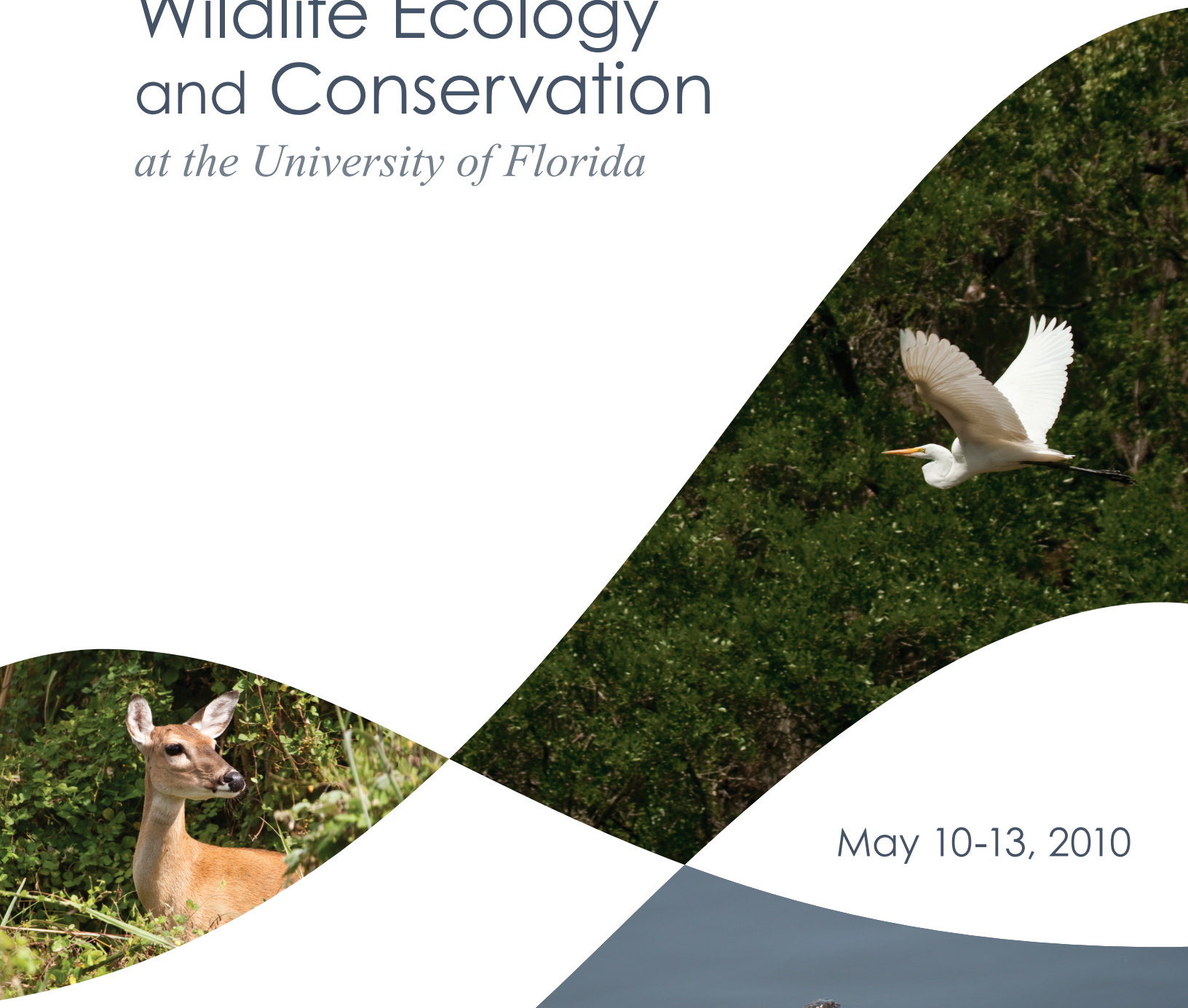
Comprehensive Review Syllabus

Department of Wildlife Ecology and Conservation

at the University of Florida



May 10-13, 2010

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UF UNIVERSITY of FLORIDA
IFAS
Wildlife Ecology and Conservation

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Dear Colleagues:

On behalf of the faculty, staff, and students of the University of Florida Department of Wildlife Ecology and Conservation, we welcome you to Gainesville and our institution.

The last comprehensive review of the Department took place in 1990. Since that time the region and institution have experienced a number of very significant changes. Moreover, the coming decade promises even more changes. As a result, we see this review as a valuable opportunity to look back over the past decade to reflect on our challenges and accomplishments, and to look forward to the coming decade to prepare to meet what faces us in the coming years.

We are looking forward to the opportunity to discuss our programs with you. In general, we seek: 1) your assessment of the scope, balance, and effectiveness of our existing programs; 2) your perspectives on the adequacy of our personnel and resources to deliver those programs, and 3) your guidance on our path to best fulfilling a positive vision for the future.

Thank you for taking time out of your busy schedules to participate in this review. Your experiences, perspectives, visions, and insights will be extremely valuable to us as we move forward. If there is anything we can do to facilitate the review or to make your stay in Gainesville more comfortable and productive, please let us know.

Sincerely,

John P. Hayes
Professor and Chair

Wildlife Ecology and Conservation Department

Review Team

May 10-13, 2010

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Natural Resources and Environment
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Department of Wildlife Ecology and Conservation
Departmental Review
May 10-13, 2010

Time	Activity	Location	Participants
Sunday, May 9			
Afternoon	Arrive in Gainesville. Transportation from airport will be provided by John Hayes (mobile: 352-226-3513) to hotel. Review team members will be staying at the Hilton Hotel, 1714 SW 34th Street, Gainesville; 352-371-3600		
7:00PM - Midnight	Hilton board room available for committee use		
Monday, May 10			
7:00-8:45	Breakfast with Dr. Larry Arrington (Interim Senior VP for Agriculture and Natural Resources), Dr. Kirby Barrick (Dean, College of Agricultural and Life Sciences), Dr. Millie Ferrer-Chancy (Interim Dean for Extension and Director, Florida Cooperative Extension Service), Dr. Glen Hoffsis (Dean, College of Veterinary Medicine), and Dr. Mark McLellan (Dean for Research and Director, Florida Agricultural Experiment Station)	Private Dining Room - Hilton Hotel	SVP and Deans
8:45-9:00	Travel to Newins-Ziegler		John Hayes
9:00-9:45	Organizational meeting of review team	Newins-Ziegler 135	Review team
9:45-10:00	Break		
10:00-11:30	Introductions and departmental overview	Newins-Ziegler 376	John Hayes and faculty
11:30-1:00	Lunch with faculty	Newins-Ziegler 376	WEC faculty
1:00-1:15	Break		

1:15-2:00	Undergraduate programs	Newins-Ziegler 376	Bill Giuliano and undergraduate faculty
2:00-2:45	Meet with Undergraduate Students	Newins-Ziegler 376	
2:45-3:00	Break		
3:00-3:45	Graduate programs	Newins-Ziegler 376	Wiley Kitchens and graduate faculty
3:45-4:30	Meet with Graduate Students	Newins-Ziegler 376	
4:30	Return review team to hotel		
5:45	Pick up review team at hotel		
6:00-8:30	Evening reception and dinner	Hayes house	John Hayes
9:00-Midnight	Hilton board room available for committee use		
Tuesday, May 11			
8:00	Pick up review team at hotel		
8:15-9:15	Extension program	Newins-Ziegler 376	Mark Hostetler and extension faculty
9:15-10:15	Research program	Newins-Ziegler 376	Rob Fletcher and research faculty
10:15-10:45	Break		
10:45-11:15	Off-campus programs	Newins-Ziegler 376	Steve Johnson and off-campus faculty
11:15-12:00	Meet with department staff	Newins-Ziegler 376	Elaine Culpepper and department staff
12:00-1:00	Lunch with Associate Deans and Program Directors	Newins-Ziegler 376	
1:00-1:45	International programs	Newins-Ziegler 376	Lyn Branch and others

2:00-2:45	Meeting with cooperating Department Chairs and Research and Education Center Directors	Newins-Ziegler 376	
2:45-3:00	Break		
3:00-3:45	Meeting with stakeholder representatives	Newins-Ziegler 376	
4:00-5:00	Tour of campus facilities		
4:30	Return to hotel		
7:00- midnight	Hilton Board Room available for committee use		

Wednesday, May 12

8:00-9:00	Travel to Ordway-Swisher	Hotel lobby	John Hayes
9:00-12:00	The Ordway-Swisher Biological Station and NEON	OSBS	John Hayes, Steve Coates
12:00-1:00	Lunch	OSBS	John Hayes, Steve Coates
1:00	Return to campus - afternoon work and meeting time for review team		
4:00 - midnight	Hilton Board Room available for committee use		

Thursday, May 13

7:00-9:00	Reporting session and breakfast with IFAS Central Administration	Hilton - Private Dining Room	IFAS and Central Administration
9:30-10:00	Meeting with Associate Provost	235 Tigert	Dr. Andy McCollough
10:15-10:45	Meeting with VP for Research	223 Grinter Hall	Dr. Win Phillips
11:00-12:00	Meeting with WEC faculty	376 Newins-Ziegler Hall	
12:00-1:00	Lunch with John Hayes	135 Newins-Ziegler Hall	John Hayes
1:00	Adjourn and travel provided to airport		WEC faculty

Section 1.4 Charge from the Senior Vice President of IFAS

Areas of suggested focus during the review:

1. Assess the overall scope, quality, and balance of the department's research, teaching, and extension programs as they exist within a large organization such as the University of Florida, Institute of Food and Agricultural Sciences (UF/IFAS). Are the programs addressing statewide needs?

2. Are strategic plans and program thrust areas for our statewide wildlife ecology and conservation programs (described in the review syllabus) appropriate for the next 5-10 years?

3. Because the immediate prospects for significant increases from state appropriations are unlikely, I need your guidance on the highest priorities in teaching, research and extension for our clientele given our current resource base. Are there better ways to organize our efforts in order to: a) better serve our diverse clientele, students, and the sciences; b) avoid any unnecessary duplication of efforts or program inadequacies you may identify; or, c) are there areas of lesser priority which should be decreased or eliminated?

4. What opportunities exist to improve the integration of programs in the research and education centers and county extension offices with the department on campus? Are there areas of significant overlap or gaps in the program? Are there opportunities for increased regional or national collaboration on research and education programs?

5. Does the department provide adequate support to external clientele, i.e., other state agency groups and stakeholders? Does the department have adequate mechanisms in place to obtain clientele input into programs?

6. Are there any barriers perceived by the review team which would prevent the department from becoming one of the leading wildlife ecology and conservation programs in the U.S.?

7. Are there any leadership or administrative issues which we need to address to increase program effectiveness? If any highly sensitive or critical issues are identified in this area, the Deans and I would appreciate a separate and confidential discussion with the review team.

8. What is your assessment as to the adequacy of the undergraduate and graduate programs in addressing the needs of the department's students and the needs of other departments/schools/colleges/university units as well as the needs of external stakeholders? Are the curricular goals and measurable outcomes relevant to the needs? Are there aspects of the teaching programs that should receive more emphasis (e.g., distance education, international experiences)? Are there areas that should be de-emphasized? Are there any structural changes that would make the departmental major(s) more attractive to students, especially those at the graduate level?

9. To what extent do faculty maximize their ability to secure external funds and how can their abilities be improved in this regard?

10. Do the international activities of the department integrate well with the state and national needs, and if not, how can this be improved? Is the level of international programs appropriate for the departments?

11. Where are the major strengths and needs (gaps) as you compare our program to the other leading programs in the nation and world?

12. Provide an appraisal of development activities of the department and the endowment funds available.

13. Incorporate the Board of Governor review mandates as outlined in the attached.

14. Identify the strengths and weaknesses of the Department's efforts to build a unified program.

15. What can be done to enhance the cooperation/integration of two disciplines? What are the impediments to this integration?

Section 2.1 Historical Overview of the Department of Wildlife Ecology and Conservation (WEC) at the University of Florida

The roots of the Department of Wildlife Ecology and Conservation (WEC) extend back to the mid-1930s, when the University of Florida first offered courses to forestry students. The School of Forestry was established by a state legislative mandate in 1937, and within 2 years, two wildlife-related courses ("Grazing and Wildlife" and "Game Management") were on the books. Forestry students could receive a minor in wildlife management beginning in 1942. Dr. Stephen Beckwith was hired as the first wildlife faculty at the University of Florida in 1948. Five years later, Mr. Tony Jensen was hired to serve as the state wildlife extension specialist and the fledging wildlife program awarded its first graduate degree (Master of Science) the same year.

In 1965, all agriculture-related programs at UF, including the School of Forestry, were reorganized under the Institute of Food and Agricultural Sciences (IFAS). During the 1960s, student enrollment increased rapidly within both forestry and wildlife areas, and by the end of the decade, state-line faculty wildlife positions within the School of Forestry expanded to four (Stephen Beckwith, Tony Jensen, George Cornwell, and Larry Harris), and four staff positions were dedicated to the wildlife program. Much of the emphasis of the wildlife program at that time had been in the arena of animal responses to forest management practices. However, the era of environmental awareness and concerns was burgeoning and the focus of the wildlife program began to expand.

The 1970s saw the dawn of integrated natural resources management. In 1974, a self-study within the School of Forestry resulted in three important developments: the School's name was changed to the School of Forest Resources and Conservation (SFRC), a new undergraduate program was implemented with a focus on ecosystem management, and a new interdisciplinary program in forest ecosystems incorporated both forestry and wildlife components.

By the mid-1970s, a combination of faculty retirements, new faculty lines generated by state environmental program funds, and inflated student/faculty ratios set the stage for development of novel programs focused on range sciences, nature-based recreation, fisheries, and systems ecology. At that time the combined wildlife, range and fisheries line faculty totaled eight. A special review by The Wildlife Society in 1974 recommended the recruitment of a senior-level wildlife scientist to serve as Assistant Director of SFRC to represent and guide non-forestry programs; Dr. Ronald Labisky filled this position in 1976.

The 1980s brought continued growth in student numbers within SFRC and an intensified programmatic development of the wildlife and fisheries programs. Consequently, SFRC organized to form three core units (forest resources and conservation, fisheries and aquatic sciences, and wildlife and range sciences) with independent and cross-disciplinary curricula. These core units became separate departments within SFRC by the mid-1980s. The Department of Wildlife and Range Sciences (WRS) awarded its first Ph. D. degree in 1985 to Lovett Williams. Dr. Larry

Harris, with his sentinel book (*The Fragmented Forest*), became an internationally-recognized leader in the emerging field of landscape ecology. At the same time, the Department gained international recognition for its work in tropical wildlife ecology and conservation under the leadership of Dr. John Eisenberg (Ordway Chair of Ecosystem Conservation) and several of his colleagues who were first employed on contracts (including Drs. Mel Sunquist, John Robinson, Kent Redford, and Susan Jacobson). Due in large part to the success of the tropical wildlife ecology working group, each of these faculty eventually became state supported line faculty within the Department. In 1986, leadership of the campus-wide Program in Studies in Tropical Conservation was housed in the wildlife program.

Other major expansions within the Department involved collaboration and direct financial support from the Florida Game and Fresh Water Fish Commission (GFC), the US Department of Interior (USDI), and The Nature Conservancy. In 1986, WRS implemented the first academic program in urban wildlife management in the U.S. sponsored by contractual agreement with GFC. Three faculty with split appointments in cooperative extension and research were added to the Department. Another cooperative agreement in the 1980s among UF, GFC, and USDI significantly expanded the Departmental research program with the formation of the Cooperative Fish and Wildlife Research Unit. The greatly expanded programmatic areas with WRS resulted in a concomitant expansion in graduate student numbers and extramural funding.

In 1979 The Nature Conservancy (TNC) established a 1400 ha preserve, the Carl Swisher Memorial Sanctuary, outside of Melrose, Florida. This was soon followed in 1980 by a grant to the University of Florida Foundation by the Goodhill Foundation to purchase an additional 2500 ha, the Katherine Ordway Preserve, contiguous to the Sanctuary. Through a partnership and collaborative agreement between TNC and the University of Florida Foundation, the Sanctuary and Preserve were subsequently managed as a single, cohesive facility focused on academic research and education activities. The Florida Museum of Natural History and the School of Forest Resources and Conservation jointly managed the facility with John Eisenberg serving as the manager. The site became an important hub of field activities for wildlife faculty and students at the University of Florida. John Eisenberg, Mel Sunquist, and Dick Franz began teaching wildlife techniques courses at the site in 1984 and the area became the focus of several student and faculty research projects. With the retirement of John Eisenberg in 2000, the operational management of the Sanctuary and Preserve was turned over to WEC with Mel Sunquist serving as the Program Director.

In 1994, after nearly 6 decades of direct affiliation with SFRC, the wildlife program became a free-standing academic department within IFAS. In 1995, the department's name was changed to Wildlife Ecology and Conservation (WEC) to better reflect programmatic thrusts. Number of graduate and undergraduate WEC majors greatly increased during the 1990s and student credit hours, particularly from undergraduate courses for non-majors, expanded dramatically. Faculty lines in the Department expanded significantly during the decade as well, with eight new faculty positions to expand the departmental efforts in conservation genetics, avian community

conservation, and urban wildlife planning and management. WEC emerged as an academic leader in global conservation with international research programs in South and Central Americas, Africa and India. Nearly all WEC faculty also are Affiliate Faculty within UF's School of Natural Resources the Environment (SNRE) and direct many of the graduate students enrolled in this trans-disciplinary curriculum.

During the past decade, WEC has undergone a maturation process as an academic department. Five faculty members are emeritus (John Eisenberg [deceased], Patricia Werner, Larry Harris, Ronald Labisky, and George Tanner). Some of these faculty lines have been filled and additional faculty lines awarded to work in the areas of upland game management, landscape ecology, population ecology, forest wildlife ecology and management, and conservation genetics.

In 2006 the Carl Swisher Memorial Sanctuary and the Katherine Ordway Preserve were renamed as a single entity – the Ordway-Swisher Biological Station (OSBS) – to better reflect the mission of the area. Two years later The Nature Conservancy gifted the Swisher tract to the University of Florida Foundation with responsibility for management assigned to WEC.

Recent years have seen continued expansion of WEC's collaboration and interactions. Collaboration between WEC, SFRC, UF Statistics, the Florida Fish and Wildlife Conservation Commission (FWC, formally GFC) and the Cooperative Research Unit led to the development of a Program in Ecological Statistics that is comprised of employees from the various agencies. In 2008 the Department signed a formal MOU with FWC to advance collaboration on research, education, and extension programs – an effort that is now being translated into concrete activities and collaborations (see Section 10.1). In 2008 the National Ecological Observatory Network (NEON) selected the Ordway-Swisher to serve as one of 20 core sites nationally to track the nation's ecological health over the next three decades – further linking the Station and WEC faculty with research and education programs at other institutions and serving as a catalyst to integrate ecological science within the University. In 2009 WEC established and convened the first meeting of an external departmental advisory council. The Council consists of private citizens active in the conservation arena, representatives of state and federal agencies, and representatives of regional and national conservation organizations, further solidifying links between WEC and key stakeholders.

The Department looks forward to a strong future and to playing a key role in generating new knowledge in wildlife ecology and conservation, to educating the next generation of conservation scientists, and to informing the public on important natural resource issues.

Section 2.2 Department context and mission

The University of Florida

The University of Florida is a major, public, comprehensive, land-grant, research university. The state's oldest and most comprehensive university, UF is among the nation's most academically diverse public universities. UF has a central campus of over 2,000 acres and 12 Research and Education Centers (RECs) scattered across the state. It is one of only 17 public, land-grant universities that belongs to the Association of American Universities and is one of the largest universities in the nation.

The Institute of Food and Agricultural Sciences (IFAS)

The University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS) is a federal-state-county partnership dedicated to developing knowledge in agriculture, human and natural resources, and the life sciences, and enhancing and sustaining the quality of human life by making that information accessible. While extending into every community of the state, UF/IFAS has developed an international reputation for its accomplishments in teaching, research and extension. Because of this mission and the diversity of Florida's climate and agricultural commodities, IFAS has facilities located throughout Florida. IFAS houses the College of Veterinary Medicine (4 Departments) and the College of Agricultural Sciences (CALS; 2 Schools and 16 Departments). Wildlife Ecology and Conservation academic programs are located within CALS.

Mission Statement of the Department of Wildlife Ecology and Conservation

The mission of the Department of Wildlife Ecology and Conservation is to foster education, expand knowledge, and reward scholarship, using multi-disciplinary approaches, for the purpose of understanding, managing, and conserving biological resources. The primary goal of our teaching, research, and extension programs is to develop and communicate the knowledge necessary for enhancing the conservation and management of wildlife and their habitats for the greatest aesthetic, ecological, economic, and recreational values.

Section 2.3 Department overview, vision, and future directions

The University of Florida Department of Wildlife Ecology and Conservation (WEC) is at the forefront of increasing understanding and knowledge of the ecology, conservation, and management of wildlife and their habitats through undergraduate, graduate, and continuing education, research, and extension. Departmental programs cover a wide breadth of issues related to wildlife in the state of Florida, and the Department maintains a strong international presence, particularly in tropical and subtropical regions. Roughly one-third of the Department's research program and one-quarter of our graduate students are international.

Undergraduate and graduate degree programs provide students with a thorough understanding of the ecology, conservation, and management of wildlife at organismal, population, community, and ecosystem levels and at local, landscape, regional, and global scales. At the undergraduate level, the Department offers a Bachelor's of Science degree in Wildlife Ecology and Conservation. Under the current program structure, undergraduates choose among four specializations designed to tailor an educational program to meet individual career directions and interests. WEC is currently in the process of revising the undergraduate curriculum to streamline and simplify the structure and to better meet the needs of today's students. WEC had 166 undergraduates enrolled in its major in the Spring 2010 semester. The Department also partners with the School of Forest Resources and Conservation in administering the Natural Resources Conservation (NRC) degree program at the Gainesville campus and at Research and Education Centers in Plant City and Milton. The NRC degree is structured to provide a flexible program with a broad education in natural resources tailored to meet individual student needs.

At the graduate level, the Department offer training for a Ph.D. in Wildlife Ecology and Conservation and at the Master's level offer both thesis and non-thesis degree options. In Spring 2010 semester, WEC had 53 registered graduate students in its program. WEC faculty also mentor students in other degree programs, including the School of Natural Resources and the Environment (SNRE), the Fisheries and Aquatic Sciences (FAS) program in the School of Forest Resources and Conservation (SFRC), the Center for Latin American Studies (CLAS), the Graduate Program in Genetics and Genomics, and others. Of these, the largest number of students with WEC faculty advisors are in SNRE; in Spring 2010, 24 SNRE graduate students had WEC faculty as their major professors, constituting slightly less than one-third of the graduate students advised by WEC faculty.

The Department's research program includes a mix of basic and applied efforts and spans a spectrum of disciplines from the human dimensions of conservation science to the fundamental understanding of wildlife population processes. The context in which WEC operates centers on the state of Florida, but the research program also encompasses ecosystems around the globe, especially in tropical and subtropical regions. New knowledge produced in the Department is communicated through a variety of mechanisms to the scientific community, natural resource managers, other stakeholders, and the general public to advance our understanding of wildlife and their habitats and to facilitate development of more informed natural resource policy grounded on a sound scientific basis. WEC faculty are heavily involved in research scholarship; in 2008 and 2009 Department faculty produced an average of about 11scientific publications per

research FTE per year, including a significant number of high impact publications in leading scientific outlets.

A primary mechanism for transmitting our research findings and knowledge of the ecology and conservation of wildlife and their habitats to the public is our outreach and extension program. All our faculty and many of our students and staff are involved in outreach activities. A key element of our outreach program is work done by faculty members in the department with Extension appointments, including three faculty members on campus and 4 faculty stationed at Research and Education Centers (RECs) across the state, including the North Florida REC located in Quincy near Tallahassee, the Gulf Coast REC in Plant City in west-central Florida, and in Immokalee at the Southwest Florida REC and Ft. Lauderdale at the Ft. Lauderdale REC in south Florida. In May, 2010, a new Regional Specialized Extension Agent position emphasizing wildlife issues in upland habitats will be filled. The position includes 50% statewide responsibilities and 50% responsibilities for a Levy, Gilchrist, and Dixie counties. The position will be jointly supervised by the WEC Department Chair and the Northeast District Extension Director.

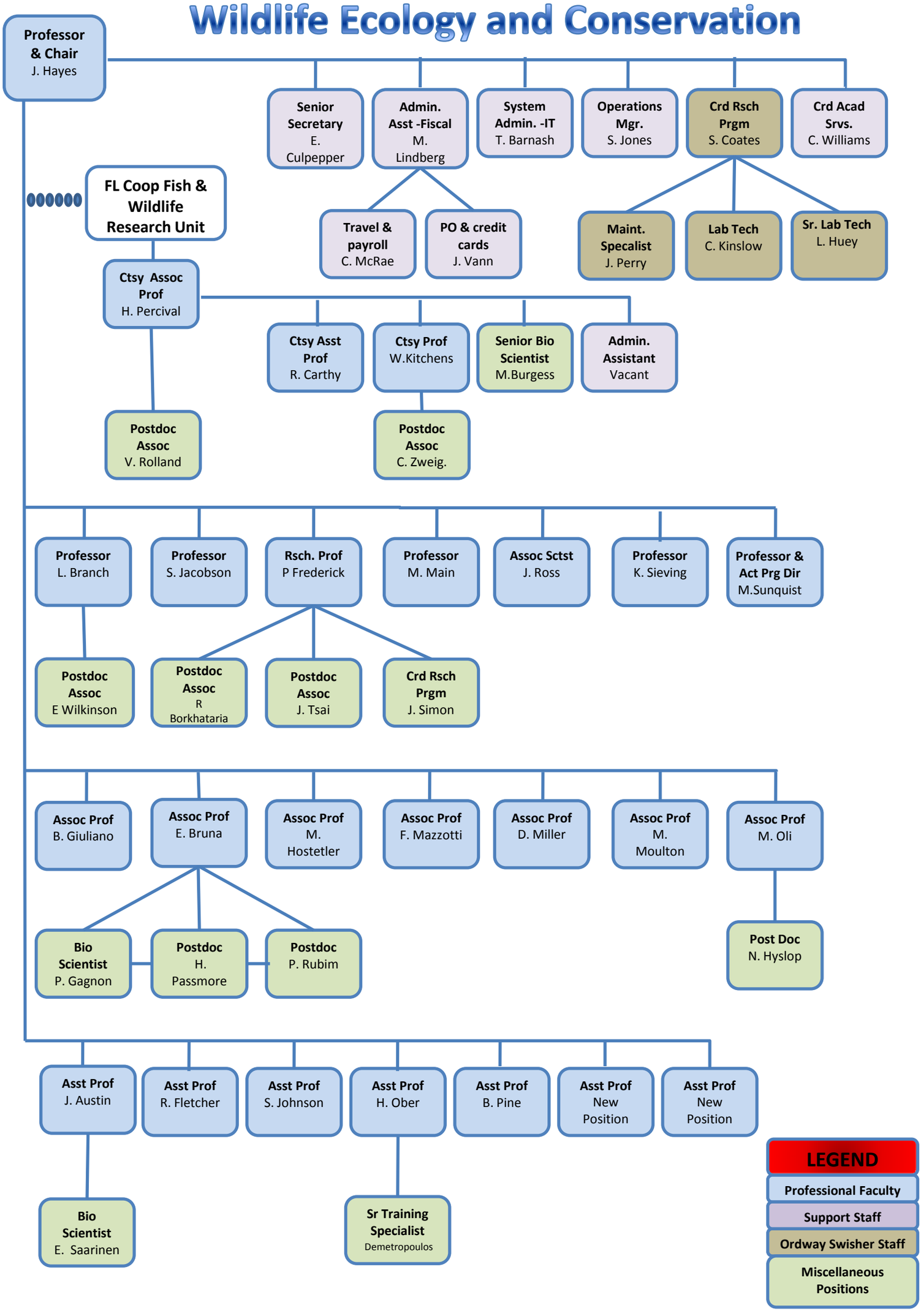
The Department is responsible for leadership and management of the 3,600 hectare (9,000 acre) Ordway-Swisher Biological Station. Located about 30 miles from Gainesville, the Station is an important conservation area, serves as an outdoor laboratory for teaching, and supports a diversity of short- and long-term field research projects. The Station was recently selected by the National Science Foundation to serve as the Core Site for the Southeast Domain of the National Ecological Observatory Network (NEON). The Ordway-Swisher has the potential to become a globally significant field station, and current planning and actions are underway to help ensure that end.

A strength of the Department is the depth and breadth of expertise of scientists and educators affiliated with the department. In addition to the Department's state-line faculty, faculty in the Florida Cooperative Fish and Wildlife Research Unit, and grant-supported research faculty and postdoctoral scholars that are based in the department, a strong contingent of additional faculty members from other UF departments (such as the Florida Museum of Natural History and the Department of Fisheries and Aquatic Sciences) and outside agencies (such as USGS and USDA) hold affiliate or courtesy faculty status and participate in the Department's teaching, research and extension programs. In addition, our departmental programs are complemented by and often integrated with those of others in institutions located in close proximity to us. The Department partners closely with the Center for Latin American Studies and the Tropical Conservation and Development program and the Department administers the Program for Studies in Tropical Conservation, which develops human resources and strengthens institutions in tropical countries through interdisciplinary research and training. Several other units on or in the vicinity of the University of Florida campus also support our teaching, research, and extension programs, including Biotechnologies for Ecological, Evolutionary, and Conservation Sciences; Center for Natural Resources; Center for Wetlands; Center for Biological Conservation; Florida Museum of Natural History; School of Forest Resources and Conservation, Northeast Regional Data Center; National Ecology Laboratory (Sirenia) of the National Biological Survey; Florida Field Station (Gainesville) of the U.S. Department of Agriculture's National Wildlife Research Center; Wildlife Research Laboratory of the Florida

Fish and Wildlife Conservation Commission, the Lubee Bat Conservancy, and The Nature Conservancy.

Issues concerning conservation of wildlife and our natural resources will only continue to become more important in the future. Today, the Department is making significant contributions to creating new knowledge, educating the next generation, and informing the public; tomorrow, we strive to play an ever-more important role. To be successful in achieving this goal, the Department hopes to maintain a strong base in the relevant traditional areas of wildlife ecology and conservation, while building new programs at the leading edge of emergent conservation issues in fields such as global change biology, wildlife disease ecology, and other areas. With the ebb and flow of ideas and people, a constantly evolving fiscal context, and rapidly changing environmental problems, this can be a challenging task. The great legacy of Departmental work, both regionally and internationally, the strength of the faculty in all mission areas, the capable and eager undergraduates and graduates in the program, and the Department's supportive and engaged partners and stakeholders set a tremendous foundation to build from; it is from this point that the Department of Wildlife Ecology and Conservation enthusiastically moves forward to fulfill its mission.

Wildlife Ecology and Conservation



Section 2.5. Department governance and committee structure.

The Department faculty are strongly involved in departmental operation and governance, largely through participation on departmental committees, operating under the structure identified in the Departmental bylaws (See Section 10.3). Departmental committees vary in the level of activity, with the Graduate Program Committee, Undergraduate Program Committee, and Space and Safety Committee being the committees that are most frequently active and other committees engaging on an "as needed" basis. Departmental committees and their functions are provided below.

Administrative Advisory Committee

The Faculty Administrative Advisory Committee (FAAC) is responsible for providing input to the Department Chair on matters of interest and concern to the faculty. The FAAC will review the Departmental bylaws every three years and propose modifications to the entire faculty, as necessary. The FAAC shall consist of three senior faculty members who will serve three-year staggered terms. Members of the FAAC will be elected by paper or electronic ballot on an annual basis, as one member may rotate off the committee each year. However, any member may be re-elected. The FAAC will select a chair each year. Meetings of the FAAC will be held as needed. Any member of the FAAC may call for a meeting. The agenda and the names of the committee members will be disseminated before each meeting with an invitation to faculty to propose items for discussion. Meeting minutes will be disseminated to the faculty after each meeting.

Communications Committee

The Communications Committee is responsible for oversight of internal and external departmental communications. The Communications Committee is charged with shaping and reviewing the Department's communications strategy and its implementation, making recommendations with respect to communication opportunities, and coordinating faculty involvement in communications activities.

Diversity Affairs Committee

The Diversity Affairs Committee is responsible for overseeing all aspects of recruiting and retention of minority undergraduate and graduate students in the Department, maintaining active departmental involvement with on-campus diversity/minority groups (such as MANRRS), coordinating WEC's involvement in IFAS's minority mentors program, serving as liaison with WEC's cooperative programs at HBCU's (such as the WEC/Tuskegee Institute agreement), and coordinating other diversity-related activities.

Extension Committee

The Extension Committee is responsible for the WEC Extension program. This committee is charged to review and make recommendations to the Department and Chair with respect to programmatic issues concerning extension and to coordinate collaborative activities such as in-service training, coordinated extension programming, RREA funding proposals, and programmatic contributions to EDIS.

Graduate Program Committee
The Graduate Program Committee is responsible for the graduate instructional program of WEC. This committee is charged to review and make recommendations to the Department and Chair with respect to curriculum, degree requirements, admissions, graduate course scheduling, and departmental policies and practices affecting graduate students. The Committee is also charged to oversee and approve petitions for waiver of established departmental graduate policies or requirements. The Committee will also be responsible for maintaining the departmental graduate student handbook and keeping it up to date.

Honors Program Committee
The Honors Program Committee is responsible for reviewing and making recommendations to the Department and Chair concerning the Honors Program, for coordinating the departmental honors program with the College Honors Program, and for administering the policies for honors students within the Department.

International Affairs Committee
The International Affairs Committee is responsible for coordinating all aspects of teaching, research and extension activities involving international undergraduate and graduate students in the Department. Committee members will serve as liaison with other International programs on campus for interdisciplinary program development, facilitating international research opportunities for undergraduate and graduate students, recruiting foreign undergraduate and graduate students, and placing graduates of our program. The Committee will serve as a resource and focal point for networking with other programs in International Conservation at UF and elsewhere. Members will provide assistance, expertise, and support with the resolution of problems particular to foreign students or to domestic students participating in academic activities abroad. Members also will develop, coordinate and promote WEC's involvement in IFAS's international undergraduate and graduate academic programs involving study abroad or exchange students, and serve as liaison with similar international programs activities in other departments and colleges.

Research Committee
The Research Committee is responsible for addressing department-wide issues pertaining to research. The committee is charged to review and make recommendations concerning issues pertaining to research policy to the Department and Chair. In addition, the committee is responsible for coordinating solicitation and review of proposals for funding opportunities that are restricted to limited submissions from the department and for coordination of departmental research initiatives.

Scholarship and Awards Committee
The Scholarship and Awards Committee is responsible for assembling information and remaining informed about the availability and requirements for scholarships and awards, for putting forward departmental nominees for student scholarships, for putting forward student, faculty, and staff nominees for institutional awards and for coordinating departmental awards. The Committee is charged with soliciting nominations from the faculty, assisting nominees or nominators in the preparation of scholarship or awards packets, if needed, and with writing departmental nomination letters (or providing the Department Chair with relevant information in cases where scholarships/awards requirements indicate that nominations must come from the Department Chair).

Seminar Committee
The Departmental Seminar Committee is responsible for all aspects of organizing, advertising, and hosting weekly and special seminars during the academic year. The Committee will also oversee the hosting of seminar speakers during their visits. The Chair of the Committee is the faculty member of record for WIS 6933. The Committee will generally consist of two faculty members who will serve for a period of one semester, with membership on the Committee rotating among all on-campus departmental faculty.

Space, Facilities, and Safety Committee
The Space, Facilities, and Safety Committee is responsible for addressing issues concerning departmental space and facilities and for coordinating issues related to health and safety of departmental faculty, students, and staff. The Committee recommends policies and procedures for departmental facilities and space to the Department and Chair. In addition, upon request by the Department Chair, the Committee will evaluate specific space needs and issues and develop related recommendations. The Committee recommends allocations of space for faculty and staff office assignments, laboratories, and other departmental functions and works with university and outside staff to plan space modifications. The Committee also addresses health and safety issues in the Department, makes recommendations for safety policy to the Department and Chair, and coordinates implementation of safety policy when appropriate.

Undergraduate Program Committee
The Undergraduate Program Committee is responsible for the undergraduate instructional program of WEC. This committee is charged to review and make recommendations to the Department and Chair with respect to curriculum, degree requirements, admissions, undergraduate course scheduling, assignment of TAs to specific undergraduate courses, departmental policies and practices affecting undergraduate students, and the peer review of faculty teaching performance. The Committee is also charged to oversee and approve petitions for waiver of established departmental undergraduate policies or requirements.

Section 2.6 Department Demographics and Diversity

The Department of Wildlife Ecology and Conservation Committee of Diversity Affairs is charged with tracking diversity issues, ensuring compliance with diversity requirements and encouraging and facilitating minority participation in the department. Wildlife ecology historically was heavily dominated by white men, however, changing values in society, general advancement of women's and minority interests, and demographic changes in the University community and society at large, mandate that the department make special efforts to attract and retain women and minorities as students, graduate students, staff and faculty.

Since the first 10 year review in 1988, the Department has increased diversity among faculty (Table 2.6-1), however faculty diversity remains well below state diversity distributions and diversity of University student demography. Composition of the support staff remains static over the past two decades, almost evenly divided among men and women and with no minorities.

Table 2.6-1. WEC faculty and staff diversity (including Coop Unit and full time grant-supported faculty).

	1988		2000		2009	
	Number	**%**	**Number**	**%**	**Number**	**%**
Total Faculty	14		23		25	
African ancestry	0	0	1	4	1	4
Hispanic ancestry	0	0	0	0	1	4
Asian ancestry	0	0	0	0	1	4
Women	1	7	5	22	5	20
Men	13	93	18	78	20	80
Total staff	10		12		12	
Non-European ancestry	0	0	0	0	0	0
Women	6	60	9	75	7	58
Men	4	40	3	25	5	42

Composition of the undergraduate student body reflects general changes in the University with women constituting more than 2/3 of enrollment and degrees in recent years. Minority representation among undergraduate majors is 11% of all undergraduate degrees awarded 2000-2008 (Table 2.6-2). Comparison of degrees awarded compared to minority enrollment 2 or 3

years earlier indicates a significant attrition of male undergraduate minorities who do not complete degrees, suggesting more mentoring and assistance is needed with this group.

Among graduate student enrollment, there are slightly more men (54%) than women (46%) for the period 2000-2009 with minorities and students of color constituting 17% of enrolled graduate students (men and women) in the same period. Recent graduate student recruitment has seen a marked increase in minority representation to 34-41% in the current enrollment (Table 2.6-3). Minorities in both undergraduate and graduate student bodies are primarily Hispanic, followed by students of African and Asian ancestry, reflecting Florida's ethnic diversity and influenced by significant numbers of graduate students from Latin America attracted to our program.

The department has embarked upon several initiatives to increase minority representation and provide support and mentoring for minority students, including the Tuskegee University Program, Southeastern Association of Fish and Wildlife Agencies Conference MINRC scholarships, and targeted graduate student recruitment and support.

1. UF – Tuskegee University Program: In 1996, a Memorandum of Agreement for a cooperative Bachelor's/Master's Degree Program in Wildlife between the Forestry and Natural Resources Program at Tuskegee University and the Department of Wildlife Ecology and Conservation was signed. Since 2008, the Department has rekindled its efforts to recruit qualified undergraduates from the College of Agricultural, Environmental and Natural Sciences at Tuskegee University. These students complete their fourth and final undergraduate year at the University of Florida, earning a BS Degree from Tuskegee upon successful completion of this final year. The Department then assists these students by advising them on gaining admission to a graduate program. From Spring 2008 through Fall 2010 (projected) 8 undergraduates have been successfully recruited, 2 have earned BS degrees -- of which 1 is currently enrolled in a graduate program.

2.Southeastern Association of Fish and Wildlife Agencies Conference, MINRC scholarships. Scholarships for travel, registration and per diem provided to minority students to attend this regional professional conference. WEC also works directly with Florida Fish and Wildlife Conservation Commission to provide a special scholarship and direct mentoring for a minority student by FWC. To date 6 scholarships for 2006 and 2008 SEAFWA.

3. Graduate recruitment and support:

a) Alumni Recruitment Fellowship – 1 African-American woman, Spring 2008 Matriculant
b) McKnight Fellowship – 1 African-American woman, Fall 2008 Matriculant
c) CALS Matching Assistantship – 1 Latino woman, Fall 2009 Matriculant
d) UF South East Alliance for Graduate Education and the Professoriate (SEAGEP) 2009, 3 attendees (1 Asian American Man, 1 Latino woman)

e) Fall 2009 -- 3 minority students admitted from UF undergraduate programs (1 Asian American man (WEC), 1 Latino woman (BIO), 1 Latino woman (FRC)

Table 2.6-2. Undergraduate degrees awarded by academic year 2000-2008. Fractional degrees result from awarding more than one degree to the same student.

Academic Year	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	Total
Female									
Asian	0	0	1	0	0	2	1	0	3
Black	1	0	0	0	0	1	1	1	4
Hispanic	4	0	4	2	3	1	3	2	19
White	26	14.5	13	23.5	23	29	23.5	19	171.5
Not Reported	0	0	0	1	0	1	1	0	3
Female Subtotal	32	15.5	18	26.5	26	34	29.5	22	205.5
Male									
Asian	0	0	0	0	0	0	0	0	0
Black	0	0	0	0	0	0	0	2	2
Hispanic	1	1	1	0	0	0	2	1	6
White	12	5	9	7.5	14	9	9	11	76.5
Not Reported	0	0	0	0	1	0	0	2	3
Male Subtotal	13	6	10	7.5	15	9	11	16	87.5

Table 2.6-3. Graduate student enrollment (only includes students enrolled in the WEC degree).

Semester	**Fall 1999**	**Fall 2000**	**Fall 2001**	**Fall 2002**	**Fall 2003**	**Fall 2004**	**Fall 2005**	**Fall 2006**	**Fall 2007**	**Fall 2008**	**Fall 2009**
Female	38	34	32	33	32	29	29	28	24	26	27
Male	48	38	34	36	34	33	36	33	34	33	29
Total	*86*	*72*	*66*	*69*	*66*	*62*	*65*	*61*	*58*	*59*	*56*
Minority Female	7	6	4	3	9	5	5	5	5	11	14
Minority Male	3	4	3	2	9	2	2	3	2	9	9
Total	*10*	*10*	*7*	*5*	*18*	*7*	*7*	*8*	*7*	*20*	*23*
% minority	**12%**	**14%**	**11%**	**7%**	**27%**	**11%**	**11%**	**13%**	**12%**	**34%**	**41%**
International Female	6	3	3	4	4	3	2	3	1	5	7
International Male	9	5	5	9	8	9	10	12	12	8	7
Total	*15*	*8*	*8*	*13*	*12*	*12*	*12*	*15*	*13*	*13*	*14*

Section 2.7 Departmental Advisory Council

The Department established an external advisory council in 2009.

Council objectives. The objectives of the Advisory Council are 1) to advise the Chair of the Department of Wildlife Ecology and Conservation, IFAS administration, and the University of Florida administration on ways to achieve excellence in the Department's research, education, and extension missions; 2) to help identify, and when appropriate, capitalize on opportunities for program development, improvement, and enrichment; and 3) to provide an interface for communication and interactions between the Department and key stakeholder groups.

Council membership. Council members will serve at the invitation of the Department Chair for a three-year term. Members may be considered for reappointment for additional terms. The Council will consist of individuals who are not employees of the University of Florida who are interested in helping advance the Department's mission and who are in a position to promote this goal. The Council may include representatives from state, federal, and other governmental organizations, non-governmental organizations, industry, and private individuals. Charter members of the council are:

Member	**Position**	**Affiliation**
Gail Carmody	Field Supervisor	USFWS Ecological Services
Avecita Chicchon	Latin America and Caribbean Program Director	Wildlife Conservation Society
Jeff Danter	Florida State Director	The Nature Conservancy
Manley Fuller	President	Florida Wildlife Federation
John Kashbohm	Refuge Manager	Lower Suwannee National Wildlife Refuge
Mary Klein	President	Natureserve
Gil McRae	Director	Florida Fish and Wildlife Research Institute
John Ogden	Director of Bird Conservation	Florida Audubon
Nathaniel Reed	Vice Chair	Everglades Foundation
Nick Wiley	Executive Director	Florida Fish and Wildlife Conservation Commission

Council meetings. The Council will meet once or twice each year. One meeting each year will take place on the University of Florida campus, and, if the Council desires, a second meeting may occur in other locations of interest to the Council where Departmental activities are underway.

Council governance. The Council will elect a Chair. The Council Chair will be responsible for facilitating Council meetings. The Department Chair will work with the Council Chair to determine the agenda for the Council meetings. Council members may identify items to be placed on the agenda in advance of Council meetings. The Council may draft and forward resolutions to the Department, IFAS, the University of Florida, or outside audiences to achieve Council goals.

Departmental support. Staff of the Department of Wildlife Ecology and Conservation will serve to assist the Advisory Council in its activities.

Section 2.8 Departmental infrastructure

The Department of Wildlife Ecology and Conservation maintains permanent space to support research, teaching, and extension activities at the Gainesville campus and the Ordway-Swisher Biological Station located just outside Melrose. In addition, the Department has faculty housed at 5 Research and Education Centers (Milton, Quincy, Plant City, Immokalee, and Fort Lauderdale) and WEC faculty are allocated office and laboratory space at those sites by the Center Director. At the Gainesville location, WEC provides research and teaching laboratory space and office space for faculty, post-doctoral fellows, students, and research and administrative staff. In addition, the Department shares three meeting rooms and two classrooms in Newins-Ziegler Hall with the School of Forest Resources and Conservation (SFRC). All space in Gainesville is located within 1.5 mile of Newins-Ziegler Hall which houses the majority of WEC people, but only represents approximately 44% of the WEC space. Other facilities include three small buildings near Newins Ziegler Hall (the Florida Cooperative Fish and Wildlife Research Unit, Wetland and Riverine Ecology, and graduate student office buildings) and the Archer Road lab and field staging area. In addition, Dr. Jim Austin is located in the Molecular Ecology lab in a building managed by SFRC. Total useable space from these three areas is approximately 17,772 ft^2 with the allocation between categories shown in Figure 1 and discussed below.

Research labs

WEC research labs generally follow three models: (1) specialized research labs, (2) shared lab space among faculty, (3) individual faculty lab space. The largest individual and most specialized research lab facility used by WEC faculty on campus is Jim Austin's Molecular Ecology Lab, located in space allocated to the School of Forest Resources and Conservation (SFRC). This lab(roughly 2250 ft^2), located on the UF bus line approximately 1.5 miles from Newins-Ziegler Hall, accounts for approximately one-quarter of the total lab space currently available to WEC on campus. This lab provides both "clean" lab space for genotyping and other clean lab techniques as well as general use bench space for microscopes and sample sorting. Additional faculty lab space includes the Archer Road lab which is comprised of 3 small and 1 large building (total area about 4500 ft^2) is shared by WEC faculty. This space is diverse, and includes a small wet lab with fume hood, workshop space, storage areas, and several small office areas. This space is dated, but serviceable and offers the only space of this type for WEC faculty in Gainesville. The Archer Road lab is accessible via the UF bus line and are approximately 1.5 miles from Newins-Ziegler. Located near the Archer lab is a field staging area, consisting of a large steel strand building (approximately 1200 ft^2). The staging area provides storage space and staging areas for field research activities. The remaining laboratory space allocated to WEC on campus maintained Research lab space (about 2700 ft^2) is space assigned to individual faculty members within Newins-Ziegler Hall, with space use ranging from wet lab area to small specialized computer labs or student space maintained by individual faculty for their research programs.

Teaching labs and Classroom space

Teaching lab space assigned to WEC is represented by a single small lab space (roughly 400 ft^2) in Newins-Ziegler Hall that serves as the WEC computer lab. This space supports six workstations and numerous open locations for laptops, printing facilities (including large format printer), and white board space for WEC student use. WEC maintains all computer and printing equipment in this space. Classroom space (2 rooms, total space 2200 ft^2) in Newins-Ziegler is shared with SFRC; use of this space by WEC courses is coordinated in cooperation with SFRC. In addition, Newins-Ziegler has one additional classroom on the first floor (roughly 1000 ft^2). SFRC and WEC do not have sole use of this space, but are generally given priority on the space assignment by the UF Registrar's office.

Faculty offices

WEC faculty offices are spread amongst three buildings in and around Newins-Ziegler Hall. Most faculty offices are small (120-140 ft^2) and clustered on the third floor of Newins-Ziegler Hall. Additional faculty offices are located in the Florida Cooperative Fish and Wildlife Unit (3 faculty offices) and the Wetland and Riverine Ecology building (3 faculty offices) within 1 block of Newins-Ziegler Hall. Total faculty office space is about 3400 ft^2. Flexible, shared office space is provided in Newins-Ziegler for visiting faculty (e.g., sabbatical visits) and one small office is dedicated space for off-campus faculty (i.e., REC-based faculty) while they are working in Gainesville. Shared office space is also provided for post-doctoral students on a rotating basis on the third floor of Newins-Ziegler Hall. WEC faculty members can request space for post-docs and this space is provided if available. Post-doc space allocations are reviewed every other semester.

Administration

WEC administration occupies approximately 2000 ft^2 of space. Primary departmental administration (Chair's office, Fiscal, HR, Travel, Student Services) is located in a suite of offices on the ground floor of Newins-Ziegler. Additional space in this suite includes mailroom with photocopier, fax machine, and coffee pots and serves as the central informal meeting location for the entire department. The departmental facilities management is located in Newins-Ziegler in the basement and IT office is on the third floor.

Graduate student offices

Each fall at graduate student orientation, graduate students are offered the opportunity to request office space. Requests are then matched with available space through a cooperative assignment between the Wildlife Graduate Student Association and the WEC Space Committee. WEC faculty can support graduate students from multiple degree homes (SNRE, Latin American Studies, Fisheries and Aquatic Sciences) and all of these students are eligible for WEC graduate student space as long as their advisor is a WEC faculty member and space is available. Graduate student offices generally are in three areas (1) space maintained by individual faculty members, (2) shared graduate student space amongst several faculty members, (3) WEC maintained space. The majority of the WEC graduate students use space that is shared by several faculty members.

For example student space in Wetland and Riverine Ecology is currently used by 6 graduate students advised by four different faculty members.

Future space needs

During 2009 WEC was able to secure and renovate the Wetland and Riverine Ecology building and use of the SFRC Molecular Ecology Lab. This "new" space added an additional 3700 ft^2 to the available WEC space and temporarily resolved an immediate space crisis. However, departmental space remains extremely tight. During 2010 with the addition of at least two new faculty members (and their graduate students), WEC space needs will again exceed availability, both for office and lab space. Currently, graduate student space needs are partially met by sharing students space such than when a student is off campus at a field site. This arrangement is not sustainable with the addition of new students. Additionally, at least one of the new faculty hires in 2010 will occupy the office currently used as flex space for post-docs necessitating the relocation of 3-5 post-docs and visiting scholars from their current space to other, yet unidentified, locations. Quality laboratory space located near faculty office space is particularly lacking, and this will become even more critical with the arrival of two new faculty. In some ways, this is a "good" problem to have as it demonstrates the growth and successes of WEC in attracting and supporting outstanding faculty, staff, and students. However, this problem is not one that is easily resolved. In the short-term, we are hopeful that we may be able to secure additional small offices suitable for post-doctoral associates in nearby buildings. The longer-term solution lies in building a new, large, natural resources building which could house a variety of departments and cooperative programs (e.g., USGS Florida Cooperative Fish and Wildlife Research Unit). This building has been discussed for many years but it remains uncertain if or when such a facility would be constructed.

Departmental Budget

Salaries. The departmental budget for salaries has steadily increased over the past 5 years, from $1.7 million in 2005 to $2.1 million in 2009 (Table 2.9-1). This increase is almost completely accounted for by increases in the budget for faculty salary. Much of this increase can be attributed to increase in number of state-funded faculty at the Gainesville campus. The faculty size has increased by 2 faculty members since 2005, with the addition of a Conservation Genetics position in 2006 (Dr. Jim Austin) and the transfer of Dr. Bill Pine from SFRC to WEC in 2009. Total budget for staff for the Ordway-Swisher Biological Station and departmental administrative support has fluctuated from year to year, largely because of personnel changes, but overall remained roughly constant from 2005 through 2009. Although the overall budget for support staff is roughly the same as that in 2005, the allocation of those funds has shifted. The permanent staff at the Ordway-Swisher increased from 2 in 2005 to 3 today, using funds earmarked for personnel use for the Station. In contrast, the number of administrative support staff for the Department has decreased by two people in that time period.

Operating Budget. The departmental operating budget decreased from $260,862 to $178,203 from 2005 to 2009 – a 32% decrease. During that time departmental investment in graduate student funding for assistantships has fluctuated year to year but overall has been relatively constant; 38% of the Department's operating budget went directly to graduate student assistantships. Over the past 5 years the funds allocated by the Department to the faculty for their personal discretionary use declined significantly, from roughly $70,000 in 2005 to $27,500 in 2009. Roughly 20% of this decrease reflects loss of the general series funds provided by the College to the Department to support publication costs.

UF and CALS Graduate Student Support. Support of graduate students by the University and College has remained relatively constant over the past 5 years, fluctuating annually between roughly $150,000 and $170,000.

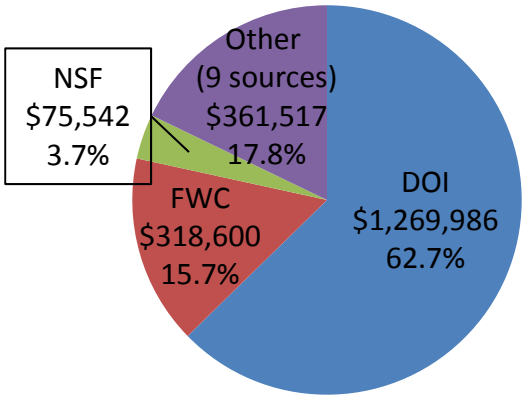
Grants and Contracts. Expenditures on grants and contracts administered by the Department has been over $2,150,000 per year over the past 5 years (Figure 2.9-1). This does not include grants and contracts obtained by Departmental faculty, students, and staff administered through the Research and Education Centers across the state. University records for annual expenditures for the Department for 2008 are in error, and several hundred-thousand dollars expended in 2008 (primarily DOI funds) were not properly accounted to Departmental indexes by the Division of Sponsored Research. The largest source of extramural funds to the Department has consistently been the Department of Interior. Most of these funds are grants and contracts administered through the Cooperative Agreement with the Florida Fish and Wildlife Cooperative Research Unit (see Section 10.5 for a copy of the agreement). These funds include significant funding from the National Park Service (e.g., research on wading birds, beach mice), USGS (e.g.,

Table 2.9-2 University Financial Resources Allocated to WEC
2005-2009

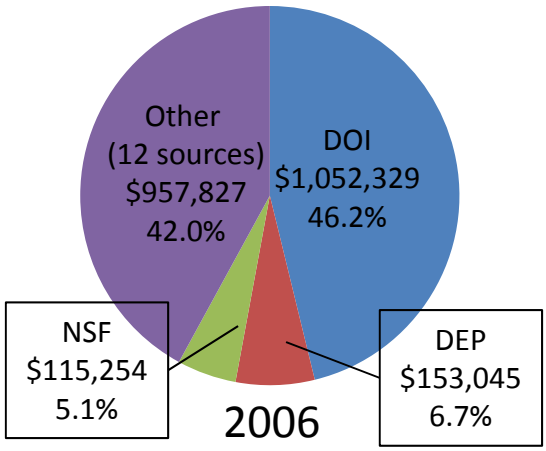
	2005	2006	2007	2008	2009
Salaries					
State Faculty salaries and fringe	$1,204,580	$1,371,155	$1,407,441	$1,465,936	$1,619,753
OSBS and Administrative Staff salaries and fringe	$512,006	$487,786	$506,238	$577,142	$537,972
Total State Salaries	**$1,716,586**	**$1,858,941**	**$1,913,679**	**$2,043,078**	**$2,157,725**
WEC Operating Budget					
WEC state administrative operating budget	$124,415	$107,033	$80,372	$100,074	$81,487
WEC state budget allocation for faculty use	$70,470	$63,497	$46,750	$37,010	$27,500
WEC funded graduate assistantships	$65,977	$47,131	$43,621	$62,296	$69,216
Total WEC Allocation	**$260,862**	**$217,661**	**$170,743**	**$199,380**	**$178,203**
UF and CALS Graduate Student Support					
IFAS Academic Dean, matching graduate assistantships	$56,784	$63,865	$75,971	$63,500	$52,907
UF Graduate Alumni Fellowships	$78,204	$90,172	$81,057	$103,057	$119,438
UF Presidential Fellow	$18,000	$18,000	$0	$0	$0
Total Graduate Student Support from UF & IFAS	**$152,988**	**$172,037**	**$157,028**	**$166,557**	**$172,345**
Total	**$2,130,436**	**$2,248,639**	**$2,241,450**	**$2,409,015**	**$2,508,273**

research on snail kites, sea turtles), and the DOD Army Corps of Engineers (e.g., research on Everglades restoration). The Florida Fish and Wildlife Conservation Commission (FWC) is regularly in the top three outside funding sources to the Department. NSF, the Department of Defense (primarily the Army Corps of Engineers), and the Florida Department of Environmental Protection (DEP) have each been one of the top three extramural funding sources in one or more of the past five years. A diverse array of additional funding entities, contribute to the remaining extramural funding to the Department (Table 2.9-2).

