

Florida Black Bear Management and Research

2019 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 the 10-year Florida Black Bear Management Plan (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 (Figure 1), which include the Program Coordinator (David Telesco), Assistant Program Coordinator (Mike Orlando), Internship and Database Coordinator (Sarah Barrett), Database Specialist (Jenny Gottsch), and five Area Bear Biologists (Figure 2). Several staff BMP positions changed over in 2019: in April Amber Kornak filled Nicholas Deuel's position, in August Morgan Lucot filled Alyssa Simmons's position, and in October Chris Boyce filled Sarah Peltier's position and Kathrine McCarty filled Jordan Green's position.



Figure 1. FWC's Bear Management Program staff (left to right) a) Morgan Lucot, Mike Orlando, Janelle Musser, b) Jenny Gottsch, Sarah Barrett, c) Kathrine McCarty d) Amber Kornak, e) Chris Boyce, and f) Dave Telesco.

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.

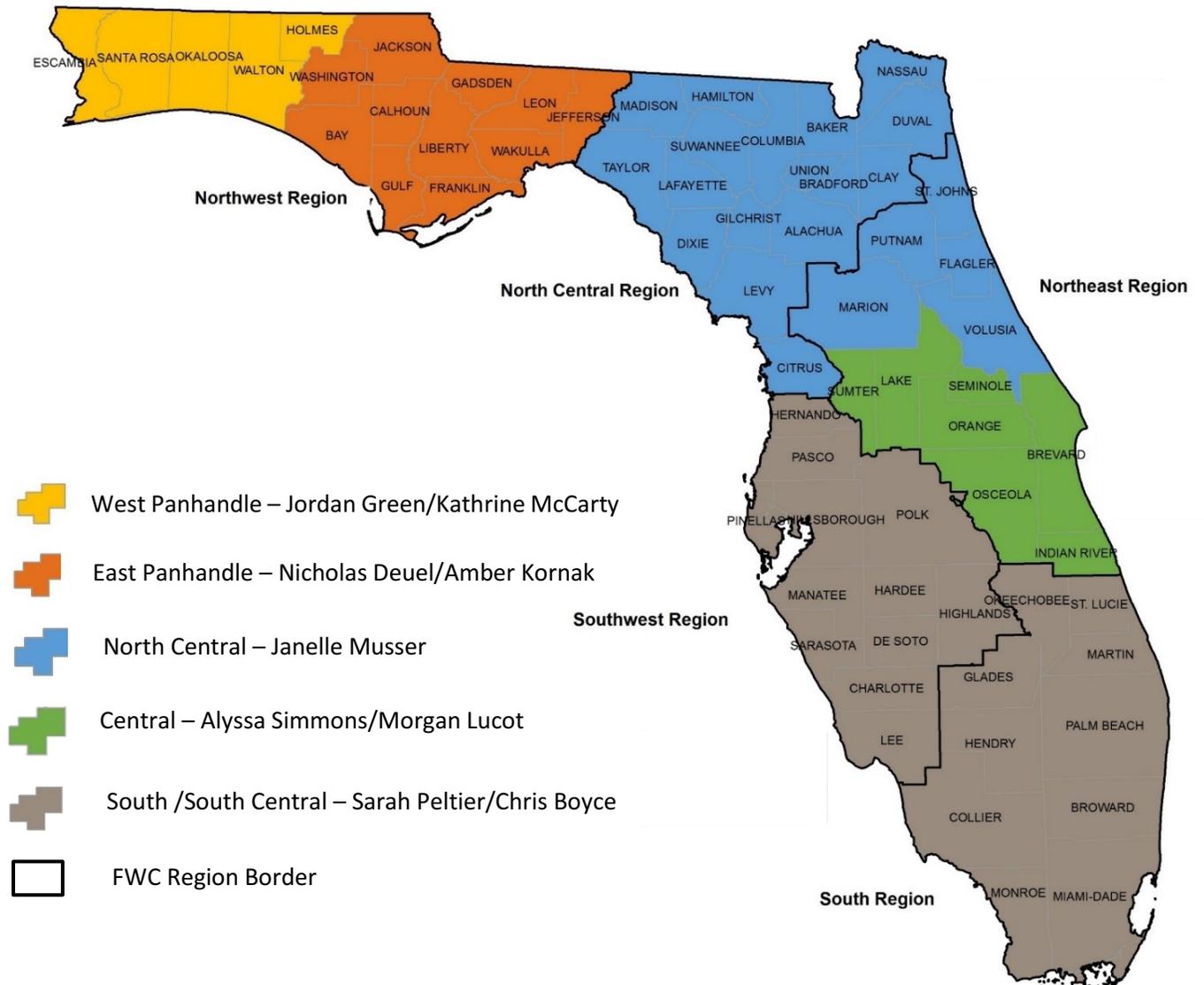


Figure 2. Coverage areas by county for Area Bear Biologists and FWC Region borders.

