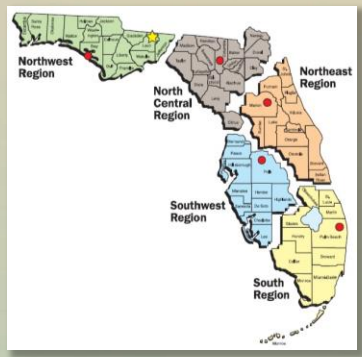


Photo credit FWC

Florida ecosystems are beautiful, sometimes ecologically sensitive and important part of conservation. We aim to empower homeowners to remove or deter nuisance iguanas from their private property.

We hope that residents will feel informed and empowered to manage iguanas on their own property. There are a variety of options and techniques residents can use to help reduce or eliminate nuisance iguana issues. We realize that we have a diverse crowd with diverse concerns and interests, so we want to offer a wide range of possible solutions. We are here to teach interested residents about some strategies they can use, answer any questions, and establish a relationship with residents in the community.

Florida Fish and Wildlife Conservation Commission

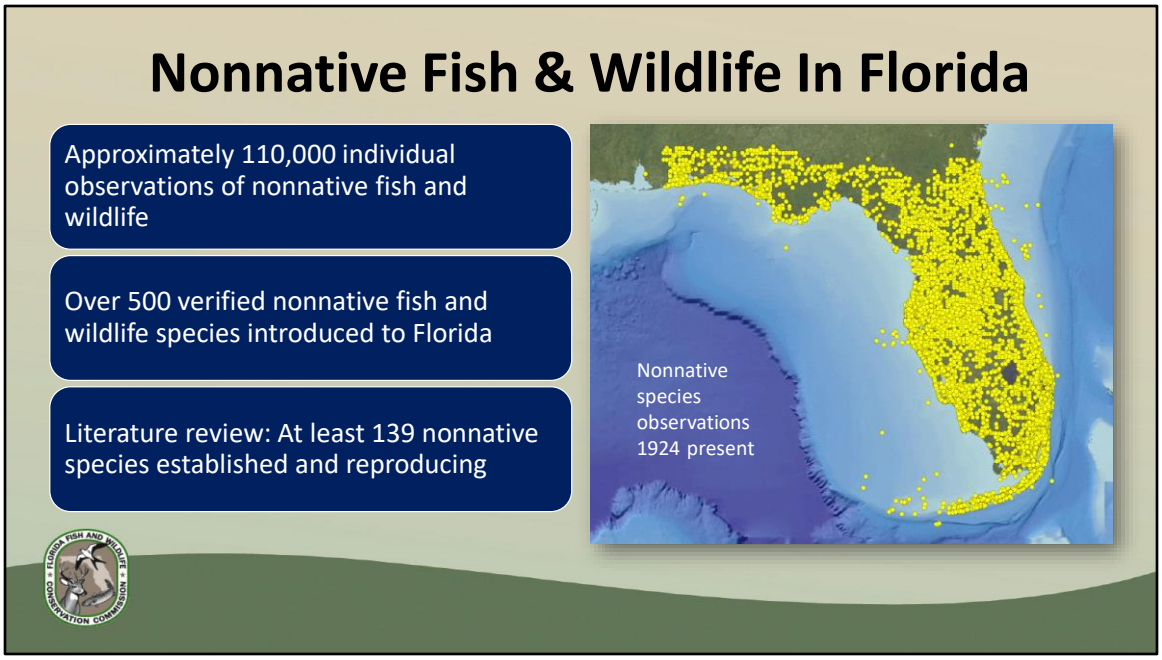


The FWC protects and manages:

- 575 species of wildlife
- 700 species of marine and freshwater fish

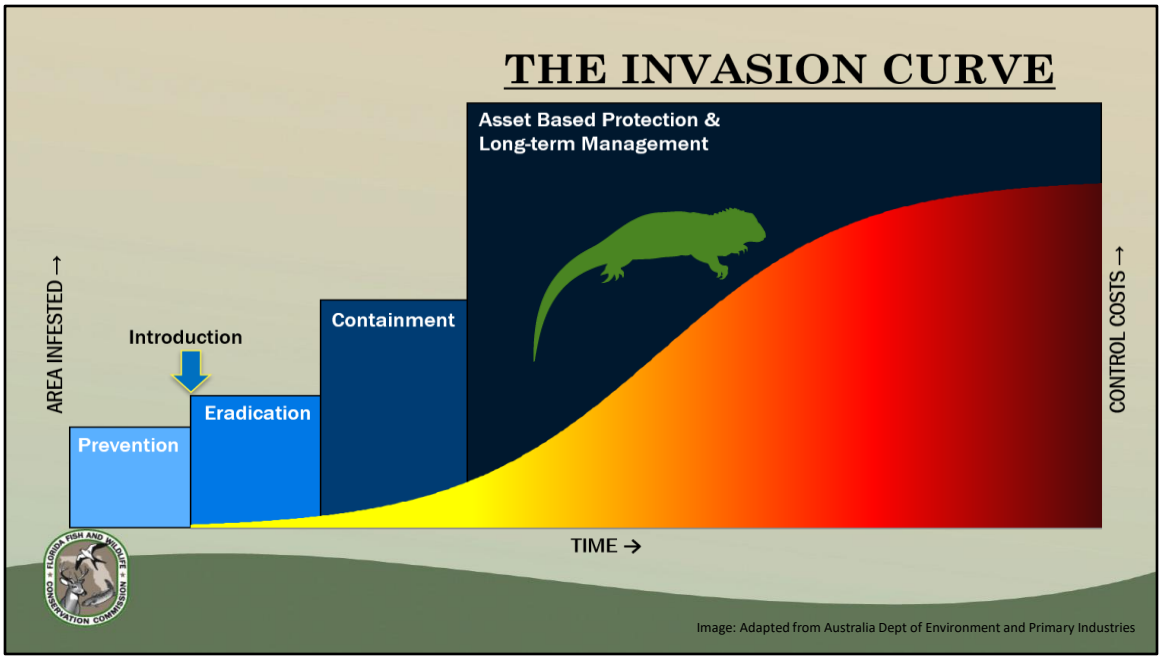
Mission: To balance the needs of natural resources with millions of residents and visitors for long term well being and benefit

