

Florida Black Bear Management and Research

2017 Annual Report



INTRODUCTION

The Florida Fish and Wildlife Conservation Commission (FWC) engages in management and research efforts to ensure the conservation of the Florida black bear for future generations of Floridians. Conservation efforts have allowed bear populations to rebound from historic lows of as few as 300 bears in the 1970's to over 4,000 bears in Florida today.

In 2012, the FWC approved a 10-year management plan that guides bear conservation efforts in Florida. The goal of the plan is to maintain sustainable bear populations in suitable habitats throughout Florida for the benefit of the species and people. The plan includes four focus areas: Population Management, Habitat Conservation, Human-Bear Conflict Management, and Education and Outreach.

The FWC has two programs that deal exclusively with bears to maintain the bear populations in balance with the growing human population in Florida: the Bear Management Program (BMP) and the Bear Research Program (BRP). Both programs work closely together and assist each other when needed.

The BMP is in the FWC's Imperiled Species Management Section of the Division of Habitat and Species Conservation. The BMP focuses heavily on taking actions to avoid and respond to human-bear conflicts. The BMP has nine full-time staff positions, which include the Program Coordinator (David Telesco), Assistant Program Coordinator (Mike Orlando), Internship and Database Coordinator (Sarah Barrett), Database Specialist (Mackenzie Sconyers; Figure 1), and five Area Bear Biologists (Figure 2).



Figure 1. FWC's Bear Management Program staff (left to right) Dave Telesco, Mackenzie Sconyers, Alyssa Simmons, Sarah Barrett, Sarah Peltier, Mike Orlando, Kaitlin Goode, and Jordan Green.

In addition to the nine BMP staff, each Area Bear Biologist is able to call upon four to six Bear Response Contractors to assist them in their area of responsibility. Bear Response Contractors are private citizens who have been trained by the FWC to work on an 'as needed' basis to respond to public requests for assistance with outreach and trapping as well as recovering carcasses (*see Bear Response Contractor section below for list of activities in 2017*). Started in 2005 as a pilot study, the Bear Response Contractor program has grown to become an integral component in how the FWC is able to keep up with the continually increasing requests for assistance from the public to respond to human-bear conflicts in the field. BMP has 25 BRCs strategically located throughout the state to provide efficient and timely response for the FWC.

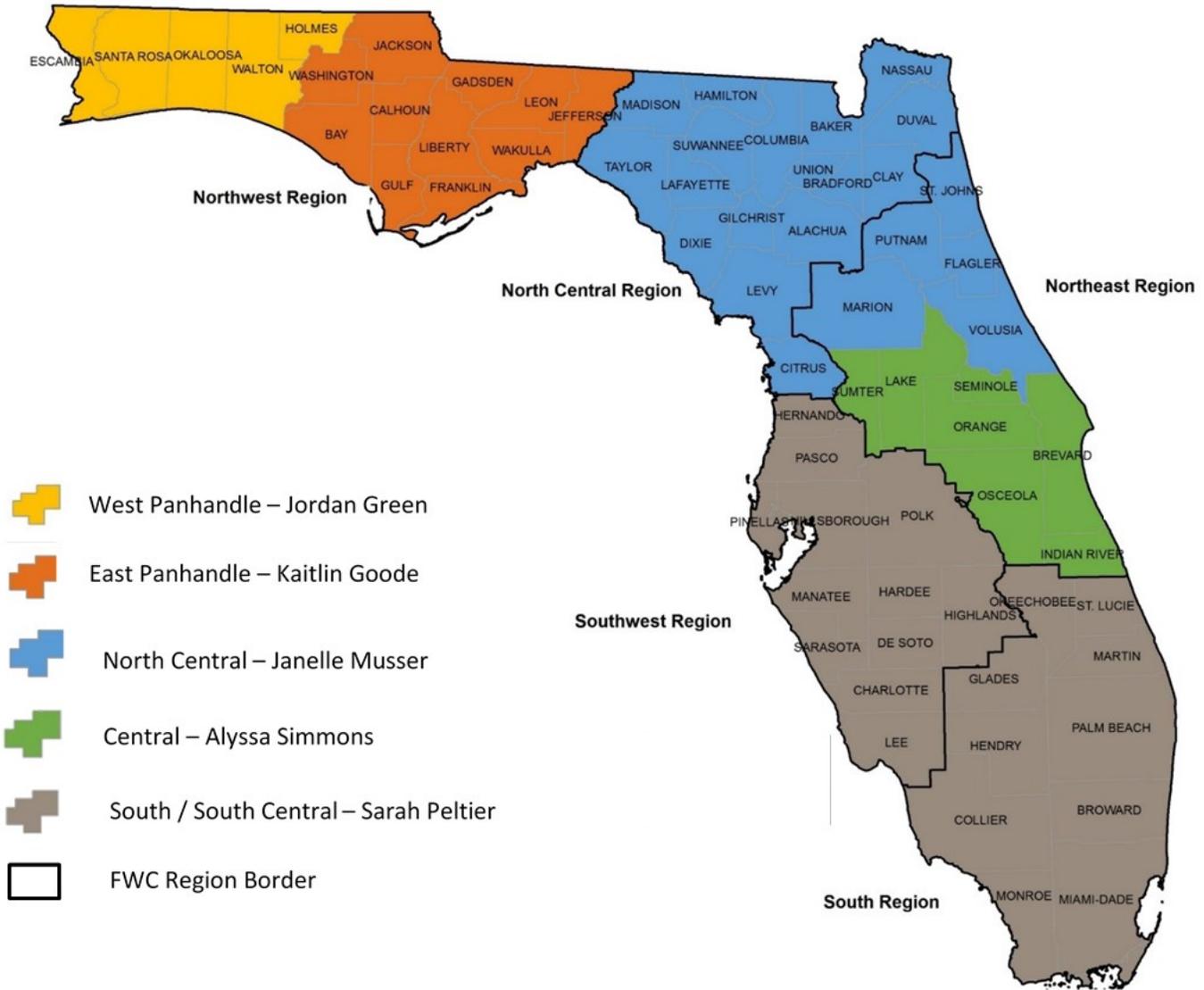


Figure 2. Coverage areas by county for Area Bear Biologists and FWC Region borders.

The BRP is in the FWC’s Terrestrial Mammal Research Subsection of the Wildlife Research Section of the Fish and Wildlife Research Institute. The BRP focuses on demographic studies, population abundance estimates, and habitat analyses in support of the Plan. The BRP has three full time staff, which include the Program Coordinator (Walt McCown), Assistant Program Coordinator (Brian Scheick), and Biological Scientist (Don Hardeman, Jr.; Figure 3). While BRP staff are based out of the Lovett E. Williams, Jr. Wildlife Research Lab in Gainesville, they frequently spend their time in other parts of the state working on different research projects.



