

**A Species Action Plan for the
Bald Eagle
*Haliaeetus leucocephalus***

November 20, 2017



Florida Fish and Wildlife Conservation Commission
620 South Meridian Street
Tallahassee, FL 32399-1600
Visit us at MyFWC.com

BALD EAGLE ACTION PLAN TEAM

Team Members: Janell Brush, Andrew Cox, Craig Faulhaber, Erin Leone, Brie Ochoa, Tyler Pittman, Michelle van Deventer, Jared Zimmerman.

Acknowledgements: Mark Barrett, Brian Beneke, Claire Sunquist Blunden, Robin Boughton, Guy Carpenter, Brad Gruver, Jonathan Ruggiero, Dan Sullivan, Avery Tubbs, Melissa Tucker.

Cover photograph by the Florida Fish and Wildlife Conservation Commission.

Recommended citation:

Florida Fish and Wildlife Conservation Commission. 2017. A species action plan for the bald eagle. Tallahassee, Florida.

EXECUTIVE SUMMARY

This plan was developed in response to the Florida Fish and Wildlife Conservation Commission (FWC) sunset of the 2008 Bald Eagle Management Plan. The goal of this plan is to maintain or improve the conservation status of the bald eagle so that the species will not again need to be listed on the Florida Endangered and Threatened Species List. The objectives of this plan are to maintain a stable or increasing population of bald eagles in Florida, and to maintain the current extent of occurrence for bald eagles in Florida.

This plan was developed by the FWC in collaboration with stakeholders and the actions outlined in the plan underscore the importance of continued outreach to targeted audiences. Successful conservation of bald eagles through implementation of this plan requires the cooperation of local, state, and federal governmental agencies, non-governmental organizations, business and industrial interests, universities and researchers, and the public.

The actions outlined in this plan are designed to meet the objectives and include beneficial land management activities, preservation of suitable habitat, and minimizing disturbance during key phases of the bald eagle life cycle. Actions to minimize mortality and impacts from threats are also included. Given that the bald eagle population in Florida has met or exceeded the objectives of FWC's 2008 Bald Eagle Management Plan and continues to show stable or positive trends, annual statewide monitoring of nesting eagles and the considerable associated expense are no longer warranted. Future monitoring and research may include nest surveys, review of existing data, coordination with the U.S. Fish and Wildlife Service and local governments, and ongoing partnerships with volunteer-based organizations.

It is likely that bald eagles experienced habitat loss and direct persecution as early as the 1700s, resulting in population decline. In the mid-1900s, the decline steepened due to widespread use of organochlorine pesticides such as dichlorodiphenyltrichloroethane (DDT), which affected bald eagles and many other avian species through both direct toxicity to aquatic prey and a reduction in productivity through eggshell thinning. The effects of DDT compounded losses from habitat destruction and shooting, and bald eagles became extirpated from many areas of their historic range. The Environmental Protection Agency banned use of DDT in 1972, reversing the 30-year decline in eagle productivity (Curnutt 1996).

Bald eagles reclaimed their entire historic range by the late 1990s, and their estimated population in the lower 48 states increased from an estimated 417 pairs in 1963 to 9,789 pairs by 2007. In August 2007, the U.S. Fish and Wildlife Service (USFWS) removed the bald eagle from the list of species protected by the Endangered Species Act. In 2008, the bald eagle was removed from the Florida Endangered and Threatened Species List. Today the bald eagle is celebrated as one of America's great conservation success stories.

This plan details the actions necessary to maintain or improve the conservation status of the bald eagle. As outlined in Florida's Imperiled Species Management Plan (FWC 2016a), species action plans are reviewed every 7 years. At the time of review, revisions will be incorporated to reflect current knowledge. While not a part of Florida's Imperiled Species Management Plan, the Species Action Plan for the Bald Eagle will fall under this revision schedule.

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GLOSSARY OF TERMS AND ACRONYMS

Adaptive Management: A method that integrates design, management, and monitoring to systematically test assumptions in order to modify and adapt management and activities in response to observations.

Active Nest: A nest that shows or showed evidence of breeding by bald eagles, such as an adult attending the nest or in incubating position, a clutch of eggs, or a brood of nestlings.

Active Nesting Territory: An area used for nesting by one pair of bald eagles; a nest territory may contain multiple nests, but only one active nest per breeding season.

AVM: Avian vacuolar myelinopathy, a non-infectious neurological disease resulting from the newly characterized cyanobacterium, *Aetokthonos hydrillicola*.

Bald and Golden Eagle Protection Act: The federal law (16 U.S.C. 668a–668c) enacted in 1940 to prevent persecution of eagles. Since the eagle was removed from the protections of the Endangered Species Act, this law again serves as the primary protection for bald eagles nationally.

Communal Roost: An area where bald eagles gather and perch overnight, or during the day during inclement weather. Communal roosts are usually in large trees (alive or dead) or manmade structures close to foraging areas.

Cluster Nesting Area: An area containing a high density of bald eagle nesting territories ([Figure 4; Brush et al., manuscript in prep.](#)). Together, cluster nesting areas support a majority of Florida’s known, active nesting territories.

DDT: Dichlorodiphenyltrichloroethane, a pesticide that dramatically reduced avian populations.

DEP: Florida Department of Environmental Protection

Disturb (as defined in [Rule 68A-16.002, F.A.C.](#)): “To agitate or bother a bald eagle to the degree that causes, or is likely to cause (a) injury to an eagle, (b) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (c) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.”

Endangered Species Act: The federal law, enacted in 1973, intended to provide protections to species facing extinction. When the bald eagle was removed from the list of species protected under the Endangered Species Act on August 8, 2007, the Bald and Golden Eagle Protection Act became the primary protection to eagles nationwide.

F.A.C.: Florida Administrative Code.

Fledgling: A young eagle that is capable of sustained and coordinated flight, usually at 10-12 weeks of age. Fledglings typically return to the nest for several weeks (until 14-23 week of age) to be fed or to roost. Compare with Nestling.

FWC: The Florida Fish and Wildlife Conservation Commission, the state agency legally mandated to protect and manage Florida's native wildlife resources.

FWRI: Fish and Wildlife Research Institute, the research branch of the Florida Fish and Wildlife Conservation Commission.

ISMP: Florida's Imperiled Species Management Plan

Nest: Any assemblage of materials built, maintained, or used by bald eagles for the purpose of reproduction.

Nesting Season: In Florida, the majority of bald eagle nesting occurs between October 1 and May 15. However, nest building or maintenance can begin in September, and some nests may still contain dependent young after May 15.

Nesting Territory: An area that contains 1 or more eagle nests within the home range of a mated pair of eagles, regardless of whether such nests were built by the current resident pair. In rare cases a nest may be absent from a nesting territory, such as when the nest was destroyed by severe weather.

Nestling: A young eagle that is incapable of flight and dependent on its parents. Once fledged (capable of sustained and coordinated flight), it becomes a fledgling.

Productivity: Metric used to describe the number of young produced. FWC describes productivity for bald eagles using several different metrics, such as: 1) the number of young per active nest; 2) the number of young per successful nest; 3) total number of young produced (hatched) by a pair or specific population.

SGAR: Second generation anticoagulant rodenticides

Successful Nest: A bald eagle nest that produces at least 1 fledgling.

Take (as defined in [Rule 68A-1.004, F.A.C.](#)): "Taking, attempting to take, pursuing, hunting, molesting, capturing, or killing any wildlife or freshwater fish, or their nests or eggs by any means whether or not such actions result in obtaining possession of such wildlife or freshwater fish or their nests or eggs."

U.S.C.: United States Code.

USFWS: The United States Fish and Wildlife Service, the federal agency mandated to protect and manage the nation's native wildlife resources.

GLOSSARY OF TERMS AND ACRONYMS

WCPR: Wildlife Conservation, Prioritization, and Recovery. A program administered by the FWC on FWC-managed areas to ensure protected lands are managed for the greatest benefit to wildlife.

INTRODUCTION

Biological Background

Species Description

The bald eagle is a charismatic symbol of national pride, easily recognized by its distinct silhouette, size, and unique coloration. Within their North American range, eagles exhibit a gradient of smaller to larger birds from south to north. With a wingspan of approximately 2.1 m (7 ft) in the southern portion of their range, the bald eagle is among the largest birds commonly observed in Florida. Mature bald eagles are best known for the striking contrast of white plumage on the head and tail with the solid dark brown plumage covering the wings and body.

First-year eagles are typically entirely dark brown, though white speckling is common on the underside of the tail and under the wings. The plumage of sub-adults is highly variable, according to age, with a decreasing amount of white on the body and an increasing amount of white on the head and tail attained with each successive molt. The eyes and bill turn yellow during an eagle's fourth year, and full adult plumage is attained during a bird's fifth or (usually) sixth year (Buehler 2000). The sexes are indistinguishable by plumage, but females are as much as 25% larger than males.

Taxonomy

The bald eagle is a member of the family Accipitridae and the order Accipitriformes. It is 1 of 8 members of the genus *Haliaeetus*, derived from the Greek word meaning *sea eagle*; the bald eagle's full scientific name means *white-headed sea eagle*. The bald eagle is the only member of its genus that occurs regularly in North America. Two other species, the white-tailed eagle (*H. albicilla*) of Eurasia and the Steller's sea-eagle (*H. pelagicus*) of Asia, have strayed to the United States, and the white-tailed eagle has bred in Alaska (American Ornithologists' Union 1998). Fossil evidence comes from several sites (including 3 in Florida) and dates back at least 1,000,000 years (Buehler 2000). Subspecies recognized by some ornithologists are the larger *H. l. alascanus* (breeding north of 40°E N latitude) and the smaller *H. l. leucocephalus* (breeding to the south). However, these subspecies may not be distinct, but could instead reflect the size and mass decrease along a north-to-south gradient (Curnutt 1996, Buehler 2000). The only other eagle occurring regularly in North America is the golden eagle (*Aquila chrysaetos*), which in Florida is a rare, non-breeding winter visitor, primarily of the panhandle (Stevenson and Anderson 1994).

Longevity

The longest documented lifespan for a bald eagle in the wild is 38 years (Deatrick 2015). Eagles follow a pattern typical of raptors, with survival rates lowest in juveniles and increasing to adulthood (Buehler 2000, Millsap et al. 2004). More recent estimates of annual survival in the Southeast U.S. are 86% for first-year bald eagles, and 91% for bald eagles after their first year (U.S. Fish and Wildlife Service [USFWS] 2016).