The Florida Fish and Wildlife Conservation Commission (FWC) protects and manages more than 575 species of wildlife and 700 species of marine or freshwater fish balancing the needs of natural resources with the needs of millions of residents and visitors. Other public responsibilities include law enforcement, research, and outreach. Our mission is to manage fish and wildlife resources for their long-term well-being and the benefit of people.



Although invasive species are not a problem unique to Florida, our subtropical climate has been conducive to the expansion of many nonnative species including pythons, large lizards such as monitors and iguanas, many freshwater fish species and marine species such as the lionfish. The citizens of Florida, particularly south Florida, frequently encounter these nonnative species.

As you can see on the map, over 110,000 observations of nonnative wildlife have been recorded in our state since 1924, representing over 500 different species. Despite it being illegal to release any animal nonnative to Florida, it is believed that most of these observations represent single individuals that may have been released or escaped from captivity. Of the 500 species, we know from literature review that 139 have reproducing populations. Not all observed nonnative species result in established reproducing populations. Of those species that do become established, few of these are considered invasive.



The Wildlife Impact Management section within the FWC is charged with determining which of these nonnative fish and wildlife species may become established and cause a problem. The term “invasive” applies to wildlife that pose a threat to the environment, the economy, or human health and safety. This slide illustrates what has been referred to as the invasion curve. As more area becomes occupied with an invasive species, the less likely the species will be eradicated and costs of management increase.

Preventing the release and establishment of nonnative wildlife is key; however, some species, like the green iguana, are well established in Florida and require asset-based protection and long-term management strategies.

Iguana Species Found in Florida



Green Iguana



Black spiny-tailed iguana



Mexican spiny-tailed iguana

Three members of the iguana family are now established in mainland South Florida: the green iguana (*Iguana iguana),* the black spiny-tailed iguana (*Ctenosaura similis)* and the Mexican spiny-tailed iguana (*Ctenosaura pectinata).*

Black Spiny-Tailed Iguanas

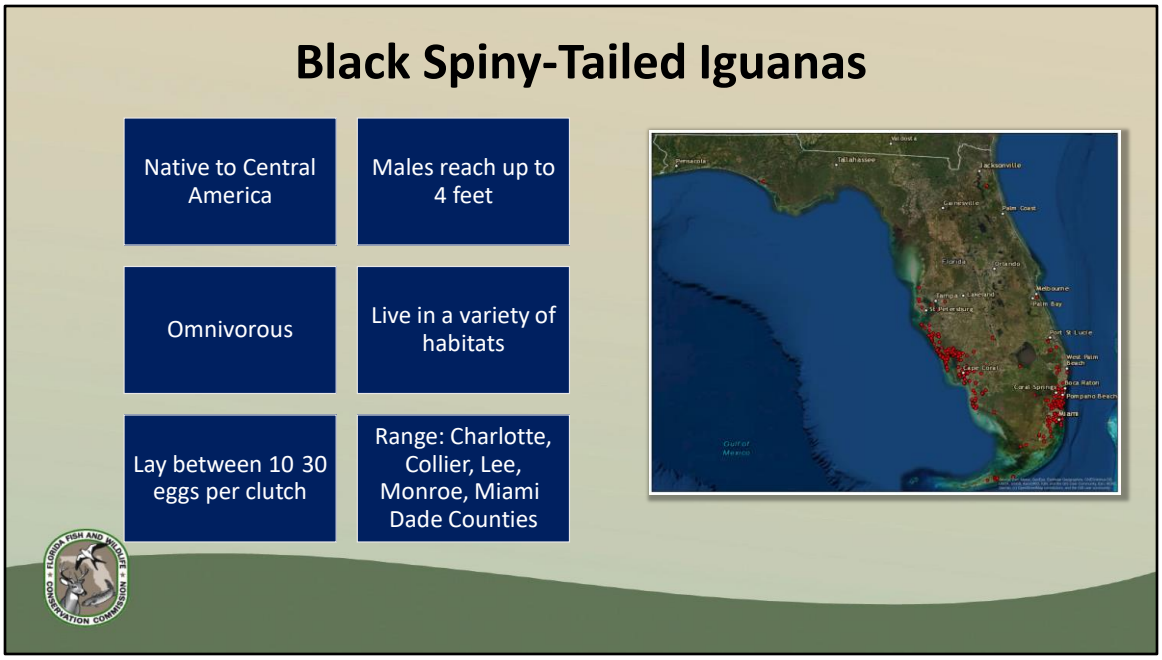
(*Ctenosaura similis*)



Photo credit FWC



Photo credit Jeff Page



Black spiny-tailed iguanas are large lizards, native to Central America. Adult males may reach nearly 4 feet in length.

