

## **23. EXTENSION PROGRAMS (for IFAS only)**

### **Overview of Extension Program**

My position as an extension specialist at UF/IFAS was established as a shared position with the Florida Fish and Wildlife Conservation Commission (FWC). I am expected to provide guidance to the FWC and other conservation organizations on the design and implementation of applied research, policies, and outreach efforts related to conservation and human-wildlife conflicts. I provide leadership and coordination for statewide extension efforts that: 1) provide information to help guide the FWC's and other conservation agencies' research, management, and outreach efforts; and 2) engage Florida residents in conservation behaviors. As part of my research effort, I evaluate: 1) Florida residents' attitudes towards the environment and wildlife; 2) experiences with wildlife and wildlife-related conflicts; and 3) preferences for conservation programs. I then translate this science-based research into extension educational efforts (including the development, delivery and evaluation of programs) to assist the FWC, other conservation agencies and UF/IFAS Extension to better engage Florida residents in behaviors that reduce human-wildlife conflicts and promote the conservation and management of wildlife, native habitats, and ecosystem services.

I provide leadership and coordinate extension efforts in two broad areas:

- **Program 1:** Improving government agencies’ and conservation organizations’ capacity to engage with Florida residents to implement conservation practices (20% FTE)
- **Program 2:** Improving Florida residents’ understanding and management of wildlife and other resources (10% FTE)

I have obtained >\$518,000 in grant funding that supports my extension programs (see Section 18). I disseminate information and engage my clientele via:

<b>Educational Methods</b>	<b>Number</b>
Peer-reviewed journal publications	10 related to my Extension efforts (see Section 16f)
Reports submitted to clientele	17 final reports (12 first authored by me; see Section 16k) 7 interim reports and memos
EDIS documents	15 (see Section 16g)
Fact sheets	2 fact sheets sent to 5,876 landowners (1,012,741 acres)
Individual meetings with government staff, Extension faculty, and other stakeholders	> 700 contact hours
Presentations at conferences, workshops, industry and government agency meetings	40 (see also Sections 17d and 17e)
In-service trainings (ISTs)	2
Workshops	1 (designed and implemented a workshop on conservation easements and land trusts)
Instructional multimedia presentations	2 (see Section 14)

To enhance the effectiveness of my extension program and pursue my professional development, I have attended 3 ISTs: the 10<sup>th</sup> Watershed In-Service Training (Sustaining Florida's Current and Future Water Supply through Innovative Solutions and Policy); How to Write SMART Objectives; and Bloom's Taxonomy.

My extension programs fit under *UF/IFAS’s Florida Extension Roadmap High-Priority Initiative 3 – Enhancing and conserving Florida’s natural resources and environmental quality*, and are designed to address the broader societal challenge of *resource sustainability and conservation in Florida communities*. In collaboration with Extension colleagues, I have earned 1 national and 2 state awards in recognition of these outreach efforts (see Section 27).

**Program 1 – Improving government agencies’ and conservation organizations’ capacity to engage with Florida residents to implement conservation practices**

**A. Situation**

My position was jointly funded by the Florida Fish and Wildlife Conservation Commission (FWC). The FWC employs 2,112 full-time staff and is responsible for managing and protecting over 575 species of wildlife, including 121 endangered and threatened species. The Division of Habitat and Species Conservation (HSC) – with which I primarily work – has a core mission to increase or maintain populations of all native species and their habitats on a statewide basis. HSC works with private and public landowners and local, state and federal governments to conserve habitat and

wildlife. HSC also develops and implements species management and recovery plans, and works with industry and the public to prevent and control species invasions. HSC managers and staff are primarily composed of natural scientists and technical experts with no training in human dimensions or economics – which are critical to designing effective conservation and outreach programs. My extension program addresses this need and knowledge gap. I assist HSC in designing and implementing programs that promote conservation behaviors by Florida residents.