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 investigates questions related to bear ecology and management in support of the BMP and the Plan, with a recent focus on demographic studies, population abundance estimates, and habitat analyses.

The BRP have three full time staff (Figure 3) which include the Program Coordinator (Brian Scheick), Assistant Program Coordinator (Darcy Doran-Myers), and one field biologist (Don Hardeman, Jr., who was replaced in April by Steven Nagy). 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.

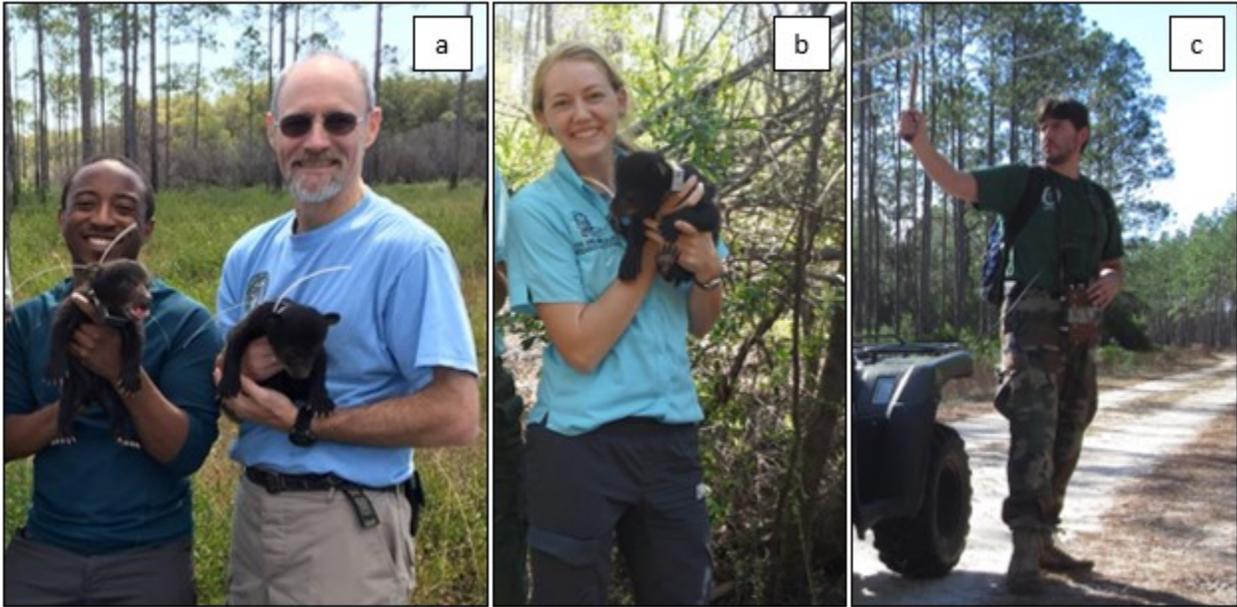


Figure 3. FWC's Bear Research Program staff (left to right): a) Don Hardeman, Jr., Brian Scheick, b) Darcy Doran-Myers, and c) Steven Nagy.

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 as part of 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
- Co-lead the FWC's Chemical Immobilization Training
- 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 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 2019, FWC personnel received 5,396 calls regarding bears (i.e., sightings, bears in garbage, Figure 4).