They are omnivorous, consuming both plants and animals, and eat a wide variety of prey. In their native range they consume rodents, bats, frogs, small birds, and insects. In Florida, black spiny-tailed iguanas have been documented eating gopher tortoise hatchlings, a threatened species.

Black spiny-tailed iguanas live in a variety of habitat types including coastal upland, disturbed areas, low density suburban areas, and agricultural areas. These primarily terrestrial lizards are extremely wary of people and will dash to their burrows to seek refuge, although they will climb if they cannot reach their burrows. They lay 10-30 eggs per nest and upon hatching, the young iguanas will consume insect prey.

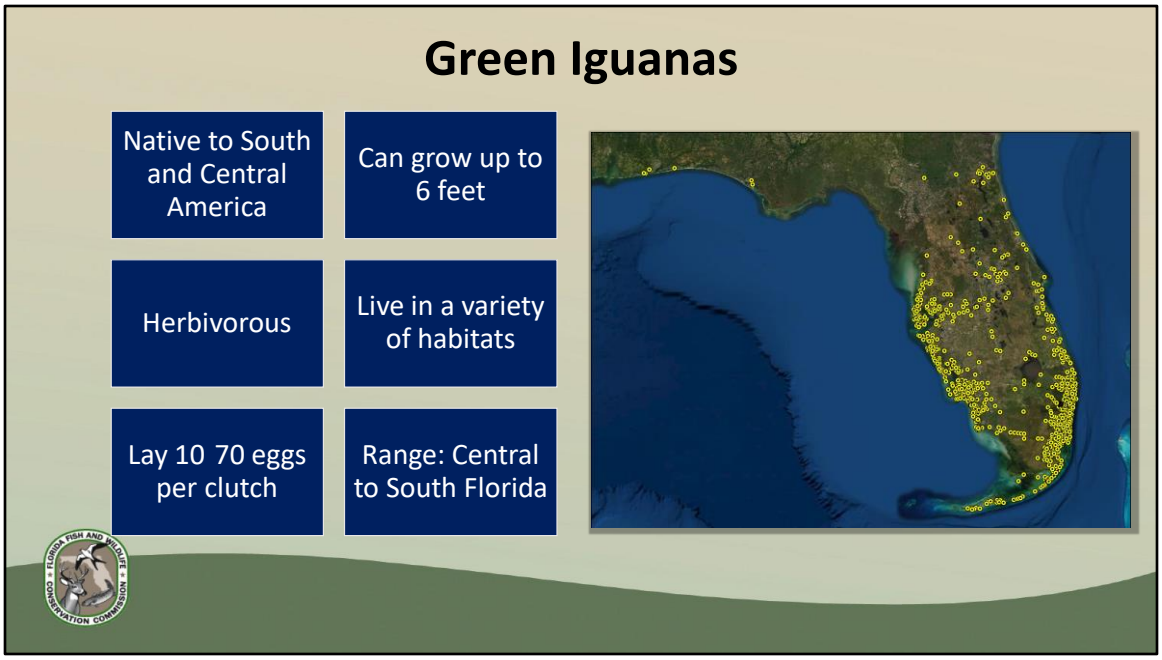
Green Iguanas

(*Iguana iguana*)





Photo credit FWC



The iguana species frequently seen is the green iguana. Green iguanas are large lizards native to Central and South America. Males may reach over 6 feet in length and can weigh up to 17 pounds. In captivity they can live over 15 years. They are primarily herbivorous , feeding on leaves, flowers and fruits of various broad-leaved herbs, shrubs and trees. Green iguanas may also eat small animal prey, like insects and snails, opportunistically.

Iguanas may become abundant in areas of suitable cover and where food is readily available. In Florida, green iguanas have populated urban canals and surrounding areas, especially where trees form dense canopies near water. They occupy disturbed and developed habitats in south Florida, and rockland hammocks in the Keys. Green iguanas are a tree-dwelling species, but when startled, they can drop from limbs of trees and retreat by swimming or running away from the perceived threat.

Green iguanas can have high reproductive output depending on the size and health of the female. Iguanas are capable of reproducing at approximately 2 years of age. Females can lay an average of 35 eggs per clutch; however, some female iguanas lay up to 70 eggs. Hatchlings are bright green, but adults tend to be grayish green to black in color and males may develop orange coloration during the peak of breeding.



There are several attributes that have made green iguanas successful invaders including their high reproductive output, their ability to occupy diverse habitats in Florida's subtropical climate, a lack of predators and minimal competition for resources.

South Florida's subtropical climate makes an ideal environment for iguanas to establish. Potential range expansion for this species is temperature-limited; however, as green iguanas are not cold hardy. The 2010 winter reduced green iguana abundance in some areas, but the population appears to have recovered. Iguanas have very few competitors or predators in Florida. Nest predators like raccoons and the occasional wading bird may prey upon eggs or a hatchling iguana. Few known large predators capable of taking an adult iguana exist in urban or suburban areas, which may allow iguana populations to thrive.