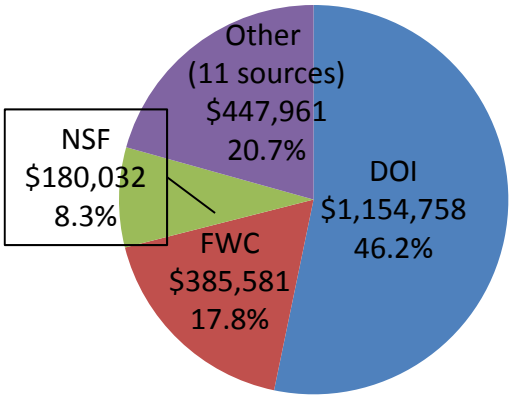
Figure 2.9-4 WEC Research Expenditures
Grants and Contracts
2005-2009



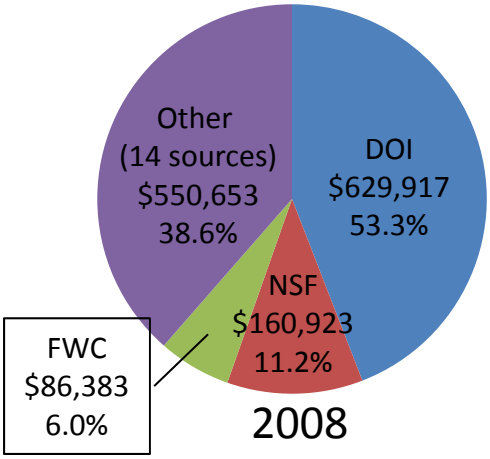
2005
$2,025,645



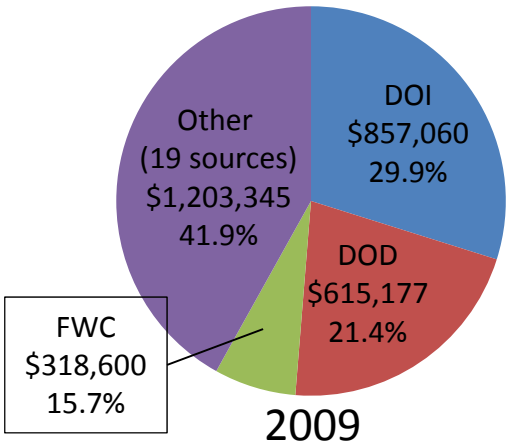
2006
$2,278,455



2007
$2,168,332



2008
$1,427,876



2009
$2,870,760

Table 2.9-5 Sources of Funding by Source and Year

	2005	2006	2007	2008	2009
National Science Foundation	X	X	X	X	X
US Department of Interior	X	X	X	X	X
Florida Fish & Wildlife Conservation Commission	X	X	X	X	X
US Air Force	X				
US Department of Agriculture	X	X	X	X	X
US Environmental Protection Agency	X	X			
DOD, US Army Corp of Engineers	X	X	X	X	X
Florida Department of Environmental Protection	X	X	X		
St John's Water Management District	X	X	X		X
South Florida Water Management District				X	
Society for Conservation Biology	X	X	X	X	X
Jones Ecological Research Center	X	X		X	X
University of Florida Foundation	X	X	X	X	X
Caribbean Conservation Corp		X		X	
American Assoc. for the Advancement of Science		X	X	X	X
Progress Energy Florida		X			X
Conservation Food & Health Organization		X	X	X	
University of Georgia SARE/ACE			X	X	
University of Florida Research Foundation			X	X	
Tall Timbers			X	X	X
National Council for Science and Environment				X	X
University of Montana				X	X
Felburn Foundation					X
MRD Associates					X
Project Orianne					X
Packard Foundation					X
National Fish and Wildlife Foundation					X
Suwannee River Water Mgmt District					X
South West Florida Water Mgmt District					X
North Florida Water Mgmt District					X
Total Number of Sources	12	15	14	17	22

Section 3.1 Faculty and Staff overview

Faculty. The Department of Wildlife Ecology and Conservation has 13 state-line (Drs. Austin, Branch, Bruna, Fletcher, Giuliano, Hayes, Hostetler, Jacobson, Moulton, Oli, Pine, Sieving, and Sunquist), 2 grant-funded (Drs. Frederick and Ross), and 3 USGS Coop Unit professorial faculty (Drs. Carthy, Kitchens, and Percival) housed at the Gainesville campus (see Section 3.2). In addition, there are 5 state-line faculty housed at Research and Education Centers across the state (Drs. Johnson, Main, Mazzotti, Miller, and Ober). Of these 23 faculty, 6 hold the rank (or equivalent rank for non-tenure track faculty) of Assistant Professor, 9 of Associate Professor, and 8 of Professor. Most faculty (and all non-administrative state-line faculty) hold positions with primary responsibilities split between two of the three mission areas of the University: Research, Teaching, and Extension. Typical appointments are a 60:40 split in two of these areas, but percentages vary among faculty. Of the 23 core faculty, 19 hold appointments with research responsibilities, 15 with teaching responsibilities, and 7 with extension responsibilities. The Department Chair (Dr. Hayes) has full-time administrative responsibilities, but he does serve as lead instructor of one graduate course annually and maintains a small research effort. Two additional faculty hold tenure homes in the Department, but have full-time administrative responsibilities as Director of a Research and Education Center (Dr. Mullahey) and as a District Extension Director (Dr. Schaefer).

There is currently some transition among the faculty. Dr. Tanner retired in January 2010 and Dr. Sunquist plans to retire June 2010. The Department is in the process of hiring two new Assistant Professor positions, one in Wildlife Conservation and one in Climate Change Ecology. These new faculty are anticipated to be on board by Fall 2010. In addition, a new extension faculty member (Dr. Emma Willcox) will be starting in May 2010 with 50% of her responsibility directed to a tri-county region (Dixie, Gilchrist, and Levy counties) and 50% statewide responsibilities with supervisory responsibilities shared by the WEC Department Chair and the Northeast District Extension Director. Her work will focus on extension programming related to wildlife conservation and upland habitat management.

The Department also benefits from a large number of courtesy and affiliate faculty (see Section 3.3). These faculty serve the Department in a variety of ways depending on their availability, interest, and position, including serving as research collaborators, mentors of graduate and undergraduate students, and course instructors. Many of the courtesy and affiliate faculty are on the graduate faculty of the Department, and as such are granted rights to serve as committee members or co-major professors of graduate students.

Staff. There are currently 7 full-time administrative support staff in the Department (Barnash, Culpepper, Jones, Lindberg, Mcrae, Vann, and Williams) and 3 full time staff at the Ordway-Swisher Biological Station (Coates, Huey, and Perry; see Section 3.4). In addition, there is one vacant administrative support position in the Coop Unit. Departmental support staff administer all aspects of the department's fiscal resources and grants, personnel issues and payroll, IT infrastructure, inventory management, facilities and fleet, and academic advising and programs.

3.2 Faculty Overview

Faculty Member	Academic Rank or Title	Major Field	Highest Degree Year/Inst.	YEARS @ UF	Research-(R) Teaching (T) Extensions (E) Administration (A)
Austin, James D.	Assistant Professor	Conservation genetics, Phylogeography, Phylogenetic	PhD - 2004 Queen's Univ.	4	R-60% / T-40%
Branch, Lyn C.	Professor	Latin American Conservation, Conservation biology, behavioral Ecology, and landscape Ecology	PhD - 1989 Univ. of CA-Berkley	18	R-60% / T-40%
Bruna III, Emilio M.	Associate Professor	Tropical Conservation, plant Ecology, demographic modeling, plant-animal interactions, and mutualisms	PhD - 2001 univ. of CA - Davis	8	R-60% / T-40%
Carthy, Raymond R.	Courtesy Assistant Professor	Ecology and Physiology of marine turtles, Aquatic & terrestrial Ecology	PhD - 1996 Univ. of FL	20	R-100%
Fletcher, Robert J.	Assistant Professor	Landscape and Spatial Ecology, Animal Behavior, Quantitative Biology, Population and Community Ecology, Ornithology	PhD - 2003 Iowa State Univ.	2.5	R-60% / T-40%
Frederick, Peter C.	Research Professor	Wetlands Ecology, Avian Behavior	PhD - 1985 Univ. of NC - Chapel Hill	20	R-85% / T-15%
Giuliano, William M.	Associate Professor	Wildlife Management	PhD - 1995 Texas TX Univ.	5.5	T-60% / E-40%

Hayes,John P	Chair & Professor	Influences of Forest Management on Wildlife. Ecology and Conservation of Bats. Habitat Ecology of Wildlife at Multiple Spatial Scales.	PhD - 1990 Cornell Univ.	4	A-100%
Hostetler, Mark E.	Associate Professor	Urban Ecology and environmental design, sustainable development, urban wildlife, resource efficient Communities	PhD - 1997 Univ. of FL	10	E-80% / R-20%
Jacobson, Susan	Professor	Environmental Communications, human dimensions of wildlife Conservation	PhD - 1987 Duke University	22	R-60% / T-40%
Johnson, Steve	Assistant Professor	Urban Wildlife Ecology	PhD - 2001 Univ. of FL		
Kitchens, Wiley M.	Courtesy Professor	Restoration Ecology	PhD - 1978 NC State Univ.	25	R-100%
Main, Martin B.	Associate Professor	Behavioral Ecology, habitat management, and environmental education	PhD - 1994 Oregon State Univ.	14	E-60% / R-35% / T-5%
Mazzotti, Frank	Associate Professor	Conservation planning, endangered species	PhD - 1983 Pennsylvania State Univ.		R-75% / E-20% / Academic Advising-5%
Miller, Deborah	Associate Professor	Plant Ecology and Wetland Ecology	PhD - 1993 Texas A&M Univ.	15	T-60% / R-30% / A-10%
Moulton, Michael P.	Associate Professor	Introduced vertebrates, synanthropy	PhD - 1984 Univ. of TN	16	T-80% / R-20%

Mullahey, Jeffrey	Center Director & Professor	Weed Science, Forage Agronomy, Range Science, Animal Science, Specialty Crops, Marketing.	PhD - 1989 Univ. of Nebraska-LinCourtesyln	21	A-100%
Ober, Holly	Associate Professor	Forest Ecology, habitat management	PhD - 2007 Oregon State Univ.	3	R-40% / E-60%
Oli, Madan K.	Associate Professor	Population Ecology, population modeling, life-history, wildlife Ecology and management	PhD - 1999 Auburn Univ.	9	R-60% / T-40%
Percival, Henry F.	Courtesy Associate Professor	Wetland wildlife Ecology and Conservation	PhD - 1972 Clemson Univ.	29	N/A
Pine III, William E.	Assistant Professor	Quantitative Ecology, aquatic Ecology, and adaptive management	PhD - 2003 N.C. State Univ.	5	R-60% / T-40%
Ross, James Perran	Associate Scientist	Conservation biology, Conflict mitigation and stakeholder input, crodilian and sea turtle Ecology, international trade and sustainable use	PhD - 1977 Univ. of FL	5	E-95% / T-5%
Schaefer, Joseph	Professor & District Director Extension Serevices	Wildlife Conservation in a Human-dominate landscape, evaluation of environmental education programs	PhD - 1983 Iowa State Univ.	23	A-100%
Sieving, Kathryn E.	Professor	Avian Courtesymmunity and landscape Ecology	PhD - 1991 Univ. of Illinois	15	R-40% / T-60%
Sunquist, Melvin E.	Acting Assistant Program, Director & Professor	Carnivores, natural history, Ecology, Conservation	PhD - 1979 Univ. of Minnesota	24	T-60% / R-40%

Section 3.3 Courtesy and Affiliate Faculty

Courtesy and Affiliate faculty	Title	Specialization	Affiliation
Avery, Michael L.	Courtesy Associate Professor	Vulture management, avian crop pests	USDA/APHS Wildlife Services
Bodmer, Richard	Courtesy Assistant Professor	Tropical conservation	The Durrell Inst of Consrvation & Ecology
Campbell,Todd S.	Courtesy Assistant Professor	Ecology and management of introduced and invasive herpetofauna	Univ. of Tampa
Collazo, Jaime A.	Courtesy Professor	Zoology	North Carolina State University
Cumming, Graeme S.	Courtesy Assistant Professor	Landscape Ecology, Conservation Biology, Community Ecology, Resilience and Complex Systems Theory.	Percy FitzPatrick Institute
Didier, Karl	Courtesy Assistant Professor	Landscape Ecology, Conservation Planning	Wildlife Conservation Society
Dodd, C. Kenneth	Courtesy Associate Professor	Conservation Biology of Amphibians and Reptiles, Herpetofaunal Ecology	Retired
Franz, Lawrence R.	Affiliate Associate Scientist	Amphibian and reptile Ecology, Herpetofaunal Ecology	UF- FL Museum of Natural History
Gunzburger, Margaret S.	Courtesy Assistant Professor	Ecology and Conservation of amphibians and reptiles	Nokuse Plantation
Kirkman, Lelia Katherine	Courtesy Associate Professor	Conservation Biology	Joseph W. Jones Ecological Research Center
Krysko, Kenneth L.	Affiliate Assistant Scientist	Systematic biology, evolution, ecology, reproduction, and conservation biology	Florida Museum of Natural History
Lefebvre, Lynn W.	Courtesy Assistant Professor	Wildlife, Invasives, and Contaminants; Marine Mammal Ecology	USGS-FL Integrated Science Center
Marker, Laurie	Courtesy Assistant Professor	Carnivore Conservation	Cheetah Conservation Fund
Martin, Julien	Courtesy Assistant Professor	Population Ecology and Conservation	Florida Fish & Wildlife Conservation Commission

Meffe, Gary K.	Courtesy Professor	Conservation Biology	Society for Conservation Biology
Meyer, Kenneth D.	Courtesy Associate Professor	Raptor Biology, Avian Ecology, Conservation Biology	Avian Research and Conservation Institute
Nichols, James D.	Courtesy Professor	Wildlife Population Ecology and Biometrics	Patuxent Wildlife Research Center
Nickerson, Max A.	Affiliate Curator	Herpetology	Florida Museum of Natural History
Ozgul, Seyfi Arpat	Courtesy Assistant Professor	Population Ecology	Imperial College London
Pearlstine, Elise V.	Courtesy Assistant Professor	Avian ecology, wildlife-agricultural interactions	Everglades Research and Education Center
Pearlstine, Leonard G.	Affiliate Assistant Scientist	Ecosystem modeling, risk assessment and restoration	Everglades & dry Tortugas National Parks
Reed, David Lee	Courtesy Associate Professor	Mammalian Ecology	Florida Museum of Natural History
Rice, Kenneth G.	Courtesy Associate Professor	Wildlife Biology	USGS-BRD, FL Caribbean Science Center
Robertson, Kevin M.	Courtesy Assistant Professor	Fire Ecology	Tall Timbers Research Station
Robinson, Scott K.	Affiliate Eminate Scholar	Ordway Eminent Scholar of Ecosystem Conservation	Florida Museum of Natural History
Smith, Lora L.	Courtesy Assistant Professor	Herpetology	Joseph W. Jones Ecological Research Center
Tucker, Anthony D.	Courtesy Associate Professor	Marine Ecology	Mote Marine Laboratory
Walsh, Allyson L.	Courtesy Associate Professor	Conservation biology of old world fruit bats	Directory, Lubee Bat Conservancy

EMERITUS FACULTY	TITLE	SPECIALIZATION	UF Academic Unit
Harris, Lawrence	Emeritus	Landscape Ecology	Wildlife Ecology & Conservation
Labisky, Ronald F.	Emeritus	Population Ecology, space and habitat use, predator-prey interactions	Wildlife Ecology & Conservation
Tanner, George	Emeritus	Wildlife habitat management, restoration Ecology	Wildlife Ecology & Conservation
Werner, Patricia	Emeritus	Population and Community Ecology	Wildlife Ecology & Conservation

Section 3.4 Department and Ordway-Swisher Staff

NAME	TITLE	SUPERVISOR
Barnash,Thomas J.	IT Specialist	John Hayes
Coates, Stephen F.	Research Programs/SVCS, Coordinator 2	John Hayes
Culpepper, Julia E.	Secretary, SR	John Hayes
Huey, Lisa A.	Laboratory Tech, SR	Steve Coates
Jones, Samuel A.	Laboratory, SR Teaching Specialist	John Hayes
Lindberg, Monica L.	Administrative Assistant	John Hayes
Mcrae, Caprice M.	Office Manager	Monica Lindberg
Perry, James C.	Maintenance Specialist	Steve Coates
Vacant Position	Administrative Assistant	Franklin Percival
Vann, Jennifer J,	Program Assistant	Monica Lindberg
Williams, Claire C.	Academic Support Services, Coordinator 2	John Hayes

Section 4.1 Undergraduate program

The Department of Wildlife Ecology and Conservation offers the only Bachelor of Science degree in Wildlife Ecology and Conservation in the state of Florida. At the undergraduate level the Department offers the Bachelor of Science degree, and students from other disciplines may obtain a minor in Wildlife Ecology and Conservation. The Department's undergraduate program emphasizes instruction of ecological principles and their application to the challenges of biodiversity conservation, especially with regard to wildlife and their habitat. Through our undergraduate coursework, with its strong emphasis on problem solving, students learn ecological theory and management principles, and gain practical experience in research and management techniques. Our undergraduate program prepares students for a wide variety of careers in wildlife and natural resources education, research, management, and advocacy, law enforcement, and veterinary medicine. Our graduates will, in many cases, work for federal or state agencies, but a significant number pursue careers in the private sector. Many students from our program seek advanced graduate degrees following graduation from the program.

The Department typically has around 150 undergraduate students enrolled in its degree program, with an average of 36 students graduating annually from 2000 through 2008. During that time period, 71% of undergraduate degrees through the department were awarded to women. For additional information about demographics of our undergraduates, see Section 2.6.

Curriculum

The faculty are currently reviewing the undergraduate curriculum in attempt to create a structure that is less complex and more transparent to students. We anticipate advancing this curriculum in a formal proposal in the next several months. The proposed curriculum changes being considered (see Section 10.6 for a recent version) maintains most of the elements of the current structure. Under the current structure, students choose one of 4 areas in which to specialize: Ecology, Conservation-Land Management, Conservation-Quantitative, Conservation-Human Dimensions, or Conservation-Combined BS/MS degree in Wildlife Ecology and Conservation and Urban and Regional Planning. The curricula for each of these specializations are presented below.

Curriculum: Specialization in Ecology			
Semester 1, Fall			
Course Number	**Title of Course**	**Credits**	**Prerequisites**
BSC 2010 & 2010L	**Integrated Principles of Biology I and Lab (GE-B)**	**4**	**None**
WIS 3403C	Perspectives in Wildlife Ecology and Conservation *Taught Fall Only*	3	**WIE Majors & Minors**
	Composition (GE-C and 6,000 WR)	3	
	Humanities (GE-H)	3	
	Elective	2	
		Total = 15	
Semester 2, Spring			
BSC 2011 & 2011L	**Integrated Principles of Biology II and Lab (GE-B)**	**4**	**BSC 2010 & BSC 2010L**
Choose One	**ECO 2023 Principles of Microeconomics or AEB 3103 Principles of Food and Resource Economics (Both are GE-S)**	**4**	**None**
Choose one	AML 2070 Survey of American Literature **or** AML 2410 Issues in American Literature and Culture **or** ENL 2012 Survey of English Literature: Medieval – 1750 **or** ENL 2022 Survey of English Literature: 1750 - Present (All are GE-C or H and 6,000 WR)	3	**All require ENC 1101 or test score equivalent**
	Social and Behavioral Sciences(GE-S)	3	
	Elective	2	
		Total = 16	
Semester 3, Fall			
Course Number	**Title of Course**	**Credits**	
CHM 2045 & 2045L	**General Chemistry I and Lab (GE-P)**	**4**	**Readiness Exam**
STA 2023	**Introduction to Statistics I (GE-M)**	**3**	**None**
AEE 3030C	Effective Oral Communication *CALS Requirement*	3	**None**
AEE 3033C	Writing for Agricultural and Natural Resources *CALS Requirement – Provides 6,000 words*	3	**None**
	Elective	2	
		Total = 15	
Semester 4, Spring			
MAC 2311	**Analytic Geometry and Calculus I (GE-M)**	**4**	**Readiness Exam**
WIS 3402 & WIS 3402L	Wildlife of Florida and Lab *Taught Spring Semester Only*	4	**None**
SWS 3022 & SWS 3022L	Introduction to Soils in the Environment and Lab (GE-P) *Note: SOS 3022 & L is now SWS 3022 and SWS 3022L*	4	**None**
Choose one	Humanities (GE-H) **or** Social and Behavioral Sciences (GE-S)	3	
		Total = 15	
Summer			
Choose one	BOT 3151C Local Flora of North Florida (GE-B) **or** FNR 3131C		**BOT 2011C**

	Dendrology/Forest Plants *Taught Fall Semester Only* 3-4		**or BSC 2011**
Semester 5, Fall			
Choose one	PCB 3034C Introduction to Ecology (GE-B) *Taught Fall and Spring Semesters Only* **or** PCB 4043C General Ecology (GE-B) *Taught Fall and Spring Semesters Only* **or** FOR 3153C Forest Ecology (GE-B) *Taught Fall Semester Only* ***or*** PCB 3601C Plant Ecology *Taught Spring Semester Only*	4 4 3 3	**BSC 2011 and BSC 2011L BSC 2011 and BSC 2011L None Basic BIO or BOTANY**
BOT 2710	Practical Plant Taxonomy (GE-B) *Taught Fall Semester Only*	3	**None**
STA 3024	Introduction to Statistics II *Taught Fall, Spring & Summer Semesters*	3	**STA 2023**
WIS 3401	Wildlife Ecology & Management *Taught Fall Semester Only*	3	**BSC 2011 and BSC 2011L**
	Elective	3	
		Total = 15-16	
Semester 6, Spring			
WIS 3553	Introduction to Conservation Genetics *Taught Spring Semester Only*	3	**Basic BIO, course in General Ecology, and STA 3024**
WIS 4501	Introduction to Wildlife Population Ecology *Taught Spring Semester Only*	3	**WIS 3401 and one of FOR 3153C PCB 3043C PCB 3601C PCB 4404C**
Choose one	ZOO 2203C Invertebrate Zoology (GE-B) **or** *Taught Spring Semester Only* ENY 3005C & 3005L Principles of Entomology and Lab *Taught Fall, Spring & Summer C Semesters*	4 3	**BSC 2011 and BSC 2011L None**
	Elective	3	
		Total = 12-13	
Semester 7, Fall			
WIS 4554	Conservation Biology *Taught Fall Semester Only*	3	**WIS 3401, WIS 3553 and one of PCB 3043C PCB 3601C PCB 4044C FOR 3153C**
ZOO 2303C	Vertebrate Zoology (GE-B) *Taught Fall Semester Only*	4	**BSC 2011 and BSC 2011L**
Choose one	MAC 2312 Analytic Geometry and Calculus II (GE-M) **or**GIS 3043 Foundations of Geographic Information Systems **or** SUR 3393 and SUR 3393L GIS and Lab **or** URP 4273 Survey of Planning Information Systems	3-4	**MAC 2311 None None**

Choose one	WIS 4523 Human Dimension of Natural Resource Conservation (*Taught Fall Semester only*) **or** FOR 4664 Sustainable Ecotourism Development **or** FNR 4070C Environmental Education Program Development (*Both taught Fall Semester only*)	3	**WIS 3401 and one of PCB 3034C PCB 3601C PCB 4044C FOR 3153C**
Choose one, depending on choice in Semester 8	Elective **or** FNR 4660C Natural Resource Policy and Administration *Taught Fall Semester Only*	3	**JR or SR**
		Total = 16-17	
Semester 8, Spring			
Choose one	FAS 4305 Introduction to Fishery Science *Taught Spring Semester Only* **or**ZOO 4472C Avian Biology (GE-B) *Taught Spring Semester Only*	3-4	**None BSC 2011 and BSC 2011L**
Choose one, depending on choice in Semester 7	Elective **or**AEB 4274 Natural Resource and Environmental Policy *Taught Fall and Spring Semesters Only*	3	**AEB 3103 or ECO 2023**
Choose one	WIS 4945C Wildlife Techniques *Taught Spring Break and Summer A Semester Only* or WIS 4547C Avian Field Techniques *Taught Spring Break Only*	2	**WIS 3402 General Ecology & Vertebrate Ecology**
Choose two	WIS 4601C Quantitative Wildlife Ecology *Taught Spring Semester Only* **or** WIS 4203C Introduction to Landscape Ecology *Taught Spring Semester Only* **or** WIS 4427C Wildlife Habitat Management *Taught Spring Semester Only*	6	**STA 2023 and WIS 3401 Course in General Ecology and STA 3024 WIS 3401**
		Total = 14-15	

Curriculum: Specialization in Conservation

****within this specilzation, students in conjunction with their faculty advisor select 7 focus courses related to their area of specialization:** Conservation-Land Management, Conservation-Quantitative, Conservation-Human Dimensions

Semester 1, Fall			
Course Number	**Title of Course**	**Credits**	**Prerequisites**
BSC 2010 & 2010L	**Integrated Principles of Biology I and Lab (GE-B)**	**4**	**None**
	Composition (GE-C and 6,000 WR)	3	
	Physical Science (GE-P) *SOS 3022 & SOS 3022L Introduction to Soils in the Environment and Lab (GE-P) are strongly recommended. Taught Fall & Spring Semesters Only*	4-5	
WIS 3403C	Perspectives in Wildlife Ecology and Conservation *Taught Fall Semester Only*	3	**WIE Majors & Minors**
		Total = 15	
Semester 2, Spring			
BSC 2011 & 2011L	**Integrated Principles of Biology II and Lab (GE-B)**	**4**	**BSC 2010 & BSC 2010L**
Choose one	AML 2070 Survey of American Literature **or** AML 2410 Issues in American Literature and Culture **or** ENL 2012 Survey of English Literature: Medieval – 1750 **or** ENL 2022 Survey of English Literature: 1750 - Present (All are GE-C or H and 6,000 WR)	3	**All require ENC 1101 or test score equivalent**
	Humanities (GE-H)	3	
	Social and Behavioral Sciences(GE-S)	3	
	Elective	2	
		Total = 15	
Semester 3, Fall			
Choose one	**ECO 2023 Principles of Microeconomics or AEB 3103 Principles of Food and Resource Economics (Both are GE-S)**	**3-4**	**None**
CHM 2045 & 2045L	**General Chemistry I and Lab (GE-P)**	**4**	**Readiness Exam**
AEE 3030C	Effective Oral Communication *CALS Requirement*	3	**None**
AEE 3033C	Writing for Agricultural and Natural Resources *CALS Requirement – Provides 6,000 words*	3	**None**
	Elective	3	
		Total = 16-17	
Semester 4, Spring			
MAC 2311	**Analytic Geometry and Calculus I (GE-M)**	**4**	**Readiness**

			Exam
STA 2023	**Introduction to Statistics I (GE-M)**	**3**	**None**
WIS 3402 & WIS 3402L	Wildlife of Florida and Lab *Taught Spring Semester Only*	4	**None**
Choose one	Humanities (GE-H) **or** Social and Behavioral Sciences (GE-S)	3	
		Total = 14	
Semester 5, Fall			
Choose one	PCB 3034C Introduction to Ecology (GE-B) *Taught Fall and Spring Semesters Only* **or**	3-4	**BSC 2011 and BSC 2011L**
	PCB 4044C General Ecology (GE-B) *Taught Fall and Spring Semesters Only* **or**		**BSC 2011 and BSC 2011L**
	FOR 3153C Forest Ecology (GE-B) *Taught Fall Semester Only* **or**		**None**
	PCB 3601C Plant Ecology *Taught Spring Semester Only*		**Basic BIO or BOTANY**
Choose one	MAC 2312 Analytic Geometry and Calculus II (GE-M) **or**	3-4	**MAC 2311**
	GEO 3151 Foundations of Geographic Information Systems **or**		
	SUR 3393 and SUR 3393L GIS and Lab **or**		**None**
	URP 4273 Survey of Planning Information Systems		**None**
STA 3024	Introduction to Statistics II	3	**STA 2023**
WIS 3401	Wildlife Ecology & Management *Taught Fall Semester Only*	3	**BSC 2011 and BSC 2011L**
	Elective	3	
		Total = 15-17	
Semester 6, Spring			
WIS 3553	Introduction to Conservation Genetics *Taught Spring Semester Only*	3	**Basic BIO, course in General Ecology, and STA 3024**
WIS 4501	Introduction to Wildlife Population Ecology *Taught Spring Semester Only*	3	**WIS 3401 and one of FOR 3153C PCB 3043C PCB 3601C PCB 4404C**
	Focus Course 1**	3	
	Focus Course 2**	3	
	Elective	3	
		Total = 16	
Semester 7, Fall			

WIS 4554	Conservation Biology *Taught Fall Semester Only*	3	**WIS 3401, WIS 3553 and one of PCB 3043C PCB 3601C PCB 4044C FOR 3153C**
Choose one	WIS 4523 Human Dimensions of Natural Resource Conservation *(Taught Fall Semester Only*) **or**	3	**WIS 3401 and one of PCB 3034c PCB 3601C PCB 4044C FOR 3153C**
	FOR 4664 Sustainable Ecotourism Development **or** FNR 4070 Environmental Education Program Development *(Both Taught Fall Semester Only*)		**None**
	Focus Course 3**	3	
	Focus Course 4**	3	
Choose one and see Semester 8	Focus Course 5** **or** FNR 4660C Natural Resource and Environmental Policy *Taught Fall Semester Only*	3	**JR or SR**
		Total = 15	
Semester 8, Spring			
Choose one, depending on	Focus Course 5** **or**	3	
choice in Semester 7	AEB 4274 Natural Resource and Environmental Policy *Taught Fall and Spring Semesters Only*		**AEB 3103 or ECO 2023**
	Focus Course 6**	3	
	Focus Course 7**	3	
Choose two	WIS 4601C Quantitative Wildlife Ecology *Taught Spring Semester Only* **or**	6	**STA 2023 and WIS 3401**
	WIS 4203C Introduction to Landscape Ecology *Taught Spring Semester Only* **or**		**Course in General Ecology and STA 3024**
	WIS 4427C Wildlife Habitat Management *Taught Spring Semester Only*		**WIS 3401**
		Total = 15	

Curriculum: Specialization in Conservation-Combined BS/MS degree in Wildlife Ecology and Conservation and Urban and Regional Planning.

Students in the program are required to complete 21 credit hours of Focus courses and these could cover the 21 graduate credits required by URP in the undergraduate portion of this combined degree program. Upon graduation from the undergraduate portion of this program,

students will satisfy 31 additional graduate credits in URP in the next year, with 6 of these credits being designated for the thesis.

Section 4.2 Undergraduate course teaching responsibilities

Course Number	Course Title	Credit Hours	Semester Offered	Instructor
WIS 2040	Wildlife Issues in a Changing World	3	Spring, Summer & Fall	Moulton
WIS 2040L	Wildlife Issues in a Changing World Lab	1	Spring	Moulton
WIS 2552	Biodiversity Conservation: Global Perspectives	3	Spring, Summer & Fall	Moulton
WIS 3401	Wildlife Ecology and Management	3	Fall	Giuliano
WIS 3401L	Wildlife Ecology and Management Lab	2	Fall 2009	Giuliano
WIS 3402	Wildlife of Florida	3	Spring	Sunquist
WIS 3402L	Wildlife of Florida Lab	1	Spring	Sunquist
WIS 3403C	Perspectives in Wildlife Ecology and Conservation	3	Fall	Sieving
WIS 3434	Tropical Wildlife	3	Fall, odd year	Bruna
WIS 3553	Introduction to Conservation Genetics	3	Spring	Austin
WIS 4203C	Introduction to Landscape Ecology	3	Spring	Fletcher
WIS 4427C	Wildlife Habitat Management	3	Spring	Giuliano

WIS 4443C	Wetland Wildlife Ecology	4	Spring	Miller
WIS 4501	Introduction to Population Ecology	3	Spring	Oli
WIS 4523	Human Dimensions of Natural Resource Conservation	3	Fall	Jacobson
WIS 4547C	Avian Field Techniques	2	Spring	Sieving
WIS 4554	Conservation Biology	3	Fall	Branch
WIS 4601C	Quantitative Ecology	3	Spring	Giuliano
WIS 4945C	Wildlife Techniques	2	Spring, Summer	Sunquist
WIS 4934	Ecology of Mammals	3	Fall	Moulton and Sunquist
WIS 4934	Invasion Ecology	4	Spring 2008 Spring 2010	Johnson
WIS 4934	Amphibians and Reptiles	3	Spring 2007 Fall 2009	Johnson
WIS 4934	Upland Game Bird Ecology	3	Spring 2008 Spring 2010	Giuliano
WIS 4934	Big Game Ecology	3	Spring 2009	Giuliano

Section 4.3 Description of undergraduate courses taught

Course name: Wildlife Issues in a Changing World
Course number: WIS 2040
Number of credits: 3
Instructor: Moulton
Semester offered: Summer B (1 section), Fall (2 sections), Spring (2 sections) each year

Course content and learning objectives: This course satisfies 3 credits of the University of Florida's General Education requirement for Biological Science. The course is an introduction to interactions between humans and wildlife. In this course students will discover the biological and ecological basis that underlies all wildlife issues, and the various pathways, such as economic pressure, that humans employ to resolve wildlife issues. Students will be able to discern major animal phyla, and learn about the evolutionary history of all the vertebrate classes. Students will learn about state and federal agencies as well as international conventions and commissions such as CITES, IATTC, ICCAT, and CCAMLR, that manage wildlife around the world. Students will also learn about the impacts of various human activities such as species' introductions, hunting, agriculture and overkill. Learning objectives:

A. International Objectives:

- Understand that wildlife issues are really human issues, and that individual issues are not be independent of other issues (economic, cultural etc.)
- List several examples of human activities in one part of the world that significantly impact wildlife populations in another. (e.g. Caviar consumption in the US – Sturgeon population declines in Asia; US Embargo affecting change in Mexican Tuna fishing techniques to drastically reduce Dolphin mortality).
- List four international conventions or commissions that impact wildlife management and conservation and analyze their impacts on conservation.
- Articulate the importance of globalization in the media (Internet, television) on wildlife conservation.
- Illustrate the economic impacts of trophy hunting on local communities in nations in Africa, Mexico and the United States.
- Differentiate between management programs to control wildlife disease outbreaks such as DFTD (Devil Facial Tumor Disease) in Tasmania with US efforts to manage CWD (Chronic Wasting Disease) in wild populations of cervids (deer, elk and moose).
- List examples of legally and illegally harvested wildlife products taken from Africa, South America, Asia, and Australia for consumption in the United States.
- List examples and specify the impacts of wildlife species that have been introduced to various ecosystems in North America, Europe, Africa, South America, Asia, and Australia.
- Appreciate the positive and negative impacts of various human activities such as hunting, agriculture and overkill on wildlife populations around the world.

B. Biological Objectives

- Articulate the difference between prokaryotic and eukaryotic cells, and illustrate
- Illustrate the general differences between plants, animals, fungi, protists, and monera.
- List characteristics that separate the lower invertebrate phyla that include the Sponges, Cnidarians, Platyhelminthes, and Nematodes, and appreciate the complexity of life cycles seen in Cnidarians and parasitic versus free-living Platyhelminthes.
- List three differences in early development of Protostomes and Deuterostomes and understand the significance of secondary body cavities (coelom and pseudocoelom)
- Understand the difference between weighted versus un-weighted characters in classifying phyla
- List four characteristics seen in all species of the Phylum Chordata and differentiate the three subgroups of the Chordates.
- List seven classes of vertebrates, and articulate the major evolutionary advances seen in each class.

Course name: Biodiversity Conservation: Global Perspectives
Course number: WIS 2552
Number of credits: 3
Instructor: Moulton
Semester offered: Summer B, Fall, Spring each year

Course content and learning objectives: This course satisfies 3 credits of the University of Florida's General Education requirement for Biological Science, and 3 credits of the General Education International studies requirement. The course is an introduction to the relationship between humans and the global biotic environment that supports them. This course explores patterns of biodiversity around the world and human patterns of resource use and population biology determining the status of the earth's biodiversity resources. The goal of this course is to help students understand how today's human society affects global life support systems, and how individuals can make lifetime contributions to environmental solutions. Learning objectives:

A. Biological Objectives:

- Understand the global patterns in biodiversity, including the ideas of biomes and zoogeographic regions.
- Clearly indentify major plant and animal taxa
- Differentiate between alpha and beta diversity.
- Understand the basic tenets of chemical evolution and how life most probably began
- Understand the basis for the theory of Natural Selection
- Appreciate the relationship between cell cycles, Mendelian Genetic principles of segregation and independent assortment
- Elucidate the connections between Mendelian patterns of inheritance and Hardy-Weinberg Equilibrium
- Understand major evolutionary events in plants (e.g. evolution of heterospory, vascularization, seeds) and in animals (evolution of the true coelom; protostome versus deuterostome patterns of development; and vertebrate evolution).
- List the eras and periods of the geological time table and indicate when significant plant and animal evolutionary grades appeared
- Understand simple population growth models, the concept of sources and sinks, the niche and dynamics of territoriality and understand major ecological interactions (Competition; Predation; Mutualism)

B. International Objectives:

- Appreciate the difference between economic development and conservation
- Understand the bushmeat crisis, and the severity of its impacts.

- Illustrate the major findings of the Stern Report regarding global warming and climate change, and their effects on conservation.
- List at least five examples of species of vertebrates that have been introduced around the world and describe their impacts in their new ecosystems.
- List examples of how lesser developed nations have attempted to conserve biodiversity using protected areas and international agreements.
- Give five examples of wildlife species that either are, or could be, farmed for human consumption.

Course name: Wildlife Ecology and Management

Course number: WIS3401
Number of credits: 3
Instructor: Giuliano, Johnson (Plant City), Miller (Milton)
Semester offered: Fall, every year

Course content and learning objectives: The goal of this course is to provide students with the knowledge and skills necessary to think and solve-problems as a professional wildlife ecologist and manager. This will be demonstrated through an understanding of basic principles of wildlife ecology and management and the application of knowledge to solve wildlife conservation problems. Specifically, students will demonstrate knowledge and understanding in the areas of:

- The history of wildlife conservation and management
- Policy and law
- Values and ethics
- Population ecology and management
- Nutrition and cover
- Movements and space use
- Reproduction and mortality factors
- Hunting and harvest management
- Habitat relationships and management
- Conservation in farmlands, rangelands, forests, wetlands and coastal areas, public lands, and urban and suburban environments
- Exotic and invasive species management
- Rare and endangered species management

Course name: Wildlife Ecology and Management Lab
Course number: WIS3401L
Number of credits: 2
Instructor: Giuliano, Johnson (Plant City), Miller (Milton)
Semester offered: Fall, every year

Course content and learning objectives: The goal of this course is to provide students with the knowledge and skills necessary to think and solve-problems as a professional wildlife ecologist and manager. This will be demonstrated through an understanding of basic principles of wildlife ecology and management and the application of knowledge to solve wildlife conservation problems. Practical, field-based training in wildlife ecology and management practices designed to complement WIS 3401. Off-campus exercises in cooperation with wildlife professionals will provide experience in wildlife ecology and management, including endangered species management; wildlife damage control and management; research and management of wildlife in urban/suburban, forest, rangeland, farmland, wetland, and coastal areas; wildlife harvest management; human dimensions and extension; and wildlife law enforcement.

Specifically, students will demonstrate knowledge and understanding in the areas of:

- Policy and law
- Values and ethics
- Population ecology and management
- Nutrition and cover
- Movements and space use
- Reproduction and mortality factors
- Hunting and harvest management
- Habitat relationships and management
- Conservation in farmlands, rangelands, forests, wetlands and coastal areas, public lands, and urban and suburban environments
- Exotic and invasive species management
- Rare and endangered species management

Course name: Wildlife of Florida
Course number: WIS3402
Number of credits: 3
Instructor: Sunquist, Johnson (Plant City), Miller (Milton)
Semester offered: Spring, every year

Course content and learning objectives:

This course is designed to provide students with a basic understanding of the natural history, ecology and behavior of amphibians, reptiles, birds and mammals of Florida. Such a basic background is a prerequisite to being able to design field studies that focus on conservation concerns. In this regard, it is important to know where these vertebrates live, their life-history traits, their status in the wild and what management techniques can be employed to address conservation problems. Most importantly, the course is intended to increase student awareness and appreciation of the many natural systems of Florida.

By the end of the course students should be knowledgeable of the distribution and diversity of birds, mammals, reptiles and amphibians commonly found in Florida as well as what is the 'peninsula effect.' They should also be knowledgeable of the natural history and ecology of vertebrate species commonly found in Florida, as well as why some species are more vulnerable than others to environmental change. They should also be able to identify the major habitat associations (ecosystems) in the state and to link these associations with different fauna. Students should be able to discuss the major impacts of human activities on Florida's biodiversity, including the influence of exotics plants and animals, roadways, and habitat loss and fragmentation.

Course name: Wildlife of Florida laboratory
Course number: WIS3402L
Number of credits: 1
Instructor: Sunquist, Johnson (Plant City), Miller (Milton)
Semester offered: Spring, every year

Course content and learning objectives:
The course is designed to provide students with the opportunity to learn how to identify the common mammals, birds, reptiles and amphibians of Florida. By the end of the course students should be able to identify and know the Order, Family, Genus and species of common vertebrates in Florida. They should also know those unusual or unique morphological or life history characteristics associated with these species. Students should also be able to identify the calls of tree frogs and the calls of common bird species.

Course number: **WIS 3403C**
Course name: **Perspectives in Wildlife Ecology and Conservation**
Instructor: **Sieving**
Number of credits: **3**
Semester offered: **Fall, each year**

Course description and learning objectives:
This course offers each week 1 hour of lecture, 2 hours of lab, and 1 hour devoted to discussions of career and job options in Wildlife Ecology with guest professionals from local, state, federal, and NGO agencies.

- In lecture, the global (anthropogenic) factors that ultimately create wildlife conservation challenges are emphasized and explained. Students will understand how human population (growth, consumption) and societal forces (culture, economy, and behaviors) are driving environmental change and, in turn, how those changes are affecting wild species of organisms and natural ecosystems. Central topics include global views of human population and consumption issues, land cover and land use and climate change influences on wildlife communities, as well as global trends in achieving sustainability (e.g., successful large-scale ecosystem management and application of green economics). Classic case studies of causes and effect with respect to extinction, habitat degradation and loss, and successful conservation in the face of human impacts on biodiversity will be presented. Lectures also link course topics to other related courses, professors, programs, and experiences at UF to enhance professional development in wildlife conservation.
- Students experience first-hand, a variety of very real opportunities for jobs and careers in the diverse field of wildlife ecology and conservation. Guest professionals will speak each week - from a variety of agencies (public, private) that regularly hire WEC grads these folks give brief presentations about their work and organization, and then offer volunteer opportunities to students.
- Students gain experience with a variety of foundational academic and practical skills relevant to the field of WEC that will be useful in the WEC degree program and beyond. In lab, key issues in wildlife ecology and conservation are emphasized (e.g., ecological footprints, population modeling, fragmentation effects on functional connectivity) and relevant field and research skills are cultivated (e.g.,),
    - Using electronic databases and the internet to find credible scientific information,
    - Critiquing research papers and presentations, and formulating catalytic questions,
    - Keeping a field journal and recording objective observations of animals, plants and habitat conditions,
    - Research study design, data collection and assessment of hypotheses and predicted outcomes,
    - Use of GPS to gather spatial data and GIS (ArcMap) to visualize and analyze it.

Course name: Tropical Wildlife
Course number: WIS 3434
Number of credits: 3
Instructor: Bruna
Semester offered: Fall, every other year

Course content and learning objectives:

- To gain an understanding of the evolutionary and ecological factors that shape patterns of tropical diversity.
- To learn and evaluate the sustainability of some of the ways in which humans utilize tropical wildlife.
- To understand the threats faced by tropical ecosystems and explore alternatives for their conservation.

Although examples will be drawn from a variety of tropical ecosystems, the course will focus primarily on the Neotropics.

Specific topics to be covered include:

- Natural Selection and its importance in shaping tropical biotas
- Tropical soils, nutrient cycling, and energy flow
- Patterns and origins of tropical diversity
- Wet forests, Dry Forests, and Savannas
- Arthropods and their ecological roles
- Avian communities and the role of birds in ecological interactions
- Mammal diversity and ecology
- Factors structuring tropical communities (Neutrality, Janzen-Connell, etc.)
- Threats to Tropical Ecosystems: Deforestation and Fragmentation, Fire & Climate Change
- Impacts of Tropical Wildlife in the temperate zone
- Harvesting of tropical plants and animals, the bushmeat trade
- CITES, trade in tropical wildlife
- Strategies for Tropical Conservation

Lectures are complemented by readings and discussions of the primarily literature and a group project designed to explore topics with greater depth.

Course name: Introduction to Conservation Genetics
Course number: WIS3553
Number of credits: 3
Instructor: Austin
Semester offered: Spring, every year

Course content and learning objectives: This is a lecture based course that incorporates readings from the primary literature, and in class discussion to provide wildlife students with an introduction to the types of genetic polymorphisms found in nature, how neutral and adaptive genetic variation is organized, what evolutionary and demographic forces act to shape genetic polymorphisms, and how and why genetics are useful in population conservation and management. Students will be exposed to the theoretical basis for conservation genetics and practical applications of evolutionary theory. At the conclusion of the course students will be able to systematically apply principles of population genetics to problems in conservation and management of wildlife, and critique or defend conservation/population genetic information presented in the scientific literature. Specific learning objectives include:

- Students will be able to understand and apply the language of population genetics
- Students will know the Hardy-Weinberg model and apply it to basic single loci data
- Understand what biological factors cause populations to deviate from the H-W model
- Relate the significance of effective population size to the conservation and management of wildlife populations
- Explain the impact of small population sizes on genetic variation, and apply this knowledge to various real-life scenarios.
- Be able to critically assess the relative impact of genetic and demographic issues.

Course name: Introduction to Landscape Ecology
Course number: WIS4203C
Number of credits: 3
Instructor: Fletcher

Semester offered: Spring, each year.

Course content and learning objectives: This course combines lectures, labs, readings, and debates to identify and evaluate the central constructs of landscape ecology. Landscape ecology is a relatively new branch of ecology that focuses specifically on how spatial heterogeneity influences ecological patterns and processes. Landscape ecology has both basic and applied elements, and it is often grounded in interpreting ongoing anthropogenic change. In the first half of the semester, we learn common frameworks for studying landscape ecology, how to quantify landscape pattern, and we identify general drivers of landscape pattern. In the second half of the semester, we focus on how landscape patterns, such as habitat loss and fragmentation, influence wildlife ecology, management, and conservation. There are several major objectives for this course. Specifically, the objectives are for students to:
1) Identify the historical events leading to the development of landscape ecology;
2) Be exposed to basic tools relevant to studying landscape ecology;
3) Determine ways in which landscape ecological perspectives can be applied to wildlife management and conservation;
4) Critically evaluate important, current issues facing landscape ecology; and
5) Develop and refine critical thinking and communication skills.

Course name: Wildlife Habitat Management
Course number: WIS 4427C
Number of credits: 3
Instructor: Emma Willcox
Semester offered: Spring, every year

Course content and learning objectives: This course combines lectures, readings, in-class discussions, and field trips to provide students with an understanding of wildlife-habitat relationships and habitat management. The focus of the course is an exploration of various land management practices and their effects on wildlife habitats in Florida and across the US. The course explores management activities including prescribed fire, grazing, and mechanical and chemical treatments, and their applicability and impacts on wildlife of rangeland, farmland, forest, wetland, and urban ecosystems. In addition, it provides students with a background in habitat management philosophy and planning. The course provides students with the opportunity to utilize the knowledge and skills they have gained to prepare a management plan for a local wildlife management area.

Upon completion of the course, students will have an understanding of wildlife habitat management principles and practices used to create, maintain, and enhance habitat for the benefit of wildlife. They will be able to apply their knowledge and skills to manage a range of wildlife habitat types and to prepare a wildlife habitat management plan for a given area. By the end of the course students should be able to:

- Display an understanding of concepts related to wildlife-habitat relationships
- Explain habitat management terms and definitions.
- Debate a range of positions related to the philosophy of habitat management.
- Describe and contrast a variety of habitat management practices.
- Discuss management practices relevant to the management of different wildlife habitat types.
- Prepare a wildlife habitat management plan.

Course name: Wetland Wildlife Ecology
Course number: WIS4443C
Number of credits: 4
Instructor: Johnson (Plant City), Miller (Milton)
Semester offered: Spring bi-annually
Course content and learning objectives:

This course is designed to provide students with a basic understanding of the terminology, history, and ecological concepts associated with wetland ecology and the wildlife species that are dependant on wetlands. To this end lectures and discussions focus on answering the questions: What are wetlands? What makes wetlands unique and important? What are the ecological processes that make them unique? How do we classify wetland types? What are the wildlife species most commonly associated with and dependant upon wetlands? How do we identify these wetland wildlife species?

Fieldtrips are used to view different types of wetlands and the wildlife associated with them and provide students with experiential learning experiences. Wetland and wildlife professionals assist with fieldtrips (USFWS, Army CORP of ENGINEERS, State wetland delineators) and provide hands on exercises in wildlife identification, wetland delineation and wetland issues related to wildlife. Further, through lecture, fieldtrips, discussion and an exercise to develop a wetland management plan we explore the integration of ecological principles with political and economic realities which is necessary for the management, restoration and conservation of wetlands and the wildlife they support.

Following this course a student should have an understanding of:

- the structure, function and importance of major wetland types
- the types of animals that use wetlands, their abundance and distribution within and among wetlands, and their ecological roles and relationships
- various management practices used in wetlands and challenges facing the future of wetlands
- following this course a student should be able to identify representatives of wetland wildlife groups (birds, amphibians, mammals)

Course name: Introduction to Wildlife Population Ecology
Course number: WIS4501
Number of credits: 3
Instructor: Madan K. Oli
Semester offered: Spring, every year

Course content and learning objectives:
This course is designed to expose students to concepts and models in population ecology, and their application to conservation and management of wildlife populations. Instruction methods include lectures, computer exercises, in-class discussion of peer-reviewed journal articles. Objectives of the course are to provide students with a strong background on various models of population dynamics and species ineractions, and application of concepts and models in population ecology to conservation and management of wildlife populations. A summary of topics covered in this course follows:

- **Introduction**
  Population ecology: what and why? Population ecology as science.
- **Unstructured Population Growth Models**
  Models in population ecology; exponential logistic population growth models.
- **Structured Population Growth Models**
  Importance of age- and stage-structure; life table analysis; age- and stage-structured matrix population models.
- **Metapopulation Dynamics**
  Spatial structure of populations. Classical metapopulation (Levin's) model; Incidence Function model.
- **Population Viability Analysis (Pva)**
  Introduction to PVA: what, why and how? Components of PVA; overview of PVA models.
- **Population Regulation**
  Hypotheses of population regulation; population regulation vs. population limitation.
- **Population Cycles**
  Causes and consequences of population cycles in birds and mammals.
- **Species Interaction**
  Introduction to species interaction; models of infectious competition, predation and Dynamics If Infectious Diseases.
- **Life-History**
  Life-history traits; *r-K* selection and bet-hedging; life history trade-offs; Cole's dilemma: semelparity or iteroparity?
- **Wildlife Harvest**
  Maximum sustained yield; introduction to harvest models

Course name: Human Dimensions of Natural Resource Conservation
Course number: WIS 4523
Number of credits: 3
Instructor: Jacobson
Semester offered: Fall, every year.

Course content and learning objectives: The field of human dimensions of natural resource management focuses on how people's knowledge, values, and behaviors influence decisions about the conservation and management of natural resources. This course will provide an interdisciplinary overview, drawing from the social sciences and humanities, of the theory and practice of environmental communication, public participation, and integrated ecosystem management. Through the use of local and international case studies, the course will explore how we can incorporate information about people's desires, attitudes, and behaviors into the process of resource management. Topics will include conservation outreach campaigns, park interpretation and management, environmental education, sustainable development, ecosystem management, stakeholder assessment and environmental negotiation, and cultural aspects of conservation. Participants will develop practical skills in environmental communication and analysis of resource management issues, and an understanding of the development, implementation, and evaluation of the human dimensions of wildlife conservation programming. By the end of the course, students will be able to:

- Understand wildlife stakeholders
- Analyze audiences relevant to natural resource management issues;
- Write an editorial;
- Understand approaches for designing communications about conservation;
- Evaluate environmental interpretation materials;
- Understand ecosystem management approaches and interdisciplinary methods for addressing nature conservation;
- Analyze natural resource problems from gender, culture, and religion perspectives;
- Demonstrate environmental negotiation skills;
- Explain challenges of sustainable development;
- Articulate direct and indirect benefits of wildlife; and
- Work with a partner and in teams.

Course number: **WIS 4547C**
Course name: **Avian Field Research**
Instructor: **Sieving**
Number of credits: **2**
Semester offered: **Spring, every year**

Course description and learning objectives:

Wildlife Ecology is a field-based science discipline that trains students in the biology and conservation management of wildlife populations and ecological communities. Hands- (and Minds-) on experience with both the scientific process and field conditions under which research and natural systems management is conducted are essential types of exposure for our undergraduates. This course is an intensive, advanced experience encompassing both of these important learning objectives.

The most important objective is that students learn how to ask testable questions about nature, and how to go about designing a research study to test those questions, using rigorous approaches. Secondly, certain field skills related to birds are taught, and the students practice them with guidance.

- Essential skills for birding and natural history observation / record-keeping.
- Hypothesis-testing and the essentials of research study design in field ecology.
- Capture and handling of wild birds using mist nets, and 'in-hand' data collection - an introduction to the kinds of data that can be collected from a bird in the hand, and what kinds of research questions can be answered with these data.
- Bird population assessment and censusing techniques (transects / density estimation).
- Taped song playback techniques as a research tool (manipulation of territorial and predator-defense behavior).
- Quantifying bird behavior with a standard observational technique (focal animal sampling).

During the last 3 days of the course, students conduct a 'pilot' field research project of their own design, using techniques they've learned.

Course name: Conservation Biology
Course number: WIS4554
Number of credits: 3
Instructor: Lyn Branch
Semester offered: Fall, each year.
Course content and learning objectives:

Conservation biology is an interdisciplinary science that focuses on conservation of biological diversity at gene, population, species, ecosystem, landscape, and global levels. This relatively new discipline develops scientific and technical means for protection, maintenance, and restoration of ecological and evolutionary processes as part of biodiversity conservation. This course provides an overview of the discipline including the causes and consequences of biodiversity loss, established and emerging conservation approaches and strategies, and the ecological and evolutionary theory that underlies these approaches. The focus of this course is on ecological and evolutionary dimensions of conservation, rather than human dimensions which are covered in other courses (e.g., WIS 4523), though the human component is a central part of class discussions on biodiversity threats and the complexities of implementing science-based conservation policy and management . The course combines lectures, readings, in-class discussion, computer modeling exercises, and a variety of other writing exercises, with a special emphasis on *critical thinking, strategic problem solving, and global understanding.* All course activities require students to synthesize and integrate concepts from lectures/readings and their own experiences and apply this information to "real world" conservation problems. The format of the course encourages students to engage in discussion and debate.

By the end of this course, students will be able to:

- Understand the ecological and evolutionary principles that underlie biological diversity.
- Explain proximate and ultimate threats to biodiversity and consequences of biodiversity loss.
- Articulate the enormous responsibility humans have as global land stewards.
- Identify linkages among conservation problems across biological scales (genes to landscapes) and geographical scales (local to global).
- Demonstrate how ecological and evolutionary principles are applied to solving conservation problems.
- Apply critical reasoning skills to assessment, analysis, and synthesis of conservation problems and solutions

- Demonstrate a greater understanding of conservation problems in countries outside the US, as well as in the US, and cultural differences in perceptions of the problems and appropriate solutions.

Course name: Quantitative Wildlife Ecology
Course number: WIS4601C
Number of credits: 3
Instructor: Giuliano
Semester offered: Spring, every year

Course content and learning objectives: The goal of this course is to provide students with the training and experience necessary to think and solve quantitative problems as a professional wildlife ecologist—this will be demonstrated through an understanding of quantitative wildlife ecology principles and practices, and the application of knowledge to solve wildlife problems. Specifically, students will demonstrate knowledge and understanding in the areas of:

- Technical writing and data presentation
- Research and experimental design
- Sampling and sample size estimation
- Analysis of data
- Estimating animal numbers
- Estimating survival, reproduction, and movements
- Evaluating disease, nutrition, and condition
- Assessing habitat selection and space use
- Habitat evaluation
- Community analysis

Course name: Biogeography of Mammals
Course number: WIS 4934
Number of credits: 3
Instructor: Moulton
Semester offered: Fall each year

Course content and learning objectives: This course begins with the evolution of mammals and the diversity of Mesozoic mammals. This course includes a survey of evolutionary history, characteristics and zoogeography of major orders of mammals and covers topics such as the effects of continental drift on mammalian radiations. The course also explores ecological processes including population growth models, ecological interactions such as predation and competition, and mammalian community structure, as well as the phenomenon of mammalian introductions and impacts of introduced mammals on invaded ecosystems. The course is being developed to provide Wildlife Ecology students with an alternative course to Vertebrate Zoology.

Leaning Objectives: After this course students should be able to:

- Identify important events in the evolution of mammals
- Characterize Prototherians, Metatherians and Eutherians
- Elucidate the geographic distributions of the Prototherians and Metatherians, and the characterize orders in both of these subclasses
- Understand the notion of convergent evolution, and Darwin's centers of origins concept
- Understand the idea of the Hutchinsonian Niche and how it applies to mammals
- Differentiate between density-dependent and exponential population growth models
- Elucidate the processes interspecific competition, predation, and mutualism
- Give ten examples of introduced mammals and discuss their impacts in their new environments

Course name: Ecology and Management of Wildlife Invasions
Course number: WIS 4934
Number of Credits: 3
Instructor: Johnson
Semester offered: Spring, even years

Course content and learning objectives: This course teaches students about the myriad issues associated with biological invasions of vertebrate animals and especially familiarizes students with their impacts on native ecology, the economy, and the quality of life of people. This course focuses on the ecology and management of introduced and invasive wildlife species (herpetofauna are emphasized) and their effects at the community and ecosystem levels in Florida and elsewhere. In addition to instructor lectures and guest speakers, the course includes a laboratory component in which the students learn to identify many species of nonindigenous vertebrates that are established in Florida. There are also several field outings, including a 3-day trip to South Florida to observe and collect introduced species. This is a distance course offered to students in Gainesville and Plant City. Polycom (a videoconferencing system) is used to share information delivery to both sections of students simultaneously.

- Student will understand the pathways by which species are introduced to areas outside of their native ranges
- Students will be able to identify introduced vertebrates in the field and lab, and develop a working knowledge of the natural history of introduced animals in Florida
- Students will develop critical thinking skills via class projects, synthesis of scientific literature, and writing technical papers
- Students will become aware of the myriad of techniques and strategies used to prevent wildlife invasions and manage introduced species
- Students will understand the impacts of invasive animals on native species and ecosystems as well as people and economies

Additional information on the class is available at http://ufwildlife.ifas.ufl.edu/ecol_mgmt_wildlife_invasions.shtml.