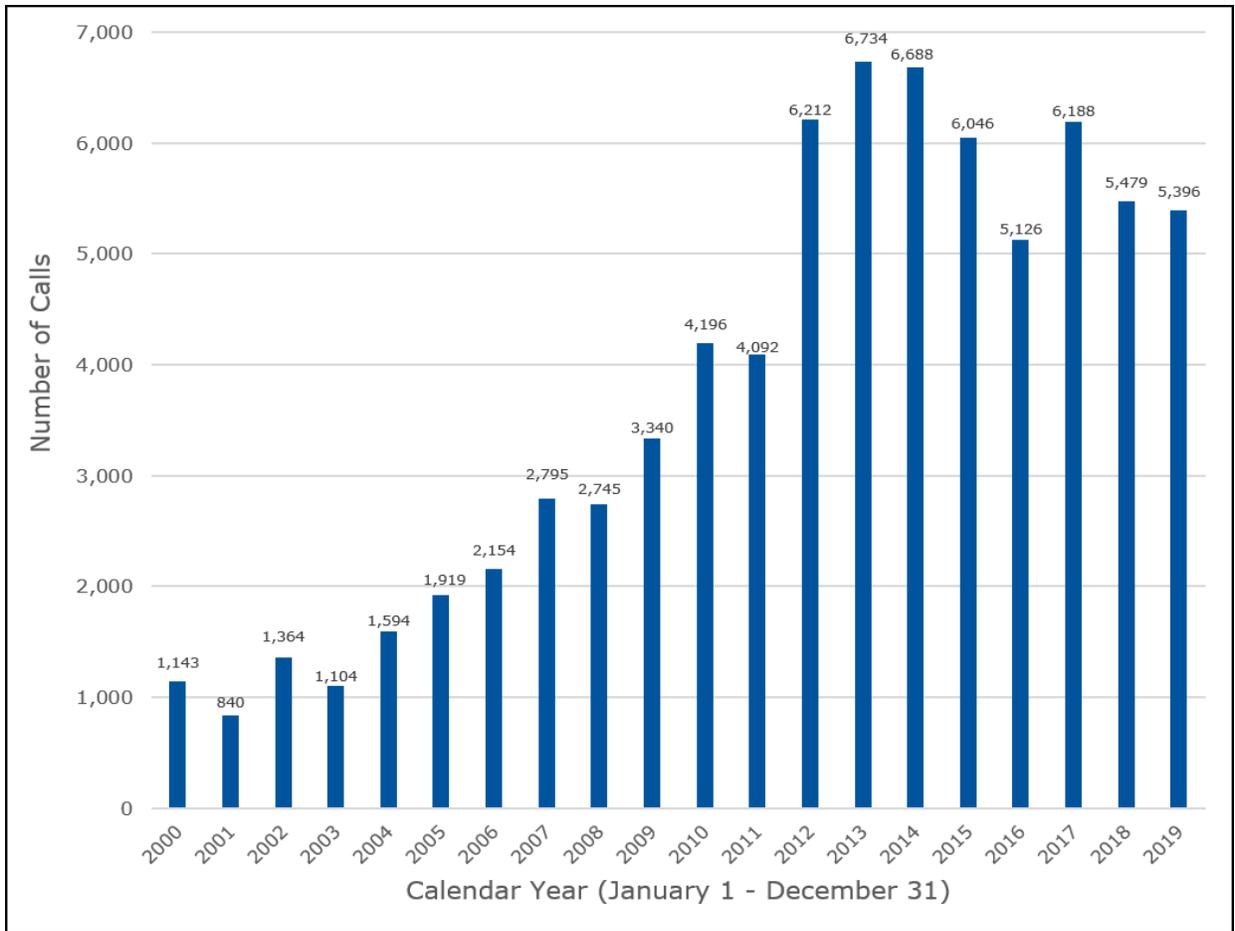


Figure 4. Number of bear-related calls received by FWC from 2000 to 2019 (n = 75,155).

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 42% 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).