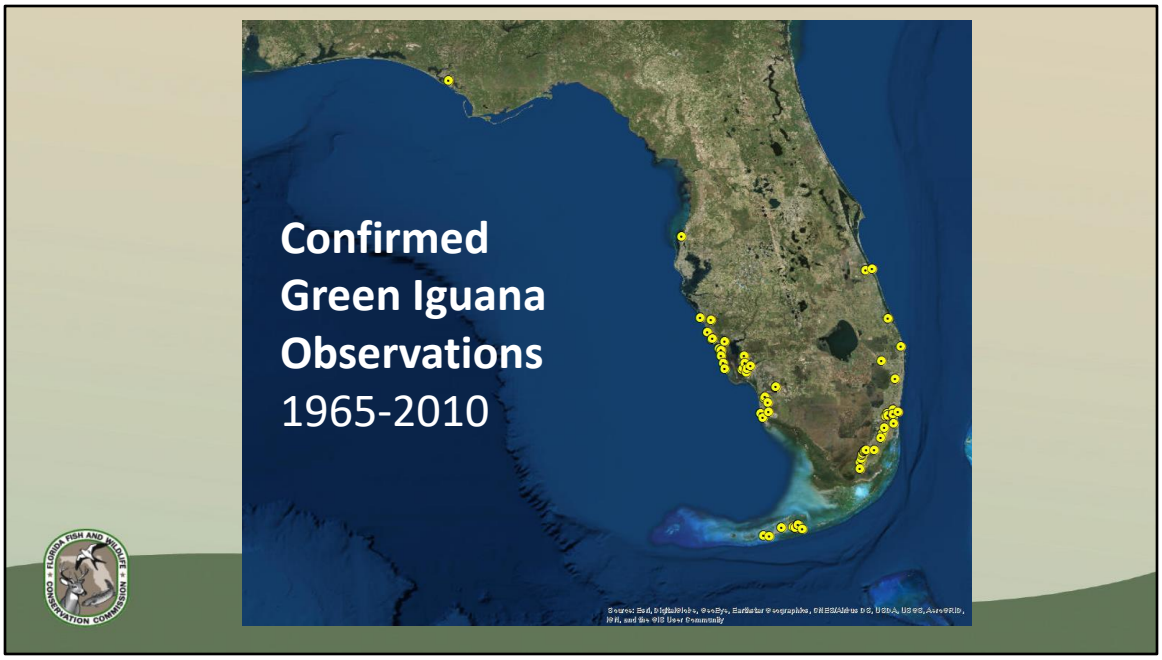
These next few slides show where green iguanas have been observed and reported to FWC. Early observations of this species in Florida were in Miami-Dade County in the mid 1960s. Since their introduction to the state, population numbers have increased, and range has expanded.



By 2003 iguanas had been sighted in several more areas of the state including the Florida Keys.



By 2007 iguanas were beginning to be reported in central Florida.



By 2010 there were reports of iguanas in the northern part of the state in the panhandle. Chances are these reports are not part of the established population but rather individuals that were either released or escaped from captivity.



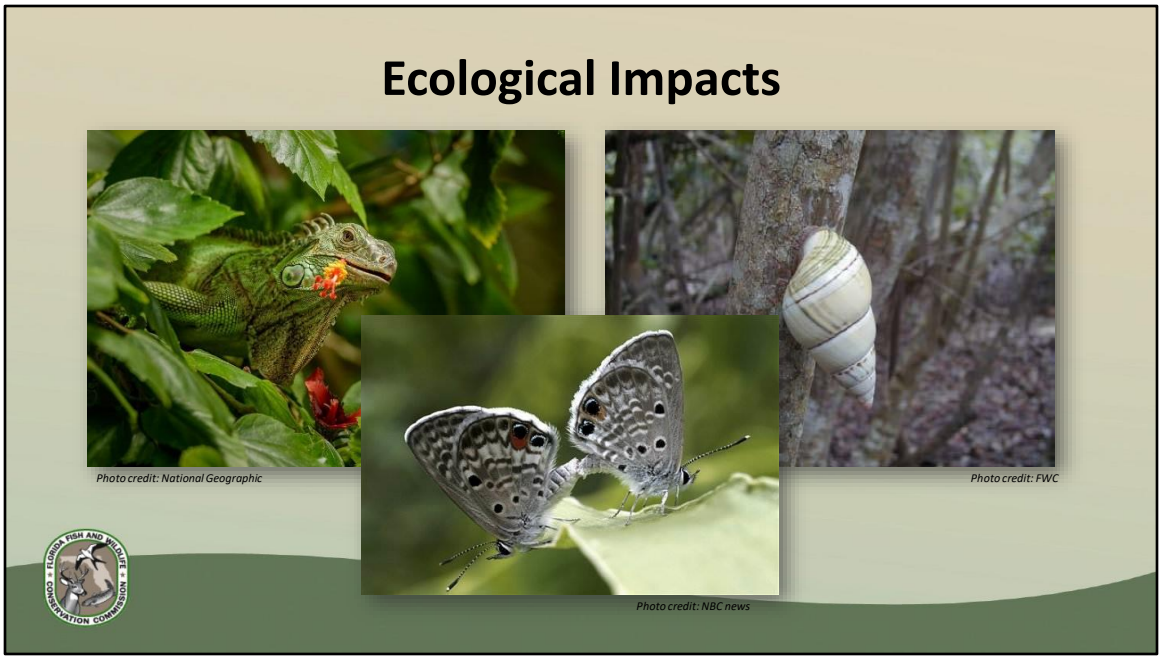
Over the years, the number of green iguana reports has increased which may be due to several factors: increasing iguana population size, heightened awareness and the availability of public reporting systems, increasing human population size, or a combination of these factors.



