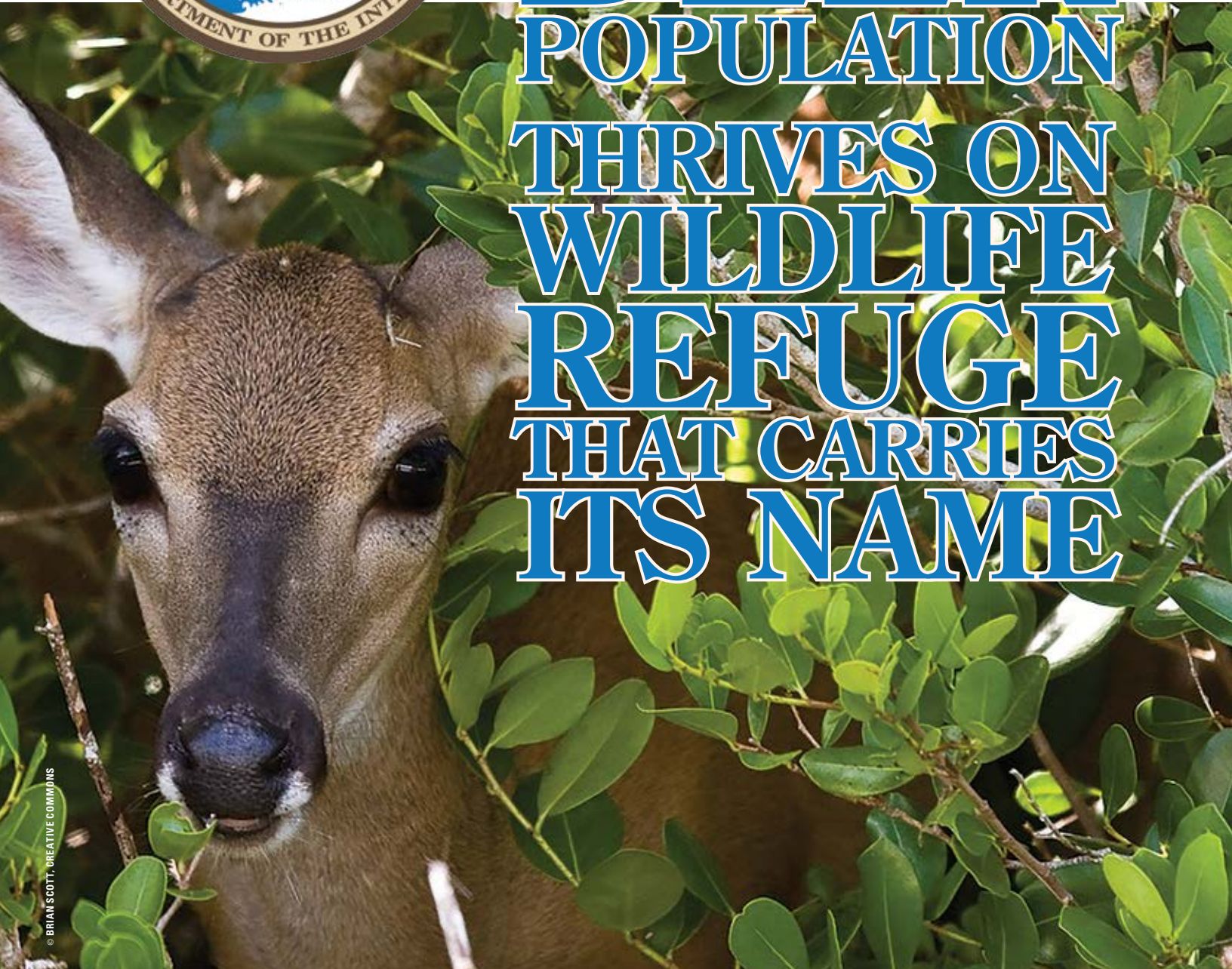




MARTHA NUDEL

NATIONAL WILDLIFE REFUGE SYSTEM,
U.S. FISH AND WILDLIFE SERVICE
Photos Courtesy of Author

KEY DEER POPULATION THRIVES ON WILDLIFE REFUGE THAT CARRIES ITS NAME



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The male of North America's smallest deer stands just 30 inches at the shoulder and weighs some 55-75 pounds. Related to the more common whitetail deer, Key deer are considered a subspecies found only in the lower Florida Keys. By the 1950s, battered by habitat loss and poaching, the Key deer was in a critical state: fewer than 50 individuals remained in the wild in 1951.

