

Florida Black Bear Management and Research

2018 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/Jenny Gottsch; Figure 1), and five Area Bear Biologists (Figure 2).



Figure 1. FWC's Bear Management Program staff (left to right) Jordan Green, Nicholas Deuel, Janelle Musser, Dave Telesco, Sarah Peltier, Alyssa Simmons, Sarah Barrett, and Mike Orlando. (Not pictured: Mackenzie Sconyers, who left in August, and Jenny Gottsch, who filled that position in November).

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*). 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.

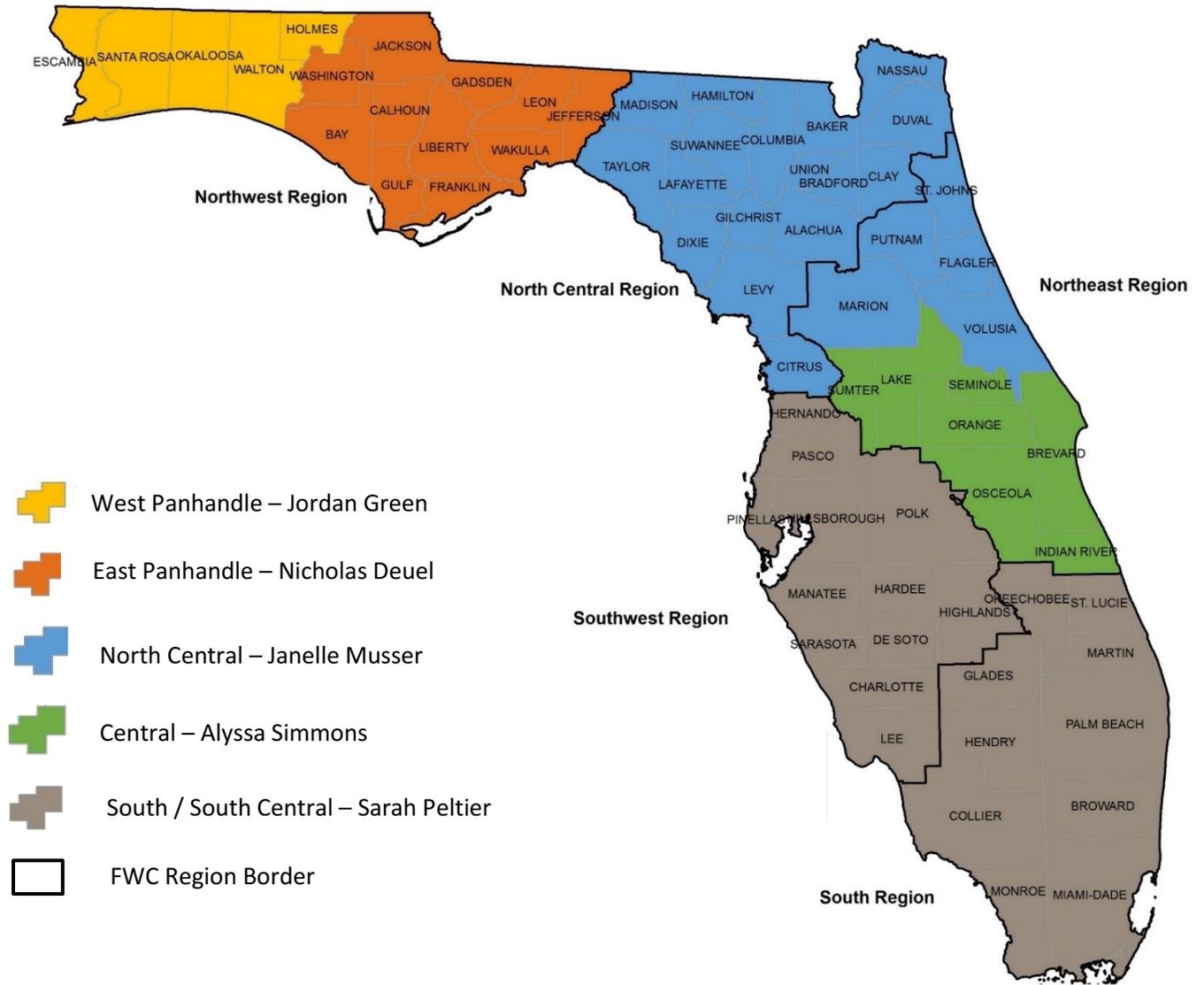


Figure 2. Coverage areas by county for Area Bear Biologists and FWC Region borders.