Iguanas are not cold hardy. Due to cold temperature being a limiting factor the iguanas spotted in the northern part of the state are most likely not part of the established population, but rather individuals that were either released or escaped from captivity.



Today, we have had over 10,000 reports of green iguana observations and captures across the state, including Monroe, Miami-Dade, Broward, Palm Beach, Collier, and Lee Counties. These data points do not represent iguana abundance or distribution, but rather reports verified received from the public.



As previously mentioned, an invasive species can impart harm to the environment, the economy or human health and safety.

Due to their herbivorous nature, green iguanas are not typically considered a serious risk to Florida's natural resources across their introduced range; however, they may impact some sensitive ecological systems. Iguanas may consume threatened or endangered plant species and can function as a seed disperser, potentially spreading native or nonnative plants. Green iguanas have also been documented consuming the nicker bean plant, a larval host plant of the endangered Miami blue butterfly (*Hemiargus thomasi bethunebakeri*) in Bahia Honda State Park, though this relationship is not fully understood. Iguanas will occasionally consume small animal prey items as well. Lined tree snails (*Drymaeus multilineatus*) have been found in stomach contents of green iguanas collected from the wild in Florida.

Green iguanas may also use burrows of other wildlife, including state-listed burrowing owls and gopher tortoises, potentially competing with these native species for resources.

Additional Impacts: Economy, Human Health and Safety



Photo credit FWC



Photo credit: anapsid.org



Photo credit: flmnh.ufl.edu



Photo credit FWC

Concerns we hear from our many of our constituents relate to green iguana impact on personal property, such as digging or burrowing into seawalls, destruction of ornamental plants and defecation on walkways, docks, and in pools. Iguanas have caused severe damage to important infrastructure like water control structures and roadways.

Because of these impacts combined with potential impacts to our sensitive natural resources, the FWC launched public technical assistance workshops regarding iguanas and proposed new rule changes for this species and other invasive reptiles.

Regulatory Status: Prohibited



Photo credit FWC

- February 2021 rule change
- Effective April 29, 2021
- Requires current owners to apply for a permit, PIT tag animal(s) and update biosecurity measures
- No new personal possession
- No importation and breeding for commercial use
- Some sellers may qualify for a limited exception permit

In February 2021, the FWC Commissioners voted to approve new rule changes for multiple invasive reptile species, including green iguanas. Once the new rules take effect, green iguanas will be classified as a Prohibited species. Current owners will be required to apply for a permit and allowed to keep their green iguanas but cannot acquire any new ones. Prohibited species cannot be imported and bred for commercial use, however qualified commercial sellers of green iguanas may apply for a limited exception permit. Additional permits are available and required for eradication and control, or public exhibition and research.

Invasive Reptile Removal Options

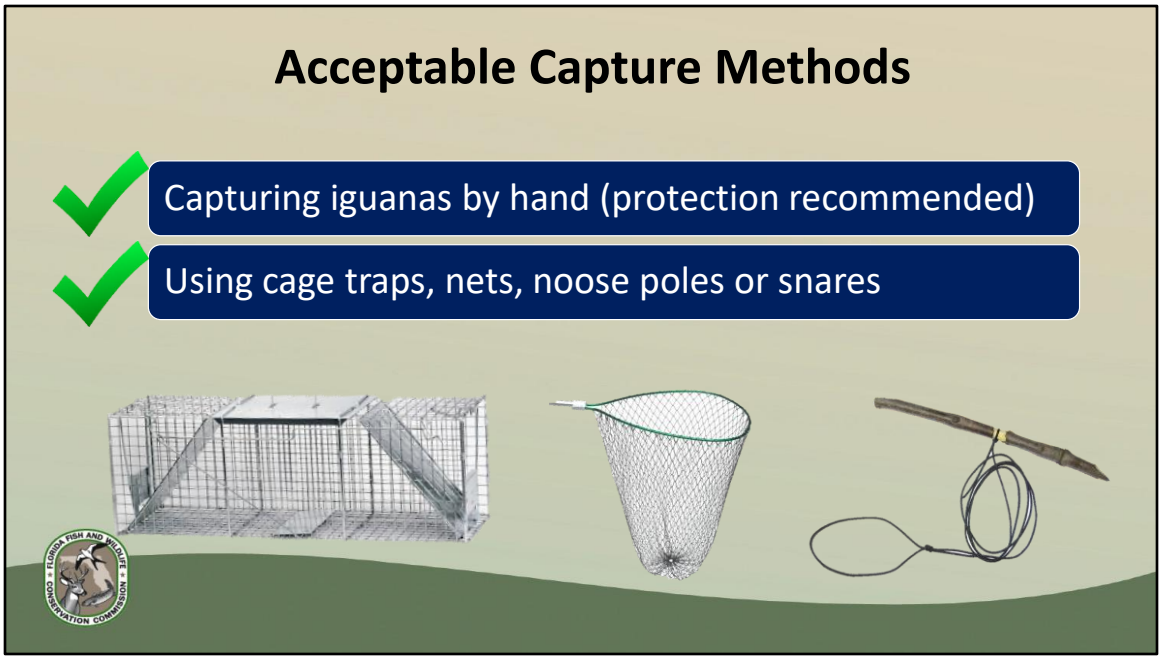


- Not protected, except by anticruelty law
- Removal allowed on private property with landowner permission
- Removal allowed on 25 managed lands year round without a permit or hunting license per Executive Order 20 17
- Animals must be humanely killed on site
- Trappers may qualify for a permit to transport off site for discrete disposition