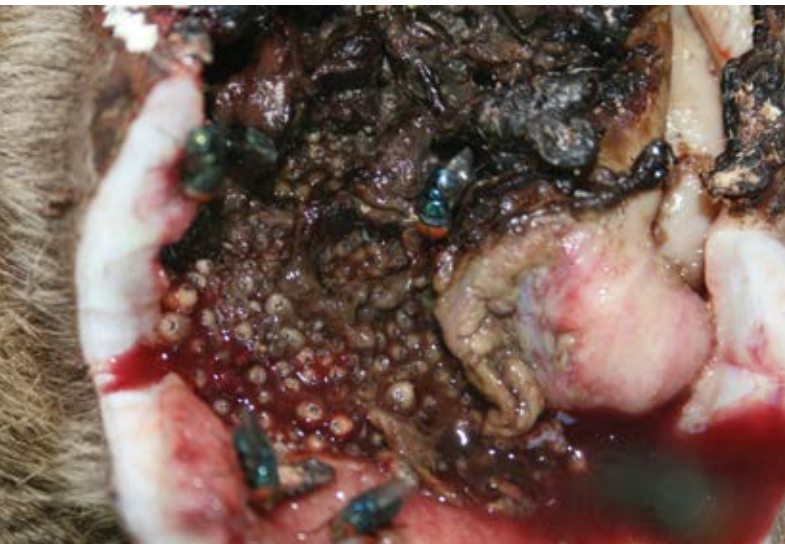
Following its listing in 1967 under the precursor to the Endangered Species Act, the Key deer has rebounded to some 600-800 animals today. Although the deer's population is considered stable, it faced a possible extinction event with the outbreak of New World screwworm. Seventy-five percent of the Key deer population lives on Big Pine and No Name keys. The outbreak not only threatened the deer, but also people, other wildlife and U.S. livestock.

The U.S. Department of Agriculture (USDA) first confirmed the existence of the flesh-eating screwworm on September 30, 2016, from samples collected from National Key Deer Refuge on Big Pine Key in Monroe County, Florida. After the discovery, the U.S. Fish and Wildlife Service (FWS) worked closely with federal, state and local officials and citizens to eradicate the screwworm, treating deer orally with Doramectin, releasing sterile screwworm flies and closely monitoring progress.

Because screwworm flies lay their eggs in the open wounds of warm-blooded animals, where larvae hatch and feed, bucks with wounds from the rutting season were especially vulnerable to the outbreak. From July 2016 to January 2017, 135 Key deer—about 15 percent of the herd—died from the infestation, including 124 bucks.



THE KEY DEER MIGRATED TO THE FLORIDA KEYS FROM THE MAINLAND DURING THE WISCONSIN GLACIATION SOME 21,000 YEARS AGO. THE DEER'S RANGE ORIGINALLY COVERED ALL OF THE LOWER FLORIDA KEYS. BUT WIDESPREAD POACHING IN THE LATE 1940S, HABITAT LOSS DUE TO RESIDENTIAL EXPANSION, AND THE DEER'S PROXIMITY TO PEOPLE HAD TAKEN A TOLL BY THE 1950S.