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). Walt retired in December 2018 and Brian was promoted to fill his position. While BRP staff are based out of the Lovett E. Williams, Jr. Wildlife Research Laboratory in Gainesville, they frequently spend 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
- Participate in the Southeastern Association of Fish and Wildlife Agencies’ Large Carnivore Working Group’s Product Testing 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 2018, FWC

personnel received 5,480 calls regarding bears (i.e., sightings, bears in garbage, Figure 4).

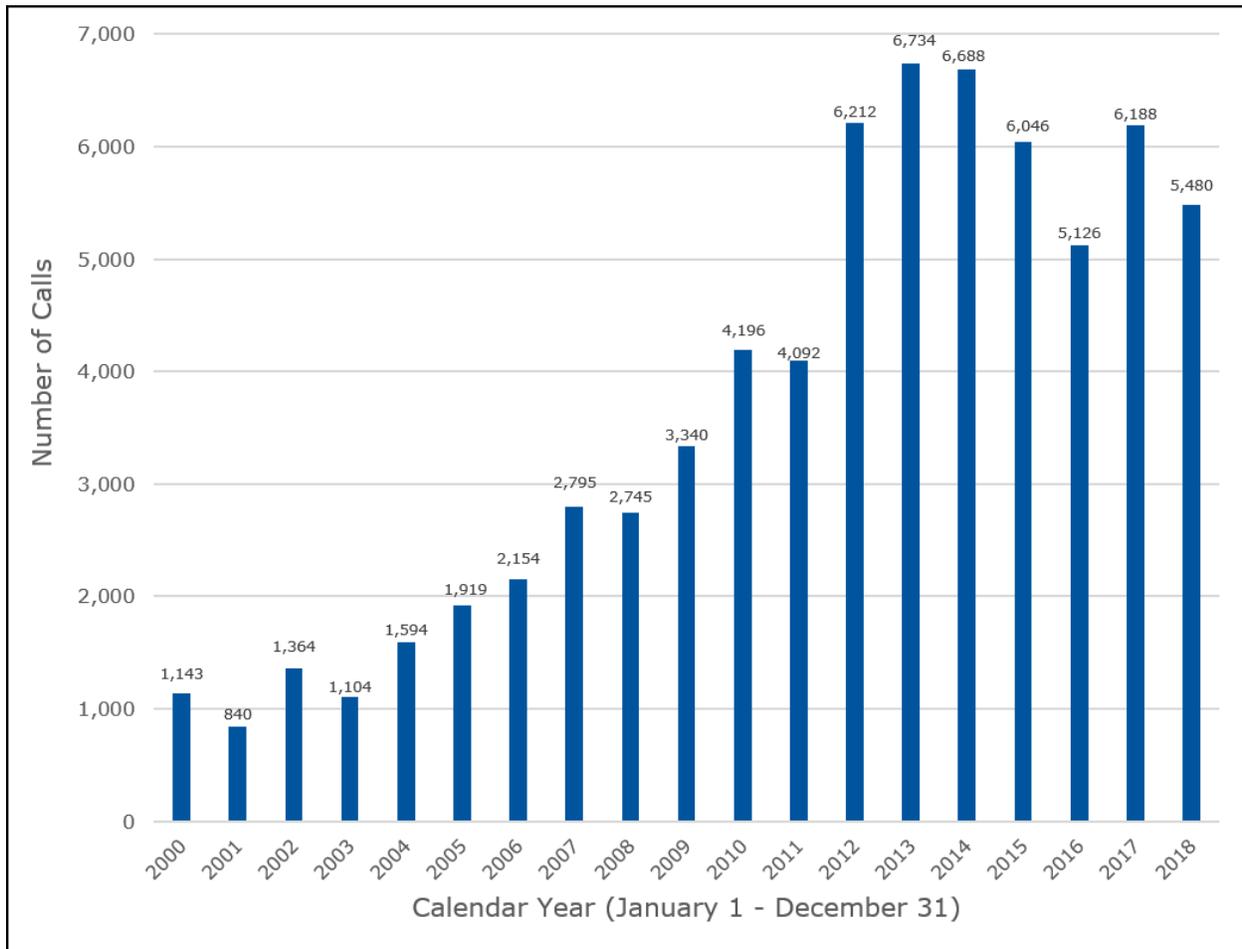


Figure 4. Number of bear-related calls received by FWC from 2000 to 2018 (n = 69,760).

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 quarter of all calls report that bears are accessing garbage, and another 44% 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).

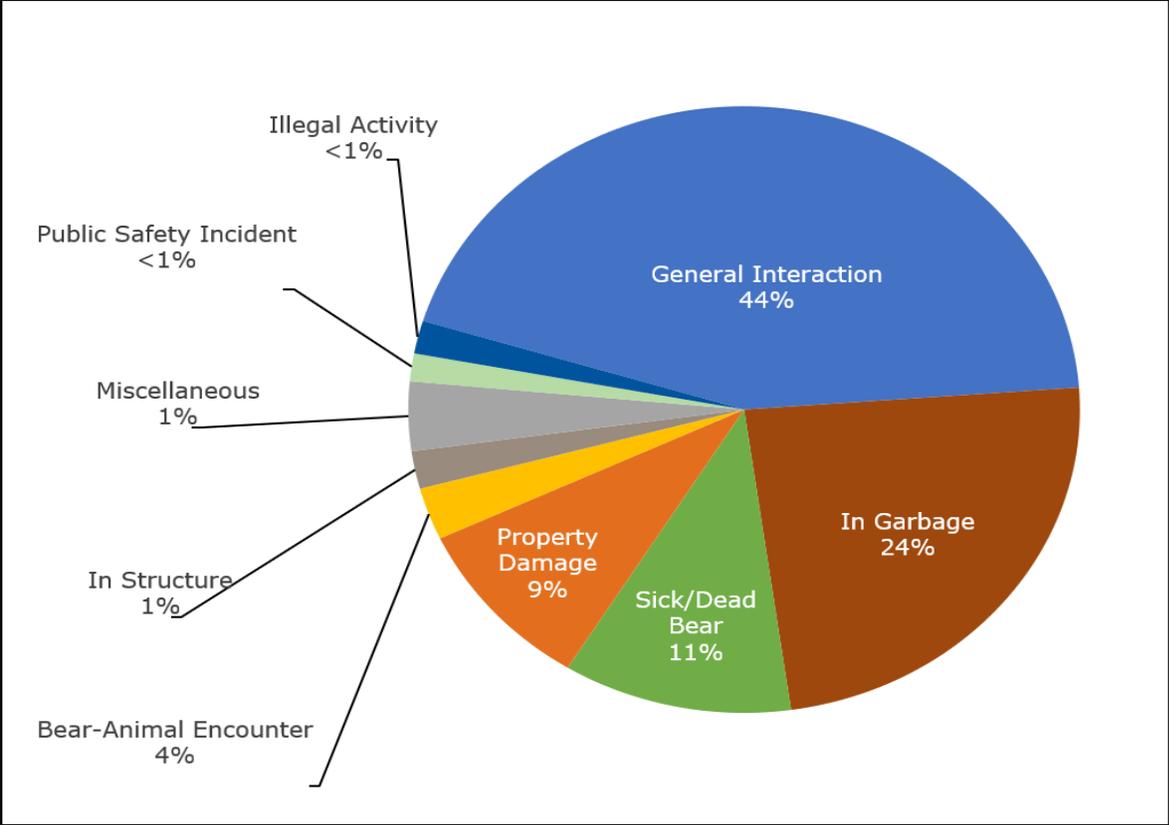


Figure 5. Reasons for bear-related calls received by FWC during 2018 (n = 5,480).