Figure 3. FWC's Bear Research Program staff (left to right) Walt McCown, Don Hardeman, Jr. and Brian Scheick.

BMP and BRP staff lead or participate in several working groups, action teams, and training operations, both within the agency, among stakeholders and partner agencies in Florida, and out-of-state cooperative efforts, including:

- Lead the FWC's Statewide Bear Technical Assistance Group
- Lead the FWC's seven local Bear Stakeholder Groups
- Lead the FWC's Bear Management Plan Update Action Team
- Lead the FWC's Chemical Capture Action Team
- Participate in the FWC's Wildlife Human Attack Response Training
- Participate in the FWC's Education and Outreach Standing Team
- Participate in the FWC's Volunteer Standing Team
- Participate in the FWC's Conflict Wildlife Strategic Initiative

- Participate in the FWC’s Expanding Participation in Conservation Strategic Initiative
- Participate in the FWC’s Mesomammal Working Group
- Participate in the FWC’s Mammal Prioritization Team
- Participate in the FWC’s Mammal Conclave Working Group
- Participate in the FWC’s Salesforce Working Group
- Participate in the International Association of Bear Research and Management’s Bear Management Committee
- Participate in the International Association of Bear Research and Management’s Bear Conservation Fund Committee
- Participate in the Eastern Black Bear Workshops for bear biologists and researchers in eastern North America
- Member of the International Union for Conservation of Nature Bear Specialist Group
- Participate in the Southeastern Association of Fish and Wildlife Agencies’ Large Carnivore Working Group
- Participate in the Southeastern Association of Fish and Wildlife Agencies’ Large Carnivore Working Group’s BearWise Committee

BEAR-RELATED CALLS

As bear populations expand and Florida’s human population grows, there are more opportunities for people and bears to interact. The FWC relies on staff from multiple Programs, Sections, and Divisions to respond to public requests for assistance with human-bear conflicts. Calls from the public related to bears may be answered by different FWC personnel, in part depending on when the calls are received. Calls received during regular business hours are typically initially answered by either regional call centers or law enforcement communication centers. Many of these calls can be resolved by providing technical assistance over the phone. Depending on the amount of technical assistance required, either call center staff or the regional Wildlife Assistance Biologist can provide the necessary support. During 2017, FWC personnel received 6,188 calls regarding bears (i.e., sightings, bears in garbage; Figure 4).

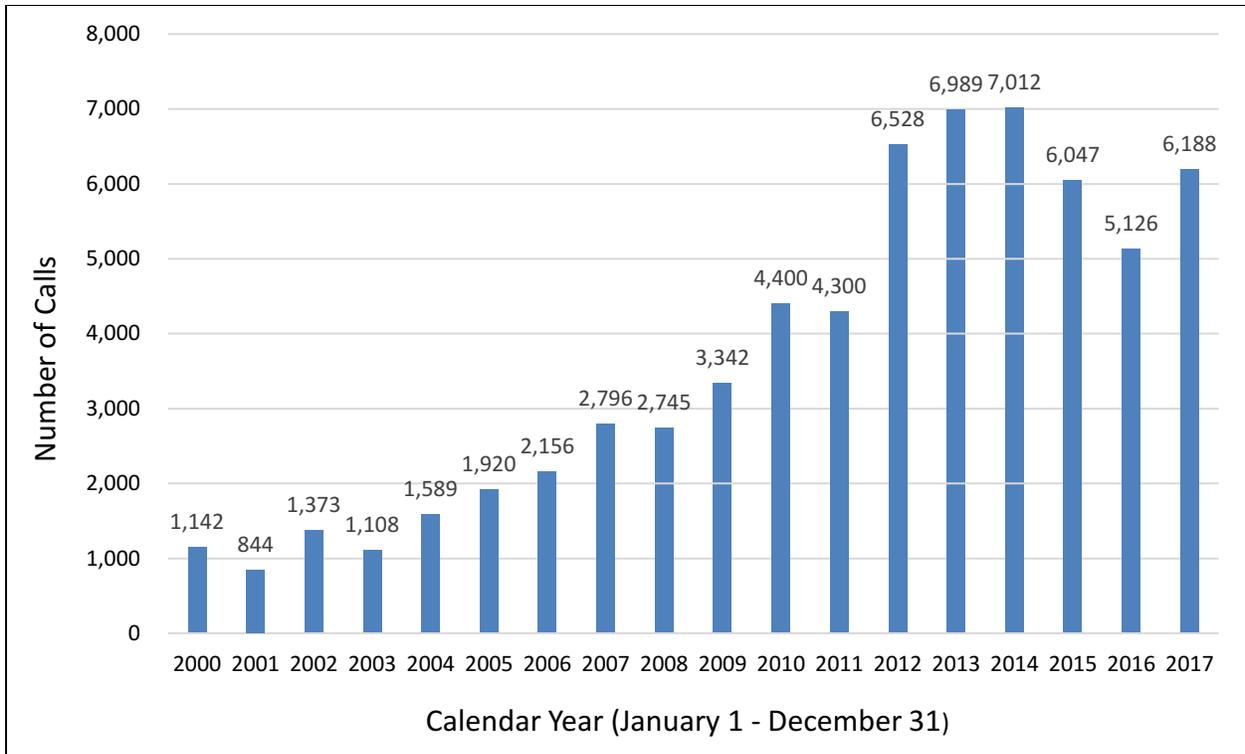


Figure 4. Number of bear-related calls received by FWC from 2000 to 2017 (n = 65,605).

While the overall number of calls have increased over time, fortunately, the percentage of calls that are of the most serious concerns (i.e., Public Safety, In Structure, Bear-Animal Encounter) have remained extremely low (Figure 5). About a third of all calls report that bears are accessing garbage, and another 37% report bears in the yard, up a tree, or in the area, (grouped as ‘General Interaction’ in Figure 5) which are symptomatic of bears seeking food in neighborhoods (Figure 5).