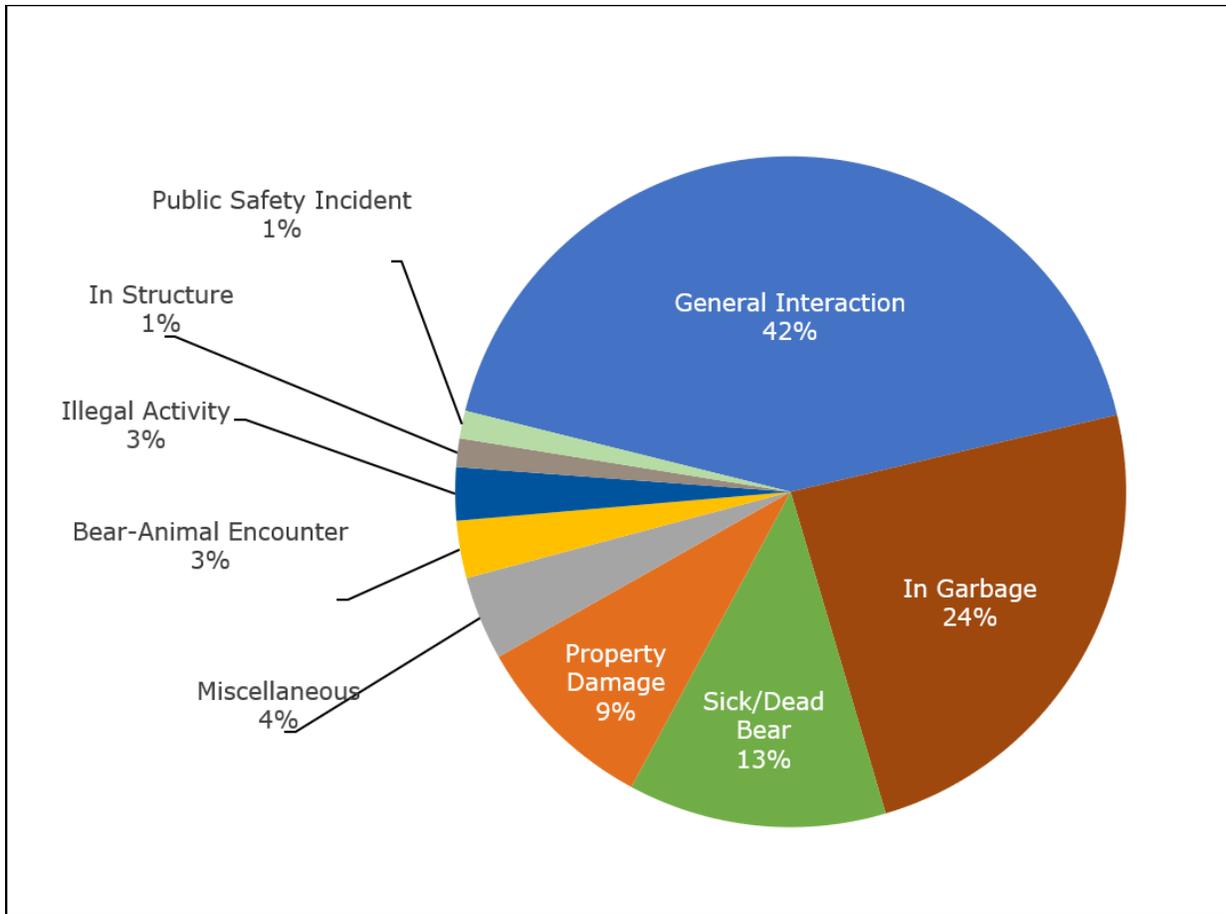


Figure 5. Reasons for bear-related calls received by FWC during 2019 (n = 5,396).

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 250 notices were issued in 2019 (Table 1), as well as 9 warnings and 7 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 2019.

Bear Management and Law Enforcement Actions	Number of Calls	Percentage of Calls
Total Bear-Related Calls	5,396	100%
Technical Assistance Over Phone Only	4,409	81.7%
Site Visit and/or Canvassing	444	8.2%
Non-Compliance Notice Issued	257	4.8%
Capture Effort	239	2.4%

BMP was successful at capturing 130 bears for a 54% trapping success rate in 2019 (Table 2). Over a third (38%) 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 2019.

Trapping efforts and fate of bears captured	Number or Percent
Trapping efforts	239
Bears captured	130
Trap success rate	54%
Bears killed for conflict behavior	21
Bears euthanized for sickness or injuries	28
Percentage of bears captured that were killed or euthanized	38%
Bears released on site	17
Bears relocated	61
Bears taken in for rehabilitation for future release	3

The number of bears killed by vehicle collisions in Florida have increased over time to a peak of 283 bears in 2012 (Figure 6). Since that time, vehicle collisions declined and stabilized, with an average of 240 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 2019, the FWC documented 20 bears were illegally killed, which is higher than the average of 15 bears illegally killed each year since 2010.