*Other extension clients:* Through extension efforts with HSC I have formed collaborations with other government agencies and conservation groups that integrate human dimensions of wildlife conservation and economics into their decision-making:

- **U.S. Fish and Wildlife Service (USFWS):** Principal federal government agency responsible for administering the Endangered Species Act (ESA), leading efforts to recover and conserve threatened and endangered species by fostering partnerships with key stakeholders, and managing the national wildlife refuge system.
- **U.S. Geological Survey (USGS):** Federal agency responsible for conducting large-scale, multidisciplinary investigations on managing biological resources, in order to provide impartial scientific information to resource managers, planners, and other customers.
- **United States Department of Agriculture (USDA):** Federal agency responsible for promoting agricultural production practices that preserve natural resources by improving the stewardship of forests, watersheds, and private working lands.
- **Florida Panther Recovery Implementation Team (FPRIT):** Mandate to facilitate the recovery of the Florida panther. Composed of 10 representatives from FWC, USFWS, the National Park Service (NPS), environmental organizations, sportsmen and hunting associations, private landowner groups, and the Florida Cattlemen’s Association (FCA).
- **Florida Panther Outreach Team:** composed of the FWC, USFWS, NPS, and conservation organizations (Defenders of Wildlife, the Conservancy of Southwest Florida, the Florida Wildlife Federation, and the Audubon Society). The team engages in statewide outreach to educate Florida residents on the panther and how to mitigate conflicts with the panther.
- **Florida Forest Service (FFS):** State government agency with the mission to protect and manage Florida’s forest resources. The FFS provides private landowners with technical information and funding to promote forest resources stewardship.
- **Palm Beach County Department of Environmental Resources Management (ERM):** County government agency that administers environmental programs designed to protect, preserve, and enhance Palm Beach County’s natural resources.
- **The Nature Conservancy (TNC):** an international conservation organization that partners with public and private organizations to attain land and water conservation through the implementation of green infrastructure and changes to land development practices.
- **The Everglades Foundation:** a science-based, non-profit organization dedicated solely to protecting and restoring the American Everglades ecosystem.

## **B. Program objectives**

The specific objectives of my extension program are to:

1. increase agencies’ knowledge and understanding of Florida residents’ attitudes towards wildlife and willingness to engage in actions to mitigate human-wildlife conflicts;

2. improve the effectiveness of agency programs in engaging key stakeholders and Florida residents in conservation behaviors; and
3. improve social science capacity within agencies to address conservation issues.

**C. Educational methods and activities**

***Objective 1: increase agencies’ knowledge and understanding of Florida residents’ attitudes towards wildlife and willingness to engage in actions to mitigate human-wildlife conflicts.***

To obtain this objective, I translated my applied research findings into educational materials about Florida residents’: 1) tolerance for the Florida panther (endangered), Florida black bear, and coyote; 2) willingness to engage in actions to mitigate conflicts with these species; and 3) expectations of the FWC and other agencies in terms of managing wildlife. I disseminated educational materials, and associated recommendations on how State and Federal agencies’ outreach programming may be improved, as follows:

Educational Methods	Clients and Number of Contacts
11 presentations	>126 individual contacts: <ul style="list-style-type: none"> <li>• FWC Imperiled Species Management Section, which includes the FWC Bear Management Program and the FWC Florida Panther Program (&gt;40 managers and biologists, including 9 bear biologists, 3 panther biologists, and 23 contractors)</li> <li>• FWC Wildlife Impact Management Section (31 managers and biologists, including 9 wildlife assistance biologists and 17 nonnative fish and wildlife biologists)</li> <li>• FPRIT (25 individuals)</li> <li>• Panther Outreach Team (23 individuals)</li> <li>• Florida Cattlemen’s Association (&gt;7 committee directors, officers, and members)</li> </ul>
4 posters	Presented to FWC, USFWS, and USGS managers and staff at the Florida Cooperative Fish and Wildlife Research Unit Cooperating Committee Meetings (2016, 2018), and the FWC Commission Meetings (2017)
5 written reports	Submitted to the FWC, USFWS, and FPRIT (see Section 16k)
Meetings	~279 hours of in-person and phone meetings with agency staff

In addition, I conducted the following activities to assist the FWC in its management and outreach efforts related to the Florida black bear:

- Analysis of survey data collected by the FWC Black Bear Management Program on whether Florida residents had followed recommendations to mitigate human-bear conflicts, in order to inform their outreach to residents who report conflicts with bears
- Redesigned the telephone survey that the FWC Black Bear Management Program administers every 4 months to individuals who report human-bear conflicts, in order to better track whether people are receiving and understanding the information provided by the FWC