Food

Bald eagles are opportunistic foragers, feeding or scavenging on a wide variety of prey. For eagles in Florida, primary prey includes various fish and waterfowl species. Prey from a study in

north-central Florida was composed of 78% fish (mostly catfish, especially brown bullhead [*Ictalurus nebulosus*]), 17% birds (mainly American coot [*Fulica americana*]), 3% mammals, and 1% amphibians and reptiles combined (McEwan and Hirth 1980). In Florida Bay, hardhead catfish (*Arius felis*) are a dietary staple for bald eagles and are estimated to comprise more than 50% of prey items (Hanson and Baldwin 2017). Most prey is captured from the surface of the water, but bald eagles often harass ospreys (*Pandion haliaetus*) in flight to drop fish that they have captured. Scavenging for carcasses along roadways and among garbage at landfills is also common (Millsap et al. 2004).

Habitat

Bald eagles typically use forested habitats for nesting and roosting, and expanses of shallow fresh or salt water for foraging (Figure 1). Nesting habitat generally consists of tall, mature trees that offer panoramic views of surroundings and proximity to foraging areas (Buehler 2000). Nests in manmade structures are documented in Florida, and can be locally abundant, as in the Tampa Bay area. Daytime roosts are typically in super-canopy (tallest) trees adjacent to shorelines, and within 3 miles of water (Buehler 2000, Mojica 2006). Outside of breeding season, eagles may be found in large groups (50 or more), known as *communal roosts*. The Center for Conservation Biology lists 45 communal roosts observed in Florida (Center for Conservation Biology 2016). The quality of foraging habitat is characterized by the diversity, abundance, and vulnerability of eagle prey; the structure of the aquatic habitat (e.g., presence of shallow water); and the extent of human disturbance (Buehler 2000). The greatest numbers of bald eagle nesting territories in Florida are found along the Gulf coast and around the larger inland lakes and river systems in the peninsula (Figure 2).



Figure 1. Healthy estuaries support abundant fish and can offer prime foraging sites for bald eagles in Florida. Photograph of Apalachicola National Estuarine Research Reserve by Tim Donovan, FWC.

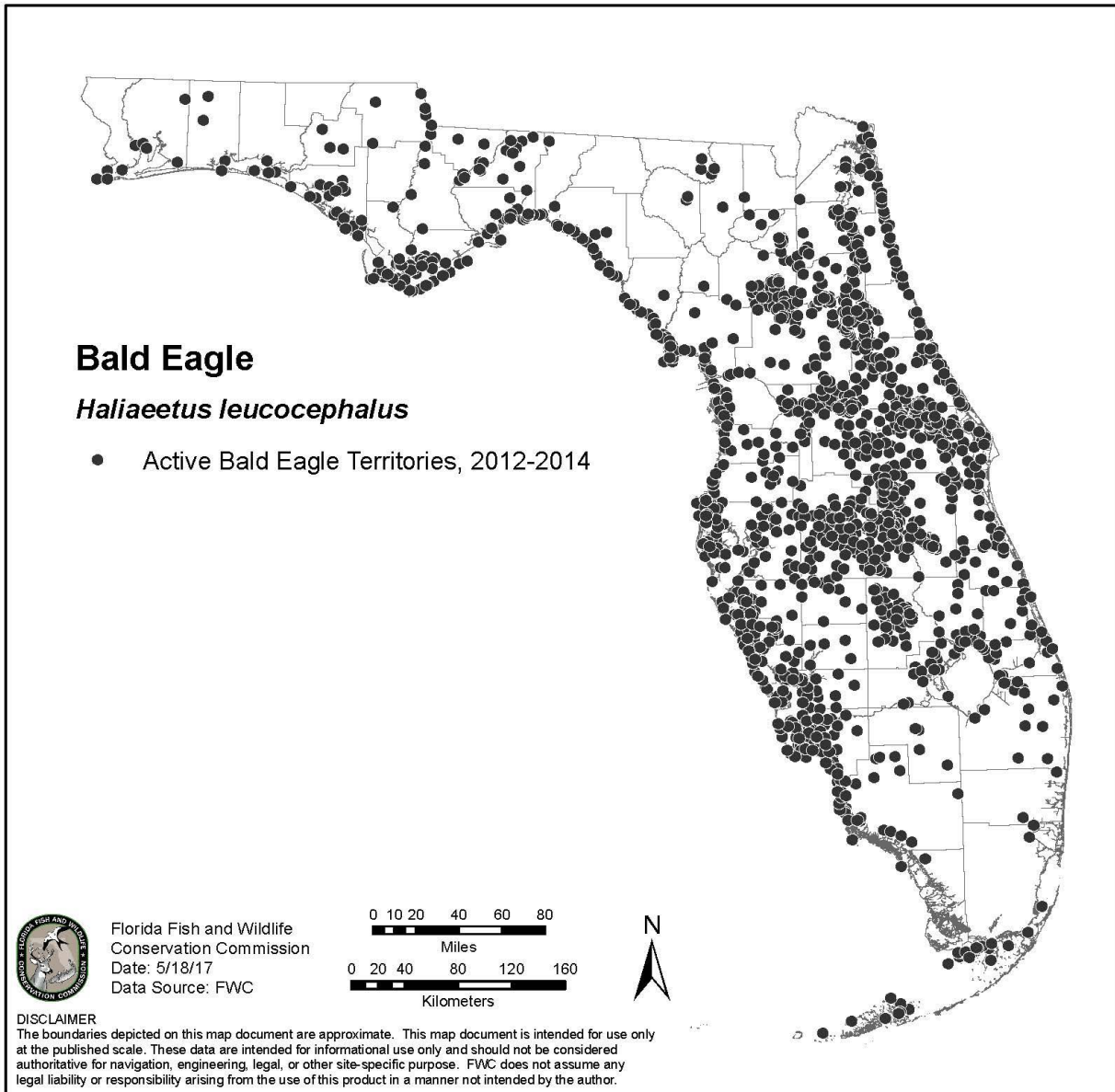


Figure 2. Distribution of active bald eagle nesting territories from 2012-2014 (Zimmerman et al. 2017).

Breeding Behavior

Bald eagles are highly social outside of the nesting season but are extremely territorial when nesting. They are capable of breeding in their fourth year while still in sub-adult plumage, but may not breed until their sixth or seventh year where breeding competition is intense (Buehler 2000). Bald eagles are thought to be monogamous, with pair bonds persisting for years, though this is largely unproven. Eagles are single-brooded, though pairs may reneest if the first clutch is lost.

Bald eagles typically return to their nesting territory each breeding season for many years, and will frequently reuse the same nest. Nest material is added throughout the year and in subsequent seasons, resulting in very large nest structures.

Nests tend to be built in a living tree with a view of the surrounding area that can support the eagles' sizeable nest (Figure 3). The majority (an estimated 75%) of bald eagle nests in Florida



Figure 3. A bald eagle attending to a nest containing young. The sizable nest is constructed in a mature, living, native pine tree. Photograph by Karen Parker, FWC.

are in living native pines such as longleaf pine (*Pinus palustris*) and slash pine (*P. elliottii*); FWC unpublished data). Because bald eagles in Florida strongly prefer living native pines to all other substrates, the retention of mature native pines is key to maintaining breeding habitat. Eagles in Florida have also been documented nesting in cypress (*Taxodium* spp.), mangroves (*Avicennia germinans* and *Rhizophora mangle*), manmade structures, and (rarely) on the ground (Broley 1947, Shea et al. 1979, Curnutt and Robertson 1994, Curnutt 1996, Millsap et al. 2004).

Bald eagles are known to also nest on manmade structures in Florida, such as communication towers, transmission towers, and raptor nesting platforms. The number of eagle nests on manmade structures in Florida remains a relatively small (less than 10 percent, FWC unpublished data 2014) portion of the statewide breeding population. However, bald eagle nests on manmade structures can be important to some local populations and may represent a significant portion of the local breeding population in places such as Pinellas and Hillsborough Counties,

and near cluster nesting areas along the I-4 corridor in central Florida. In these urbanized settings bald eagles may be selecting manmade structures for a combination of reasons, such as increased height, distance from surrounding activity, reduced availability of suitable mature trees, or near proximity of high-quality aquatic foraging habitat.

Nearly all bald eagle nests in Florida are built within 2.9 km (1.8 mi) of water (Wood et al. 1989). Average territory size varies from 2.8 km² (1.08 mi²) in areas with the most suitable habitat and highest prey density (i.e., cluster nesting areas) to a statewide average of 3.2 km² (1.23 mi²) (FWC, unpublished data). Nests are spaced apart to ensure sufficient food resources for nestlings and to raise young with minimal disturbance from other eagles. Prime foraging habitat for bald eagles includes 3 classes: 1) lakes equal to or greater than 100 ha (247 ac), 2) large rivers equal to or greater than 100 ha (247 ac), and 3) coastal areas (bays, estuaries, oceans). Eagle pairs often build more than 1 nest, which allows them to move within their nesting territory should it be necessary. Throughout their range, eagles maintain an average of 1.5 nests per territory, ranging from 1-5 nests (Stalmaster 1987, Buehler 2000).

In Florida, the majority of bald eagle nesting activity occurs between October 1 and May 15, though some eagles may begin nesting prior to October 1, and young may fledge after May 15. Nest building or nest maintenance can begin in late September or early October. Most clutches of eggs in Florida are laid between December and early January, though eggs may be laid as early

as October and as late as April, the latter often representing renesting attempts (Millsap et al. 2004). Mean clutch size throughout the bald eagle's range is 1.87 eggs, with most nests containing 2 eggs (Stalmaster 1987). Incubation lasts about 35 days. Nestlings in Florida fledge at around 11 weeks of age and remain with their parents near the nest for an additional 4–11 weeks (Wood 1992, Wood et al. 1998). Fledglings begin widespread local movements before initial dispersal, which occurs from April to July (Millsap et al. 2004). Average productivity during 1973–2004 was 1.16 fledglings for all active nests and 1.54 fledglings per successful nest. The most recent 5-year average (2009–2014) of fledglings per successful nest was 1.54, indicating that productivity is currently stable (Zimmerman et al. 2017).