Course name: Conservation of Amphibians and Reptiles
Course number: WIS 4934
Number of Credits: 3
Instructor: Johnson
Semester offered: Fall, even years

Course content and learning objectives: This course familiarizes students with current issues affecting conservation of amphibians and reptiles on local, regional, and global scales. Topics covered cut across multiple disciplines and include: habitat loss and fragmentation, diseases, sustainable use, climate change, and invasive species. Students also learn about general ecology, global diversity, and distribution of amphibians and reptiles. By the end of the class students understand many of the issues that impact herpetofauna in Florida, the US, and the world. Students also build their critical thinking skills via literature synthesis and summary, as well as develop their oral presentation skills. Information delivery consists of lectures/presentations, class discussion, assigned readings, and field outings. This is a distance course that is available to students in Gainesville and Plant City. Polycom (a videoconferencing system) is used to share lectures, presentations, and discussions between sites. There are several field outings to expose students to research and conservation projects and to allow students from both campuses to meet.

- Students will develop critical thinking skills via class discussion, and synthesis of scientific literature for a class presentation
- Students gain an appreciation for the diversity of amphibians and reptiles globally, regionally, and in Florida
- Students will understand and be able to explain the impacts of a diversity of factors that affect amphibian and reptile populations globally
- Students will learn a diversity of strategies used to mitigate negative impacts on amphibians and reptiles

Additional information on the class is available at http://ufwildlife.ifas.ufl.edu/cons_amphib_reptiles.shtml.

Course name: Wildlife Field Techniques
Course number: WIS4945C
Number of credits: 2
Instructor: Sunquist
Semester offered: Spring and Summer A, every year

Course content and learning objectives:
The course is designed to provide students with hands-on experience in a variety of wildlife field techniques, to allow students to learn procedures that ensures the safe and humane handling of animals as well as the safety of students, and to provide training opportunities for students in ongoing research projects.

The basic course includes field exercises with 1) small mammal trapping, identification, and handling; 2) mist netting, spot mapping and censusing of birds; 3) bucket trapping, drift-fence trapping, funnel trapping, and seining for reptiles and amphibians; 4) line-transect sampling for deer; 5) live-trapping, anesthesia, and handling, marking and measuring of meso-mammals; 6) background and use of radio-tracking techniques; 7) use of GPS/GIS equipment, range finders and compasses; and 8) use of immobilizing drugs and delivery systems for capture of free-ranging animals.

By the end of the course students should be familiar with the various trapping techniques used to conduct surveys for vertebrates, the advantages and disadvantages of the various methods, identification of species, how to safely handle animals, how to remove birds from mist nets, how to anesthetize mammals, how to mark, measure and sex and age animals, as well as the types of data that can be collected from captured animals. Students are also expected to be familiar with the use and operation of radiotelemetry equipment, GPS/GIS equipment, range finders, compasses and the Cap-chur gun.

Section 4.4 Graduate Programs

The Department of Wildlife Ecology and Conservation has maintained a sustained commitment to graduate excellence since its inception in 1994. This is commitment is manifest in the numerous strategic planning sessions conducted in the past 16 years dedicated to focusing on the state of the program and determining directions to maintain its currency, relevance, and excellence.

The Department offers three graduate degrees in the Wildlife Ecology and Conservation major. These are the following:

> The **Master of Science (MS)** thesis program in Wildlife Ecology and Conservation: (a) prepares graduate students for entry-level, professional positions in areas of wildlife biology and ecology, natural resource and conservation management, and (b) provides a solid, scientific foundation for further graduate work leading to the PhD degree.
>
> The **Master of Science, non-thesis (MS)** program in Wildlife Ecology and Conservation provides advanced training for students in technical and professional aspects of wildlife management, conservation, and public education, emphasizing written and oral communication of scientific information.
>
> The **Doctor of Philosophy (PhD)** program in Wildlife Ecology and Conservation serves graduate students conducting advanced, original studies of fundamental ecological and social sciences (e.g., ecosystem, community, landscape ecology, human dimensions), usually with applications to further society's understanding of wildlife ecology and to improve conservation of wildlife resources.

Any graduate program, be it the departmental research focal areas or the curriculum, are driven by individual faculty expertise. In this context, the Department of Wildlife Ecology and Conservation offers a breadth of graduate opportunities that are designed to prepare students for professional employment in conservation of natural resources in a changing world. WEC faculty teach, conduct research, and provide service and extension in avian ecology, behavioral ecology, community ecology, conservation biology, conservation education, conservation genetics, ecosystem management, environmental interpretation, habitat restoration, herpetofaunal ecology, human dimensions, international conservation, introduced species, landscape ecology, mammalian behavior, plant ecology, population biology, range ecology, systems ecology, tropical conservation, urban wildlife relations, wetlands ecology, wildlife diseases, and wildlife management.

This diversity of faculty expertise attracts and maintains a population of 60 to 70 graduate students, who are enrolled about equally in M.S. and Ph.D. programs. Most M.S. students are enrolled in the thesis degree option. The Department has graduated approximately 16 students graduate with a graduate degree per year since 2000 (not including students in SNRE and other programs with WEC faculty advisors). Of these, a

total of 105 MS Degrees (50 men, 55 women) (roughly 12 per year) and 43 PhD Degrees (25 men, 18 women) have been awarded.

Mission, Strategic Directions, and Initiatives

The Department's strategic plan, developed by departmental faculty, recognizes the importance of graduate education in our program. The Department's strategic plan sets the goal to **"develop and maintain a globally-recognized, top quality graduate program in wildlife ecology and conservation."** The direction is to be maintained by the following three initiatives:

- *Recruit the best students available into the program.* All admissions are cleared through a review process by the department's graduate program committee who recommend a final decision to the Department Chair. In addition to academic credentials all prospective students are evaluated for commitment to academic excellence, personal philosophy, expertise and values.

- *Review and enhance current graduate curriculum and training experiences to maintain a top quality program.* In recent years, the department has added a formal graduate course entitled "Foundations of Wildlife Ecology," created a graduate section specifically for graduates in "Conservation Biology," and regularly offers targeted topical courses as need and student interest demand.

- *Assess and enhance WEC graduate program's outputs and outcomes.* The Department regularly evaluates its programs and adjusts offerings and policies as necessary to accommodate student needs.

Administration of the Graduate Program

Graduate degrees are conferred through the Graduate School as guided by the Graduate Council. The Graduate School of the University of Florida is responsible for; 1) the enforcement of minimum standards of graduate work and 2) overall coordination of graduate programs at the University. As an umbrella organization, the Graduate School cuts across academic disciplines (such as colleges and departments) and is managed by a Dean, a Director of Graduate Minority Programs, the Graduate Council, and the graduate faculty from all academic disciplines.

The Graduate School sets minimum requirements and provides overall coordination, but the responsibilities for setting detailed requirements and managing operations of the departmental graduate program is vested with the Department's faculty. Therefore, students must satisfy both the Graduate School and departmental requirements in order to obtain a graduate degree.

The Department Chair appoints a Graduate Coordinator for the Department who chairs the Graduate Program Committee. The Graduate Coordinator oversees administration of the program and represents the Department at the College of Agricultural and Life Sciences (CALS) and University levels. The Department's

Graduate Program Committee Chair is supported by the Academic Services Coordinator in the Student Services Office. This team works closely with the CALS Office of the Dean, the Graduate School, and other University offices including International Affairs and the Office of the Registrar.

Within the general criteria set by the Graduate School, the Graduate Program Committee serves to develop policy recommendations for consideration by the faculty and considers exceptions as they may occur.

The Department has prepared and maintains a copy of a Graduate Student Handbook on the Departmental web site.

Admission Requirements

The Department routinely receives approximately 65 (2008-2009) applications per year. This number is probably a poor indication of actual interest, as most students "informally" apply with faculty members by exchanging correspondence and submitting directly with faculty members without formally submitting application materials to the Department. This type of individual correspondence between faculty and students is highly encouraged and is a standard part of the application process for most students in the department. Typically around 15 students are admitted each year in a process driven heavily by individual faculty interest and availability. The table below summarizes admission credentials for the Academic Years 2008 and 2009. The GRE scores for these years are very typical of those over the past several years, are generally been the highest Departmental scores in all of CALS except for in the School for Natural Resources and the Environment (SNRE). The slightly lower verbal scores likely reflect to the high proportion of international students admitted into the program, for whom English is not their first language.

Year	Admitted: PhD & MS	Mean GRE Combined	Mean GRE Verbal	Mean GRE Quantitative
2008	15	1222	565	657
2009	15	1175	524	651

In recent years the Department has moved from a process shaped strongly by strict numerical criteria for admission to a more broad-based assessment of the full suite of qualifications of a student.

1. Prospective graduate students are required to obtain agreement by a faculty member in the Department to serve as Graduate Advisor and Chair of the student's Supervisory Committee before admission can occur. Prospective students must contact prospective advisors with research interests in common to their own, and establish a mutual understanding with a faculty member who agrees to serve as Graduate Advisor. Applications to the department can be made before this to facilitate establishment of contacts between prospective students and advisors, but students will not be admitted without an Advisor.

2. An earned bachelor’s degree is required for admission to the MS or PhD program.
3. An earned Master's degree or its equivalent is required for admission to the PhD program; under very rare circumstances this requirement can be waived, if students have experiences equivalent to those obtained in an MS program at the time of admission.
4. An upper division undergraduate GPA of 3.2 or the equivalent is strongly recommended.
5. A graduate GPA of 3.2 or the equivalent is strongly recommended for admission to the PhD program.
6. Three appropriate letters of recommendation (for MS or PhD program), including a favorable recommendation from the Master’s program advisor (for the PhD program).
7. A combined score of 1200 (Verbal and Quantitative portions) of the GRE is recommended.
8. If English is not the native language, a score of 550 (paper based) or 213 (computer based) or more on the TOEFL. If the earned Bachelor’s or Master's degree is from an English-speaking institution, the TOEFL is not required.

Admission process

The formal process of admission of new graduate students into the Department begins when a faculty member identifies a student that he or she is interested in advising. At that point, the faculty member identifies the prospective student to the Graduate Program Committee Chair and Academic Services Coordinator for full consideration. Only applicants whom faculty wish to accept and advise will be evaluated by the Graduate Program Committee.

Once formal application materials are complete and on file in the Department Academic Services office, the Graduate Program Committee Chair distributes the application materials to three members of the Graduate Program Committee for review. The admissions review sub-committee for a particular candidate will be selected by the Graduate Program Committee Chair and will vary among candidates, so that the responsibility for evaluation is shared similarly by all members of the Graduate Program Committee with the exception of the Graduate Program Committee Chair. The Graduate Program Committee Chair will deal primarily with administrative issues, and the Graduate Program Committee Chair will not be directly involved in reviewing applications for admission or funding.

This sub-committee does not meet in person to discuss applications, but evaluate applications regularly with the goal of evaluating each candidate within two weeks of receiving the application. The sub-committee will evaluate each proposed applicant on a three-category scale: 1) No reservations – recommend admitting; 2) Some possible concerns – minor concerns or reservations; and 3) Serious reservations. Applicants

receiving two category 2 assessments, or one category 3 assessment, will be referred to the full Graduate Program Committee for broader review. Otherwise, the applicant will be recommended for admission to the Department Chair.

Applications for admission will be reviewed by the Graduate Program Committee using this process as applications are received, but applicants requiring a full review will only be reviewed at formal meetings of the full Graduate Program Committee. The full Graduate Program Committee will meet formally at least three to four times per year, at times determined and announced at the beginning of each academic year established to reflect University and College deadlines for matching assistantships, fellowships, and Alumni awards.

Recommendations for admission of graduate students are made to the Department Chair who is ultimately responsible for the admission decision at the departmental level.

Graduation and degree requirements

Graduate students in the program are required to select one of three areas of emphasis for their degree program: Ecology, Quantitative Analysis, or Human Dimensions. The student, in consultation with the academic advisor, selects the Area of Emphasis that best matches research and professional goals. Students are required to select 6 courses to form the core of their degree coursework, distributed among these emphasis areas. Students with an Area of Emphasis in Ecology must select 3 courses in Ecology, 2 courses in Quantitative Analysis, and 1 course in Human Dimensions. Students with and Area of Emphasis in Quantitative Analysis must select 3 courses in Quantitative Analysis, 2 courses in Ecology, and 1 course in Human Dimensions. Those with an Area of Emphasis in Human Dimensions must select 3 courses in Human Dimensions 2 courses in Ecology, and 1 course in Quantitative Analysis. The overall structure of the graduate degree in Wildlife Ecology and Conservation is designed to be highly flexible to accommodate student needs. Graduate students are highly recommended to take *Foundations of Wildlife Ecology and Conservation* and *Research Design in Wildlife Ecology*, but these courses are not required and enrollment is contingent on student needs and the direction set by the student's graduate committee.

Summary of MS Degree (Thesis) Credit Requirements

- The minimum course work required for a master's degree with thesis is 30 credits including no fewer than 18 credits of regular course work and up to 6 credits in thesis research.
- At least 9 graduate semester credit hours of regular course work must be in the major field (WIS courses).
- This can be supplemented with up to 9 credit hours of graded course work in other departments (3 credit hours of Statistics 5000 level or higher are required).
- WIS 6933 Seminar (S/U) 1 credit hour is required
- Minimum registration in the final term is 3 semester credit hours of 6971 in the fall and spring semesters or 2 in the summer.

- Undergraduate courses (3000-4999) not to exceed 6 credits for support course work outside the major when taken as part of an approved graduate program, and the grade is a B or better.
- All course work, including thesis course work, must be completed during the 7 years immediately preceding the date on which the degree is to be awarded. This includes transfer credits.

Summary of MS Degree (Non-Thesis) Credit Requirements

- The minimum course work required for a master's degree (non-thesis) option is 30 credits including no fewer than 24 credits of regular course work (no more than 6 credits of courses with S/U option).
- At least 13 graduate semester credit hours of regular course work must be in the major field.
- All course work, including thesis course work, must be completed during the 7 years immediately preceding the date on which the degree is to be awarded. This includes transfer credits
- Completion of thesis (if required) and passing a final oral exam.

Summary of PhD Degree Requirements

- Master's Degree in WEC or equivalent (can transfer up to 30 credit hours for graduate level graded courses with grades of B or better).
- An additional 60 hours of credit of which a minimum (suggested) are WIS courses for a total of 90 credit hours.
- Completion of qualification exams (written and oral), and passing a final oral defense of dissertation

Current Program Statistics

Number of graduate students enrolled in the WEC graduate Program (2009-20010) has varied over the years between 55 to 70 with a mean of 60 over the past 5 years. Previous to the inception of SNRE the number varied between 80 and 90. The gender make-up is 48% female and 52% male and students of color comprise approximately 20% of the student body. The percentage of international students has remained relatively constant around 20% since 2002. The program is roughly in equilibrium between admissions and graduations.

More than 90% of the graduate students in the program receive some form of financial support, the most common being graduate assistantships. The majority of students (65% of students) are funded through Graduate Research Assistantships provided by the grants and contracts of the faculty. The Department typically has

resources to support 5-6 Graduate Teaching assistantships (9% of students). In addition, CALS provides 1 to 2 Alumni Awards each year to recruit and support PhD students and additional resources for matching funds derived from grants and contracts (typically enough to support 3 or 4 students each year). Fulbright scholarships are a common source of support for international students.

Of PhD students graduating in recent years, 42% went forward into positions in academia, 47% moved into positions with governmental conservation and management agencies, and 1% went to work for NGOs or consultants. We currently have no data regarding MS Degree placement, but suspect it is similar to trends for the PhD. We suspect a shift has occurred recently as a result of current economic trends resulting in a larger proportion of the PhD's being placed in conservation agencies than in academia.

Section 4.5 Recent graduate student theses (2004-2009; students at the University of Florida with WEC faculty advisors)

Last name	First name	Advisor	Sex	Ethnicity	Country of origin	Research location	Degree	Year graduated	Thesis/Dissertation Title
Dixon	Jeremy	Oli	M	Caucasian	US	US	MS - SNRE	2004	Conservation genetics of the Florida black bears
Duberstein	Jamie	Wiley Kitchens	M	Caucasian	US	US	MS - SNRE	2004	Tidal forest communities of the lower Savannah River Floodplain
Espinosa	Santiago	Jacobson	M	Hispanic	Ecuador	Ecuador	MS - WEC	2004	Evaluation of an environmental education program for the Andean bear in an Ecuadorian protected area
Evans	Meredith	Sunquist	F	Caucasian	US	Kenya	MS - SNRE	2004	Prey density and land use changes as possible factors affecting a decline in cheetah populations in the Nakuru Wildlife Conservancy, Kenya
Garrison	Elina	Oli	F	Caucasian	Finland	US	MS - WEC	2004	Reproductive ecology, cub survival and denning ecology of Florida black bears
Hylton	Rebecca	Frederick	F	US	US	US	MS - WEC	2004	Survival, movement patterns, and habitat use of juvenile wood storks, Mycteria americana
Kappes	John, Jr.	Sieving	M	Caucasian	US	US	MS - WEC	2004	Heterospecific use of red-cockaded woodpecker cavities.
Knowles	Hal	Hostetler	M	Caucasian	US	US	MS - SNRE	2004	Preserving wildlife habiats in residential developments
Long	Christopher	Sunquist	M	Caucasian	US	US	MS - WEC	2004	Non-thesis
Malloy	Kate	Wiley Kitchens	F	Caucasian	US	US	MS - WEC	2004	Nekton community composition and use of tidal marshes in the lower Savannah River during drought conditions
Morris	Julie	Jacobson	F	Caucasian	US	US	MS - WEC	2004	Quantitative evaluation of a boater education program for manatee protection.
Moyer	Melissa	Oli	F	Caucasian	US	US	MS - WEC	2004	Spatial ecology of Florida black bears

Muench	Ann Marie	Kitchens	F	Caucasian	US	US	MS - WEC	2004	Evaluation of littoral zone habitat usage by herpetofaunal and fish assemblages in Lake Tohopekaliga, (Kissimmee Chain-of-Lakes, Central Florida)
Paredes	Alejandro	Frederick	M	Hispanic	Honduras	Belize	MS - WEC	2004	Status, distribution, habitat requirements, and foraging ecology of the jabiru stork (jabiru mycteria) in northern and central belize, central america
Prizzia	Anna	Hostetler	F	Caucasian	US	US	MS - WEC	2004	Residential environmental education program
Rice	Amanda	Ross	F	Caucasian	US	US	MS - WEC	2004	Diet and condition ofAmerican Alligator (Alligator mississippiensis) in three central Florida lakes
Rice	Amanda	Percival	F	Caucasian	US	US	MS - SNRE	2004	Diet and condition of American alligators (Alligator mississippiensis) in three central Florida lakes.
Shepherd	Ben	Miller	M	Caucasian	US	US	MS - WEC	2004	Why people love trees: implications for land management.
Welch	Zachariah	Wiley Kitchens	M	Caucasian	US	US	MS - WEC	2004	Monitoring littoral vegetation community composition and distribution on a central Florida lake
Bennett	Jason	Pine	M	Caucasian	US	US	MS - FAS	2005	Using acoustic telemetry to estimate natural and fishing mortality of common snook in Sarasota Bay, Florida
Bokach	Matthew	Frederick	M	US	US	Africa and US	MS - WEC	2005	The relative influences of predation and prey availability on ardeid breeding colony site selection
Castellon	Traci	Sieving	F	Caucasian	US	Chile	PhD - WEC	2005	Avian landscape ecology and sustainable patch networks
Marks	Lisa	Jacobson	F	Caucasian	US	Bahamas	MS - WEC	2005	Participatory planning for recreation management in Abaco National Park, Bahamas
Milleson	Michael	Sieving	M	Caucasian	US	Chile	MS - WEC	2005	Modeling mechanisms of arrested succession in south-temperate rainforest oldfields.
Paschall	Marlyn	Sunquist	F	Caucasian	US	US	MS - WEC	2005	Non-thesis
Powers	Erik	Kitchens	M	Caucasian	US	US	MS - SNRE	2005	Dynamics and resilience of vegetation communities in the Everglades subjected to hydrological alterations

Smithem	Jodie	Mazzotti	F	Caucasian	US	US	MS - SNRE	2005	Risk Perceptions of and Acceptance Capacity for the American Crocodile (Crocodylus acutus) in South Florida
Swiman	Elizabeth	Hostetler	F	Hispanic	US	US	MS - WEC	2005	Web site and sustainable development
Trager	Matthew	Bruna	M	Caucasian	US	Costa Rica	MS - SNRE	2005	plant age, experimental nutrient addition and ant occupancy on herbivory in a neotropical ant-plant.
Voigt	Maena	Sunquist	F	Caucasian	US	US	MS - WEC	2005	Non-thesis
Lumban-Tobing	Sarah	Miller &Thetford	F	Indonesian	US	US	MS - SNRE	2006	Habitat relationships of the double-crested whatever-it-was in northern Mexico.
Arnett	John	Tanner & Miller	M	Caucasian	US	US	MS	2006	Post-disturbance dynamics in relative influence of spatial scales on pineland birds
Brush	Janell	Kitchens	F	Caucasian	US	US	MS - WEC	2006	Wetland bird community responses to restoration activities in Lake Tohopekaliga, FL.
Dawson	Dan	Hostetler	M	Caucasian	US	US	MS - WEC	2006	Edge avoidance by urban birds
Fiske	Ian	Bruna	M	Caucasian	US	US, Brazil	MS - WEC	2006	Sampling methods for demographic analysis of plant populations
Gopalaswamy	Arjun	Sunquist	M	Indian	India	India	MS - WEC	2006	Estimating sloth bear abundance from repeated presence-asbsence data in Nagarahole-Bandipur National Parks, India
Hetrick	Stacia	Sieving	F	Caucasian	US	US	MS - WEC	2006	Vocal signaling of risk by tufted titmice.
Kinlaw	Al	Moulton	M	Caucasian	US	US	PhD - WEC	2006	Burrows of semi-fossorial vertebrates in upland communities of Central Florida: their architecture, dispersion, and ecological consequences
Nester	Lindsay	Ross & Frazer	F	Caucasian	US	US	MS - SNRE	2006	Effects of off-road vehicles on the nesting activity of loggerhead sea turtles in North Carolina.
Olson	Jeremy	Sunquist	M	Caucasian	US	US	MS - WEC	2006	Evaluation of remote, infra-red-triggered cameras as a population survey technique for wild turkeys

Ozgul	Arpat	Oli	M	Caucasian	Turkey	US	PhD - WEC	2006	Metapopulation dynamics of yellow-bellied marmots
Pries	Alex	Branch	M	Caucasian	US	US	MS	2006	Hurricane impacts on coastal dunes and spatial distribution of Santa Rosa beach mice (Peromyscus polionotus leucocephalus) in dune habitats
Pries	Alexander	Branch & Miller	M	Caucasian	US	US	MS	2006	Hurricane impacts on coastal dunes and spatial distribution of Santa Rosa beach mice (Peromyscus polionotus leucocephalus) in dune habitats
Raymer	Josiah	Miller &Thetford	M	Caucasian	US	US	MS	2006	Gulf coast barrier island restoration: public demonstration and education, production practices for the beach plant Iva imbricata, and restoration with composite plantings
Romero	Marisa	Hostetler	F	Hispanic	US	US	MS - SNRE	2006	Sustainable development policies
Stahl	Justyn	Oli	M	Caucasian	US	US	MS - SNRE	2006	Demographic and fitness consequences of delayed dispersal in the cooperatively breeding acorn woodpecker
Stolen	Eric	Percival	M	Caucasian	US	US	PhD - WEC	2006	Wading bird ecology on Merritt Island, Florida
Waddle	James	Mazzotti	M	Caucasian	US	US	PhD - WEC	2006	Use of amphibians as ecosystem indicator species
Waddle	Hardin	Percival	M	Caucasian	US	US	PhD - WEC	2006	The ecology and management of the amphibians of Big Cypress National Preserve, Florida
Adams	Evan	Frederick	M	US	US	US	MS - WEC	2007	Effects of chronic and low methylmercury exposure on juvenile White Ibises (Eudocimus albus)
Annis	Kim	Sunquist	F	Caucasian	US	US	MS - WEC	2007	The impact of translocation on nuisance Florida black bears
Candelora	Kristen	Percival	F	Caucasian	US	US	MS - WEC	2007	Infectious bursal disease in whooping cranes in Florida
Casler	Michelle	Mazzotti	F	Caucasian	US	US	MS - SNRE	2007	Hydrographic relations of amphibians in the Everglades
Cattau	Christopher	Kitchens	M	Caucasian	US	US	MS - WEC	2007	Effects of the invasive exotic apple snail (Pomacea insularum) on the Snail Kite (Rostrhamus sociabilis plumbeus) in Florida,

Hoffmann	Kristine	Johnson	F	Caucasian	US	US	MS - WEC	2007	Testing the influence of Cuban Treefrogs (Osteopilus septentrionalis) on native treefrog detection and abundance.
Karim	Annisa	Main	F	Middle-East?	US	US	MS - WEC	2007	Status and use of tropical hardwood hammocks and forested residential areas as habitat for resident and neotropical migratory birds in the Florida Keys.
Klowden	Gregg	Moulton	M	Caucasian	US	US	PhD - WEC	2007	Distribution and life history of two non-indigenous geckos Hemidactylus garnotii and H. mabouia in southwest Florida
Langin	Cynthia	Jacobson	F	Pacific Asian	US	US	MS - SNRE	2007	Quantitative study of public support for Florida panther (Puma concolor coryi) recovery
Liebowitz	Dina	Jacobson	F	Caucasian	US	Bahamas	MS - WEC	2007	Assessing stakeholder support and preferences for marine protected area management on Andros Island, Bahamas
Marcinkiewicz	Lauren	Pine	F	Caucasian	US	US	MS - FAS	2007	Examining seasonal movement and habitat use patterns of adult common snook
Martin	Julien	Kitchens	M	Caucasian	France	US	PhD - WEC	2007	Effects of habitat fragmentation on the movements and demography of the snail kite.
Morgan-Brown	Theron	Jacobson	M	Caucasian	US	Tanzania	MS - SNRE	2007	Butterfly farming and conservation behavior in the East Usambara Mountains of Tanzania
Noiseux	Krystal	Hostetler	F	Caucasian	US	US	MS - WEC	2007	Green development and homeowner behavior
Nomani	Saif	Oli	M	Asian	US/ Pakistan	US	MS - WEC	2007	Analysis of wildlife abundance estimation methods using real and simulated data
Roznik	Elizabeth	Johnson	F	Caucasian	US	US	MS - WEC	2007	Terrestrial ecology of juvenile and adult gopher frogs, Rana capito.
Solomon	Jennifer	Jacobson	F	Caucasian	US	Uganda	PhD - WEC	2007	An evaluation of collaborative resource management and the measurement of illegal resource use in a Ugandan national park
Van Doorn	Annamaria	Moulton	F	Caucasian	US	Asutralia	PhD - WEC	2007	Ecology and conservation of the Purple-crowned Fairy Wren (Malurus coronatus coronatus), in the Northern Territory, Australia

Williams	Kate	Frederick	F	US	US	US	MS - WEC	2007	Biases in population estimation for colonially nesting Great Egrets (Ardea alba) and White Ibises (Eudocimus albus) in the Florida Everglades
Bowling	Andrea	Kitchens	F	Caucasian	US	US	MS - WEC	2008	Dispersal probabilities of juvenile snail kites in an increasingly degraded landscape
Bugbee	Christopher	Mazzotti	M	Caucasian	US	US	MS - SNRE	2008	Radiotelemetry of American alligators
Burgess	Oliver	Pine	M	Caucasian	US	US	MS - FAS	2008	Importance of floodplain connectivity to fish populations in the Apalachicola River, Florida
Butler	Jason	Austin	M	Caucasian	US	US	MS - WEC	2008	Phylogeography of box turtles
Cabal	Marioano Rodriguez	Branch	M	Hispanic	Argentina	Argentina	MS	2008	Habitat assessment for threatened marsupial in termperate forest of Patagonia
Carr	Susan	Tanner	F	Caucasian	US		PhD - WEC	2008	Floristic and environmental variation of pyrogenic
Coggins	Lewis	Pine	M	Caucasian	US	US	PhD - FAS	2008	Active adaptive management for native fish conservation in the Grand Canyon: Implementation and evaluation
DeLuca	John	Sieving	M	Caucasian	US	US	MS - WEC	2008	Assessing farms as ecological traps for Eastern Bluebirds, and pest control capability of bluebirds on farms
DeSa	Melissa	Kitchens	F	Caucasian	US	US	MS - SNRE	2008	Extreme habitat modification and Its effect on herpetofaunal and fish communities on Lake Tohopekaliga, FL
Diaz	Ivan	Sieving	M	Hispanic/ Native American	Chile	Chile	PhD - WEC	2008	Epiphyte–bird interactions and ecosystem services in Chilean rainforest canopy
Edgaonkar	Advait	Sunquist	M	Indian	India	India	PhD - WEC	2008	Ecology of the leopard in Bori Wildlife Sanctuary and Satpura National Park, India
Flowers	Henry	Pine	M	Caucasian	US	US	MS - FAS	2008	Age-structured population model for evaluating Gulf Sturgeon recovery on the Apalachicola River, Florida
Hotaling	Althea	Kitchens	F	Caucasian	US	US	MS - WEC	2008	Wet prairie conversion in Water Conservation Area 3A, South Florida
Iacona	Gwen	Bruna and Kirkman	F	Caucasian	US	US	MS - WEC	2008	Seedling recruitment of understory species in the longleaf pine savanna

Jeffrey	Brian	Mazzotti	M	Caucasian	US	US	MS - SNRE	2008	Ecology of small mammals in Big Cypress National Preserve
Miller	Gabriel	Johnson	M	Cuacasian	US	US	MS - WEC	2008	Home range size, habitat associations, and refuge use of the Florida pine snake, Pituophis melanoleucus mugitus, in Southwest Georgia, USA.
Pitt	Amber	Ross & Nickerson	F	Caucasian	US	US	MS - SNRE	2008	Influence of a naturally generated thermal gradient on freshwater turtle populations and community composition.
Ramos	Luis	Jacobson	M	Hispanic	El Salvador	El Salvador	PhD - SNRE	2008	The Mesoamerican Biological Corridor: effects of communication processes on perceptions of key stakeholders and the public about natural areas
Reetz	Matthew	Sieving	M	Caucasian	US	US	PhD - WEC	2008	Characterizing the invasion of brown-headed cowbirds in Florida
Soto	Jose	Giuliano	M	Hispanic	Guatemala	Guatemala	MS - WEC	2008	Patterns and determinants of human-carnivore conflicts in the tropical lowlands of Guatemala.
Tetzlaff	Jakob	Pine	M	Caucasian	US	US	MS - FAS	2008	Energetic consequences of habitat loss: trade-offs in energy acquisition and expediture by Micropterus salmoides
Wald	Dara	Hostetler	F	Caucasian	US	US	MS - WEC	2008	Open space and Florida policy
Zweig	Christa	Kitchens	F	Caucasian	US	US	PhD - WEC	2008	Vegetation ecology of an impounded wetland: Information for landscape–level restoration
Reichert	Brian	Kitchens	M	Caucasian	US	US	MS - WEC	2009	A multi-state analysis on the effects of wetland-specific mechanistic processes on snail kite survival.
Shoger	Bradley	Kitchens	M	Caucasian	US	US	MS - WEC	2009	Terrestrial vertebrate use of created spoil islands on Lake Tohopekiliga, FL
Aaltonen	Kristen	Oli	F	Caucasian	US	Canada	MS - WEC	2009	Population ecology of the endangered Vancouver Island marmot
Atkinson	Benjamin	Ross	M	Caucasian	US	US	MS - SNRE	2009	Community ecology of creek dwelling freshwater turtles at Nokuse Plantation, Florida
Belford	Alan	Jacobson	M	Caucasian	US	US	MS - WEC	2009	non-thesis

Borkhataria	Rena	Frederick	F	Cuban American	US	US	PhD - WEC	2009	Modeling population dynamics and habitat suitability of endangered wood storks (Mycteria americana) in the Southeastern U.S."
Carter	Cameron	Percival	M	Caucasian	US	US	MS - SNRE	2009	Detectability of alligators during night-light surveys
Chaves-Didier	Willandia	Sieving	F	Hispanic	Brazil	Brazil	MS - SNRE	2009	Bird communities and logging in Amazonia
Dotson	Devin	Jacobson	M	Caucasian	US	Chile	MA - LAS	2009	A content analysis of conservative and liberal newspaper coverage of climate change in Santiago, Chile
Hobby	Mary	Giuliano	F	Caucasian	US	US	MS - WEC	2009	Land-use and upland game bird abundance in Florida.
Ketterlin	Jennifer	Mazzotti	F	Caucasian	US	US	MS - SNRE	2009	Wildlife use of tree islands in the Everglades
Martin	Jason	Branch	M	Caucasian	US	US	Ph.D	2009	Are barn owls (Tyto alba) biological controllers of rodents in the Everglades Agricultural Area?
Pietrek	Alejandro	Branch	M	Hispanic	Argentina	Argentina	MS	2009	Assessment of the importance of plantations for the Araucaria Tit Spinetail (Leptasthenura setaria) in Argentian
Rota	Christopher	Fletcher	M	Caucasian	US	US	MS - WEC	2009	Confronting assumptions of occupancy estimation and species distribution models: the problem of detectability in wildlife populations
Sakurai	Ryo	Jacobson	M	Asian	Japan	Japan	MS - SNRE	2009	Public attitudes toward bears in Japan
Schad	Brandon	Giuliano	M	Caucasian	US	US	MS - WEC	2009	Reproductive ecology of resident and translocated bobwhites on south Florida rangelands.
Singh	Aditya	Oli	M	Asian	India	US	MS - WEC	2009	Ecology and management of Northern bobwhite quail on the Webb Wildlife Management Area, Florida
Welch	Zachariah	Kitchens	M	Caucasian	US	US	PhD - SNRE	2009	Restoring pattern without process in lake restoration: A large-scale littoral habitat enhancement project on Lake Tohopekaliga, FL.

Section 4.6 Graduate course teaching responsibilities

Course Number	Course Title	Credit Hours	Semester Offered	Instructor
WIS 5496	Research Design in Wildlife Ecology	3	Fall	Sieving
WIS 5521	Plant-Animal Interactions	3	Fall, even year	Bruna
WIS 5555C	Conservation Biology	3	Fall	Branch
WIS 6444	Advanced Wetlands Ecology	4	Summer	Kitchens
WIS 6452	Wildlife Ecology	3	TBA	Giuliano
WIS 6455	Wildlife Population Ecology	3	Spring	Oli
WIS 6466	Wildlife Population Modeling	3	Spring, even year	Oli
WIS 6468C	Pattern and Process in Landscape Ecology	3	Spring	Fletcher
WIS 6525	Environmental Interpretation	3	Fall, even year	Jacobson
WIS 6543	Wildlife and Agriculture	3	TBA	Giuliano
WIS 6544	Administration in Natural Resources	3	Spring	Percival
WIS 6575	Mammalian Carnivores: Conservation and Management Issues	2	Spring, odd year	Sunquist
WIS 6578	Human Dimensions of Biolgical Conservation	3	Fall, odd year	Jacobson
WIS 6933	Seminar	1	Fall, Spring	TBA
WIS 6934	Foundations of Wildlife Ecology: Theory and Application	3	Fall	Hayes

WIS 6934	Introduction to Conservation Genetics	3	Spring 2010	Austin
WIS 6934	Molecular Ecology	3	Spring 2009	Austin
Wis 6934	Systematic Reviews in Conservation Biology	2	Spring 2008	Austin
WIS 6934	Geographical Genetics	3	Spring 2007	Austin
WIS 6934	Stream Fish Biology	4	Spring 2010	Pine
WIS 6934	Marine Turtle Biology Seminar	2	Spring 2009	Carthy
WIS 6934	Big Game Ecology	3	Spring 2009	Giuliano
WIS 6934	Upland Game Bird Ecology	3	Spring 2008 Spring 2010	Giuliano
WIS 6934	Wildlife and Agriculture	3	Fall 2007	Giuliano
WIS 6934	Ecology of Fire	3	Spring 2007	Tanner
Wis 6934	Population Estimation	3	Spring 2007	Tanner
WIS 6934	South Florida Ecosystems	3	Summer 2008	Frederick
WIS 6934	Landscape Ecology	3	Fall 2007 Spring 2008	Fletcher
WIS 6934	Tropical Wildlife	3	Fall, odd year	Bruna
WIS 6934	Climate Change	1	Spring 2008	Didier
WIS 6934	Coastal Plain Ecosystems	2	Summer 2006 Summer 2007 Summer 2008	Smith
WIS 6934	Salamandar Biology	3	Spring 2009	Nickerson

Section 4.7 Descriptions of graduate courses taught

Course name: **Research Design in Wildlife Ecology and Conservation**
Course number: **WIS 5496**
Instructor: **Sieving**
Number of credits: **3**
Semester offered: **Fall, each year**

Course content and learning objectives: WIS 5496 is designed for graduate students studying ecological disciplines related to conservation during the developmental phase of the research and degree program. This course focuses primarily on the strategy of developing research projects, not on the tactics for executing them. Over the course, students develop a complete research proposal with theory, design and sampling strategies in place. Activities complimenting lecture material and readings include discussion, independent and group projects and presentations in class, homework, two exams, and a polished research proposal (in two parts).

This course has the following major learning objectives:

- Comprehensive understanding of hypothetical-deduction, and hypothesis testing criteria and modes.
- Understanding of the nature of 'theory' (systems of knowledge), its relationship to application, the structure and ontogeny of ecological theory, how theory supports any research endeavor, and how theory frameworks are constructed and tested.
- A basic grasp of the philosophy of science and, in particular, how the emerging philosophy of ecological science diverges from historical natural science philosophy, and the role of philosophy in research.
- Ability to discuss and employ the essentials of sampling and statistical design for data collection, and common sampling constraints faced by field ecologists (and how to work with them).
- Ability to explain how conservation objectives affect the ways they practice and use scientific logic, inference, and investigative and analytical processes.

Specific topics covered include

- Hypothesis Testing Logic under Ecological Paradigms
- Experimental, Comparative, & 'Case Study' Designs
- Scientific Inference, Explanation, and Causality
- Falsification, Confirmation; Reductionism, Holism
- Science Philosophy most Relevant to Ecology
- Sampling Design, Power Analysis, & Sample Size Estimation
- Selecting Appropriate Field and Statistical Methods
- Research Proposal Development and Defense
- Research Ethics and Ethical Rationality in Conservation Science

Course name: Plant-Animal Interactions
Course number: WIS 5521
Number of credits: 3
Instructor: Bruna
Semester offered: Fall, every other year

Course content and learning objectives:

The interactions between plants and animals are one of the most important forces structuring ecological communities. They are also being altered by human activities in ways whose consequences are not fully understood. This course is an introduction to the evolutionary ecology of plant-animal interactions and their consequences for individuals, populations, communities, and ecosystems.

By the end of the course, students will:

- Be able to explain the general ecological and evolutionary principles underlying different types of plant-animal interactions.
- Be able to critically evaluate research in the field's major sub-disciplines
- Be aware of the experimental and theoretical approaches used to study plant-animal interactions.

- **Specific topics to be covered include:**

- Evolution & coevolution of plant-animal interactions
- Herbivory (Plant Defense, Herbivore Offense)
- Granivory, Seed predation
- The ecology of Grazers, Browsers, and Mammalian Herbivores
- Frugivory, seed dispersal and their consequences for plant populations
- Pollination (attraction mechanisms, pollinator behaviour)
- Toxic Fruits and Nectar
- Ant-Plant Interactions (herbivory, mutualisms, seed dispersal)
- Carnivorous plants
- Plant-Animal Interaction Networks
- Anthropogenic Impacts on Plant-Animal Interactions

Lectures are complemented by readings and discussions of the primarily literature and a group project designed to explore topics with greater depth.

Course name: Conservation Biology
Course number: WIS5555
Number of credits: 3
Instructor: Lyn Branch
Semester offered: Fall, each year.
Course content and learning objectives:

Conservation biology is an interdisciplinary science that focuses on conservation of biological diversity at gene, population, species, ecosystem, landscape, and global levels. This relatively new discipline develops scientific and technical means for protection, maintenance, and restoration of ecological and evolutionary processes as part of biodiversity conservation. This course provides an overview of the discipline including the causes and consequences of biodiversity loss, established and emerging conservation approaches and strategies, and the ecological and evolutionary theory that underlies these approaches. The focus of this course is on ecological and evolutionary dimensions of conservation, rather than human dimensions which are covered in other courses (e.g., WIS 6578), though the human component is a central part of class discussions on biodiversity threats and the complexities of implementing science-based conservation policy and management . The course combines lectures, readings, in-class discussion, computer modeling exercises, development of conceptual models of conservation problems, and a variety of other writing exercises. This course places special emphasis on *critical thinking, strategic problem solving, and global understanding.*

By the end of this course, students will be able to:

- Understand the ecological and evolutionary principles that underlie biological diversity.
- Explain major proximate and ultimate threats to biodiversity and consequences of biodiversity loss.
- Identify linkages among conservation problems across biological scales (genes to landscapes) and geographical scales (local to global).
- Demonstrate how ecological and evolutionary principles are applied to solving conservation problems.
- Synthesize and integrate concepts from the primary literature on conservation biology and apply this information to novel settings/questions.
- Apply critical reasoning skills to assessment, analysis, and synthesis of conservation problems and solutions.
- Think critically about current research in conservation biology and understand how it relates to or redefines the science of conservation.

Course name: Advanced Wetlands Ecology
Course number: WIS 6444
Number of credits: 4
Instructor: Wiley Kitchens
Semester offered: Summer C

Course content and learning objectives: This course is designed to provide advanced level graduate students with career interests in wetlands a foundation to comprehend the complex ecological structure and functioning of the major wetland ecosystems of North America. The course is intended to be complimentary of most wetlands ecology courses that focus on generalizing wetland properties. This course focuses on the various specific types of wetlands, elaborating the ubiquitous and unique relationships that form, structure, and maintain the ecologic integrity of these systems through time. The goal is to develop a comprehensive understanding of wetland systems through an individual and comparative examination of the following:

- Geologic origin and ontogeny of the various wetland types,
- Relations of biota to surface and ground water hydrology,
- Structuring and regulating of ecologic processes by soil and water chemistries,
- Vegetation composition and response to gradients of depth, hydroperiods, nutrients, and salt,
- Faunal associations characteristic to and dependent on specific wetland types, and
- Ecological processes critical to the systems evolution and continued persistence.

Particular emphasis is placed on issues associated with competing demands for the use of wetlands and their resources. The interested student should obtain an understanding the critical structuring and functioning of these systems in their broad regional contexts as well as issues, vulnerabilities and in formation pertinent to the restoration of degraded systems.

The course is very reading intensive utilizing selected scientific publications and the community profile series published by the U.S. Fish and Wildlife Service as the primary information source for lecture materials.

Students are required to develop summations for assigned significant referenced materials and present these reviews to the class. The responsible student and the instructor lead a class discussion on the appropriate topic. The course includes required field trips: 2 day trips to local systems, and 2 long weekend multi-night trips. These trips provide the students with real and virtual emersion in the topic system, introduces them to professionals in the field, and provides them with opportunities to observe the interface of science and practice in situations where restoration projects are underway.

Course name: Wildlife Population Modeling
Course number: WIS6455
Number of credits: 3
Instructor: Madan K. Oli
Semester offered: Spring

Course content and learning objectives: Matrix population models are standard tools for the study of life history and population dynamics of age- or stage-structured populations. These models have become popular in population biology because they can be applied to organisms with diverse life-histories and population structures. This course is designed to provide a rigorous background in theory of matrix population models, and application of these tools to address basic and applied ecological questions. Relevant concepts in matrix algebra will be reviewed to provide necessary mathematical background. Computer exercises will involve analysis of real-life data using MATLAB and other programming languages. By the end of the semester, students will: (1) have a thorough understanding of the process of modeling the dynamics and persistence of biological populations; (2) be able to construct and analyze life tables, and age- and stage- structured matrix population models; (3) be able to conduct prospective and retrospective perturbation analyses and population viability analysis; and (4) be able to apply matrix population models to address basic and applied ecological questions using MATLAB and other software packages. A summary of topics covered in this course follows:

- **Introduction**
  Review of unstructured population growth models; life-table analysis
- **Age- and stage-structured models**
  Model parameterization; population projection; sensitivity and elasticity analysis.
- **Parameter estimation**
  Estimation of transition probabilities and reproductive parameters
- **Analysis of life table response experiments (LTRE)**
  Overview of LTRE analyses; fixed effect and random effect designs
- **Analysis of transient population dynamics**
  Damping ratio, and population momentum; sensitivity analysis of transient dynamics
- **Stochastic models**
  Environmental stochasticity; demographic stochasticity
- **Population viability analysis using matrix models**
  Estimation of growth and persistence parameters using matrix population models
- **Density-dependent models**
  Density-dependent influences on population dynamics, density-dependent matrix models
- **Matrix metapopulation models**

Course name: Pattern and Process in Landscape Ecology
Course number: WIS6468C
Number of credits: 3
Instructor: Fletcher

Semester offered: Spring, each year.

Course content and learning objectives: This course combines lectures, labs, and discussion to identify and evaluate the central constructs and methods of landscape ecology. Landscape ecology is a relatively new branch of ecology that focuses specifically on how spatial heterogeneity influences ecological patterns and processes. Landscape ecology has both basic and applied elements, and it is often grounded in interpreting ongoing anthropogenic change. In the first half of the semester, we learn common frameworks for studying landscape ecology, how to quantify landscape pattern, and we identify general drivers of landscape pattern. In the second half of the semester, we focus on how landscape patterns influence ecology, management, and conservation. Throughout, we read and discuss both real-world problems as well as basic theory relevant for using landscape ecology as an effective framework for ecology and conservation. For each topic, we not only critically examine the current state of the science, but we will also dive into the details of the approaches used to investigate the topic, including the use of spatial statistics, simulation modeling, and GIS. Throughout, we will discuss both real-world problems in ecology, management, and conservation as well as basic theory relevant for using landscape ecology as an effective framework for ecology and conservation. There are several major objectives for this course. Specifically, the objectives are for students to:
1) Identify the historical events leading to the development of landscape ecology;
2) Learn and implement sampling designs and tools relevant to studying landscape ecology;
4) Critically evaluate important, current issues facing landscape ecology; and
5) Develop and refine critical thinking and communication skills through group collaborations.

Course name: Environmental Interpretation
Course number: WIS 6525
Number of credits: 3
Instructor: Jacobson
Semester offered: Fall, even years.

Course content and learning objectives: Environmental interpretation is an integral part of natural resource management. Environmental interpretation involves the design, implementation and evaluation of programming about the environment for a variety of audiences and settings, including parks, nature centers, zoos, and communities. It is a communication process designed to reveal to the public meanings and relationships of biological and cultural resources through experiences with objects, organisms, and landscapes. Techniques range from public presentations to printed materials and the use of mass media. This course explores the theoretical basis for designing programs and practical techniques for effective environmental interpretation. Readings and assignments are drawn primarily from the fields of communication, environmental education, resource management, social psychology, and public relations.

The class will be conducted in a lecture, discussion and interactive format. Field trips and hands-on activities will provide experience in the development and evaluation of interpretive techniques and audiences. A group project will allow participants to assess audience needs and design interpretive materials for a local natural area. Students are responsible for weekly readings, group activities, writing assignments, classroom presentations, participation in all field trips (including a week-end field trip), a group project, and a research presentation.
Upon completion of this course, students will understand and demonstrate competency in the following:

- Philosophical and theoretical foundations of environmental interpretation
- Communication and learning theory as it relates to interpretation
- Audience research methods for planning and programming
- Personal and non-personal techniques for effective interpretation
- Use of interpretation for solving natural resource management problems
- Methods of evaluating the effectiveness of interpretive programs
- Skill in designing, implementing, and assessing interpretive techniques, such as interpretive talks, walks, publications, and audio-visual materials
- Ability to work in groups

Course name: Administration in Natural Resources
Course number: WIS6544
Number of credits: 3
Instructor: Percival
Semester offered: Spring, each year.

Course content and learning objectives: Generally, natural resource workers are extremely motivated/dedicated individuals. The educational focus is entirely scientific whereas the eventual application often has more to do with budgets, personnel management, program development and interactions with the public, the media, superiors, legislators, etc. Too often, the natural resource worker's vocation is his/her avocation, religion, and sole source of social contact and business is the enemy. This course provides a primer for what will inevitably consume the largest share of a professional's life. This is a classical seminar in which students take an active role in leading and participating in discussions. Administrators of significant natural resource organizations also appear as guests participants. Instructor is present at each class meeting to provide additional guidance, detail, and experience to class discussion. Class size is limited to 12 students to encourage individual involvement.

Students choose among the myriad topics available on the subject. Often choices are made because the student has faced or is facing an issue with that subject. Typical examples of topics covered in a semester are: human behavior, history and characteristics of bureaucracies, obtaining resources (competing for internal funding, grants, and contracts), budgeting and spending, hiring and firing, leadership, effective supervision and being supervised, efficient and effective meetings, time management, politics and policy, finding a job, strategic planning/adaptive management/structured decision making, workplace safety, manners and social graces, and personal life management.

Course name: Mammalian Carnivores: Issues in Conservation and Management
Course number: WIS6575
Number of credits: 2
Instructor: Sunquist
Semester offered: Spring in odd-numbered years

Course content and learning objectives: This course is designed to introduce graduate students to the terrestrial mammalian carnivores, including their evolutionary history, life history traits, biology, ecology, and behavior as well as the conservation and management issues facing this mammalian order. A different topic is reviewed each week and each student is responsible for leading one of these discussions.

In the most recent course offering, review topics included the Ecology, behavior and evolution of carnivores, Ecological energetics of carnivores, Importance of food to carnivore demography, Communication in the Carnivora, Carnivore social organization, Life history traits and extinction risk, Importance of disease in carnivore populations, Reintroductions/translocations: Conservation options?, Prey selection in mammalian carnivores, Carnivore-human conflicts, Estimation of population size, Non-invasive techniques to study carnivores, and Reproduction in the Carnivora.

By the end of the course the students should be knowledgeable of the complex issues associated with conservation and management of mammalian carnivores. They should also be familiar with the most recent literature on the various review topics. They should also have acquired the skill and confidence needed to debate issues that require critical thought.

Course name: Human Dimensions of Biological Conservation
Course Number: WIS 6578
Number of credits: 3
Instructor: Susan Jacobson
Semester offered: Fall, odd years.

Course content and learning objectives: The field of human dimensions of biological conservation focuses on how people's knowledge, values, and behaviors influence decisions about the conservation and management of natural resources. This course will provide an interdisciplinary overview, drawing from the social sciences and humanities, of the theory and practice of environmental communication, public participation, and integrated ecosystem management. Through the use of local and international case studies, the course will explore how we can incorporate information about people's desires, attitudes, and behaviors into the process of resource management. Topics will include conservation outreach campaigns, park interpretation and management, environmental education, sustainable development, ecosystem management, stakeholder assessment and environmental negotiation, and cultural aspects of conservation. Participants will develop practical skills in environmental communication and analysis of resource management issues, and an understanding of the development, implementation, and evaluation of the human dimensions of wildlife conservation programming.

By the end of the course, students will be able to:

- Understand wildlife stakeholders
- Analyze audiences relevant to natural resource management issues;
- Write an editorial;
- Understand approaches for designing communications about conservation;
- Evaluate environmental interpretation materials;
- Understand ecosystem management approaches and interdisciplinary methods for addressing nature conservation;
- Analyze natural resource problems from gender, culture, and religion perspectives;
- Demonstrate environmental negotiation skills;
- Explain challenges of sustainable development;
- Articulate direct and indirect benefits of wildlife;
- Enhance presentation skills; and
- Work with a partner and in teams.

Course name: Introduction to Conservation Genetics (first offered in 2010)
Course number: WIS6934
Number of credits: 3
Instructor: Austin
Semester offered: Spring, even years

Course content and learning objectives: This course is designed as an introduction to population genetics for graduate students in WEC and other natural resource programs having no previous courses in population genetics or evolution. This is a lecture and discussion focused course that incorporates readings from the primary literature, and in class discussion to provide students with an introduction to the types of genetic polymorphisms found in nature, how neutral and adaptive genetic variation is organized, what evolutionary and demographic forces act to shape genetic polymorphisms, and how and why genetics are useful in population conservation and management. This course is being taught for the first time in spring 2010 and lectures will be augmented by primary literature readings and discussions.

Specific learning objectives include:

- Students will be able to understand and apply the language of population genetics in their scientific discourse.
- Explain the impact of small population sizes on genetic variation, and apply this knowledge to various real-life conservation and management scenarios.
- Be able to critically assess the relative impact of genetic and demographic issues.

Course name: Molecular Ecology
Course number: WIS6934
Number of credits: 3
Instructor: Austin
Semester offered: Spring, odd years

Course content and learning objectives: Classes involve lectures and discussions of multiple weekly assigned readings, worked examples, and student led tutorials on analytical tools for topics ranging from dispersal to breeding systems to population structure. Students examine the utility of molecular genetic approaches to the study of animal and plant ecology, evolution, and conservation. Students learn a breadth of applications of analytical tools and the theory and assumptions underlying their proper use. Students are evaluated by an exam and their individual and group projects. Objectives for learning include:

- Students will learn to understand the importance of understanding and evaluating the underlying assumptions of analytical approaches.
- Students will learn how to critically evaluate and interpret output from multiple applications that emphasize current topics in molecular ecology.
- Students will build on their graduate experience by developing presentation and teaching skills.

Course name: Foundations of Wildlife Ecology and Conservation
Course number: WIS6934
Number of credits: 3
Instructor: Hayes
Semester offered: Fall, each year.

Course content and learning objectives: This course combines lectures, readings, and in-class and on-line discussion to examine the foundational theories and concepts underlying the field of wildlife conservation and ecology. The course is designed to give graduate students breadth in the relevant ecological and social sciences, and an understanding of the ways that theory informs application in conservation. The course is conducted under the leadership of one faculty member, but with significant contributions from most faculty members in the Department Wildlife Ecology and Conservation; most sessions involve one or more guest faculty. The course is structured to maintain continuity in general goals and format among topics and sessions, while providing students with an introduction to many of the faculty in the Department of Wildlife Ecology and Conservation and instruction in course topics led by an instructor with interest and background in the area. The course is reading intensive, with students reading four articles from the primary literature in a typical week. Learning and professional development objectives for the course include:

- Students will develop an understanding of the basic conceptual foundation and theory underlying the field of wildlife ecology and conservation, and will be able to apply that understanding to "real-world" conservation and management issues.
- Students will develop an understanding of the classic literature and some important contemporary papers illustrating concepts and theories of interest.
- Students will develop an understanding of the way that first principles, conceptual foundations, and pertinent theory can inform research (including their own graduate research), and the way that that research (including their own) can in turn inform theory and help build foundational concepts.
- Students will develop an understanding of linkages between theory and practice in wildlife ecology and conservation.
- Students will hone their critical thinking skills, and will develop their abilities to
- Students will build on their network of professional and academic colleagues through establishing relationships with fellow classmates and the suite of professors involved in teaching the class.

Course name: Wildlife and Agriculture
Course number: WIS6943
Number of credits: 3
Instructor: Giuliano
Semester offered: Spring, odd years

Course content and learning objectives: The goal of this course is to provide students with the understanding, training, and experience necessary to think and solve problems as a professional wildlife ecologist and manager working in agricultural systems—this will be demonstrated through an understanding of basic principles of wildlife ecology and management and the application of knowledge to solve wildlife problems in agricultural landscapes. Specifically, students will demonstrate knowledge and understanding in the areas of:

- Historical trends in agricultural land-use & its effects on wildlife
- Farm and range landscapes
- Crop production
- Orchards, plantations, & nurseries
- Range, pasture & hayfield management
- Silvopasture & other agroforestry practices
- Water issues & agrichemicals
- Agriculture as ecological sacrifice
- Integrated pest management
- Wildlife damage & control
- Organic farming
- Wildlife & hunting as alternative agricultural enterprises
- Laws, policies, & programs for wildlife in agricultural landscapes
- Sustainable agriculture, whole farm planning, & landscape perspectives

Section 4.8 Statewide Teaching Programs

Faculty in the Department of Wildlife Ecology and Conservation (WEC) support the CALS statewide teaching program in Natural Resource Conservation (NRC) by delivering courses on-site at two Research and Education Centers (RECs). Bachelor of Science degrees in NRC are currently available to students at the West Florida Research and Education Center at Milton (in the western Florida panhandle) and the Gulf Coast Research and Education Center in Plant City (in central Florida), as well as students on the main UF campus in Gainesville. The NRC major is jointly administered by WEC and the School of Forest Resources and Conservation (SFRC). Dr. Debbie Miller teaches a diversity of undergraduate courses at in Milton and Dr. Steve Johnson teaches courses at Plant City. Over the past decade, Miller and Johnson taught or co-taught 13 different courses on-site at their respective RECs (see list below). Several of their courses were offered to students in Gainesville via distance delivery to support the NRC and WEC degree programs on the main campus. Miller and Johnson also contribute to undergraduate and graduate instruction in Gainesville by delivering guest lectures in WEC and SFRC courses. Additionally, students at the RECs travel to Gainesville to take WEC's field-based Wildlife Techniques class (WIS 4945), which has facilitated a minor in Wildlife Ecology for a majority of NRC students at the RECs.

Courses taught during the past 10 years by WEC faculty at RECs in Milton and Plant to support the NRC major (statewide) and the WEC major (Gainesville):

- Wildlife Ecology and Management WIS 3401
- Wildlife Ecology and Management Lab WIS 3401L
- Wildlife of Florida WIS 3402
- Wildlife of Florida Lab WIS 3402L
- Wetland Wildlife Ecology WIS 4443
- Invasion Ecology and Amphibians and Reptiles WIS 4934
- Conservation of Amphibians and Reptiles WIS 4934
- Natural Resource Sampling FNR 3410
- Natural Resource Communication FNR 4040
- Integrated Natural Resource Management FNR 4623
- Topics in Invasive Species FOR 4934
- Ecology and Restoration of Longleaf Pine Ecosystems FOR 4110/5159
- Plant Communities of the Florida Panhandle ALS 4935/5935

The structure of the statewide NRC program is currently being reevaluated by faculty in SFRC and WEC. Although details of the restructuring have yet to be determined, this new approach is likely to include increased use of distance education.

