

## Florida's Introduced Birds: European Starling (*Sturnus vulgaris*)<sup>1</sup>

---

Steve A. Johnson and Walter Givens<sup>2</sup>

Many non-native birds have been introduced in Florida—perhaps as many as 200 species! Of these, at least 14 introduced species are considered established, according to various authorities, and some are now considered invasive and could have serious impacts in Florida. This fact sheet introduces the European Starling, and is one of a series of fact sheets about Florida's established non-native birds and their impacts on our native ecosystems, economy, and the quality of life of Floridians. For more information on Florida's introduced birds, how they got here, and the problems they cause, read "Florida's Introduced Birds: An Overview," <http://edis.ifas.ufl.edu/UW297>, and the other fact sheets in this series, [http://edis.ifas.ufl.edu/topic\\_series\\_floridas\\_introduced\\_birds](http://edis.ifas.ufl.edu/topic_series_floridas_introduced_birds).

### Species Description

The European Starling (*Sturnus vulgaris*) is a member of the starling and myna family (Sturnidae), the bird family that also includes the Common Myna, another introduced species considered an emerging threat in Florida. Adult European Starlings are 8–9

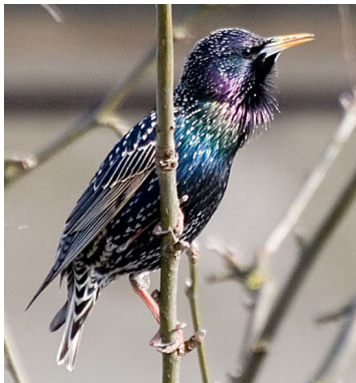
inches long (20–23 cm) with a wingspan of 12–16 inches (31–40 cm), and weigh approximately 2–3 ounces (60–96 g). They are somewhat squat, stocky birds with short, squared tails, pointed wings, and long pointed bills. During the non-breeding season, adult males and females have feathers that are predominantly glossy black with whitish spots on the tips, and their bills are grayish-black (Fig. 1). During the breeding season, their bills are yellow, their legs are reddish, the glossy black feathers on their heads and chests are iridescent purple and green, and many of the feathers are no longer white-tipped (Fig. 2). Although males and females are similar in appearance, males may be slightly larger than females. Juvenile European Starlings have a body shape that is similar to that of adults, but their feathers are uniformly gray-brown (Fig. 3). The calls of European Starlings are highly varied and include trills, warbles, chirps, and screams. These birds are also highly skilled mimics that often copy the calls of other species. European Starlings are also known to mimic human speech and a variety of other sounds when kept as pets.

1. This document is WEC255, of the Department of Wildlife Ecology and Conservation, University of Florida/IFAS. This document is one of several documents in the series entitled "Florida's Introduced Birds," published by Dr. Steve A. Johnson. Visit the University of Florida's EDIS web site at <http://edis.ifas.ufl.edu>. First published April 2009.

2. Steve A. Johnson, assistant professor and Extension specialist, Department of Wildlife Ecology and Conservation and Gulf Coast Research and Education Center, University of Florida/IFAS - Plant City Center, 1200 North Park Road, Plant City, FL 33563; Walter Givens, student, Gulf Coast Research and Education Center, University of Florida/IFAS - Plant City Center, 1200 North Park Road, Plant City, FL 33563.



**Figure 1.** European Starling (*Sturnus vulgaris*) in non-breeding plumage, seen in the fall and winter months. Notice the black-colored bill and white-tipped feathers. Credits: R. Wampers, Wikimedia Project, 2005



**Figure 2.** European Starling (*Sturnus vulgaris*) in breeding plumage, seen in spring and summer months. Notice the yellow bill, highly iridescent feathers, and reddish legs. Credits: Andi Buchner, Wikimedia Project, 2007



**Figure 3.** An adult European Starling (*Sturnus vulgaris*) in breeding plumage feeds a juvenile European Starling. Notice the juvenile's uniformly colored, gray-brown feathers. Credits: Ian Dunster, Wikimedia Project, 2008

### Similar Species

The European Starling, Common Grackle (*Quiscalus quiscula*) and male Brown-headed Cowbird (*Molothrus ater*) are very similar in

appearance and could be easily confused at a distance. The Common Grackle (Fig. 4) is also iridescent purple-black, but it is much larger than the European Starling, it has a longer tail, it lacks the speckled appearance, and it has a much thicker bill that is always black. In some parts of its range, the body of the Common Grackle may be more bronze than black in color. The iris of the eye of the Common Grackle is also a bright yellow, whereas the iris of the European Starling is dark-colored. The body of the male Brown-headed Cowbird (Fig. 5) is also iridescent black, but its head is a distinct brown, it lacks the speckled appearance, and it has a much thicker, shorter bill that is always brownish-black.