***Objective 2: improve the effectiveness of agency programs in engaging key stakeholders and Florida residents in conservation behaviors.***

To obtain this objective, I translated my applied research findings into educational materials about: 1) rangeland owners’ preferences for programs to conserve habitat for the Florida panther (to facilitate range expansion and recovery of the endangered panther); 2) county governments’ willingness to work with the FWC to secure garbage against black bears (to reduce human-bear conflicts); 3) private agricultural landowners’ ( $\geq 20$  acres of land) willingness to engage in voluntary partnerships with the FWC to manage wildlife, habitat and imperiled species on their lands; and 4) Florida residents’ and non-native pet owners’ support for FWC efforts to manage the invasion risks posed by the trade in non-native species in Florida. I disseminated educational materials, and associated recommendations on how State and Federal agencies’ conservation and outreach programs may be improved, as follows:

Educational Methods	Clients and Number of Contacts
13 presentations	<p>&gt;176 individual contacts:</p> <ul style="list-style-type: none"> <li>• FWC Conservation Planning Services (&gt;50 managers and biologists, including 40 Conservation Planning Services biologists who work with private landowners)</li> <li>• FWC Imperiled Species Management Section (&gt;40 managers and biologists)</li> <li>• FWC Wildlife Impact Management Section (31 managers and biologists)</li> <li>• FPRIT (25 individuals)</li> <li>• Panther Outreach Team (23 individuals)</li> <li>• Florida Cattlemen’s Association (&gt;7 committee directors, officers, and members)</li> </ul>
2 posters	Presented to FWC, USFWS, and USGS managers and staff at the Florida Cooperative Fish and Wildlife Research Unit Cooperating Committee Meetings (2018), and the FWC Commission Meetings (2017)
1 conference paper	<p>Presented to the Southeastern Association of Fish and Wildlife Agencies:</p> <ul style="list-style-type: none"> <li>• <b>Pienaar, E. F.</b>, D. Telesco and S. Barrett (Presenter) <i>Understanding People’s Willingness to Implement Measures to Manage Human-Bear Conflict in Florida</i>. Southeastern Association of Fish and Wildlife Agencies (SEAFWA), Baton Rouge, Louisiana, October 16 – 19, 2016.</li> </ul> <p>Note: Telesco is the Bear Management Program Coordinator and Barrett is the Database Manager for the FWC Florida Black Bear Management Program.</p>
12 written reports	Submitted to the FWC, USFWS, and FPRIT (see Section 16k)
2 information brochures	Information brochures related to the Florida Private Landowner Wildlife Habitat Monitoring Survey and government conservation assistance programs mailed to 5,876 landowners who own and manage 1,012,741 acres of land
Working group	I serve on the Big Bend Bear Stakeholder Group. The Big Bend Bear Management Unit includes Citrus, Dixie, Gilchrist, Hernando, Lafayette, Levy, and Pasco counties and contains the Chassahowitzka subpopulation of the Florida black bear. This group works with county governments, residents, and other key stakeholders to conserve the Florida black bear.
Meetings	~226 hours of in-person and phone meetings with agency staff

I also conducted the following extension activities:

- I provided data for use by the FWC Director of the Office of Conservation Planning Services

in his February 2016 presentation to the FWC Commissioners as support for FWC’s Private Lands Innovation Strategic Initiative (see below for more information).

- I provided comments on a cost-share program to be implemented by FWC to retrofit all 32 dumpsters in Mexico Beach, FL to reduce conflicts with bears.
- I attended the USDA National Institute of Food and Agriculture (NIFA) meeting related to bioenergy production, 2017.

**Objective 3: improve social science capacity within agencies to address conservation issues.**

To obtain this objective, I translated my applied research findings into educational materials about: 1) the value that residents of Palm Beach County place on the county’s natural areas (to advise and assist ERM in its efforts to raise sufficient finances to continue funding the program); and 2) the value that Florida residents place on the restoration of the Everglades (to advise and assist the Everglades Foundation in its efforts to restore the Everglades). I was also part of a larger interdisciplinary, multi-state effort to inform national wildlife refuges’ efforts to secure their conservation objectives in the face of climate change and sea level rise. I am assisting the TNC in their efforts to work with municipalities, counties, and developers to secure freshwater resources in Florida (by advising them on the economic valuation of green infrastructure). And I conducted training sessions with FWC managers and senior staff to instruct them in social science methods. I disseminated educational materials, and associated recommendations on how clients’ conservation and outreach programs may be improved, as follows:

Educational Methods	Clients and Number of Contacts
2 presentations	42 individual contacts: <ul style="list-style-type: none"> <li>• 1 presentation to the Board of County Commissioners in Palm Beach. This board serves as the legislative and policy-setting body for county government, enacts countywide laws, and authorizes programs and all expenditures of county funds. They also act as the Environmental Control Board for the county (7 commissioners).</li> <li>• 1 presentation on ecosystem services valuation at the Big Bend Estuary and Watershed Restoration Planning Meeting (~35 county government officials, independent consultants, scientists and agency personnel).</li> </ul>
1 workshop	FWC Social Sciences Workshop: I served as the environmental economics instructor for a 3-day workshop, which focused on how social sciences may be used to inform FWC decision-making (~40 senior managers).
3 written reports	Submitted to Palm Beach County ERM, the Everglades Foundation, USGS, and 4 national wildlife refuges (see Section 16k)
3 EDIS documents	EDIS documents on economic valuation approaches (see Sections 16g and 16k). These documents were downloaded 5,576 times between 2014 and 2017.
Meetings	~113 hours of in-person and phone meetings with agency and organization staff

In addition, I provided the Coastal Wildlife Conservation Initiative Coordinator at FWC with advice about a pilot Community Based Social Marketing program that will be implemented in partnership with the Florida Department of Environmental Protection’s Coastal Management Program. Finally, I assisted the FWC in recruiting an in-house economist to develop projects that will assist the FWC in its wildlife management efforts.

## D. Impacts and outcomes

### ***Objective 1: increase agencies' knowledge and understanding of Florida residents' attitudes towards wildlife and willingness to engage in actions to mitigate human-wildlife conflicts.***

First order outcomes<sup>8</sup> attained:

- 76.7% increase in FWC Wildlife Impact Management Section (WIM) biologists' knowledge about: 1) Florida residents' and hunters' knowledge of and tolerance for the coyote; 2) Florida residents' willingness to secure anthropogenic food attractants to prevent conflicts with coyotes; and 3) Florida residents' and hunters' preferences for how the FWC should manage the coyote population (based on surveys of 18 WIM managers and biologists).

Second order outcomes<sup>9</sup> attained:

- 92.3% of WIM managers and biologists agreed or strongly agreed that they would use information provided (on people's tolerance for coyotes and their preferences for management of the coyote population) to inform their decision-making and how they engage with Florida residents (based on surveys of 18 WIM managers and biologists)

### ***Objective 2: improve the effectiveness of agency programs in engaging private landowners and Florida residents in conservation behaviors.***

First order outcomes attained:

- 62.5% increase in Florida Panther Recovery Implementation Team (FPRIT) members' knowledge of the Florida cattlemen's culture, and how this informs their willingness to engage with government agencies to attain conservation outcomes<sup>10</sup> (based on surveys of all FPRIT members)
- 87.5% increase in FPRIT members' knowledge related to cattlemen's preferences for panther and habitat conservation programs (based on surveys of all FPRIT members)
- 50% increase in FWC Landowner Assistance Program biologists' knowledge about: 1) which wildlife species landowners consider to be conflict or problem species; 2) landowners' knowledge of, and interest in, land management plans, financial assistance programs and technical assistance programs; 3) landowners' opinions of and level of past interaction with the FWC; and 4) landowners' willingness to work with the FWC to conserve imperiled species (based on surveys of all senior and regional managers in the program).
- 88.3% increase in FWC Wildlife Impact Management Section (WIM) biologists' knowledge about: 1) Florida residents' understanding of the invasion risks associated with non-native species; 2) Florida residents' and pet trade stakeholders' support for additional management actions to mitigate the invasion risks associated with the pet trade; 3) Florida residents' and

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<sup>8</sup> First order outcomes encompass gains in knowledge, a necessary first step towards changing individuals' and agencies' behavior and actions.

<sup>9</sup> Second order outcomes encompass changes in the behavior of institutions and stakeholder groups, changes in behavior that directly affect resources of concern, and investment in infrastructure.