Section 5.1 Overview of Departmental research

Virtually all of the research conducted by the Department of Wildlife Ecology and Conservation is conducted to enhance our knowledge and understanding of the conservation and ecology of wildlife, habitats, and natural systems. Within this scope, faculty and students in the Department are engaged in a wide breadth of research activities, at spatial scales ranging from microhabitats to global phenomena, evaluating levels of organization ranging from molecular genetics to ecosystem responses, assessing temporal scales ranging from rapid behavioral responses to multi-generational consequences, and working with taxa ranging from plant species, to invertebrates, fish, reptiles, amphibians, birds, and mammals. This work is generating new knowledge that also spans significant breadth, including the ecology of wildlife populations, conservation of wildlife habitats, human perspectives on conservation, approaches to managing eco-friendly human communities, spatial dynamics of natural populations, behavioral ecology, plant-animal interactions, and a diverse suite of other topics. Departmental research programs are directed by a wide breadth of drivers, including intellectual curiosity, conservation need, funding availability, opportunistic occurrences, knowledge gaps, institutional capacity, stakeholder needs, research paradigms, and a diverse suite of other factors. The research done by the Department geographically ranges from the University campus in Gainesville to the mountains of Asia.

This breadth of research makes it challenging to characterize and bound the Department's programs in a simplistic framework. Moreover, the Department's research enterprise is a highly organic and dynamic entity, combining long-term directed efforts with transitions into new and emerging cutting edge topics. In attempt to characterize the general flavor of the type and breadth of research activities in the Department, here programs are categorized into five broad and overlapping categories (Conservation Biology, Spatial Ecology, Wildlife Conservation and Management, Wetlands Ecology and Conservation, and Human Dimensions in Wildlife Conservation). Rather than a comprehensive look at all the Department research, this overview presents a sampling of activities to provide a general snapshot of the types of research the Department is engaged in.

Conservation Biology. Conservation and management of biological diversity at genetic, species, population, and ecosystem levels, using approaches that incorporate technologies such as remote sensing, molecular genetics, and modeling, have been a strong focus of WEC faculty for many years. Focal points of this research include assessment of critical linkages across biological and landscape scales, habitat fragmentation, fire effects, invasive species, sustainable use of ecosystems, and the interrelations of cultures, economics, and political processes, all with a goal of increasing our understanding and identifying innovative practical solutions for dealing with the biodiversity crisis.

<u>Examples of programs:</u>

- *Conservation genetic approaches and wildlife conservation (Dr. James Austin).* This work incorporation of molecular tools with "traditional" approaches to studying conservation issues, such as the effects of fragmentation and land use on

patterns of dispersal and identification of population units of conservation. Projects include assessment of the effects of habitat choice on demographics and genetic characteristics in Florida mice, identification of evolutionary significant units and management units in Florida bog frog and Okaloosa daters, landscape genetics of amphibians and freshwater fishes, and mating systems of American alligators.

- *Conservation of Everglades crocodilian populations (Dr. Frank Mazzotti).* This work focuses on the ecology and conservation of Florida's two native species of crocodilians, the American alligator (*Alligator mississippiensis*) and American crocodile (*Crocodylus acutus*), in the Everglades. Specific projects include approaches for using alligators and crocodiles as indicators of health of the Everglades ecosystem, predator-prey relationships, influences of alligators on habitat structure, hydrologic relationships of crocodilian populations, and approaches to monitoring crocodilians.

- *Ecology and Conservation of Mammalian Carnivores (Dr. Mel Sunquist).* This work focuses on how best to manage mammalian carnivores, especially those whose populations are rapidly becoming isolated, fragmented, and existing within increasingly humanized landscapes. Research efforts emphasize an understanding of the species in an environmental or landscape context, against which future changes can be assessed or predicted. Specific projects include evaluation of the ecology and population status of tigers in a primary rainforest of peninsular Malaysia, the impacts of subsistence hunting on jaguar and puma populations in the Maya Biosphere Reserve, Guatemala, and the population ecology of leopards in Satpura National Park, India.

- *Effects of Fragmentation on Plant Population Dynamics (Dr. Emilio Bruna).* There remains significant gaps in our understanding of the effects of fragmentation on plant population dynamics; this work seeks to address key knowledge gaps with a focus on conservation implications using a combination of demographic surveys, manipulative experiments, and models. This project uses populations of the Amazonian understory herb *Heliconia acuminata* in 13 permanent plots at Brazil's Biological Dynamics of Forest Fragments Project as a model system for evaluating key questions. Specific projects include evaluation of the spatial dynamics of plant recruitment and the influence of disperser behavior, stochastic demography of plants in fragments and continuous forest, and effects of genotype and environment on plant growth and physiology.

Spatial Ecology. Since the publication of The Fragmented Forest by Dr. Larry Harris in 1984, the department has been highly active in the field of spatial ecology. Landscape ecology is concerned with how species respond to habitat patterns at multiple spatial scales, how human activities alter those patterns over large areas, and how such changes influence the ecology and the conservation of biodiversity. Many of the departmental

current faculty participate in landscape ecology research in Florida and throughout the world.

Examples of programs:

- *Spatial dynamics of wildlife populations (Dr. Rob Fletcher).* This program focuses on development, testing, and implementation of novel and exciting ways to approach large-scale problems arising from intense anthropogenic pressures in Florida and locations throughout the world. This work uses basic and applied principles of landscape and spatial ecology to approach this topic, drawing from intensive and extensive field data, experiments and quantitative modeling. Specific projects include interpreting the effects of biofuels expansion on biodiversity across the U.S., providing management guidelines for minimizing impacts of human recreation on the endangered Florida panther, and the development of decision support tools based on avian distributions for managing forests across the Pacific Northwest.

- *Ecology and conservation of species in patchy habitats (Dr. Lyn Branch).* This program focuses on the dynamics of patchily distributed species and the feedbacks between these species and the ecosystems and landscapes they inhabit. Specific projects include assessment of the role of ecosystem engineers in structuring communities and controlling ecosystem processes in semiarid ecosystems of Argentina and in the longleaf pine ecosystem of Florida, demography and metapopulation dynamics of mammals and lizards in fragmented habitats, and behavioral landscape ecology of species in ephemeral landscapes (e.g., beach mice populations in coastal dunes).

- *Ecology and conservation of forest birds (Dr. Katie Sieving).* This research seeks to characterize behavioral and ecological mechanisms (e.g., risk aversion, predation) underlying processes (e.g., local movements, habitat selection) and defining interspecific interactions that influence bird species distributions and population viability in fragmented and disturbed (primarily agriculture-dominated) forest landscapes. Specific projects include conservation ecology of endemic forest birds in south-temperate rainforest, integrating bird conservation with Florida agroecosystems, and the ecology and management of isolated red-cockaded woodpecker populations in Central Florida.

Wildlife Conservation and Management.

Research directly relevant to management of wildlife and their habitats is an important focus of the Department. Departmental faculty work closely with stakeholders in Florida and elsewhere to pursue important applied research questions using approaches integrating modeling and empirical approaches.

Examples of programs:

- *Effects of forest management activities on wildlife (Dr. Holly Ober).* This research evaluates the ways that disturbance events can alter composition and age structure of forest vegetation, which in turn influences resource availability for wildlife. Projects include evaluation of the influence of timing and frequency of prescribed burning in pine forests on bat communities, and the short- and long-term influence of repeated pine straw harvest on arthropod abundance and community composition.

- *Integration of wildlife management and land use practices (Dr. Bill Giuliano).* This research focuses on biological and socio-economic aspects of wildlife and their management in actively managed environments, such as working ranches, and focuses on integration of wildlife management and other land-uses, particularly agriculture. Specific projects include the influences of fire and roller chopping on wildlife, the ecology of bobwhite quail in Florida, and nesting habitat selection of turkeys.

- *Population ecology of mammals (Dr. Madan Oli).* This research program integrates field data and models to address basic and applied ecological questions. Projects include application of partial life cycle models to population dynamics and evaluation of the demographic mechanisms underlying population dynamics of natural populations.

- *Ecology of introduced animal populations (Dr. Mike Moulton).* This work focuses on the ecology of introduced vertebrates, with special interest in introduced birds and lizards. Specifically, questions concerning why some species tend to succeed in most places where they have been introduced whereas others tend to fail, and why species introductions tend to succeed in some places but not others are considered. Projects include biogeography and community ecology of introduced geckos in Florida and spread of the Eurasian Collared Dove, and numerous species of introduced parrots in Florida.

Wetland Ecology and Management. The Department has several faculty actively engaged in research, teaching, and extension activities focused on wetlands ecology, and the Department has developed a statewide and national reputation for this work. Focal points of departmental research in this area include predicting community dynamics in relation to hydrology, nutrients and other management activities, management and restoration of crocodilians, Everglades restoration, river and lake restoration, coastal zone management, wetland ecotoxicology, endangered wetland species recovery and management, and optimal waterfowl management.

Examples of programs:

- E*cology and conservation of wading birds (Dr. Peter Frederick).* This work focuses on understanding ecology of wading birds and wetland processes both for their own sake and as guides to restoration and conservation activities, with an emphasis on ecological processes that create habitat and anthropogenic factors influencing ecological systems. Specific projects include evaluation of the effects of sublethal contamination with pesticides, herbicides and heavy metals on wading birds, effects of human disturbance on Wood Stork nesting success and breeding behavior in the Brazilian Pantanal, and interactions between wading bird and alligator populations.

- *Processes structuring aquatic ecosystems and fish communities (Dr. Bill Pine).* This work focuses on key conservation issues concerning the interface of imperiled species and anthropogenic impacts. Specific projects include evaluation of the role of an introduced apex predator in structuring coastal Atlantic slope rivers, modeling trends in Gulf sturgeon populations in several Florida rivers, habitat use and exploitation patterns of common snook in Sarasota Bay and the Caloosahatchee River, and the influence of flow regimes on endangered Colorado River fishes in the Grand Canyon.

- *Ecosystem structure and wildlife use of wetland habitats (Dr. Wiley Kitchens).* This work evaluates factors regulating ecological structure and function in degraded wetland ecosystems using a combination of ecological modeling and empirical techniques, and assesses ecological relationships of wildlife in wetland communities. Specific projects include assessment of the influences of hydrological modification on ecology of deltaic wetlands in the Lower Savannah River, influences of altered hydrology and nutrient loading on vegetative communities in the Everglades, and population biology of the snail kite.

Human Dimensions in Wildlife Conservation. Research on the human dimensions of wildlife conservation focuses on how people's knowledge, values, and behaviors influence and are affected by decisions about the conservation of wildlife and management of natural resources. Our Department's efforts in this area emphasizes interdisciplinary approaches that encompass the theory and practice of environmental communication, public participation, natural resource economics, and the process of integrated ecosystem management.

Examples of programs:

- *Human dimensions of natural resource management (Dr. Susan Jacobson).* This work focuses on the social dimensions of natural resource management, emphasizing development of environmental education, interpretation, and public outreach programs. Specific projects include evaluation of community-based conservation programs in Africa, design and assessment of conservation

education and outreach for Latin American protected areas, and evaluation of public knowledge and attitudes about endangered species and resource management in Florida.

- *Urban wildlife, green communities, and eco-friendly development (Dr. Mark Hostetler).* This research explores how landscape structure and land use affects the distribution of wildlife communities in urban environments, and the role of environmental education programs to increase public awareness and participation in eco-friendly developments and increase people's awareness and interaction with wildlife and the environment. Specific projects include influences of human communities on wildlife populations, and the efficacy of conservation education on sustainable practices in human communities.

Section 5.2 Research scholarship (2004-present for all faculty in the Department in 2009).

In press

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Ahlering, M. A., D. Arlt, M. G. Betts, **R. J. Fletcher, Jr.,** J. J. Nocera, and M. Ward. *In press*. Research needs and recommendations for the use of conspecific attraction methods in the conservation of migratory birds. Condor.

Brandt, L. A., M. R. Campbell and **F. J. Mazzotti**. Submitted. Spatial distribution of alligator holes in the Central Everglades. Southeastern Naturalist.

Campbell, K. R., T. S. Campbell, and **S. A. Johnson**. In press. The use of PVC refugia to evaluate spatial and temporal distributions of native and introduced treefrogs at a natural area in West-central Florida. Florida Scientist.

Cardoso, E. M. I. Cruzeiro Moreno, **E. M. Bruna**, and H. L. Vasconcelos. In press. Vegetation dynamics in the Cerrado: 18 years of ecological succession at Estação Ecológica do Panga (Uberlândia, MG). Caminhos de Geografia.

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Section 6.1 Overview of extension program

WEC's Extension mission is to serve, advise, and develop educational programs for Florida citizens in conjunction with county extension agents and other state, county, and local organizations interested in wildlife and other natural resources issues. Extension programs and activities are oriented toward the use, conservation, management, and appreciation of wildlife resources. We reach a broad audience of rural and urban stakeholders, including government agencies and NGOs, policymakers and planners, developers and built environment professionals, large landowners and homeowners, school teachers and students, county extension faculty and the general public.

The State of Florida expects to see its population grow from 17 million to approximately 36 million by the year 2060. About 80% of the population currently lives in urban areas, with urban denizens expected to increase further in the near future. However, much of Florida's land area remains undeveloped and is owned by both large and small private landowners. How Florida grows in the near future, and the persistence of many wildlife species, is dependent on decisions made by the public. Urban growth management and rural land conservation are primary issues in Florida as many of our current impacts on wildlife populations stem from growth management decisions and the conversion of rural lands to urban. Pressures on the environment have increased conservation concerns; landowners, developers, municipalities, and the general public are interested in conserving Florida's natural heritage. One bit of evidence for the public's interest in conserving the natural environment stems from a Florida Citizens' Viewpoint 1999 Survey. Respondents of a public survey indicated the following as "high priority" educational program needs for their communities: prevention of water pollution (72%), protecting the marine environment (64%), and conservation of wildlife habitat and endangered species (50%).

WEC's extension programs are integrated to achieve the fundamental goal of conserving and restoring native biodiversity. Our strategy is to reach those decision-makers that impact the land, both large and small properties, rural and urban, and coastal and terrestrial landscapes. Often with the stroke of a pen, individual decisions cumulatively can alter landscapes to a point where biodiversity is compromised. We use several tactics to reach a broad range of people. For example, one tactic is to create educational programs and products that are easily adopted by county extension agents and are delivered in their respective districts. We also use mass media, create partnerships with public and private organizations statewide, nationally, and internationally, and tap into the vast network of volunteers across Florida. Ultimately, we are creating a statewide group of educated and engaged citizens and professionals working towards the goal of biodiversity conservation, management and restoration.

Section 6.2 Extension programs

The programs developed by WEC faculty are divided into three broad categories: urban, rural, and general public. A considerable amount of overlap occurs among these categories, but these categories were chosen mainly because several of our Extension programs specifically target a more urban or rural audience, whereas some programs are meant to reach a more general audience.

I. Urban Focus

A. Green Communities and Sustainability

The goal of green communities is to achieve a balance between accommodating growth, conserving natural resources, and maintaining a quality of life and a healthy environment. However, there is often confusion and misunderstanding as to what constitutes a green community and how one goes about designing and managing a green community. Decisions made by a variety of people, from politicians to homeowners, ultimately determine whether a community functions as a green community. Land use planning, where roads are placed, how subdivisions and commercial areas are built, and how people manage their workplaces and homes all interact in unique ways to produce a green community. Coordinated by Mark Hostetler, this program targets the three major decision hierarchies within urban communities: 1) homeowners and the general public, 2) developers and built environment professionals, and 3) planners and policymakers. The focus program is not only on promoting green design, but also on developing and implementing long-term management programs that create functioning, wildlife-friendly communities.

Program Objectives

1) to increase the number of "green" developments in Florida that incorporate design and management strategies that help counties and cities conserve natural resources, and

2) to improve homeowner understanding and implementation of best management practices in green communities

In collaboration with various scientists across UF, we created the Program for Resource Efficient Communities (PREC, www.buildgreen.ufl.edu/). The mission of PREC is to promote the adoption of best design and operation practices in new residential community developments that measurably reduce energy and water consumption and environmental degradation. Significant activities include - creation of continuing education courses for built environment professionals; consultations with developers and environmental consultant firms; green development workshops with planners and policymakers; international collaboration to create a biodiversity conservation, continuing education course in New Zealand (with Landcare Research - http://www.landcareresearch.co.nz/), and development of an environmental education program for residents of green communities (e.g., www.harmonyfl.com/lih/index.htm).

Outcomes and impacts

Consultations with Developers: We have impacted thousands of homes and acres in multiple ways, some examples include: 1) developers adopt specific language in their design and management planning documents for the community. For example, Plum Creek Windsor, Town of Harmony, and Restoration are residential developments that have adopted a cluster design and conserved over 15,000 acres of open space; 2) Developers have adopted specific management practices and homeowner engagement activities. For example, Town of Harmony has implemented an environmental education program for homeowners (codeveloped with graduate students). Developments that we have consulted with and have adopted at least one of our sustainable design and management practices include Town of Harmony (Osceola County – 3,500 homes); Madera (Alachua County – 88 homes); Plum Creek Windsor (Alachua County – 2,000 homes); Restoration (Volusia County – 4000 homes); Sugarloaf Mountain (Lake County – 3,000 homes); Bella Colina (Lake County – 800 homes), Lake Jovita (Pasco County – 600 homes), Starkey Ranch (Pasco County – 2,000 homes), Elkton (St. John's County – 1500 homes). These consultations have not only had impact within a development, but also at a county level. For example, because of our involvement in the Town of Harmony, all new homes in Volusia County are required to be EnergyStar certified.

Consultations with Planners and Policymakers: Working in over 13 Florida counties, preliminary impacts include counties beginning to develop incentive-based or regulatory policies concerning green design and management practices. For example, we consulted with Edgewater, FL city planners and the developer team for Restoration (~4,000 units); as a result, natural resource conservation language was inserted into the actual development order, which legally dictates how the site can be developed. Collaborating with colleagues in PREC, since 2006, we have obtained over $95,000 in grants from Water Management Districts, county and city governments. Stemming from LID workshops, many counties are beginning to develop policies and procedures to promote LID practices.

Model Green Communities: Harmony and Madera have primarily been used to showcase sustainable designs and management practices to developers, landscape architects, planners, and policy makers to demonstrate how alternative practices work in green communities. Hundreds of people and officials have been brought through these developments and while it is difficult to track impact, many comments from these tours have indicated that environmental firms are changing and adopting sustainable practices (e.g., Glatting Jackson), county/city officials after seeing the neighborhoods have stated that they will adopt new policies and procedures to encourage sustainable developments (e.g., Alachua County), and even homeowners have noticed that such yards can be attractive. As far as performance, indicators include – 1) , Madera is preserving > 90% of the tree canopy, > 90% of the planted vegetation will be native, and Madera homes have been shown to use 50% less of water than conventional developments, and 2) Harmony has over 6,000 acres of permanent open space and a majority of the landscaping plants are native.

Green Development Environmental Education Program: To date, we have two Florida communities that have implemented a residential educational program: the Town of Harmony (http://www.wec.ufl.edu/extension/gc/harmony/) and Madera (http://www.wec.ufl.edu/extension/gc/madera/). Tracking Harmony and a control residential community for over 3 years, Harmony residents showed statistically significant improvement in environmental knowledge, attitude, and behavior (published in the Journal of Applied Environmental Education and Communication). We asked a series of seven questions about whether they thought they had sufficient information to implement a certain conservation practice (e.g., conserve energy in my home, conserve water in my yard, etc.). In addition, we had a number of environmental attitude, knowledge, and behavior questions concerning natural resource conservation. Compared to the control community, significantly more residents in Harmony thought they had sufficient information to implement a conservation practice after being exposed to the educational program; in addition, they showed improvement in some attitudes, knowledge, and behaviors.

International Collaborations in New Zealand: Based on workshops and presentations by Mark Hostetler, many of the NZ territories are beginning to adopt new policies and procedures to conserve biodiversity for future urban developments. For example, biodiversity conservation language is being inserted into Christchurch's infrastructure guidelines that are followed by developers. Nelson City Council has adopted a clustered design and wildlife corridor approach for future developments.

B. Mitigating Human/Wildlife Conflict

The increase in the human population and loss of wildlife habitat is causing an acceleration of conflicts between people and wildlife. These conflicts range from deer and green iguanas eating landscape plants, to invasive cane toads causing the death of pets that tangle with the toads, and power outages caused by invasive Cuban treefrogs. They also include potential deadly encounters between people or their pets and wildlife, such as bites from venomous snakes and attacks on pets by coyotes and alligators, and damage to agricultural lands by feral hogs and other species. The magnitude of this problem is underscored by the increase in companies that, for a fee, help businesses and homeowners deal with nuisance animals. The Florida Fish and Wildlife Conservation Commission lists >200 licensed nuisance wildlife agents serving Florida. Assistance with nuisance wildlife is handled by multiple specialists on a regular basis and has generated the production of many extension publications, presentations, and workshops.

<u>Program Objectives</u>

1) to prevent and/or lessen the severity of negative interactions between the residents of Florida and wild animals, and

2) to educate Floridians so they become more tolerant and appreciative of native wildlife.

Educational activities include in-service trainings for county extension agents, K-12 teachers, environmental educations, and various agency employees. Such trainings range from hour-long presentations to day-long workshops with hands-on activities. Master Gardeners, Master Naturalists, volunteers for environmental organizations also participate in trainings. A variety of educational products that include workbooks, online training modules, CD/DVDs, posters, coloring sheets, informational kiosks, species ID sheets and card decks, and 'fact sheets' are disseminated. A popular website (http://ufwildlife.ifas.ufl.edu/; 125,815 web site hits in 2009) gives a range of information about wildlife/human conflicts and resolutions.

Outcomes and impacts

Web site (http://ufwildlife.ifas.ufl.edu/) visits: 2007 = 15,770, 2008 = 75,592, 2009 = 125,815

Consistent results from clientele surveys indicate that they are satisfied with materials and training, gained knowledge, and made changes in their behaviors

C. Nongame Wildlife Conservation Education

With our state's burgeoning human population, there is an increasing segment of Florida's population that knows little or nothing about our wildlife resources. People want to know more about wildlife as evidenced in the popularity of wildlife viewing activities. The vast number of field guides and other nature-based books available is further evidence that people want to learn about wildlife. Often the most immediate question posed by a citizen is "What is it?" Enabled with the answer, citizens often explore further on the internet or via other resources. Without positive identification about the animal in question their learning stops. Thus, we are challenged with developing materials and conducting programs to educate Floridians so they appreciate and embrace Florida's diverse wildlife resources. Wildlife education is provided by all specialists through multiple programs and products with the goal of educating clientele about native wildlife so they gain a heightened understanding and appreciation for native wildlife.

Program Objectives

1) to increase the knowledge level of the general public so they have a better understanding of native wildlife in Florida,

2) to invoke changes in behaviors of clients so they adopt new practices to benefit native wildlife around their homes, and

3) to increase the ability and confidence of target audience members to identify native species of wildlife.

Activities

Educational activities include presentations of various formats (e.g., PowerPoint, live and museum specimens, field excursions) largely delivered to the lay public through events held at

science museums and nature centers. The primary target audience that attends these presentations is children and their parents. Information is also disseminated to a broader audience via brochures, outdoor interpretive exhibits, and EDIS fact sheets.

Example outcomes and impacts

- One of the most popular EDIS fact sheets across IFAS—*"Black Snakes" Identification and Ecology* received 257, 082 hits at the EDIS website between Nov. 2006 (release date) and Dec. 2009 (3rd most popular fact sheet in 2008)
- Clientele surveys demonstrate great satisfaction with materials and information presented
- 70% of those responding to client surveys indicated they would make changes around their homes to benefit native wildlife—removal of invasive species, adding native plants to their yards, installing bat and bird houses

D. Professional Training in Herpetofaunal Monitoring

Because amphibians are indicators of ecosystem health, it is prudent for us to track their populations in an attempt to detect declines and take action to reverse declines should they occur. In response to amphibian declines in North America, the US Geological Survey created a program (Amphibian Research and Monitoring Initiative) to monitor amphibian populations on public lands. Several well-organized citizen scientist groups have also emerged in the effort to monitor frog populations in the US (e.g., Frog Watch USA, North American Amphibian Monitoring Program). Other federal agencies, such as the US Fish and Wildlife Service and US Forest Service, also have responsibilities for monitoring amphibians. State wildlife agencies and NGOs play a role in monitoring amphibians as well. Several years ago an article published in the journal BioScience made the point that reptiles are also declining. Thus, there is a need for federal, state (e.g., fish and game agencies, water management districts, state parks), and non-governmental organizations to monitor populations of herpetofauna (i.e., amphibians and reptiles). However, employees with these organizations who are tasked with conducting surveys and monitoring herpetofaunal populations sometimes lack the specific skills needed to do their job effectively and need training. Volunteers (i.e., citizen scientists) also have a role to play, especially with organizations such as NAAMP and Frog Watch. The emphasis of this extension program is to provide training in methods to survey and monitor populations of amphibians and reptiles, as well as enhance species identification skills. Coordinated by Steve Johnson, the main goal of this extension program is to train professional wildlife biologists and citizen scientists so they can identify species and monitor populations of amphibians and reptiles as part of their job or volunteer duties.

Program Objectives

1) Train wildlife professionals to use standard methods to monitor and survey amphibians and reptiles, including improving identification skills,

2) increase the short and long-term knowledge of regulatory scientists that enhances their ability to make science-based decisions when issuing permits for projects that could affect amphibians and reptiles, and

3) Motivate and train volunteer citizen scientists to monitor frog populations in support of the Frog Listening Network and the North American Amphibian Monitoring Program.

Activities

The primary activities for this program are workshops to train natural resource professionals and citizen scientists about the ecology of native herpetofauna and methods to monitor their populations. Workshops generally include PowerPoint presentations followed by hands-on experiences in the lab and field.

Outcomes and impacts

389 professionals and citizen scientists were trained at 11 events that included professionals employed by various Water Management Districts, Florida Fish and Wildlife Conservation Commission, Florida Department of Environmental Protection, Florida Division of Forestry, and The Nature Conservancy. Biologists trained in this program have helped document >25 new breeding ponds for an imperiled salamander that is proposed for listing under the Endangered Species Act. In addition, follow-up surveys with regulatory scientists from Water Management Districts indicate that most are using the knowledge they gained at workshops to more effectively manage natural resources

II. Rural Focus

A. Integrating Wildlife Management and Other Land-uses

Wildlife and their use have always been a part of Florida, and conserving wildlife resources continues to be a priority for many Floridians and visitors to the State; as is preserving the way of life, culture, and means of making a living. Consequently, it is not only wildlife resources that enhance the quality of life and attract people to Florida, but also its farms, ranches, prairies, and forestlands, as well as the people and communities that depend on them.

Changing land-uses throughout the State and world in recent decades have led to wildlife habitat loss, degradation, and fragmentation, and concomitant declines in many wildlife populations. Such declines in wildlife populations not only hurt Florida's multi-billion dollar ecotourism industry (through the loss of both consumptive and non-consumptive wildlife uses), but its culture as well. Changing land-use practices on private lands, such as the conversion of native habitats to improved pasture, more intensive

grazing, cropping, and timber management, and increased use of agrochemicals for short-term gains in production have negatively impacted wildlife resources. While many such practices may be questionable in terms of sustainable, long-term production, they are often seen as necessary to "make a living," at the expense of wildlife. Fortunately, this situation can be resolved as wildlife and these land-uses can co-exist, and abundant wildlife can be used in alternative enterprises to improve the economic well-being of farm, ranch, and forest landowners, both public and private. Further, maintaining the economic well-being of these areas and enterprises is becoming increasing important to wildlife resources as population growth and associated development increases and consumes more wildlife habitat. Such growth and development transforms thousands of hectares of land each year, as it is often more profitable to sell farm, ranch, and forest lands to developers than continuing traditional agricultural practices. And while traditional land-uses such as agriculture may negatively affect wildlife resources, they have far less serious and permanent impacts than urban/suburban sprawl. Such sprawl not only changes Florida's land-use and associated culture, but also negatively affects the wildlife and other natural resources that Floridians value and depend on.

Successfully integrating wildlife management and other land-uses, such as grazing and timber production, can facilitate effective natural resource conservation on public lands as well. In Florida, millions of hectares of land have been acquired by various government agencies as a means of protection from development and other less wildlife-friendly uses. However, a general lack of operating funds and personnel have led to most of these areas being improperly managed. Furthermore, many of these areas have traditionally been used for other purposes (e.g., livestock grazing and timber production), and are consequently part of the culture and way of life. If applied properly, grazing, cropping, and timber harvest can be very effective tools for managing wildlife resources, while at the same time generating income for the management of public lands (i.e., through the charging of fees for conducting such uses). It also allows for the maintenance of local cultures and ways of life. Thus, development and implementation of programs that conserve wildlife resources while providing for the continued existence and success of other land-uses (e.g., agriculture) are essential to maintaining the quality of life and economic well-being of Florida and beyond. While information gaps remain, information on how to integrate wildlife management and other land-uses, making them more profitable while preserving the culture and quality of life, is available, and its dissemination is a high priority educational program need.

To enhance wildlife populations and habitats on lands with other primary uses (e.g., agriculture, airports, timber production, National Forests, and outdoor recreation) and to incorporate wildlife management in to other enterprises (e.g., wildlife ranching and ecotourism), a variety of information is provided to policy makers, agency and NGO personnel, and private landowners. Multiple specialists are involved in assisting in natural resources management education.

Program Objectives

1) To increase awareness and educate policy makers, landowners and managers, both public and private, and the general public on the benefits of integrating wildlife management and other land-uses.

2) To increase the amount of land where wildlife management and other land-uses are integrated.

Efforts and activities have included numerous meetings and programs, field days, workshops, In-Service Trainings, the production of fact sheets, books, websites, and CD/DVDs, posters, card decks, radio and TV programs, and media releases.

Outcomes and impacts

- >5,000 clientele contacts
- >500,000 web site visits
- >2,000 copies of materials distributed
- Consistent results from clientele surveys indicating that they are satisfied with materials and training, gained knowledge, made changes in their behaviors, and integrated wildlife management on more than 0.8 million hectares.

B. Hunting and Game Management

Hunting and game management have a long tradition in Florida and many other parts of the U.S. Hunting provides recreational opportunities for millions of people, can be an effective population management tool, and provides the major source of funding for most wildlife management programs, both game and non-game alike on public and private lands. With more than 80% of the U.S. population living in urban and suburban areas, and this proportion increasing every day, less people are getting involved with or continuing to hunt. This is typically the result of a lack of opportunity or access to hunting areas, a disconnect from wildlife and hunting because of an urban/suburban life style, or misinformation about the role of hunting and game management. The effect of the continued loss of hunters on our ability to manage wildlife resources is significant. Not only do we lose a management tool (i.e., harvest), but a large portion of state-level program funding and a part of our heritage as well.

We provide information and outreach to policy makers, agency and NGO personnel, and private landowners on hunting and game management issues (e.g., establishing state deer management regulations with FWC, youth hunting and safety training, establishing hunting lease programs, and restoring game populations). Coordinated by Bill Giuliano, program objectives are:

Program Objectives

1) To increase the number of people who understand the importance and value of hunting and game management.

Activities

Our efforts and activities have included teaching a hunter education course to 45 young adults, in cooperation with the Florida Fish and Wildlife Conservation Commission, during spring 2006. The class included hunters, non-hunters, and anti-hunters. Efforts and activities have included

numerous meetings and programs, field days, workshops, In-Service Trainings, Hunter Education courses, the production of fact sheets, books, websites, and CD/DVDs, posters, card decks, radio and TV programs, and media releases. Future plans include teaching the course twice per year, producing extension documents on hunting and its value, and developing other programs with county extension faculty (e.g., 4-H) designed to increase the number of people and their depth of understanding regarding hunting.

Outcomes/impacts

An exit exam for the hunter education course revealed that after taking the course >90% of the participants increased their understanding of the value of hunting and how to be a responsible hunter. Support for the program is being provided by the Florida Fish and Wildlife Conservation Commission. In addition, extension activities have resulted in:

- >2,000 clientele contacts
- >100,000 web site visits
- >1,000 copies of materials distributed
- Consistent results from clientele surveys indicating that they are satisfied with materials and training, gained knowledge, made changes in their behaviors.

C. Natural Areas Training Academy

The acreage of protected lands owned by the state of Florida has increased greatly during the past two decades, through numerous land acquisition programs. This rapid acquisition of lands has created a need for well-trained professionals to manage these areas so that natural resources are protected for future generations. The majority of individuals newly hired into positions with responsibilities for managing the resources on these lands have not received training in the diversity of subject areas with which they need familiarity in order to effectively perpetuate long-term sustainability. If managed inappropriately, these areas have the potential to become the origin of increased risks of catastrophic wildfire, heightened degradation of water quality and quantity, accelerated loss of biodiversity, and increased prevalence of invasive species.

Coordinated by Holly Ober, the Natural Areas Training Academy was founded to provide a unified training program statewide on topics most essential to new land management professionals. The primary audience is natural resource managers from county, state, and federal agencies, professionals from non-government agencies, private consultants, environmental educators, and other interested parties.

Program Objectives

To increase knowledge, improve skills, and increase the acreage over which sustainable practices are employed.

Activities

Six to eight multi-day workshops are offered each year (http://nata.snre.ufl.edu/schedule.htm). All workshops are three- or 6-day events offered once per year. The location of each workshop is varied to promote participation from people living in different regions of the state. Enrollment is capped at 25 individuals per workshop to promote a learning environment where each trainee receives individual attention from instructors. Workshop topics include "Conservation Site Assessment and Planning", "Managing to Promote Diversity", "Managing Visitors and Volunteers", "Working Across Boundaries to Protect Ecosystems", "Vegetation Monitoring", "Plant Communities of Florida", "Restoration Planning and Techniques for Forests", "Applying Technology to Management", and fire training. Each workshop consists of lectures by experienced land managers, interspersed with hands-on exercises and group learning activities.

Outcomes and impacts

Each year we train 140-200 individuals, collectively impacting the natural resource management practices applied across millions of acres. Over 1,300 individuals have received training since the Academy's inception in 2000.

D. Promoting Sound Stewardship of Forest Wildlife

Wildlife dependent upon forest ecosystems are vulnerable at the present time, as forest ownership in the southeastern U.S. is in a period of dramatic change. Due to recent decreases in the market value of domestic wood products, a large proportion of private industrial forestland in Florida has been sold to residential and commercial developers, and many small, private forest landowners are likely to follow suit. Thus, sustainable management of remaining forests will be crucial to the survival and wellbeing of forest wildlife and the benefits humans derive from them.

Coordinated by Holly Ober, this program targets three distinct audiences. Owners of non-industrial private forest land comprise one audience that can benefit from increased understanding of sustainable management of forests to promote wildlife. Managers of federal and state forests a second target audience for this program, given their ability to impact large acreages of forested land throughout the state. A newly formed cooperative, Conserved Forest Ecosystems: Outreach and Research (CFEOR, http://www.sfrc.ufl.edu/cfeor/), is uniquely qualified to bridge the existing knowledge gap between academic researchers and practicing land managers, and as a co-director Dr. Ober is able to assist in steering the direction of the program. Finally, the general public is the third target audience for this program. Florida has remarkably high wildlife biodiversity with many endemic species, and the extraordinary human population growth anticipated in Florida during the next several decades is likely to put this diversity at risk.

Program Objectives

1) The intended outcome of the program for the private forest landowner audience is to increase knowledge of wildlife management issues and increase adoption of practices beneficial to wildlife.

2) The intended outcome for the public land management audience is to increase knowledge of the effects of forest management practices on wildlife and the acreage over which practices beneficial to wildlife are implemented.

3) The intended outcome for the general public is to promote behavior that demonstrates a commitment to active forest wildlife management and conservation by building appreciation through an increase in knowledge and understanding.

Activities

The primary means through which information is disseminated to private landowners is through field days and short courses ranging in length from ½ day to 3 days. Examples of events include the "Georgia/Florida Game Management Updates" series (8 field days held at private plantations throughout south GA and north FL, featuring the latest expert knowledge on a variety of game species); the Wildlife Expo (workshop held at WFREC, featuring presentations, events for children, and demonstrations); and various Forest Stewardship workshops (indoor/outdoor field days). Collaborators include other Extension specialists and agents, and personnel from various state agencies and NGOs.

The public land manager audience is reached chiefly through the newly formed Conserved Forest Ecosystems: Outreach and Research cooperative (CFEOR). Information is disseminated through a biweekly newsletter, workshops, a website, and publications. The general public is reached via a variety of outlets including seminars on conservation and management of forest wildlife biodiversity, field days (outdoor events to increase knowledge of ecosystem services provided by forest wildlife, such as "Ag Adventure Days" for youth and the "NFREC Fall Field Day" for adults), and EDIS publications and pamphlets to disseminate information on a variety of forest wildlife conservation issues

Outcomes and impacts

Each year we reach 600-1500 individuals through presentations and field days. On average, pre- and post-testing indicates youth have a 20% knowledge gain after participating in our learning activities. The majority of adult attendees have indicated they plan to change their management practices on the basis of what they've learned, and expect to save money as a result of these changes; 59% and 72% respectively from the FL-GA Game Management Update Series held in 2009, 83% and 57% respectively from the Master Wildlifer II course held in 2008.

E. Emma Willcox- Regional Specialized Extension Agent II (County Extension Faculty) New position commencing May 2010

Fifty percent of Emma's responsibilities will involve wildlife extension activities in Levy, Gilchrist, and Dixie Counties. The other 50% of her responsibilities will be for statewide extension programming. Emma will develop a proactive wildlife extension education program by publishing educational materials, conducting county agent in-service training, and carrying out demonstrations, presentations, and other programming in support of wildlife extension, primarily related to private lands. Emma intends to work closely with agencies, NGO's, and private landowners to achieve their wildlife management and restoration goals and enhance their revenue streams from recreation related to wildlife. For private lands this enables continued ownership and multiple-use management. Her program will expand efforts, previously initiated by the University of Florida, Florida Fish and Wildlife Conservation Commission, and Tall Timbers Research Station, to promote the management and restoration of privately owned upland systems for the benefits of wildlife. A component of her program will involve youth development (4-H) activities that promote a knowledge and awareness of wildlife and their management and conservation on private lands.

F. Ecosystem restoration and management in South Florida and the Caribbean

The ecological integrity of South Florida has been severely degraded by a host of activities associated with increases in human population since the turn of the century. Currently, there is an unprecedented, cooperative effort among federal, state, and local governments and the private sector to restore and manage this damaged ecosystem. However, this effort is hampered by a lack of scientific data to make informed decisions.

To address this issue, our extension program concentrates on science support for ecosystem restoration and management in South Florida. For the past ten years this program has focused on providing scientific and technical information to the federal, state, local, and tribal partnership overseeing the South Florida Ecosystem Restoration Initiative. This work has contributed directly to the production of the *Comprehensive Everglades Restoration Plan,* the *South Florida Multi-species Recovery Plan,* as well as a habitat conservation strategy for the Florida Panther (published in *Biological Conservation*) and a monitoring and assessment plan for Everglades restoration.

Extension activities include developing multi-scale, spatial and temporal models to evaluate ecological effects of restoration alternatives. These models are being linked directly to decision making processes by using innovative, interactive computer and web-based tools. In recognition of this work UF has been chosen by the US Geological Survey to establish a joint ecosystem

modeling laboratory to provide implementation of ecological models for ecosystem restoration in South Florida.

A logical step in progression of this extension program is to extend lessons learned, knowledge gained, and skills developed in South Florida elsewhere in the Caribbean. Internationally, we have responded to requests by governments and NGO's from Jamaica, Mexico, and Belize to assist in developing research, monitoring, and management plans for crocodiles and to develop capacity building programs for management and monitoring of natural areas.

This extension program focuses on a clientele base consisting primarily of upper-level science and technical staff of governmental and non-governmental organizations. Through this focus, UF can impact effects of ecosystem restoration and management on many individuals by educating a relatively small audience. This focus also provides a natural, direct channel for science into the decision making process. In addition, educating science and technical staff of governmental and non-governmental organizations furnishes a natural springboard into international programs.

The adult public is targeted as a secondary audience to garner support for use of science in natural resource management decision making. The constant influx of new residents, and even old-timers, who have little to no knowledge of Florida's complex and fragile environment are audiences that should not be neglected.

Program objectives

1. Provide scientific information concerning ecology, conservation, and management of crocodilians, wildlife ecology, and restoration science to science and technical staff of governmental and non-governmental organizations.

2. Build capacity among professional staff to use scientific and technical knowledge and techniques.

3. Improve ecological literacy of residents of south Florida and the Caribbean.

Activities

This extension program is based on first, determining the needs of the clients, and second, developing products to meet those needs. My extension activities are those products needed by my target audiences. The product most needed and desired by target audiences is information. We rarely have enough information to make scientifically enlightened resource management decisions. A major role of science in this process is to reduce that uncertainty. Our integrated research and extension program is designed to fill that role.

Building capacity to use ecological information in natural resource planning and management has become an important focus of our extension program. We do this in two ways. First, we work directly with agency staff to develop tools, especially models, to use science in a decision making capacity, and second,

we provide training to staff through presentations, seminars, workshops and technical (refereed and non-refereed) documents. Capacity building through hands-on training workshops has become a mainstay of my international extension program.

We use more traditional extension techniques to reach a general adult audience. These include popular presentations and articles, graphics (cartoons, brochures, and posters), media relations (see section on newspapers, magazines, radio and tv), websites, and extension publications (fact sheets, circulars, and bulletins).

We have started to augment our extension program by collaborating with marketing and communications specialists to conduct research on motives, knowledge, and perceptions of selected target audiences. These studies provide important insight into how education programs should be designed (content and delivery) and also provide baseline data to evaluate the success of education programs. This area of extension programming has resulted in three refereed publications.

All research and extension projects are designed to meet immediate resource management needs. We use field studies gather pertinent information to meet these needs and subsequently transmit data directly to users. For example, results from studies on the American crocodile were used as a basis to reclassify crocodiles from endangered to threatened, to set targets for ecosystem restoration, and to develop site management plans at a nuclear power plant. Studies on citrus and wildlife in Southwest Florida influenced planning and regulatory policy. Wildlife inventories conducted on 75 million dollars of Environmentally Sensitive Lands in Broward County were used to develop resource management plans. Currently, findings from studies on Burmese pythons are being used directly in the development and testing of control methods for that species.

Complexities and constraints of space and time mean that field studies cannot always provide answers in a management-driven time frame. In these cases, we use our data and that of other scientists to construct models to simplify and simulate ecosystem responses. In an adaptive management framework, models provide input into pre-project scenario evaluation, and alternative selection and post-project forecasts of ecosystem response to proposed scenarios for conservation and restoration activities. Wildlife habitat models that we have developed for wading birds, sandhill cranes, and Florida panthers have been used in regulation and planning of citrus development in Southwest Florida and a more recent model of Florida panther habitat was used in development of a recovery plan for that endangered species. A real success story has been the use of our models in alternative selection for the Southwest Florida Feasibility Study (see below).

Decision support is a new field of extension activity for this program. Work in this area stems from a combination of our observations of models being used in ecological decision support and our observations of the success of adaptive management. Much of the success of restoration of Greater Everglades Ecosystems hinges on adaptive management. Yet the success rate for adaptive management is spotty at best. Adaptive management seems to be most suited for relatively simple, single issue problems (*e.g*. harvesting of, or habitat management for, a single species). Complex ecosystem restoration and management programs lack the structure necessary for adaptive management to work. Decision support systems can provide that structure. We have also found there is little interest from decision makers in how models work (once they are stamped peer reviewed and approved), but there is a much greater interest in terms of how models can inform the decision making process. Decision support systems

directly extend modeling results to decision makers in a format that suits their needs. Our innovation and implementation of a decision support system as part of restoration projects in Southwest Florida enabled the application of ecological models in alternative selection.

Outcomes and impacts

Many extension activities (>71) have been conducted and extramural funding obtained (over $9 million). Many fact sheets (67) and journal articles (12) were written, workshops sponsored and conducted (8), presentations given, and meetings held and attended. In the following table we provide a few examples of successful extension programs that have been conducted to elucidate the impact and success of our extension program. The table traces selection of a specific issue, selection of target audience(s), information or training extended, and the results or impacts of the program. Then we describe some of the programs in more detail.

Issue	**Target Audience(s)**	**Information/ Training Packet(s)**	**Results/Impacts**
Endangered species recovery	USFWS, Endangered Species Program Office	Results of 25 year research and monitoring program were basis for decision making.	In March 2007, the American crocodile was reclassified from endangered to threatened. A rare success story for the beleaguered Endangered Species Act.
Ecosystem restoration, evaluating restoration alternatives	Southwest Florida Feasibility Study Natural Systems Group and Project Development Team	Stressor response models to evaluate and compare alternatives for restoration of coastal and inland ecosystems	Models have been developed, peer reviewed, and applied to evaluate alternatives for the C-43 project for restoration of freshwater flow to the Caloosahatchee estuary. Inland models have been developed, peer reviewed and are in the process of being applied.

Ecosystem restoration, assessing ecosystem responses	South Florida Ecosystem Task Force, Working Group, Science Coordination Group, RECOVER Leadership Group	System-wide monitoring and education program for alligators and crocodiles.	Crocodilians have been described as one of the defining characteristics of Everglades ecosystems and have been selected as a system-wide indicator of ecosystem responses to restoration efforts. This work is critical to assessing the benefits resulting from the 10 billion dollar investment in regional restoration.
Natural area management	Broward County Parks and Recreation Environmental Staff	Training in inventory, monitoring, and planning for management of natural areas	Prepared resource management plans for 75 million dollars of environmentally sensitive lands (ESL's). Built capacity in County staff to prepare plans for an additional 200 million dollars of ESLs.
Fatal attacks by crocodiles on humans	Belize Forest Department Wildlife Officers	Training and equipment to handle unwanted crocodiles	Trained personnel to respond to calls about unwanted crocodiles. No fatal attacks have occurred since the inception of this program.
Homicide investigation, prosecution	Miami-Dade Homicide Investigators, Prosecuting Attorney	Information on forensic ecology of alligators, especially feeding behavior	Harrel Brady was arrested and successfully prosecuted for the murder of Quatisha Maycock (5), by leaving her in the Everglades alive, to be killed and partially eaten by alligators. He received the death sentence and is awaiting execution.

American crocodiles: Our extension program on American crocodiles exemplifies use, impact, and success of our extension efforts. We began working on American crocodiles in the Everglades National Park in 1977. By 1981, the results of this research were used to establish a crocodile sanctuary within ENP. In 1983, and again in 1990, the results of these research and monitoring programs were used to develop management plans for the Turkey Point Power Plant site. Prior to the Comprehensive Everglades Restoration Plan (CERP), American crocodiles were used to monitor early ecosystem restoration efforts in Florida Bay. Today crocodiles are used as a performance measure for the CERP monitoring and

assessment plan. The greatest success story has come just recently.

In March 2007, based largely on the results of 29 years of research and monitoring, the American crocodile was reclassified from endangered to threatened. Coincidently, the *Journal of Herpetology* published our recommendations for endangered species recovery and ecosystem restoration. This demonstrates the relevance and application of our extension and research efforts. This example also clearly demonstrates that our extension efforts can influence wildlife policy on a national scale.

Southwest Florida Feasibility Study: We have developed several ecological models that have been directly applied and used in ways that advances conservation management in Florida. For example, we have been involved in an effort to provide modeling support to the ongoing Southwest Florida Feasibility Study (SWFFS). The SWFFS is being conducted by the US Army Corps of Engineers and the South Florida Water Management District. The study area encompasses approximately 4,300 square miles and includes two major drainage basins. The SWFFS will develop a water resources plan that will provide for inland and coastal ecosystem restoration and protection, environmental quality, flood protection, water supply and other water-related purposes.

Our extension role in the SWFFS has been to develop ecological models (based on existing data) for coastal and inland ecosystems (models are selected by committee), integrate them with existing hydrological models, and perform evaluations of restoration alternatives (selected by another committee). During 2006 and 2007 we set a precedent in Comprehensive Everglades Restoration Plan by being the first group to do this for alternatives for restoration of fresh water discharges in the Caloosahatchee River/Estuary (C-43 Basin). We developed models (seatrout, oysters, sea grasses), evaluated alternatives, and integrated our ecological modeling with the US Army Corps of Engineers (COE) cost/benefit analysis for final alternative selection. This multi-disciplinary, multi-agency cooperative effort has been used by the COE as an example of how alternative selection should proceed. Our success at the SWFFS project has led to University of Florida being chosen as the lead institution for the joint ecosystem modeling laboratory (JEM Lab) for restoration of Greater Everglades Ecosystems.

Citrus/Wildlife Study: An early success in an integrated extension and research project was the Southwest Florida citrus/wildlife project. This project, performed under contract with the South Florida Water Management District, was in response to the rapid expansion of citrus into Southwest Florida after a series of freezes in the late 70s to the early 80s. Unlike previous citrus development in Florida (grove size 100s to 1000s of acres), these new groves in Southwest Florida were larger landscape units (1,000s to 10,000s of acres). We were tasked with assessing and forecasting effects of citrus development on wildlife resources. Also, we were to make recommendations for regulation and planning of grove development to lessen potential impacts, providing a direct linkage to decision making. Results of this project were published in *Conservation Biology*. This project led to the identification and acquisition of the Okaloacoochee Slough as a State Forest. In this project we not only extended information to our primary client,

the South Florida Water Management District through traditional means such as meetings, presentations, circulars, reports and publications, but along with our client we directly engaged stakeholders through an advisory committee, multiple presentations, and popular articles written for industry magazines. We also pioneered the use of GIS based landscape suitability models to evaluate changes in land use and, even more importantly, transfer that information to decision makers such as the SFWMD Governing Board in a clear, easily understood, graphical display.

Environmentally Sensitive Lands: In a pioneering move in 1989, Broward County initiated purchase of 75 million dollars worth of Environmentally Sensitive Lands (ESLs) with a promise to county residents to manage the natural and cultural resources of the sites. By 1992, the County Parks and Recreation Division was under criticism for not having prepared any resource management plans and only one master plan that seemed to consider only public use and not resource management. County staff had neither the science nor the capacity to develop resource management plans for the ESLs. Under two contracts with Broward County, we inventoried natural resources at the ESLs and wrote resource management plans for 18 (of 19) of the original sites. During this period we trained Parks and Recreation staff to inventory resources and write management plans. Also, we developed GIS/GPS capacity in Park staff. Since this initial contract, and as a direct result of our capacity building, Broward County Parks and Recreation Division staff has written resource management plans for an additional 200 million dollars worth of ESL's. Our approach for planning management of ESL's was published in *Landscape and Urban Planning.*

International Capacity Building: Governmental and non-governmental organizations in the Caribbean basin face the same challenges that resource managers do in South Florida, except with fewer tools for problem-solving. Scientific and technical staff have fewer resources and less capacity to apply resources to solve problems. They do not, however, lack in ability or dedication. Hence, even a modest amount of resources supplied and capacity built has the potential to have a large impact. Most international training has been through hands-on workshops. We have advised and trained governmental and non-governmental staff from Jamaica, Mexico, and Belize in handling of problem crocodiles. We have also trained staff from Mexico and Belize in GPS/GIS technology. GPS training in Mexico offers a good example of use, impact, and success of our capacity building efforts.

Our GPS/GIS workshops in Sian Ka'an Biosphere Reserve, Quintana Roo, Mexico provided a basic introduction to how that technology could be applied to natural resource management. In particular, for GPS we taught basic navigation, acquisition of spatially referenced data, and communications between GPS unit and computer. Acquisition of spatially referenced data is especially important for inventory and monitoring of resources. Spatially referenced data is frequently collected by individuals who are not reserve staff. For example, in Sian Ka'an, Mayan guides and fisherman spend many days deep in remote parts of the Reserve. As such, they have become keen observers of their environment. The difficulties for Sian Ka'an staff have been getting multiple observers to collect spatial data in a consistent format. GPS units

offer a perfect solution. I taught reserve staff how to use a simple handheld GPS unit and equipped them (as well as visiting researchers and local Mayan guides) with several for their use.

The workshops received very positive evaluations. A follow-up survey revealed that an overwhelming majority of workshop participants (80%) were using some aspect of GPS or GIS technology for their work. Two years after the GPS/GIS workshops, a team of scientists, funded by the US Fish and Wildlife Service, were working with Reserve staff on developing monitoring programs. During a visit to a coastal fishing village in Sian Ka'an, our wading bird biologist noticed that almost all of the Mayan fishing guides had handheld GPS units. Curious as to how GPSs came to be so common, my colleague asked the guides how they acquired the GPS units. As it turned out, the Mayan guides had been so impressed with the advantages of this technology being used by the Reserve staff (*e.g*., locating navigation routes or lobster traps when no landmarks were available or visible), that they requested and received training from them. Thus, it came to pass that in a remote fishing village with electricity only available during daylight hours, no indoor plumbing, and one public telephone, the fishermen had the waypoints of colonies of wading birds in their pockets. It was very gratifying to know that individuals we had trained had passed on their knowledge, creating a second generation of GPS users in the Sian Ka'an Biosphere Reserve.

III. General Public

A. Florida Master Naturalist Program

The Florida Master Naturalist Program (FMNP, http://www.MasterNaturalist.org) is a nationally recognized and widely emulated conservation and natural history education program for adults. Developed and led by Martin Main, The FMNP includes a detailed curriculum for 3 separate, 40-hr courses, that address Florida's principal environments: Freshwater Wetlands, Coastal Systems, and Upland Habitats. Additional educational components (special topics courses) are being developed in collaboration with the University of Minnesota and other professionals that include Environmental Interpretation, Conservation Science, Wildlife Monitoring, and Habitat Evaluation.

FMNP courses are offered throughout Florida by a statewide network trained and certified FMNP instructors. The statewide FMNP instructor network includes county cooperative extension and Sea Grant faculty and environmental education professionals from nature centers, government agencies, academic institutions and other organizations that make environmental education their mission. At present, there are 135 certified FMNP Instructors representing 77 organizations in 43 counties, which includes 33 county extension and Sea Grant agents from 26 counties. In addition, participating county extension agents also include individuals with assignments in horticulture, Florida Yards and Neighborhoods, and 4-H.

FMNP graduates total between 750-800/year and more than 5000 graduate certificates have been issued since program inception (Figure 1). FMNP graduates include both professional and lay persons. Benefits from the FMNP to educational jobs and volunteer positions (ca. 25,000 hours/yr) have been estimated to exceed $500,000 annually.

The FMNP is a fee-based and cost-neutral extension program that sustains itself without additional capital required from the state or other funding sources.

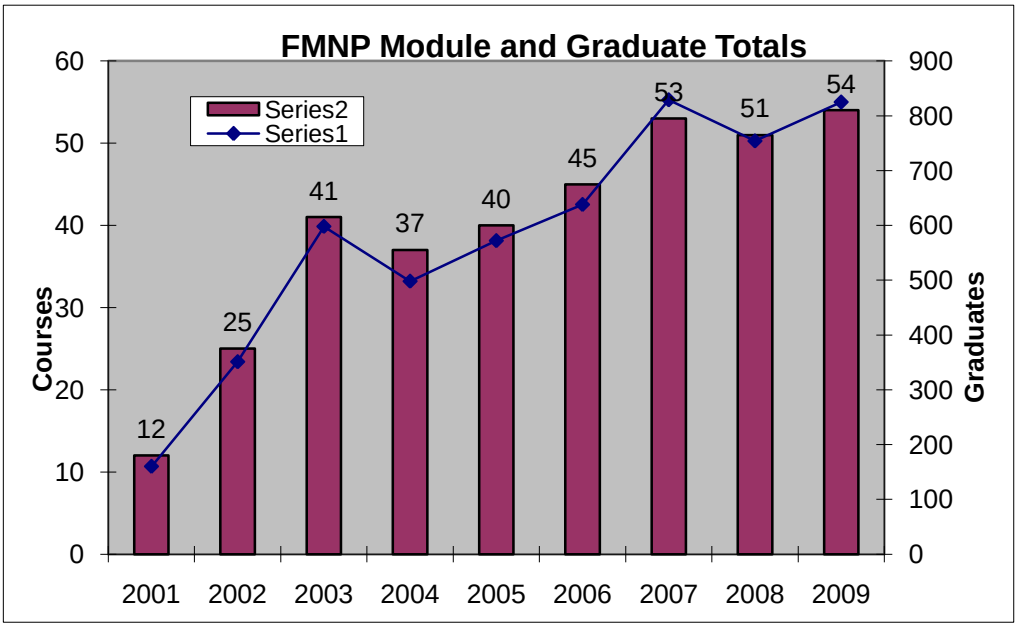

Figure 1. Annual FMNP graduates

Program Objectives

The mission of the FMNP is to promote awareness, understanding, and respect of Florida's natural world among Florida's citizens and visitors. This mission is accomplished in part by FMNP instructors, who teach students in the program about Florida's environment using science-based information and interpretive techniques that prepare students to share their knowledge with others. This mission is also accomplished by FMNP graduates, who are not only taught about Florida's natural communities but are also taught how to teach others through interpretive and ethics components. The FMNP graduates, therefore, are both prepared and empowered to share their knowledge with others and foster principles of sustainability, connectivity, and biodiversity to foster a stronger conservation ethic among persons we would otherwise never reach.

Activities

Approximately 50 FMNP courses are completed throughout Florida annually. FMNP participants engage in classroom learning, field trips, and speaking and presentation

requirements. As a byproduct of FMNP training, 11 Regional FMNP Chapters have been established by graduates and instructors of the program. These Chapters are dedicated to continued education, community service, and enjoyment of the outdoors.

Outcomes and impacts

Unlike many programs, the FMNP does not require volunteer service. Nonetheless, the FMNP promotes large contributions of volunteer hours. Documentation of volunteer hours and other information about FMNP graduates is obtained via an annual electronic survey sent to all FMNP graduates, with a survey response between 9-15% each year. In 2009, FMNP graduates in the survey reported 24,989 hours of volunteer time valued at $403,764 and resulting in more than 101,000 educational contacts. Since 2002, FMNP graduates in the survey have reported 159,124 volunteer hours valued at approximately $2.57 million and resulting in more than 600,000 educational contacts. If we extrapolate and assume this value represents 10% of the actual volunteer contributions, total volunteer hours contributed exceed 1.59 million hours and $25 million in value to Florida.

A substantial number of persons take FMNP training for professional development. Professional audiences comprised 20-40% (avg. = 27%) of total enrollment during 2004-2006, but 52% of enrollment in 2009. Consequently, in addition to lay audiences, FMNP courses provide an important service to professional audiences that may not be possible if volunteer service were required. Furthermore, annual survey data has revealed that 99% of FMNP certified instructor respondents felt the FMNP educational experience was enhanced by participation of teachers, park rangers, ecotour guides, biologists, and other professionals, 99% felt it is important that the FMNP remain available to professional audiences, and 89% indicated they would not support mandatory volunteer service if doing so resulted in fewer professionals participating in FMNP classes.