**Figure 4.** The Common Grackle (*Quiscalus quiscula*) is similar in appearance to the European Starling, but it is larger, its bill is thicker and never yellow, and its feathers are not speckled in appearance. Common Grackles also have conspicuously yellow eyes, and the body may be more bronze than black, as seen here. Credits: MDF, Wikimedia Project, 2005

### Native Range and Habitats

European Starlings are native to Europe and northwestern Asia and often winter as far south as northern Africa. They occupy a wide variety of habitats that have open areas for foraging, trees with cavities for nesting, and a source of drinking water, including grasslands, agricultural areas, and urban areas.



**Figure 5.** The male Brown-headed Cowbird (*Molothrus ater*) is similar in size and appearance to the European Starling, but it has a conspicuous brown head, its bill is much shorter and never yellow, and its feathers are not speckled. Credits: [www.naturepicsonline.com](http://www.naturepicsonline.com), 2008

### Mode of Introduction

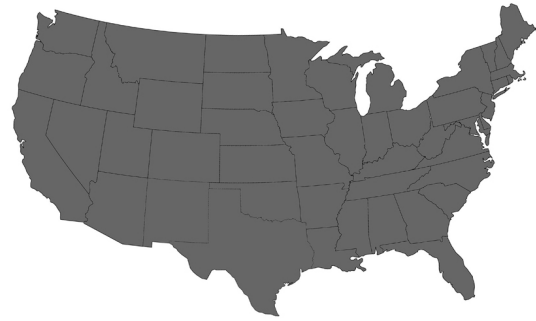
European Starlings were intentionally introduced in North America in 1890, when 100 birds were released in New York City's Central Park as part of a movement to introduce birds favored by Shakespeare to the United States. European Starlings rapidly expanded their range from the site of their initial introduction, and were first documented in Florida in 1918, when a single bird was captured on Amelia Island near Jacksonville.

### Introduced Range and Habitats

European Starlings are now found throughout the United States (Fig. 6), including Alaska and Hawaii (not shown) and have also been introduced in Canada, Jamaica, the West Indies, South Africa, Australia, and New Zealand. In their introduced range in the United States, European Starlings frequent disturbed sites and urban areas, but they will also inhabit natural habitats (such as grasslands) that meet their needs. Starlings often frequent agricultural areas, where they feed on crops. They are extremely adaptable to urban environments and will nest in cavities in fence posts, under the eaves of roofs, in drainage gutters, and in artificial nest boxes.

### Ecology

European Starlings are omnivorous and feed on a wide variety of invertebrates (such as beetles, earthworms, and spiders), as well as seeds, insects, plants, and fruits. Starlings are highly gregarious



**Figure 6.** United States Range of the European Starling (*Sturnus vulgaris*). Credits: Monica E. McGarrity, University of Florida, 2008

(social), and forage in open grassy or agricultural areas in large flocks that may number in the thousands. European Starlings prefer to feed in the same area throughout much of the year, returning each day to forage, and can cause significant damage to agricultural crops. They are fierce competitors and may fight amongst themselves or with other species for food.

European Starlings form breeding pairs in late winter or early spring and begin to select nest sites and build nests of straw, grass, and other materials (including green vegetation) in late February or early March. European Starlings are cavity nesters, and will opportunistically nest in any available cavities in trees or man-made structures or in artificial nest boxes (Fig. 7). European Starlings also frequently destroy eggs and evict native Wood Ducks, Bluebirds, Purple Martins, woodpeckers, sapsuckers and other cavity-nesting species from desirable nest sites, which they then fiercely defend. During the breeding season, the females lay up to two clutches of 4–7 small, blue eggs that are slightly smaller and darker than an American Robin's eggs (Fig. 8).