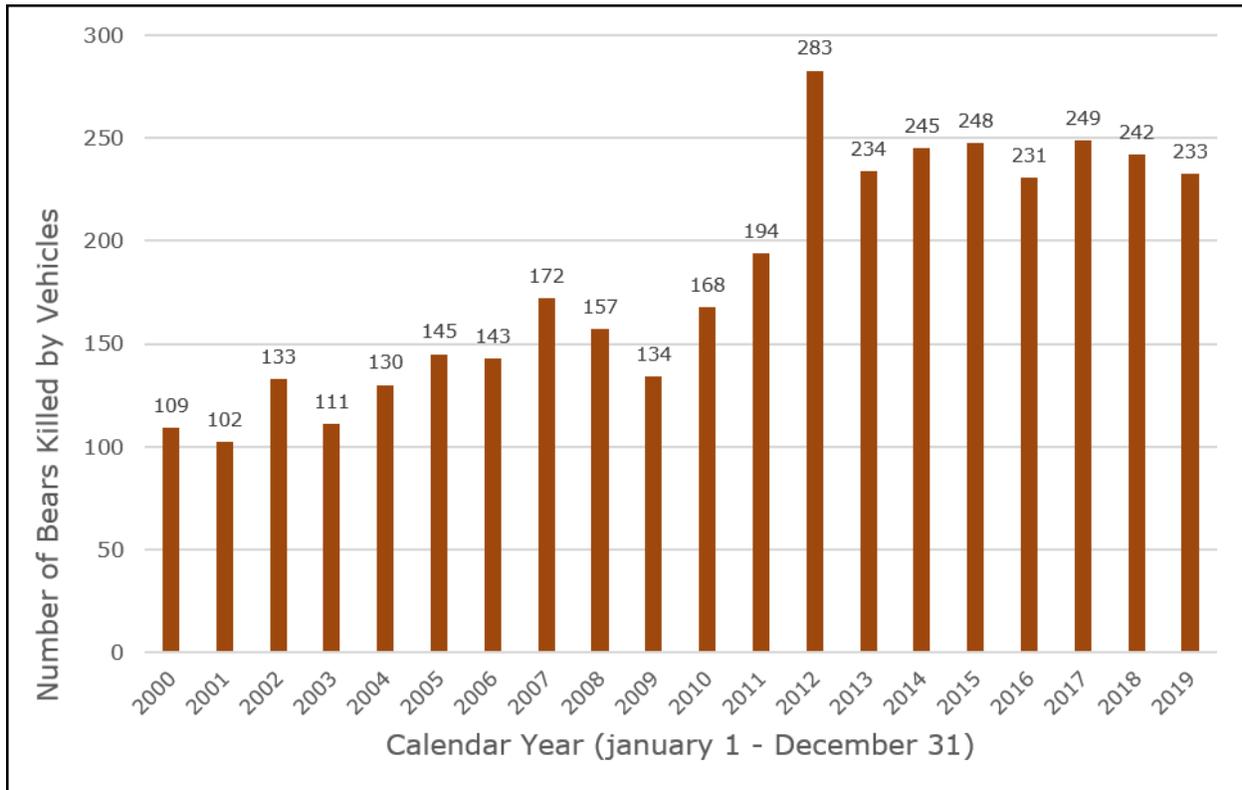


Figure 6. Number of bears killed by vehicles in Florida by year from 2000 to 2019 (n = 3,663).

During 2019, the FWC responded to three separate reports from people indicating they had been injured by bears. Upon investigation, only two of the incidents were legitimate cases where a bear made physical contact with a person. On March 30, a man was injured by a bear in DeLand in Volusia County. The man encountered two bears while taking out his garbage. When the man attempted to scare the bears away, he was scratched on the chest and shoulder. Two trapping efforts were conducted, but the targeted bear was not captured. On September 10, a woman was injured by a bear in Longwood in Seminole County. When the woman let her dog out, she encountered an adult female bear with cubs. As the woman retreated, she fell repeatedly while the bear followed. The woman kicked at the bear and was

bit on her ankle. The woman received medical attention for multiple injuries she received, primarily from her falls. A trapping effort was initiated but no bear was captured or observed on camera. A few days later, an adult female with cubs charged a woman walking her dog in the same neighborhood, but the homeowner's association did not give permission to set a trap. A month later, in a neighborhood across the street, another woman was charged by an adult female with cubs. A trap was set, but no bear was captured or observed on camera. Within a few weeks, an adult female was found illegally killed in the neighborhood of the last incident. The DNA from the carcass matched the DNA found on the woman who was bitten on September 10. On September 21, a woman claimed she was injured by a bear in Kissimmee in Osceola County. The incident was reported to FWC on September 23 after the woman told co-workers she was charged and bitten by a bear while taking out the trash. FWC LE interviewed her and examined her injuries, which were consistent with falling. The woman later agreed no bear made contact with her.

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 those 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. We have been using motion-activated cameras to monitor bear activity for years. These cameras require staff to manually download photograph and video data daily. Recent technological advances now allow for real-time monitoring with remote cameras that automatically send files by email to users. The BMP received a \$16,300 grant from the Fish and Wildlife Foundation of Florida using proceeds of sales of the Conserve Wildlife specialty license plate to purchase these cameras to deploy statewide. The new cameras minimize the amount of time personnel spend on trapping events and reduce the amount of time bears are in traps before personnel arrive on-scene.

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 2019, Bear Response Contractors were dispatched to respond to 1,139 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 agencies, exhibiting at festivals, and presenting to civic groups, colleges, local governments, camps, and school groups. In 2019, BMP and BRP participated in 164 outreach events and were able to interact in-person with 26,888 people. This year staff from both programs teamed up to provide three, two-hour lectures for the Florida State University's Osher Lifelong Learning Institute (OLLI), a program for citizens aged 55 and older. Over the course of three weeks, staff presented information about the biology, research, and management of Florida black bears. The initial classes went so well, the OLLI program asked the FWC to become a regular presenter and will explore offering bear presentations in other locations around the state.

In order to raise awareness about black bear activity and provide advice on how to avoid conflicts, the BMP, BRP, Division Communications, and the Office of Community Relations

worked together to produce four news releases and one article in the International Bear News during 2019 (Table 3).