Annual surveys have also revealed that FMNP training has helped FMNP graduates obtain new jobs (4-12% of respondents/year, avg. =7%), new volunteer positions (8-25%, avg. =13%), and increased responsibility in jobs and volunteer positions (19-47%, avg. = 30%). In 2009, 5% of survey respondents indicated they had received a promotion or pay raise and 55% of teachers received in-service credit for taking an FMNP class. Florida school districts throughout the state have been awarding 40 in-service credits per FMNP course for enrolled teachers.

The FMNP also promotes interest and participation in other UF/IFAS extension programs. Since completing an FMNP class in 2009, 18% had also taken other extension program including 5% Master Gardener and 4.6% Florida Yards and Neighborhoods. 39% indicated they hadn't yet taken another extension program, but were interested in doing so.

The curriculum-based FMNP has received a very positive response from professional organizations such as the Florida Fish and Wildlife Conservation Commission, Department of Environmental Protection, and others. Eight national awards and ten state awards have been

given to the program and its leader, Dr. Martin Main (for complete list, see www.MasterNaturalist.org).

In addition to educating individuals to promote increased knowledge and a stronger conservation ethic among others, the FMNP is influencing the manner in which FMNP graduates think about local issues and their own actions. Annual surveys reveal that the FMNP has motivated 80% of graduates to more closely evaluate local environmental issues and politicians, and 78% to more closely evaluate their own actions in regard to recycling, lawn care, and water conservation.

The FMNP, therefore, is affecting peoples' actions, behaviors, and attitudes in positive ways and we've received hundreds of testimonials that demonstrate impacts of the FMNP in political, professional, economic, educational, and personal contexts:

FMNP graduate testimonials are far too numerous to cover in detail, but a few examples are provided:

- [The FMNP] Has helped me in the decision making process when addressing environmental issues that impact government issues.
- I recently received a Senate appointment to the State Greenways and Trails Council and my completion of the FMNP Uplands Habitat module helped with that selection process.
- I am starting a new position as an Environmental Specialist with the county. Having FMNP on my resume helped me land the position.
- I am currently interviewing for a state park position (D.E.P.) and having FMNP was a big bonus on the application and interview.
- The time I spent participating in the FMNP has given me the self-confidence to pursue a doctoral degree.
- My training in the Florida Master Naturalist Program has made me a better environmental consultant.
- It [FMNP training] may actually lead to the formation of a new company.
- For me the FMNP is part of a "change of direction in life" strategy away from my role as an employee benefit insurance consultant for a large corporation.
- I was Elementary Environmental Educator of the Year for Broward County 2004-2005. I use almost the entire [FMNP] project in my classes.
- My wife currently runs a 30+ family home school group. I recently taught a 3 session class on wetlands conservation and protection of our local water sources for the teens in our group.

- I took the Coastal Systems Module and as a result have given "beach" programs to high school students, volunteer groups and soon condo residents.

- Since completing the FMNP I have volunteered with the Volusia County Schools Legacy Program.

- I have become the President of my local Native Plant Society.

- I have become the "authority" on nature subjects for my family.

B. Living Green TV Series

In collaboration with WUFT TV, a general audience TV show called "Living Green" has been produced. Living Green (www.livinggreen.ifas.ufl.edu) is an award-winning half-hour TV show that helps individuals to understand what it means to be "living green" in their own communities. The focus of this show is to illustrate "green" design and management practices within and around urban areas. The flavor of the show is upbeat and even humorous at times when presenting the myriad of challenges and solutions associated with any environmental issue. Produced by Mark Hostetler, the show highlights a wide range of environmental issues, outlining the need for a united response at the local, and most important, individual level. It is aired on PBS affiliates and local stations nationally and throughout Florida. Living Green is a PBS quality production and has a national distribution with a 39% carriage rate of all PBS stations, reaching over 114,000,000 people in 44,740,000 households.

Program Objective

1) raise public awareness about proper wildlife and natural resource conservation strategies.

Activities

A combination of 7 broadcast 30-minute shows, 11 thirty-second "Living Green Moments," and an associated educational web site were developed to reach the general public. In a significant collaboration with the National Education and Telecommunication Association (NETA), we have been able to get each of our shows approved by NETA and thus distributed to PBS-affiliated stations across the U.S. (e.g., California, Michigan, and Texas).

Outcomes and impacts

In a significant collaboration with the National Education and Telecommunication Association (NETA), we have been able to get each of our shows approved by NETA and thus distributed to PBS-affiliated stations across the U.S. (e.g., California, Michigan, and Texas). Living Green has a 39% carriage rate of all PBS stations, reaching over 114,000,000 people in 44,740,000 households (Trac Media analysis http://www.pubtv.net/). This is a significant accomplishment

as PBS only broadcast quality programs on their stations. About 150 PBS affiliate stations have aired the show in over 22 states.

Section 6.3 Summary of extension products

I. EDIS Documents

The below EDIS documents are peer-reviewed extension documents made available in print and online (http://edis.ifas.ufl.edu/).

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VII. Brochures and Maps

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VIII. Powerpoint Presentations Scripted for County Extension Agents

- Natural resource powerpoint presentations and scripts available for county extension agents http://www.wec.ufl.edu/extension/extension/

  - Bird Monitoring Program 32 slides
  - Urban Environments and Wildlife 59 slides
  - Effects of Invasive Plants on Wildlife 48 slides
  - Landscaping for Birds 55 slides
  - Florida Bird Monitoring 34 slides
  - Landscaping for Wildlife 97 slides
  - Snail Kites 32 slides
  - Sea Turtles 48 slides
  - Gopher Tortoise 55 slides
  - American Alligator 41 slides
  - Landscaping for Butterflies 25 slides

- PowerPoint presentations on venomous snake safety available for county extension agents: http://ufwildlife.ifas.ufl.edu/extension_resources.shtml

- Youth – series of powerpoint presentations and EDIS publications to enable county agents to teach youth about bats

IX. Other Extension Powerpoint Presentations

- Giuliano, W.M. 2005. Wild hogs in Florida. Educational Program .
- Giuliano, W.M., and J. Selph. 2005. Florida's quail. Educational Program
- Hostetler, M.E. Creating and Managing Green Communities
- Hostetler, M.E. A Bird's Eye View: Conserving Urban Biodiversity
- Hostetler, M.E. Conserving and Managing Open Space
- Hostetler, M.E. Engaging Residents in Conservation

Miscellaneous presentations: Stand-alone powerpoint presentations on various aspects of wildlife management suitable for a variety of audiences. These presentations are typically delivered several times and are available for use by extension agents as well.

- *"Promoting Wildlife in Your Woods."*
- *"Encouraging Wildlife in Your Yard."*
- *"Beneficial Wildlife to Attract to Your Farm."*
- *"Dealing with Unwanted Wildlife."*

Miscellaneous presentations: Stand-alone powerpoint presentations on various aspects of wildlife management suitable for a variety of audiences. These presentations are typically delivered several times each year and are available for use by extension agents as well.

- *"Promoting Wildlife in Your Woods."*
- *"Encouraging Wildlife in Your Yard."*
- *"Beneficial Wildlife to Attract to Your Farm."*
- *"Dealing with Unwanted Wildlife."*

X. Posters, Educational Posters, Kiosks, Wildlife ID Sheets, Coloring Books

- 2009: "Identification Guide to the Snakes of Florida" (identification guide to all of Florida's native and several introduced snake species, co-authored by Monica McGarrity)
- 2009: *"Amphibians and Reptiles of the Southwest Florida Water Management District"* (assisted District biologist Paul Elliot to produce this pictorial guide)
- 2007: *"West Central Florida's Frogs and Toads"* (contributor on ID card deck distributed by the Hillsborough River Greenways Task Force)
- 2007: *"Know Florida's Venomous Snakes"* (for youth audiences, co-developed with Monica E. McGarrity), http://ufwildlife.ifas.ufl.edu/KnowFLVenomousSnakes2.pdf
- 2006: Set of six species fact sheets for Florida's six venomous snakes (co-authored with Esther Langan), http://ufwildlife.ifas.ufl.edu/VenomousSnakesFL.htm
- 2005: Book of nine coloring sheets showcasing Florida's frogs (for youth audiences, illustrated by Dale A. Johnson), http://ufwildlife.ifas.ufl.edu/Files/Coloring%20Book.pdf
- "Venomous Snakes of the Southeast" – educational poster available for purchase through IFAS books – http://www.ifasbooks.ufl.edu
- "Serpientes Venenosas del Sureste de los EEUU" – educational poster available for purchase through IFAS books – http://www.ifasbooks.ufl.edu
- Posters made available for viewing on University of Florida web site (http://crocdoc.ifas.ufl.edu/posters.htm)
- USGS South Florida Information Access (SOFIA) – various posters (http://sofia.usgs.gov/geer/2003/posters.htm)
- USGS South Florida Information Access (SOFIA) - Research on Alligators and Crocodiles (http://sofia.usgs.gov/sfrsf/rooms/wild_wet_eco/gator_croc/index.html)
- Brochures on land conservation and acquisition and the American Crocodile (http://crocdoc.ifas.ufl.edu/brochures.htm)
- Linking the South Florida Multi-Species Recovery Plan: A Distribution Map (http://crocdoc.ifas.ufl.edu/msrpmap/index.php (Interactive Map))
- Development of virtual field trip website (http://crocdoc.ifas.ufl.edu/fieldtrip.htm)
- South Florida Vegetation Classification Scheme Crosswalks web site (http://crocdoc.ifas.ufl.edu/crosswalk/)
- Displays on alligators, crocodiles, watershed education and everglades restoration in St. Petersburg, Bradenton, Miami, and Reston, VA

Educational Panels for Green Development Kiosks

- Composting: How to compost kitchen and yard waste
- Energy: How to conserve energy within the home and use of trees and vegetation for shading

- Light: Use of compact fluorescents
- Recycle – The Four Rs: Tips on recycling, reducing, and reusing
- Cypress Ponds: Description of cypress ponds and their conservation
- Fire: How and why prescribed fire is used
- Harmony's History: Human history of Town of Harmony
- Pine Flatwoods: Natural history of pine flatwoods
- Insects: Pollinators
- Wings and Crawling Things: Metamorphosis and natural history of butterflies
- Integrated Pest Management: Using insects for pest management
- Mosquitoes : Natural history of mosquitoes and their control
- The Birds and the Bees
- Life Around the Lake: Alligators Natural history of alligators and ways to live with them
- Aquatic Invaders: Invasive exotic aquatic weeds, identification and their control
- Life Around the Lake: Water Birds Natural history of waterbirds
- Land of Lakes: Description of lakes and their formation
- Alien Invaders: Invasive exotic plant identification and control
- Working with Your Landscape: Environmental landscape management tips
- A Florida Landscape : Environmental landscaping design tips
- Florida Natives: Use of native plants in the landscape
- Under our Feet: Florida's Water - Florida watershed and groundwater
- Where Does the Water Go? Stormwater management in urban areas
- Every Drop Counts: How to conserve water in the home
- Water-wise Landscaping: How to water efficiently
- Getting to Know Your Neighbors: Gopher Tortoises Natural history of gopher tortoises
- Unwelcome Guests: How to manage human/wildlife conflicts
- Getting to Know Your Neighbors: Sandhill Cranes
- Wildlife in Your Backyard: Landscaping for wildlife

XI. Multimedia instruction: CDs/DVDs

- "Venomous Snakes: Identification, Safety, and Exclusion" – 2-disk CD/DVD training set available for purchase through IFAS books – http://www.ifasbooks.ufl.edu
- Giuliano, W.M., and J. F. Selph. 2006. Deer and turkey management. (CD).
- Giuliano, W.M., J. Selph, and W. Sheftall. 2006. Quail ecology, management, and issues. (DVD).

Living Green DVDS (30 minute shows)

- Landscaping for Wildlife - This premiere episode explores different options and strategies people can use to landscape for wildlife.
- Invasive Exotics - This episode focuses on the importance of controlling invasive exotic plants, insects, and animals.
- Conservation Easements - Viewers learn about how conservation easements work and how a farmer/landowner can establish them on his or her property.
- Renewable Energy - Viewers learn where our current energy comes from, recent advances in renewable energies (e.g., biodiesel and solar power), and how businesses can conserve energy.
- Energy Conservation - Energy conservation strategies for a home are featured, including construction techniques, how one can retrofit a home to become energy efficient, rebates and tax credits for energy conservation practices, and lifestyle changes.
- Sustainable Fishing - This episode explores several sustainable fishing issues: proper catch and release techniques; regulations for keeping fish; proper disposal of fishing line; the use of fish-friendly hooks; and even the dangers of feeding fish carcasses to birds.
- Living with Sea Turtles -Topics discussed include: effects of coastal lighting, beach nourishment, near shore and off shore pollution, and human behavior on beaches.
- Living Green Moments (30 second shorts) -Eleven 30 second "moments" show examples of how to adopt a conservation practice in your own home and to learn more about how to live green.

XII. Extension Websites

- Gulf Coast Research and Education Center, Wildlife Extension website – http://ufwildlife.ifas.ufl.edu
- Wildlife and Agriculture website: a clearinghouse of information on the ecology and management of wildlife in agricultural lands and how to integrate wildlife management and agricultural land-uses. (2006-present; http://wildlifeandag.wec.ufl.edu).
- Florida Quail website: a clearinghouse of information on quail research and the ecology and management of quail in Florida. (2006-present; http://floridaquail.wec.ufl.edu).
- Wildlife and Hunting page of the Small Farms/Alternative Enterprises website. (2005-present; http://smallfarms.ifas.ufl.edu/wildlifehunting).
- Florida Master Naturalist Program (FMNP), www.MasterNaturalist.org
- South Florida Coyote study http://swfrec.ifas.ufl.edu/wild/coyote/index.htm
- Virtual field trip website (http://crocdoc.ifas.ufl.edu/fieldtrip.htm
- Linking the South Florida Multi-Species Recovery Plan: A Distribution Map (http://crocdoc.ifas.ufl.edu/msrpmap/index.php (Interactive Map))
- Development of virtual field trip website (http://crocdoc.ifas.ufl.edu/fieldtrip.htm)
- South Florida Vegetation Classification Scheme Crosswalks web site (http://crocdoc.ifas.ufl.edu/crosswalk/
- FMNP Extension Web Site: http://www.masternaturalist.ifas.ufl.edu/ (and http://www.masternaturalist.org/); South Florida Coyote study http://swfrec.ifas.ufl.edu/wild/coyote/index.htm

- WEC Wildlife Extension Web Site: http://www.wec.ufl.edu/extension
- Florida Backyard Landscapes for Wildlife Program: http://www.wec.ufl.edu/extension/fl_habitat_program.htm
- Public Bird Monitoring Program: http://bird.ifas.ufl.edu
- Living Green TV shows on natural resource conservation (http://www.livinggreen.ifas.ufl.edu

Section 7.1 Overview of International Programs

Conservation of biological resources worldwide depends on science-based understanding of the dynamics of ecological systems, the environment, and human dimensions, and the presence of trained professionals in each nation who can identify key conservation issues, develop innovative research programs, and promote informed decision making. In many parts of the world, current human capacity is inadequate to meet this need. For example, the World Wildlife Fund estimates that 3,700 wildlife biologists will be needed in Latin America in the next decades. However, most countries in the tropics and throughout the developing world do not have strong programs to train professionals and lack research programs to fully address urgent conservation problems. To address these gaps, WEC faculty lead international programs across the globe with a special emphasis on Latin America. WEC faculty and students conduct research and participate in international conservation projects in collaboration scientists and WEC alumni from these countries; serve on advisory boards for natural resource agencies at regional and national levels; teach and serve on thesis committees at international universities; and participate in and help organize international conferences and journals. For example, WEC faculty founded the Latin American Wildlife Congress which meets every two years and now has an attendance of 400 to 800 Latin Americans; the 9th congress will be hosted in Bolivia this year by WEC alumni. Examples of some of the work and impacts WEC has made internationally are presented below.

Tropical Latin America and the Caribbean

For over three decades, WEC has been the leader in training conservation professionals, biodiversity research, and building of conservation programs in tropical Latin America. Three current strengths of WEC in this region are ecology and conservation of mammalian carnivores, tropical plant ecology and plant-animal interactions, and conservation outreach and program evaluation. In addition, graduate training and research in the Florida Everglades by WEC faculty has lead to collaborations on wetlands conservation in Central and South America and the Caribbean. Carnivore research includes assessment of human impacts on the little known carnivore communities of the Ecuadorian Andes and studies of jaguar ecology, approaches to decrease human-jaguar conflicts, and synergistic impacts of roads and hunting on jaguars in Belize, Brazil, Guatemala, Ecuador, and Venezuela. This work is funded by the National Geographic Society, Wildlife Conservation Society, Panthera, World Wildlife Fund, and other conservation organizations. Long-term field studies of plant ecology and mutualisms are conducted in the Brazilian Amazon and Cerrado with funding from the National Science Foundation. These studies, which incorporate strong in-country collaboration, demonstrate the important impacts of habitat fragmentation on plant population dynamics and the role of animals (leaf-cutter ants and small mammals) in maintaining diversity of Cerrado plants. Other research in the Cerrado has highlighted the important interactive effects of human disturbance and climate change. Conservation education initiatives in Central America, which have focused on research and development of educational programming, have improved natural resource management in protected areas in Belize, Honduras, and Guatemala. Other related research includes assessment of communication systems of the MesoAmerican Biological Corridor, development of park

outreach programs in the Bahamas, and a program to mitigate oil exploration in Brazil. Work in Latin America supports initiatives of a large number of NGOs, such as IUCN, WWF, and WCS, regional and national government agencies, and universities For example, Emilio Bruna serves as adjunct faculty at University of Sao Paulo and Federal University of Uberlandia in Brazil, and Perran Ross advises CONABIO, the Mexican National Commission for the Study and Use of Biodiversity, on crocodilian conservation planning and CITES issues.

Southern Cone of South America

Since 1991, WEC faculty have addressed conservation problems in the Southern Cone (Argentina, Chile, and Paraguay) by integrating long-term research, training, and institution building. Research in the Southern Cone focuses on forest biodiversity, especially song birds, in fragmented landscapes of southern Chile and northern Argentina, integration of biodiversity conservation into agricultural landscapes, roles of keystone species in shaping ecosystem structure and function, and ecology and conservation of threatened and endangered species such as jaguars, pudu deer, and mountain vizcachas. A key goal of the Southern Cone program is to build capacity of local organizations to train conservation leaders and conserve biodiversity and wildlands in southern South America. To achieve this goal, WEC faculty work with developing undergraduate and graduate curricula at universities in Argentina, host researchers and conservation practioners from the Southern Cone for collaborative learning experiences at UF, teach courses at Southern Cone universities, and work with NGOs and government agencies in the Southern Cone to address their conservation problems. WEC faculty serve as adjunct faculty of the National University of La Pampa and as advisors to the Argentine National Park Service, National Network for Monitoring Biodiversity in Agro-ecosystems of Argentina, and provincial natural resource agencies.

Asia

WEC has had a major impact on conservation of carnivores in Asia, primarily through the work of Mel Sunquist and his graduate students. Recent research projects include studies of the impact of predation by tigers, leopards, and dhole on the herbivore community of southern India and spatial ecology of leopard cats and tigers in Borneo, Malaysia, and Laos. Research in Malaysia has led to design of large scale corridors to connect conservation areas for tigers. Other research in Asia focuses on ecology and conservation of elephants, primates, and crocodilians in India, Thailand, Cambodia, Sumatra, and Borneo, conservation of bird diversity in private reserves of Sumatra, fisheries issues in Mongolia, and ecology and conservation of wading birds in Bhutan. WEC also has made important contributions to conservation of other species, including crocodilians, wading birds, and passerines, through research activities and conservation work through capacity building and conservation planning throughout Asia.

Africa

WEC faculty and students have engaged in several important projects related to crocodilian conservation and human dimensions of wildlife conservation in various parts of Africa. WEC faculty and students have revised the taxonomy of African crocodilians, studied their distribution and habitat use, and played a significant role in developing conservation plans for these species. Human dimensions research in Africa has focused on monitoring and evaluation of integrated

conservation and development programs. These include studies assessing the impacts of a butterfly farming program on forest conservation and resident livelihoods in Tanzania, monitoring of wildlife tourism programs in Zambia, capacity building for wildlife clubs of Kenya, mitigation of human-elephant conflicts in Kenya, and evaluating the effectiveness of community-based conservation programs at parks in Uganda. Much of this work has sought to understand the training needs and communication interventions that enable these types of programs to be effective.

WEC participation in cross-campus international programs at UF

WEC faculty and students participate in a variety of international programs across campus. Two key programs are **Program for Studies in Tropical Conservation (PSTC),** which was developed by faculty from WEC, and the **Tropical Conservation and Development Program**, which is located within the Center for Latin American Studies but also has strong ties with the Center for African Studies. WEC faculty direct PSTC, serve on the TCD steering committee, and are core faculty in TCD (Emilio Bruna has a joint faculty appointment in WEC and TCD). PSTC is an interdisciplinary program that develops human resources and strengthens institutions in tropical countries through integrated research and training. PSTC facilitates international graduate training at UF by garnering funding for graduate student fellowships and research activities. TCD's mission is to bridge theory and practice to advance biodiversity conservation, sustainable resource use, and human well-being in the tropics. TCD provides graduate courses in conservation skills and an interdisciplinary certificate in Tropical Conservation, promotes integrative problem-centered research, and strengthens networks of conservationists across Latin America and Africa. TCD activities (e.g., fellowships for students and conservation practitioners, research grants, sponsorship of conferences and workshops.) are supported by an endowment from Ford Foundation as well as significant funding from the Moore Foundation, McArthur Foundation, and other sources.

Representative Notable International WEC Alumni

WEC alumni have had extraordinary impacts on conservation in Latin America, Africa, and Asia. A few of these alumni are listed below.

Claudio Padua *(Brazil; Ph.D.)* President, IPE - Instituto de Pesquisas Ecologicas, Brazil; Awarded Time Magazine Conservation Leader, Whitley Award (Royal Geographic Society), and Society for Conservation Biology Achievement Award.

Gustavo Fonseca *(Brazil; Ph.D.)* Director, Brazil Program, Conservation International; Founder of the first university program in wildlife ecology and conservation in Brazil; Currently program director for Global Environment Facility (GEF).

Andres J. Novaro (*Argentina*: *Ph.D.*); Co-director, Patagonian and Southern Andean Steppe Program, Wildlife Conservation Society, Argentina; Awarded Whitley Award (Royal Geographic Society).

Jaimie Jiménez (*Chile; Ph.D.)* – Professor of Wildlife Ecology, University of the Lakes, Osorno, Chile.

Diego Villarreal (*Argentina: M.S.*) – Professor of Conservation Biology and Wildlife Ecology, National University of La Pampa, Argentina.

Rodriguez Medellin *(Mexico; Ph.D.)* Director, National Wildlife Agency, Mexico; currently Professor UNAM (Institute of Ecology, National Autonomous Univ. of Mexico)

Eduardo Inigo-Elias *(Mexico; Ph.D.)* Program Officer, World Wildlife Fund – Mexico; Coordinator, Neotropical Bird Conservation Program and Senior Research Associate.

Arthur Mugisha (*Uganda; Ph.D.*) Director, Uganda Wildlife Authority; Currently program director for International Flora and Fauna.

Omar Figueroa (*Belize; Ph.D., candidate*) Senator, Government of Belize

K. Ullas Karanth, *(India; Ph.D.)* Senior Scientist, International Programs, Wildlife Conservation Society; Awarded the J. Paul Getty Award for Conservation Leadership in 2007.

Section 7.2 Study abroad programs

WEC faculty have recently developed two study abroad programs in New Zealand (to be taught for the first time in summer 2010) and in Namibia (first taught in 2008). Additional one-time international short courses have been developed for graduate students, such as a 1-week course on park planning and environmental interpretation conducted in Belize.

A. New Zealand

The study abroad program in New Zealand consists of two 3-credit courses taken concurrently (WIS 4905 Biodiversity Conservation and Management, WIS 4905 Urban Sustainable Development and Planning). This 5-week, experiential program introduces students to New Zealand's unique flora and fauna and local/national efforts to conserve and restore biodiversity. Conserving and restoring biodiversity in highly-modified environments is a struggle, and the focus of this course is to expose students to how New Zealanders have tackled this problem. Topics span both the natural and social sciences, including human dimensions of natural resource conservation and basic ecology. Special emphasis is given to the design and management of urban landscapes as they pertain to biodiversity conservation. In the first part of the course, students learn about the flora and fauna of New Zealand, the historical and current impacts by Maori and Europeans, and strategies used to conserve biodiversity. The second part of the course explores the human dimension side of conservation and the role of planners and policymakers, developers and landscape architects, landowners, and the public. Frequent field trips are combined with lectures by various experts in the field of conservation ecology and planning. Students come away from the course with an understanding of the challenges and solutions to implementing conservation strategies in growing communities.

B. Namibia

The study abroad program in Namibia consists of three 2-credit courses taken concurrently by students (WIS 4905: Namibian Field Mammalogy, WIS 4905: Namibian Field Ornithology, WIS 4905: Ecotourism Management in Namibia). The course is led by 3 faculty members with expertise in each of these topics. During this 3-week field course students study the ecology and conservation of mammals and birds in a variety of ecosystems in Namibia and learn about ecotourism programs administered by communities and private enterprises. For the first two weeks of the course, students reside at the Otjiwa Game Ranch, about 1.5 hours north of Windhoek. This location provides extraordinary opportunities to observe mammals of dry savannah woodland and has over 200 species of birds. The last week of the course is devoted to traveling around Namibia to learn about other ecosystems in Namib Naukluft Park, Cape Cross and Swakopmund. Among the highlights of the program are visits to cheetah conservation areas where students learn first-hand about conservation efforts of the Cheetah Conservation Fund.

Section 8.1 History of the Ordway-Swisher Biological Station

The area now occupied by the Ordway-Swisher Biological Station has a rich cultural history. Native Americans first arrived in Florida about 14,000 years ago, and by the time Europeans reached Florida's shores, an estimated 350,000 indigenous people occupied the state. At the time of European contact, the region now occupied by the Station was most likely inhabited by the Timucua people. Native Americans used dugout canoes to navigate the lakes and wetlands of the Station, and several of these boats still remain on the bottom of the Station's lakes. The Timucuans were decimated following settlement by Europeans, with numbers declining from an estimated 50,000 to 200,000 people at the time of first contact by 75% by 1600, to an estimated population size of around 1,000 in 1700, to 5 or fewer Timucuans alive when Florida was acquired by the United States in 1821.

The first homesteaders of European decent on the property were Elijah Wall and his family, who moved from South Carolina. The Walls arrived in 1847 and established a farm on the east side of the site now occupied by the Station, near the present-day town of Putnam Hall. Wall Lake, named for the family, borders the Station. Elijah Wall, his wife, sons, daughters, and family slaves were buried in a small cemetery that is located on the Station; their headstones and grave sites remain preserved there.

Winnie and Columbus Ashley followed the Wall family from South Carolina in 1858 and established a farm on what came to be known as Ashley Prairie. The remains of a chimney on the Station persist from their former homestead.

There was a major influx of white and African-American families into the area following the end of the Civil War, and the names of several of these families were attached to local water features on the Station by land surveyors mapping the area in the late 1800s. White families, including the Arthurs, Barcos, Brantleys, Fords, Graingers, McLeods, and Suggs, established farms on the shores of Brantley, Barco, McCloud, and Suggs lakes. The Smiths, Cues, and Enslows, African-American families, settled on Smith, Anderson Cue, and Enslow lakes. These settlers grew subsistence crops, tobacco, and cotton on their farms, raised oranges, and ran herds of hogs and cattle in the local sandhills. Old fields scattered across the Station are mostly remnants of efforts of the homesteaders to carve out a living from the land. A total of 14 historic homesites have been identified on the Station.

The sweet orange was introduced to the area in the early 1870s, bringing new prosperity to the depressed area following the war. However, the region's orange industry collapsed following successive major freezes beginning in 1894. While some stayed on to replant following freezes, others moved farther south in search of more favorable conditions for their orange groves. Those that remained were frozen out time and time again. Small orange groves persisted at the Ashley and Grainger farm sites until at least the 1930s and around the Swisher house and adjacent fields until major freezes in the early 1960s. Isolated sour orange trees that remain at Suggs Lake and other spots on the Station are reminders of the unpredictable environmental factors that plagued settlers trying to survive in the harsh sandhills of north Florida.

As the orange industry began to move southward, logging and turpentine extraction began in the area. Much of the old growth longleaf pine on the Station was logged at the beginning of the 20th century with the remaining mature trees tapped for capturing pine rosin used in the turpentine industry. The longleaf pine surviving from this period on the Station still show the characteristic "cat-face" scar from the practice and many of the Herty clay pots for capturing pine rosin can be found on the Station. These remaining cat-face trees provided the seed source for much of the regeneration of longleaf in the Station's sandhill communities.

With greater prosperity following World War I, people started to see the North Florida Lake area as an ideal site for recreation, and sportsmen bought properties in the region for hunting and fishing. One such sportsman was Carl Swisher, an avid fisherman and son of John H. Swisher who was well known for the "Swisher Sweet" cigar. Carl Swisher began to acquire properties around Goose Lake in 1926 as a place to fish and as a retreat from his home in Jacksonville. By the time of Mr. Swisher's death in 1972 he had amassed approximately 25,000 contiguous acres in the area. The Swisher family and their guests used the tract as their private hunting and fishing preserve. . Under Swisher's ownership, the land remained in a relatively natural state except for clearing of a few small areas for hay fields and reuse of some of the existing old fields for growing chufas and feed corn for livestock. Fencing was constructed on the Station to manage cows and hogs, and the forests were burned each year starting in March by Jim Aldermen (Swisher's cattle lease) to support livestock grazing and quail hunting. This frequent burning was the primary reason that the Station's sandhill communities did not succumb to hardwood succession. After Mr. Swisher's death, the family donated about 3,000 acres of this property to The Nature Conservancy (TNC) in 1979 as a memorial to honor him - the Carl Swisher Memorial Sanctuary.

A year later, in 1980, the Goodhill Foundation granted the University of Florida $5.25 million to establish an open-air laboratory in the longleaf pine sandhills of north-central Florida. The Goodhill Foundation was founded by Katharine Ordway, heiress to the 3M Company fortunes, who was an avid conservationist whose legacy left a constellation of conservation preserves, mostly in the Midwestern United States. The University of Florida Foundation (UFF) used the funds to purchase a parcel of more than 6,000 acres, naming the property the Katherine Ordway Preserve. From a combination of funds from the Goodhill grant, support from TNC, matching state funds, and selling off some unwanted parcels of the land, a small maintenance endowment (currently at $2 million) was established. In 1983, UFF and TNC signed a joint management agreement that assigned day-to-day management of the Sanctuary to UFF. A half-dozen smaller parcels have been added over the years to support management logistics and wetlands protection.

In 2006, the Ordway and Swisher tracts and the smaller management parcels were collectively renamed the Ordway-Swisher Biological Station by the UF Board of Trustees. The Carl Swisher Memorial Sanctuary was gifted to the University of Florida Foundation in 2008, consolidating ownership of the Station. The Nature Conservancy retains a conservation easement on the Station, ensuring its perpetual use for conservation, research, and education.

The University of Florida Foundation leases the property to the University of Florida under a 40-year perpetual lease. The Department of Wildlife Ecology and Conservation manages Station on behalf of the University.

The Station is used for research and teaching by UF departments and many other academic institutions as well as by state and federal agencies. It is rapidly expanding its impact and use with new efforts to strengthen its programs. The Station has been selected by the National Ecological Observatory Network (NEON) to serve as its core site for the Southeast Domain. NEON will track changes in the nation's environment and catalyze advancement of ecological science over the next three decades.

Section 8.2 Ordway-Swisher Biological Station Mission Statement

The Ordway-Swisher Biological Station is dedicated to the long-term study and conservation of unique ecosystems through conservation, research, and education. Its mission is to be a world-class biological field station that is a leader in the development of new knowledge and educational programs. The Station will be the site of internationally significant research activities, a hub of educational activities focused on the ecosystems present at the site, and an important site for conservation of long-leaf pine, sandhill, and aquatic ecosystems.

Section 8.3 Ordway-Swisher Biological Station Advisory Structure

The advisory structure for the Ordway-Swisher Biological Station has two components: an Executive Advisory Council and a Faculty Advisory Committee.

- *The Executive Advisory Council* provides guidance and advice to the Director of the Ordway-Swisher Biological Station, the University of Florida administration, and the University of Florida Foundation concerning site development, establishment of Station priorities, program administration, policies of the Ordway-Swisher Biological Station, and other issues. Committee advice and guidance will be strongly considered in all decisions made for the Station by University and Foundation administrators.

Initial membership of the Executive Advisory Council is:

Lindsay Boring – *Jones Ecological Research Center*
Karl Havens – *Florida Sea Grant*
Ross Hinkle – *University of Central Florida*
Bob Holt – *University of Florida Department of Zoology*
Robert Hutchinson – *Alachua Conservation Trust*
Doug Jones – *Florida Museum of Natural History*
Doug Shaw – *The Nature Conservancy*
Hilary Swain – *Archbold Biological Station*
Walt Thomson – *The Nature Conservancy*

- *The Faculty Advisory Committee* provides the Director, Program Director, and Program Coordinator of the Ordway-Swisher Biological Station with advice on promotion and development of scientific and educational programs of the Station, will review and approve or disapprove research proposals that may restrict long-term options for the Station or that could conflict with other research and management activities at the Station, and will provide scientific and educational insight and information to the Executive Advisory Council. The Faculty Advisory Committee will be established in 2010.

Although the fundamental goals of the Ordway-Swisher Biological Station (conservation, research, and education) will not change, with the implementation of NEON and increased use of the Station, the Station's needs are likely to evolve considerably and in ways that are difficult to fully predict. As a consequence, the Station's advisory structure may need to evolve as well. As a result, the new advisory structure will be established for a period of three years. At the end of that period, the utility, structure, and membership of the Executive Advisory Council and Faculty Advisory Committee will be revisited, and changes will be implemented as appropriate.

The Executive Advisory Council will meet one or two times each year. The Faculty Advisory Committee will meet at least once per year, with additional meetings convened as needed.

Section 8.4. Active Research Projects at the Ordway-Swisher Biological Station (March 2010)

	Project title	Affiliation	Type	Degree
1	Behavioral and demographic consequences of urbanization for Northern Mockingbireds (*Mimus polyglottos*)	Biology	Graduate	PhD
2	Population ecology of the large aquatic salamanders *Siren lacertina* and *Amphiuma means*	USGS	Federal Agency	N/A
3	Spatial Modeling of Vegetative Fuel Loads to Assess Longleaf Pine Regeneration Success on Multiple Scales	SFRC	Graduate	PhD
4	Fauna of Rosemary, *Ceratiola ericoides*	Entomology & Nematology	Faculty	N/A
5	Effects of nutrient addition on diversity and ecosystem functioning	WEC	Faculty / Post Doc	N/A
6	Temporal use of gopher tortoise burrows	WEC	Faculty	N/A
7	Survey of Native Bees	Entomology & Nematology	Faculty	N/A
8	Flowering phenology as a reproductive isolating mechanism between two sympatric live oaks	University of Minnesota	Other Univeristy	N/A
9	Avian Monitoring in Sandhill Habitat in Florida	FWC	State Agency	N/A
10	Comparative stem sectoriality in Florida Oaks	Biology	Post -Doc	N/A
11	Assessing the relative importance of insect communities and vegetative density in the foraging habits of forest bats in Florida	WEC	Graduate	MS
12	The role of parent-offspring communication during predator encounters in treehopper (Hemiptera: Membracidae) families.	Division of Biological Sciences, U. Missouri	Graduate	PhD
13	Linking bioenergetics and trophic ecology across a patchy landscape	Biology	Graduate	PhD
14	Sexual selection in the golden orb spider	Biology	Graduate	PhD
15	Sexual selection and natural history of the cactus bugs, *Narnia femorata* and *Chelinidea vittiger*	Entomology / Nematology	Faculty	N/A
16	Stable carbon isotope variation in deciduous temperate forests of varying canopy density and across latitudinal gradients	Biology	Graduate	PhD
17	Study of *Podomys floridanus* population genetics over time	FLMNH & WEC	Grad & Faculty	PhD

18	Southeastern American Kestrel Population Monitoring and Recovery	FWC	State Agency	N/A
19	Establishment of a *Peromyscus gossypinus* breeding colony.	Harvard	Graduate	PhD
20	Geographic distribution and relationships of katydids in the genus *Amblycorypha*	University of North Carolina @ Asheville	Faculty	N/A
21	Carbon reserves, tree demography, and climate change thresholds across eastern temperate forests.	University of Illinois, Urbana-Champaign	Faculty	N/A
22	UF Scholars Research - Undergraduate	Entomology & Nematology	Undergraduate	N/A
23	NEON soil microbe pilot study	National Ecological Observatory Network	Federal Agency	N/A
24	Landscape and demographic studies of sandhill/sandhill transition zone field mice communities at OSBS.	WEC	Faculty	N/A
25	Testing the effects of non-lethal predation risk on birds	WEC	Graduate	PhD
26	Ecology and biology of the redbay ambrosia beetle	Entomology & Nematology	Graduate	PhD
27	The influence of Tufted Titmice anti-predator vocalizations	WEC	Graduate	MS
28	Diversity and pollination ecology of flower-settling moths (Lepidoptera: Pyralidae) in Florida scrub and related upland communities	Entomology & Nematology	Graduate	MS
30	Applying Life History Theory for predicting prey behavioral responses to predation risk.	WEC	Graduate	MS
31	Gopher tortoise density and fire history as indicators of Florida mouse abundance and genetic structure	WEC	Faculty	N/A
32	The relationship between sandhill habitat burn-age and genetic structure in Florida mouse populations at OSBS.	WEC	Undergraduate-	N/A
33	Is gopher tortoise density an indicator of Florida mouse abundance? Genetic and demographic approaches to studying a commensal system of conservation importance in Florida.	WEC	Undergraduate	N/A

Faculty Profiles

Section 9

Name: James Austin
Position: Assistant Professor
Appointment: Research: 60% Teaching: 40%

Educational Background:

Ph.D.: 2004, Biology, Queen's University
B.S.: 1997, Biology (Honors), University of Victoria
B.A.: 1995, History, University of Victoria

Professional Experience:

University of Florida
Assistant Professor, 2006 to present.
Cornell University
Postdoctoral Fellow 2004-2005.

Teaching Responsibilities at UF (last 3 years):

2006-present: WIS3553 – Introduction to Conservation Genetics
2009-present (odd years): WIS6934 – Molecular Ecology
2006; 2010-ongoing (even years): WIS6934 – Introduction to Conservation Genetics
2008: WIS6934 – Systematic Reviews in Conservation Biology
2007: WIS6934 – Geographical Genetics

Graduate Students (last 3 years):

Chair/co-chair: PhD 3; MS 2
Committee member: PhD 10; MS 1

International Activities (last 5 years)

Research projects on salamander diversity and biogeography in Honduras and crocodilian phylogenetics and biogeography in West Africa.

Research area:

Molecular ecology, conservation genetics, and phylogeography of a wide array of species.

Grants/Contracts/Gifts (last 3 years): $1,116,637 (Florida Fish and Wildlife Conservation Commission; National Marine Fisheries Service; US Dept. of Agriculture; Conservation International)

Publications (Career Summary)

16 refereed journal articles, 1 book chapters, 2 non-refereed publications, and 6 project reports.

Selected Publications

Austin, J. D., C. W. Miller, and R. J. Fletcher. 2010. What role can natural selection and phenotypic plasticity play in wildlife adaptation to climate change. In (Brodie et al. eds) Conserving Wildlife Populations in a changing climate. Univ. Chicago Press. In press

Saarinen, E., **J. D. Austin**, and J. C. Daniels. 2010. Unbiased estimates of N_e in an endangered butterfly reveals a possible role of genetic compensation. Evolutionary Applications 3: 28-39.

Townsend, J. H., J. M. Butler, L. D. Wilson, and **J. D. Austin**. 2009. A new species of salamander in the Bolitoglossa dunni group (Caudata: Plethodontidae: Bolitoglossinae) from Parque Nacional Montaña de Yoro, Honduras. Salamandra 45: 95-105.

Champagne, C. E., **J. D. Austin**, H. L. Jelks, and F. Jordan. 2008. Effects of fin clipping on survival and position-holding behavior of brown darters, *Etheostoma edwini*. Copeia 2008: 917-920.

Austin, J. D. and K. R. Zamudio. 2008. Incongruence in the pattern and timing of intra-specific diversification in bronze frogs and bullfrogs (Ranidae). Molecular Phylogenetics and Evolution 48: 1041-1053.

Baker, P., **J. D. Austin**, B. Bowen, and S. M. Baker. 2008. Range-wide population structure and history of the northern Quahog (*Merceneria merceneria*). ICES Journal of Marine Science 65: 155–163.

Lougheed, S. C., **J. D. Austin,** J. P. Bogart, and A. C. Chek. 2006. Multicharacter perspectives on the evolution of intraspecific differentiation in a neotropical hylid frog. BMC Evolutionary Biology 6: 23.

Austin, J. D., S. C. Lougheed, and P.T. Boag. 2004. Controlling for the effects of history and non-equilibrium conditions in gene flow estimates in northern populations of the bullfrog (*Rana catesbeiana*). Genetics 168: 1491–1506.

Austin, J. D., S. C. Lougheed, and P. T. Boag. 2004. Discordant temporal and geographic patterns in maternal lineages of eastern North American frogs, *Rana catesbeiana* and *Pseudacris crucifer*. Molecular Phylogenetics and Evolution 32: 799–816.

Austin, J. D., J. Davia, S. C. Lougheed, and P. T. Boag. 2003. Genetic evidence for female-biased dispersal in the bullfrog (*Rana catesbeiana*). Molecular Ecology 12: 3165–3172.

Austin, J. D., S. C. Lougheed, P. Moler, and P. T. Boag. 2003. Phylogenetics, zoogeography, and the role of vicariance and dispersal in the evolution of the *Rana catesbeiana* (Anura: Ranidae) species group. Biological Journal of the Linnean Society 80: 601–624.

Parkyn, D, **J. D. Austin**, and C. W. Hawryshyn. 2003. Acquisition of polarized-light orientation in salmonids under laboratory conditions. Animal Behaviour 65: 893–904.

Chek, A. A., **J. D. Austin**, and S. C. Lougheed. 2003. Why is there a tropical-temperate disparity in the genetic diversity and taxonomy of species? Evolutionary Ecology Research 5: 69–77.

Austin, J. D., S. C. Lougheed, J. Bogart, and P. T. Boag. 2002. Molecular perspectives on the evolutionary affinities of an enigmatic Neotropical frog, *Allophryne ruthveni*. Zoological Journal of the Linnean Society 134: 335–346.

Austin, J. D., S. C. Lougheed, A. A. Chek, L. Neidrauer, and P. T. Boag. 2002. Cryptic lineages in a small frog: the postglacial history of the spring peeper, *Pseudacris crucifer* (Anura: Hylidae). Molecular Phylogenetics and Evolution 25: 316–329.

Name: Lyn C. Branch
Position: Professor
Appointment: Research: 60% Teaching: 40%

Educational Background:

Ph.D.: 1989, Wildland Resource Science, University of California, Berkeley
M.S.: 1977, Zoology, Miami University
B.S.: 1975, Zoology, Mississippi State University

Professional Experience:

University of Florida
Professor, Department of Wildlife Ecology and Conservation, 2003 to present.
Affiliate Faculty, Center of Latin American Studies and School of Natural Resources and the Environment, 1990 to present.
Associate Professor, Department of Wildlife Ecology and Conservation, 1996 - 2003.
Assistant Professor, Department of Wildlife Ecology and Conservation, 1990 - 1995.
National University of La Pampa, Argentina
Adjunct Professor of Wildlife Ecology, Department of Natural Resources, 1990 - present
Ecologist and National Park Planner, Department of National Parks and Equivalent Reserves, Brazilian Institute of Forestry Development, Brazil, 1977 - 1980.

Teaching Responsibilities at UF (last 5 years):

2004-2009: WIS5555 - Conservation Biology
2004-2009: WIS4554 – Conservation Biology

Graduate Students (last 5 years):

Chair/co-chair: PhD 7; MS 4
Committee member: PhD 9; MS 4

International Activities (last 5 years)

Research on impacts of habitat fragmentation and other landscape change on mammals and birds in Argentina, Guatemala, and Ecuador; Scientific advisory board of the Argentine National Park Service; Advisor to the Department of Natural Resources, La Pampa Province, Argentina; Advisor to the National Biodiversity Monitoring Program for Agricultural Ecosystems, National Institute of Agricultural Technology, Argentina; Supervised 10 MS and Ph.D. theses conducted in Argentina, Bolivia, Ecuador, and Guatemala; Co-taught Research Design for Conservation in Brazil.

Research area:

Landscape ecology, habitat fragmentation, ecosystem engineering, conservation and ecology of forest and shrubland systems of Argentina.

Grants/Contracts/Gifts (last 5 years): $739,592 (National Science Foundation, Environmental Protection Agency, US National Park Service, US Fish and Wildlife Service, Department of Defense, Florida Fish and Wildlife Conservation Commission)

Publications (Career Summary)

50 refereed journal articles, 3 book chapters, 8 non-refereed publications.

Selected Publications

Schooley, R. L. and **L. C. Branch**. 2009. Enhancing the area-isolation paradigm: habitat heterogeneity and metapopulation dynamics of a rare wetland mammal. Ecological Applications 19(7): 1708-1722.

Pries, A. J., **L. C. Branch**, and D. L. Miller. 2009. Landscape dynamics and spatial distribution of beach mice in hurricane fragmented landscapes. Journal of Mammalogy 90(4): 841-850.

Pries, A. J., D. L. Miller, and **L. C. Branch**. 2008. Identification of structural and spatial features that influence storm-related dune erosion along a barrier-island ecosystem in the Gulf of Mexico. Journal of Coastal Research 24: 168-175.

Villarreal, D., K. L. Clark, **L. C. Branch**, J. L. Hierro, and M. Machicote. 2008. Alteration of ecosystem structure by burrowing herbivores. Journal of Mammalogy 89(3): 700-711.

Schooley, R. L., and **L. C. Branch**. 2007. Spatial heterogeneity in habitat quality and cross-scale interactions in metapopulations. Ecosystems 10(5): 846-853.

Walker, R. S., A. J. Novaro, and **L. C. Branch**. 2007. Functional connectivity based on cost-distance and genetic analyses: a case study for the rock-dwelling mountain vizcacha (Lagidium viscacia M.) in Patagonia, Argentina. Landscape Ecology 22(9): 1303-1314.

Machicote, M., **L. C. Branch**, and D. Villarreal. 2004. Burrowing owls and burrowing mammals: are ecosystem engineers interchangeable as facilitators? Oikos 106: 527-535.

Bird, B. L., **L. C. Branch**, and D. L. Miller. 2004. Effects of coastal lighting on foraging behavior of beach mice. Conservation Biology 18(5): 1435-1439.

Branch, L. C., A. M. Clark, P.E. Moler, and B.W. Bowen. 2003. Fragmented landscapes, habitat specificity, and conservation genetics of three lizards in Florida scrub. Conservation Genetics 4(2): 199-212.

Hokit, G. and **L. C. Branch**. 2003. Associations between patch area and vital rates: consequences for local and regional populations. Ecological Applications 13(4): 1060-1068.

Walker, R. S., A. J. Novaro, and **L. C. Branch**. 2003. The effects of patch isolation and size, habitat quality, and barriers in the matrix on the distribution of a rock-dwelling rodent (Lagidium viscacia). Landscape Ecology 18: 187-194.

Hokit, D. G., B. M. Stith, and **L. C. Branch**. 2001. Comparison of two metapopulation models on real and artificial landscapes. Conservation Biology 15(4): 1102-1113.

Clark, A. M., B. W. Bowen, and **L. C. Branch**. 1999. Effects of natural habitat fragmentation on an endemic lizard (Sceloporus woodi): an historical perspective based on an mtDNA gene genealogy. Molecular Ecology 8: 1093-1104.

Branch, L. C., M. Pessino, and D. Villarreal. 1996. Response of mountain lions to a population decline of the plains vizcacha in semi-arid scrub of central Argentina. Journal of Mammalogy 77(4): 453-472.

Name: Emilio M. Bruna
Position: Associate Professor with a Joint Appointment in the UF Center for Latin American Studies
Appointment: Research: 60% Teaching: 40%

Educational Background:

Ph.D.: 2001, Population Biology, University of California-Davis
M.S.: 1995, Biology, University of California-San Diego
B.S.: 1994, Ecology, Behavior, and Evolution, University of California-San Diego

Professional Experience:

University of Florida
Associate Professor, 2007 to present.
Assistant Professor, 2002-2007.
Affiliate Professor, School of Natural Resources and the Environment, 2002 to present.
Universidade Federal de Uberlandia, Brazil
Adjunct Professor, Program in Ecology and Natural Resource Conservation, 2005 to present.
Biological Dynamics of Forest Fragments Project, INPA-Smithsonian, Brazil
NSF Minority Postdoctoral Fellow, 2001-2002.

Teaching Responsibilities at UF (last 5 years):

2009: BOT 6935 - Tropical Forest Community Ecology
2008: LAS 6935 - Design and Methods of Research in Latin American Studies
2004, 2006, 2008: WIS 5521 - Plant-Animal Interactions
2005, 2007: WIS 3434 - The Ecology and Conservation of Tropical Wildlife
2004-2007: LAS 6290 - Research Methods in Tropical Conservation & Development
2004: Seminar in Wildlife Ecology and Conservation

Graduate Students (last 5 years):

Chair/co-chair: PhD 3; MS 4 (also 1 PhD co-chair in Brazil, 2 MS co-chair in Brazil)
Committee member: PhD 16; MS 11

International Activities (last 5 years)

Most of my research program is based in Brazil, where I study plant population and community ecology in Latin America's two largest biomes (the Amazon and the Cerrado). I am also a core faculty member in the Tropical Conservation and Development Program, with both teaching and administrative responsibilities. The three main goals of the TCD program are: (1) To train conservation and development professionals – especially those from Latin America and the Caribbean – to create and implement innovative policies, institutions and strategies that balance conservation with sustainable livelihood improvement; (2) To promote interdisciplinary research that integrates biological conservation and sustainable rural development in the tropics; and (3) To strengthen and expand a learning network with organizations in Latin America that have compatible goals and approaches to interdisciplinary training and research.

Research area:

Plant population and community ecology, plant-animal interactions, tropical ecology, tropical conservation and development.

Grants/Contracts/Gifts (last 5 years): $4,444,086 (National Science Foundation, Packard Foundation, US Department of Education)

Publications (Career Summary)

45 refereed journal articles, 3 book chapters, and 3 non-refereed publications.

Selected Publications

Uriarte, M., **E. M. Bruna**, P. Rubim, M. Anciaes, and I. Jonckeeere. In press. Effects of forest fragmentation on seedling recruitment of an understory herb: assessing seed vs. safe-site limitation. Ecology.

Iacona, G. D., L. K. Kirkman, and **E. M. Bruna**. In press. Effects of resource availability on patterns of ground cover seedling recruitment in a fire-maintained savanna. Oecologia**.**

Callis, K. L., L. R. Christ, J. Resasco, D. W. Armitage, J. D. Ash, T. T. Caughlin, S. F. Clemmensen, S. M. Copeland, T. J. Fullman, R. L. Lynch, C. Olson, R. A. Pruner, E. H. M. Vieira-Neto, R. West-Singh, and **E. M. Bruna**. 2009. Improving Wikipedia: educational opportunity and professional responsibility. Trends in Ecology and Evolution 24(4): 177-179**.**

Bruna, E. M., I. J. Fiske and M. Trager. 2009. Effect of habitat fragmentation on plant populations: is what we know demographically irrelevant? Journal of Vegetation Science 20: 569-576.

Bruna, E. M., M. R., Darrigo, A. M. Furuya Pacheco, and H. L. Vasconcelos. 2008. The defensive responses of ant mutualists to plant volatiles are species-specific. Biological Journal of the Linnean Society 94: 241-249.

Trager, M. and **E. M. Bruna**. 2006. Effects of plant age, experimental nutrient addition, and ant occupancy on herbivory in a Neotropical myrmecophyte. Journal of Ecology 94: 1156-1163.

Vasconcelos, H. L. E. H. M. Vieira-Neto, F. M. Mundim, and **E. M. Bruna**. 2006. Roads alter the colonization dynamics of a keystone herbivore in Neotropical savannas. Biotropica 38(5): 661-665. [Winner of the Award for Excellence in Tropical Biology and Conservation from the ATBC]

Kainer, K. A., M. Schmink, J. R. Stepp, H. Covert, **E. M. Bruna**, J. L. Dain, S. Espinosa, & S. Humphries. 2006. A framework for graduate education for tropical conservation and development. Conservation Biology 20(1):3-13.

Doak, D. F. W. F. Morris, C. A. Pfister, B. Kendall, and **E. M. Bruna**. 2005. Correctly estimating how environmental stochasticity influences fitness and population growth. American Naturalist 166(1): E14-25.

Bruna, E. M. and M. K. Oli. 2005. Demographic consequences of habitat fragmentation for an Amazonian understory plant: analysis of life-table response experiments. Ecology 86(7): 1816-1824.

Bruna, E. M., H. L. Vasconcelos, and S. Heredia. 2005. The effect of habitat fragmentation on communities of mutualists: a test with Amazonian ants and their host plants. Biological Conservation 124(2005): 209-216.

Bruna, E. M., D. M. Lapola, and H. L. Vasconcelos. 2004. Interspecific variation in defensive responses of obligate ant-plant inhabitants: are there consequences for host plants? Oecologia 238: 558-565**.**

Bruna, E. M. 2003. Are plant populations in fragmented habitats recruitment limited? Tests with an Amazonian herb. Ecology 84(4): 932-947.

Bruna, E. M. and W. J. Kress. 2002. Habitat fragmentation and the demographic structure of an Amazonian understory herb (Heliconia acuminata). Conservation Biology 16(5): 1256-1266.

Name: Raymond R. Carthy
Position: Assistant Unit Leader, FL Coop Fish and Wildlife Research Unit
Appointment: Research: 100%

Educational Background:

Ph.D.: 1996, Ecology and Physiology of marine turtles, University of Florida
M.S.: 1983, Aquatic and terrestrial ecology, Slippery Rock University
B.S.: 1980, Ecology, Manhattan College

Professional Experience:

Florida Cooperative Fish and Wildlife Research Unit
Assistant Unit Leader, 1996 to present.
Student Trainee, 1992 – 1996.
University of Florida
Teaching Assistant, Department of Zoology, 1994 – 1996.
Graduate Research Assistant, Archie Carr Center for Sea Turtle Research, 1990 – 1996.
Center for Marine Conservation
Research Associate, 1985 – 1996.
Natural History Museum, Smithsonian Institution
Museum Specialist, 1984 – 1990.

Teaching Responsibilities at UF (last 5 years):

Wildlife Seminar – 2005
Wildlife Department Seminar – 2007
Special Topics in Wildlife Ecology and Conservation - 2009

Guest Lecturer:

Conservation Biology (Dr. Lyn Branch)
Seminar in Sea Turtle Biology (Dr. Karen Bjorndal)
Aquatic Animal Health (Dr. Iske Larkin)
Wildlife of Florida (Dr. Melvin Sunquist)

Graduate Students (last 5 years):

Chair/co-chair: PhD 3 UF; MS 6 UF
Committee member: PhD 2 UF; MS 1 UF

International Activities (last 5 years)

Collaboration on sea turtle research in Trinidad and Barbados.

Research area:

Coastal and wetland ecology, effects of coastal dynamics and human intervention on wildlife habitats, with a special focus on conservation and management of endangered and threatened species within those environments, physiological and behavioral ecology of threatened and endangered species.

Grants/Contracts/Gifts (last 5 years): $1,010,240 (DoD, Progress Energy, USFWS, State of Florida, USACoE, FWCC, Gulf County- Florida)

Publications (Career Summary)

11 refereed journal articles, 1 book chapter, and 25 non-refereed publications.

Selected Publications

McMichael, E., J. A. Seminoff and **R. R. Carthy**. 2008. Growth rates of wild green turtles, Chelonia mydas, at a temperate foraging habitat in the northern Gulf of Mexico: assessing short-term affects of cold stunning on growth. Journal of Natural History. 42(43-44):2293-2307.

Nomani, S. Z., **R. R. Carthy** and M. K. Oli. 2008. Comparison of methods for estimating abundance of gopher tortoises. Applied Herpetology. 5:13-31.

Lamont, M. M., and **R. R. Carthy**. 2007. Response of nesting sea turtles to barrier island dynamics. Chelonian Conservation and Biology 6(2): 206-212.

Carthy, R. R. 2006. An owner's manual for the Chelonioidea. Conservation Biology. 20(1)259-260.

Gregory, C. J**., R. R. Carthy**, and L. G. Pearlstine. 2006. Application of Species at Risk at Camp Blanding Training Site, FLARNG(Florida). Southeastern Naturalist. 5(3):473-498.

Name: Robert Fletcher
Position: Assistant Professor
Appointment: Research: 60% Teaching: 40%

Educational Background:

Ph.D.: 2003, Ecology and Evolutionary Biology, Iowa State University
B.S.: 1996, Environmental, Population, and Organismal Biology, University of Colorado

Professional Experience:

University of Florida
Assistant Professor, 2007-present.
University of Montana
Research Assistant Professor, 2005-2007.

Teaching Responsibilities at UF (last 5 years):

2008-present: WIS 4203c, Introduction to Landscape Ecology
2009-present: WIS 6468c, Pattern and Process in Landscape Ecology
2007: WIS 6934, Advanced Topics in Landscape Ecology
2004-2006: BIOL 304, Ornithology (Univ. Montana)

Graduate Students (last 5 years):

Chair/co-chair: PhD 2; MS 4
Committee member: PhD 9; MS 6

International Activities (last 5 years)

Invited seminar for the first Latin American International Association of Landscape Ecology Conference; Mentoring graduate student research on forest fragmentation in Ecuador and India.

Research area:

Landscape and spatial ecology, animal behavior with emphasis on habitat selection and movement behavior, conservation biology, population and community ecology, ornithology, quantitative modeling, and statistics.