<sup>10</sup> Note that while there is a representative from the Florida Cattlemen's Association on the FPRIT, the majority of representatives are from government agencies and do not work closely with the cattlemen community.

pet trade stakeholders' willingness to contribute financially to efforts to mitigate invasion risks; and 4) Florida residents' knowledge of current management actions that are intended to mitigate invasion risks (based on surveys of 18 WIM managers and biologists).

Second order outcomes attained:

- Based on my applied research findings, the USFWS altered the design of the Florida Panther Payment for Ecosystem Services pilot program, specifically the structure of the payment and the contract duration. In 2016, the USDA NRCS invested \$630,000 towards funding this pilot program.
- The FWC utilized private landowner survey data and findings that I presented to them as the foundation for their Private Lands Innovation Strategic Initiative. This initiative aims to strengthen trust and working relationships between the FWC and private landowners. To attain these goals, the FWC hired 9 additional biologists and a human dimensions specialist to work on improving working relationships with private landowners. A total of 40 Conservation Planning Services (CPS) staff implement the initiative. The CPS works with ~600 private landowners (≤500,000 acres of land) each year to manage their land for wildlife.
- One of the key insights of my bear-related research was that municipal decision-makers find maps on the location of human-bear conflicts particularly useful in deciding how to implement bear-resistant garbage management. The FWC has used these maps to demonstrate that county-wide implementation of bear-resistant garbage management (which is cost prohibitive) is not required to mitigate human-bear conflicts, in order to increase counties' willingness to engage in bear-resistant garbage management.
- 87.5% of FPRIT members 'strongly agreed' and 12.5% of members 'agreed' they will use information provided in their decision-making (based on surveys of all FPRIT members)
- 92.3% of managers and biologists in the FWC Wildlife Impact Management Section agreed or strongly agreed that they would use information provided (on people's preferences for how the pet trade invasion risk should be managed) to inform their decision-making and how they engage with Florida residents (based on surveys of 18 WIM managers and biologists)

***Objective 3: improve social science capacity within the FWC and other agencies to address conservation issues.***

Second order outcomes attained:

- ERM used survey results that I provided to obtain permission from Palm Beach County's Administration to investigate how a "green utility fee" may be added to water utility bills to finance continued management of the Natural Areas Program. In the interim, the County has allocated \$2 million to maintaining the program (based on the economic value of the program to residents), while ERM works with the County to secure necessary funding.
- Other stakeholder groups have used my published research findings and recommendations to write comments on government agencies' management of species. For example, the Humane Society used my research findings to comment on the FWC's management of the Florida black bear and the USFWS' 5-year review of the endangered status of the Florida panther under the ESA. These written comments are part of the official record when agencies make decisions on the listing status and management of species.

Third order outcomes<sup>11</sup> attained:

- Funds raised by Palm Beach County (through the implementation of a green utility fee) would be used to finance the management of 31,445 acres of natural areas (scrub, wetlands, forest, woodlands) that are owned and managed by the county (~\$6.4 million per year allocated to revegetation and removal of invasive plants, maintaining recreation infrastructure, parking lots, fences, and signs, providing educational materials for visitors, and monitoring the natural areas to maintain ecosystem health).
- The Everglades Foundation is using ecosystem services valuation results to develop an End-Point Everglades Restoration Plan, which is intended to replace the Comprehensive Everglades Restoration Plan (CERP)<sup>12</sup>. This plan will provide stakeholders, resource managers, and local, state, and federal policymakers with a detailed roadmap for Everglades restoration, including priority restoration projects, cost estimates, and timelines for completion. The plan will demonstrate how different restoration scenarios will affect hydrological conditions, water quality, habitat, native and imperiled species, the economy of south Florida, and the welfare of Florida residents.

## **Program 2 – Improving Florida residents understanding and conservation of wildlife and other resources**

### **A. Situation**

Florida is the third most populous state in the United States. The human population increased from 6.79 million in 1970 to over 20.6 million in 2016. Human population growth in Florida has resulted in urban sprawl, which has encroached on wildlife habitat and has adversely impacted ecosystem services (e.g. water purification, flood mitigation). Loss of rangelands and agricultural lands, and the wildlife habitat that these lands contain, constitutes a significant threat to wildlife and resources conservation in Florida.