Table 3. News releases (NR) and articles published in International Bear News (IBN) featuring Florida black bears during 2019.

Type	Title	Date
NR	FWC removes dangerous bear from the Juniper Prairie Wilderness Area campsite	3/18/19
IBN	Changes in Florida's Bear Research Team	Spring 2019
NR	Bears are more active in the Fall	9/9/19
NR	FWC seeking input on update to Florida Black Bear Management Plan	10/8/19
NR	Bear Management Facts	12/11/19

Working with the Office of Community Relations, BMP and BRP were able to add two new videos in 2019, for a total offering of 41 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 December 31, 2019.

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
Bears and Birdfeeders	Vimeo and YouTube	1/3/2019
How to make your trashcan bear-resistant	Vimeo and YouTube	3/29/2019

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 8th Florida Panther Festival on November 2, but unfortunately, the 20th Florida Wildlife Conservation Festival was canceled due to weather conditions. In addition to the FWC's bear exhibits, children's activities, and presentations at the

Panther Festival, 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. A total of 14 students from Florida State University, Tallahassee Community College, and Rollins College participated in the internship program spring and fall 2019 sessions (Figure 7). These students contributed 2,083 hours of time to bear management. Intern projects have provided valuable information on a wide range of bear management topics, including: mapping campgrounds and state parks for BearWise outreach, analyzing census data, and reexamining chest girth data using an updated formula. Interns coordinated public events and volunteer efforts to increase public awareness of bears. The interns allowed FWC to reach out and educate an additional 3,296 people about the Florida black bear in 2018 than staff could have reached alone.



Figure 7. FWC's Bear Management Program Fall 2019 interns (from left to right): Shauna Guld, Delaney Smith, and Jillian Willis.

Since May 2008, 199 individual interns from 37 different majors have contributed over 37,708 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 internship is completed.

Since 2010, the BMP and BRP have worked with 51 volunteers, 26 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. Between 2007 and 2019, 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 (Table 5). Local governments, residents, and businesses matched those funds with their own funds and in-kind services totaling over \$1.1 million, resulting in more equipment than either the FWC or local governments could have provided alone (Table 5). Since 2007, the BearWise funding has resulted in the purchase of over 13,600 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 (Table 5).

Table 5. 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 from 2007 to 2019.

County	Funding Awarded	Match	Total Project	Bear-Resistant Equipment*				
				Trashcans	Hardware	Dumpster	Shed	Electric Fence
Seminole	\$621,058	\$522,626	\$1,143,684	5,803	0	30	0	0
Lake	\$348,473	\$96,800	\$445,273	1,771	0	3	0	0
Orange	\$295,111	\$117,187	\$412,298	1,653	0	0	0	0

Volusia	\$239,856	\$215,184	\$455,040	2,365	0	0	0	0
Marion	\$70,619	\$38,780	\$109,399	777	0	0	0	0
Putnam	\$17,773	\$5,870	\$23,643	129	0	0	0	0
Leon	\$38,573	\$5,824	\$44,397	100	750	3	0	0
Franklin	\$26,256	\$7,649	\$33,905	202	1,480	0	2	5
Gulf	\$22,570	\$4,521	\$27,091	0	2,251	0	0	0
Wakulla	\$21,332	\$21,443	\$42,775	157	110	0	2	0
Bay	\$21,161	\$6,680	\$27,841	0	0	33	9	0
Collier	\$63,366	\$20,820	\$84,186	225	0	5	70	0
Highlands	\$58,770	\$28,569	\$87,339	296	0	8	0	0
Santa Rosa	\$107,583	\$25,343	\$132,926	0	3,917	181	9	0
Walton	\$56,864	\$20,845	\$77,709	10	0	48	0	0
Okaloosa	\$48,801	\$19,292	\$68,093	113	2,936	33	0	0
Multiple^	\$15,454	\$8,911	\$24,365	24	100	24	0	0
	\$2,073,620	\$1,166,344	\$3,239,964	13,625	11,544	368	92	5

**Totals include funding and amount of initial equipment purchased plus additional equipment purchased using cost-share funds from resident purchases of the initial equipment.*

^Funds and equipment provided to multiple Bear Management Units (BMUs) and counties.

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, four counties (Collier, Lake, Orange, Santa Rosa), two cities (Fort Walton Beach, 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 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, 47 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 has provided \$25,000 to HSWSP in CWT grant funding to help pay for rehabilitation 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. We are hopeful construction can begin on the project sometime in 2020.