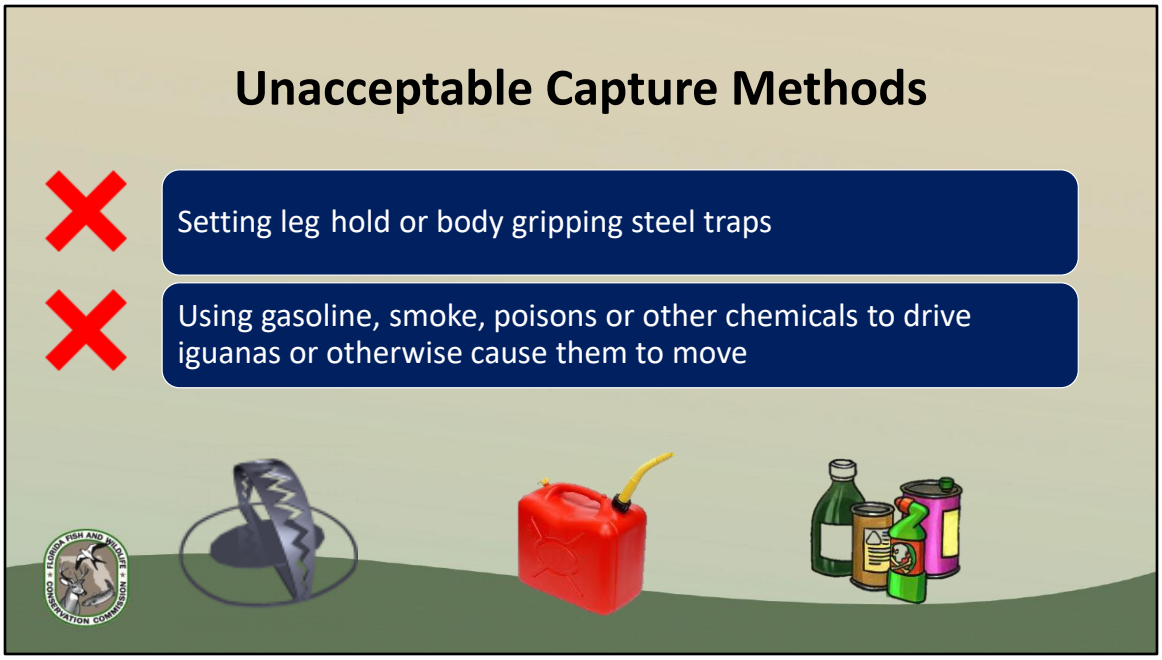
Iguanas in the wild can be removed from private property year-round and with landowner permission – no permit required. The FWC encourages people to remove nonnative species such as iguanas from private lands whenever possible using legal and humane methods.

Additionally, a new Executive Order (EO 20-17) allows for the removal of iguanas from 25 public lands in south Florida. Iguanas can be removed and humanely euthanized from these properties year-round and without a permit.

Iguanas cannot be removed alive, they must be humanely killed onsite, unless you are a trapper with a permit for eradication and control., which allows for off-site transport for discrete disposition.



Homeowners that desire to capture and remove iguanas from their property can catch them by hand or use nets, noose poles or snares. The FWC recommends using cage-style live traps, which are easy to use and humanely capture the iguanas.



Homeowners should be aware that some removal methods are prohibited by state rule, including using leg-hold traps or using steel (body-gripping) traps. It is also prohibited by state rule to drive any wildlife from burrows, nests or other retreats using gasoline, smoke, poisons or other gases and chemicals.

Live Capture Traps

- Choose large, raccoon-sized box traps for use with iguanas
- Choose ripe, brightly colored non-citrus fruits as bait

✓ Strawberries, bananas, watermelon, grapes, mangos

✗ Lemons, Limes, Oranges, Grapefruit



Photo credit David Jacob, FWC

When selecting a live capture trap, it is recommended to use a large box trap that is a similar size for capturing raccoons. When baiting the trap choose ripe, brightly colored fruit such as strawberries, bananas, watermelon, grapes and mangos. Avoid using citrus fruit such as oranges, lemons, limes and grapefruit as iguanas tend not to like this type of fruit as much.

Setting Live Capture Traps

- Set traps during the day to avoid bycatch
- Set traps in shade
- Cover with breathable material
- Check traps at least once every 24 hours (required by law)



Photo credit FWC

Set traps during the day to avoid capturing unintended animals such as raccoons, opossums and cats. Set traps in shade and cover with breathable material such as large leaves or palm fronds. It is required by law that traps are checked every 24 hours.