Suburban and urban developments also provide high-caloric food sources that are attractive to wildlife (e.g. garbage, pet food). Wildlife that become food conditioned (i.e. they routinely seek out anthropogenic food sources) may cause property damage (e.g. destruction of screen enclosures and garbage cans), and may also attack or kill domestic animals and people. Wildlife that enter human developments are at higher risk of vehicle mortality and euthanization (to protect human safety).

There are multiple actions that can be taken at the individual, household and community levels to achieve coexistence between people and wildlife (e.g., securing food attractants). Private landowners may also manage their lands to secure wildlife habitat and environmental quality. These actions are usually voluntary. Extension education efforts are required to inform Florida residents

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<sup>11</sup> Third order outcomes describe a situation in which some social and/or environmental qualities are maintained, restored or improved.

<sup>12</sup> In 2000, CERP was signed into law. CERP described 68 projects that would remove barriers to flow, store water to rehydrate wetlands, provide for the water supply needs of agriculture and municipalities, and maintain food control for developed areas. To date, none of the 68 CERP projects are completed. Key water storage components of CERP have been deemed too costly or not feasible, which means that the original conception of CERP cannot be attained.

and landowners about options to secure habitat, conserve wildlife, and prevent human-wildlife conflicts. This program fills that need.

The key target audiences for this extension program are: 1) private agricultural and rangeland owners; and 2) Florida residents.

**B. Program objectives**

I work with Extension faculty (county agents and specialists) to attain the following objectives: increase Florida residents’ and private landowners’ knowledge of wildlife, and their willingness to engage in appropriate measures to conserve wildlife, habitat and other natural resources.

**C. Educational methods and activities**

I have engaged in the following activities:

Educational Methods	Clients and Number of Contacts
4 presentations	<p>&gt;276 individual contacts</p> <p>I gave a lightning round presentation about my Extension program to the Natural Resources Extension agents at the IFAS Extension Symposium (Alachua County, 2017)</p> <p>I presented at the Wildlife and Invasive Species Educational (W.I.S.E.) Workshops:</p> <ul style="list-style-type: none"> <li>• Florida panther presentation (Sumter County, 2016): 113 attendees; 86% UF/IFAS Florida Master Gardeners; 23% UF/IFAS Florida Master Naturalists; 1% UF/IFAS Extension Faculty; 11% other (Native Plant Society, Rainbow Springs State Park volunteer, County government)</li> <li>• Invasion and disease risks associated with the herpetological trade (Sumter County, 2018): 125 attendees</li> </ul> <p>I presented information about the Florida panther at the UF/IFAS Extension office, Sarasota County: 38 attendees; 37% UF/IFAS Florida Master Gardeners; 3% UF/IFAS Florida Master Naturalists; 53% other (State and Federal government employees, teachers, medical services); 8% children</p>
2 ISTs	<p>I designed the <i>Living with Wildlife in Florida</i> program (more information below). As part of this program, I conducted an IST on <i>Living with the Florida Black Bear</i> (Orange County, 2018). Attendees included:</p> <ul style="list-style-type: none"> <li>• 5 Extension agents representing Lake, Orange, Polk, Seminole, and Volusia Counties</li> <li>• 9 Florida Master Naturalist Program (FMNP) instructors and graduates</li> </ul> <p>I presented information about conservation incentive programs at the <i>Natural Resources In-Service Training</i> (Alachua County, 2016). Attendees: 29 county Extension agents</p>
1 workshop	<p>I collaborated with Jessica Sullivan (County Extension faculty, Osceola County), Raoul Boughton (Extension Specialist, Ona Range Station) and Chris Demers (Extension Program Manager – Florida Forest Stewardship Program) to design and implement a workshop: <i>Is a Conservation Easement Right for Your Land?</i> (more information provided below)</p> <p>32 attendees at the workshop hosted in Osceola County:</p> <ul style="list-style-type: none"> <li>• 11 landowners/farmers/ranchers (own 350,000 acres of land; mean land size =</li> </ul>