UPDATING THE BEAR MANAGEMENT PLAN

In April 2017, Commissioners requested that staff bring an update of the 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. The Plan was scheduled for a review in 2021, however, Commissioners requested that staff move up the review timeline 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. Between March and August of 2019, the team began meeting more frequently to ensure the Plan update was completed and received both internal and external review before the December 2019 FWC Commission meeting. The draft Plan update was provided to 31 FWC field staff regularly involved in bear issues and then provided to 27 members of FWC leadership for review, prior to the public comment period (October 7 to November 6, 2019).

There were multiple ways the public could review and provide feedback on the draft Plan update. Over 3,000 comments were received using the FWC website’s online survey. While the number of commenters varied by section, the averaged results indicated a majority of respondents were either neutral or agreed that the draft Plan update was comprehensive, supported by data, was clear, and included appropriate actions (Table 6). Almost all of the additional 4,500 text box comments were related to the opposition to or support of re-opening the regulated bear hunting season.

Table 6. Public response to statements about the draft Bear Management Plan update, averaged across five sections of the plan.

Statement	Agreed	Neutral	Disagree
The Plan provides comprehensive coverage of the topics	51%	21%	28%
Information was presented objectively and supported by data	48%	21%	31%
Information was clear and understandable	52%	22%	26%
The list of actions seemed appropriate to support the objectives	44%	18%	38%

Between October 21 and 28, the FWC met with 61 members of the 7 Bear Stakeholder Groups and 19 members of the Statewide Bear Technical Assistant Group to collect feedback and answer questions on the draft Plan update. On October 24 and 29, FWC hosted two public webinars where staff provided a brief presentation answered questions on the draft Plan update. A total of 128 people participated either online, over the phone, or in-person for the webinars. The FWC also received 346 emails, calls, or letters during the open public comment

period. On November 25, after reviewing public feedback and making appropriate changes, a final draft of the Plan update was posted online. After listening to the staff presentation and hearing public comments, FWC Commissioners approved the Plan update on December 11. The 2019 Florida Black Bear Management Plan will guide bear research and management efforts until 2029, when it is scheduled for another review.

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. During 2019, models of bear habitat quality at the statewide and local scales (BMU) were completed and the amount of quality habitat was reported for each BMU (Figure 8). Work also began comparing habitat characteristics of occupied and unoccupied bear range to examine any differences in habitat quality.