Bald eagles are extremely territorial when establishing or defending their nesting territories and may be badly injured or even killed during territorial battles. Intraspecific aggression, often a consequence of a large population, accounts for 7% of documented eagle mortality in the state (Forrester and Spalding 2003). Along with food availability and inclement weather, intraspecific aggression is among the primary regulators of eagle populations where human interactions are limited, especially in areas where bald eagle populations are close to their carrying capacity (Buehler 2000).

Migration

Most of Florida's breeding bald eagles, especially those nesting in the extreme southern peninsula, remain in the state year-round, but most sub-adults and non-breeding adults migrate out of Florida (Stevenson and Anderson 1994, Curnutt 1996, Mojica 2006). Eagles migrate northward between April and August and return southward from late July through late December. Juveniles migrate northward later than older sub-adults (Broley 1947, Wood and Collopy 1995, Mojica 2006). Most juveniles disperse at about 128 days of age and spend their first summer as far north as Newfoundland, with peak numbers summering around Chesapeake Bay and the coastal plain of North Carolina (Broley 1947, Millsap et al. 2004, Mojica 2006). Florida's bald eagles use 3 migration flyways—the Atlantic coast, Appalachian Mountains, and the Mississippi River valley—with equal frequency, and they use stopover sites for resting or foraging (Mojica 2006). Eagles also exhibit nomadic wandering, mostly by sub-adults. Northern-breeding bald eagles occasionally winter in Florida (Stevenson and Anderson 1994).

Distribution

Bald eagles historically bred from central Alaska and the Maritime Provinces south to Baja California and Florida. It is widely believed that eagles were abundant in coastal and inland areas with high quality forested and aquatic habitats. In Florida, the eagle was called “abundant” (Bailey 1925) and “common” (Howell 1932) during the early 1900s. The size of Florida's historic bald eagle population is unknown, but it “must have been well in excess of 1,000 nesting pairs,” with numbers around Tampa Bay and Merritt Island thought to be “among the densest breeding concentrations of a large raptor known anywhere on earth” (Peterson and Robertson 1978). Bald eagle recovery in the lower 48 states has been dramatic, with an estimated 417 pairs in 1963 increasing to an estimated 16,048 bald eagle breeding pairs in 2009 that occupy the entirety of the species' historic range (Millsap et al. 2016). In Florida, surveys began in 1973 and documented an increase from 88 active nest territories to nearly 1,500 in 2014 (Zimmerman et al. 2017).

Bald eagles breed in almost every county in Florida. Most nests are found on privately-owned lands (64% in 2014; FWC, unpublished data) which underscores the importance of private lands in the conservation of eagles in Florida. The growth of the state's eagle population has occurred alongside a high rate of human population growth. This could be attributed to a combination of factors, including habitat and nest protection measures, adequate prey availability, as well as increasing exposure to and tolerance of human activities (Guinn 2013).

The FWC has identified 23 areas of concentrated bald eagle nesting activity that contain a majority of the known nesting territories in Florida ([Figure 4](#); Brush et al., manuscript in prep.). Referred to as *cluster nesting areas*, many have persisted for decades, suggesting the presence of high-quality breeding and foraging habitats.

Although surveys have shown that cluster nesting areas have no difference in productivity compared to areas with lower nest density, they produce an estimated 65% of the known young in the state each year. Cluster nesting areas therefore have a high biological value. Cluster nesting areas are concentrated around several significant wetland systems along the Gulf coast from St. Vincent Island to Lee County, and inland from the lower St. Johns River to Lake Okeechobee. Florida has a relatively high density of bald eagle nesting territories when compared to other areas of the species' range, but areas that support the highest densities (cluster nesting areas) likely contain the best available nesting habitat in the state.

Conservation History

The bald eagle is emblematic of successful species conservation. The objectives of FWC's 2008 Bald Eagle Management Plan were continuously met or exceeded during that plan's implementation. The recovery of the population in Florida and nationally demonstrates both the resiliency of the species and the triumph of decades of conservation efforts to improve the bald eagle's population status.

Historically, the outlook for eagles was dire; the eagle population in the U.S. began to decline during the 1700s from loss of breeding habitat and direct persecution—more than 128,000 bald eagles were shot in Alaska between 1917 and 1952 by people seeking a bounty that was created to protect the salmon fishery (Robards and King 1966). The population decline intensified during the mid-1900s with widespread use of DDT compounding the continuing losses from habitat destruction and direct persecution. DDT is an organochlorine pesticide that was widely used in agriculture and mosquito control beginning in the 1940s. Widespread use of DDT, which disrupted calcium metabolism in birds, was banned in the U.S. in 1972. This calcium reduction resulted in eggshells that ruptured during incubation, causing significant and widespread reproductive failure in bald eagles and other birds (Stalmaster 1987, Buehler 2000). Broley (1950) documented “heavy nesting failures” of eagles in Florida, and Cruickshank (1980) wrote of their “alarming decrease” and near-extirpation as a breeding species in Brevard County after 1950.

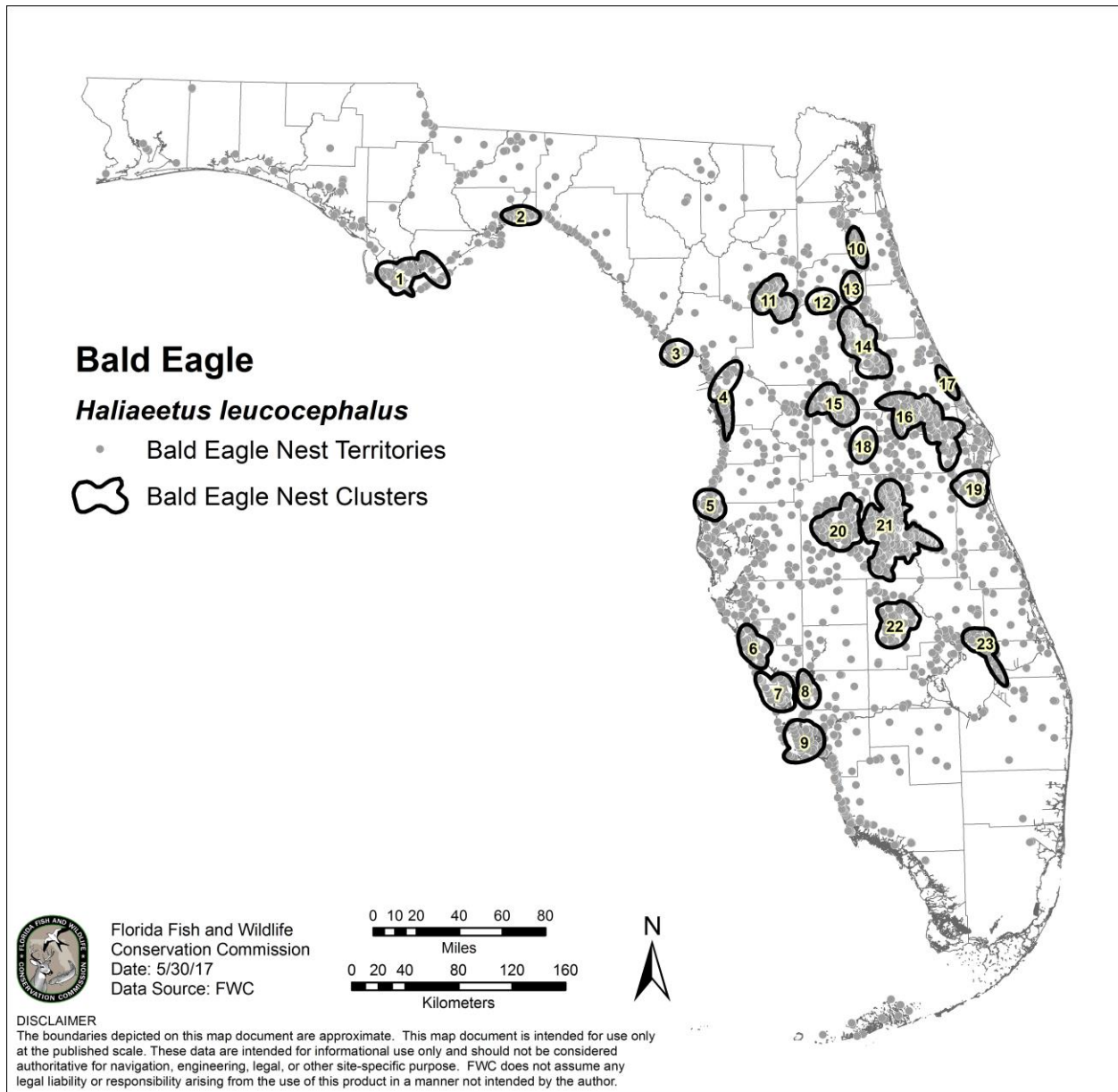


Figure 4. Bald eagle cluster nesting areas in Florida. A nearest-neighbor hierarchal clustering method was used to identify clusters of active eagle nests within each survey year (1998-2008). Nest clusters for each year were represented by a dispersion ellipse, which were added to a GIS; multiple ellipses that overlapped within and among years were combined into a single cluster, resulting in 23 cluster nesting areas (Brush et al. manuscript in prep.).

Substantial recovery of the bald eagle, continentally and in Florida, began in the 1970s, following the DDT ban and a reduction in persecution brought on, in part, by passage of the U.S. Endangered Species Act of 1973. The Florida eagle population has increased greatly since statewide nesting season surveys began in 1972 (Figure 5; Zimmerman et al. 2017). Using post-delisting monitoring data from 2009, the USFWS estimated a total population size of bald eagles at nearly 143,000 birds, with approximately 12,190 individuals in the southeast U.S. (Millsap et al. 2016).

The estimated number of active bald eagle nesting territories in Florida after the 2014 nesting season was approximately 1,499 (Zimmerman et al. 2017). This represents an increase from an estimated 1,218 active nesting territories in Florida when bald eagles were removed from the list of federally Endangered species in 2007.

[Figure 5](#) shows the number of active nesting territories as documented through 30 years of survey data. The number of active nesting territories can be expected to fluctuate from year to year; mortality rates can also be expected to fluctuate over time.