	<p>19,447 acres)</p> <ul style="list-style-type: none"> <li>• 10 government agency representatives</li> <li>• 5 Extension agents</li> <li>• 6 other attendees (realtors, attorneys)</li> </ul>
1 community event	<p>I worked with the USFWS and FWC to disseminate information about the Florida black bear to attendees at the Cedar Key Arts Festival (Levy County):</p> <ul style="list-style-type: none"> <li>• 178 adults</li> <li>• 37 children</li> </ul>
2 conference papers 1 poster	<p>Jessica Sullivan and I presented a paper and poster on the conservation easement workshop to IFAS Extension agents at the Florida Association of County Agriculture Agents (FACAA) Mid-year Meeting and Professional Development Conference (see Section 17d), in order to engage them in further statewide implementation of this workshop.</p> <p>Presentation to the Extension Professionals Association of Florida (EPAF):</p> <ul style="list-style-type: none"> <li>• <u>Davis J.</u> (Presenter), B. Moffis, R. Boughton, J. Daniels, C. Demers, S. Enloe, J. Hill, S. Johnson, M. Orlando, <b>E. F. Pienaar</b>, D. Westervelt, A. Clothier, R. Stout, W. Lester <i>Creating a Wildlife and Invasive Species Educational Program for Florida Master Naturalists and Florida Master Gardeners</i>. Extension Professionals Association of Florida (EPAF) 2016 Professional Improvement &amp; Administrative Conference, Daytona Beach, Florida, September 27 - 28, 2016.</li> </ul>
Working group	<p>I serve as the Extension Specialist Leader on the Citizen Awareness of Food Systems and the Environment Priority Working Group (more information provided below).</p>
12 EDIS documents	<p>EDIS documents on the Florida panther, Florida black bear, and voluntary conservation programs (see Sections 16g and 16k). These documents were downloaded 7,601 times between 2014 and 2017.</p>
1 news release	<p>I was interviewed for an IFAS news release on how Florida residents can prevent conflicts with the Florida black bear by securing food attractants (<i>UF Researchers Offer Tips on Keeping Black Bears Away</i>)</p>
Meetings	<p>~90 hours of in-person and phone meetings with Florida residents, Extension faculty, and Florida Master Naturalist Program instructors and volunteers</p>

*Citizen Awareness of Food Systems and the Environment Priority Working Group*: This working group is composed of 20 County Extension Agents (representing 19 counties), 2 REC Extension Specialists, 6 State Extension Specialists, and 1 member from the Florida Agricultural and Mechanical University (FAMU). The working group aims to develop statewide initiatives to train County Extension Agents and other key groups (e.g., agricultural producers, environmental professionals) on how to increase Florida residents’ agricultural and environmental knowledge and awareness. Core objectives of this working group are to increase Florida residents’ knowledge of the value (including the economic value) of agriculture and the environment, residents’ involvement in agricultural and environmental initiatives, and informed decision-making by residents related to agriculture and the environment in Florida, including political support for policies and programs that support agriculture and the environment in Florida. The efforts of this working group fall within *Statewide Educational Programs in Citizen Awareness of Food Systems and the Environment*.<sup>13</sup>

<sup>13</sup> Although the Citizen Awareness of Food Systems and the Environment Priority Working Group falls under *Florida Extension Initiative 1: Increasing the Sustainability, Profitability, and Competitiveness of*

Workshop: Is a Conservation Easement Right for Your Land? This workshop is targeted towards private agricultural landowners, and provides them with information on: what conservation easements and land trusts are; how land value appraisals are conducted; the tax benefits of conservation easements; easement monitoring by government agencies; how conservation easements fit into larger wildlife and resource conservation efforts; and different easement programs offered by the various Federal and State government agencies. The workshop also includes a panel discussion, with landowners who have enrolled in conservation easements and government agency staff. The first workshop was hosted in Osceola County, and further workshops are being planned for north and south Florida.

Extension Program: Living with Wildlife in Florida: This regional extension program is designed to complement extension and outreach efforts by the FWC and the Florida Master Naturalist Program (FMNP). It is implemented at 2 levels:

1. I conduct in-service trainings and workshops to train county extension agents and FMNP instructors and graduates in how to present information about Florida wildlife and appropriate measures to mitigate conflicts with wildlife; and
2. Individuals I have trained use these materials to give outreach presentations to Florida residents, homeowners' associations, private landowners, and other relevant stakeholders.