Grants/Contracts/Gifts (last 5 years): $ 1,266,985 (USDA, USFWS, NPS, National Council for Science and Environment, U.S. Corps Engineers)

Publications (Career Summary)

25 refereed journal articles, 1 book chapter, and 2 non-refereed publications.

Selected Publications

Fletcher, R. J., Jr., B. A. Robertson, J. M. Evans, P. Doran, J. R. R. Alavalapati, and D. Schemske. In press. Biodiversity conservation in the era of biofuels: risks and opportunities. Frontiers in Ecology and the Environment.

Fletcher, R. J., Jr., J. S. Young, R. L. Hutto, A. Noson, and C. T. Rota. In press. Insights from ecological theory on temporal dynamics and species distribution modeling. A. Drew, F. Huettmann, and Y. Wiersma, (eds.). Predictive Modeling in Landscape Ecology. Springer.

Rota, C. T.**, R. J. Fletcher, Jr.** , R. M. Dorazio, and M. G. Betts. In press. Occupancy estimation and the closure assumption. Journal of Applied Ecology.

Fletcher, R. J., Jr., and K. E. Sieving. In press. Social information use in heterogeneous landscapes: a prospectus. Condor.

Fletcher, R. J., Jr. 2009. Does attraction to conspecifics explain the patch-size effect? An experimental test. Oikos 118: 1139-1147.

Fletcher, R. J., Jr. 2008. Social information and community dynamics: nontarget effects from simulating social cues for management. *Ecological Applications* 18: 1764-1773.

Fletcher, R. J., Jr., and R. L. Hutto. 2008. Partitioning the multi-scale effects of human activity on the occurrence of riparian forest birds. Landscape Ecology 23: 727-739.

Fletcher, R. J., Jr., and C. W. Miller. 2008. The type and the timing of social information alter offspring production. Biology Letters 4: 482-485.

Pearson, D. E., and **R. J. Fletcher, Jr.** 2008. Mitigating exotic impacts: restoring native deer mouse populations elevated by an exotic food subsidy. Ecological Applications 18: 321-334.

Fletcher, R. J., Jr. 2007. Species interactions and population density mediate the use of social cues for habitat selection. Journal of Animal Ecology 76: 598-606.

Fletcher, R. J., Jr., L. Ries, J. Battin, and A. D. Chalfoun. 2007. The role of habitat area and edge in fragmented landscapes: definitively distinct or inevitably intertwined? Canadian Journal of Zoology 85: 1017-1030.

Fletcher, R. J., Jr. 2006. Emergent properties of conspecific attraction in fragmented landscapes. American Naturalist 168: 207-219.

Fletcher, R. J., Jr., and R. L. Hutto. 2006. Estimating detection probabilities of river birds using double surveys. Auk 123: 695-707.

Fletcher, R. J., Jr., and C. W. Miller. 2006. On the evolution of hidden leks and the implications for reproductive and habitat selection behaviours. Animal Behaviour 71: 1247-1251.

Fletcher, R. J., Jr., R. R. Koford, and D. A. Seaman. 2006. Critical demographic parameters for declining songbirds breeding in restored grasslands. Journal of Wildlife Management 70:145-157.

Fletcher, R. J., Jr. 2005. Multiple edge effects and their implications in fragmented landscapes. Journal of Animal Ecology 74: 342-352.

Orrock, J. L., and **R. J. Fletcher, Jr.** 2005. Changes in community size affect the outcome of competition. American Naturalist 166: 107-111.

Ries, L., **R. J. Fletcher, Jr.,** J. Battin, and T. D. Sisk. 2004. Ecological responses to habitat edges: mechanisms, models, and variability explained. Annual Review of Ecology, Evolution, and Systematics 35: 491-522.

Fletcher, R. J., Jr., and R. R. Koford. 2003. Spatial responses of Bobolinks (Dolichonyx oryzivorus) near different types of edges in northern Iowa. Auk 120: 799-810.

Fletcher, R. J., Jr., and R. R. Koford. 2002. Habitat and landscape associations of breeding birds in restored and native grasslands. Journal of Wildlife Management 66: 1011-1022.

Horn, D. J., **R. J. Fletcher, Jr.,** and R. R. Koford. 2000. Detecting area-sensitivity: a comment on previous studies. American Midland Naturalist 144: 28-35.

Name: Peter Frederick

Position: Research Professor
Appointment: Research 85%: Teaching 15%

Educational Background:

Ph.D.: 1985, Zoology, University of North Carolina, Chapel Hill
B.S.: 1978, Swarthmore College

Professional Experience:

University of Florida

Research Professor, 2007 to present.
Associate Research Professor, 1998 – 2006.
Assistant Research Professor, 1993 – 1998.
Assistant-In Wildlife Ecology, 1992 – 1993.

Wildlife Conservation Society

Research Fellow, 1990 – 1992.

Teaching Responsibilities at UF (last 5 years):

2004-2009: Guest lectures annually in Marine Ecology, Conservation Biology, Wildlife of Florida (all at UF), Ecotoxicology (University of Indiana)
2006-2008: EES 6932, WIS 6934, SOS 5235 - Ecosystems of South Florida
2004-2006: SOS 4242 – Wetlands Ecology

Graduate Students (graduated in last 5 years):

Chair/co-chair: PhD 1; MS 5
Committee member: PhD 5; MS 5

International Activities (last 5 years)

Field research in Bhutan on conservation of globally imperiled heron; advised graduate student on studies of wetlands and cranes in Africa; Organized 4-day international meeting in Cuiaba, Brazil and Symposium on international conservation of storks.

Research area:

Wetland ecology, Ecotoxicology, Ornithology, and Animal Behavior.

Grants/Contracts/Gifts (last 5 years): $4,159,847 (Florida Dept. Environmental Protection, U.S. Army Corps of Engineers, The Felburn Foundation, Georgia Dept. Natural Resources, South Florida Water Management District, National Fish and Wildlife Foundation, U.S. Dept. Interior, U.S. Geological Survey, U.S. Fish and Wildlife Service)

Publications (Career Summary)

74 refereed journal articles, 7 book chapters, 23 non-refereed publications, and 1 other creative works.

Selected Publications

Adams, E. A., **P. C. Frederick**, L. Guilette, and I. Larkin. In press. Sublethal effects of methylmercury on fecal metabolites of testosterone, estradiol, and corticosterone in captive juvenile white ibises (Eudocimus albus). Environmental Toxicology and Chemistry.

Frederick, P. C., D. G. Gawlik, J.C. Ogden, M. Cook, and Michael Lusk. In press. White Ibis and Wood Storks as indicators for restoration of Everglades ecosystems. Ecological Indicators.

Adams, E. A. and **P. C. Frederick.** 2008. Effects of methylmercury and spatial complexity on foraging behavior and foraging efficiency in juvenile white ibises (Eudocimus albus). Environmental Toxicology and Chemistry 27: 1708-1712.

Hylton, B. A., **P. C. Frederick**, T. E. Delafuente, and M.G. Spalding. 2006. Effects of nestling health on post-fledging survival of wood storks. Condor 108: 97-106.

Heath, J. A. and **P. C. Frederick.** 2005. Relationships among mercury concentrations, hormones, and nesting effort of White Ibises. The Auk 122: 255-267.

Frederick, P. C. and J. C. Ogden. 2003. Monitoring wetland ecosystems using avian populations: seventy years of surveys in the Everglades. Pages 321-350, in Bush, D. and J. Trexler (eds.). Monitoring ecosystems: interdisciplinary approaches for evaluting ecoregional initiatives. Island Press: Washington, DC. 1 - 447.

Frederick, P. C. 2000. Mercury and its effects in the Everglades ecosystem. Reviews in Toxicology 3: 213 – 255.

Frederick, P. C., K. L. Bildstein, B. Fleury, and J. C. Ogden. 1996. Conservation of nomadic populations of White Ibis (Eudocimus albus) in the United States. Conservation Biology 10: 203 - 216.

Frederick, P. C., S. M. McGehee, and M. G. Spalding. 1996. Prevalence of Eustrongylides ignotus in mosquitofish (Gambusia holbrooki) in Florida: historical and regional comparisons. Journal of Wildlife Disease 32: 552 - 555.

Name: William M. Giuliano
Position: Associate Professor and Extension Specialist
Appointment: Teaching: 60% Extension: 40%

Educational Background:

Ph.D.: 1995, Wildlife Science, Texas Tech University
M.S.: 1990, Biology, Eastern Kentucky University
B.S.: 1988, Wildlife Management, University of New Hampshire

Professional Experience:

University of Florida
Associate Professor and Extension Specialist, 2004 to present.
Fordham University
Assistant Professor, 2000 - 2004.
California University of Pennsylvania
Assistant Professor, 1995 - 2000.

Teaching Responsibilities at UF (last 5 years):

2004-2009: WIS 3401 - Wildlife Ecology and Management
2006-2009: WIS 3401L - Wildlife Ecology and Management Lab
2007-2009: WIS 4601C - Quantitative Wildlife Ecology
2008: WIS 4934 - Upland Game Bird Ecology and Management
2009: WIS 4934 - Big Game Ecology and Management
2004-2009: WIS 6452 - Wildlife Ecology
2008: WIS 6934 - Upland Game Bird Ecology and Management
2009: WIS 6934 - Big Game Ecology and Management
2006: WIS 6934 - Wildlife and Agriculture
2009: WIS 6934 - Wildlife Ecology and Management

Graduate Students (last 5 years):

Chair/co-chair: PhD 2; MS 6
Committee member: PhD 1; MS 5

International Activities (last 5 years)

Research in Guatemala on jaguars.

Research area:

Applied research focusing on integrating wildlife management and other land-uses, particularly agriculture; hunting and game species management.

Grants/Contracts/Gifts (last 5 years): $972,300 (Alico, Inc., Anonymous Private Donor, Florida Cooperative Extension Service Florida Fish and Wildlife Conservation Commission, Tall Timbers Research Station)

Publications (Career Summary)

38 refereed journal articles, 6 books, 5 book chapters, 57 extension, popular, trade journal, and other non-refereed publications, and 10 other creative works .

Selected Publications

Devers, P. K., D. F. Stauffer, G. W. Norman, D. E. Steffen, D. M. Whitaker, J. D. Sole, T. J. Allen, S. L. Bittner, D. A. Buehler, J. W. Edwards, D. E. Figert, S. T. Friedhoff, **W. M. Giuliano**, C. A. Harper, W. K. Igo, R. L. Kirkpatrick, M. H. Seamster, H. A. Spiker, D. A. Swanson, and B. C. Tefft. 2007. Population ecology of and the effects of hunting on ruffed grouse in the southern and central Appalachians. Wildlife Monographs 168.

Giuliano, W. M., E. Garrison, and B. Schad. In press. Understanding white-tailed deer. IFAS/University of Florida, Gainesville, FL.

Giuliano, W. M., J. Selph, and B. Schad. 2007. Bobwhite quail in Florida: ecology and management. IFAS/University of Florida, Gainesville, FL.

Schad, B. J., and **W. M. Giuliano**. In press. Reproductive ecology of resident and translocated northern bobwhites in Florida rangelands. Proceedings of the Annual Conference of the Southeastern Association of Fish and Wildlife Agencies.

Schaumburg, K., **W. M. Giuliano**, and G. A. Langellotto. In press.Avian-habitat relationships in urban and suburban tidal marshes of Connecticut. Urban Habitats.

Stauffer, D. F., J. Edwards, G. Norman, and **W. M. Giuliano** (eds.). In press. Ecology and management of Appalachian ruffed grouse. Hancock House Publishers: Blaine, WA.

Willcox, A. S., **W. M. Giuliano**, C. Wynn, and J. S. Sanders. In press. Wildlife management and conservation on private lands in Florida. Proceedings of the Annual Conference of the Southeastern Association of Fish and Wildlife Agencies.

Willcox, E. V., and **W. M. Giuliano**. In press.Seasonal effects of prescribed burning and roller-chopping on saw palmetto. Forest Ecology and Management.

Willcox, E. V., G. W. Tanner, and **W. M. Giuliano**. In press. Avian community response to grazing of improved and semi-improved pasture. Rangeland Ecology and Management.

Tirpak, J. M., **W. M. Giuliano**, and C. A. Miller. 2008. Ruffed grouse brood habitat selection at multiple scales in Pennsylvania: implications for survival. Canadian Journal of Zoology 86: 329-337.

Whittaker, D. M., D. F. Stauffer, G. W. Norman, P. K. Devers, J. Edwards, **W. M. Giuliano**, C. Harper, W. Igo, J. Sole, H. Spiker, and B. Tefft. 2007. Factors associated with variation in home-range size of Appalachian ruffed grouse (*Bonasa umbellus*). Auk 124:1407-1424.

Giuliano, W. M. 2006. Should I fence the streams, ponds, and wetlands in my pastures? Rangelands 28:29-31.

Tirpak, J. M., **W. M. Giuliano**, C. A. Miller, T. J. Allen, S. Bittner, D. A. Buehler, J. W. Edwards, C. A. Harper, W. K. Igo, G. W. Norman, M. Seamster, and D. F. Stauffer. 2006. Ruffed grouse population dynamics in the central and southern Appalachians. Biological Conservation 133: 364-378.

Tirpak, J. M., **W. M. Giuliano**, C. A. Miller, T. J. Allen, S. Bittner, J. W. Edwards, S. Friedhof, W. K. Igo, D. F. Stauffer, and G. W. Norman. 2006. Ruffed grouse nest success and habitat selection in the central and southern Appalachians. Journal of Wildlife Management 70:138-144.

Weckel, M., **W. M. Giuliano**, and S. Silver. 2006. Jaguar feeding ecology: the distribution of predator and prey through time and space. Journal of Zoology 270: 25-30.Weckel, M., W.M. Giuliano, and S. Silver. 2006. Cockscomb revisited: jaguar diet in the Cockscomb Basin Wildlife Sanctuary, Belize. Biotropica 38:687-690.

Giuliano, W. M., A. K. Accamando, and E. J. McAdams. 2004. Lepidoptera-habitat relationships in urban parks. Urban Ecosystems 7: 361-370.

Giuliano, W. M., and J. D. Homyack. 2004. Effects of short-term grazing exclusion on riparian small mammal communities. Journal of Range Management 57: 346-350.

Keefe, E. M., and **W. M. Giuliano**. 2004. Effects of forest structure on the distribution of southern flying squirrels in urban parks. Urban Ecosystems 7: 55-64.

Name: John P. Hayes
Position: Professor and Department Chair
Appointment: Administration: 100%

Educational Background:

Ph.D.: 1990, Ecology and Systematics, Cornell University
M.S.: 1983, General Studies – Biology, Southern Oregon State College
B.S.: 1978, Wildlife Science, Oregon State University

Professional Experience:

University of Florida
Professor and Department Chair, 2006 to present.
Oregon State University
Associate Dean for International Programs, College of Forestry, 2005 - 2006.
Professor, Department of Forest Science, 2003 - 2006.
Associate Professor, Department of Forest Science, 1998 - 2003.
Assistant Professor, Department of Forest Science, 1992 - 1998.
University of Tennessee
Science Alliance Post-Doctoral Fellow, Department of Zoology, 1990-1992.

Teaching Responsibilities at UF (last 5 years):

2008-2009: WIS6934 – Foundations of Wildlife Ecology: Theory and Application

Graduate Students (last 5 years):

Chair/co-chair: PhD 0 UF, 6 OSU; MS 0 UF, 2 OSU
Committee member: PhD 1 UF, 5 OSU; MS 2 UF; 5 OSU

International Activities (last 5 years)

Research in Mexico and Costa Rica on bats; Assisted in research design for small mammals in South Korea; Director for a doctoral study on carnivores in Argentina; Board of Directors for Organization of Tropical Studies.

Research area:

Habitat ecology, influences of forest management on wildlife, influences of wind power on birds and bats, conservation and ecology of bats.

Grants/Contracts/Gifts (last 5 years): $930,222 (NSF, National Geographic Society, Alaska Fish and Game, Joint Fire Sciences, Bureau of Land Management)

Publications (Career Summary)

56 refereed journal articles, 3 books, 5 book chapters, and 32 non-refereed publications.

Selected Publications

Arnett, E. B., and **J. P. Hayes**. 2009. Use of conifer snags as roosts by females of three species of bats in western Oregon. Journal of Wildlife Management 73: 214-225.

Boland, J. L., **J. P. Hayes**, W. P. Smith, and M. M. P. Huso. 2009. Selection of day-roosts in trees by male and female Keen's Myotis (*Myotis keenii*) at multiple spatial scales. Journal of Mammalogy 90:222-234.

Cahall, R. E., and **J. P. Hayes**. 2009. Influences of post-fire salvage logging on forest birds in the Eastern Cascades, Oregon, USA. Forest Ecology and Management 257:1119-1128.

Frick, W. F., **J. P. Hayes**, and P. A. Heady, III. 2009. Nestedness of a desert bat assemblage: species composition patterns in insular and contiguous landscapes. Oecologia 158: 687-697.

Hayes, J. P., H. K. Ober, and R. E. Sherwin. 2009. Surveying and monitoring bats. Pages 115-132 in Kunz**,** T. H., and S. Parsons (eds.). Ecological and Behavioral Methods for the Study of Bats, 2nd edition. Johns Hopkins University Press: Baltimore, MD.

Frick, W. F., **J. P. Hayes**, and P. A. Heady, III. 2008. Island biogeography of bats in Baja California, Mexico: Patterns of bat species richness in a near-shore archipelago. Journal of Biogeography 35:353-364.

Frick, W. F., **J. P. Hayes**, and P. A. Heady, III. 2008. Patterns of island occupancy in bats: Influences of area and isolation on insular incidence of volant mammals. Global Ecology and Biogeography 17: 622-632.

Ober, H. K., and **J. P. Hayes**. 2008. Influence of forest riparian vegetation on abundance and biomass of nocturnal flying insects. Forest Ecology and Management 256:1124-1132.

Ober, H. K., and **J. P. Hayes**. 2008. Influence of vegetation on bat use of riparian areas at multiple spatial scales. Journal of Wildlife Management 72:396-404.

Ober, H. K., and **J. P. Hayes**. 2008. Prey selection by bats in forests of western Oregon. Journal of Mammalogy 89:1191-1200.

Committee on Environmental Impacts of Wind Energy Projects (Risser, P., I. Burke, C. Clark, M. English, S. Gauthreaux, Jr., S. Goodman, **J. P. Hayes**, A. Horvath, T. Kunz, L. Manuel, E. Lundtang Petersen, D. Strickland, J. J. R. Webb, R. Whitmore). 2007. Environmental impacts of wind-energy projects. The National Academies Press: Washington, D.C. 267 p.

Lacki, M. J., **J. P. Hayes**, and A. Kurta (eds.). 2007. Bats in Forests: Conservation and Management. John Hopkins University Press. 329 p.

Slauson, K. M., W. J. Zielinski, and **J. P. Hayes**. 2007. Habitat selection by American martens in coastal California. Journal of Wildlife Management 71: 458-468.

Stuart-Smith, A. K., **J. P. Hayes**, and J. Schiek. 2006. The influence of wildfire, logging, and residual tree density on bird communities in the northern Rocky Mountains. Forest Ecology and Management 231:1-17.

Stoddard, M. A., and **J. P. Hayes**. 2005. Influence of forest management on headwater stream amphibians at multiple spatial scales. Ecological Applications 15: 811-823.

Hayes, J. P., J. M. Weikel, and M. M. P. Huso. 2003. Response of birds to thinning young Douglas-fir forests. Ecological Applications 13: 1222-1232.

Hayes, J. P. 2003. Habitat ecology and conservation of bats in western coniferous forests. Pages 81-119 in Zabel, C. J., and R. G. Anthony (eds.). Mammal community dynamics in coniferous forests of western North America: management and conservation. Cambridge University Press.

Hayes, J. P. 1997. Temporal variation in activity of bats and the design of echolocation-monitoring studies. Journal of Mammalogy 78: 514-524.

Steidl, R. J., **J. P. Hayes**, and E. Schauber. 1997. Statistical power analysis in wildlife research. Journal of Wildlife Management 61: 270-279.

Name: Mark Hostetler
Position: Associate Professor
Appointment: Extension: 80% Research: 20%

Educational Background:

Ph.D.: 1997, Zoology, University of Florida
M.S.: 1992, Zoology, University of Florida
B.S.: 1987, Biology, Purdue University

Professional Experience:

University of Florida
Associate Professor, 2005 to present.
Assistant Professor, 2000 – 2005.
University of Georgia
Director, Environmental Education, 1999 – 2000.
Arizona State University
Post-doctoral Assistant, 1998 – 1999.
University of Florida
Lecturer, 1996 – 1997.

Teaching Responsibilities at UF (last 5 years): NA

Graduate Students (last 5 years):

Chair/co-chair: PhD 2; MS 7
Committee member: PhD 6; MS 4

International Activities (last 5 years)

Senior Scholar Fulbright in New Zealand in association with Landcare Research; research in association with Cenicafe in Columbia; creation of study abroad program in New Zealand; conducted biodiversity trainings and workshops in New Zealand.

Research area:

Urban ecology and biodiversity conservation, sustainable development, urban wildlife, and resource-efficient communities.

Grants/Contracts/Gifts (last 5 years): $998,304 (National Science Foundation; CIES – U.S. Fulbright; EnviroLink NZ; USDA SARE; Progress Energy; Florida Water Management Districts)

Publications (Career Summary)

18 refereed journal articles, 1 book, 3 book chapters, 31 extension publications, 10 other non-refereed publications, and seven, ½ hour Living Green shows broadcasted nationally on PBS.

Selected Publications

Hostetler, M. E., and K. Noiseux. 2010. Are green residential developments attracting environmentally savvy homeowners? Landscape and Urban Planning. 94: 234–243

Hostetler, M. E. and D. Drake. 2009. Conservation subdivisions: a wildlife perspective. Landscape and Urban Planning 90: 95-101.

Noiseux, K. and **M. E. Hostetler** 2008. Eco-opportunity knocks: do homebuyers want green features in communities? Environment and Behavior. doi: 10.1177/0013916508326470.

Hostetler, M. E., E. Swiman, A. Prizzia, and K. Noiseux. 2008. Reaching residents of green communities: Evaluation of a unique environmental education program. Applied Environmental Education & Communication 7(3): 114-124.

Hostetler, M. E., P. Jones, M. Dukes, H. Knowles, G. Acomb, and M. Clark. 2008. With one stroke of the pen: how can extension professionals involve developers and policymakers in creating sustainable communities? Journal of Extension: 46/1 online journal.

Dawson, D. E. and **M. E. Hostetler**. 2008. Herpetofaunal use of edge and interior habitats in urban forest remnants. Urban Habitats 5. http://www.urbanhabitats.org/.

Romero, M. and **M. E. Hostetler.** 2007. "Policies that Address Sustainable Site Development." 9pp. University of Florida, UF/IFAS EDIS Database. Circ 1520. http://edis.ifas.ufl.edu/UW254.

Swiman, E. and **M.E. Hostetler**. 2007. Using a community-specific website to engage homeowners in natural resource conservation within green communities. *Journal of Extension* 45/1. *http://www.joe.org/*

Hostetler, M. E. 2006. Evaluating Green Communities. University of Florida Cooperative Extension Service Fact Sheet WEC 193. 9 pp. University of Florida, UF/IFAS EDIS Database, http://edis.ifas.ufl.edu/UW247.

Noiseux, K. and **M. E. Hostetler**. 2007. Making your community green: community-based social marketing for eco-friendly communities. 6 p. University of Florida, UF/IFAS EDIS Database. WEC 240. http://edis.ifas.ufl.edu/UW263.

Hostetler, M. E., S. Duncan, and J. Paul. 2005. The effects of an apartment complex on migrating and wintering birds. Southeastern Naturalist 4(3): 421-434.

Youngentob, K., and **M. E. Hostetler**. 2005. Is a new urban development model building greener communities? Environment and Behavior 37: 731-759.

Traut, A. H., and **M. E. Hostetler**. 2004. Urban lakes and waterbirds: effects of shoreline development on avian distribution. Landscape and Urban Planning 69: 69-85.

Hostetler, M. E., G. Klowden, S. W. Miller, and K. N. Youngentob. 2003. Landscaping Backyards for Wildlife: Top Ten Tips for Success. University of Florida Cooperative Extension Service Fact Sheet Circ 1429. 9 p. University of Florida, UF/IFAS EDIS Database. http://edis.ifas.ufl.edu/UW175.

Traut, A. H., and **M. E. Hostetler**. 2003. Urban lakes and waterbirds: effects of development on avian behavior. Waterbirds 26(3): 290-302.

Hostetler, M. E., and K. Knowles-Yanez. 2003. Land use, scale, and bird distributions in the Phoenix metropolitan area. Landscape and Urban Planning 62: 55-68.

McIntyre, N. and **M. E. Hostetler**. 2001. Effects of urban land use on pollinator (Hymenoptera: Apodidea) communities in a desert metropolis. Journal of Applied and Theoretical Biology 2: 209-218.

Hostetler, M. E. and C.S. Holling. 2000. Detecting the scales at which birds respond to landscape structure in urban landscapes. Urban Ecosystems 4: 25-54.

Name: Susan K. Jacobson
Position: Professor
Appointment: Research: 60% Teaching: 40%

Educational Background:

Ph.D.: 1987, Resource Ecology (Minor in Natural Resource Education), Duke University
M.S.: 1983, Zoology (Minor in Journalism), University of Florida
B.A.: 1978, Biology, Brown University

Professional Experience:

University of Florida

Professor, Department of Wildlife Ecology and Conservation, 1999 to present.
Associate Professor, Department of Wildlife Ecology and Conservation, 1994 - 1999.
Assistant Professor, Department of Wildlife Ecology and Conservation, 1991 - 1993.
Assistant Research Scientist, Department of Wildlife Ecology and Conservation, 1988 - 1991.

Duke University

Visiting Assistant Professor, School of Forestry and Environmental Studies, 1987.

Teaching Responsibilities at UF (last 5 years):

2004-2009: WIS 4523 Human Dimension of Natural Resource Conservation
2004-2009: WIS 6578 Human Dimensions of Biological Conservation (odd years)
2004-2009: WIS 6525 Environmental Interpretation (even years)

Graduate Students (last 5 years):

Chair/co-chair: PhD 7; MS 9
Committee member: PhD 8; MS 8

International Activities (last 5 years)

UF Program for Studies in Tropical Conservation (1993 - present), Director; WEC International Affairs Committee Chair (1995 - 2007); Bahamas National Trust Science Advisory Committee (2005 - present); Research projects in Latin America, Africa, Asia, Caribbean.

Research area:

Environmental communication, Human dimensions of wildlife management, Biological conservation and sustainable development in developing countries, focusing on natural resource education and park program planning and evaluation.

Grants/Contracts/Gifts (last 5 years): $330,358 (Compton Foundation, Florida Fish and Wildlife Conservation Commission, U.S. Fish and Wildlife Service, National Fish and Wildlife Foundation, Disney Wildlife Conservation Foundation, Busch Gardens Conservation Fund)

Publications (Career Summary)

7 books, 2 edited books, 59 refereed journal articles, 15 book chapters, and 59 non-refereed publications.

Selected Publications

Jacobson, S. K. 2009. Communication Skills for Conservation Professionals, 2nd Edition. Island Press: Washington, DC. 452 p.

Jacobson, S. K., M. McDuff, and M. Monroe. 2006. Conservation Education and Outreach Techniques. Oxford University Press: UK. 460 p.

Jacobson, S. K. (ed.) 1995. Conserving Wildlife: International Education and Communication Approaches. Columbia University Press: New York, NY. 302 p.

Eadens, L. M., **S. K. Jacobson**, T. V. Stein, J. J. Confer, L. Gape, and M. Sweeting. 2009. Stakeholder mapping for recreation planning of a Bahamian national park. Society and Natural Resources 22: 111-127.

Jacobson, S. K., and M. D. McDuff. 2008 Communication as an Effective Management Strategy in a Diverse World. Pages 301-314, in Decker, D. et al. Wildlife and Society in the 21st Century. Island Press: Washington, D.C.

Morris, J. K, **S. K. Jacobson**, and R. O. Flamm. 2007. Lessons from an Evaluation of a Boater Outreach Program for Manatee Protection. Environmental Management 40: 596-602.

Solomon, J., **S. K. Jacobson**, K. D. Wald, and M. Gavin. 2007. Estimating Illegal Resource Use at a Ugandan Park with the Randomized Response Technique. Human Dimensions of Wildlife 12: 75-88.

Jacobson, S. K., J. Morris, J. Sanders, E. Wiley, M. Brooks, R. Bennetts, H. Percival, and S. Marynowski, 2006. Understanding Barriers to the Implementation of an Adaptive Land Management Program. Conservation Biology 30: 1516-1527.

Mugisha, A. and **S. K Jacobson**. 2004. Threat reduction assessment of conventional and community-based conservation approaches to managing protected areas in Uganda. Environmental Conservation 31(3): 177-189.

Aipanjiguly, S., **S. K. Jacobson**, S. Flamm, and R. Flamm, 2003. Knowledge, attitudes, and behavioral intentions of Florida boaters about manatee conservation. Conservation Biology 17(4):1098-1105.

Jacobson, S. K. 2001. Monitoring public satisfaction in an ecosystem management framework. Journal of Parks and Recreation Administration 19(4): 83-101.

Rocha, L. and **S. K. Jacobson**. 1998. Partnerships for conservation: protected areas and non-governmental organizations in Brazil. Wildlife Society Bulletin 26(4): 937-946.

Jacobson, S. K. and S. M. Marynowski. 1998. New model for ecosystem management interpretation: targeting military audiences. Journal of Interpretation Research 3(1): 1-20.

Jacobson, S. K. and S. M. Marynowski. 1997. Public attitudes and knowledge about ecosystem management on Department of Defense Lands in Florida. Conservation Biology 11(3): 770-781.

Fiallo, E. and **S. K. Jacobson**. 1995. Local communities and protected areas: Attitudes of rural residents toward conservation and Machalilla National Park, Ecuador. Environmental Conservation 22(3): 241-249.

Jacobson, S. K. 1995. Integrated educational approaches to natural resource management. Pages 297-310, in Knight, R. L. and S. Bates (eds.). New Century for Natural Resource Management. Island Press.

Jacobson, S.K. and S.M. Padua.* 1995. Conservation education using parks in Malaysia and Brazil. Pages 1-15. In *Conserving Wildlife: International Education and Communication Approaches*, S.K. Jacobson (Ed.). Columbia University Press, New York, NY.

Jacobson, S.K. and A.F. Lopez. 1994. Biological impacts of ecotourism: tourists and nesting turtles in Tortuguero National Park, Costa Rica. *Bulletin of Wildlife Management* 22(3):414-419.

Name: Steve A. Johnson
Position: Assistant Professor and Extension Specialist
Appointment: Teaching: 60% Extension: 40%

Educational Background:

Ph.D.: 2001, Wildlife Ecology and Conservation, University of Florida
M.S.: 1994, Biology, University of Central Florida
B.S.: 1990, Biology, University of Central Florida

Professional Experience:

University of Florida
Assistant Professor of Wildlife Ecology, 2004 to present.
Affiliate Faculty – School of Natural Resources and Environment, 2006 to present.

Teaching Responsibilities at UF (last 5 years):

2007-present: WIS4934 – Conservation of Amphibians and Reptiles
2006-present: FNR3410 – Natural Resource Sampling
2006: WIS4443 – Wetland Wildlife Ecology
2006: WIS4934 – Professional Seminar in Natural Resources and Horticulture
2006: WIS4934 – Careers and Issues in Natural Resources and Horticulture
2005-present: WIS3402 – Wildlife of Florida
2005-present: WIS4545 – Ecology and Management of Wildlife Invasions
2005-present: FNR4040 – Natural Resource Communication
2004-present: WIS3401 – Wildlife Ecology and Management

Graduate Students (last 5 years):

Chair/co-chair: PhD 1; MS 6
Committee member: PhD 1 UF; MS 1 UF, 1UCF, 1VSU

International Activities (last 5 years)

Research collection in Puerto Rico–Coqui frogs; Consultation visit to Veg Pro International in Quebec, Canada–frogs in agricultural fields.

Research area:

Wildlife ecology, invasive wildlife ecology, effects of habitat management on wildlife populations, effects of invasive wildlife on native species, control and management of invasive wildlife.

Grants/Contracts/Gifts (last 5 years): $670,547 (UF, FWC, RREA, USFWS, USACE, SWFWMD, Florida Nongame Wildlife Program, VegPro/TKM Farms, IFOAM Specialty Products Corp.)

Publications (Career Summary)

45 refereed journal articles, 3 book chapters, 38 non-refereed publications, and 2 other creative works.

Selected Publications

Johnson, S. A. 2005. Conservation and Life History of the Striped Newt: The Importance of Habitat Connectivity. Pages 91-98, in Meshaka, W. E. and K. J. Babbitt (eds.). Amphibians and Reptiles: Status and Conservation in Florida. Krieger Publishing: Malabar, FL. 318 p.

Johnson, S. A. and R. B. Owen. 2005. Amphiuma means, Two-toed Amphiuma. Pages 642-645, in Lanoo, M. J. (ed.). Amphibian Declines: The Conservation Status of United States Species. University of California Press: Berkley, CA. 1094 p.

Dodd, C. K., Jr., D. B. Means, and **S. A. Johnson**. 2005. Notophthalmus perstriatus, Striped Newt. Pages 887-889, in Lanoo, M. J. (ed.). Amphibian Declines: The Conservation Status of United States Species. University of California Press: Berkley, CA. 1094 p.

Roznik, E. and **S. A. Johnson**. 2009. Burrow use and survival of juvenile Gopher Frogs (Rana capito). Journal of Herpetology 43: 431-437.

Campbell, T. S., P. Irvin, K. R. Campbell, K. Hoffmann, M. E. Dykes, A. J. Harding, and **S. A. Johnson**. 2009. Evaluation of a new technique for marking anurans. Applied Herpetology 6: 247-256.

Roznik, E. and **S. A. Johnson**. 2009. Canopy closure and emigration by juvenile Gopher Frogs. Journal of Wildlife Management 73: 260-268.

McGarrity, M. E. and **S. A. Johnson**. 2009. Geographic trends in sexual size dimorphism of Osteopilus septentrionalis (Cuban Treefrog): Implications for invasion of the southeastern U.S. Biological Invasions 11: 1411-1420.

Camposano, B. and **Johnson, S. A.** 2009. Anolis distichus (Bark Anole) Geographic Distribution. Herpetological Review 40: 364.

Roznik, E. A. and **S. A. Johnson**. 2009. Rana capito (Gopher Frog) Burrow cohabitation. Herpetological Review 40: 209.

Hoffmann, K., M. E. McGarrity, and **S. A. Johnson**. 2008. Technology meets tradition: A hybrid VIE-C technique for individually marking anurans. Applied Herpetology 5: 265-280.

Krysko, K. L., M. C. Granatosky, T. M. Bouse, and **S. A. Johnson**. 2008. Leiocephalus carinatus (Northern Curly-tailed Lizard) Geographic Distribution. Herpetological Review 39: 483.

Enge, K. M., **S. A. Johnson**, and K. L. Krysko. 2008. Osteopilus septentrionalis (Cuban Treefrog) Geographic Distribution. Herpetological Review 39: 480.

Hoffmann, K. E. and **S. A. Johnson**. 2008. Osteopilus septentrionalis (Cuban Treefrog) Diet. Herpetological Review 39: 339.

Dodd, C. K., Jr., W. J. Barichivich, **S. A. Johnson**, and J. S. Staiger. 2007. Changes in a Northwestern Florida Gulf Coast Herpetofaunal Community over a 28-year Period. American Midland Naturalist 158: 29-48.

Johnson, S. A. and W. J. Barichivich. 2004. A simple technique for trapping Siren lacertina, Amphiuma means, and other aquatic vertebrates. Journal of Freshwater Ecology 19: 263-269.

Name: Wiley M. Kitchens
Position: Courtesy Professor and Assistant Unit Leader (Florida Coop Unit)
Appointment: Research: 100%

Educational Background:

Ph.D.: 1978, Zoology, North Carolina State University
M.S.: 1970, Zoology, Miami University
B.S.: 1966, Biology, Lamar University

Professional Experience:

University of Florida
Courtesy Professor, 1985 to present.
US Geological Survey
Research Ecologist/Assistant Unit Leader, Florida Cooperative Fish and Wildlife Research Unit, Gainesville, FL
Leader, Florida Cooperative Fish and Wildlife Research Unit, 1985 -1995.
Acting Leader, South Florida/Caribbean Ecosystem Research Team, Florida Caribbean Science Center, Miami, FL, 1993-1995.
Florida International University/University of Miami
Adjunct Professor, 1995-1997.
U.S. Fish and Wildlife Service
Project Manager, Community Ecology Section, U. S. Fish and Wildlife Service National Coastal Ecosystems Team, Slidell, LA, 1979-1985.
University of South Carolina,
Research Associate, Belle W. Baruch Institute of Marine Biology and Coastal Research, Columbia, SC, 1973-1979.

Teaching Responsibilities at UF (last 5 years):

2004-2009: WIS 6444 - Advanced Wetlands Ecology

Graduate Students (last 5 years):

Chair/co-chair: PhD 3; MS 12
Committee member: PhD 8; MS 4

Research area:

Wetlands ecology with an emphasis on conservation and restoration of wetlands ecosystems. Projects are long-term, multidisciplinary, and targeted to resolving vegetation succession and faunal responses to hydrologic perturbations, both natural and anthropogenic.

Grants/Contracts/Gifts (last 5 years): approx. $4,000,000. (U.S. Fish and Wildlife Service, US Army Corps of Engineers, St. Johns River Water Management District, US Geological Survey, Florida Fish and Wildlife Conservation Commission)

Publications (Career Summary)

56 refereed journal articles, 11 book chapters, and 32 non-refereed publications.

Selected Publications

Zweig, C. L. and **W. M. Kitchens**. 2009. In press. The Semiglades: The collision of restoration, social values, and the ecosystem concept. Restoration Ecology.

Hotaling, A. S., J. Martin, and **W. M. Kitchens**. 2009. In press. Estimating transition probabilities among Everglades wetland communities using multistate models. Wetlands.

Zweig, C. and **W. M. Kitchens**. 2009. Multi-state succession in wetlands: A novel use of state and transition models. Ecology 90: 1900-1909.

Martin, J., **W. M. Kitchens**, M. K. Oli, and C. E. Cattau. 2008. Exploring the importance of natural disturbances and habitat degradation on snail kite population dynamics. Endangered Species Research 6: 25-39.

Haas, S., R. Kimball, J. Martin, and **W. M. Kitchens**. 2008. Genetic divergence among snail kite subspecies: implications for the conservation of the endangered Florida snail kite. Ibis (Published on-line): Aug 11 2008, doi: 10.1111/j.1474-919X.2008.00872.x

Zweig, C. and **W. M. Kitchens**. 2008. Effects of landscape gradients on wetland vegetation communities: Information for large-scale restoration. Wetlands. 28(4): 1086–1096.

Martin J., **W. M. Kitchens**, and J. E. Hines. 2007. Importance of well designed monitoring programs for the conservation of Endangered Species: Case study of the snail kite. Conservation Biology 21 (2): 472-481.

Martin J., **W. M. Kitchens**, and J. E. Hines. 2007. Natal location influences on movement and survival of a spatially structured population of snail kites. Oecologia 153 (2): 291-301.

Wetzel, P. R. and **W. M. Kitchens**. 2007. Vegetation change from chronic stress events: detection of the effects of tide gate removal and long-term drought on a tidal marsh. Journal of Vegetation Science 18: 431-442.

Martin, J., J. D. Nichols, **W. M. Kitchens**, and J. E. Hines. 2006. Multiscale patterns of movement in fragmented landscapes and consequences on demography of the snail kite in Florida. Journal of Animal Ecology 75: 527-539.

Mooij, W. M., J. Martin, **W. M. Kitchens**, and D. L. DeAngelis. 2006. Exploring the temporal effects of seasonal water availability on the snail kite of Florida. Pages 155-173, in Bissonette, J. A. and I. Storch (eds.). Temporal Dimensions in Landscape Ecology: Wildlife Responses to Variable Resources. Springer, NY.

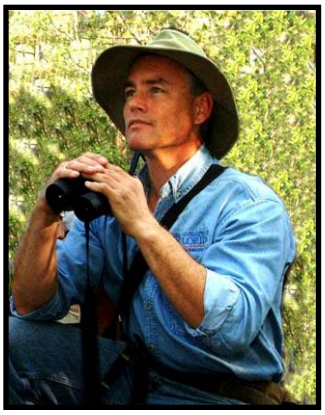
Baber, M. J., K. J. Babbit, F. Jordan, H. L. Jelks, and **W. M. Kitchens**. 2005. Relationships among habitat type, hydrology, predator composition, and distribution of larval anurans in the Florida Everglades. Pages 154-160, in Meshaka, Jr., W. E. and K. J. Babbitt (eds.). Amphibians and Reptiles: Status and Conservation in Florida. Krieger Publishing Company.

Wetzel, P. R., **W. M. Kitchens**, J. M. Brush, and M. L. Dusek. 2004. Use of a reciprocal transplant study to measure the rate of plant community change in a tidal marsh along a salinity gradient. Wetlands 24 (4):879-890.

Dreitz, V. J., **W. M. Kitchens**, and D. E. DeAngelis. 2004. The effects of natal dispersal and environmental state on survival of juvenile snail kites in Florida. Auk 121 (3).

Darby, P. C., P. L. Valentine-Darby, H. F. Percival, and **W. M. Kitchens**. 2004. Florida apple snail (Pomaea paludosa Say) responses to lake-habitat restoration activity. Arch. Hydrobiol 161 (4): 561-575.

Pearlstine, L., S. E. Smith, L. Brandt, C. Allen, **W. M. Kitchens**, and J. Sternberg. 2002. Assessing state-wide biodiversity in the Florida Gap Analysis Project. Journal Environmental Management 66 (2): 127-144.



Name: Martin B. Main
Position: Professor
Appointment: Extension: 60% Research: 35% Teaching: 5%

Educational Background:

Ph.D.: 1994, Wildlife Science, Oregon State University
M.S.: 1986, Biological Oceanography, Florida Institute of Technology
B.S.: 1981, Biology, Central Michigan University

Professional Experience:

University of Florida
Professor, Dept. of Wildlife Ecology & Conservation, 2008 to present.
Associate Professor, Dept. of Wildlife Ecology & Conservation, 2002-2008.
Assistant Professor, Dept. of Wildlife Ecology & Conservation, 1986-2002.
University of Cambridge, England
Visiting Scholar, Department of Zoology, 2005-2006.

Teaching Responsibilities at UF (last 5 years): None

Graduate Students (last 5 years):

Chair/co-chair: PhD 3; MS 6
Committee member: PhD 1; MS 3

International Activities (last 5 years)

Visiting Scholar, University of Cambridge, England; Jaguar research, Guatemala; Jaguar research, Brazil.

Research area:

Behavioral ecology of ungulates and carnivores.

Grants/Contracts/Gifts (last 5 years): $460,000 (NSF, U.S. Fish and Wildlife Service, Florida Fish and Wildlife Commission, Wildlife Conservation Society, US Golf Association, US Department of Commerce-Sea Grant, Florida Master Naturalist Program revenues)

Publications (Career Summary)

28 refereed journal articles, 1 under contract - book, 4 book chapters, 82 non-refereed publications, and 12 other creative works (videos).

Selected Publications

Main, M. B. 2008. Reconciling competing ecological explanations for sexual segregation in ungulates. Ecology 89 (3): 693-704.

Main, M. B., and J. du Toit. 2005. Sex differences in reproductive strategies affect habitat choice in ungulates. Pages 148-161, in Ruckstuhl, K. E. and P. Neuhaus (eds.). Sexual Segregation in Vertebrates: Ecology of the Two Sexes. Cambridge University Press: Cambridge, UK.

Main, M. B., V. C. Bleich, and F. W. Weckerly. 1996. Sexual segregation in ungulates: new directions for research. Journal of Mammalogy 77: 449-461.

Main, M. B., and B. E. Coblentz. 1996. Sexual segregation in Rocky Mountain mule deer. Journal of Wildlife Management 60: 497-507.

Main, M. B., and B. E. Coblentz. 1990. Sexual segregation among ungulates: a critique. Wildlife Society Bulletin 18: 204-210.

Noss, R. F., E. Fleishman, D. A. DellaSala, J. M. Fitzgerald, M. R. Gross, **M. B. Main**, F. Nagle, S. L. O'Malley, and J. Rosales. 2009. Priorities for Improving the Scientific Foundation of Conservation in North America. Conservation Biology 23: 825-833.

Main, M. B. 2004. Mobilizing Grass-roots Conservation Education: The Florida Master Naturalist Program. Conservation Biology 18: 11-16.

Main, M. B., F. M. Roka, and R. Noss. 1999. Evaluating costs of conservation. Conservation Biology 13: 1262-1272.

Novack, A. J., **M. B. Main,** M. E. Sunquist, and R. F. Labisky. 2005. Foraging ecology of jaguar (Panthera onca) and puma (Puma concolor) in hunted and non-hunted sites within the Maya Biosphere Reserve, Guatemala. Journal of Zoology 267: 167-178.

Karim, A., and **M. B. Main**. 2009. Habitat fragmentation and conservation strategies for a rare forest habitat in the Florida Keys archipelago. Urban Ecosystems 12: 359-370.

White, C. L., and **M. B. Main**. 2005. Waterbird use of created wetlands in golf course landscapes. Wildlife Society Bulletin 33: 411-421.

Thornton, D. H., M. E. Sunquist, and **M. B. Main.** 2004. Ecological separation within newly sympatric populations of coyotes and bobcats in south-central Florida. Journal of Mammalogy 85: 973-982.

Foster, G. W., **M. B. Main**, J. M. Kinsella, L. M. Dixon, S. P. Terrell, D. J. Forrester. 2003. Parasitic helminths and arthropods of coyotes (Canis latrans) from Florida, USA. Comparative Parasitology 70: 62 -66.

Main, M. B., and L. R. Richardson. 2002. Response of wildlife to prescribed fire in southwest Florida pine flatwoods. Wildlife Society Bulletin 30: 213-221.

Name: Frank J. Mazzotti
Position: Associate Professor
Appointment: Research: 75% Extension: 20% Academic advisement: 5%

Educational Background:

Ph.D.: 1983 Ecology, Pennsylvania State University
M.S.: 1981 Biology, University of Miami
B.S.: 1971 Social and Behavioral Sciences,
Johns Hopkins University

Professional Experience:

University of Florida
Associate Professor, Department of Wildlife Ecology and Conservation, 1998 to present.
Assistant Professor, Department of Wildlife Ecology and Conservation, 1994 - 1998.
Assistant Extension Scientist, Department of Wildlife and Range Sciences, 1987 - 1994.
Pennsylvania State University
Assistant Professor, Environmental Resource Management, 1983 - 1987.
Instructor, Environmental Resource Management, 1982 - 1983.

Teaching Responsibilities at UF (last 5 years):

2004: PCB6971 – Research for Master's Thesis
2005: WIS6905 – Research Problems in Wildlife and Range Sciences
2006: WIS6910 – Supervised Research
2004-2007: WIS6971 – Research for Master's Thesis
2004-2007: WIS7979 – Advanced Research
2007: WIS7980 – Research for Doctoral Dissertation

Graduate Students (last 5 years):

Chair/co-chair: PhD 2 UF, 1 NSU; MS 5 UF
Committee member: PhD 1 FIU, 1 Drexel University; MS 2 UF, 1 National University of Costa Rica

International Activities (last 5 years)

Status and management of crocodiles in Belize; International Union for the Conservation of Nature and Natural Resources, Crocodile Specialist Group appointed member; Comprehensive conservation planning in Belize.

Research area:

Conservation planning, endangered species, landscape ecology.

Grants/Contracts/Gifts (last 5 years): $7,629,973.30 (South Florida Water Management District, US department of Interior, Florida Fish and Wildlife Conservation Commission, Florida Power and Light Company)

Publications (Career Summary)

77 refereed journal articles, 6 book chapters, 86 non-refereed publications, 78 reports, and 394 other creative works.

Selected Publications

Mazzotti, F. J., G. R. Best, L. A. Brandt, M. S. Cherkiss, B. M. Jeffery, and K. G. Rice. 2009. Alligators and crocodiles as indicators for restoration of Everglades ecosystems. Ecological Indicators 9: S137-S149.

Mazzotti, F. J., L. A. Brandt, P. Moler, and M. S. Cherkiss. 2007. American crocodile (Crocodylus acutus) in Florida: recommendations for endangered species recovery and ecosystem restoration. Journal of Herpetology 41: 122-132.

Mazzotti, F. J., H. E. Fling, G. Merediz, M. Lazcano, C. Lasch, and T. Barnes. 2005. Conceptual Model of the Sian Ka'an Biosphere Reserve, Quintana Roo, Mexico. Wetlands 25: 980-997.

Palmer, M. L. and **F. J. Mazzotti**. 2004. Structure of Everglades alligator holes. Wetlands 24: 115-122.

Sinclair, J. M., **F. J. Mazzotti**, and J. A. Graham. 2003. Motives to Seek Threatened and Endangered Species Information for Land-Use Decisions. Science Communication 25: 39-55.

Mazzotti, F. J. 1999. The ecology of the American crocodile in Florida Bay. Estuaries 22: 552-561.

Mazzotti, F. J. and C. S. Morgenstern. 1997. A scientific framework for managing urban natural areas. Landscape and Urban Planning 38: 171-181.

Mazzotti, F. J. and L. A. Brandt. 1994. Ecology of the American alligator in a seasonally fluctuating environment. In Davis, S. and J. Ogden (eds.). Everglades: The Ecosystem and its Restoration. St. Lucie Press.

Mazzotti, F. J. and W. A. Dunson. 1989. Osmoregulation in crocodilians. American Zoologist 29: 903-920.

Name: Debbie L. Miller
Position: Associate Professor
Appointment: Teaching: 60% Research : 30% Administration: 10%

Educational Background:

Ph.D.: 1993, Range Science, Texas A&M University
M.S.: 1986, Range Science, Texas A&M University
B.S.: 1978, Biology Education, University of West Florida

Professional Experience:

University of Florida
Associate Professor, Dept. of Wildlife Ecology and Conservation, 2001 to present.
Assistant Professor, 1995 - 2001.
Affiliate Faculty, School of Natural Resources and the Environment, 2001 to present.

Teaching Responsibilities at UF (last 5 years):

2006, 2008, 2010: WIS 3401 - Wildlife Ecology and Management
2006, 2008, 2010: WIS 4443C - Wetland Wildlife Ecology
2005,2007,2009: WIS 3402 and 3402L - Wildlife of Florida and Lab
2005,2007,2009FNR 3401C - Natural Resource Sampling
2009, 2010: FNR4623C - Integrated Natural Resource Management
2005,2007,2009: ALS 5935 - Plant Communities of the Florida Panhandle
2005,2008,2009: ALS 4935 - Plant Communities of the Florida Panhandle

Graduate Students (last 5 years):

Chair/co-chair: PhD 1; MS 7
Committee member: PhD 7; MS 9

International Activities (last 5 years)

Invited speaker International Coastal Dune Conference, Liverpool, England.

Research area:

Coastal dune and wetland ecology and restoration, Upland groundcover ecology and restoration, disturbance ecology, invasive species ecology, plant-animal interactions.

Grants/Contracts/Gifts (last 5 years): $ 585,484 (USFWS, DOD, National Park Service, TNC)

Publications (Career Summary)

23 refereed journal articles, 1 book editor, 1 book chapter, 7 non-refereed publications.

Selected Publications:

Pries, A. J., L. C. Branch, and **D. L. Miller**. 2009. Impact of Hurricanes on Habitat Occupancy and Spatial Distribution of beach mice. Journal of Mammalogy 90(4).

Miller, D. L., M Thetford, and M. Schneider. 2008. Distance from the Gulf Influences Survival and Growth of Three Barrier Island Dune Plants. Journal of Coastal Research 24(3): 261-266.

Pries, A. J., **Miller, D. L.**, and L. C. Branch. 2008. Identification of Structural and Spatial Features that Influence Storm-Related Dune Erosion along a Barrier-Island Ecosystem in the Gulf of Mexico. Journal of Coastal Research 24(3): 168-175.

Raymer J., M. Thetford, and **D. L. Miller.** 2008. Fertility Rate of Seacoast Marshelder Stock Plants Influences Cutting Production and Rooting Characteristics of Stem Cuttings. HortTechnology 18 (3): 372-378.

Ruth A., S. Jose and **D. L. Miller.** 2008. Seed Bank Dynamics of Sand Pine Scrub and Longleaf Pine Flatwoods of the Gulf Coastal Plain (Florida). Restoration Ecology 26 (1): 19-21.

Archer, J. K., **D .L. Miller**, and G. W. Tanner. 2007. Changes in Understory Vegetation and Soil Characteristics Following Silvicultural Activities in a Southeastern Mixed Forest. The Journal of the Torrey Botanical Society 134 (4): 489-504.

Ruth, A. D., **D. L. Miller,** and S. Jose. 2007. Effects of Reintroduction of Fire into Fire Suppressed Coastal Scrub and Longleaf Pine Communities Along the Lower Gulf Coastal Plain. Natural Areas Journal 27: 332-344.

Miller, D. L. F. E. Smeins, J. W. Webb, and L. Yager. 2005. Mid-Texas Coastal Marsh Vegetation Pattern and Dynamics as Influenced by Environmental Stress and Snow Goose Herbivory. Wetlands 24 (3): 648-658.

Miller, D. L., L. Yager, M. Thetford, and M. Schneider. 2003. Potential Use of Uniola paniculata Rhizome Fragments for Dune Restoration. Restoration Ecology 11 (3): 359-369.

Miller, D. L., M. Thetford, and L. Yager. 2001. Evaluation of sand fence and vegetation for dune building following overwash by Hurricane Opal on Santa Rosa Island, Florida. Journal of Coastal Research 17 (4): 936-948.

Miller, D. L., F. E. Smeins, J. W. Webb, and L. Yager. 2005. Mid-Texas, USA Coastal Marsh Vegetation Pattern and Dynamics As Influenced By Environmental Stress and Snow Goose Herbivory. Wetlands 25 (3): 648-658.

Bird, B. L., L. C. Branch, and **D. L. Miller**. 2004. Effects of coastal lighting on foraging behavior of beach mice. Conservation Biology 18 (5): 1-5.

Ramsey, C. L., S. Jose, **D. L. Miller,** J. Cox, K. M. Portier, and S. Merritt. Cogongrass [Imperata cylindrica (L.) Beauf]. 2002. Response to Herbicides and Disking on a Cutover Site and in a Mid-Rotation Pine plantation in southern USA. Forest Ecology and Management 61 (21): 1 -13.

Miller, D. L., M. Thetford, and L. Yager. 2001. Evaluation of sand fence and vegetation for dune building following overwash by Hurricane Opal on Santa Rosa Island Florida. Journal of Coastal Research 17(4): 936-948.

Miller, D. L., S. R. Archer, S. F. Zitzer, and M. Longnecker. 2000. Growth of an Arid Land Tree (Prosopis glandulosa) 2000. Journal of Arid Environments.

Linehan, P. E., **D. L. Miller,** and S. Jose 2000. The Development of an Off-Campus Natural Resource Conservation Program. Journal of Forestry 98 (4): 24-28.

Miller, D. L. F. E. Smeins and J. W. Webb. 1998. Response of a Texas Distichlis spicata marsh to lesser snow goose herbivory. Aquatic Botany 16 (4): 301-307.

Miller, D. L., F. E. Smeins and J. W. Webb. 1997. Regeneration of a Texas Scirpus americanus coastal marsh following lesser snow goose herbivory. Wetlands 17 (1): 31-42.

Miller, D. L., F. E. Smeins, and J. W. Webb. 1996. Historical Mid-Texas coastal marsh change (1939-1991) as influenced by lesser snow goose herbivory. Journal of Coastal Research 12 (2): 462-476.

Name: Michael P. Moulton
Position: Associate Professor
Appointment: Teaching: 80% Research: 20%

Educational Background:
Ph.D.: 1984; Zoology, University of Tennessee
M.S.: 1980; Zoology, Fort Hays State University
B.S.: 1972; Organismal Biology, University of Colorado

Professional Experience:
University of Florida
Associate Professor, Department of Wildlife Ecology & Conservation, 1996 to present.
Assistant Professor, Department of Wildlife Ecology & Conservation, 1993 – 1996.
Georgia Southern University
Associate Professor, Department of Biology, 1992 – 1993.
Assistant Professor, Department of Biology, 1987 – 1992.
Texas Tech University
Visiting Assistant Professor, Department of Biological Sciences, 1984-1987.

Teaching Responsibilities at UF (last 5 years):
2004-2009: WIS 2040 - Wildlife Issues in a Changing World
2004-2009: WIS 2552 - Biodiversity Conservation: Global Perspectives
2009: WIS 4934 - Ecology of Mammals

Graduate Students (last 5 years):
Chair/co-chair: PhD 3; MS 1
Committee member: 0 PhD ; 1 MS

International Activities (last 5 years)
Conducted research on specimens of introduced species of birds at the British Museum of Natural History; preliminary research on mynas and manikins in Singapore.

Research area:
Ecology of introduced species of birds and reptiles.

Grants/Contracts/Gifts (last 5 years): $_0_

Publications (Career Summary
46 refereed journal articles, 1 books, 7 book chapters, and 3 other creative works *(1 Young Adult novel, and two course packets)*

Selected Publications
Moulton, M. P. D. K. McLain, and L. E. Moulton. 2009. Sexual selection and the fate of introduced pigeons and doves (Aves: Columbidae). Evolutionary Ecology Research 11: 889-904.

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

Gomez-Zlatar, P., **M. P. Moulton**, and R. Franz. 2006. Microhabitat use by introduced *Hemidactylus turcicus* in North Central Florida. Southeastern Naturalist 5: 425-434.

Donze, J., **M. P. Moulton**, R. F. Labisky, and W. Jetz. 2004. Sexual plumage differences and the outcome of game bird (Aves: Galliformes) introductions on oceanic islands. Evolutionary Ecology Research 6: 595-606.

Moulton, M. P., J. G. Sanderson, and R. F. Labisky. 2001. Patterns of success in Galliform (Aves: Galliformes) introductions to the Hawaiian Islands and New Zealand. Evolutionary Ecology Research 3: 507-519.

McLain, D. K., D.Setters, **M. P. Moulton**, and A. E. Pratt. 2000. Ascription of resemblance of newborns by parents and nonrelatives. Evolution and Human Behavior 21: 11-23.