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. Over 180 notices were issued in 2018 (Table 1), as well as 7 warnings and 8 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 2018.

Bear Management and Law Enforcement Actions	Number of Calls	Percentage of Calls
Total Bear-Related Calls	5,480	100%
Technical Assistance Over Phone Only	4,485	81.8%
Site Visit and/or Canvassing	348	6.3%
Capture Effort	235	4.3%
Non-Compliance Notice Issued	182	3.3%

BMP was successful at capturing 128 bears for a 54% trapping success rate in 2018 (Table 2). Almost half (43%) 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 2018.

Trapping efforts and fate of bears captured	Number or Percent
Trapping efforts	235
Bears captured	128
Trap success rate	54%
Bears killed for conflict behavior	27
Bears euthanized for sickness or injuries	28
Percentage of bears captured that were killed or euthanized	43%
Bears released on site	20
Bears relocated	45
Bears taken in for rehabilitation for future release	8
Percentage of bears captured that were released or rehabilitated	57%

Bears killed by vehicle collision in Florida have increased over time to a peak of 283 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 2018, the FWC documented 13 bears were illegally killed, which was close to the the average of 14 bears illegally killed each year since 2010.

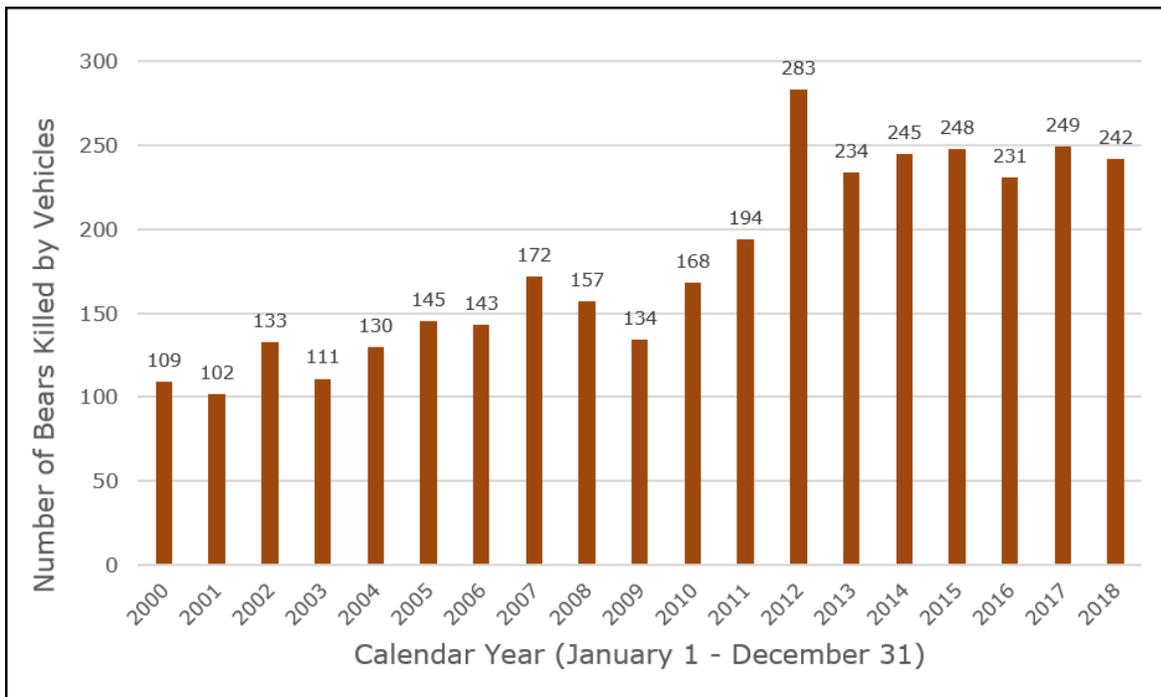


Figure 6. Number of bears killed by vehicles in Florida by year from 2000 to 2018 (n = 3,430).