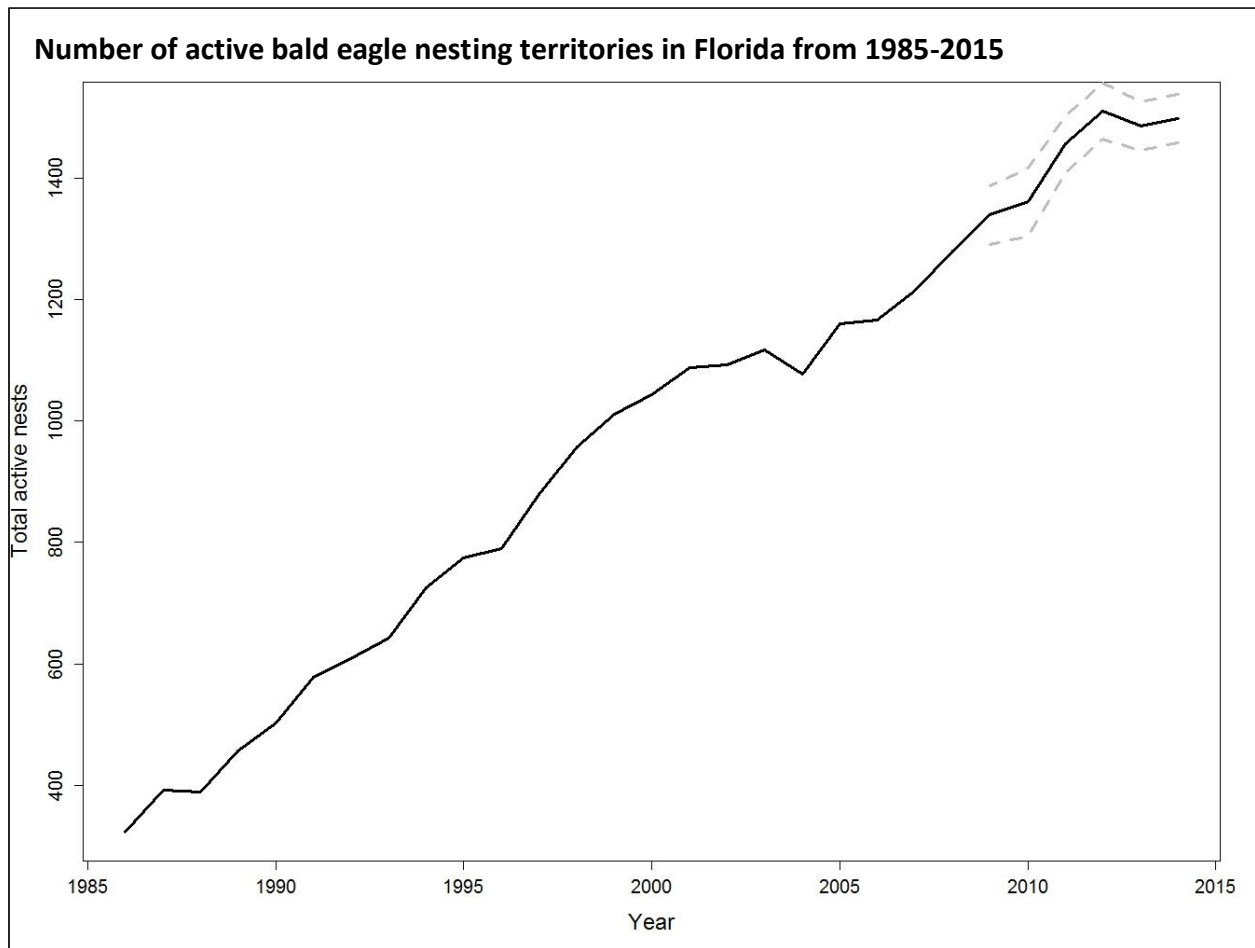


Figure 5. The number of active bald eagle nesting territories in Florida from 1986 to 2014. The number of active territories from 2009 to 2014 was estimated (with confidence limits shown as dashed lines) from a subset of all known nesting territories (Zimmerman et al. 2017).

Threats

Although the population has increased since the 1970s, bald eagles in Florida continue to face both natural and human-related threats. These threats, individually or in combination, could impair reproductive and survival rates. Most natural mortalities, including those from intraspecific aggression, probably go undetected. The FWC sends eagle carcasses to the Southeastern Cooperative Wildlife Disease Study at the University of Georgia or the National Wildlife Health Center for necropsy when cause of mortality is not immediately apparent, or if there are circumstances or evidence that warrant further investigation.

Trauma

In a study of the cause of death for nearly 3,000 bald eagles from 48 states, trauma and poisoning were identified as the leading causes of death (Russell and Franson 2014). Because of their size and behavior of foraging on roadkill, bald eagles are especially vulnerable to vehicle collision. In Florida, from 1963-1994, trauma resulted in 59% of known cases of bald eagle mortality; the most frequent cause was vehicle collision (81 of 182 mortalities, or 44%), but other causes included gunshot (10%), intraspecific aggression (7%), and powerline collision (4%) (Forrester and Spalding 2003).

Poisoning

Bald eagles most often ingest poisons from secondary sources, such as feeding on carcasses or prey containing poisons. Second generation anticoagulant rodenticides (SGARs), including those registered for use in the U.S. (brodifacoum, bromadiolone, difethialone, and difenacoum), are a documented source of secondary poisoning. During an 18-month study beginning in 2014, FWC conducted necropsies on bald eagle carcasses recovered in Florida when cause of death was not immediately clear, or poisoning was suspected; 100% of carcasses tested showed presence of SGARs, with 17 of the 33 documenting SGARs as the cause of, or possible contributing factor in the eagles' deaths (Van Deventer et al. 2017). Eagles have also been poisoned after feeding on improperly disposed carcasses of euthanized animals containing pentobarbital (Forrester and Spalding 2003). Lead poisoning from feeding on waterfowl or other animals imbedded with lead shot is another cause of secondary poisoning. While the use of lead shot for waterfowl hunting was banned in 1991, lead poisoning remains a significant cause of death for bald eagles. Of 762 eagles submitted to the National Wildlife Health Center between 1975 and 2013 that died of poisoning, 484 (64%) died from lead poisoning. Moreover, a statistically significant increase in lead poisoning was documented after 1991, implying that lead shot used to kill other animals still poses a threat of secondary poisoning (Russell and Franson 2014).

Disease

Forrester and Spalding (2003) list 112 diseases or parasites that have been found on or in the bodies of bald eagles in Florida. Most parasites are not lethal, however, several infectious diseases have been implicated in the deaths of bald eagles. Avian pox (*Avipoxvirus* spp.), transmitted by biting insects, has been associated with illness and mortality in bald eagles (Figure 6; Millsap et al. 2004, Schmeling and Locke 1982). One-third of bald eagle pox cases confirmed by the National Wildlife Health Center between 1975 and 2013 were carcasses submitted from Florida (Russell and Franson 2014). The state's warm climate, where biting insects remain active for much of the year, and the large population of nesting eagles are likely to contribute to increased incidents in this state relative to other regions.



Figure 6. Severe avian pox infection in a young bald eagle from Seminole County, Florida in 2016. Photograph by Resee Collins, U.S. Fish and Wildlife Service.

West Nile virus (*Flavivirus*), which is transmitted through mosquitoes and other biting insects, colonized much of the continental U.S. within a few years of its discovery in 1999, and has been documented in 285 species of birds in North America, including bald eagles (Centers for Disease Control and Prevention 2006). Accurate information on rates of West Nile virus in bald eagles is still largely unknown, though dozens of eagle deaths were attributed to West Nile virus in Utah in 2013 (USGS 2014). One documented eagle mortality resulting from West Nile virus occurred in 2017 in Sarasota County (Southeastern Cooperative Wildlife Disease Study necropsy report, 2017).

Avian vacuolar myelinopathy (AVM) is a non-infectious neurological disease resulting from a newly characterized cyanobacterium (*Aetokthonos hydrillicola*) which grows on submerged aquatic vegetation such as invasive hydrilla (*Hydrilla verticillata*), a plant prevalent in freshwater lakes in Florida (Wilde et al. 2014). Under certain conditions, this cyanobacterium produces a toxin which causes neurologic impairment in species that directly ingest it. Subsequently, the toxin can transfer to species higher on the food chain (Birrenkott et al. 2004). Clinical signs of AVM-affected birds are loss of motor coordination and inability to swim, fly, obtain food, and eventually death (Larsen et al. 2002). AVM has been implicated in the deaths of hundreds of bald eagles in Arkansas, Georgia, North Carolina, and South Carolina (Rocke et al. 2002; Wilde et al. 2005). The presence of *A. hydrillicola* has been confirmed in several lakes in central Florida (Williams et al. 2009), but no AVM-related die-offs of wild birds have been documented in Florida to date.

An outbreak of New World screw-worm (*Cochliomyia hominivorax*) in south Florida in 2016 may represent a potentially emerging threat for wildlife in the region. New World screw-worm larvae are deposited in open wounds of warm-blooded animals, and feed on the flesh of their host. This potentially lethal parasitic larvae has been documented in birds (Al-Khalidi and A. M. Shareef 1985).

Habitat Loss and Degradation

Although the bald eagle population has grown concurrently with the growth of the human population in Florida, the continued conversion of nesting or foraging habitats to development can be expected to reduce the amount and quality of eagle habitats. Some of the most intense development pressure in peninsular Florida is occurring along the shores of large inland lakes that support cluster nesting areas (Figure 4), such as Lake Tohopekaliga in Osceola County. Bald eagle nests are protected by law, but little or no emphasis has yet been placed on regulatory protections for roosting or foraging habitats (Mojica 2006).

Some eagles in Florida have shown great tolerance for nesting in suburban or urban areas—in some cases even establishing new territories in these habitats (Millsap et al. 2004). Documented survival rates were similar for juveniles from rural and suburban nests, but mortality of those from suburban areas was more often a result of direct or indirect human interactions than mortality of rural birds (Millsap et al. 2004). Bald eagles raised in suburban habitats seem to become acclimated to human-related landscape features and do not regard these features with the same amount of caution that is shown by eagles raised from rural nests (Millsap et al. 2004, Guinn 2013). The use of manmade substrates for nesting may be a consequence of habitat loss or degradation, particularly in urban areas with abundant foraging habitat but a lack of suitable trees

for nesting. Although there may be some risks unique to or more pronounced for nests in manmade structures (e.g., entanglement, electrocution, disturbance from structure repair or maintenance, increased exposure to lightning, heat) it is unclear if these potential risks are outweighed by the benefit of the additional nesting habitat that manmade structures can provide.