DURING THE LATE SUMMER AND FALL OF 2016, KEY DEER BUCKS SPARRED DURING BREEDING SEASON, THEIR ANTLERS CREATING OPEN WOUNDS THAT WOULD NORMALLY HEAL WITH TIME. AT THE SAME TIME, THE NEW WORLD SCREWORM FLY ARRIVED IN THE FLORIDA KEYS. THE WOUNDS PROVIDED A WARM, MOIST ENVIRONMENT FOR THE FLIES TO LAY THEIR EGGS. AFTER HATCHING, THE LARVAE FEED ON THE TISSUE WITHIN AND AROUND THE WOUND, AT TIMES BURROWING DEEP INTO THE HOST ANIMAL. IF FOUND EARLY, THE WOUNDS CAN BE CLEANED AND TREATED. KEY DEER FOUND WITH SEVERE, UNTREATABLE INFESTATIONS OF NEW WORLD SCREWORMS ARE HUMANELY EUTHANIZED. INCINERATION OF THE BODY AFTERWARDS REMOVES THIS AS A SOURCE FOR THE FLY'S LIFE CYCLE.



Screwworm eradication efforts by agencies and citizens proved effective. The last confirmed case occurred January 7, 2017, on Little Palm Island; on April 10, the FWS ceased oral drug treatments. Provisions remain in place to respond swiftly and effectively in case another infestation is found.

There is still important work to be done in conserving Key deer, however. FWS staff will continue to closely monitor Key deer, especially during the fawning season, which will last through the end of the summer. Biology technicians will continue to use radio telemetry to track 29 does, which were fitted by researchers from Texas A&M University in mid-January 2017 with lightweight flexible radio collars.

THE CONSERVATION EFFORT ON BEHALF OF KEY DEER TOOK ON MANY FRONTS:

- A Key deer hotline operated by the Florida Fish and Wildlife Conservation Commission dispatch center in Miami allows citizens to report sick or injured deer. The FWC, USDA, Monroe County Sheriff's Office and the FWS have helped staff the hotline.
- The USDA Foreign Agriculture Service airlifted sterile fly pupae from Panama twice weekly to be placed on specific sites on National Key Deer Refuge to immediately emerge as adult flies, then mate with the fertile, wild flies to produce inviable eggs.
- With cooperation and assistance from nearly 200 citizen volunteers and other agency specialists, the FWS administered 15,502 doses of anti-parasitic medication to Key deer.
- Medication stations were located along heavily used deer trails on remote sections of National Key Deer Refuge. Deer were enticed to the stations by a forage pellet mix. There, technicians and wildlife veterinarians had set up a roller system that applied a topical anti-parasitic medication to the deer's neck as it lowered its head to feed. In total, the stations provided 8,669 self-applied medicine treatments.
- Trail cameras continue to be used at strategic locations on the refuge to enable staff to monitor Key deer in backcountry areas.