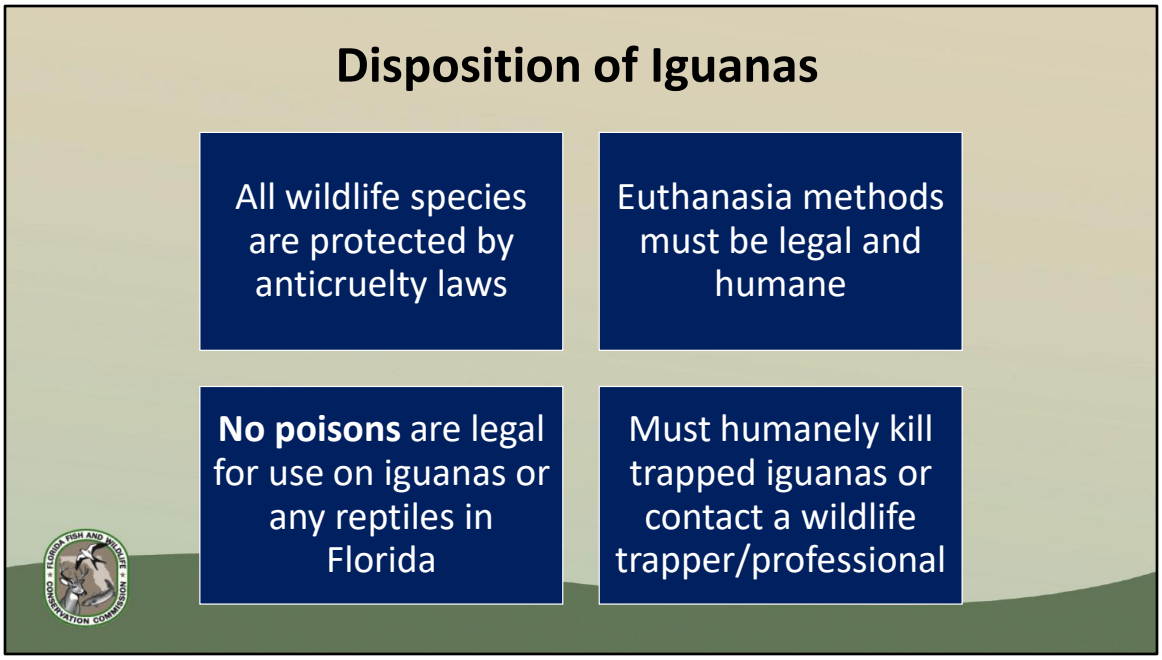
Disposition Options



Photo credit W. H. Kern, Jr., Univ. of FL, Ft. Lauderdale

- It is illegal to relocate or introduce nonnative species in Florida
- All captured iguanas **must** be humanely euthanized on site.
- Trappers may qualify for a permit to transport off site for discrete disposition

When a homeowner captures a nuisance iguana, they must then determine what to do with the animal. Since state rule prohibits the introduction of nonnative species, they cannot be relocated and released in another area. Captured iguanas must be humanely euthanized. Some trappers may qualify for an eradication/control permit that will authorize live transport so they can kill captured iguanas off site discretely. Wild iguanas generally are not tame and usually do not make good pets.



Iguanas and all other wildlife are protected by anticruelty laws, so euthanasia must be legal and humane. Inhumane treatment is prohibited and punishable by state law. Inhumane treatment includes the use of poisons to kill iguanas; no poisons are legal to use on iguanas or any other reptile in Florida. Homeowners that desire to kill the iguana themselves must do so humanely or contact a wildlife removal professional to perform this task. Homeowners should also check with their local waste management authority for any regulations regarding disposal of animal carcasses.

Technical Assistance for Homeowners



- Prevention
- Exclusion
- Deterrents
- Habitat Modification

There are several ways landowners can keep iguanas from their properties: Prevention, exclusion, using deterrents, and modifying habitat to make the area less appealing. Many of these strategies are very simple and easily employed.

Prevention

Never feed iguanas!



Photo credit memeguy.com

Intentionally or unintentionally



Photo credit rd.com

Understanding why iguanas may be attracted to an area is the first step to prevention. Typically, iguanas will use an area for foraging or for cover/nesting. To prevent iguanas from entering your property consider what might attract them. Never feed iguanas – either intentionally or unintentionally. Food will attract iguanas and can create problems for both you and your neighbors by creating dense concentrations of iguanas. Feeding other animals outdoors will attract unwanted visitors. Pans of cut fruit and outside pet food will attract more than iguanas - rats and raccoons could visit as well. Remember always to feed pets indoors and clean up any food left outside.

Exclusion: Install barriers

- Protect valuable plants with cages or screen enclosures



Photo credit FWC

Install sheet metal around trees to prevent climbing, ~18” from base



Photo credit FWC

Exclusion techniques can also be deployed to keep iguanas from damaging your property. Consider protecting valuable plants with cages or screen enclosures as pictured here. Sheet metal guards on trees, palms, and dock pilings can prevent them from climbing.

Exclusion: Prevent digging



Photo credit WI Humane Society



Photo credit US Humane Society

- Wire fence barriers, buried several inches deep
- Electric fencing

Wire barriers can prevent digging on your property. In areas where iguanas burrow or dig, consider installing chicken wire fencing. This fencing should be buried several inches underground or the iguanas may dig underneath the fence. Electric fencing may deter or stop iguanas from climbing as well.

Exclusion: Remove ‘bridges’



Photo credit FWC

Iguanas are excellent climbers. They may get into and on dwellings via overhanging trees. Trim overhanging branches to remove the unintentional “bridge” to buildings.