In the coming century, projections indicate that Florida will be severely impacted by climate change (FWC 2016*b*). Climate change impacts include an increase in sea level rise, dynamic shifts in precipitation and air temperature, increased frequency and intensity of storm events, and changes in water chemistry (FWC 2016*b*). Increasing severity of storms could affect eagle habitats through flooding of nesting areas (potentially resulting in loss of native pines), as well as impacts to water quality caused by storm surges, potentially reducing prey availability or increasing risk of poisoning. Much of Florida's coastline is susceptible to inundation following a moderate rise in sea level, which would reduce a substantial portion of coastal habitat and change the structure of the shallow waters where bald eagles forage. Saltwater intrusion into coastal estuaries may also alter vegetation and prey base.

Other Threats

Hurricanes and other severe storms can damage or blow down eagle nests or nest trees, and storms that occur during the eagle nesting season can break eggs or kill nestlings. Forrester and Spalding (2003) detail several instances of storm-related mortality of bald eagles in Florida. Nesbitt (2005) determined that more than 1/3 of all eagle nesting territories monitored in Florida during 2004–2005 were within the paths of Hurricanes Charley, Frances, and Jeanne. Although there was significant local damage (e.g., 5 of the 6 nests in DeSoto County were destroyed), fewer than 10% of the nests within the paths of the storms showed any lasting impacts, and most destroyed nests were rebuilt in the same or a nearby tree within weeks (Nesbitt 2005). Eagles will utilize nesting material blown down as they rebuild. However, storms can result in the loss of trees large enough to support eagle nests and may cause local shortages of nesting sites in developed areas, where such trees may be scarce.

Powerlines can cause eagle injury and mortality by both collision (see *Trauma*) and electrocution. Powerlines accounted for 19% of the mortality of bald eagles in Florida during 1963–1994, with electrocution representing more than 86% of this total (Forrester and Spalding 2003).



Figure 7. Pine tree (far right) affected by southern pine beetle infestation. Photograph by Brie Ochoa, FWC.

Native to the southeastern U.S, the southern pine beetle (*Dendroctonus frontalis*) occurs in forested areas, where it inhabits stressed or dead pine trees. This species disrupts the flow of nutrients through the tree, causing stressed trees to die. Southern pine beetles are responsible for hundreds of acres of dead pine trees in Florida, and can be locally problematic. Responsible forestry practices such as tree thinning, prescribed fire, and reduction of dense understory, can minimize loss of pine trees.

In areas where suitable nesting trees are scarce, southern pine beetle infestation may threaten bald eagle habitat.

Although protected from direct persecution for more than 50 years, bald eagles are occasionally still shot in Florida.

Listing Status and Protections

Current protections for bald eagles in Florida include regulations at federal, state, and local levels. Bald eagles are federally protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668a–668c) and the Migratory Bird Treaty Act (16 U.S.C. 703–711). In Florida, [Rule 68A-16.002, Florida Administrative Code](#) (F.A.C.), prohibits take (as defined in Rule 68A-1.004), feeding, disturbance, possession, and sale of bald eagles, their nests and eggs, or parts thereof. Additionally, 68A-16.002 prohibits entry into areas posted as closed for bald eagle protection on public lands. Some counties in Florida maintain additional protections for bald eagles and their nests.

The bald eagle was first listed in 1967 under the federal Endangered Species Preservation Act, a precursor to the Endangered Species Act of 1973. In 1972, the bald eagle was added to Florida’s list of endangered species. In August 2007, the U.S. Fish and Wildlife Service acknowledged the recovery of the species and removed the bald eagle from the list of species protected by the Endangered Species Act. In 2008, the bald eagle was removed from the Florida Endangered and Threatened Species List. The bald eagle is currently not listed on the Florida Endangered and Threatened Species List, or under the federal Endangered Species Act.

CONSERVATION GOAL AND OBJECTIVES

Goal

The conservation status of the bald eagle is maintained or improved so that the species will not again need to be listed on the Florida Endangered and Threatened Species List.

Objectives

Conservation objectives are benchmarks used to measure progress toward the conservation goal. The following conservation objectives have been met or exceeded in Florida, and maintaining these objectives will help to ensure that the conservation goal is sustained. Nest surveys conducted from 1972-2016 provide the data used to establish the following objectives. Population monitoring will contribute to measuring progress towards these objectives. Maintaining a stable or increasing population of eagles throughout their current distribution will prevent the need to relist eagles under FWC's imperiled-species regulations.

1. Maintain a stable or increasing population of bald eagles in Florida.

Rationale

Because there are fewer than 10,000 mature bald eagles in Florida, the population size criterion is the most likely of the state-listing criteria to be met by bald eagles, should a population decline occur. Thus, maintaining a stable or increasing population will support the goal through ensuring this criterion is not met. Given the likelihood of annual, short-term, and local population fluctuations, long-term, statewide trends will be used to evaluate this objective. Florida's listing criteria are outlined in [Rule 68A-27.0001\(3\)](#), Florida Administrative Code.

2. Maintain current extent of occurrence of bald eagles in Florida.

Rationale

Currently, bald eagles nest in almost all counties within Florida. Maintaining breeding bald eagles throughout the state can help to protect the statewide population against effects from local declines, acute threats, and natural or other events affecting a specific area (e.g., hurricanes, chemical spills). Cluster nesting areas (locations of high nest-density) in Florida are important breeding areas and may represent the highest quality habitat; however high nest-density can increase the population's vulnerability to local impacts; maintaining statewide extent of occurrence will further protect the population against such impacts.

CONSERVATION ACTIONS

The following sections describe the conservation actions that will make the greatest contribution toward achieving the objectives. Actions are grouped by category (e.g., Habitat Conservation and Management, Population Management). The Conservation Action Table ([Table 1](#)) provides information on action priority, urgency, potential funding sources, likely effectiveness, identified partners, and leads for implementation.

Habitat Conservation and Management

Habitat conservation and management, along with protection from disturbance, are important to address threats to bald eagles. The USFWS protects bald eagles and their habitat through [regulatory processes](#), including permitting, technical assistance, and guidelines. These protections largely support the actions in this section.

Action 1 Implement and encourage land management practices that benefit bald eagles by maintaining healthy natural communities, decreasing the risk of catastrophic fire, and providing suitable nest trees.

Bald eagles are largely habitat generalists. Maintaining healthy natural communities benefits water quality (thereby supporting healthy forage conditions) and provides suitable nesting habitat. Land management practices can benefit bald eagles by decreasing the risk of catastrophic wildfire, maintaining healthy forests, and providing suitable nest trees. These practices include the use of prescribed fire, removal of non-native species, reduction of excess fuel loads, thinning of overstocked stands, replanting native species (primarily pines), and uneven-aged timber management. Retaining large-diameter native pines will ensure that suitable potential nest trees may be available in the future; the average diameter of nest trees has been documented as 28 cm (Wood 1989). Selective thinning that maintains at least 50% of the total canopy, and preserves large native pine trees, is recommended. These practices are often incorporated into management plans for public lands, which guide implementation at individual sites.

Public lands can provide a high level of security for wildlife because of statutory provisions for long-term management funding and for guiding habitat management on those lands (Florida Statutes 253.034, 259.105, and 259.032). Managers of public lands should continue to implement management practices designed to maintain natural communities supporting diverse wildlife. More specifically, management practices to maintain or improve conditions for bald eagle nesting and foraging habitats are encouraged.

Although natural community management is beneficial to eagles, some management actions have the potential to cause disturbance. When possible, conducting management activities outside of the nesting season is advised. All land management practices conducted near bald eagle nests should be in accordance with the protections outlined by the USFWS, including the [National Bald Eagle Management Guidelines](#) (USFWS 2007), which outline safe buffer distances and measures to avoid disturbance to nesting eagles. The USFWS may provide technical assistance, issue permits specific to land management conducted near eagle nests, or issue permits for activities that may cause short-term disturbance but provide long-term net benefit to eagles and their habitat (such as prescribed burns required during the nesting season).

The FWC will continue to carry out land-management practices that benefit bald eagles and other wildlife on FWC-managed lands. Bald eagles are among a suite of focal species in FWC’s Wildlife Conservation Prioritization and Recovery (WCPR) program. The goal of the WCPR program is to provide proactive assessment, planning, and restoration support for FWC-managed lands in order to facilitate conservation of wildlife. There are 48 wildlife management areas for which FWC has lead management authority that are covered by a WCPR strategy. The WCPR strategies include specific management practices to be undertaken for the benefit of focal species, including bald eagles, for areas where species are known to occur. Each WCPR strategy is reviewed and updated every 10 years.

Action 2 Protect nests from disturbance.

The USFWS maintains regulatory framework to protect bald eagle nests from disturbance likely to cause take. Through the [National Bald Eagle Management Guidelines](#) (USFWS 2007), permit conditions, and technical assistance, nests are provided adequate buffers from activities which may disturb nesting eagles, their eggs, or young.

Other efforts to prevent disturbance include education (e.g., [USFWS Guidance for Use of Cameras at Bald Eagle Nests](#), and outreach by conservation organizations), and modifications to the activity. Where recreational activities occur near a nest when bald eagles are breeding, additional protections, such as posting signs or creating seasonal no-entry boundaries, may be warranted to further minimize potential disturbance. On public lands in Florida, entry into a posted bald eagle nesting area is prohibited under [Rule 68A-16.002, F.A.C.](#) When planning new, or modifying existing recreational opportunities, efforts should be undertaken to site the opportunity so that adequate buffers are provided. For all activities, minimum buffer distances outlined by the USFWS should be followed to avoid disturbance. For situations where avoidance is not possible, the USFWS permitting program should be consulted.



Figure 8. A bald eagle’s wingspan averages 7 feet in length. FWC photograph.

Action 3 Protect lands that provide bald eagle nesting and foraging habitats, especially where these lands are compatible with priorities for imperiled species.