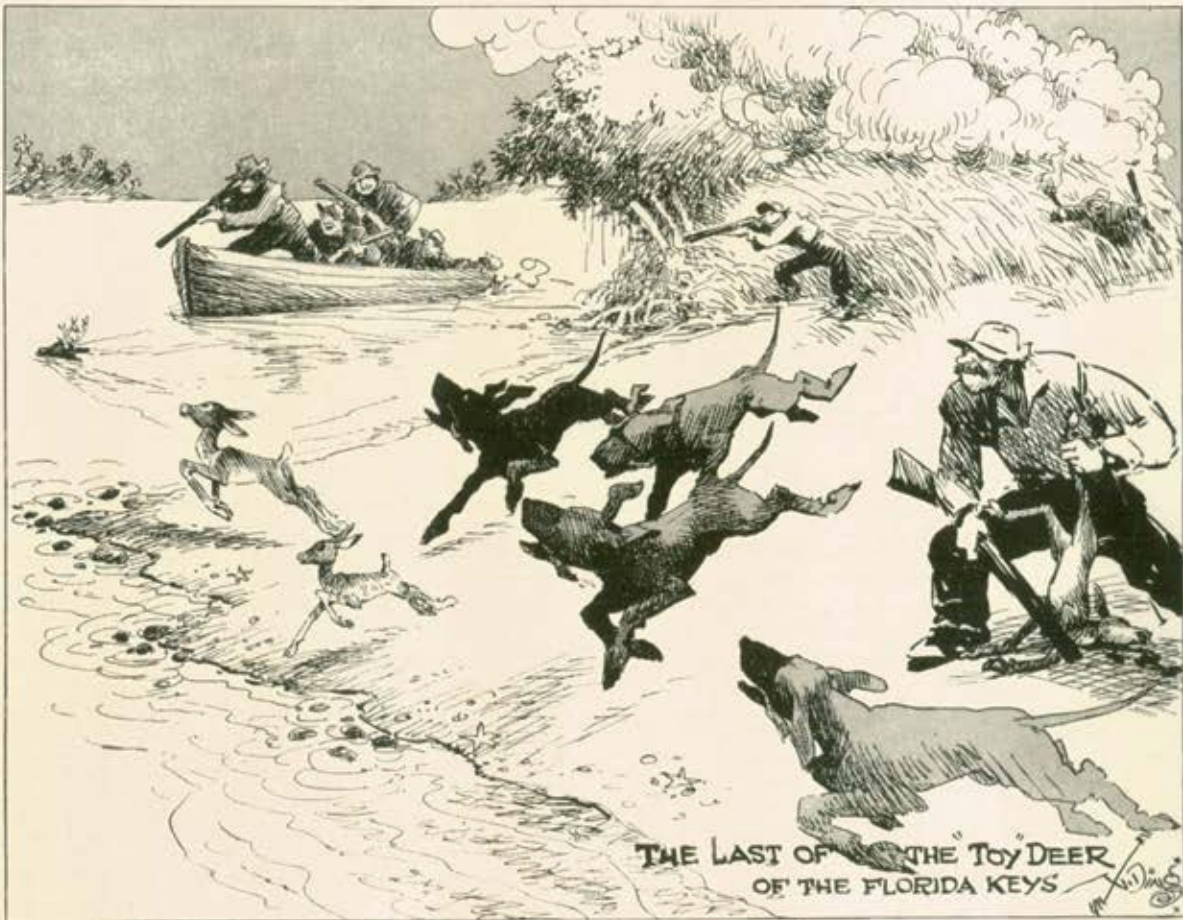
KEY DEER THRIVE WITH HABITAT PROTECTION

Today some 600-800 Key deer are found on 22 islands in the lower Florida Keys, from Little Pine Key in the east out to Boca Chica Key in the west. The positive outlook for Key deer is due to the establishment of National Key Deer Refuge in 1957, which conserves the deer and its habitat; the implementation of a habitat conservation plan by the FWS's South Florida Ecological Services Field Office in cooperation with Monroe County; and important protections provided by the Endangered Species Act.

The earliest description of Key deer dates back to at least the early 1550s, when Hernando de Escalante Fontaneda, a Spanish shipwreck survivor, wrote about the small descendent of whitetail deer. Fontaneda lived among the Calusa and other tribes of Florida for 17 years after his ship smashed up on the coast of Florida around 1549.

The Key deer migrated to the Florida Keys from the mainland during the Wisconsin glaciation some 21,000 years ago. The deer's range originally covered all of the lower Florida Keys. But widespread poaching in the late 1940s, habitat

A NATIONAL REFUGE HAS SAVED THE KEY DEER



IN MIDWINTER OF 1934 the above cartoon was hastily drawn by "Ding" to call attention to the unsportsmanlike hunting methods which were decimating the remaining Florida Key Deer. After the war, the regional office of the U. S. Fish and Wildlife Service in Atlanta reported with increased alarm that an estimated 26 Key Deer remained. In June 1952 the Boone and Crockett Club of New York hired a full-time warden to protect the remaining Key Deer. The National Wildlife Federation contributed towards continued warden service and in 1957 Congress authorized the establishment of the NATIONAL KEY DEER REFUGE. Since 1958 the North American Wildlife Foundation spearheaded a drive for funds to acquire the necessary lands for the establishment of this inviolate refuge. The Boone and Crockett Club, the Wilderness Club of Philadelphia, and public spirited individuals have pledged additional sums which will make possible the preservation of the smallest species of North American Deer. Present estimated Key Deer population—over 200. Thanks for your help.