A separate module is created for different species. To date, I have created modules on the Florida black bear and the Florida panther (see Section 14). To assist county extension agents in integrating this program into their activities, I have written a situational statement and logic model pertaining to the overarching program. Each species module includes: a scripted PowerPoint presentation; answers to frequently asked questions; supporting EDIS documents; pre- and post-tests to gauge knowledge gain by workshop participants; workshop evaluation questionnaires; preliminary questions to be administered to workshop participants to measure their knowledge and opinions of the species and whether they currently engage in activities that may result in conflicts with the species; 6-month follow-up questions to determine whether workshop participants altered their behavior based on the information provided in the workshop; and additional supporting materials from the FWC. Individuals who implement this program send the responses to the questionnaires and evaluations to me, and I conduct analysis on knowledge gain, and changes in attitudes and behavior. These results are then sent back to the individuals who are implementing the program in the form of individual reports and an aggregate report for the overall program.

#### **D. Impacts and outcomes**

First order outcomes attained:

- W.I.S.E workshop (2016; 113 attendees): 81% knowledge gain on the biology of the Florida panther; 90% knowledge gain on how the panther is managed by government agencies; 87% knowledge gain on human-panther conflicts; 93% knowledge gain on cattlemen's preferences for panther/habitation conservation programs; and 88% knowledge gain on preventing conflicts with panthers in semi-urban developments.

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*Agricultural and Horticultural Enterprises*, the objectives of the working group complement my extension focus on improved environmental quality and conservation on private agricultural lands.

- Florida panther presentation (Sarasota County; survey administered to 35 adult attendees): 30 attendees (85.7%) reported a ‘considerable’ increase in their knowledge about how to identify a panther (including signs that a panther has been in the area) (3 attendees, 8.6% reported a ‘moderate’ increase in knowledge); 29 attendees (82.9%) reported a ‘considerable’ increase in their knowledge about efforts by government agencies to recover the panther population (‘moderate’ increase in knowledge reported by 6 attendees, 17.1%); 28 attendees (80%) reported a ‘considerable’ increase in their knowledge about sources of human-panther conflict (‘moderate’ increase in knowledge reported by 6 attendees, 17.1%); 28 attendees (80%) reported a ‘considerable’ increase in their knowledge about how best to protect outdoor domestic animals from panther depredation (‘moderate’ increase in knowledge reported by 6 attendees, 17.1%); 31 attendees (88.6%) reported a ‘considerable’ increase in their knowledge about how to behave if they come into contact with a panther (‘moderate’ increase in knowledge reported by 3 attendees, 8.6%).
- ‘Is a Conservation Easement Right for Your Land?’ workshop (32 attendees): 19 attendees (59.4%) learned ‘considerable’ new information about conservation easements and 11 attendees (34.4%) learned a ‘moderate’ amount of new information; 21 attendees (65.6%) stated the workshop helped them identify resources that would be helpful to them if they decide to pursue a conservation easement on their land (not applicable to remaining workshop participants).
- ‘Living with the Florida black bear’ (14 attendees): 40% increase in knowledge by county faculty and FMNP instructors and graduates
  - Extension programming hosted by Dennis Mudge (County Extension Director, Volusia County): 28% increase in knowledge by 14 FMNP participants
- Natural resources IST (29 attendees): 30% increase in knowledge by county faculty

Second order outcomes attained:

- Florida panther presentation (Sarasota County; survey administered to 35 adult attendees): 18 attendees (51.4%) plan to use the information presented to educate others (e.g., school students, members of their community) about living with the Florida panther
- ‘Living with the Florida black bear’ (5 county agents, 9 FMNP participants): all county agents plan to integrate extension materials into their programming; all FMNP participants plan to use the extension materials in their outreach efforts with the public
- ‘Is a Conservation Easement Right for Your Land?’ workshop: 7 professionals working on some aspect of conservation easements stated that the information they learned at the workshop helped them to communicate more effectively about conservation easements with their clientele; 2 landowners researched at least one potential easement program that was discussed during the workshop; and 1 landowner decided to pursue a conservation easement for their land (the first easement they have pursued).

Third order outcomes attained:

- ‘Is a Conservation Easement Right for Your Land?’ workshop: 1 landowner secured a conservation easement for their land (note: this is a different landowner to the 3 landowners discussed under the second order outcomes).