During 2018, the FWC responded to three separate incidents involving people injured by bears. On January 9, a man was injured by a bear in Naples in Collier County. The man let his dog out, which promptly ran back inside. When the man went out to investigate, he encountered an adult female bear and her yearlings. The adult female scratched the man across the face, shoulder, and arm. The man received multiple stitches for the scratch on his face. Multiple trapping efforts were made, but the adult female bear was not captured. On May 14, a woman was injured by a bear in Longwood in Seminole County. The woman was walking her dog when an adult female bear with cubs knocked the woman down. The bears retreated

when neighbors came to the woman's aid. The woman received an abrasion on her hand and contusion on her knee from the fall. No trapping event was initiated for this incident. On December 24, a man was injured by a bear in Fort McCoy in Marion County. The man heard scratching on his door, and when he opened it, a bear attempted to enter his house. The man hit the bear multiple times with his cane and the bear scratched the man on the arm. A trap was set but no bear was captured or observed on camera.

The FWC followed their established protocols to communicate to the public, collect evidence, attempt to 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 as needed and responded to phone calls, emails, and letters from the public in response to these incidents.

As the BMP continues to address the rising demand of the public for response to human-bear conflicts, we must ensure we are doing so in as safe, efficient, and professional manner as possible. The BMP evaluated their fleet of traps and determined that several improvements could be made that would allow for easier recovery of bears (Figure 7), reduce stress on bears during transport (Figure 8A), and protect equipment from damage (Figure 8B). In addition, a new style of 'landing pad' has recently been developed that can more safely recover bears if they fall from trees when wildlife personnel are attempting to retrieve them (Figure 9). The BMP received a \$25,782 grant from the Fish and Wildlife Foundation of Florida using proceeds of sales of the Conserve Wildlife specialty license plates to pay for the trap improvements and landing pads.



Figure 7. Winches were manufactured that attach to the trailer tongue of the trap, and ramps were installed below the trap opening that can be stored under the trap when not in use. The winch and ramp allow personnel to more easily pull sedated or dead bears into the trap, and the ramp makes it easier for smaller or injured bears to get into the trap.



Figure 8A. Because the trailer mounted traps use expanded metal, bears in traps can see out and people outside can see in. We purchased screens that we attach to traps during transport to create a visual barrier between bears and people, which reduces the stress on bears and distraction to drivers.



Figure 8B. Covers for the spare tires mounted on the traps. On numerous occasions, while exploring the exterior of a trap, bears have punctured the spare tires with their teeth and claws.



Figure 9. Landing pads made from heavy-duty canvass has multiple attachment points that allow personnel to pull it taut and parallel to the ground to break the animals fall and prevent serious injury when personnel must extract a bear from a tree.

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 2018, Bear Response Contractors were dispatched to respond to 1,218 requests for assistance with human-bear conflicts. Most (55%) responses were to provide education and outreach to the public to prevent human-bear conflicts from continuing in neighborhoods. The remaining responses (45%) 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 response to 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, presenting to civic groups and local governments, acting as guest lecturers at colleges, and doing children's activities at schools and camps. In 2018, BMP and BRP participated in 236 outreach events and were able to interact in-person with 29,580 people.

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 eight news releases and one article in the International Bear News during 2018 (Table 3).

Table 3. News releases (NR) and articles published in International Bear News (IBN) featuring Florida black bears during 2018.

Type	Title	Date
NR	FWC working to trap bear in Longwood area	4/30/18
NR	Springtime spurs activity for Florida black bears	5/2/18
NR	FWC captures bear posing public safety threat	5/11/18
NR	FWC offers additional BearWise funding to reduce conflicts	6/4/18
NR	FWC receives applications for 'BearWise' funding	8/9/18
NR	FWC awards 10 communities BearWise funding to reduce conflicts	9/12/18
NR	Bears more active this time of year	10/1/18
IBN	FL provides almost \$2.1 million to local governments to reduce human-bear conflicts	Fall 2018
NR	FWC arrests 9 for conspiracy, animal cruelty, bear baiting violations	12/19/18

BMP and BRP have worked with the Office of Community Relations to produce a total of 39 video and six audio clips that are 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 December 31, 2018.