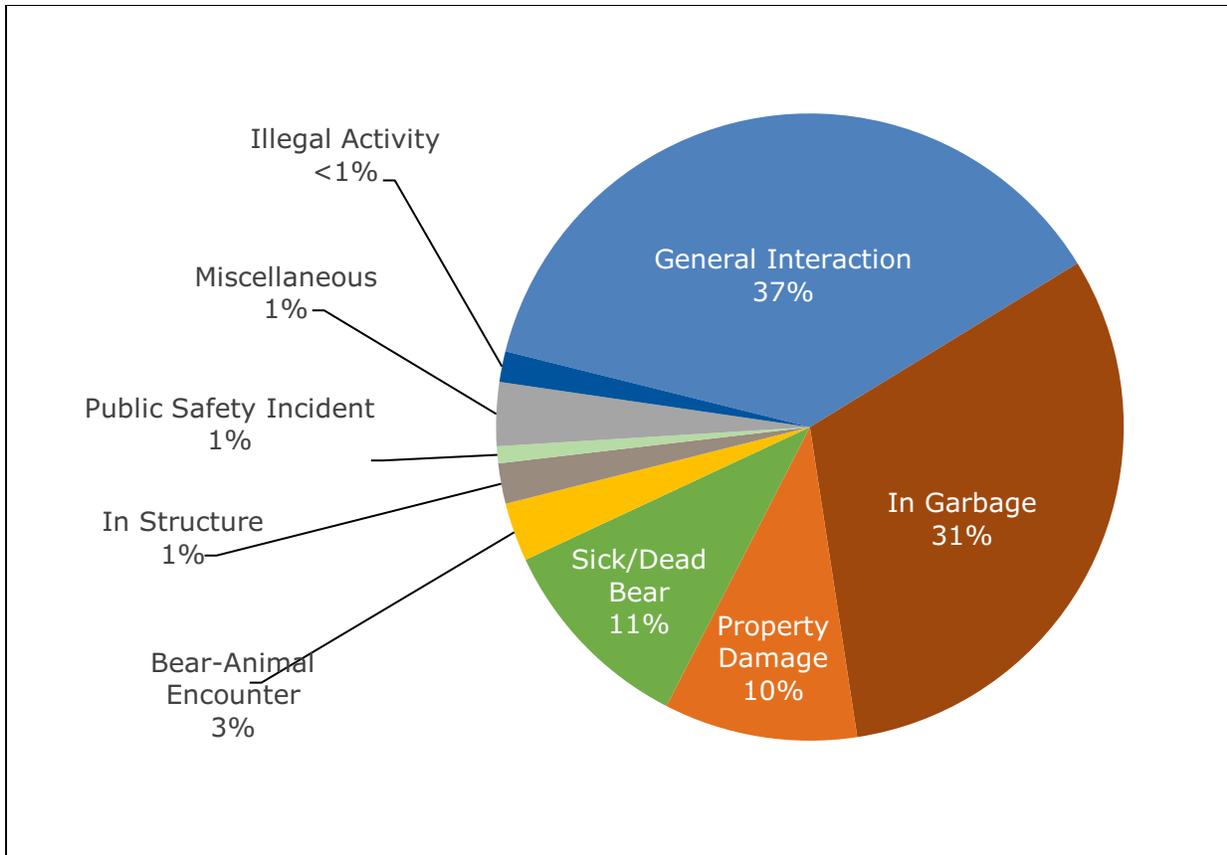


Figure 5. Reasons for bear-related calls received by FWC during 2017 (n = 6,188).

FIELD RESPONSE TO HUMAN-BEAR CONFLICTS

The majority (82%) of bear-related calls received by FWC are provided with technical assistance and no response in the field is necessary (Table 1). The prohibition on feeding bears was changed starting in July 2015, which requires that and FWC law enforcement officer (LE) provide a notice of non-compliance in situations where bears are being fed unintentionally before a warning or citation can be issued. Almost 250 notices were issued in 2017 (Table 1), as compared with 6 warnings and 4 citations.

Table 1. FWC Bear Management and bear-related law enforcement actions in relation to the number of bear-related calls received by FWC during 2017.

Bear Management and Law Enforcement Actions	Number of Calls	Percentage of Calls
Total Bear-Related Calls	6,188	100%
Technical Assistance Over Phone Only	5,083	82.1%
Site Visit and/or Canvassing	526	8.5%
Capture Effort	320	5.2%
Non-Compliance Notice Issued	249	4.0%

BMP was successful at capturing 180 bears for a 56% trapping success rate in 2017 (Table 2). Almost half (46%) of bears captured were either killed due to conflict behavior or euthanized due to sickness or injuries (Table 2).

Table 2. FWC bear trapping efforts and resulting fates of captured bears in 2017.

Trapping efforts and fate of bears captured	Number or Percent
Trapping efforts	320
Bears captured	180
Trap success rate	56%
Bears killed for conflict behavior	58
Bears euthanized for sickness or injuries	25
Percentage of bears captured that were killed or euthanized	46%
Bears released on site	18
Bears relocated	69
Bears taken in for rehabilitation for future release	9
Percentage of bears captured that were released or rehabilitated	53%

Vehicle collisions with bears in Florida have increased over time to a peak of 286 bears in 2012 (Figure 6). Since that time, vehicle collisions declined and then stabilized, with an average of 241 bears killed by vehicles each year since 2013 (Figure 6). The number of bears the FWC has documented as illegally killed remains relatively low. In 2017, the FWC documented 20 bears were illegally killed, which was higher than the average of 15 bears illegally killed each year since 2010.