McLain, D. K., **M. P. Moulton,** and J. G. Sanderson. 1999. Sexual selection and extinction: the fate of plumage-dimorphic and plumage-monomorphic birds introduced onto islands. Evolutionary Ecology Research 1: 549-565.

Sanderson, J. G.**, M. P. Moulton,** and R. Selfidge. 1998. Null matrices and the analysis of species co-occurrences. Oecologia 116: 275-283.

Moulton, M. P., J. G. Sanderson, and D. Simberloff. 1997. Passeriform introductions to the Mascarene Islands: An assessment of the role of competition. Ecologie (Paris) 27: 143-152.

Moulton, M. P. and J. G. Sanderson. 1997. Predicting the fates of passeriform introductions on oceanic islands: the generality of the all-or-none pattern. Conservation Biology 11: 552-558.

Lockwood, J. L., **M**. **P. Moulton**, and R. K. Brooke. 1996. Morphological dispersion of the introduced land-birds of Saint Helena. Ostrich 67: 111-117.

McLain, D. K., **M. P. Moulton**, and T. P. Redfearn. 1995. Sexual selection and the risk of extinction: an analysis with introduced birds. Oikos 74: 27-34.

Brooke, R. K., **M. P. Moulton**, and J. L. Lockwood. 1995. Patterns of success in passeriform introductions on Saint Helena. Oecologia 103: 337-342.

Pimm, S. L., **M. P. Moulton,** and L. J. Justice. 1994. Bird extinctions in the central Pacific. Phil. Trans. of the Royal Soc. London 344 (1307): 27-33.

Lockwood, J. L., and **M. P. Moulton**. 1994. Ecomorphological pattern in Bermuda birds: the influence of competition and implications for nature preserves. Evolutionary Ecology 8: 53-60.

Moulton, M. P. 1985. Morphological similarity and the coexistence of congeners: an experimental test using introduced Hawaiian birds. Oikos 44: 301-305.

Moulton, M. P., and S. L. Pimm. 1983. The introduced Hawaiian avifauna: biogeographic evidence for competition. The American Naturalist 121: 669-690.

Robbins, L. W.**, M. P. Moulton**, and R. J. Baker. 1983. Extent of geographic range and magnitude of chromosomal evolution. J. of Biogeography 10: 533-541.

Name: J. Jeffrey Mullahey
Position: Professor and Center Director
Appointment: Administration 100%

Educational Background:

Ph.D.: 1989; Range Science, University of Nebraska-Lincoln
M.S.: 1986; Agronomy, North Carolina State University
B.S.: 1979; Animal Science, North Carolina State University

Professional Experience:

University of Florida
Center Director, West Florida Research and Education Center, 2000 – present
Associate Center Director, West Florida Research and Education Center 1999 – 2000
Professor, Range Scientist, Southwest Florida Research and Education Center, 1999 - present
Associate Professor, Range Scientist, Southwest Florida Research and Education Center, 1994 - 1999
Acting Center Director, Southwest Florida Research and Education Center, 1995 - 1997
Assistant Professor, Range Scientist, Southwest Florida Research and Education Center, 1989 - 1994
University of Nebraska
Graduate Research Assistant, Ph.D. program at the University of Nebraska, 1986 - 1989
Teaching Assistant, University of Nebraska, 1987
North Carolina State
Graduate Teaching Assistant, M.S. program at North Carolina State University, 1983 -1986
North Carolina Agricultural Extension Service
County Extension Agent, 1980-1983

Research area:

Weed Science, Forage Agronomy, Range Science, Animal Science, Specialty Crops, Marketing.

Publications (Career Summary)

42 refereed journal articles, 37 Trade Publications and the Popular Press, 32 Extension Publications, 52 Papers at Professional Meetings

Selected Publications

Mullahey, J. J. 2009. Extension through partnerships: Research and education center teams with county extension to deliver programs. Journal of Extension (submitted).

Sellers, B.A. and **J. J. Mullahey**. 2008. Broadcast vs. Web-Blade Herbicide Applications for Southern Wax Myrtle (*Myrica cerifera*) Control. Weed Technology. 22:286-289.

Arthington, J.D., F.M. Roka, **J. J. Mullahey**, S.W. Coleman, L.O. Lollis, and R.M. Muchovej. 2007. Integrating ranch forage production, cattle performance and economics in ranch management systems for south Florida. Rangeland Ecol Mange 60:12-18.

Carrington, Mary E. and **J. J. Mullahey**. 2006. Effects of burning season and frequency on saw palmetto (*Serenoa repens*) flowering and fruiting. Forest Ecology and Management. 230:69-78.

Ferrell, J.A., **J. Mullahey**, J. Dusky, and F. M. Roka. 2006. Competition of giant smutgrass (Sporobolus indicus var. pyramidalis) in a bahiagrass pasture. Weed Sci. 54:100-105.

Name: Holly K. Ober
Position: Assistant Professor
Appointment: Research: 40% Extension: 60%

Educational Background:

Ph.D.: 2007, Dual degree in Forest Science and Wildlife Science,
Oregon State University
M.S.: 2000, Wildlife Ecology, University of Arizona
B.S.: 1994, Biology, Duke University

Professional Experience:

University of Florida
Assistant Professor, 2007 to present

Teaching Responsibilities at UF (last 3 years): None

Graduate Students (last 3 years):

Chair/co-chair: PhD 0; MS 4

International Activities (last 3 years): None

Research area:

Influence of forest management on wildlife, habitat selection, forest restoration.

Grants/Contracts/Gifts (last 3 years): $518,149 (USDA/CSREES, Northwest Florida Water Management District, South Florida Water Management District, Southwest Florida Water Management District, Suwannee River Water Management District, St. John's River Water Management District, Florida Fish and Wildlife Conservation Commission, The Nature Conservancy, E.O. Dunn Foundation, Southern Region IPM Center, Florida 4-H Foundation)

Publications (Career Summary)

6 refereed journal articles (and 1 currently in review), 1 book chapter, 12 non-refereed publications, 8 newsletter articles, and 5 other creative works.

Selected Publications

Hayes, J. P., **H. K. Ober**, and R. E. Sherwin. 2009. Survey and monitoring bats. Pages 115-132, in Kunz, T. H. and S. Parsons (eds.). Ecological and Behavioral Methods for the Study of Bats. 2nd edition. John Hopkins University Press: Baltimore, MD.

Ober, H. K. and J. P. Hayes. 2009. Determinants of Lepidopteran diversity and community structure in a conifer-dominated forest. Biodiversity and Conservation. doi: 10.1007/s10531-009-9732-1.

Ober, H. K., and J. P. Hayes. 2008. Influence of forest riparian vegetation on abundance and biomass of nocturnal flying insects. Forest Ecology and Management 256: 1124-1132.

Ober, H. K., and J. P. Hayes. 2008. Prey selection by bats in forests of western Oregon. Journal of Mammalogy 89: 1191-1200.

Ober, H. K., and J. P. Hayes. 2008. Influence of vegetation on use of riparian areas by bats at multiple spatial scales. Journal of Wildlife Management 72: 396-404.

Ober, H. K., R. J. Steidl, and V. M. Dalton. 2005. Resource and spatial-use patterns of an endangered vertebrate pollinator, the lesser long-nosed bat. Journal of Wildlife Management 69: 1615-1622.

Ober, H. K., and R. J. Steidl. 2004. Foraging rates of Leptonycteris curasoae vary with characteristics of Agave palmeri. Southwestern Naturalist 49: 68-74.

Trusty, J. L. and **H. K. Ober**. In review. Determinants of successful groundcover restoration in forests of the southeastern United States: a regression tree approach. Restoration Ecology.

Name: Madan K. Oli
Position: Associate Professor
Appointment: Research: 60% Teaching: 40%

Educational Background:

Ph.D.: 1999, Zoology and Wildlife Science, Auburn University
M.Phil.: 1992, Ecology and Resource Management, University of Edinburgh, UK
M.Sc.: 1986, Zoology, Tribhuvan University, Nepal
Diploma in Science: 1983, Biology, Tribhuvan University, Nepal

Professional Experience:

University of Florida
Associate Professor, 2005 to present.
Assistant Professor, 2000 to 2005.

Teaching Responsibilities at UF (last 5 years):

2005-2009: WIS4501 – Introduction to Wildlife Population Ecology
2005-2009: WIS6455 – Wildlife Population Ecology
2005-2009: WIS6466 – Wildlife Population Modeling
2005-2007: WIS6934 – Analysis and Management of Wildlife Populations
2005: WIS4601C –Quantitative Wildlife Ecology

Graduate Students (last 5 years):

Chair/co-chair: PhD 4; MS 11
Committee member: PhD 18; MS 14

International Activities (last 5 years)

Research on Vancouver Island Marmots and Richardson's ground squirrels in Canada; Asian elephants in India; collaborative research with scientists from several countries around the world; supervision of several international graduate students or those conducting research internationally.

Research area:

Wildlife population ecology and modeling; science-based management of wildlife populations in human-dominated landscapes.

Grants/Contracts/Gifts (last 5 years): $ 629,090 (Florida Fish and Wildlife Conservation Commission, US Fish and Wildlife Service, Jones Ecological Research Center, Project Orianne)

Publications (Career Summary)

70 refereed journal articles, 4 book chapters, 15 non-refereed publications, and 1 published computer program.

Selected Publications

Aaltonen, K. A., A. B. Bryant, J. A. Hostetler, and **M. K. Oli**. 2009. Reintroducing endangered Vancouver island marmots: survival and cause-specific mortality rates of captive-born versus wild-born individuals. Biological Conservation 142: 2181-2190.

Hostetler, J. A., J. W. McCown, E. P. Garrison, A. M. Neils, M. E. Sunquist, S. L. Simek, and **M. K. Oli**. 2009. Demographic consequences of habitat fragmentation: Florida black bears in North Central Florida. Biological Conservation 142: 2456-2463.

Ozgul, A., **M. K. Oli**, K. B. Armitage, D. T. Blumstein, and D. H. VanVuren. 2009. Influence of local demography on asymptotic and transient dynamics of a yellow-bellied marmot metapopulation. American Naturalist 173: 517-530.

Ozgul, A., **M. K. Oli**, B. Bolker, and C. Perez-Heydrich. 2009. Upper respiratory tract disease, force of infection, and effects on survival of gopher tortoises. Ecological Applications 19: 786-798.

Oli, M. K., and K. B. Armitage. 2008. Indirect fitness benefits do not compensate for the loss of direct fitness in yellow-bellied marmots. Journal of Mammalogy 89: 874-881.

Garrison, E. P., J. W. McCown, and **M. K. Oli**. 2007. Reproductive ecology and cub survival of Florida black bears. Journal of Wildlife Management 71: 720-727.

Dixon, J. D., **M. K. Oli**, M. C. Wooten, T. H. Eason, J. W. McCown, and M. W. Cunningham. 2007. Genetic consequences of habitat fragmentation and loss: the case of the Florida black bear (Ursus americanus floridanus). Conservation Genetics 8: 455–464.

Moyer, M. A., J. W. McCown, and **M. K. Oli**. 2007. Factors influencing home range size of female of Florida black bears. Journal of Mammalogy 88: 468-476.

Dixon, J. D., **M. K. Oli**, M. C. Wooten, T. H. Eason, J. W. McCown, and D. Paetkau. 2006. Effectiveness of a regional corridor in connecting two Florida black bear populations. Conservation Biology 20: 155-162.

Ozgul, A., K. B. Armitage, D. T. Blumstein, and **M. K. Oli**. 2006. Spatiotemporal variation in age-specific survival rates: implications for population dynamics of the yellow-bellied marmot. Ecology 87: 1027-1037.

Ozgul, A., K. B. Armitage, D. T. Blumstein, D. H. VanVuren, and **M. K. Oli**. 2006. Effects of patch quality and network structure on patch occupancy dynamics of a yellow-bellied marmot metapopulation. Journal of Animal Ecology 75: 191-202.

Moyer, M. A., J. W. McCown, T. H. Eason, and **M. K. Oli**. 2006. Does genetic relatedness influence space use pattern? A test on Florida black bears. Journal of Mammalogy 87: 255-261.

Oli, M. K. 2004. Fast-slow continuum and mammalian life-history patterns: an empirical evaluation. Basic and Applied Ecology 5: 449-463.

Oli, M. K. 2003. Hamilton goes empirical: estimation of inclusive fitness from life-history data. Proceedings of the Royal Society of London, Series B 270: 307-311.

Oli, M. K., and K. B. Armitage. 2003. Sociality and individual fitness in yellow-bellied marmots: insights from a long-term study. Oecologia 136: 543-550.

Oli, M. K., and F. S. Dobson. 2003. The relative importance of life-history variables to population growth rate in mammals: Cole's prediction revisited. American Naturalist 161: 422-440.

Dobson, F. S., and **M. K. Oli**. 2001. Demographic basis of population regulation in Columbian ground squirrels. American Naturalist 158: 236-247.

Name: H. Franklin Percival

Position: Courtesy Associate Professor

Appointment: N/A

Educational Background:

Ph.D.: 1972, Zoology, Clemson University
M.S.: 1968, Zoology, Clemson University
B.S.: 1966, Biology, University of South Carolina

Professional Experience:

University of Florida
Courtesy Assistant and Associate Professor, 1981 to present.

Teaching Responsibilities at UF (last 5 years):

Spring 2005-2010 - WIS 6544 - Administration in Natural Resources

Graduate Students (last 5 years):

Chair/co-chair: PhD 4; MS 7
Committee member: PhD 8; MS 10

Research area:

Wetlands wildlife ecology, alligator research, team and collaborative research, unmanned aerial systems research.

Grants/Contracts/Gifts (last 5 years): $1,940,000 (FL Fish and Wildlife Conservation Commission, US Fish and Wildlife Service, US Geological Survey, US Army Corps of Engineers, and St. Johns River Water Management District)

Publications (Career Summary)

65 refereed journal articles, and 5 book chapters.

Selected Publications

Garmestani, A. S., **H. F. Percival**, and K. M. Portier. 2001. Preliminary evaluation of helicopter survey as a method of assessing sea turtle nesting distribution in the Ten Thousands Islands of Florida. Marine Turtle Newsletter 93: 1-5.

Rice, K. G., **H. F. Percival**, and A. R. Woodward. 1992. Alligator nest detection probabilities during aerial survey in Florida. In Crocodiles. Proceedings of the 11th Working Meeting of the Crocodile Specialist Group of the Species Survival Commission of the IUCN.

Rice, K. G., **H. F. Percival,** and A. R. Woodward. 2002. Estimating sighting proportions of American alligator nests during helicopter survey. 2000 Proceedings of the Annual Conference of the Southeast Association of Fish and Wildlife Agencies 54: 314-321.

Rice, K.G., **H. F. Percival**, A. R. Woodward, and M. L. Jennings. 1999. Effects of egg hatchling harvest on American alligators in Florida. Journal of Wildlife Management 63(4): 1193-1200.

Geissler, P. H., D. D. Dolton, R. Field, R. A. Coon, **H. F. Percival**, D. W. Hayne, L. D. Soileau and R. R. George. 1987. Mourning dove nesting: seasonal patterns and effects of September hunting. U.S. Department of the Interior Resource Publication 168. Pp. 33.

Percival, H. F., C. L. Montague and A.V. Zale. 1987. A summary of positive and negative aspects of coastal wetland impoundments as habitat for waterfowl. Pages 224 – 232, in Whitman, W. R. (ed.). Waterfowl and Wetlands Symposium. Delaware Department of Natural Resources, Wilmington, DE.

Jennings, M. L., **H. F. Percival** and A. R. Woodward. 1988. Evaluation of alligator hatchling and egg removal from three Florida lakes. Proc. 24th Ann. Conf. Southeastern Association of Fish and Wildlife Agencies. Pp. 283-294.

Darby, P. C., P. L. Valentine-Darby, and **H. F. Percival** and W. M. Kitchens. 2004. Florida apple snail responses to lake habitat restoration activity. Archiv Für Hydrobiologie 161(4): 561-175.

Darby, P.C., R. E. Bennetts and **H. F. Percival**. 2008. Dry down impacts on apple snail demography: implications for wetlands water management. Wetlands 28 (1): 204-214

Jacobson, S. K., J. K. Morris, J. S. Sanders, E. N. Wiley, M. B. Brooks, R. E. Bennetts, **H .F. Percival**, and S. Marynowski. 2006. Understanding, measuring, and overcoming barriers to the implementation of an adaptive land management program. Conservation Biology 20 (5): 1516-1527.

Watts, A. C., W. S. Bowman, A. H. El-Rahman, A. Mohamed, B. E. Wilkinson, J. Perry, Y. O. Kaddoura, and K. Lee. 2008. Unmanned Aircraft Systems (UASs) for ecological research and natural-resource monitoring. Ecological Restoration, 26: 13-14.

Fujisaki, I., K. G. Rice, A. R. Woodward, H. F. Percival. 2007. Possible generational effects of habitat degradation on alligator reproduction. Journal of Wildlife Management 71 (7): 2284-2289.

Honeyfield, D. C., J. P. Ross, D. A. Carbonneau, S. P. Terrel, A. R. Woodward, T. R. Schoeb, **H. F. Percival**, J. P. Hinterkopf. 2008. Pathology, physiologic parameters, tissue contaminants, and tissue thiamine in morbid and healthy central Florida American alligators (Alligator mississippiensis). Journal of Wildlife Diseases 44 (2): 280-294.

Name: William (Bill) E. Pine, III
Position: Assistant Professor
Appointment: Research: 60% Teaching: 40%

Educational Background:

Ph.D.: 2003, Zoology, North Carolina State University
M.S.: 1999, Fisheries Science, University of Florida
B.S.: 1997, Fisheries Management, Auburn University

Professional Experience:

University of Florida

Assistant Professor, Department of Wildlife Ecology and Conservation, 2009 to present.
Assistant Professor, Department of Fisheries and Aquatic Sciences, 2005 – 2009.

Teaching Responsibilities at UF (last 5 years):

2005-Present: WIS 6932 - Stream Fish Biology
2006-Present: ALS 5932 - Ecological Statistics and Design
2006-2009: FAS 6932 - Fisheries Ecology and Management
2005-2008: FAS 5276 - Field Ecology of Aquatic Organisms

Graduate Students (last 5 years):

Chair/co-chair: PhD 4; MS 9
Committee member: PhD 4; MS 5

International Activities (last 5 years)

Design and analyses assistance for assessing the relationships between hydrologic regimes and spawning patterns of highly migratory catfishes (Family: Pimelodidae) in Peruvian Amazon, Madre de Dios River, Peru; Provide design assistance and equipment for development of a tagging program to estimate movement and exploitation of giant mahseer (Family: Cyprinidae) in the Cauvery (Kaveri) River in cooperation with the Wildlife Association of South India and the Ashoka Trust for Research in Ecology and the Environment; Guidance on tagging programs to estimate abundance and exploitation patterns for large river fishes, Department of Primary Industries, Brisbane, Queensland, Australia.

Research area:

Primary research responsibilities are related to evaluating how animal populations respond to management actions. Additional areas of research include developing new estimation techniques for evaluating trends in animal populations, estimating population vital rates, and management policy development.

Grants/Contracts/Gifts (last 5 years): $2,791,508 (U.S. Geologic Survey, U.S. Fish and Wildlife Service, National Oceanographic and Atmospheric Administration – Fisheries, St. Johns River Water Management District, Florida Fish and Wildlife Conservation Commission)

Publications (Career Summary)

30 refereed journal articles, 1 book, 1 book chapters, 5 non-refereed publications, and 3 peer-reviewed monographs, proceedings or stock assessments.

Selected Publications

Canas, C. M. and **W. E. Pine, III**. Accepted. Documentation of the temporal and spatial patterns of Pimelodidae catfish spawning and larvae dispersion in the Madre de Dios River (Peru): Insights for conservation in the Andean-Amazon headwaters. River Research and Applications

Flowers, H. J., **W. E. Pine, III,** A. C. Dutterer, K. G. Johnson, J. W. Ziewitz, M. S. Allen, and F. M. Parauka. 2009. Spawning site selection and potential implications of modified flow regimes on viability of Gulf sturgeon populations. Transactions of the American Fisheries Society 138:1266-1284.

Pine, W. E., III, S. J. D. Martell, C. J. Walters, and J. F. Kitchell. 2009. Counterintuitive responses of fish populations to management actions: Some common causes and implications for predictions based on ecosystem modeling. Fisheries 34: 165-180.

Catalano, M. J., A. C. Dutterer, **W. E. Pine, III**, and M. S. Allen. 2009. Effects of variable mortality and recruitment on performance of catch-curve residuals as indicators of fish year class strength. North American Journal of Fisheries Management 29:295-305.

Martell, S. J. D., **W. E. Pine, III**, and C. J. Walters. 2008. Parameterizing age-structured models from a fisheries management perspective. Canadian Journal of Fisheries and Aquatic Sciences 65: 975-988.

Pine, W. E., III, S. J. D. Martell, O. P. Jensen, C. J. Walters, and J. F. Kitchell. 2008. Effects of post-release mortality of the efficacy of length limits and catch-and-release policies: a case study of blue, white, and striped marlin. Canadian Journal of Fisheries and Aquatic Sciences 65: 975-988.

Coggins, L. G. Jr., M. J. Catalano, M. S. Allen, **W. E. Pine, III**, and C. J. Walters. 2007. Effects of cryptic mortality and the hidden costs of using length limits in fishery management. Fish and Fisheries 9: 196-210.

Pollock, K. H. and **W. E. Pine, III**. 2007. The design of field studies to estimate catch and release mortality. Fisheries Ecology and Management 14: 1-8.

Pine, W. E., III, T. J. Kwak, and J. A. Rice. 2007. Modeling management scenarios and the effects of an introduced apex predator on a coastal riverine fish community. Transactions of the American Fisheries Society 136: 105-120.

Coggins, L. G., **W. E. Pine, III**, C. J. Walters, D. R. Van Haverbeke, D. Ward, and L. Johnstone. 2006. Abundance trends and status of the Little Colorado River population of Humpback Chub Gila cypha. North American Journal of Fisheries Management 26: 233-245.

Coggins, L. G., **W. E. Pine, III**, C. J. Walters, and S. J. D. Martell. 2006. Age-structured mark-recapture analysis (ASMR): A VPA based model for analyzing age-structured capture-recapture data. North American Journal of Fisheries Management 26:201-205.

Kwak, T. J., **W. E. Pine, III**, and D. S. Waters. 2006. Age, growth, and mortality of introduced flathead catfish in Atlantic rivers and a review of other populations. North American Journal of Fisheries Managemetn 26:73-87.

Taylor, R. G., J. A. Whittington, **W. E. Pine, III**, and K. H. Pollock. 2006. Effect of rewards on angler return rates of tagged common snook in southeast Florida. North American Journal of Fisheries Management 26:645-651.

Pine, W. E., III, K. H. Pollock, J. E. Hightower, T. J. Kwak, J. A. Rice. 2003. A review of tagging methods for estimating fish population size and components of mortality. Fisheries 28: 10-23.

Pine, W. E., III, M. S. Allen, and V. J. Dreitz. 2001. Population viability of the Gulf of Mexico sturgeon: Inferences from capture-recapture and age-structured models. Transactions of the American Fisheries Society 130: 1164-1174.

Name: James Perran Ross
Position: Associate Scientist
Appointment: Extension: 95% Teaching: 5%

Educational Background:

Ph.D.: 1977, Department of Zoology, University of Florida
B.S.: 1971, Department of Zoology, University of Western Australia

Professional Experience:

University of Florida
Associate Scientist. Department of Wildlife Ecology and Conservation, 2004 to present.
Assistant Scientist, Florida Museum of Natural History, 1990 – 2004.
Caribbean Conservation Corporation, Gainesville FL
Director of Research, 1988 - 1990.
Earthwatch Inc/Center for Field Research, Watertown MA
Director of Field operations, 1986 - 1988.
Williams College, Mystic River program
Visiting lecturer in marine ecology, 1986.
Museum of Comparative Zoology, Harvard University
Visiting scientist, International conservation consultant, 1980 – 1986.
World Wildlife International, Gland, Switzerland
Project director, Sea turtle survey of the Sultanate of Oman, 1976 – 1980.

Teaching Responsibilities at UF (last 5 years):

2004-2009: WIS6934 - Foundations of Wildlife Ecology: Theory and Application (Guest lecturer)
2004-2009: WIS 3401 - Wildlife in Florida (Guest lecturer)
2008-2009: WIS 4554/5555 - Conservation Biology (Guest lecturer)
2009: ALS 4921 - CALS Honors colloquium, Climate change (Guest lecturer)

Graduate Students (last 5 years):

Chair/co-chair: PhD 1, MS 2
Committee member: PhD 6 UF, 1 Texas Tech; MS 7 UF, International 4

International Activities (last 5 years)

Conservation advisement of crocodilians, field and review Mexico (CONABIO), India (Madras Crocodile Bank), International Wildlife Trade(CITES), Conservation and Human welfare (IUCN-SSC); Presented papers and international meetings - Australia, Bolivia, China, France; Directed graduate students in Mexico (3), and South Africa (1).

Research area:

Conservation biology, sustainable use and human-wildlife interactions, crocodilians, sea turtles, Human dimensions, conflict resolution in wildlife conservation.

Grants/Contracts/Gifts (last 5 years): $909,077 (FL Fish and Wildlife Conservation, State Wildlife Grants – U.S. Fish and Wildlife Service, private donors)

Publications (Career Summary)

33 refereed journal articles, 112 non-refereed and popular publications.

Selected Publications

Ross J. P., D. Honeyfield , S. Brown, L. Brown , A. Rice , M. Welker, and T. Schoeb. 2009. Gizzard shad thiaminase activity and the effect on captive alligator thiamine status. J. Aquatic Animal Health.

Cedeno-Vasquez, R. J., D. Rodriguez, S. Calme**, J. P. Ross**, L. D. Densmore, and J. B. Thorbjarnarson. 2008. Hybridization between Crocodylus acutus and Crocodylus moreletii in the Yucatan peninsula - Evidence from mitochondrial DNA and morphology. J. Experimental Zoology 309A: 661-673.

Honeyfield, D., **J. P. Ross**, D. Carbonneau, S. P. Terrell, A. R. Woodward, T. R. Schoeb, H. F. Percival, and J. Hinterkopf. 2008. Pathology, physiologic parameters, tissue contaminants, and tissue thiamine in morbid and healthy central Florida adult American alligators (Alligator mississippiensis). J. Wildlife Diseases 44(2): 280-294.

Rice, A. N., **J. P. Ross**, A. R. Woodward, D. A. Carbonneau, and H. F. Percival. 2007. Alligator Diet in Relation to Alligator Mortality on Lake Griffin, Florida. Southeastern Naturalist. 6(1): 97-110.

Temsiripong, Y., A. Woodward, **J. P. Ross**, P. Kublis, and H. F. Percival. 2006. Survival and growth of American alligator (Alligator mississipiensis) hatchlings after artificial incubation and repatriation. J. of Herpetology 40 (4): 415 - 423.

Ross, J. P., R. Jenkins and J. Wombey. 2002. The potential to breed Appendix-I reptiles in captivity. A preliminary assessment. Report to Convention on International Trade in Endangered Species (CITES). AC 18 Inf. 11: 62 pp.

Ross, J. P. 2001. Why are there so few species of crocodilians? Pages 1-2, in Grigg, G. C., F. Seebacher, and C. E. Franklin (eds.). Crocodilian Biology and Evolution. Surrey Beatty & Sons, Chipping Norton NSW.

Ross J. P. 1999. Bases biológicas para el uso sustentable de los crocodilianos. Pages 275-280, in Fang, T. G., O. Montenegro, and R. Bodmer (eds.). Manejo y Conservacion de Fauna Silvestre en America Latina. Proceedings of the 3rd International Congress on Wildlife Management in Amazonia, 4-7 December 1997 Santa Cruz, Bolivia. Center for Latin American Studies, University of Florida, Gainesville.

Ross J. P. 1999. Ranching and captive Breeding of Sea Turtles, Evaluation as a Conservation Strategy. Pages 197 201, in Eckert K., K. Bjorndal & A. Abreau (eds.) Management and Research Techniques for the Conservation of Sea Turtles. IUCN Marine Turtle Specialist Group, Washington D.C. Publication No. 4.

Ross, J. P. and R. Godshalk. 1997. El uso sustentable, un incentivo para la conservacion de crocodilos. Pages 147-154, in Fang, T., R. Bodmer, R. Aquino, and M. Valqui (eds.). Manejo de Fauna Silvestre en la Amazonia. Universidad Nacional de la Amazonia Peruana. y Tropical Conservation and Development Program, University of Florida.

Gasperetti J., A. F. Stimson, J. D. Miller, **J. P. Ross,** and P.R. Gasperetti. 1993 Turtles of Arabia. In Buttiker, W. and F. Krupp (eds.) Fauna of Saudi Arabia. National Commission for Wildlife Conservation and Development, Riyadh, Saudi Arabia and Pro Entomolgia, Natural History Museum, Basle, Switzerland.. Vol.13: 170 -367.

Bowen, B. W., A. B. Meylan, **J. P. Ross**, C. J. Limpus, G. H. Balazs, and J.C. Avise. 1992 Global population structure and natural history of the Green Turtle (Chelonia mydas) in terms of matriarchal phylogeny. Evolution 46 (4): 865-881.

Name: Joe Schaefer
Position: Professor and South Florida District Extension Director
Appointment: Administration: 100%

Educational Background:

Ph.D.: 1983, Animal Ecology, Iowa State University
M.S.: 1978, Wildlife Biology, Iowa State University
B.S.: 1975, Wildlife Management, University of Maine

Professional Experience:

University of Florida

South Florida District Extension Director, 2002 to present.
Professor, Director of the Center for Natural Resources and State Extension Program Leader for Natural Resources, 1999 – 2002.
Assistant Director of the Center for Natural Resources, 1997 – 1999.
Associate Professor, Department of Wildlife Ecology and Conservation, 1993 – 1997.
Assistant Professor, Department of Wildlife Ecology and Conservation, 1987 – 1993.

Publications (Career Summary)

9 refereed journal articles, 3 books, 5 book chapters, and 51 non-refereed publications.

Selected Publications

Main, M. B., and **J. M. Schaefer**. 2001. Solving deer damage problems in Florida. Florida Cooperative Extension Service Fact Sheet. 7 pp.

DiCamillo, J. A. and **J. M. Schaefer**. 2000. Internet program impacts youth interest in hunting. Wildl. Soc. Bull. 28:1077-1085.

Schaefer, J. M., and M. Sargent. 2000. The Florida black bear: a threatened species. Florida Cooperative Extension Service Special Series Fact Sheet, SS-WIS-25. 4 pp. University of Florida, UF/IFAS EDIS Datebase, http://edis.ifas.ufl.edu/UW055.

Everett, S., and **J. M. Schaefer**. 1999. Florida's beavers. Florida Cooperative Extension Service Fact Sheet, WEC-17. 4 pp. University of Florida, UF/IFAS EDIS Datebase, http://edis.ifas.ufl.edu/UW056.

Schaefer, J. M. 1999. Dealing with unwanted wildlife in an urban environment. Florida Cooperative Extension Service Fact Sheet, WEC-20. 6 pp. University of Florida, UF/IFAS EDIS Datebase, http://edis.ifas.ufl.edu/UW070.

Buckingham. C. A., L. W. Lefebvre, **J. M. Schaefer**, and S. B. Linda. 1999. Manatee response to boating activity in a thermal refuge. Wildl. Soc. Bull. 27:514-522.

Schaefer, J. M. 1999. Domestic duck problems in urban areas, Florida Cooperative Extension Service Fact Sheet, WEC-23. 2 pp. University of Florida, UF/IFAS EDIS Datebase, http://edis.ifas.ufl.edu/UW015.

Schaefer, J. M. 1999. Impacts of free-ranging pets on wildlife. Florida Cooperative Extension Service Fact Sheet, WEC-136. 2 pp. University of Florida, UF/IFAS EDIS Datebase, http://edis.ifas.ufl.edu/UW090.

Schaefer, J. M. and J. Junkin. 1999. The eastern indigo snake: a threatened species. Florida Cooperative Extension Service Fact Sheet, WEC-24. 2 pp. University of Florida, UF/IFAS EDIS Datebase, http://edis.ifas.ufl.edu/UW063.

Schaefer, J. M. and G. W. Tanner. 1998. Landscaping for Florida's Wildlife: Recreating Native Ecosystems in Your Yard. Florida Cooperative Extension Service and University Press of Florida, Gainesville. 96 pp.

Schaefer, J. M., D. Donelin, and L. C. Jones. 1995. Schoolyard ecosystems in Florida: a guide to planning, installing, maintaining, and using. Florida Game and Fresh Water Fish Commission, Tallahassee. 187 pp.

Schaefer, J. M., and M. T. Brown. 1992. Designing and protecting riparian wildlife corridors. Rivers 3:14-26.

Schaefer, J. M., and J. J. Dinsmore. 1992. Movement of a nestling by American Crows. The Wil. Bull. 104:185-187.

Schaefer, J. M., C. N. Huegel, and F. J. Mazzotti. 1992. Expanding into the urban arena: a wildlife initiative. J. of Exten. XXX:9-10.

Smith, R. J., and **J. M. Schaefer**. 1992. Avian characteristics of an urban strip corridor. The Wil. Bull. 104:732-738.

Name: **Kathryn E. Sieving**
Position: Professor
Appointment: Research 40%, Teaching 60%

Educational Background:

PhD.: 1991, **Ecology, Ethology, Evolution**, University of Illinois, Champaign
B.S.: 1982, **Wildlife Biology**, University of California, Davis

Professional Experience:

University of Florida
Affiliate faculty, Center for Tropical Conservation and Development, 1997 to present.
Assistant professor, Wildlife Ecology and Conservation, 1995 to 2001.
Associate Professor, 2001-2007, Full Professor 2007-present.
California State University, Sacramento
Assistant Professor, Biological Sciences, 1991 – 1995.
U.S. Forest Service
Post-doc, Pacific Northwest Research Station, Juneau, AK, 1993 – 1995.

Teaching Responsibilities at UF (last 5 years):

WIS 3403C - Perspectives in Wildlife Ecology & Conservation (every fall)
WIS 5496 - Research Design in Wildlife Ecology (every fall)
WIS 4547C - Avian Field Research (every spring)
ALS 4921 - Honors Colloquium (2003)
WIS 2552H - Honors Biodiversity Conservation: Global Perspectives (2000, 04, 05)
WIS 6934 - Behavioral Landscape Ecology (2001)

Graduate Students (last 5 years):

Chair/co-chair: PhD 8; MSc 5
Committee member: PhD 20; MSc 16

International Activities (last 5 years)

Organized a symposium on Behavioral Landscape Ecology at 1st Latin American IALE conference in Brasil (2009).
Taught Research Design for Conservation Biology in Costa Rica (2009), Brasil (2008), and Argentina (2006).
I advise graduate and undergraduate thesis scholars from China, Taiwan, Chile, Brasil, Nicaragua, USA.
I conduct field research (via my lab) in Chile, Sumatra, Brasil, Guaianan Shield countries, and Florida.

Research area:

Behavioral landscape, community, and information ecology of forest birds applied to landscape planning and habitat management in farm, pastoral and fragmented landscapes.

Grants/Contracts/Gifts (last 5 years): $580,000

USDA (10K); AAAS/CANON (85K); Fondecyt, Chile (150K); FFWCC (30K); AAAS/NSF (8K); NSF (160K); Cons Leadership Program (12K); Int'l Foundation for Science (12K); internal UF/IFAS (113K).

Publications (Career Summary)

35 refereed journal articles, 1 book review, and 4 book chapters.

Selected Publications

Castellón, TD and Sieving KE. In Review. Can focal species planning for landscape connectivity meet the needs of South American temperate rainforest endemics? Biodiversity and Conservation.

Díaz IA, KE Sieving, ME Peña-Foxon, J Larraín & JJ Armesto. In Press. Epiphyte diversity and biomass loads of canopy emergent trees in Chilean temperate rain forests: A neglected functional component. Forest Ecology and Management.

Fletcher, R. A. and K. E. Sieving. In Press. Social information use in heterogeneous landscapes: A prospectus. Condor.

Sieving KE, Hetrick SA, and Avery MA. Published online Nov 2009. Anti-predator communication by the tufted titmouse (*Baeolophus bicolor*): Encoding of predation risk information. Oikos.

Atwater M, and Sieving KE. 2008. Native dragonflies as pest-consumers in organic gardens and farms of North-central Florida: A preliminary assessment. Journal of Undergraduate Research. http://www.clas.ufl.edu/jur/

Schmidt, KA, E. Lee, R. S. Ostfeld, and K. E. Sieving. 2008. Eastern chipmunks increase their perception of predation risk in response to titmouse alarm calls. Behavioral Ecology 19:759-763.

Farley, E. A., K. E. Sieving, and T. A. Contreras. 2008. An objective method for determining species participation in complex mixed-species bird flocks. Journal of Ornithology.

Castellón, T. D. and K. E. Sieving. 2007. Patch-network criteria for dispersal-limited endemic understory birds of South American Temperate Rainforest. Ecological Applications 17: 2152-2163.

Castellón, T. D. and K. E. Sieving. 2006. Landscape history, fragmentation, and patch occupancy: Models for a forest bird with limited dispersal. Ecological Applications 16: 2223-2234

Langham, G. M., T. A. Contreras, and K. E. Sieving. 2006. Why pishing works: Titmouse (Paridae) scolds elicit a generalized response in bird communities. Écoscience 13: 485-496.

Jones, G. A. and K. E. Sieving. 2006. Intercropping sunflowers in organic vegetables to augment avian predators of arthropod pests. Agriculture, Ecosystems, and Environment 117: 171-177.

Castellón, T. D. and K. E. Sieving. 2006. An experimental test of matrix permeability and corridor use by an endemic understory bird. Conservation Biology 20: 135-145.

Willson, M. F., T. L. De Santo, K. E. Sieving, and J. J. Armesto. 2005. Nest success of open-cup nesting birds in Chilean rainforest. Boletin Chileno de Ornithologia 11:11-17.

Cumming, G. S., G. Barnes, S. Perz, M. Schmink, K. E. Sieving, J. Southworth, M. Binford, R. D. Holt, C. Stickler, T. Van Holt. 2005. An exploratory framework for empirical measurement of resilience. Ecosystems 8: 975-987.

Davis, J. D, K. E. Sieving, and J. J. Kappes, Jr. 2005. Red-cockaded Woodpecker roost cavity defense during the non-breeding season. Florida Field Naturalist 33: 81-92.

Jones, G. A., K. E. Sieving, S. K. Jacobson. 2005. Avian biodiversity and functional insectivory in north-central Florida farmlands. Conservation Biology 19: 1234-1245.

Jones, G. A., K. E. Sieving, M. L. Avery, R. L. Meagher. 2005. Parasitized and non-parasitized prey selectivity by an insectivorous bird. Crop Protection 24: 185-189.

Díaz, I., J. J. Armesto, S. Reid, K. E. Sieving, and M. F. Willson. 2005. Linking forest structure and composition: avian diversity in successional forest of Chiloe Island, Chile. Biological Conservation 123: 91-101.

Name: Mel Sunquist

Position: Professor
Appointment: Teaching: 60% Research: 40%; Program Director, OSBS

Educational Background:

Ph.D.: 1979, Wildlife Ecology, University of Minnesota
M.S.: 1970, Wildlife Ecology, University of Minnesota
B.S.: 1965, Wildlife Ecology, University of Minnesota

Professional Experience:

University of Florida
Professor, Department of Wildlife Ecology and Conservation, 2004 to present.
Associate Professor, 1995-2003.
Associate Scientist, 1982-1995.
Smithsonian Institution
Research Scientist, 1979-1982.

Teaching Responsibilities at UF (last 5 years):

2004-2009: WIS3402 — Wildlife of Florida
2004-2009: WIS3402L — Wildlife of Florida Lab
2004-2009: WIS4945C — Wildlife Field Techniques (2X annually)
2005, 2007, 2009: WIS6575 — Mammalian Carnivores

Graduate Students (last 5 years):

Chair/co-chair: PhD 4; MS 7
Committee member: PhD 14; MS 6

International Activities (last 5 years):

Graduate students conducting research on tigers in Laos, cheetahs and hyenas in Africa, and meso-carnivores in Guatemala; Involved with international activities as a member of Exxon/Mobile's Save-The-Tiger-Fund Council, PANTHERA, and the IUCN Cat Specialist Group.

Research area:

Behavior, ecology and conservation of mammalian carnivores.

Grants/Contracts/Gifts (last 5 years): $237,784 (NSF, National Wild Turkey Foundation, Wildlife Foundation of Florida, IFAS Research Innovation Grant, National Geographic Society)

Publications (Career Summary):

45 refereed journal articles, 3 books, 25 book chapters, 2 monographs, and 24 non-refereed publications.

Selected Publications

Sunquist, M. E. 2010. Tigers: Ecology and behavior. Pages 19-33 in Ronald Tilson and Philip J. Nyhus, (eds.), Tigers of the World, 2nd ed., Elsevier, San Diego.

Hostetler, J. A., J. W. McCown, E. P. Garrison, A. M. Neils, **M. E. Sunquist**, S. L. Simek and M. K. Oli. 2009. Demographic consequences of habitat fragmentation: Florida black bears in north-central Florida. Biological Conservation 142: 2456-2463.

Sunquist, M. E. and F. Sunquist. 2009. Family Felidae. Pages 54-168, in Wilson, D. E. and Mittermier, R. A. (eds.). Handbook of the Mammals of the World. Vol. 1. Carnivores. Lynx Edicions, Barcelona.

Dobey, S., D. V. Masters, B. K. Scheick, J. D. Clark, M. R. Pelton and **M. E. Sunquist**. 2005. Ecology of Florida black bears in the Okefenokee-Osceola Ecosystem. Wildllife Monographs No. 158. 41 pp.

Thornton, D. H., **M. E. Sunquist** and M. B. Main. 2004. Ecological separation within newly sympatric populations of coyotes and bobcats in south-central Florida. Journal of Mammalogy 85: 973-982.

Kawanishi, K. and **M. E. Sunquist**. 2004. Conservation status of tigers in a primary rainforest of Peninsular Malaysia. Biological Conservation 120: 329-344.

Freedman, A. H., K. M. Portier and **M. E. Sunquist**. 2003. Life history analysis for black bears (Ursus americanus) in a changing demographic landscape. Ecological Modeling 167: 47-64.

Scognamillo, D., I. Maxit, **M. E. Sunquist** and J. Polisar. 2003. Coexistence of jaguar (Panthera onca) and puma (Puma concolor) in a mosaic landscape in the Venezuelan llanos. Journal Zoology, London 259: 269-279.

Gardner, A. and **M. E. Sunquist.** 2003. Opossums. Pages 3-29, in Feldhammer, G. A., B. C. Thompson, and J. A. Chapman (eds.). Wild Mammals of North America, 2nd ed. Baltimore, MD: Johns Hopkins University Press.

Sunquist, M. E. and F. C. Sunquist. 2002. Wild Cats of the World. Chicago: University of Chicago Press. 416 pp.

Sanderson, J., **M. E. Sunquist** and A. Iriarte. 2002. Natural history and landscape-use of guignas (Oncifelis guigna) on Isla Grande Chiloe, Chile. Journal Mammalogy 83: 608-613.

Ray, J. and **M. E. Sunquist**. 2001. Ecological separation within an African forest carnivore community. Oecologia 127: 395-408.

Farrell, L. E., J. Roman, and **M. E. Sunquist**. 2000. Dietary separation of sympatric carnivores identified by molecular analysis of scats. Molecular Ecology 9: 1583-1590.

Karanth, K. U., and **M. E. Sunquist**. 2000. Behavioral correlates of predation by tiger (Panthera tigris), leopard (Panthera pardus) and dhole (Cuon alpinus) in Nagarahole, India. J. Zoology 250: 255-265.

Karanth, K. U., and **M. E. Sunquist**. 1995. Prey selection by tiger, leopard, and dhole in tropical forests. Journal Animal Ecology 64: 439-450.

Austad, S. N., and **M. E. Sunquist**. 1986. Sex-ratio manipulation in the common opossum. Nature 324: 58-60.

Sunquist, M. E. 1981. The social organization of tigers (Panthera tigris) in Royal Chitawan National Park, Nepal. Smithsonian Contributions to Zoology 336: 1-98.

MEMORANDUM OF AGREEMENT for
COOPERATIVE EFFORTS IN RESEARCH, OUTREACH AND EXTENSION, EDUCATION, AND HUMAN DIMENSIONS

by and between the

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

and the

THE UNIVERSITY OF FLORIDA BOARD OF TRUSTEES on behalf of the DEPARTMENT OF WILDLIFE ECOLOGY AND CONSERVATION, IFAS, UNIVERSITY OF FLORIDA

THIS MEMORANDUM OF AGREEMENT (Agreement) is entered into by and between the Florida Fish and Wildlife Conservation Commission, 620 South Meridian Street, Tallahassee, Florida 32399-1600, hereafter called "COMMISSION," and the University of Florida Board of Trustees on behalf of the Department of Wildlife Ecology and Conservation, Newins-Ziegler Hall, PO Box 110430, University of Florida Gainesville, Florida 32611, hereafter called "DEPARTMENT."

The purpose of this Agreement is to enhance each Party's capabilities in the fields of research, education, outreach and extension, and human dimensions by providing for the identification of opportunities for collaboration between the Parties and the pursuit of such opportunities.

Whereas, the COMMISSION'S mission is to manage fish and wildlife resources for their long-term well-being and the benefit of people; and

Whereas, the DEPARTMENT'S mission is to foster education, expand knowledge, and reward scholarship, using multi-disciplinary approaches, for the purpose of understanding, managing, and conserving biological resources; and

Whereas, in achieving their respective missions, the COMMISSION and the DEPARTMENT share the need to:

- Conduct **research** on wildlife biology, ecology, conservation, and management; and
- Increase the public's knowledge and understanding of wildlife resources and issues affecting them through **outreach and extension,** with a goal of increasing ethical behavior and stewardship of these resources; and
- Provide for the **education** of their staff and students, respectively; and
- Understand how and why humans value natural resources, how humans want resources managed, and how humans affect or are affected by natural-resource management decisions **(human dimensions);** and

Whereas, these common needs could be more efficiently and effectively met through enhanced collaboration between the Parties;

Now therefore, in consideration of the mutual benefits to be derived herefrom, the Parties do agree as follows:

I. THE PARTIES AGREE THAT:

1) Each Party shall appoint members to a Steering Committee, the role of which shall be to provide leadership, direction, and coordination in ensuring the purpose of this Agreement is achieved.

2) The Steering Committee's chair shall be selected by the Committee.

3) Each Party shall appoint members to each of four field-specific committees: Research Committee, Education Committee, Outreach and Extension Committee, and Human Dimensions Committee. The roles of each committee shall be to:

    a) Develop a prospectus that identifies specific actions to be taken to achieve the purpose of this Agreement with respect to its field of interest.

    b) Function as a standing team to implement actions identified in its prospectus.

4) Field-specific committee chairs shall be appointed by the Steering Committee.

5) The Steering Committee shall review and approve the field-committees' prospectuses and provide leadership, oversight, and direction in their implementation to ensure consistency in scope and application and that problems common to more than one field are identified and addressed.

6) The Steering Committee shall identify legal agreements that are necessary between the Parties to implement the prospectuses (e.g., sharing of equipment, overhead rates, intellectual property issues, use of facilities, dispute resolution, etc.). Such legal agreements shall be effected through amendment of this Agreement or by separate agreement. Agreements not requiring formal amendment of this Agreement shall be by mutual, written agreement by the project officers.

7) Each Party shall designate, by written or electronic communication between the project officers, points of contact for resolving contracting and administrative issues, shall notify appropriate staff of the identity and role of those contacts, and, as necessary, appoint members to an Administration Committee to resolve such issues.

8) Steering Committee, field-specific committee, and Administration Committee decisions shall be by consensus of committee members or as otherwise determined by the committee.

II. TERM OF AGREEMENT

This Agreement shall become effective upon execution by both parties and remain in effect until terminated.

III. TERMINATION

Either party may terminate this Agreement at any time with or without cause by a written notice by certified mail, return receipt requested, at least 30 days prior to the termination date specified in the notice.

IV. NOTICES

Unless a notice of change of address is given, any and all notices shall be delivered to the project officers at the following addresses:

Department	**Commission**
Dr. Holly Ober Department of Wildlife Ecology and Conservation North Florida Research and Education Center	Timothy E. O'Meara Florida Fish and Wildlife Conservation Commission
155 Research Road Quincy, Florida 32351	620 South Meridian Street Tallahassee, Florida 32399-1600
(850) 875-7150 holly.ober@ufl.edu	(850) 488-3831 tim.omeara@MyFWC.com

Either party may change or otherwise designate alternate project officers by notice delivered to parties at the addresses above.

V. MODIFICATION OR AMENDMENT

No waiver or modification of this Agreement or of any covenant, condition, or limitation herein contained shall be valid unless in writing and lawfully executed by the parties.

VI. RELATIONSHIP OF THE PARTIES

The parties agree that there is no conflict of interest or any other prohibited relationship between the COMMISSION and the DEPARTMENT.

VII. INSURANCE REQUIREMENTS

To the extent provided by Florida law, the parties will be insured for Workers' Compensation Claims.

VIII. CANCELLATION UNDER CHAPTER 119, FLORIDA STATUTES

This Agreement may be canceled by either party for refusal of the other party to allow public access to all documents, papers, letters, or other material subject to the provisions of Chapter 119, Florida Statutes, and made or received in conjunction with this Agreement.

IX. PUBLIC RECORDS

All records in conjunction with this Agreement shah[1] be public records and shall be treated in the same manner as other public records under general law.

X. LIABILITY

Each party hereto agrees that it shall be solely responsible for the negligent or wrongful acts of its employees and agents. However, nothing contained herein shall constitute a waiver by either party *of its* sovereign immunity or the provisions of Section 768.28, Florida Statutes.

XI. NON-DISCRIMINATION

No person, on the grounds of race, creed, color, national origin, age, sex, or disability, shall be excluded from participation in; be denied the proceeds or benefits of or be otherwise subjected to discrimination by either party in the performance of this Agreement.

XII. PROHIBITION OF UNAUTHORIZED ALIENS

In its employment, the DEPARTMENT agrees to comply with Section 274A(e) of the Immigration and Nationality Act as applicable. If the subcontractor/vendor knowingly violates such Section 274A(e), such violation shall be cause for unilateral cancellation of this Agreement. The DEPARTMENT shall ensure that this limitation is provided in any subcontracts pertaining to work under this Agreement.

XIII. REMEDIES

No delay or failure to exercise any right, power, or remedy accruing to either party upon breach or default by either party under this Agreement, shall impair any such right, power, or remedy of either party; nor shall such delay or failure be construed as a waiver of any such breach or default, or any similar breach or default thereafter.

XIV. SEVERABILITY AND CHOICE OF VENUE

This Agreement has been delivered in the State of Florida and shall be construed in accordance with the laws of Florida. Wherever possible, each provision of this Agreement shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Agreement shall be prohibited or invalid under applicable law, such provision shall be ineffective to the extent of such prohibition or invalidity, without invalidating the remainder of such provision or the remaining provisions of this Agreement. Any action in connection herewith, in law or equity, shall be brought in Leon County, Florida.

XV. THIRD PARTY RIGHTS

The parties hereto do not intend nor shall this Agreement be construed to grant any rights, privileges or interest to any third party.

XVI. JURY TRIAL WAIVER

As consideration of this Agreement, the parties hereby waive trial by jury in any action or proceeding brought by any party against any other party pertaining to any matter whatsoever arising out of or in any way connected with this Agreement.

XVII. ENTIRE AGREEMENT

This Agreement represents the entire agreement of the parties. Any alterations, variations, changes, modifications or waivers of provisions of this Agreement shall only be valid when they have been reduced to writing, duly signed by each of the parties hereto, and attached to the original of this Agreement unless otherwise provided herein.

The rest of this page intentionally left blank.

IN WITNESS WHEREOF, the parties have caused this Agreement to be duly executed, the day and year last written below.

UNIVERSITY OF FLORIDA
BOARD OF TRUSTEES

Jimmy G. Cheek, Senior Vice President for
Agriculture and Natural Resources

Date 11/21/2008

John P. Hayes, Chair
Department of Wildlife, Ecology and Conservation,
University of Florida

Date 7 Nov. 2008

Approved as to form and legality:

Imogene L. Cathey, Assistant General
Counsel, University of Florida

FLORIDA FISH AND WILDLIFE
CONSERVATION COMMISSION

Kenneth D. Haddad
Executive Director

Date 12-9-08

Approved as to form and legality:

Commission Attorney

BYLAWS OF
DEPARTMENT OF WILDLIFE ECOLOGY AND CONSERVATION
UNIVERSITY OF FLORIDA
(Ratified February 2010)

Preamble

The shared goals of the faculty and administration of the Department of Wildlife Ecology and Conservation are to attain excellence in academic responsibilities of teaching, research, Extension and service and to provide a quality and ethical work environment. These goals can best be achieved with a governance structure from the Department level to the University level that fosters collegiality, collaboration, mutual responsibility and accountability, and transparency.

Mission Statement: Department of Wildlife Ecology and Conservation

The mission of the Department of Wildlife Ecology and Conservation is to foster education, expand knowledge, and reward scholarship, using multi-disciplinary approaches, for the purpose of understanding, managing, and conserving biological resources. The primary goal of our teaching, research, and extension programs is to develop and communicate the knowledge necessary for enhancing the conservation and management of wildlife and their habitats for the greatest aesthetic, ecological, economic, and recreational values.

Article I - Governance of the Department of Wildlife Ecology and Conservation

These Bylaws establish the general principles by which the Department of Wildlife Ecology and Conservation shall be governed. These Bylaws are governed by and subordinate to the Constitutions of the Institute of Food and Agricultural Sciences and the University and the policies and directives of the University of Florida's Board of Trustees and the Florida Board of Governors. Operating within the context of these Bylaws, the governance of the Department of Wildlife Ecology and Conservation shall be shared between the administration and the faculty.

Article II - The Faculty

Section 1. Faculty Membership

The faculty of the Department of Wildlife Ecology and Conservation shall consist of individuals in tenured, tenure-accruing, and non tenure-accruing faculty positions. For policies governing non-tenure accruing positions, see Appendix A. Faculty levels are defined by the University of Florida Constitution and Senate Bylaws and include the various ranks of Professor, Scholar, Lecturer, Research Scientist, Extension Scientist and Assistant In.

Section 2. Faculty Rights

a. Faculty have the right to know the expectations of their job assignment and how they will be evaluated.
b. Faculty have the right to assemble without limit to discuss issues of concern.
c. Faculty have the right to open academic discourse without fear of retribution.
d. Faculty have the right file grievances.

Section 3. Faculty Responsibilities

a. Faculty are responsible for planning and conducting Teaching, Research, Extension and Service in a competent and professional manner.
b. Faculty are responsible for mentoring the professional development of students, including mentoring, and organizing, attending and presenting seminars.
c. Faculty are responsible for contributing to building a positive and constructive departmental academic community and to the operations of the Department, including the development of infrastructure, public relations, outreach functions and others that may be necessary as determined by the Chair and faculty.
d. Faculty are responsible for contributing to the governance of the Department, IFAS, the University, and their professional societies.
e. Faculty are responsible for performing duties and related activities under the highest standards of ethical behavior.

Section 4. Department Chair Responsibilities

The Department is headed by a Chair appointed by the Senior Vice President in accordance with the University Constitution. The Chair serves as chief executive and administrative officer of the Department. The Chair provides financial planning and policy and supervises routine operations of the Department, including faculty evaluations and evaluations of selected staff (see Appendix B for more complete description). The Chair provides programmatic leadership and links the Department to the upper administration and key stakeholders. The Chair is responsible to the Senior Vice President for administration of the Department and to the Deans for Teaching, Research and Extension, for other programmatic issues, and is the agent of the Department faculty for execution of academic policy. The Chair is expected to operate the Department in the spirit of shared governance and seek faculty input, consider it, and provide feedback and rationale about final decisions. The chair is expected to follow UF and IFAS guidelines for hiring departmental faculty and staff. The Chair may maintain a program of teaching, research and/or extension, as time permits.

Article III - Committees

Section 1. Purpose and Classification

Service on committees in the Department of Wildlife Ecology and Conservation is the primary means by which faculty can participate directly in the governance of the Department. General rules for standing committees include:

1. Standing committees should meet regularly. A secretary, selected from within the

committee membership, shall keep and archive minutes and records

2. Reports of the standing committees shall be made to the faculty periodically via email messages, at faculty meetings, or using other appropriate methods for information dissemination.
3. Standing committees shall submit and archive an annual written report to the faculty (for the interval July 1 – June 30).
4. Policy recommendations developed in the standing committees shall be emailed to all faculty prior to faculty meetings at which time faculty input and discussion will be entertained.
5. Committee members for all committee, except the Administrative Advisory Committee, shall be selected by the Department Chair.

Section 2. Administrative Advisory Committee

The Faculty Administrative Advisory Committee (hereafter designated as the FAAC) is responsible for providing input to the Department Chair on matters of interest and concern to the faculty. The FAAC will review the Departmental bylaws every three years and propose modifications to the entire faculty, as necessary. The FAAC shall consist of three senior faculty members who will serve three-year staggered terms. Members of the FAAC will be elected by paper or electronic ballot on an annual basis, as one member may rotate off the committee each year. However, any member may be re-elected. The FAAC will select a chair each year. Meetings of the FAAC will be held as needed. Any member of the FAAC may call for a meeting. The agenda and the names of the committee members will be disseminated before each meeting with an invitation to faculty to propose items for discussion. Meeting minutes will be disseminated to the faculty after each meeting.

Section 3. Communications Committee

The Communications Committee is responsible for oversight of internal and external departmental communications. The Communications Committee is charged shaping and reviewing the Department's communications strategy and its implementation, making recommendations with respect to communication opportunities, and coordinating faculty involvement in communications activities.

Section 4. Diversity Affairs Committee

The Diversity Affairs Committee is responsible for overseeing all aspects of recruiting and retention of minority undergraduate and graduate students in the Department, maintaining active departmental involvement with on-campus diversity/minority groups (such as MANRRS), coordinating WEC's involvement in IFAS's minority mentors program, serving as liaison with WEC's cooperative programs at HBCU's (such as the WEC/Tuskegee Institute agreement), and coordinating other diversity-related activities.