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 You Tube	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 4,000 people attended the 7th Florida Panther Festival on November 3 and FWC interacted with over 350 attendees at the 19th Florida Wildlife Conservation Festival on October 20. 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. Six interns from Florida State University participated in the spring 2018 session, along with a Chilean High School student (Figure 10). These students contributed 1,168 hours of time to bear management. Intern projects have provided valuable information on a wide range of bear management topics, including: create local analysis tables and charts to update the 2012 Bear Management Plan, write up 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 2,528 people about the Florida black bear in 2018 than staff could have reached alone.



Figure 10. FWC's Bear Management Program Spring 2018 interns (left to right): Rachael Nelson, Deanna McCullough, Abigail Kreuser, Cori Calyniuk (volunteer), and Alexis Chavez (Not pictured: Thalia Fletcher, Madelene Wishart).

Since May 2008, 186 individual interns from 37 different majors have contributed over 35,816 hours towards bear management efforts. After completing their internships, 20 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 six 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 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 has worked with 51 volunteers, 20 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 Florida. Since 2007, the FWC has provided almost \$2.1 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 \$680,000 of those funds using proceeds from sales of the Conserve Wildlife Tag (CWT) specialty license plates. The State Legislature appropriated over \$1.4 million 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 13,800 bear-resistant trashcans, 11,500 sets of hardware to modify regular trashcans to make them bear-resistant, 300 bear-resistant dumpsters, 90 sheds used to securely store regular trashcans, and 5 electric fence systems.

During Fiscal Year 2018-2019 (FY 18-19), 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 \$500,000 in BearWise funding that was provided was matched with local government and private funding and resources valued at over \$254,619 for a total project cost of \$754,419, and an overall local government match of 34% (Table 5). Local governments with ordinances requiring trash be kept secure from bears (Lake, Orange, Santa Rosa and Seminole counties) received 72% of the total BearWise funding.

Table 5. Fiscal Year 2018-2019 cost-share funding awarded to local governments, funds and in-kind services from local governments used to match the award, and the type and number of bear-resistant equipment purchased (where C = Cans, H = Hardware, D = Dumpsters).

Name	Awarded Funds	Match Funds	Total Funds	% Match	# and Type of Equipment
Seminole County	\$177,000	\$89,250	\$266,250	34%	1,106 C
Lake County	\$25,000	\$30,080	\$55,080	55%	209 C
City of Apopka (Orange Co)	\$85,000	\$26,300	\$111,300	24%	420 C

City of Mt. Dora (Lake Co)	\$18,000	\$2,000	\$20,000	10%	89 C
Volusia County	\$50,000	\$59,250	\$109,250	54%	498 C
Okaloosa County	\$18,000	\$4,359	\$22,359	19%	1,800 H
Santa Rosa County	\$58,000	\$6,380	\$64,380	10%	96 D
Collier County	\$45,000	\$5,500	\$50,500	11%	219 C
Walton County	\$19,000	\$1,900	\$20,900	9%	32 D
Marion County	\$5,000	\$29,600	\$34,600	86%	191 C
TOTALS	\$500,000	\$254,619	\$754,619	34%	2,732 C / 1,800 H / 128 D

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), two cities (Fort Walton Beach and Apopka), 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.

Another example of one of our successful partnerships 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 when their mother has been killed by a vehicle, or had to be removed due to risks to public safety. The FWC developed protocols that establish when bears

can survive on their own in the wild and guide wildlife rehabilitation facilities on how to provide care without habituating bears 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, 44 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 \$20,000 CWT grant to pay for a portion of the facility expansion, which is estimated may cost up to \$300,000. When the construction bid process is completed, the actual cost will be established and then the FWC and HSWSP will work together to find donors to help pay for remaining costs of the the 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 where updates or additional information was needed. During 2018, team members drafted updates for their assigned section(s) of the plan and the entire team reviewed those edits and discussed them in the team meetings.