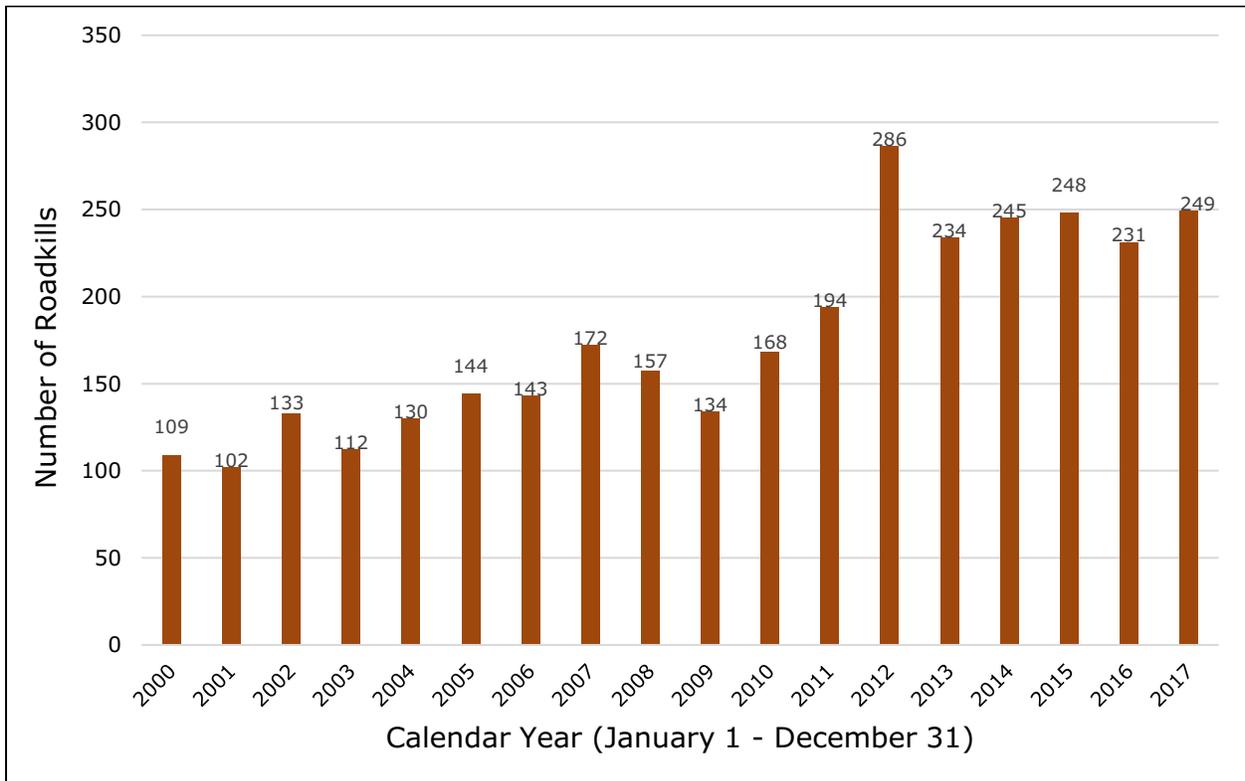


Figure 6. Number of bears killed by vehicles in Florida by year from 2000 to 2017 (n = 3,191).

During 2017, the FWC responded to two separate incidents where people were injured by bears. On January 28, a man was injured in Gulf Breeze in Santa Rosa County. The man’s dog encountered an adult female bear and her 4 yearlings, and the man was scratched on the face when he intervened between the dog and bears. The man received stitches for a cut on the side of his face, and the dog was treated for non-life-threatening injuries. The adult female was captured and killed, and the yearlings were relocated. On September 8, a man was injured in Santa Rosa Beach in Walton County. The man was walking his dog when a bear knocked the

man down to get at the dog. The man received abrasions from the fall. After multiple trapping efforts, an adult male bear was captured and killed.

The FWC followed their established protocols to communicate to the public, collect evidence, remove any potential public safety threat, determine what exactly happened, and provide an informed opinion on why the incidents occurred. The FWC provided updates to the media and responded to phone calls, emails, and letters from the public in response to this incident.

BEAR RESPONSE CONTRACTOR PROGRAM

The Bear Response Contractor Program continues to provide a critical link in assisting the public with human-bear conflicts in the field throughout Florida. Bear Response Contractors assist biologists with the bear management tasks of education and outreach, carcass recoveries, and capture efforts on an 'as needed' basis. In 2017, Bear Response Contractors were dispatched to respond to 1,087 requests for assistance with human-bear conflicts. Most (53%) responses were to provide education and outreach to the public to prevent human-bear conflicts from continuing in neighborhoods. The remaining responses (47%) involved setting and monitoring traps, relocating bears, retrieving carcasses, and assisting with equipment maintenance and transport. The program is a vital part of how FWC can maintain and meet rising public demand for assistance with human-bear conflicts in Florida.

EDUCATION AND OUTREACH

Education and outreach are critical elements to help people avoid or resolve most human-bear conflicts. Staff of both BMP and BRP develop presentations, web content, videos, and other outreach materials to help people better understand bears, how to coexist with them without conflicts, and what the FWC learns from our research. The BMP and BRP staff are involved with internal and external outreach activities, including presenting at professional conferences, training local law enforcement personnel, exhibiting at festivals, and presenting to civic groups, local governments, colleges, camps, and schools. In 2017, BMP and BRP participated in 166 outreach events and were able to interact in-person with 23,322 people.

In 2013, the FWC tried a novel approach to increase media coverage of our message about bears becoming more active in the spring. The FWC teamed up with three captive wildlife facilities (The Tallahassee Museum, Endangered Animal Rescue Sanctuary and Naples Zoo at Caribbean Gardens) who allowed the media to film their bears interacting with bear-resistant trashcans and interview FWC bear biologists. This was a great opportunity for local media to video tape and photograph bears trying to get into the bear-resistant trashcans. The 2013 event was such a success at garnering a multitude of positive news coverage, that the FWC decided to revisit and expand it in 2017.

On May 18, 2017, the FWC hosted a media event at 6 captive wildlife facilities throughout the state. In addition to the captive bears interacting with bear-resistant trashcans and a mini-news conference at each facility, FWC bear biologists demonstrated the use of bear spray. The FWC also posted on social media via Facebook, Instagram, and Snapchat, as well as live feeds on Facebook, Instagram, and Periscope. The FWC had multiple media, both print and broadcast, at each of the locations (#): Tallahassee Museum (7), Jacksonville Zoo and Gardens (2), Tampa’s Lowry Park Zoo (4), Central Florida Zoo and Botanical Gardens (5), Naples Zoo at Caribbean Gardens (3), and Zoo Miami (5). In addition to the 26 different media participants, the Facebook Live broadcast reached over 30,000 people and was viewed over 10,000 times.

In order to raise awareness about black bear activity and provide advice on how to avoid conflicts, the BMP, Division Communications, and the Office of Community Relations worked together to produce 10 news releases and 3 articles in the International Bear News during 2017 (Table 3).

Table 3. News releases (NR) and articles published in International Bear News (IBN) featuring Florida black bears during 2017.

Type	Title	Date
NR	FWC responds to bear incident in Santa Rosa County	1/31/17
NR	Statement regarding bear management	4/19/17
NR	Springtime spurs activity for Florida black bears, cubs	5/18/17
NR	FWC and Seminole County providing discounted bear-resistant trash cans	6/1/17
IBN	Unusual White-Footed Black Bears	6/4/17
IBN	Captive Bears Help Remind Floridians to Keep Trash Secure	6/4/17

NR	New FWC BearWise funding will focus on communities with ordinances	7/20/17
NR	FWC, Franklin Co. and Carrabelle provide hardware to make cans bear resistant	7/31/17
IBN	FL provides over \$1 million in Incentive Grants to Reduce Human-Bear Conflicts	8/25/17
NR	FWC releases new videos to help Florida residents avoid conflicts with bears	8/31/17
NR	FWC: Bears become more active in fall	9/27/17
NR	10 Communities apply for BearWise funding	10/25/17
NR	FWC awards BearWise funding to 10 communities to reduce human-bear conflicts	11/17/17

Working with the Office of Community Relations, BMP and BRP were able to add two new videos in 2017, for a total offering of 39 video and six audio clips available on the FWC website through Vimeo and YouTube to assist with educating the public about bears and how to avoid conflicts with them (Table 4).