*Mission Accomplished
Ding Darling*

B&C'S REFUGE HISTORY

Since the early days of the Club, its members have seen the value of wildlife refuges and worked to establish several throughout the United States.

1903

National Wildlife Refuge System Act Legislation passed. Florida's Pelican Island became our first national wildlife refuge.

1929

The Club helped establish the Migratory Bird Conservation Act, which established the national waterfowl refuge system.

1936

Cape Romain National Wildlife Refuge located near Charleston, South Carolina.

1937

Madison Grant Forest and Elk Refuge established in Humbolt, California.

1957

National Key Deer Refuge established.

2005

Holt Collier National Refuge established.

Theodore Roosevelt National Wildlife Refuge established.

loss due to residential expansion, and the deer's proximity to people had taken a toll by the 1950s.

The refuge protects the pine rockland forests, tropical hardwood hammocks, freshwater and salt marsh wetlands and mangrove forests that Key deer need to thrive. Pine rockland forests form on limestone outcroppings, and hardwood hammocks are dense stands of broad-leaved trees.

"The hunting that nearly brought down the species was stopped even before the National Key Deer Refuge was established," notes refuge biologist Kate Watts. "But the deer needs a specialized habitat. They are doing very well now, mostly through land protection."

Improvements have been incremental, says Watts. The refuge recognized the importance of its diverse habitats—not only to the Key deer but also to more than 20 other species listed under the ESA—and worked to protect them. The refuge worked with Monroe County and the Florida Highway Administration to have fencing installed along portions of the Overseas Highway (US1) and create under-highway crossings, safeguarding the deer from heavy traffic.

No less important, the refuge has worked with the local community to help visitors and residents understand that they can love the hugely friendly deer too dearly. Through close agency partnerships, refuge staff have answered the call from the Key Deer Response Hotline for some 20 years so the public can report fatalities as well as injured, diseased or entangled deer. Some 10 to 20 calls are received weekly, reporting sick or injured deer, including deer hit by cars.

"Local residents have bonded with the deer that roam through the neighborhood and into yards. The deer live on small islands, and there isn't a lot a space where they can be totally wild," says Watts.

"Residents know individual animals by their antler configuration," she continues. "They know their offspring. And they have generally learned that they shouldn't feed the deer, they shouldn't corral them in their yards, and they should not have direct interaction."

Signs around the refuge and throughout the community convey the same messages. The local Chamber of Commerce has been in the refuge's corner.

"One of the first questions visitors ask is where they can see Key deer," agrees Lower Keys Chamber of Commerce Executive Director Susan Miller, whose organization so values the species that it not only is the subject of merchandise like t-shirts and charms, the animal is part of its official logo. "We have signs posted across Big Pine Key asking motorists to slow down and people not to engage with the deer. They're adorable and so 'domesticated' that they want to get up-close and personal with visitors."

While the deer's population numbers are healthy, according to Watts, questions remain. How many animals can these islands support? Is there sufficient genetic diversity to ensure a vibrant herd in the future? What will be the effects of an environment that is getting increasingly drier, less availability of fresh water and islands that are

shrinking as the sea level rises? Should the deer live only in natural environments, not in the urban setting that is its current home? Some questions are being researched in partnership with higher education institutions such as Texas A&M University. Others will be answered over time.

As demonstrated by citizens' response to the screwworm outbreak, the Key deer is an integral part of the community. "Key deer continue to roam around the neighborhoods that are adjacent to their natural habitat," says Watts. "People here are accustomed to seeing the deer, and the deer have learned to coexist with people."

National Key Deer Refuge will build on the successful screwworm eradication effort—one in which citizens played a central role—to maintain a healthy balance that works for both deer and the local community. ■

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