Long-term security of suitable habitat directly supports maintaining a healthy population in perpetuity. The FWC, other state agencies, federal and local governments, and private organizations acquire habitat through a variety of programs. Conservation easements are one tool to protect private lands from future development, and are an important component of the conservation of bald eagles. Acquiring, managing, and restoring additional lands that support bald eagle habitats should remain a priority, provided the acquisitions are compatible with priorities for imperiled species.

In addition to protecting habitat through acquisition, protection through adaptation to changing climate conditions is necessary. The Florida Adaptation Guide, in development by FWC, is designed to enable FWC and other natural resource management agencies and groups to better address projected impacts of climate change on wildlife habitats. The guide will also provide example adaptation strategies that can be integrated into various programs and planning processes.

Population Management

Action 4 Minimize mortality and injury through response to known and emerging threats.

Minimizing mortality from specific, known threats is important to prevent population decline (see [Threats](#)). Focusing response on threats that have potential population-level impacts supports the objectives of this plan. To the extent possible, specific threats can be avoided, minimized, or contained through early detection and adaptive management responses. The following threats are among the known or potential causes of mortality for bald eagles:

- vehicle collision
- secondary poisoning (e.g., lead, pentobarbital, rodenticide)
- electrocution from and collision with power lines
- insect-transmitted disease (e.g., West Nile virus)
- avian vacuolar myelinopathy

Response to address impacts from threats can include management action, education and outreach, coordination with partners, and monitoring to assess the effectiveness of these efforts. Examples of response include minimizing risk of secondary pentobarbital poisoning, which occurs when eagles feed on carcasses of euthanized animals, often at landfills; FWC will continue to emphasize the need to quickly incinerate or bury the bodies of euthanized animals to prevent scavenging by eagles and other wildlife. During instances of secondary poisoning in the past, FWC officers have followed up with local entities that regularly euthanize animals to ensure responsible disposal occurs.

As another example, electrocution- and collision-related mortality can be minimized or prevented when utility companies incorporate “avian-friendly” devices and fittings on their equipment. Suggested practices are outlined by the [Avian Powerline Interaction Committee](#). FWC can work with utility companies to develop and implement avian protection plans, which outline proactive measures to protect birds from impacts caused by equipment.

The FWC is currently developing an AVM surveillance and response plan to ensure early detection and to minimize impacts from this potential threat to bald eagles and other species.

FWC staff will continue to review data on eagle mortality as available from records of eagle carcasses collected by FWC law enforcement officers, findings for bald eagle necropsies, and the USFWS eagle mortality database. Because wildlife rehabilitators often invest resources into determining the cause of injury or death for animals they care for, close coordination with these partners is key to early identification of trends in mortality.

Action 5 Respond to local or regional population declines through adaptive management.

Should local or regional declines be projected or observed, factors contributing to the decline should be identified and addressed through appropriate conservation and management strategies. Actions to address the causes of decline may include coordination with USFWS, local governments, conservation partners, and law enforcement. Where causes include environmental changes (e.g., water quality) or the source of decline is disease or poisoning, efforts may need to be both swift and ongoing to minimize loss. The FWC and partner agencies maintain an [online reporting system for wild bird die-offs](#) used to report all bird mortalities, including bald eagle mortalities. Coordinating with partners, including the USFWS, land managers, wildlife rehabilitators, and non-governmental organizations (e.g., conservation groups, utility companies) is key to understanding and minimizing mortality. This coordination is addressed in [Coordination with Other Entities](#). Additionally, monitoring and research to gain a better understanding of demographic parameters can lead to improved management for areas that may be experiencing local declines; this is further addressed in [Monitoring and Research](#).

Monitoring and Research

Action 6 Develop a strategy for monitoring through 2032.

FWC will develop a monitoring strategy in 2018, which will guide future FWC efforts to collect data on bald eagles in Florida. The 2008 Bald Eagle Management Plan (FWC 2008a) recommended monitoring through 2032 to document a stable or increasing population over 3 generations (estimated at 24 years; 2008-2032) following removal from the Florida Endangered and Threatened Species List; 3 generations is the timeframe for status evaluations under the state's listing criteria.

Background

The FWC began monitoring nesting bald eagles in Florida in 1972, the same year the Environmental Protection Agency enacted a ban on use of DDT; the bald eagle population in Florida was at a historic low. Monitoring efforts during this time were designed to be comprehensive and intensive, focusing on documenting active nests and recording productivity data. The 1972-1973 nesting season survey, conducted by fixed-wing aircraft, documented 88 active nest territories in Florida (Nesbitt 1999).

Aerial surveys of all known and newly reported nesting territories were conducted during each nesting season from 1972-2008. A subset of active nests was surveyed to determine productivity. These surveys provided information on nest location, status, and numbers; they documented the continued population growth of bald eagles throughout the state, from 88 active nest territories in 1973 (Nesbitt 1999) to nearly 1,280 in 2008 (FWC 2008b). In 2008, the bald eagle was removed from the Florida Endangered and Threatened Species List, following delisting under the Endangered Species Act in 2007; nationwide, bald eagle populations were stable or growing.

In 2009, FWC implemented a new survey protocol based on a stratified sampling method (Zimmerman et al. 2017). Under the new protocol, a portion of nest territories were surveyed each year to determine number of active nests, and a portion of those active nests were revisited

to determine productivity. The areas surveyed changed each year to ensure coverage of documented nests over a series of nesting seasons (e.g., from 2009-2014 all previously documented nests in the state were surveyed twice). These changes were made in an effort to identify a more sustainable method for surveying eagle nests and to accurately estimate the breeding population size and productivity in Florida. As the number of nests in Florida increased, additional flights were required to survey all known nests during a relatively short window of time (November-March). The safety of those conducting the aerial surveys, the increased cost of continuing to survey all documented nests annually, and the challenge of generating statewide metrics for productivity led to implementation of the subsampling method.

Future monitoring

The current status of Florida's bald eagle population suggests that annual statewide monitoring of all nesting territories is no longer warranted. Nevertheless, the iconic status of the species and its use of habitats that are often altered for human use necessitate continued monitoring and research at a scale that will ensure the objectives of this plan are met. FWC intends to develop a monitoring strategy in 2018 that will be reprioritized as warranted to ensure the highest priority information needs are met, and information is gathered that will lead to more effective management of Florida's bald eagle population.

The monitoring strategy will outline topics that most directly inform progress toward the conservation objectives of this plan. It will identify opportunities for incorporating partner-collected data more effectively. It will also prioritize information needs based on evaluation of existing and new monitoring data and will initially focus on suspected local and/or regional declines (see Actions 4 and 5). Focal topics may include:

- nest numbers, locations, and status
- productivity
- rates and causes of bald eagle mortality (i.e. trauma, disease, toxins, etc.)
- population modeling to identify life stages limiting population growth
- impacts of land-use and water quality changes
- impacts of habitat management (i.e., prescribed fire, vegetation management)
- use of manmade structures for nesting

The FWC bald eagle nest location database includes locations and nest information for documented eagle nests in Florida. The nest status and location information is not current for all nests, and may not be updated for all nest territories in the future. However, the eagle nest database may still be useful in the short term as a tool for land management planning. The FWC will evaluate the long term usefulness of the publicly available database and will adapt its role to match priorities and information needs as they are identified.

Rule and Permitting Intent

No actions are identified under Rule and Permitting Intent.

Rules

Regulatory protections for the bald eagle currently exist at federal, state, and local levels. Bald eagles are federally protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668a–668c) and the Migratory Bird Treaty Act (16 U.S.C. 703–711). In Florida, [Rule 68A-16.002](#),

[F.A.C.](#), prohibits take (as defined in Rule 68A-1.004), feeding, disturbance, possession, and sale of bald eagles, their nests and eggs, or parts thereof. Additionally, 68A-16.002 prohibits entry into areas posted as closed for bald eagle protection on public lands. Some counties in Florida maintain additional protections for bald eagles and their nests.

Permitting

The U.S. Fish and Wildlife Service is the regulating body responsible for issuing permits for bald eagles. In 2017, the need to obtain a state permit for take of bald eagles or their nests in Florida was eliminated following revisions to [Rule 68A-16.002, F.A.C.](#) However, a USFWS permit is still needed. The USFWS provides technical assistance and maintains associated guidelines. Permitting information and application forms are available on the [USFWS bald eagle permitting webpage](#).

Law Enforcement

Law enforcement efforts to protect bald eagles include the following actions: responding to calls of illegal activity in progress; investigating reports of illegal activity; documenting and referring illegal acts for prosecution; transporting sick or injured eagles to rehabilitation facilities; retrieving and storing carcasses of non-evidentiary eagles for submittal for necropsy or directly to the National Eagle Repository; and providing proactive, public guidance about bald eagle conservation. All new recruits to FWC law enforcement receive training specific to bald eagle biology and regulations, and training is ongoing for law enforcement to ensure current information is applied.

Action 7 Ensure compliance of state and federal protections for bald eagles through education.

One of the most important components of an enforcement strategy is ensuring compliance through education. For bald eagles, education may include explaining how certain activities may cause disturbance, and how to avoid causing disturbance by maintaining safe distance, modifying the activity, or waiting until eagles are no longer utilizing the area. The FWC's law enforcement officers understand the importance of explaining wildlife laws to the public to avoid unintentional violations. However, FWC law enforcement officers actively pursue and refer for prosecution those who intentionally violate wildlife laws. The FWC law enforcement officers also educate the public on how to identify and report violations. The FWC's Division of Law Enforcement administers the Wildlife Alert program, which receives information via a toll-free number (1-888-404-3922) that is answered 24 hours a day, 7 days a week. Cash rewards are offered to callers who provide information about any illegal activity which results in an arrest. Callers may remain anonymous and are not required to testify in court.



Figure 9. A law enforcement officer prepares to transport an injured eagle for rehabilitation. FWC photograph.

Action 8 Enforce state protections and continue to partner with U.S. Fish and Wildlife Service to enforce federal protections.

The USFWS and FWC partner to help the public comply with the state and federal protections by avoiding activities that disturb bald eagles. This partnership is founded upon a cooperative agreement which grants FWC officers the authority to enforce federal laws, including the Bald and Golden Eagle Protection Act. Additionally, [Rule 68A-13.002, F.A.C.](#), adopts the federal Migratory Bird Treaty Act as state law and applies state penalties for violations. The state’s bald eagle rule, [68A-16.002, F.A.C.](#), also provides state protections. Agents from USFWS and FWC often jointly investigate wildlife violations to decide whether to prosecute in state or federal court.