Table 4. List of video and audio clips about bears on the FWC website as of November 7, 2017.

Video	Platform	Uploaded
Living with Florida Black Bears	YouTube	10/7/2010
How to Use Electric Fencing to Secure Your Outdoor Attractants	YouTube	10/25/2010
<i>Florida Black Bear Sounds: Huffing and Popping Jaws</i>	YouTube	3/11/2011
<i>Florida Black Bear Sounds: Popping Jaw</i>	YouTube	3/11/2011
<i>Florida Black Bear Sounds: Cubs (In Den)</i>	YouTube	3/11/2011
<i>Florida Black Bear Sounds: Distress (Cubs)</i>	YouTube	3/11/2011
<i>Florida Black Bear Sounds: Nursing Cubs</i>	YouTube	3/11/2011
Draft Florida Black Bear Management Plan	YouTube	11/3/2011
Florida Black Bear Cub Exam and Release	YouTube	11/8/2011
Statewide PSA Winner: "Be Bear Aware"	YouTube	12/16/2011
"Black Bear Encounter" PSA Entry	YouTube	12/16/2011
Southwest Region PSA Winner: "Bear Safety"	YouTube	12/16/2011
Northeast Region PSA Winner: "Bear Safe"	YouTube	12/16/2011
North Central PSA Winner: "Do you know what to look for?"	YouTube	12/16/2011
South PSA Winner: "A Bear's Perspective"	YouTube	12/21/2011
"Bear Awareness" PSA Entry	YouTube	2/21/2012
"Black and Furry" PSA Entry	YouTube	2/22/2012
"Coexisting with Bears" PSA Entry	YouTube	3/5/2012
"Bear Proof Dumpster" PSA Entry	YouTube	3/19/2012
"Be Aware of the Bear" PSA Entry	YouTube	3/26/2012
"Florida Black Bears - Good Ideas, Bad Ideas" PSA Entry	YouTube	3/29/2012
<i>Black Bear Cub Distress Call</i>	YouTube	5/4/2012

Bear Cub Medical Exam Raw Footage	YouTube	6/25/2012
Florida Black Bear Raw B-roll	Vimeo and YouTube	6/25/2012
Bear Proof Garbage Can Raw Video 2	YouTube	6/25/2012
Bear Proof Garbage Can Raw Video 1	YouTube	6/25/2012
Bear-resistant Trashcan Demos	YouTube	2/28/2013
620-pound Florida black bear captured and relocated	YouTube	5/23/2013
Bear vs Trash Container - Raw Video	YouTube	10/7/2013
Watch bears try to get in a trash shed	YouTube	4/8/2014
Dancing Bear?	YouTube	9/11/2014
Florida Black Bear Abundance Study	YouTube	9/11/2014
"2-Minute Drill" - Game feeders and how to bear proof them	YouTube	7/23/2015
Bear hunting - Legal methods of take	YouTube	9/10/2015
Where and when to hunt bears, permit info and harvest objectives	YouTube	10/14/2015
What bears are legal to take and mandatory checking of your harvest	YouTube	10/16/2015
Bear Resistant Wildlife Feeders	Vimeo and YouTube	10/22/2015
A Day for a Bear	YouTube	10/26/2015
Protecting Livestock	Vimeo and YouTube	10/27/2015
Counting Bears (Updated Version)	Vimeo and YouTube	4/14/2016
Cause for a Call	Vimeo and YouTube	11/17/2016
BearWise Communities	Vimeo and YouTube	11/17/2016
Vehicle Collisions with Bears	Vimeo and YouTube	11/21/2016
Scare the Bear	Vimeo and YouTube	8/28/2017
Bear Behavior	Vimeo and YouTube	8/31/2017

The FWC partners with multiple federal, state, and non-profit organizations to host two annual wildlife festivals that have bears as one of their primary focuses: The Florida Panther Festival at Naples Zoo and Caribbean Gardens and the Florida Wildlife Conservation Festival in Umatilla. Over 1,000 people attended the 6th Florida Panther Festival on November 4 and FWC interacted with over 300 attendees at the 18th Florida Wildlife Conservation Festival on October 21. In addition to the FWC's bear exhibits, children's activities, and presentations, there were other displays and information from local parks, recreational areas, and environmental organizations, as well as opportunities to go on interactive field trips.

INTERNS AND VOLUNTEERS

The BMP established an internship program in 2008 to develop future conservation professionals and expand the abilities of FWC to address bear-related topics. The internship

program is designed to allow students to gain credit through their universities for their experience, while acquiring training in the profession of wildlife management and research. Nine interns from Florida State University participated in the spring and fall 2017 sessions. These students contributed 1,539 hours of time to bear management. Intern projects have provided valuable information on a wide range of bear management topics, including: roadkill hotspot analysis as related to bridge locations, review of video footage collected from bears wearing video camera collars, and the creation of bear-related resource wall maps for Area Bear Biologists. Interns coordinated public events and volunteer efforts to increase public awareness of bears. The interns allowed FWC to reach out and educate an additional 4,895 people about the Florida black bear in 2017 than staff could have reached alone (Figure 7).



Figure 7. Interns allow the FWC to reach out to more people with information about bears and how to coexist without conflicts.

Since May 2008, 167 individual interns from 35 different majors have contributed over 33,500 hours towards bear management efforts. After completing their internships, 17 interns

have gone on to work for the FWC in some capacity. Interns have come from seven different colleges in Florida and Georgia, as well as one from Nottingham Trent University in England. The BMP has helped several other programs within the FWC develop their own internship programs built on our successful model, and five BMP interns went on to participate in other FWC internship programs. While the BRP has periodically had interns from the University of Florida since the early 2000s, it does not have as formal or continually operating program as does the BMP.

In addition to interns, both the BMP and BRP have also accepted volunteers who have expressed interest in bears and the FWC. Volunteers tend to be young, soon-to-be professionals that work on data-oriented projects using our robust Wildlife Incident Management System or assist research staff with field projects. Some volunteers later became interns, and some interns choose to stay on as volunteers after their internships were completed. Since 2010, the BMP and BRP have worked with 51 volunteers, fifteen of whom later worked for the FWC in some capacity.

PARTNERSHIPS FOR BEAR CONSERVATION

While the BMP and BRP play a primary role in how we manage and learn about bears, the larger effort of bear conservation is a complex natural resource challenge that cannot be accomplished by two programs or even one government agency alone. The FWC partners with federal agencies, other state agencies, local governments, nongovernmental organizations, businesses, private landowners, and residents on population management, habitat conservation, human-bear conflict management, and education and outreach.