ACTIVE RESEARCH PROJECTS

The BRP contracted with the University of Maryland to conduct a statewide habitat assessment. This project will use the many telemetry projects done on bears throughout Florida (at least one per subpopulation) to 1) estimate the amount and distribution of bear habitat in Florida, 2) rank the quality of those habitats, 3) estimate most likely linkage areas between bear subpopulations and compare bear habitat in the linkage areas to areas outside them, and 4) compare bear habitat quality in occupied range (as determined by FWC staff) to areas that are currently unoccupied. A key advancement in this project is the use of LIDAR data to characterize the resulting bear habitat in greater detail than possible from land use cover types alone. By year's end, a workplan had been submitted by the contracting biologist and approved by FWC, a post-doctoral student was selected by the project lead biologist and preparation work for the habitat model had begun.

BRP staff continued field work to measure survival and reproductive parameters in the Apalachicola subpopulation to calculate the population growth rate. In spring of 2018, we completed the second field season to monitor reproduction of adult females (denning activity, litter size and sex ratio of litters) and radio collar cubs in their natal dens, with lightweight, expandable collars, to monitor their survival. We documented 18 cubs (7 Females: 11 Males) in 8 litters and were able to collar all of them. The mean litter size of 2.25 was lower than in 2017 but mean cub weights were slightly higher. Cubs were monitored 3 to 5 times per week and by the end of the year, three cubs had died (fates have not been determined but some may have been killed by another bear). We continued to track movements and survival of 32 female bears throughout the year, the number remaining after the three mortalities and two failed collars from 2017. In summer, we completed the third and final capture season to collar adult female bears, capturing an additional 27 bears (15 Females: 12 Males); of those, five females and three

males were recaptures from 2016. We placed satellite tracking collars on the 10 new adult females and replaced collars for three of the recaptures, bringing the total number of adult females monitored for this project to 47, 42 of which were monitored this year. Of these monitored females, three more died during 2018 (two killed by vehicle strikes, one of unknown cause). Results of the research are expected in late 2020.

A University of Florida graduate student was able to complete his investigation on the response of bears to humans using bears that were collared as part of the Apalachicola demographics study. Collared bears were approached and their reaction to several sounds was measured, including direction and distance of travel. An additional research project examining stable isotope analysis is still being analyzed. The project examines the proportion of human-supplied food in the diets of collared bears as compared with bears handled by the FWC in response to human-bear conflicts. The project is expected to be completed by June 2019.

BRP staff continued to manage the Black Bear Sightings Registry (www.myfwc.com/bearsightings) to provide the opportunity for the public to report their non-conflict sightings. During 2018, the FWC collected 880 records of bear sightings (347 including photos). The >6,500 sightings submitted since the 2013 debut continue to help 'fill in the blanks' for in areas of Florida where other data sources are lacking and calls from the public directly to FWC have been infrequent and will be used to update the bear range map. The FWC continued to receive emails to bear.sightings@myfwc.com but in 2018, BMP staff began to directly review messages to this email address that referenced current conflicts so they could enter them into the Wildlife Incident Management System and respond appropriately much sooner than previously, when BRP staff would forward those messages. BRP staff continued to manually add records to the Black Bear Sightings Registry if email messages that referenced sightings included sufficient location details. In 2018, only minor system updates were made to the sightings registry.

In addition to the above major projects, BRP staff provided research results, demonstrations, and educational outreach at scientific conferences, FWC meetings, elementary and high schools, University of Florida classes, and community organization meetings.

During 2018, BRP staff were coauthors on one publication, which is the final publication date for a manuscript published early online in 2017.

Karelus, D. L., J. W. McCown, B. K. Scheick, and M. K. Oli. 2018. Microhabitat features influencing habitat use by Florida black bears. *Global Ecology and Conservation* 13:e00367.