Incentives and Influencing

Action 9 Promote programs that encourage habitat protection and management on private lands supporting, or with the potential to support, bald eagles and their nests.

Working with private landowners to develop and implement conservation measures for the long-term success of bald eagles in Florida will support a healthy population in perpetuity. Options should be explored to further incentives for private landowners who manage habitat for the benefit of bald eagles, in addition to managing for imperiled species. The FWC’s [Florida Wildlife Conservation Guide](#) contains species-specific information including survey protocols, habitat management practices, and guidance on wildlife-friendly site design.

Action 10 Continue to promote conservation measures for bald eagles through formal agency commenting on proposed projects.

FWC staff participates in other state and federal regulatory programs as a review agency and comments on a variety of development and land-conversion projects during the planning phase. Once an applicant enters into another agency’s regulatory process, FWC staff works with the applicant, as well as with the respective regulatory agency, to identify and address fish and wildlife impacts as required by the specific regulatory process. The process may result in the inclusion of conditions in the other state agency permit that require measures be taken to avoid, minimize, or mitigate impacts to fish and wildlife resources. Through this process, the needs of bald eagles and other wildlife are considered, with options to minimize or prevent impacts and improve planning to promote wildlife diversity. Continuing to provide comments for projects in the vicinity of known nests, or with potential impact to bald eagle habitats, is a means of incorporating conservation measures into project planning.

Action 11 Influence acquisition, land use, and long-term planning at the local level through commenting on updates and amendments to county comprehensive plans, and maintaining coordination with local governments.

Local comprehensive management plans are required to incorporate strategies for effective conservation, use, and protection of natural resources, including fisheries and wildlife pursuant to Chapter 163, Florida Statutes. When commenting on these plans, FWC staff encourage local

communities to consider bald eagles and their habitats in comprehensive plans as they are developed, updated and amended. Bald eagles and other wildlife should particularly be considered in the case of amendments which change future land use at large scales.

Local governments and other agencies also play a substantial role in bald eagle conservation and management by providing protected and managed areas for eagles. Many local governments have created habitat-acquisition and management programs, which can provide important assistance in achieving the goal and objectives of this management plan. Continued coordination with local governments and other agencies will ensure that local land-acquisition programs and their implementing ordinances and policies align with the conservation goal for bald eagles in Florida and focus on acquisition priorities for bald eagles and other important wildlife species.

Education and Outreach

Action 12 Promote bald eagle conservation through outreach to targeted audiences.

The bald eagle continues to be a charismatic, well-known species that interests many people. It is important to continue to convey key messages to residents, visitors, land managers, local governments, media, developers, consultants, and others. These messages may include clarification on the bald eagle listing status, biological background, current threats, and actions that each audience can take to improve conservation of bald eagles. Websites and other media can provide popular, scientific, legal, conservation, and permitting information. Other means to reach audiences include social media, opportunities such as special events and speaking at schools, and more formal trainings. The USFWS, other state agencies, local governments, and non-governmental conservation partners are instrumental in delivering messages to key audiences.

Action 13 Continue to provide technical assistance to stakeholders.

Requests for information come to FWC from the general public, conservation partners, land managers, law enforcement, consultants, and other stakeholders such as tower owners and wildlife rehabilitators. The FWC will continue to meet the needs of our stakeholders by providing current information and referring appropriate contacts. Examples of this type of technical assistance include responding to dead or injured eagle reports, assisting law enforcement with safe handling and release of eagles when necessary, referring stakeholders to updated information on permitting and regulations, improving land management and development plans by outlining conservation measures specific to bald eagles, and giving guidance when a new eagle nest is observed. Please note that the USFWS, rather than the FWC, provides technical assistance specific to the permitting process (e.g., opinions on whether a particular action or activity necessitates a permit).

Coordination with Other Entities

Action 14 Coordinate with wildlife rehabilitation centers, the USFWS, and other partners to collect information on bald eagle injury and mortality.

Informed by concerned citizens, wildlife rehabilitators or veterinarians are often the first to report injured or dead eagles to the FWC or the USFWS. Human-related mortality is known from sick or injured eagles or eagle carcasses examined by the National Wildlife Health Center, eagles brought to Audubon’s Center for Birds of Prey, or other veterinary or rehabilitation centers (Forrester and Spalding 2003, Russell and Franson 2014). Coordination can generate information on locality, scale, and causes of bald eagle injuries or deaths. Cumulatively, this information can highlight emerging threats, localized issues, or opportunities for outreach, and thus inform appropriate response. This action supports monitoring efforts ([see Monitoring and Research](#)).

Action 15 Continue to work with state and federal agencies to ensure water quality and quantity are sufficiently maintained, restored, and monitored.

Aquatic habitats that support fish and waterfowl are essential to maintaining healthy prey populations for bald eagles. The FWC monitors and manages freshwater habitats and fish populations in more than 1,000,000 acres of lakes, rivers, and streams, and provides funding to restore and enhance these habitats. Several federal and state agencies in Florida work together to monitor and maintain quality aquatic habitats. Continuing to work with these partners will ensure the needs of bald eagles are considered and included in water quality projects. The U.S. Environmental Protection Agency, Florida Department of Environmental Protection (DEP) and the [water management districts](#) monitor and regulate water quality (nutrient input) and quantity (minimum flows and levels) to maintain healthy conditions for aquatic plants, fish, and other wildlife. The FWC and DEP also work together to monitor, restore, and control aquatic plants through permit reviews, chemical, mechanical, or biological control of invasive non-native species, and through enhancement projects to improve habitats for fish and other wildlife. These combined habitat management efforts are expected to provide suitable eagle foraging habitats in Florida in perpetuity (see [Habitat Conservation and Management](#)).

The Comprehensive Everglades Restoration Plan is a large-scale coordinated effort between multiple agencies to restore, preserve, and protect the south Florida ecosystem while providing for other water-related needs of the region, including water supply and flood protection. The FWC will continue participation in this effort to ensure wildlife needs are considered, and habitats are sufficiently restored, during each phase of the project. The project can benefit bald eagles through enhancement of the aquatic habitats in which they forage.

Action 16 Develop new, and maintain existing, partnerships with volunteer-based organizations focused on eagle conservation in Florida.

Partnerships with other agencies, colleges or universities, or non-governmental organizations in Florida will be important in the continued conservation of bald eagles through outreach, identification of and response to local threats, and monitoring of bald eagle nests and nesting territories. FWC can provide technical assistance on monitoring protocols. . Currently, [Audubon’s Eagle Watch](#) program is a model for volunteer-based conservation. Volunteers with the program monitor eagle nesting territories and gather data on annual productivity, threats, and disturbances.

Table 1. Bald eagle conservation action table.

NOTE: An explanation of acronyms used is below the table.

Objective(s) Addressed	Team Assigned Priority Level	Action Item Number	Actions	Conservation Action Category	Ongoing, Expanded or New Effort?	Authority	Man Power	Estimated Cost To Implement	Funding Source(s)	Lead for Implementation: FWC Program(s) and/or Section(s)	External partners	Likely Effectiveness	Feasibility	Urgent?
I, II	1	1	Implement and encourage land management practices that benefit bald eagles by maintaining healthy natural communities, decreasing the risk of catastrophic fire, and providing suitable nest trees.	Habitat Conservation & Mgmt	ONGOING	YES	YES	\$100k+	Existing	WHM, SCP, AHCR	Public land managers and private landowners, state and local governments	HIGH	YES	NO
I	1	2	Protect nests from disturbance.	Habitat Conservation & Mgmt	ONGOING	YES	NO	\$0-25k	Existing	WHM, SCP, CPS	Public land managers and private landowners, state and local governments	HIGH	YES	NO
I, II	2	3	Promote acquisition and management of lands that provide bald eagle nesting and foraging habitats, especially where these lands are compatible with priorities for imperiled species.	Habitat Conservation & Mgmt	ONGOING	NO	NO	\$25-50k	Existing	HSC	Federal, state, and local governments; private organizations and landowners	HIGH	YES	NO
I	1	4	Minimize mortality and injury through response to known and emerging threats.	Population Mgmt	ONGOING	YES	YES	\$0-25k	Existing; additional funding sought as response necessitates	SCP, LE, CR	USFWS, state and local governments, conservation organizations, the public	HIGH	YES	NO
I, II	1	5	Respond to local or regional population declines through adaptive management.	Population Mgmt	ONGOING	YES	YES	\$0-25k	Existing; additional funding sought as response necessitates	SCP, LE, CR, FWRI	USFWS, state and local governments, conservation organizations, the public	HIGH	YES	NO
I, II	1	6	Develop a strategy for monitoring through 2032.	Monitoring & Research	NEW	YES	YES	\$0-25k	Existing	FWRI	USFWS, state and local governments, Audubon's Eagle Watch program	HIGH	YES	NO
I	2	7	Ensure compliance of state and federal protections for bald eagles through education.	Law Enforcement	ONGOING	YES	NO	\$0-25k	Existing	SCP, LE	USFWS, conservation organizations, the public	HIGH	YES	NO
I	1	8	Enforce state protections and continue to partner with U.S. Fish and Wildlife Service to enforce federal protections.	Law Enforcement	ONGOING	YES	YES	\$0-25k	Existing	LE	USFWS, Audubon's Eagle Watch program, the public	HIGH	YES	NO
I, II	3	9	Promote programs that encourage habitat protection and management on private lands supporting, or with the potential to support, bald eagles and their nests.	Incentives & Influencing	ONGOING	YES	YES	\$0-25k	Existing; additional funding needed	CPS	Private landowners	HIGH	YES	NO
I, II	3	10	Continue to promote conservation measures for bald eagles through formal agency commenting on proposed projects.	Incentives & Influencing	ONGOING	YES	YES	\$0-25k	Existing	CPS	Consultants, landowners	HIGH	YES	NO
I, II	3	11	Influence acquisition, land use, and long-term planning at the local level through commenting on updates and amendments to county comprehensive plans, and maintaining coordination with local governments.	Incentives & Influencing	ONGOING	YES	YES	\$0-25k	Existing	CPS	County and municipal governments	HIGH	YES	NO
I	4	12	Promote bald eagle conservation through outreach to targeted audiences.	Education & Outreach	ONGOING	YES	NO	\$0-25k	Existing	OCR	Conservation organizations, land managers, the public	HIGH	YES	NO
I	3	13	Continue to provide technical assistance to customers.	Education & Outreach	ONGOING	YES	YES	\$0-25k	Existing	SCP, FWRI	USFWS	HIGH	YES	NO

Table 1. Bald eagle conservation action table.