The BMP works with local governments to take actions in a collaborative manner to reduce human-bear conflicts. Through partnerships with local governments, businesses, and communities, BMP staff has reduced bear access to garbage across the State. Since 2007, the FWC has provided almost \$1.6 million in BearWise funding to local governments to make bear-resistant equipment more affordable and encourage them to pass ordinances requiring trash be kept secure from bears. The Fish and Wildlife Foundation of Florida has provided over \$660,000 of those funds using proceeds from sales of the Conserve Wildlife Tag (CWT) specialty

license plates. The State Legislature appropriated over \$900,000 of those funds using a combination of State Game Trust Funds and General Revenue. Local governments, residents, and businesses share a portion of the costs for the equipment, which results in more equipment than either the FWC or local governments could provide alone. Since 2007, the BearWise funding has resulted in the purchase of over 10,400 bear-resistant trashcans, 9,700 sets of hardware to modify regular trashcans to make them bear-resistant, 200 bear-resistant dumpsters, 90 sheds used to securely store regular trashcans, and 5 electric fence systems.

During Fiscal Year 2016-2017 (FY 16-17), the FWC received \$500,000 in State-appropriated (SA) funds to cost-share the purchase of bear-resistant equipment with local governments in areas with high levels of human-bear conflicts (Table 5). The majority (approximately \$375,000) of the SA funding came from proceeds of sales of bear hunt permits in 2015, with the remaining balance (approximately \$125,000) appropriated from the State Game Trust Fund. The FWC also received \$325,000 in CWT funds to match the SA funding in FY 16-17. The FWC was therefore able to offer a total of \$825,000 in ‘BearWise’ funding to local governments in FY 16–17 (Table 5).

Table 5. Fiscal Year 2016-2017 cost-share funding awarded to local governments, the source of those funds (SA = State-Appropriated, CWT = Conserve Wildlife Tag), funds and in-kind services from local governments used to match the award, the type and number of bear-resistant equipment purchased (where C = Cans, H = Hardware, D = Dumpsters).

Name	Ordinance	Awarded Funds	Match	Total Project	% Match	# & Type of Equipment	Fund Source
Collier Co. Parks	No	\$4,529	\$5,460	\$9,989	55%	3 C	SA
Farmworker’s Village (Collier Co)*	No	\$12,512	\$6,200	\$18,712	33%	600 H / 37 C	CWT
Franklin County	No	\$3,107	\$960	\$4,067	24%	150 H/ 1 C	CWT
City of Carrabelle (Franklin Co)	No	\$1,600	\$243	\$1,843	13%	100 H	CWT
Gulf County	No	\$22,352	\$4,521	\$26,873	17%	2,251 H	SA
		\$218	\$0	\$218	0%	N/A	CWT
Lake County	Yes	\$199,965	\$46,720	\$246,685	19%	1,013 C	CWT
Leon County	No	\$28,573	\$3,424	\$31,997	11%	700 H/ 3 D	CWT

Marion County	No	\$22,248	\$9,440	\$31,688	30%	174 C	CWT
Orange County	Yes	\$200,124	\$86,887	\$287,011	30%	1,106 C	SA
Putnam County	No	\$17,773	\$5,870	\$23,642	25%	129 C	CWT
Seminole County	Yes	\$200,000	\$233,821	\$433,821	54%	1,680 C	SA
Springs Landing (Seminole Co)	Yes	\$9,000	\$14,400	\$23,400	62%	90 C	CWT
Volusia County	No	\$39,990	\$46,060	\$86,050	54%	382 C	SA
City of Daytona Beach (Volusia Co)	No	\$10,011	\$7,284	\$17,295	42%	78 C	CWT
		\$10,011	\$7,284	\$17,295	42%	78 C	SA
City of Debarry (Volusia Co)	No	\$20,000	\$18,181	\$38,181	48%	150 C	CWT
Wakulla County	No	\$19,055	\$20,660	\$39,715	52%	157 C	SA
TOTAL	N/A	\$821,068	\$515,234	\$1,336,302	39%	5,178 C / 3,801 H / 3 D	N/A

** The Farmworker's Village project could not proceed as planned, therefore equipment did not go to, nor did cost-share come from, residents of that community (see FY17-18).*

The \$821,068 in BearWise funding that was used was matched with local government and private funding and resources valued at \$517,414 for a total project cost of \$1,338,482, and an overall local government match of 39% (Table 5). Local governments with ordinances requiring trash be kept secure from bears (Lake, Orange and Seminole counties) received 76% of the total BearWise funding.

In addition to providing thousands of residents bear-resistant equipment, the funding also encouraged local governments to pass ordinances requiring trash be kept secure from bears. Seminole was the first county in Florida to pass a BearWise ordinance in December 2015. After the FY 16-17 BearWise grant funding was announced, three counties (Lake, Orange, and Santa Rosa), one city (Fort Walton Beach), and several homeowner's associations passed BearWise rules requiring trash be kept secure, in part because they could receive more funds than if they did not have ordinances in place. Local ordinances also increase awareness of how to avoid conflicts with bears and reinforces the FWC's rule against feeding bears, resulting in community-wide reductions in human-bear conflict.

The BMP submitted a legislative budget request for FY 17-18 which was approved during the 2017 Florida Legislative Session. The request resulted in \$415,283 in SA funding that

was matched with \$100,000 in CWT funds to cost-share the purchase of bear-resistant equipment with local governments, for a total of \$515,283 in BearWise funds (Table 6).

The \$514,688 in BearWise funding that was used was matched with local government and private funding and resources valued at \$255,364 for a total project cost of \$770,052, and an overall local government match of 33% (Table 6). Local governments with ordinances requiring trash be kept secure from bears (Lake, Santa Rosa, and Seminole counties) received 66% of the total BearWise funding.

In both FY 2016–2017 and FY 2017–2018, at least 60% of the SA funds were required by the Legislature to go to local governments that have an ordinance requiring garbage be kept secure from bears. Seminole, Lake, Orange, and Santa Rosa counties, the City of Fort Walton Beach in Okaloosa County, and several homeowner’s associations across Florida all have ordinances that require residents and businesses to keep their trash secure from bears in all or part of their jurisdictions.

Table 6. Fiscal Year 2017-2018 cost-share funding awarded to local governments, the source of those funds (SA = State-Appropriated, CWT = Conserve Wildlife Tag), funds and in-kind services from local governments used to match the award, the type and number of bear-resistant equipment purchased (where C = Cans, H = Hardware, D = Dumpsters).