### Ecological Impacts

European Starlings feed in huge flocks, eating massive quantities of invertebrates and plant matter, and may have significant localized effects on invertebrate populations and thus on availability of food for other species. They frequently travel long distances between preferred feeding and roosting





**Figure 7.** European Starlings opportunistically nest in any available cavity, such as this space exposed by a missing board, and will evict native birds from desirable nest sites. Credits: Rasbak, Wikimedia Project, 2008



**Figure 8.** European Starling eggs are similar in appearance to the eggs of American Robins, but are slightly smaller and darker. American Robins don't breed in Florida and don't nest in cavities, so there is little chance of confusing the eggs. Remember, European Starlings nest in cavities, and their eggs should not be confused with blue eggs laid in nests in trees. Credits: Mike R., Wikimedia Project, 2006

sites, and have the potential to contribute to the spread of invasive plants by large-scale seed dispersal. European Starlings aggressively displace native cavity-nesting birds, evicting these species from their nest sites and destroying their eggs. These fierce competitors have been known to attack birds in nest boxes and destroy their eggs, even in nest boxes with openings too small to allow the European Starlings access for nesting. According to a study by scientists at the University of California at Berkeley, competition by European Starlings for nesting sites may be causing the decline of sapsucker (*Sphyrapicus* spp.) populations and could be contributing to the decline of several other species of native birds.

## Impacts to People and Pets

European Starlings are one of only a few invasive species whose introduction has resulted in a loss of human life. In 1960, an aircraft collided with a flock of starlings and crashed in Massachusetts, causing 62 human fatalities. By 1991, increasing frequency of bird-related aviation incidents resulted in the formation of the Bird Strike Committee USA (BSC-USA), made up of officials from the Federal Aviation Administration, U.S. Dept. of Defense, U. S. Dept. of Agriculture, and the aviation industry. The BSC-USA reports that bird-related incidents have caused over \$6 million in damages and an astounding 219 human deaths since 1988. Scientists at the U.S. Dept. of Agriculture's National Wildlife Research Center ranked European Starlings as the wildlife species posing the ninth highest risk to aviation safety. They reported that European Starlings damage more than 150 planes each year, and cause 10 or more flights each year to abort takeoff, shut down engines, or make precautionary landings.

European Starlings have also become a considerable nuisance to humans in urban areas, where they nest in attics and under the eaves of roofs. When large flocks are present, their corrosive feces can damage buildings and automobiles. Flocks of European Starlings can number in the thousands and can decimate crops of favored foods such as grapes; such damages can be devastating to small farms or vineyards. Additionally, European Starlings are known to carry a variety of disease-causing viruses and bacteria, including *Salmonella*, and their feces could potentially contaminate agricultural products or water sources for livestock.

## Solutions

Modification of the habitat around airports to remove water sources, foraging areas, and nesting sites has been somewhat successful at reducing dangerous interactions with European Starlings. Near airports, in agricultural areas, and in areas where European Starlings have become a significant nuisance, trapping can help to alleviate problems, but this method has had little success for long-term population control. In rural areas where it is legal to discharge firearms, shooting may help to control or

discourage European Starlings. In urbanized areas, vigilance is the key to deterring European Starlings. The most effective way to deter European Starlings from occupying urban structures is by excluding them. You should inspect your home for openings under the eaves, open roof vents, or other possible nesting locations, and fit them with hardware cloth (Fig. 9) or other covering that does not allow access. You should use a small opening size (1 9/16") to prevent European Starlings from nesting in birdhouses. If you find these invasive birds nesting in your birdhouses, you may also want to move the houses to new locations, since some females will return to nest in the same location year after year. If you find eggs that you are sure belong to European Starlings (Fig. 8), you should remove them. Remember that European Starlings are cavity nesters – do not remove eggs from nests in trees! A great online guide to cavity nesting birds, their nests, and their eggs can be found online at <http://www.sialis.org/images/nesteggphotoalbum/Nests/index.htm> (NOTE: includes species not found in Florida, so be sure to check distribution and maps).