Objective(s) Addressed	Team Assigned Priority Level	Action Item Number	Actions	Conservation Action Category	Ongoing, Expanded or New Effort?	Authority	Man Power	Estimated Cost To Implement	Funding Source(s)	Lead for Implementation: FWC Program(s) and/or Section(s)	External partners	Likely Effectiveness	Feasibility	Urgent?
I, II	2	14	Coordinate with wildlife rehabilitation centers, the USFWS, and other partners to collect information on bald eagle injury and mortality.	Coordination with Other Entities	ONGOING	YES	YES	\$0-25k	Existing	LE, FWRI	USFWS, Wildlife rehabilitators, Conservation organizations	HIGH	YES	NO
I, II	1	15	Continue to work with state and federal agencies to ensure water quality and quantity are sufficiently maintained, restored, and monitored.	Coordination with Other Entities	ONGOING	YES	YES	\$25-50k	Existing	AHCR, CPS, FFM, IPM	DEP, WMDs, EPA, other state and federal governments	HIGH	YES	NO
I, II	1	16	Develop new, and maintain existing, partnerships with volunteer-based organizations focused on eagle conservation in Florida.	Coordination with Other Entities	EXPANDED	YES	YES	\$0-25k	Existing	FWRI, SCP, LE	Audubon's Eagle Watch program, Conservation organizations	HIGH	YES	NO

Acronyms used in this table:

- AHCR: Aquatic Habitat Conservation and Restoration, a section of the Florida Fish and Wildlife Conservation Commission's Division of Habitat and Species Conservation
- CPS: Conservation Planning Services, a section of the Florida Fish and Wildlife Conservation Commission's Division of Habitat and Species Conservation
- DEP: Florida Department of Environmental Protection
- EPA: Federal Environmental Protection Agency
- FFS: Florida Forest Service
- FWC: Florida Fish and Wildlife Conservation Commission
- FWRI: Fish and Wildlife Research Institute, the research branch of the Florida Fish and Wildlife Conservation Commission
- HSC: Florida Fish and Wildlife Conservation Commission's Division of Habitat and Species Conservation
- LE: Law enforcement
- OCR: Office of Community Relations, administered by the Florida Fish and Wildlife Conservation Commission
- SCP: Species Conservation Planning, a section of the Florida Fish and Wildlife Conservation Commission's Division of Habitat and Species Conservation
- TBD: To be determined
- WHM: Wildlife and Habitat Management, a Section of the FWC's Division of Habitat and Species Conservation
- WMDs: Water Management Districts

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APPENDICES

Florida Fish and Wildlife
Conservation Commission
(FWC)

**Bald Eagle Regulations, Permitting, and
Contact Information for Florida**

United States Fish and
Wildlife Service
(USFWS)



For projects or activities within 660 feet of a bald eagle’s nest, a U.S. Fish and Wildlife Service eagle take permit may be necessary to avoid a potential violation. The following resources provide information about the protections and permitting process for bald eagles in Florida.

Regulations	State of Florida Eagle Rule, 68A-16.002, F.A.C.	Prohibits take, including disturbance, of bald eagles in Florida.
	Federal Bald and Golden Eagle Protection Act	Includes 50 CFR 22.23 Depredation, 22.26 Eagle Incidental Take (Disturbance), & 22.27 Eagle Nest Take.
Websites	(State) FWC Bald Eagle Information	Species Action Plan, monitoring reports, general information.
	(Federal) USFWS Bald and Golden Eagle Information	Eagle biology, fact sheet, federal regulations, permitting links.
Nest Locations	(State) FWC Bald Eagle Nest Locator	Searchable database of historically known nest territories. Undocumented eagle nests can be reported to BaldEagle@MyFWC.com .
Technical Assistance	(Federal) USFWS Southeast Region's Eagle Technical Assistance Webpage	Step-by-step guidance to determine if new or intermittent activity near an eagle nest is likely to take or disturb eagles.
Guidelines	National Bald Eagle Management Guidelines	Guidelines to avoid disturbance to nesting bald eagles, nest buffer distances, activity-specific guidance, etc.
Eagle Take Permits	Incidental Take (Disturbance) Permit Application	Federal permit application for activities where there is a potential to disturb or otherwise take eagles (Rule 50 CFR 22.26).
	Nest Take Permit Application	Federal permit application for eagle nest removal (Rule 50 CFR 22.27). See information about the conditions under which nest take permits are issued.
	Scientific Collecting Permit Application	Federal permit application to collect, transport or possess bald eagles, their parts, nests, or eggs for scientific research or educational purposes. Only zoological parks, scientific societies and museums that are open to the public and are established, maintained, and operated as a governmental service, or are privately endowed but non-profit, are eligible for a permit.
Contact Information	For technical assistance: Ulgonda Kirkpatrick, USFWS Bald Eagle Biologist	Ulgonda_Kirkpatrick@fws.gov (321) 972-9089
	For permitting questions: Resee Collins, USFWS Eagle Permit Coordinator	Resee_Collins@fws.gov (404) 679-4163
	For biology, nest database, or research questions: FWC Call Center	BaldEagle@MyFWC.com (850) 488-4676
	To report a violation or contact law enforcement: FWC Wildlife Alert Hotline	Tip@MyFWC.com (text or email) (888) 404-3922

Updated September, 2017



Bald Eagle Regulations, Permitting, and Contact Information for Florida



Frequently Asked Questions

Since the bald eagle is no longer a listed species, is it still being protected by state and federal laws?

Yes, the bald eagle is still protected by both state and federal eagle laws. The Florida eagle rule, [68A-16.002, F.A.C.](#), outlines that it is illegal to disturb or take an eagle in Florida. There are two federal eagle laws, the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA). For more information about the federal eagle laws please visit the [USFWS bald eagle website](#).

Does FWC still issue eagle permits?

On April 20th, 2017, the Florida Fish and Wildlife Conservation Commission approved revisions to the state's bald eagle rule (68A-16.002, F.A.C.). The approved rule revisions eliminate the need for applicants to obtain both a state and federal permit for activities with the potential to take or disturb bald eagles or their nests. Under the approved revisions, only a federal (USFWS) permit is required.

What are the federal permitting regulations?

The original federal eagle regulations were published in 2009 and revised effective January 17, 2017. Refer to the [Frequently Asked Questions](#) about the revised federal eagle regulations.

There are two federal permitting regulations under the [Bald and Golden Eagle Protection Act](#). The regulation set forth in 50 CFR § 22.26 provides for issuance of permits to take or disturb bald eagles when associated with but not the purpose of the activity and cannot practicably be avoided. Avoidance and minimization measures, along with monitoring, are generally required. The regulation in 50 CFR § 22.27 establishes permits for removing eagle nests. Refer to the [conditions under which these permits are issued](#) along with a list of [permitting terms and definitions](#) under 50 CFR 22.3 as provided in the federal regulations.

How can I make sure that a bald eagle's nest will not be impacted by a new project, event, or activity?

The FWC and USFWS encourage landowners and regulatory officials to refer to the [FWC eagle nest locator](#) before starting any project or planning activities that have the potential to impact a bald eagle's nest, i.e. land clearing, exterior construction, timber harvest, etc. The database is not comprehensive, and does not take the place of an on-the-ground survey, but it is an excellent place to start. New or undocumented eagle nests should be [reported to the database administrator](#).



Bald Eagle Regulations, Permitting, and Contact Information for Florida



Frequently Asked Questions (*continued*)

What do I do if a project may need an eagle permit?

If an eagle or eagle nest may be affected by the proposed project it may be necessary to obtain a federal (USFWS) eagle permit. More information on federal eagle permitting in Florida can be found on the [USFWS Southeast Region eagle website](#). If you need additional technical assistance, please contact the [USFWS Bald Eagle Biologist](#). For questions about the federal eagle permit application process, contact The [USFWS Eagle Permit Coordinator](#).

The [USFWS Southeast Region eagle website](#) features a [technical assistance page](#) and information about [federal eagle permits](#). The USFWS has also developed [National Bald Eagle Management Guidelines](#). Note that for most activities, the recommended buffer distance from a bald eagle nest is 660 feet. Activities occurring at a distance greater than 660 feet from an eagle nest are not likely to cause disturbance.

When was the bald eagle removed from the state and federal endangered species list?

The FWC removed the bald eagle from the state list of threatened species in May 2008. The bald eagle was removed from the federal list of endangered species in August 2007. Delisting by state and federal wildlife agencies was based on the substantial recovery of bald eagle breeding populations, both in Florida and throughout the lower 48 states.

What is the current population status (both nationally and in Florida) of the bald eagle?

The population of bald eagles in the lower 48 states is estimated to be 15,500 nesting pairs. FWC estimates the population of breeding bald eagles in Florida is approximately 1,500 pairs. Florida is home to more nesting bald eagles than any state other than Alaska and Minnesota.

What has contributed to the recovery of the Florida eagle population?

The Florida bald eagle population and their nests have been protected through science-based land management, regulation, public education and law enforcement. Florida's eagle population began to increase substantially following the ban of the pesticide Dichloro-Diphenyl-Trichloroethane (DDT) in 1972 and passage of the U.S. Endangered Species Act of 1973. In addition, the rehabilitation and release of injured and orphaned bald eagles back to the wild have also contributed to their recovery in Florida.

Bald eagles have taken over a nest built by ospreys, or great-horned owls have taken over an eagle nest. Do the bald eagle regulations still apply to these nests?

Yes, any nest built or used by bald eagles for breeding is protected by state rule and federal law. Bald eagles may sometimes take a nest over from osprey and use the nest to raise young. Similarly, great-horned owls may take over the nests of bald eagles. In either situation, eagles may return to use the nest again once the other species has completed its own nesting season. An eagle nest removal permit is needed to remove or destroy the nest, and the [USFWS Eagle Technical Assistance](#) information should be consulted for guidance on proposed projects within 660 feet of the nest.