Name	Ordinance	Awarded Funds	Match	Total Project	% Match	# & Type of Equipment	Fund Source
Holley-by-the-Sea (Santa Rosa Co)*	Yes	\$65,000	\$12,230	\$77,230	16%	3,700 H, 7 D	CWT
Seminole County	Yes	\$188,993	\$100,000	\$288,993	35%	1,500 C	SA
Lake County"	Yes	\$85,508	\$18,000	\$103,508	17%	434 C	SA/CWT
Walton County	No	\$38,000	\$18,945	\$56,945	33%	34 D	SA
Franklin County	No	\$3,400	\$1,095	\$4,495	24%	130 H	CWT
Air Force Village (Okaloosa Co)	No	\$7,700	\$2,160	\$9,860	22%	13 D	CWT

Highlands County [^]	No	\$48,000	\$25,349	\$73,349	35%	311 C	SA
Volusia County	No	\$75,000	\$72,125	\$147,125	49%	750 C	SA
Collier County Parks	No	\$3,087	\$5,460	\$8,547	64%	3 C	CWT
TOTAL* [^]	N/A	\$514,688	\$255,364	\$770,052	33%	2,998 C / 3,830 H / 54 D	N/A

* 600 sets of hardware worth \$4,000 were provided to this project originally purchased with FY 16-17 funds for Farmworker's Village and is NOT included in total funds listed above.

" Lake County received \$65,283 in SA funds and \$20,225 in CWT funds.

[^] 37 bear-resistant trashcans worth \$9,770 were provided from the FY 16-17 funds for Farmworker's Village and is NOT included in total funds listed above.

Another successful partnership addresses the challenge of helping young bears who are orphaned and unable to survive on their own in the wild. Typically, the FWC encounters orphaned cubs after their mother is killed by a vehicle or removed due to public safety risks. The FWC developed protocols that establish when bears can survive on their own in the wild and provide guidance to wildlife rehabilitation facilities on how to care for bears without habituating them to people. In 2009, the FWC started partnering with the Florida Department of Environmental Protection's Homosassa Springs Wildlife State Park (HSWSP) and Tampa's Lowry Park Zoo (TLPZ) to give these bears their best chance to survive in the wild after release. HSWSP offers expertise in animal care for the bears off exhibit in their quarantine area free of charge, TLPZ offers their veterinarian services to evaluate the bears and address any health concerns free of charge, and the FWC pays for food for the bears.

Since 2009, 38 cubs have been successfully released into the wild through this partnership. While the partnership has been successful, the arrangement is not without its challenges. In order to relieve pressure on HSWSP's quarantine area, which is needed to separate new and/or sick animals from the rest of their zoological collection, and expand the area for bears, the FWC and HSWSP came up with a plan to develop a brand new wing off of HSWSP's existing facility just for bears, that would also include a large outdoor enclosure. The FWC received a \$5,000 CWT grant to pay for a land survey and architectural plan of the facility expansion. Once the plan is completed, FWC and HSWSP will work together to find donors to help pay for the facility expansion.

UPDATING THE BEAR MANAGEMENT PLAN

In April 2017, Commissioners requested staff bring an update of the Florida Black Bear Management Plan to them in 2019. Since the initial plan was approved in 2012, the FWC has been working on and completed several key research projects and management actions that have added to our knowledge about bears and how we can best manage them. Commissioners requested that staff move up the original review timeline from 2021 to 2019 to incorporate all the new information, as well as information about population management options, including regulated hunting. BMP and BRP were part of a team of eight FWC staff responsible for updating the Plan, which included personnel from four Divisions (Fish and Wildlife Research Institute, Habitat and Species Conservation, Hunting and Game Management, and Law Enforcement) and three sections (Imperiled Species Management, Wildlife and Habitat Management, and Wildlife Research). Starting in October 2017, the team met monthly to review each section of the plan and discuss updates or additional information needs.

ACTIVE RESEARCH PROJECTS

This year, the BRP partnered with the University of Tennessee to complete the analysis and publish results of a two-year study to estimate the number and density of black bears in five core subpopulations in Florida (Figure 8). Results include abundance estimates of 1,060 bears in the Eastern Panhandle BMU (Apalachicola National Forest area), 1,044 bears in the South BMU (Big Cypress area), 120 bears in the Western Panhandle BMU (Eglin Air Force Base area), 1,198 bears in the Central BMU (Ocala National Forest and Flagler and Volusia counties areas), and 496 bears in the North BMU (Osceola National Forest area). With the exceptions of Eglin and Ocala-St Johns where the abundance estimates remained more or less static, these results suggest significant increases to bear subpopulations in Florida when compared with 2002 estimates.

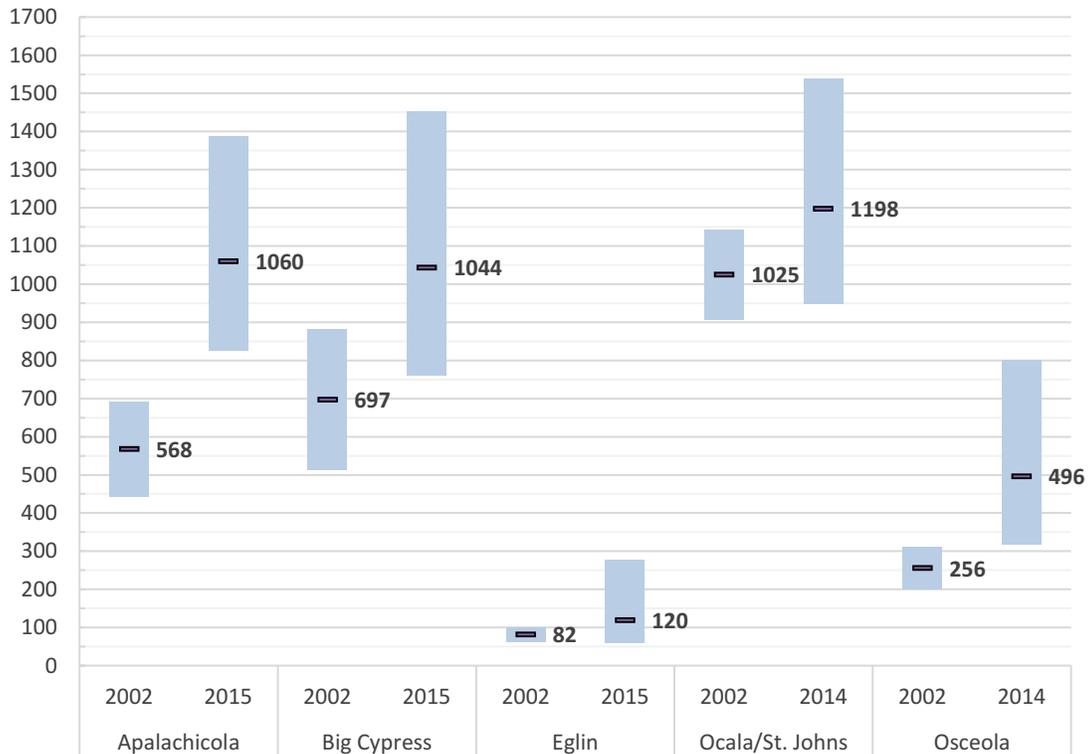


Figure 8. Comparison of 2002 and 2015 population abundance estimates for five Florida black bear subpopulations, noting the Confidence Interval (blue bar) and Mean (labeled bold black line).