Deterrents



Video credit FWC

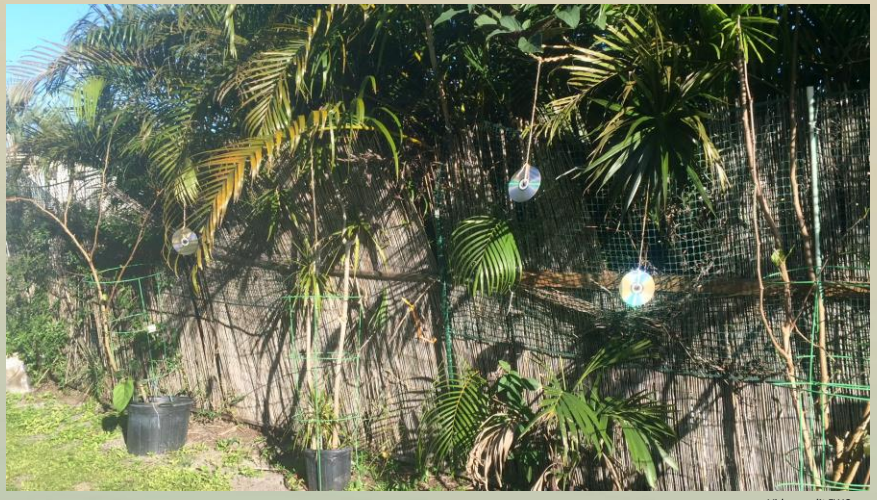
- Harassment
- Loud startling noises
- Talk radio/music
- "Water scare crows

Another way to keep iguanas from your property is through the use of deterrents. Several options can help you deter iguanas from your property. One can haze basking iguanas by spraying with a water hose until they leave the area, or you can install a water scarecrow sprinkler. You can also make loud noises to startle iguanas and create an unwelcome atmosphere around your property.



Video credit FWC

The use of a water hose or water pump can be an effective way to chase an iguana off your property.



Video credit FWC

Other techniques include installation of CD-ROM discs near sea walls or on trees or other plants you want to protect; Remember to change the position of CDs often enough so iguanas do not become accustomed to their light reflections, otherwise this technique will not work.

Habitat Modification

- Remove protective cover such as dense thickets, rocks and piles of landscape material
- Build artificial nest habitats to reduce the need for iguanas to dig burrows remove and destroy any eggs



Photo credit FWC

One of the most effective means of keeping iguanas from your property is to modify habitat. Recall that iguanas may come to an area for one of two primary reasons – food or cover/habitat.

You can remove protective cover including dense thickets, brush or rock piles where iguanas congregate. Fill vacant iguana burrows with concrete and sand during the day when the animals are likely to be outside of the burrow. You do not want to fill these holes with any animals still inside.

Contrarily, some have constructed artificial nesting habitat to attract iguanas. The purpose of this approach is to control reproduction. Iguanas lay their eggs in soils such as sand or even mulch. By adding mulch piles or sand piles near sea walls, you can encourage iguanas to nest in these areas, which may help prevent iguanas digging or creating nesting burrows under homes or sea walls. Once eggs are deposited, they can be easily removed and destroyed by freezing or compression, then disposed of in a sealed plastic bag.

Habitat Modification
Preferred Iguana Food Plants

Hibiscus	Orchids	Roses
Garden greens kale, broccoli, mustard, collards, sorrel, beets, lettuces	Nasturtiums	Impatiens
Squash and melon	Hong Kong orchid tree	Purple heart plant



Photo credit Pinterest

Finally, you can avoid planting vegetation that iguanas love to eat such as hibiscus, orchids and roses. Iguanas prefer bright red, orange or yellow flowers and fruits and feed on tender leaves. Iguanas tend to consume the youngest leaves on vegetation that have higher protein concentrations and are easier to digest due to low cellulose content.

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Habitat Modification
Iguana Resistant Plants

Milkweed	Pentas
Oleanders	Citrus
Crotons	Tough, thick leaved plants



Photo credit FL Dept of Agriculture

Instead, plant species that are iguana-resistant, such as milkweed, pentas and citrus. Generally, plants with thick, tough or waxy leaves will discourage iguana consumption. These types of leaves are less palatable and often difficult to digest. If the food source is removed, iguanas will be less likely to inhabit an area.

Options For Pet Owners

- Exotic Pet Amnesty Day events
- Year-round adoption assistance
- Exotic Species Hotline (888-Ive-Got1)
- PetAmnesty@MyFWC.com

Exotic Pet Amnesty Program
Great pets. Great homes.



Photo credit John Birk

People who own pet iguanas that they can no longer keep may surrender them through the FWC's Exotic Pet Amnesty Program. The Exotic Pet Amnesty Program fosters responsible pet ownership and provides pet owners with a legal and responsible alternative to releasing exotic animals. The FWC holds 3-5 Amnesty Day events per year around the state. Pet owners that cannot attend an Amnesty Day event can call the Exotic Species Hotline at 888-Ive-Got1 or email the program for adoption assistance year-round. *Note- the FWC does not rehome wild-caught iguanas, as these animals generally do not make good pets.

Thank you!

Jan.Fore@MyFWC.com
www.myfwc.com/iguana
www.myfwc.com/wildlifehabitats/nonnatives/rule-development/



Photo credit FWC

Please visit our website for more information.