**Figure 9.** Openings that allow access to attics, eaves, or other potential nesting sites for European Starlings should be securely covered. Here, hardware cloth and nails are used to cover a roof vent to prevent wildlife from gaining access to the attic. Credits: Steve A. Johnson, University of Florida, 2007

## How You Can Help

You can help to alleviate the growing numbers of non-native bird species in Florida by being a responsible and educated pet owner. Never set any pet free outside! You can also help by learning more

about invasive plants and animals and their impacts on Florida's natural environment, and by educating others. For more information on Florida's introduced birds and how you can help, read "Florida's Introduced Birds: An Overview," <http://edis.ifas.ufl.edu/uw297>, and check out the Additional Resources listed below.

## Additional Resources

We recommend several different online guides, books and other publications that provide additional information on Florida's native and non-native birds.

### Books and Scientific Publications

Avery, M. L., and M. P. Moulton, "Florida's non-native avifauna," *Managing Vertebrate Invasive Species: Proceedings of an International Symposium* (G. W. Witmer, W. C. Pitt, K. A. Fagerstone, Eds.). (Fort Collins, CO: USDA/APHIS/WS, National Wildlife Research Center, 2007).

Alsop, Fred J., *Smithsonian Handbooks: Birds of North America – Eastern Region*. (New York: DK Publishing, Inc., 2001).

Bull, J., and J. Farrand, Jr., *The Audubon Society Field Guide to North American Birds*. (New York: Alfred A. Knopf, 1977).

Cabe, P. R., "European Starling (*Sturnus vulgaris*)," in *The Birds of North America Online* (A. Poole, Ed.). (Ithaca: Cornell Lab of Ornithology, 1993). Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/048>

Dolbeer, R. A., S. E. Wright, and E. C. Cleary, "Ranking the hazard level of wildlife species to aviation," *Wildlife Society Bulletin*, 28 (2000): 372–78.

Feare, C. J. 1984. *The Starling*. Oxford Univ. Press, Oxford. Kale, H. W. II, and D. S. Maehr, *Florida's Birds*. (Sarasota: Pineapple Press, Inc., 1990).

Koenig, W. D., "European Starlings and their effect on native cavity-nesting birds," *Conservation Biology* 17 (2003): 1134–40.

Linz, G. M., H. J. Homan, S. M. Gaukler, L. B. Penry, and W. J. Bleier, "European starlings: a review of an invasive species with far-reaching impacts," Proceedings of the Management of Invasive Species Conference, 378-86.

Peterson, R. T., Peterson Field Guides, Eastern Birds. (Boston: Houghton Mifflin Co., 1980).

Pranty, B., A Birder's Guide to Florida. (Colorado Springs: American Birding Association, 1996).

Robbins, C. S., B. Bruun, H. S. Zim, and A. Singer, A Golden Guide to Field Identification: Birds of North America. (New York: Golden Press, 1983).

Sibley, D. A., The Sibley Field Guide to Birds of Eastern North America. (New York: Knopf, 2003).

Woolfenden, G. E., W. B. Robertson, Jr., and J. A. Cox, The Breeding Birds of Florida. (Florida Ornithological Society Special Publication 7, 2006)

<http://www.mbr-pwrc.usgs.gov> - click on "Bird Identification InfoCenter"

Audubon Society – "The great entrance-hole debate," by M. Pearman.  
<http://audubon-omaha.org/bbbox/nabs/mp1.htm>

## Online

USDA National Invasive Species Information Center (NISIC)  
<http://www.invasivespeciesinfo.gov/index.shtml>

Florida Fish and Wildlife Conservation Commission Non-Native Wildlife  
<http://myfwc.com/nonnatives/index.htm> - click on "Birds"

Florida Fish and Wildlife Conservation Commission Breeding Bird Atlas  
<http://myfwc.com/bba/default.htm>

World Conservation Union, Species Survival Group, Invasive Species Specialist Group  
<http://www.issg.org> – click on "Global Invasive Species Database", search for species

Cornell Lab of Ornithology "All About Birds"  
<http://www.birds.cornell.edu/AllAboutBirds> - click on "Bird Guide", search for species

Sialis.org – Elizabeth Zimmerman – "All About Starlings"  
<http://www.sialis.org/starlingbio.htm>

United States Geological Survey, Patuxent Wildlife Research Center, Bird Identification