BRP staff continued field work as part of a study to measure survival and reproductive parameters in the Apalachicola subpopulation to calculate population growth rate. We collected data on the reproduction of adult female bears and age-specific survival rate for adult females and their cubs (birth to ~one year). In 2017, staff captured 41 bears (22 F: 19 M) and placed satellite tracking collars on 37 adult females. There were three mortalities of instrumented females during 2017, two killed by BMP because they posed a risk to public safety and one illegally killed. Staff documented 32 cubs produced by 13 females (average 2.46 cubs/litter) and fitted 21 cubs with lightweight, expandable radio collars. Cubs were monitored 3 to 5 times per week, and two mortalities were reported during 2017. These two cubs were from the same litter and evidence suggest malnutrition. Results of the research are expected in 2020. During FY16-17, SA funds for this project were bolstered by a \$50,000 CWT grant that

was used to pay salaries for three seasonal technicians, equipment and supplies such as GPS collars, and travel related to trapping and other field work.

BRP staff continued to work with partners on data collected in prior years. Analysis of data collected from bears in and around the Florida National Guard Camp Blanding Joint Training Center in Clay County between 2011 and 2014 continued with partners at the University of Florida. Two publications from this project were published in 2017, including the results of analysis of home range and habitat selection by bears on the Camp Blanding and effects of environmental factors and landscape features on bear movements; two other manuscripts are currently in review. Additionally, BRP staff assisted with a manuscript analyzing population abundance, density, and genetic diversity in the fragmented and isolated Glades/Highlands subpopulation.

The FWC received a \$45,000 CWT grant to contract with Responsive Management to survey of Florida residents about their opinions on black bears and black bear management in Florida. The company worked closely with FWC staff to develop appropriate survey questions, which were divided into the following topic areas: knowledge of black bears, opinion on the management of the black bear population in Florida, opinion on the presence of black bears and experiences with black bears, problems with black bears, willingness to take actions to address negative human-bear interactions, opinions on black bear habitat in Florida, and opinions on hunting. The company conducted the telephone survey in November 2016. The survey respondent sample was stratified into the seven Bear Management Units (BMU) that were created in the 2012 Florida Black Bear Management Plan. At least 175 samples were collected within each BMU. In addition, the survey obtained 371 samples of residents who lived in counties that were located in abundant bear range. The sample collected is representative of Floridians both at the BMU level as well as statewide based on the following respondent demographics: gender, age group, household income, education level, length of residency, and property ownership. Demographic differences were evident in how some questions were answered. For example, people who have lived in Florida for more than 5 years were more likely to know that bears live in the wild in the State. BMU differences were also evident. For

example, support for bear hunting was fairly high in the East Panhandle BMU (64%) as compared with the South BMU (42%). Some highlights of the statewide survey results include:

- 80% are aware black bears live in the wild in Florida
- 96% say keeping habitat for bears is important
- 64% approve of how FWC is managing bears
- 31% have seen a bear in the wild in Florida, and of those experiences, 63% said they were positive and 8% said negative
- 55% say bears are a problem in Florida, and yet only 3% said they themselves had problems with bears
- 94% are willing to keep trash secure until the morning of pick up
- 87% are willing to remove/secure outdoor pet food
- 86% are willing to clean/secure outdoor grill
- 82% are willing to modify trashcans to resist bears
- 87% support rules that require people to keep trash secure
- 84% support penalties to be issued to people who feed bears
- 70% support regulated hunting of wildlife in general, while 22% oppose it
- 48% support regulated hunting of black bears, while 43% oppose it

The full report of the survey is posted on the FWC's website at:

https://myfwc.com/media/20915/flresidentsopinionsonblackbears_responsivemanagement_2016.pdf.

The opportunity for the public to report their sightings of Florida black bears at www.myfwc.com/bearsightings continued from its 2013 debut. During 2017, the FWC collected 683 records of bear sightings (177 including photos). The >5,000 sightings submitted to date continue to help 'fill in the blanks' for managers in areas of Florida where other data sources are lacking and calls from the public directly to FWC have been infrequent. The FWC continued to receive emails to bear.sightings@myfwc.com. Messages that referenced current conflicts were forwarded to appropriate staff and entered into the Wildlife Incident Management System and responded to appropriately. Messages that referenced sightings and included sufficient details were manually added to the Bear Sightings Registry by FWC staff.

In 2017, FWC staff made two improvements to the sightings registry for mobile users. The registry website was optimized for mobile devices, such as tablets and smart phones, by allowing it to read the user's device and screen size and automatically adjusting the website. The optimized site still requires users to move a marker on the map to select the location, which is difficult on the small screens of smart phones. To further facilitate the use of smart phones for submitting various wildlife sightings, including bears, FWC staff created an application called the FWC Reporter that allows the public to use their phone's location and date information and autofill those fields of the sightings submission. This is an improvement for mobile users who are at the site of the sighting and may increase the precision of reported sightings. Functional improvements were also made to the website where the public can view and filter of all of the submitted bear sightings on a map. From contact with the public, we know at least one high school student used the bear sightings data from our site for a school project.

During 2017, BRP staff were coauthors on four publications:

- Humm, J.M., J.W. McCown, B.K. Scheick, and J.D. Clark. 2017. Spatially explicit population estimates for black bears based on cluster sampling. *Journal of Wildlife Management* 81: 1187-1201.
- Karelus, D.L., J.W. McCown, B.K. Scheick, M. van de Kerk, B.M. Bolker, and M.K. Oli. 2016. Home ranges and habitat selection by black bears in a newly colonized population in Florida. *Southeastern Naturalist* 15:346-364.
- Karelus, D. L., J. W. McCown, B. K. Scheick, and M. K. Oli. 2017. Microhabitat features influencing habitat use by Florida black bears. *Global Ecology and Conservation* 13: e00367.
- Murphy, S. M., B. C. Augustine, W. A. Ulrey, J. M. Guthrie, B. K. Scheick, J. W. McCown, and J. J. Cox. 2017. Consequences of severe habitat fragmentation on density, genetics, and spatial capture-recapture analysis of a small bear population. *PLoS ONE*.