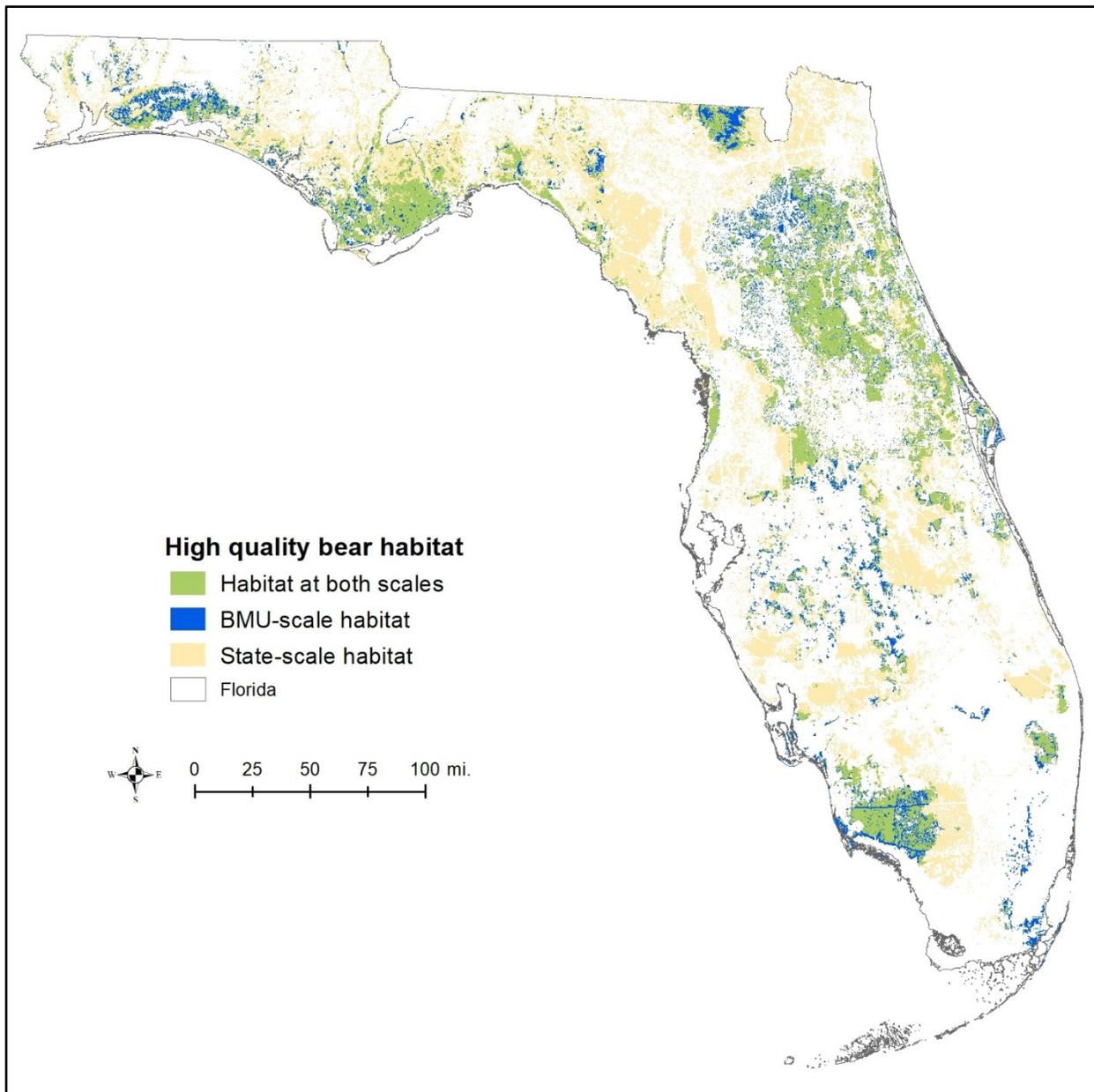


Figure 8. Assessment of bear habitat quality in Florida, where different colors are used to represent habitat quality at different scaled, with yellow representing statewide, blue representing local (or Bear Management Unit [BMU]), and green representing where quality at the statewide and local scales overlap.

BRP staff continued field work related to a study to measure survival and reproductive parameters in the Apalachicola subpopulation used to calculate the subpopulation's growth rate. In spring of 2019, BRP staff completed their third field season monitoring reproduction of adult females (denning activity, litter size and sex ratio of litters) and attaching lightweight,

expandable radio collars cubs to monitor their survival. We documented 39 cubs (23 females: 16 males) in 19 litters and were able to collar 37 of them (22 females: 15 males). While mean litter size in 2019 was lower than in 2017 and 2018, mean cub weights were slightly higher. Cubs were monitored 1 to 3 times per week, and by the end of the year, six collared cubs had died. Two cubs were killed by a bear, one died of unknown causes, and based on filed sign and the movements of their mother, a litter of three cubs was assumed to have died during or shortly after a prescribed burn). The 2019 mortalities bring the total cub mortalities to 11.

Of the 47 adult females initially monitored for this project, the movements and survival of 30 were tracked throughout the year due to multiple collar battery failures and 8 mortalities. Two adult females died from vehicle collisions, two were illegally killed, two were killed by the FWC because they presented a risk to public safety, and two died of unknown causes). The results of this research, expected in 2020, are being used to create survival models and preliminary growth projections.

Don Hardeman, Jr., the graduate student under contract through Dr. McCleery at the University of Florida, defended his thesis entitled “Effects of the Human-Dominated Landscape on the Behavior of Female Florida Black Bears (*Ursus americanus floridanus*)” and graduated in June 2019. Two manuscripts from this study are being prepared for publication. His project investigated the responses of bears to human sound, using bears collared for the Apalachicola demographics study. The bears’ reactions to several sounds when approached were measured, including the direction and distance each bear retreated. While all bears responded to an approach by people, bears who spent more time near human developments retreated shorter distances. Examination of stable isotope analysis of hair from captured bears revealed research bears who spent more time near human developments had higher indicators of habitually feeding on human sourced food. Upon examination of a sample of bears captured because of human-bear conflicts, only about half were determined to be habitual feeders of human sourced food based on isotope analyses.

BRP staff continue 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 2019, the FWC collected 640 records of bear sightings (204 included photos). The

>8,997 sightings submitted since 2013 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.

Using all available bear locations, including the data from the above bear registry, we updated the statewide bear range map. The occupied range in 2019 now totals 49% of Florida, up from 34% a decade earlier. Occupied range is found in 59 counties, although 4 of these have just a sliver, and some level of bear occurrence is in all but 2-3 counties. A manuscript describing the trend in bear range over the last decade is being reviewed by FWRI’s internal review process and will be submitted for publication in a peer-reviewed publication in 2020.

BRP staff were coauthors on one publication:

Karelus, D. L., J. W. McCown, B. K. Scheick, M. van de Kerk, B. M. Bolker, and M. K. Oli. 2019. Incorporating movement patterns to discern habitat selection: black bears as a case study. *Wildlife Research* 46:76-88.