Section 5. Extension Committee

The Extension Committee is responsible for the WEC Extension program. This committee is charged to review and make recommendations to the Department and Chair with respect to programmatic issues concerning extension and to coordinate collaborative activities such as in-service training, coordinated extension programming, RREA funding proposals, and programmatic contributions to EDIS.

Section 6. Graduate Program Committee

The Graduate Program Committee is responsible for the graduate instructional program of WEC. This committee is charged to review and make recommendations to the Department and Chair with respect to curriculum, degree requirements, admissions, graduate course scheduling, and departmental policies and practices affecting graduate students. The Committee is also charged to oversee and approve petitions for waiver of established departmental graduate policies or requirements. The Committee will also be responsible for maintaining the departmental graduate student handbook and keeping it up to date.

Section 7. Honors Program Committee

The Honors Program Committee is responsible for reviewing and making recommendations to the Department and Chair concerning the Honors Program, for coordinating the departmental honors program with the College Honors Program, and for administering the policies for honors students within the Department.

Section 8. International Affairs Committee

The International Affairs Committee is responsible for coordinating all aspects of teaching, research and extension activities involving international undergraduate and graduate students in the Department. Committee members will serve as liaison with other International programs on campus for interdisciplinary program development, facilitating international research opportunities for undergraduate and graduate students, recruiting foreign undergraduate and graduate students, and placing graduates of our program. The Committee will serve as a resource and focal point for networking with other programs in International Conservation at UF and elsewhere. Members will provide assistance, expertise, and support with the resolution of problems particular to foreign students or to domestic students participating in academic activities abroad. Members also will develop, coordinate and promote WEC's involvement in IFAS's international undergraduate and graduate academic programs involving study abroad or exchange students, and serve as liaison with similar international programs activities in other departments and colleges.

Section 9. Research Committee

The Research Committee is responsible for addressing department-wide issues pertaining to research. The committee is charged to review and make recommendations concerning issues pertaining to research policy to the Department and Chair. In addition, the committee is responsible for coordinating solicitation and review of proposals for funding opportunities that

are restricted to limited submissions from the department and for coordination of departmental research initiatives.

Section 10. Scholarship and Awards Committee

The Scholarship and Awards Committee is responsible for assembling information and remaining informed about the availability and requirements for scholarships and awards, for putting forward departmental nominees for student scholarships, for putting forward student, faculty, and staff nominees for institutional awards and for coordinating departmental awards. The Committee is charged with soliciting nominations from the faculty, assisting nominees or nominators in the preparation of scholarship or awards packets, if needed, and with writing departmental nomination letters (or providing the Department Chair with relevant information in cases where scholarships/awards requirements indicate that nominations must come from the Department Chair).

Section 11. Seminar Committee

The Departmental Seminar Committee is responsible for all aspects of organizing, advertising, and hosting weekly and special seminars during the academic year. The Committee will also oversee the hosting of seminar speakers during their visits. The Chair of the Committee is the faculty member of record for WIS 6933. The Committee will generally consist of two faculty members who will serve for a period of one semester, with membership on the Committee rotating among all on-campus departmental faculty.

Section 12. Space, Facilities, and Safety Committee

The Space, Facilities, and Safety Committee is responsible for addressing issues concerning departmental space and facilities and for coordinating issues related to health and safety of departmental faculty, students, and staff. The Committee recommends policies and procedures for departmental facilities and space to the Department and Chair. In addition, upon request by the Department Chair, the Committee will evaluate specific space needs and issues develop related recommendations. The Committee recommends allocations of space for faculty and staff office assignments, laboratories, and other departmental functions and works with university and outside staff to plan space modifications. The Committee also addresses health and safety issues in the Department, makes recommendations for safety policy to the Department and Chair, and coordinates implementation of safety policy when appropriate.

Section 13. Undergraduate Program Committee

The Undergraduate Program Committee is responsible for the undergraduate instructional program of WEC. This committee is charged to review and make recommendations to the Department and Chair with respect to curriculum, degree requirements, admissions, undergraduate course scheduling, assignment of TAs to specific undergraduate courses, departmental policies and practices affecting undergraduate students, and the peer review of faculty teaching performance. The Committee is also charged to oversee and approve petitions for waiver of established departmental undergraduate policies or requirements.

Section 14. Ad hoc committees

Ad hoc committees can be formed by the Chair or by faculty, as needed. Members of these committees shall volunteer for the assignment and shall elect a chair from among their members, if a chair is deemed necessary. Current *ad hoc* committees include:

1. **Mentoring committees**
   Mentoring committees are assigned by the Department Chair to new faculty or others as warranted and deemed valuable by the Chair and/or the faculty member.

2. **Peer evaluation of teaching committee**
   Faculty members requesting that their courses be evaluated will be assigned a committee of two to four members of the faculty (from within or outside the department, as appropriate) by the Department Chair. Committees will meet with the faculty member whose course is being evaluated before the semester begins to discuss the course history and provide evidence and course materials. Committee members will observe at least two or three class meetings with prior notice, and will meet with the faculty member and the Chair for a final summary and feedback session. Each member will provide a written evaluation to the Chair who will summarize the evaluation and provide it to the faculty member.
3. **Search and Screen committees**

Search and Screen committees will be appointed by the Chair as appropriate for assistance in recruitment and interview of new faculty positions and to provide faculty input to the Chair concerning hiring decisions.

Article IV – Faculty Meetings

The faculty meeting is a primary means of fostering communication among all faculty within the Department of Wildlife Ecology and Conservation on campus and around the state. Faculty meetings should be held each one to two months on a schedule published at the beginning of each semester. Special faculty meetings may be called by the Department Chair in addition to the regularly scheduled meetings as needed. Faculty and administration have the right to place items on the agenda for discussion by contacting the Department Chair. The agenda should be distributed via email before the faculty meeting. Departmental faculty serving as UF Senators and members of the IFAS Faculty Council and other IFAS faculty governing body on an as needed basis should email short summaries to all faculty before faculty meeting so that dialogue can be initiated on critical items currently before these governing bodies.

The faculty meeting is the most important venue for discussion of policy issues, tenure and promotion packages, changes in curriculum, new positions, and other issues relevant to our academic mission. Departmental faculty, plus emeritus, courtesy, and affiliate faculty, may speak on any issue before the faculty. Voting shall be restricted to departmental faculty under guidelines presented in Appendix A. Discussions regarding tenure and promotion should be considered confidential. Votes taken on tenure and promotion should be by paper or electronic ballot and the results made available upon request to the faculty permitted to vote.

After all candidates for new faculty positions have interviewed, the merits of each candidate will be discussed in a faculty meeting. Written input on candidate qualifications will be submitted on an appropriate evaluation form. All faculty members may fill out an evaluation form for

candidate tenure-accruing and non tenure-accruing faculty for use by the Chair in faculty hiring decisions.

Article V – Ratification and Amendments

Section 1. These Bylaws shall become effective upon their ratification by the faculty of the Department of Wildlife Ecology and Conservation with a two-thirds majority vote, concurrence of the Chair, and approval of the IFAS Senior Vice President.

Section 2. Proposals for amendments to these Bylaws may be made to the Chair by any member of the faculty.

Section 3. Changes in these Bylaws shall be made by a two-thirds majority vote, and concurrence of the Chair.

Section 4. Faculty will have one month to review and register a vote for adoption and amendment of the Bylaws.

APPENDIX A

Non-Tenure Accruing -- Faculty Appointments

Appointment of non-tenure accruing faculty of the Department of Wildlife Ecology and Conservation is mechanism for supporting and/or complementing one or more of the functional programs--teaching, research, or extension--relating to the Departmental mission. Individuals appointed in non-tenure accruing positions are rewarded for their professional contributions through participation in the scholarly pursuits of the Department of Wildlife Ecology and Conservation. Mutually productive appointments are contingent upon the collaboration, cooperation, commitment, and trust of both parties.

Various types of collaborative faculty appointments are available in the Department of Wildlife Ecology and Conservation (hereinafter, WEC) to facilitate the involvement of the university of Florida and other scientists in the teaching extension, and research programs. They type of appointment available to potential faculty varies depending on the nature of their involvement and with whom they are employed. The descriptions of the appointments listed below are consistent with those of the Office of Academic Affairs and The Graduate School.

Faculty Appointment Status Modifiers. Faculty appointment status modifiers may be included with the titles of certain conditions of the faculty appointment. The University of Florida's modifiers currently used in WEC include:

UF Faculty Associated with WEC

Joint	**(regular participation)**
Affiliate	**(occasional participation)**

Non-UF Employees Associated with WEC

Courtesy	**(regular participation)**
Visiting	**(specific, temporary, in-depth participation)**

Joint This modifier denotes a faculty member employed in another University department, but who is performing responsibilities in teaching, extension, or research in WEC on a regular basis.

Affiliate This modifier denotes a faculty member employed in another University department, but who participates in teaching, extension, or research in WEC on an occasional basis.

Courtesy This modifier denotes individuals not currently employed by the University, but who participate in teaching, extension, or research in WEC on a regular basis.

Visiting This modifier applies to appointments extended to qualified persons who are available for limited periods of time, or to appointments to positions that are available for specific temporary periods of time. They may or may not receive a stipend or salary from UF. Time spent in the appointment in excess of 3 years must have the written approval of the Office of Academic Affairs before the

reappointment for the 4th year is made. This title may not be held for more than 5 years, by UF policy.

Faculty whose title includes any of the above-mentioned status modifiers are considered members of WEC for the term of their appointment and for the purpose of the assignment of duties and responsibilities. The appointees may attend WEC meetings and speak and/or vote on WEC matters, and represent WEC, subject to the policy of WEC (described later in this document). These appointments will be reviewed periodically by WEC. Such appointments may be subject to change, reassignment, renewal, or non-renewal in accordance with University procedures.

The Florida Cooperative Fish and Wildlife Research Unit (hereinafter, Coop Unit) is a program established through a cooperative agreement among the U.S. Geological Service, Florida Fish and Wildlife Conservation Commission Commission, U.S. Fish and Wildlife Service, University of Florida, and Wildlife Management Institute. As a consequence of this agreement, the Leader and Assistant Leaders of the Coop Unit are considered to be UF Faculty (designated as **CU** faculty), although their salaries are paid by the DOI. Thus, the integrative link between the Coop Unit and WEC makes the relationship of these faculty unique compared to other courtesy faculty, and, accordingly, is reflected in the privileges conferred on these appointees. In summary the CU faculty participate in all WEC activities with the same privileges accorded T faculty (including promotion) with the exception of tenure.

Given the variety of faculty types who interact with WEC, the following WEC faculty classification scheme is designed to alleviate some of the inherent confusion associated with modifiers and special circumstances.

WEC Faculty Code	**Description**
T	Tenured and tenure-accruing in WEC; supervised by WEC Chair
CU	Coop Unit Leader and Assistant Leaders, supervised by USGS/DOI and reviewed by WEC Chair.
NT	Non-tenure accruing; term (contract or grant) appointment; supervised by WEC chair or tenured faculty member.
J	Joint Faculty (see above).
A	Affiliate Faculty (see above).
C	Courtesy Faculty (see above).
V	Visiting Faculty (see above).

Required Qualifications of Joint (J), Affiliate (A), Courtesy (C), AND Visiting (V) Faculty

1. Candidates, who are willing to actively contribute to programs of WEC in a meaningful way, will be considered as prospective appointees.

2. Candidates must possess professional expertise supportive of WEC programs.

3. Candidates will be required to actively participate, upon appointment, in at least one of the three functional elements (teaching, research, and extension/service) of WEC. For appointments involving participation in graduate studies programming, substantive participation in teaching may be required.

4. **J** and **A** candidates who wish to participate in graduate studies programming must posses credentials satisfactory for appointment to the Graduate School, and be approved by two thirds vote, as determined by secret, written ballot, of the appropriately-ranked **T**, **J, CU** faculty, and subsequently, by the Graduate School. **C** and **V** candidates who wish to participate in graduate studies programming must possess credentials satisfactory for appointment to the Graduate School, they must be stationed in the greater Gainesville area, and their applications will be pre-screened by the WEC Graduate Programs Committee prior to being put forward for approval by two-thirds vote, as determined by secret, written ballot, of the appropriately-ranked **T**, **J**,and **CU** faculty, and subsequently, by the Graduate School. **C** and **V** candidates who will not participate in graduate studies programming may be approved by two thirds vote, as determined by secret, written ballot, of the appropriately-ranked **T**, **J,** and **CU** faculty, but the department will not forward their application to the Graduate School.

5. Candidates for **C**, **V** faculty must maintain a partnership with at least one **T**, **CU** faculty with respect to one of the functional elements of WEC.

Nomination and Initial Appointment Procedures

1. Prospective candidates for **NT**, **CU**, **J**, **A**, **C**, **V** faculty appointments can be nominated only by a **T**, **CU**, **J** WEC faculty member. Candidates for **C**, **V** appointments are expected to work closely with their nominator (potential partner), especially those who wish to be involved in advising/supervising graduate students.

2. The nominating faculty member shall provide a written statement, addressed to the Chair, detailing the anticipated contributions that the prospective appointee will make to WEC, including the expected period of time required for such contributions to be made, as well as the professional qualifications of the prospective appointee. The nominating faculty also will recommend the professional rank (e.g., Assistant, Associate, Professor) for the respective appointee, consistent with the status held elsewhere.

3. The nominee will supply to the Chair a written statement indicating his/her intended activities in WEC program elements.

4. All nomination materials for prospective appointees shall be submitted to the WEC chair for review by the **T** and **CU** faculty at least 14 days prior to a meeting at which the nomination will be considered by the **T** and **CU** faculty.

5. Recommendation of individuals as **NT, J, A, C** faculty, at any rank, must be supported by a two-thirds majority vote, as determined by a secret written ballot, of the **T** and **CU** faculty. Appointment of individuals as **V** faculty, at any rank, requires only the approval of the WEC chair.

6. Results of the votes on candidates for **NT, CT, J, A, C** appointments will constitute a recommendation to the WEC Chair, who will be responsible for recommending the appointment of candidates to IFAS/UF. The Chair also will notify, in writing, each nominee of appointment, or denial of same.

Participation in WEC Affairs

1. All faculty members. Regardless of faculty-code classification, are expected to periodically participate in WEC faculty meetings, seminars, candidate interviews, strategic planning, and other departmental activities.

2. All faculty with graduate faculty status may serve on graduate supervisory committees. **T, NT, CU** faculty with graduate faculty status may chair or co-chair graduate committees; **A, C, V** faculty with graduate faculty status may co-chair graduate committees with a **T, NT, CU** faculty member who has graduate faculty status. They will also be expected, if asked, to serve on a minimum of 2 additional graduate committees for every committee they chair or co-chair. All faculty are expected to assist their graduate students with all departmental and university requirements for their respective degrees.

3. **T, NT, CU, J** faculty are eligible to serve on WEC standing committees and search and screen committees. Further, **A, C, V** faculty may serve on these committees by approval of the WEC Chair. In no case shall **CU, A, C, NT, V** faculty members collectively constitute a majority of the membership of any WEC standing committee.

4. **A**ll faculty are encouraged to participate in discussion of WEC curricula development and instructional policy; however, only **T, CU,** and **J** faculty may vote on the adoption of changes in curricula or instructional policy.

5. All faculty are encouraged to participate in discussion of WEC research and extension programs and policies; however, only **T, CU,** and **J** faculty are eligible to vote on issues relating to these programs and policies.

6. Only **T** and **CU** faculty may vote on WEC **T** faculty appointments and consideration of tenure and/or promotion (**CU** faculty may vote on promotions, not tenure).

Procedures for Renewal of Non-tenure Accruing Faculty Appointments

1. During odd-numbered years, appointments of **NT, A, C, V** faculty will be reviewed by the Department Chair. The WEC Chair may request a written statement detailing both the nature and extent of their involvement with the other WEC faculty and students

during the previous calendar year and their intended future involvement with WEC programs, and solicit additional information from the WEC faculty in this review.

2. Renewal of **NT, A, C, V** faculty shall be made at the discretion of the WEC Chair based on the review conducted. However, any **T, CU** faculty member may request formal reconsideration of any **NT, A, C, V** faculty by the entire **T** and **CU** faculty, and in these cases, renewal of the appointment requires a two-thirds majority vote, as determined by secret ballot, of the **T** and **CU** faculty. The vote will be preceded by an official meeting of the **T** and **CU** faculty, at which time the involvement and contributions of the appointees will be evaluated.

3. **J** faculty who wish to maintain their appointment in WEC will submit to the WEC Chair, by 28 February of every third year (beginning in 1995), a written statement detailing both the nature and extent of their involvement with the other WEC faculty and students during the preceding 3 calendar years and their intended future involvement with WEC programs.

4. Renewal of **J** faculty appointments shall be at the discretion of the WEC Chair. However, any **T, CU** faculty member may request formal reconsideration of any **NT, A, C, V** faculty, and in these cases, renewal of the appointment requires a two-thirds majority vote, as determined by secret ballot, of the **T** and **CU** faculty. The vote will be preceded by an official meeting of the **T** and **CU** faculty, at which time the involvement and contributions of the appointees will be evaluated.

5. **NT, C, CU** faculty at the Assistant and Associate levels also will be reviewed by **T** and **CU** faculty of higher rank, similar to **T** faculty undergoing tenure and promotion consideration. Advancement in rank will be determined according to IFAS and University procedures.

6. Results of the votes on candidates for reappointment or promotion in rank will constitute a recommendation to the WEC Chair, who will be responsible for recommending the appointment of the candidates to IFAS/UF. The Chair also will notify each nominee, in writing, of reappointment or promotion in rank, or denial of same.

7. In case of denial of re-appointment, the length of time remaining as WEC faculty will be consistent with UF policy as it applies to **Tenure-track** faculty (i.e., tied to length of time of service). Exceptions may be made as appropriate to accommodate in-progress graduate students working with the faculty member.

Procedure for Renewal of this Appendix

1. Only **T, CU, J** faculty may call for an ad hoc review of the document. Any ad hoc review of the document must be approved by a two-thirds majority vote of the **T** and **CU** faculty, or by request of the WEC Chair. In any case, this document shall be reviewed or updated every 3 years.

This document was originally adopted on March 27, 1995 and was modified and renewed on August 21, 2000. On October 15, 2007 it was reviewed and updated. The document was approved by a vote of 13 yes, 0 no, and 0 abstained of the faculty in the Wildlife Ecology & Conservation Department present at the faculty meeting where this policy was discussed on October 15, 2007.

Appendix B
Department Chair Position Description

The Department Chair serves as the faculty's representative to the UF/IFAS administration, and the administration's representative to the faculty. The primary role of the Chair is to develop excellence in wildlife ecology and conservation programs by functioning as a facilitator, guiding and overseeing the Department's personnel in providing needed services to the residents of the State of Florida.

The Department Chair provides coordination, accountability, and administrative functions for the Department in Gainesville by:

1. Providing leadership to faculty, staff, and students in carrying out the IFAS mission and the Land-Grant philosophy, fostering an appropriate tone, developing a set of policies, and promoting department programs in instruction, research, Extension, and service;
2. Developing and managing human, fiscal, and physical resources in support of departmental instruction, research, Extension, and service activities, within the constraints imposed by resource availability;
3. Developing and maintaining networks and relationships, both internal and external to the department, including fostering interagency, interdisciplinary, and private partnerships in support of academic functions of the Department;
4. Evaluating and rewarding excellence in all forms of scholarship.

The Department Chair is directly accountable to the IFAS Deans for the quality and direction of departmental programs, to the IFAS Vice President for administrative matters and the overall administrative efficiency of the Department, and to the Faculty for internal program management of space, personnel, and other resources provided.

Specific Tasks and Duties of the Department Chair

1. Governance

a. Facilitate development and administration of department policies, goals, and objectives

b. Conduct faculty meetings

c. Establish department committees
d. Use committees effectively
e. Delegate some administrative responsibilities to faculty and/or committees
f. Facilitate development and administration of department policies, goals and objectives
g. Help determine services to be supplied by the department to College, University, and State
h. Serve as an advocate for the department and its personnel
i. Enhance diversity of Department and oversee compliance with affirmative action plans of the University.

2. Department Programs

a. Communicate and facilitate vision of Department directions and programs to faculty, students, staff, administration, and stakeholders.
b. Provide oversight of class scheduling
c. Provide oversight of space allocation
d. Provide oversight of student activities and research
e. Provide oversight of department curriculum, stimulating change as needed
f. Support the activities of the undergraduate and graduate coordinators
g. Work to assure availability of space and equipment to meet needs for teaching, research, and extension efforts.

3. Faculty Activities

a. Set tone of high professional, ethical, and scientific excellence in Department
b. Reward academic performance and scholarship in all forms, including discovery, dissemination, and application of knowledge
c. Establish processes for recruitment and selection of faculty members
d. Assign faculty responsibilities such as teaching, research, committee work, etc. to faculty.
e. Provide oversight of peer evaluation process
f. Facilitate coordination among faculty for statewide programs
g. Monitor and evaluate faculty performance in teaching, research, extension, and

service.

h. Deal with unsatisfactory faculty and staff performance
i. Maintain communication between department and other units of the university
j. Reduce, resolve, and prevent conflict among faculty members
k. Facilitate when appropriate, faculty participation in departmental, college, and university activities, including governance.

5. **External Communication**

a. Serve as interface between department and deans, and other administrators
b. Serve as interface between department and USDA, and other appropriate agencies and groups as necessary
c. Serve as contact for outside groups requesting information about department and programs
d. Oversee production of department advertising and recruitment material.

5. Budget and Resources

a. Communicate department needs to administration
b. Administer department budget (state and federal funds allocated by deans)
c. Provide oversight of faculty contract and grant budgets
d. Review travel activities, especially out-of-state travel
e. Coordinate special requests to deans for funding
f. Encourage submission by faculty of grant and contract proposals
g. Reallocate space and support staff to meet changing needs and requirements
h. Coordinate with Administrative Committee on use or distribution of year- end funds.

6. Facilities and Office Personnel Management

a. Manage department facilities, including inventory control
b. Initiate and supervise new construction projects and renovation, as necessary
c. Provide for building security, safety, and maintenance.
d. Hire, supervise and evaluate selected staff
e. Supervise department personnel, record-keeping, and accounting functions
f. Compile information for productivity reports.

7. Professional Development

a. Foster the development of each faculty member's interests and talents, blending these efforts into a functional program
b. Encourage faculty personnel development, including participation in self improvement programs, faculty development leaves, consulting, and international experiences
c. Foster excellence in teaching, research, extension, and service
d. Promote affirmative action
e. Encourage faculty to contribute to the enhancement of the department's and institution's visibility and reputation.

8. Personal Development

a. Keep current with developments in field of expertise
b. Contribute to productivity and reputation of the department through participation in the department's programs in teaching, research, extension, and/or service.

APPENDIX C

Mentoring and Three-Year Review of Junior Faculty

1. The Chair, in consultation with faculty member, selects a mentoring committee composed of at least two tenured faculty members from within the Wildlife Ecology and Conservation department (with additional members from outside the department, if appropriate). Faculty mentors should be chosen based on their expertise and Research/Teaching/Extension assignment.
2. Mentees should provide their mentoring committee members with their annual plan of work and report of accomplishments.
3. Mentors provide an annual written assessment of the mentee's progress towards tenure to the tenure-track faculty member.
4. A mid-career review will be conducted for faculty members in the tenure probationary period no later than the close of the third year of academic service.
5. Junior faculty will prepare a packet documenting their achievements (without external letters).
6. The packet will be emailed to all tenured departmental faculty who are invited to review the packet and provide written comments to the Chair.
7. The Chair synthesizes faculty comments and shares this assessment with the tenure-accruing faculty member.
8. The Chair's letter and the faculty assessment letter accompany the three-year packet to IFAS Administration.

APPENDIX D

The University of Florida Department of Wildlife Ecology and Conservation Advisory Council

Council objectives

The objectives of the Advisory Council are 1) to advise the Chair of the Department of Wildlife Ecology and Conservation, IFAS administration, and the University of Florida administration on ways to achieve excellence in the Department's research, education, and extension missions; 2) to help identify, and when appropriate, capitalize on opportunities for program development, improvement, and enrichment; and 3) to provide an interface for communication and interactions between the Department and key stakeholder groups.

Council membership

Council members will serve at the invitation of the Department Chair for a three-year term. Members may be considered for reappointment for additional terms. The Council will consist of individuals who are not employees of the University of Florida who are interested in helping advance the Department's mission and who are in a position to promote this goal. The Council may include representatives from state, federal, and other governmental organizations, non-governmental organizations, industry, and private individuals.

Council meetings

The Council will meet once or twice each year. One meeting each year will take place on the University of Florida campus, and, if the Council desires, a second meeting may occur in other locations of interest to the Council where Departmental activities are underway.

Council governance

The Council will elect a Chair. The Council Chair will be responsible for facilitating Council meetings. The Department Chair will work with the Council Chair to determine the agenda for the Council meetings. Council members may identify items to be placed on the agenda in advance of Council meetings. The Council may draft and forward resolutions to the Department, IFAS, the University of Florida, or outside audiences to achieve Council goals.

Departmental support

Staff of the Department of Wildlife Ecology and Conservation will serve to assist the Advisory Council in its activities.

Department of Wildlife Ecology and Conservation

Draft Strategic Plan 8 June 2007 (updated March 11, 2008)

Purpose of the document. The University of Florida Department of Wildlife Ecology and Conservation is a complex institution that moves in many different directions. This document is not intended to articulate all of the directions that the program will move in the coming years or to encompass all aspects of the program. Rather, this document is intended to help guide program development in the department, to provide guidance for prioritization for future efforts, and to articulate strategic directions for the future to both internal and external audiences. As opportunities evolve and as departmental staffing changes over time, the most important strategic directions will similarly evolve. As a consequence, this document only represents key elements of the department's vision at a snapshot in time.

A. General departmental development

> ***Vision for program development:*** *WEC will develop or strengthen its role as a regional, national, and international leader in research, education, and outreach in the ecology and conservation of wildlife. The department will grow to meet regional and international demands for its programs, and will have world-class facilities to help the department achieve its goals.*

A.I Strategic direction. Increase departmental responsiveness to better meet key wildlife information and education needs of stakeholders.

> **A.I.1 Initiative.** Develop and maintain an external advisory council to serve as a departmental sounding board and to provide advice to the Department on all aspects of departmental activities.
>
> **A.I.2 Initiative**. Establish innovative new programs and projects specifically designed to address key stakeholder needs.

A.II Strategic direction. Maintain and expand departmental linkages to key professional organizations, academic programs, public and private entities, and individuals to develop partnerships that will enhance the effectiveness of departmental programs.

> **A.II.1 Initiative.** Support or enhance involvement in key professional organizations, such as The Wildlife Society and Society for Conservation Biology and other appropriate professional organizations.

A.II.2 Initiative. Maintain and enhance relationships with the Florida Fish and Wildlife Conservation Commission to promote mutually beneficial goals and directions.

A.II.3 Initiative. Maintain, develop, and distribute departmental outreach materials, such as newsletters, web pages, informational brochures, posters, and other materials.

A.II.4 Initiative. Strengthen ties to departmental alumni.

A.III Strategic direction. Increase departmental capacity to improve its ability to achieve its mission.

A.III.1 Initiative. Through creative partnerships, new initiatives, internal and external funding, and other mechanisms, increase the size of the faculty to more closely reflect the program's potential and regional needs.

A.III.2 Initiative. Increase funding available to support teaching and research assistantships for graduate students.

A.IV Strategic direction. Improve departmental infrastructure to develop world-class facilities and state-of-the-art teaching, outreach, and research facilities.

A.IV.1 Initiative. Secure outside funding to improve existing infrastructure and create new infrastructure.

A.IV.2 Initiative. Partner with other programs at the University of Florida to pursue new laboratory, classroom, and office facilities.

B. Academic Program Development. The Department has identified four areas (wildlife and wildlife habitat in wetlands ecology, human-influenced landscapes, international wildlife conservation and ecology, and human dimensions of wildlife conservation) that it plans to develop or significantly strengthen in the next ten years. These programmatic areas are not intended to represent the full breadth of activities of the department or to define the department in any way, but rather are simply areas of future focused development.

B. I. Program Area: Wetlands Ecology

Program Area Vision: *WEC will be a national and international leader in integrative and interdisciplinary research, training and outreach in wetland ecology emphasizing issues related to wildlife and their habitats; will use science-based knowledge to serve Florida, the nation, and the international community in decision making and wise use of wetland resources; and will become a magnet for students and faculty of excellence who are interested in wetlands ecology and wildlife.*

B. I.1 Strategic direction. Enhance graduate and undergraduate education in wetlands ecology.

B. I.1.a Initiative. Identify specific courses for inclusion of wetlands material at different levels (from introductory courses through in-depth and specialized advanced courses) in conjunction with wetlands content currently in other departments.

B.I.1.b Initiative. Incorporate wetlands-based field experiences into courses.

B.I.2 Strategic direction. Increase and enhance wildlife-related research in wetlands ecology.

B.I.2.a Initiative. Increase research on ecology and management of wetlands in Florida and the Southeast.

B.I.2.b Initiative. Promote international research in wetlands ecology.

B.I.3 Strategic direction. Enhance integration and interdisciplinary involvement in wetland research, education, outreach and problem-solving.

B.I.3.a Initiative. Make and develop contacts and collaborative projects with on-campus with faculty and programs that are interested in wetlands ecology and conservation.

B.I.4 Strategic direction. Develop and strengthen WEC's outreach activities and public information program in wetlands ecology

B.I.4.a Initiative. Independently or in cooperation with other programs develop outreach and informational programs such as seminar series or distinguished speaker programs.

B.I.4.b Initiative. Host an international wetlands scientific meeting (e.g., INTECOL, SWS, ERF).

B.I.4.c Initiative. Increase public recognition of the expertise, research and educational opportunities of the wetlands ecology program in WEC.

B.I.5 Strategic direction. Strengthen departmental capacity in wetlands research, education, and outreach.

B.I.5.a Initiative. Establish an endowed chair in wetlands ecology in WEC.

B.I.5.b Initiative. Staff department with necessary faculty to support any new wetlands courses.

B.I.5.c Initiative. Strengthen faculty capacity in wetlands wildlife resource economics.

B.I.5.d Initiative. Strengthen faculty capacity in wading bird ecology.

B.I.5.e Initiative. Strengthen faculty capacity in wetlands wildlife restoration.

B.I.5.f Initiative. Promote faculty development in wetlands related fields, including involvement in faculty exchanges, sabbaticals, and training programs.

B.I.6 Strategic direction. Increase involvement of WEC faculty and students in large-scale wetland restoration projects of national and international significance.

B.I.6.a Initiative. Promote travel and exchange of students and faculty with major restoration sites and projects, using Everglades projects as a springboard for exchange.

B.I.6.b Initiative. Hold workshops, meetings or short courses that advertise our expertise to other major restoration sites and projects.

B.I.7 Strategic direction. Increase and enhance departmental activities and expertise in the coastal zone.

B.I.7.a Initiative. Establish an undergraduate course or courses in coastal ecology and management, and estuarine ecology.

B.I.7.b Initiative. Initiate multi-faculty and multidisciplinary proposals for research on large-scale coastal issues (sea-level rise, salt-water incursion, coastal development impacts, etc.).

B.I.7.c Initiative. Advertise our accomplishments and expertise to agencies and institutions traditionally involved in coastal management.

B.II. Program Area: Wildlife and Wildlife Habitats in Human Influenced Landscapes.

Program Area Vision: *WEC will become an international leader in research, education, and extension on issues related to understanding, managing, and restoring wildlife and their habitats in human influenced landscapes across the wildland-urban gradient.*

B.II.1 Strategic direction. Increase and enhance research activities related to the ecology, conservation, and management of wildlife and their habitats in human-influenced landscapes.

B.II.1.a Initiative. Increase research on sustainable land use practices to support conservation of wildlife in human influenced landscapes.

B.II.1.b Initiative. Develop, facilitate, and increase integrative, interdisciplinary, and multidisciplinary research on issues related to wildlife and their habitats in human-influenced landscapes.

B.II.1.c Initiative. Increase understanding of responses of wildlife and their habitats to land use and land use change across the wildland-urban gradient.

B.II.1.d Initiative. Increase research on the ecology, conservation, and management of wildlife and their habitats in urban areas and at the urban-rural interface.

B.II.1.e Initiative. Increase research in ecology, conservation, and management of wildlife in ranchlands and in agricultural and working landscapes.

B.II.2 Strategic direction. Strengthen WEC teaching and outreach programs in issues related to the ecology, conservation, and management of wildlife and their habitats in human influence landscapes.

B.II.2.a Initiative. Increase experiential educational opportunities for field-based experiences and skill development for undergraduate and graduate students.

B.II.2.b Initiative. Incorporate issues related to sustainability in WEC courses and the curriculum.

B.II.3 Strategic direction. Strengthen departmental capacity in the ecology, conservation, and management of wildlife and their habitats in human-influenced landscapes.

B.II.3.a Initiative. Strengthen faculty capacity in wildlife resource economics

B.II.3.b Initiative. Strengthen faculty capacity in the ecology, conservation, and management of wildlife and their habitats in ranchlands and rangeland ecosystems.

B.II.3.c Initiative. Strengthen faculty capacity in the ecology and dynamics of wildlife diseases and wildlife-borne diseases.

B.II.4 Strategic direction. Strengthen partnerships with programs, agencies, and groups working on issues concerning the ecology, conservation, and management of human-influenced landscapes within the University, state, region, country, and world.

B.II.4.a Initiative. Strengthen partnerships and collaborative efforts with programs in the University of Florida working on conservation, ecology, and management of human-influenced landscapes.

B.II.4.b Initiative. Strengthen partnerships and collaborative efforts with local, national, and international conservation and educational organizations working on issues related to the ecology, conservation, and management of wildlife and their habitats in human-influenced landscapes.

B.II.4.c Initiative. Strengthen partnerships and collaborative and cooperative efforts with the Florida Fish and Wildlife Conservation Commission.

B.III. Program Area: International Wildlife Conservation and Ecology.

Program Area Vision: *Through collaborative and integrated research, education, and outreach, WEC's International Program will be a global leader in training of the conservation leaders of tomorrow and the generation and sharing of quality science needed for conservation decision-making and management internationally, with an emphasis on tropical systems and Latin America. WEC's International Program supports scientific inquiry, development of human resources, and strengthening of institutions for biodiversity conservation in the tropics and other areas of high conservation need internationally.*

B.III.1 Strategic direction. Expand and strengthen WEC's International Program in education and outreach.

B.III.2.a Initiative. Obtain funding to support the cohesive graduate training program for international conservation.

B.III.2.b Initiative. Recruit top-quality international graduate students to our program.

B.III.2.c Initiative. Promote international educational opportunities for undergraduate students.

B.III.2 Strategic direction. Strengthen WEC's program for training current and future international leaders in conservation science.

B.III.2.a Initiative. Establish a cohesive framework for training graduate students to work internationally that provides them with the skill set needed to be leaders in international conservation, including problem solving and technical skills, leadership capacity, a firm grounding in ecology, an interdisciplinary perspective on human-environment interactions, and an understanding of global drivers that impact conservation of biodiversity.

B.III.3 Strategic direction. Strengthen WEC's position as a leader in international conservation research.

B.III.3.a Initiative. Proactively identify and support key areas of research for international conservation.

B.III.3.b Initiative. Increase availability of funding for international research by faculty and students.

B.III.4 Strategic direction. Strengthen WEC activities and programs in international institutional capacity-building in support of biodiversity conservation.

B.III.4.a. Initiative. Facilitate development of university programs in Conservation Biology/Wildlife Ecology and Management in regions/countries where programs currently do not exist.

B.III.4.b Initiative. Promote institutional capacity building for government institutions (local, state, and national) and NGOs that relate to biodiversity conservation.

B.III.5 Strategic direction. Develop, maintain, and strengthen external linkages to the international community.

B.III.5.a Initiative. Promote, maintain, and develop WEC interactions with key international organizations.

B.III.5.b Initiative. Strengthen relationships with international WEC alumni

B.III.5.c Initiative. Strengthen and maintain close relationships with PSTC funded students in other departments and PSTC alumni.

B.III.6 Strategic direction. Strengthen WEC's capacity in international research, education, and outreach.

B.III.6.a Initiative. Strengthen faculty capacity in sustainable wildlife management in the tropics.

B.III.6.b Initiative. Strengthen faculty capacity in protected areas management.

B.III.6.c Initiative. Strengthen faculty capacity in international wildlife policy and economics.

B.IV. Program Area: Human Dimensions of Wildlife Conservation.

Program Area Vision: *The human dimensions of wildlife conservation examines the social elements of managing wildlife and natural resources. The Department of Wildlife Ecology and Conservation will be a leader in generating new information, transferring information, and educating and training current and future leaders on the application of human dimensions information in resource decision-making, facilitating understanding of public values and concerns regarding wildlife, improving communication with the public regarding key resource issues, and facilitating prediction of social impacts of wildlife and natural resource management decisions.*

B.IV.1 Strategic direction. Increase and enhance WEC research in the field of human dimensions of wildlife conservation.

B.IV.1.a Initiative. Promote and facilitate human dimensions research opportunities and impacts by optimizing WEC and extra-departmental offerings and resources.

B.IV.1.b Initiative. Garner new support for human dimensions research activities.

B.IV.1.c Initiative. Promote, facilitate, and conduct human dimension international research in human dimensions of wildlife conservation.

B.IV.2 Strategic direction. Increase and enhance undergraduate and graduate education in the human dimensions of wildlife conservation.

B.IV.2.a Initiative. Promote and facilitate human dimensions educational opportunities by optimizing WEC departmental offerings and resources.

B.IV.2.b Initiative. Promote and facilitate human dimension education opportunities by optimizing extra-departmental offerings and resources.

B.IV.3 Strategic direction. Increase and enhance outreach and extension activities in human dimensions of wildlife conservation.

B.IV.3.a Initiative. Identify, compile, and promote existing human dimensions resources and activities at WEC and UF to articulate the existing human dimensions program and to support fundraising from public and private sources and attract local and national attention.

B.IV.3.b Initiative. Develop and enhance WEC extension and outreach activities to position the department as the primary source of information concerning human dimensions of wildlife conservation in the region.

B.IV.3.c Initiative: Promote and facilitate international aspects of human dimension training and outreach.

B.IV.4 Strategic direction. Strengthen departmental capacity in human dimensions of wildlife conservation

B.IV.4.a Initiative. Strengthen faculty capacity in wildlife resource economics and its applications in human dimensions of wildlife conservation.

B.IV.4.b Initiative. Strengthen faculty capacity in wildlife policy.

B.V.5 Strategic direction. Develop and strengthen partnerships with programs, agencies, and groups working on issues concerning the human dimensions of wildlife and partner with public and private organizations in applying human dimensions in natural resources management.

B.V.5.1 Initiative. Develop and implement innovative new models for human dimensions research, education, and training through partnerships with public (such as the Florida Fish and Wildlife Conservation Commission) and private institutions.

C. Ordway-Swisher Biological Station. The Ordway-Swisher Biological Station is managed by the Department of Wildlife Ecology and Conservation on behalf of the University of Florida, the University of Florida Foundation, and The Nature Conservancy.

Program Vision: *The Ordway-Swisher Biological Station will be a world-class biological field station that is a leader in the development of new knowledge and educational programs. The Station will be the site of internationally significant research activities, a hub of educational activities focused on the ecosystems present at the site, and an important site for conservation of long-leaf pine, sandhill, and aquatic ecosystems.*

C.I Strategic direction. Increase and strengthen research activities at the Ordway-Swisher Biological Station.

C.I.1 Initiative. Secure the Station's role as a core site for NEON and early implementation of the program at the Ordway-Swisher Biological Station.

C.I.2 Initiative. Develop a small grants program to encourage use of the Station for research by students and faculty.

C.I.3 Initiative. Update and maintain Station databases and develop mechanisms to make Station databases readily available to Station users.

C.II Strategic direction. Strengthen the Station's educational programs.

C.II.1 Initiative. Increase number of courses using the Ordway-Swisher Biological Station, particularly courses outside the Department of Wildlife Ecology and Conservation.

C.III Strategic direction. Strengthen the Station's conservation program.

C.III.1 Initiative. Maintain fire as a disturbance agent on the Station to promote ecological sustainability of key ecosytems and populations on the Station.

C.IV Strategic direction. Improve the Station's infrastructure and increase its size to improve its ability to achieve program goals

C.IV.1 Initiative. Develop buildings and related infrastructure to support education, research, and outreach of the Station, and dormitory facilities to support visiting students and scientists.

C.IV.2 Initiative. Acquire key adjacent properties to protect and enhance the conservation value of the Station, to provide key access and safety routes, to allow for opportunities for larger-scale, higher impact, manipulative studies.

C.IV.3 Initiative. Facilitate transfer of the Swisher tract from TNC to UFF.

C.IV.4 Initiative. Protect and maintain boundaries by regular maintenance of fencing, appropriate signage, acquiring key properties, and cooperative agreements with adjacent landowners.

C.V Strategic direction. Increase the Station's human capacity to achieve program goals.

C.V.1 Initiative. Increase number of Station staff.

C.V.2 Initiative. Develop new faculty lines focusing on research, conservation, educational, or outreach goals of the Station through endowments or other means.

C.VI Strategic direction. Improve the Station's administrative structure.

C.VI.1 Initiative. Develop a Station Executive Advisory Council and restructure the Station's scientific advisory board to better meet the evolving nature of the Station.

Department of Wildlife Ecology and Conservation
Research Roadmap- 2008

October 30, 2008

The Department Research Roadmap articulates closely with the overall Department Strategic Plan. Detail on aspects of the Research Roadmap and linkages to Teaching, Extension, and overall program development are presented in the Strategic Plan.

Vision for WEC program development- *WEC will develop or strengthen its role as a regional, national, and international leader in research, education, and outreach/extension in the ecology and conservation of wildlife. The department will grow to meet regional and international demands for its programs, and will have world-class facilities to help the department achieve its goals.*

1. What areas of research are your department best known for by others?

Conservation Biology- Faculty in WEC are widely recognized for research focused on questions related to the conservation and management of biological diversity at genetic, species, population, and ecosystem levels, using approaches that incorporate technologies such as remote sensing, molecular genetics, and modeling. Focal points of this research include assessment of critical linkages across biological and landscape scales, habitat fragmentation, fire effects, invasive species, sustainable use of ecosystems, and the interrelations of cultures, economics, and political processes, all with a goal of increasing our understanding and identifying innovative practical solutions for dealing with the biodiversity crisis.

Landscape Ecology- Since the publication of The Fragmented Forest by Dr. Larry Harris in 1984, our department has been recognized as an active department in the field of landscape ecology. Landscape ecology is concerned with how species respond to habitat patterns at multiple spatial scales, how human activities alter those patterns over large areas, and how such changes influence the ecology and the conservation of biodiversity. This is a crucial area of research for the department, because management and conservation actions often take place at the landscape scale. Many of the departmental current faculty participate in landscape ecology research in Florida and throughout the world. Our faculty are recognized as leaders in landscape ecology and its applications to wildlife biology and conservation.

Human Dimensions in Wildlife Conservation- Research on the Human Dimensions of Wildlife Conservation focuses on how people's knowledge, values, and behaviors influence and are affected by decisions about the conservation of wildlife and management of natural resources. It offers interdisciplinary approaches that encompass the theory and practice of environmental communication, public participation, natural resource economics, and the process of integrated ecosystem management.

International Wildlife Ecology and Conservation - For more than two decades, WEC has been on the forefront of research in international wildlife ecology and conservation, particularly in Latin America and other tropical countries, and is widely recognized internationally as the leader in graduate training in this area. Graduates from our program hold leadership positions in universities, government agencies, and non-governmental conservation organizations throughout Latin America, Africa, and Asia. WEC faculty conduct international research on topics such as sustainable use of tropical wildlife, ecology of large carnivores and other endangered species, impacts of land use change on wildlife, community-based natural resource management that is responsive to both social and natural systems, and environmental communication in diverse cultures. This research provides a strong scientific foundation for conservation in the countries where we work and strengthens understanding of global changes that significantly impact the state of Florida.

Wetland Ecology and Management - WEC has a number of faculty actively engaged in research, teaching, and extension activities focused on wetlands ecology, and WEC is known statewide and nationally for the excellence of this work. Wetlands are critical habitats for a disproportionate number of important fish, amphibians, reptiles, birds, mammals, and other wildlife. In addition, maintenance of healthy wetlands is closely tied to economic viability, through fisheries, ecotourism, and ecosystem services such as clean water, abatement of storm effects, and buffering of droughts, floods and hurricanes. Focal points of departmental research in this area include predicting community dynamics in relation to hydrology, nutrients and other management activities, management and restoration of crocodilians, Everglades restoration, river and lake restoration, coastal zone management, wetland ecotoxicology, endangered wetland species recovery and management, and optimal waterfowl management.

2. What truly are your current areas of excellence, your research strengths, currently in the discipline including your entire statewide faculty?

Same as above:

- Conservation Biology
- Landscape Ecology
- Human Dimensions in Wildlife Conservation
- International Wildlife Ecology and Conservation
- Wetland Ecology and Management

The Department's leadership at the Ordway-Swisher Biological Station is also a Departmental strength. We fully anticipate this to become even more important as the Station expands its impact over time, and as the Station advances to fulfill its role as a globally significant research site.

3. What are your research weaknesses, gaps that are not covered now, yet you deem essential for the future directions and scientific impact of your discipline?

An emerging concern to those working in natural resources conservation is the ability to model **impacts of global change** on ecosystems and to develop conservation and management strategies to address the inevitable. Global change in climate is anticipated to have profound impacts on species distributions, viability of species, wildlife habitats and ecological systems, interactions between wildlife and agriculture, and the ways that humans interact with wildlife. Despite the importance of this area, the Department has no faculty dedicated to addressing this issue. As a consequence, increased research capacity in this area is fundamental to maintaining a program at the cutting edge of the field. One result of global climate change is an anticipated rise in sea level that will severely impact Florida's coastal areas, as well as coastal areas worldwide. Although we have some faculty that focus on particular aspects of **coastal wildlife ecology** and conservation (notably sea turtles and beach mice), this is an area where departmental expertise is weak relative to the magnitude of the issue. While our aquatic expertise is strong in freshwater wetlands, there is a gap in our ability to project effects in coastal ecosystems. Climate change also will impact **wildlife disease ecology** associated with the expansion and invasion of organisms. While we are increasingly working with issues related to invasive species, we have virtually no expertise in the field of wildlife disease ecology. Emerging wildlife diseases and the roles wild animals play as disease vectors are at a critical nexus of both biological conservation and human health. There is enormous growth potential in this field.

We have very limited expertise in **policy development and the economics of wildlife conservation**. In 2006, Florida residents who enjoyed viewing wildlife around their homes outnumbered the entire population of 21 states and since 2001 the number of people who visited Florida to view wildlife has increased 50 percent. The underlying economic importance of this wildlife-related activity and its potential as an economic engine in Florida are poorly understood. Understanding the social and economic impacts of wildlife in Florida is critical to conserving and managing wildlife resources in the 21st century and to serving the needs of a public highly interested in the wildlife resource. Expertise is needed to better understand the linkages between land use change, population growth, and conservation and management of land for wildlife. We need to develop our expertise in quantitative socio-economics research to achieve excellence in this field.

We have limited expertise in **protected area management.** Land is being protected for natural resource values, both in Florida and worldwide. Fundamental research on protected area strategies and the implications of protected area management on ecology and society is an emerging need not well met at the University at this time. The importance of this field is reflected in the fact that protected area management is the focus of major long-term, global conservation initiatives backed by large amounts of private funding; having expertise in this area would place WEC, IFAS, and UF in the position to capitalize on these initiatives. Developing a solid base of research in this area will benefit policy development and management approaches in public lands, conserved private lands, and landscape-scale approaches to management and conservation.

4. Where is your discipline moving to in the future? What are the major trends in your field of science? What do the very best departments in the country look like in this discipline?

Wildlife species continue to be extirpated or impacted as human populations expand, thus impacting the basic biology and ecology of animal populations and landscapes. Our department plans to refocus efforts and programs in the area of **ecology and management of wildlife in human-influenced landscapes**. The scope of this focus will be both domestic and international and requires the combination of expertise in animal ecology and management, economics, human dimensions and land use policy. The strongest departments in the field contain this combination of expertise or have strong linkages to other departments housing the expertise.

Wildlife departments around the country have added entire programs in the human dimensions of wildlife. While we do have some capacity in this area, we need to develop and significantly increase expertise in examining the **social and economic impacts of wildlife** in Florida and beyond to stay relevant in the 21st century. We need to develop our expertise in quantitative socio-economics research related to wildlife to achieve excellence in our field.

Understanding and predicting the repercussions of climate change for ecosystems requires sophisticated quantitative tools. The nation's premier ecology departments have faculty with the ability to use an **integrative modeling** approach to both develop and apply the statistical and modeling tools needed to elucidate and forecast the consequences of global change phenomena. In addition to understanding the consequences of climate change for Florida's biodiversity, it will also allow us to provide input to those making resource management decisions at local, regional, national, and international levels.

Protected areas, or conserved lands, are the cornerstone of national and international conservation policies and for conserving the natural heritage of Florida. **Protected area management,** which combines human and ecological dimensions of conservation, is increasingly difficult and complex as landscapes become human-dominated. Nowhere are these challenges more evident than in the state of Florida. Our department, and UF in general, does not have faculty expertise for research to address these challenges.

Wildlife disease ecology is one area in which we are lacking, as noted above. The importance of this area has been underscored by recent cluster hires in wildlife disease specialists in other southeastern schools, and by the rapid emergence of disease issues in conservation biology journals. While the veterinary school has significant resources focused on clinical aspects of disease, a broader ecological focus on wildlife disease is not well-addressed on campus. A related concern is that **ecotoxicology** is quite weak on the UF campus in general, especially in relation to strong evidence of its growing importance to animal health and population dynamics. Traditional toxicology from veterinary and pharmacological schools is only one component of fully understanding the broader impacts of emerging pathogens, and recent publications demonstrate the important role of ecologists in this field.

5. Aside from times of limited resources, what/who are the major research threats to fulfilling your vision?

There is a lack of a unified, informed, and vocal clientele group to champion the need for increased awareness, appreciation and funding of wildlife conservation and management research within the state and internationally. Although there are a substantial number of potential stakeholders for wildlife research, they tend to be diffuse and poorly organized. Failure to develop and strengthen relationships with key stakeholders could result in inadequate support for achieving the Department's vision.

University faculty expertise in natural resource conservation and management is scattered across multiple buildings throughout the entire campus. This diffuse condition impedes research in an arena that requires a trans-discipline approach. Construction of a Natural Resources Building, large enough to house several departments, is badly needed and would both address current inadequacies in infrastructure for some of these departments and provide an intellectual hub for integration of the natural sciences.

Procurement of endowment funds would help support graduate stipends as our faculty compete for an ever-shrinking pool of competitive research dollars.

Two recurring sources of funding currently are available for the Ordway-Swisher Biological Station: endowment funds (restricted to use for management activities) and funds for salary for 3 staff members. Current funding is dramatically lower than that provided to top Biological Stations in the country. We are actively pursuing outside funds for the Station, but a establishing a budget with recurring funds for increased staffing and for research support and infrastructure will be critical for the Station to achieve its potential in research and other aspects of the Station's mission.

6. What current areas of research in you department will need to be enhanced to be the leading department in your field? What new areas will need to be added to be the leading department in your field? Which areas of your discipline are less likely to be essential in the department in 10 to 20 years?

Enhancement- wetland ecology, conservation genetics, human dimensions/public education, sustainable use and management of natural resources, both domestically and internationally.

New areas- global climatic change impacts on the conservation and management of natural resources, protected area management, sociology and economics of biodiversity conservation and management.

7. What are the cross-cutting research topics that need to be addressed through partnership with other disciplines in UF, at our universities, or with other agencies? How would your department benefit from partnerships/interaction with other units?

Sustainable land use and management could benefit from increased collaboration with SFRC, Soil and Water Sciences, FRED, Urban and Regional Planning, and the Center for Latin American Studies. Ecological systems are complex and need trans-discipline teams of researchers to handle complex research questions.

The National Ecological Observatory Network (NEON) is a cutting-edge, multi-disciplinary national effort that will provide an important linkage to a number of research opportunities of interest to the faculty in our Department and many others across the University. Deployment of the program also will transform the program at the Ordway-Swisher Biological Station and provide one of the most significant research platforms for the ecological sciences in the Southeast. Partnership with this program will significantly benefit the Department and will open pathways for significant interdisciplinary research and research funding.

Understanding the impacts of climate change is inherently multi-disciplinary. Although the Department currently has limited expertise in this area, expanding faculty expertise in this arena will allow us to interact with a diverse group of researchers across IFAS and UF. For example, there is the potential to work with faculty in SFRC to better understand the impact of climate change for coastal ecosystems, as well as faculty from VetMed to study the implications of changing climate for wildlife-borne disease. In addition, it will allow us to better take advantage of the NEON at the Ordway-Swisher Biological Station.

Collaborative research on wildlife disease and ecotoxicology would benefit from increased linkages and partnership with the College of Veterinary Medicine. Increased interaction and collaboration with fisheries faculty could help with development of programs in wetlands and coastal ecology.

8. Knowing the faculty that you must have in place to accomplish your goals, what critical hires in order of importance in your discipline will be necessary to position your department as the leader in its discipline?

We believe that the future will be shaped more through team-based, multi-PI approaches to questions than through traditional individual PI approaches. As a result, our Department would like to develop hiring strategies that focus more on "hiring clusters" than on individual hires. While it is critical for the Department to maintain its current breadth of disciplinary expertise, we believe that focusing new recruitments on hiring clusters of 3-4 faculty members hired to serve as integrative teams will be much more effective. We have identified four such clusters that would significantly impact the Department's position as national and international leaders in the field. Order of clusters is not intended to reflect any prioritization.

Global change. Global change will have a significant impact of Florida's future; with the possible exception of Alaska, Florida is likely to be impacted more by global change than any other state. UF/IFAS and the Department of Wildlife Ecology and Conservation should position itself to be at the cutting edge of this field. A cluster in this area could combine positions and expertise in economic and social drivers of global change,

emerging pathogens, ecology of invasive species, coastal ecology, and ecological modeling to position the Department to be a leader in this area. Departmental development in this area would have the added benefit of positioning the Department well to take advantage of potential opportunities anticipated with the deployment of NEON.

Ecology of human-dominated landscapes. The combination of rapid changes in land use, human population increase, economic transitions, significant regional biodiversity, and a landbase ranging from wildlands to agricultural areas to large urban areas poses a number of unique issues for wildlife and their habitats. In many ways, Florida is at the front edge of a pattern that is likely to sweep much of the country in the coming years, and as a consequence the University of Florida should also position itself to be at the front of this emerging area of importance. A cluster in this area could combine positions in urban ecology, conservation and management of wildlife in agricultural and rangeland habitats, wildlife policy, and human dimensions.

Wildlife policy, planning, and economics. Linking ecological understanding with societal implications and natural resource policy is becoming increasingly important. A hiring cluster in this area could combine positions in wildlife policy, wildlife and natural resource economics, conservation planning, and human dimensions.

International wildlife ecology. The University of Florida has made highly significant contributions to international conservation and our understanding of ecological systems globally. Indeed, a significant amount of the reputation that the University has in natural resources stems from the tremendous role that WEC has played in the global arena, especially in the tropics and Latin America. A substantial amount of UF's capacity in this area has diminished and retirements in the coming years are expected to diminish that capacity further. Reinvigorating the global role played by the University in this area through enhancement of WEC's international program will help ensure a future leadership role for the Department, IFAS, and the University. A hiring cluster in this area could include positions focusing on protected area management, ecology of carnivores and large mammals, international natural resource policy, and conservation of imperiled species.

9. Would reaching your research goals be helped by key research hires in other IFAS departments?

Achieving Departmental research goals would be helped through key hires in the College of Veterinary Medicine, the Center for Latin American Studies, and the Florida Museum of Natural History.

10. Are there mechanisms of research administration that you see as needing to change to assist you in attaining your department's goals? How can IFAS administration change and thereby help your department meet its goals?

Establishment of a natural resources advisory council on same level of agriculture advisory council.

Enhanced support of Ordway-Swisher Biological Station, including basic infrastructural support and increased staffing, and continued commitment to NEON and NEON's long-term research projects.

Increased efficiency in IFAS sponsored programs office would facilitate meeting Departmental goals. In addition, any efforts that reduced paperwork would be highly beneficial and would better enable faculty to focus on their primary mission.

Cooperative Agreement No. 1434-05HQRU1544

AGREEMENT FOR ESTABLISHMENT AND OPERATION

of the

FLORIDA COOPERATIVE FISH AND WILDLIFE RESEARCH UNIT

by the

UNITED STATES GEOLOGICAL SURVEY, DEPARTMENT OF INTERIOR

and the

UNIVERSITY OF FLORIDA

and the

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

and the

WILDLIFE MANAGEMENT INSTITUTE

and the

US FISH AND WILDLIFE SERVICE

This agreement, effective on the date signed by all parties, is entered into by the Unit Cooperators: the United States Geological Survey, hereinafter referred to as the Survey, the University of Florida, hereinafter referred to as the University, the Florida Fish and Wildlife Conservation Commission, hereinafter referred to as the Commission, the Wildlife Management Institute, hereinafter referred to as the Institute, and the US Fish and Wildlife Service, hereinafter referred to as the Service. This agreement replaces Cooperative Agreement No. 1434-HQ-97-RU-01544

I. Authorization:

The Survey is authorized under Public Law 86-686 (as amended November 8, 1978), to enter into cooperative agreements with colleges and universities and State fish and wildlife departments relating to Cooperative Research units for the purpose of developing adequate, coordinated, cooperative unit programs of research and education relating to fish and wildlife.

The University is authorized by the laws of the State of Florida to enter into agreements or contracts with the Federal Government or agencies thereof, as well as into agreements or contracts with agencies of other governments, and other colleges or universities, where such agreements or contracts, in the judgment of the trustees, will promote the objectives of the University.

The Commission is authorized by the laws of the State of Florida to enter into agreements and investigate questions relating to fish and wildlife and related resources, to initiate and conduct inquiries pertaining to such questions, and to conduct such biological research that in its opinion will conserve, improve, and enhance the status of these resources in the State of Florida.

The Institute is authorized by its charter to enter into cooperative agreements for the support of research at the Cooperative Wildlife Research Units.

II. Purpose:

The Cooperators enter this agreement to provide for active cooperation in the advancement, organization, and conduct of research, graduate education, in-service training, technical assistance, public relations, and demonstration programs relating to fish and wildlife resources as outlined in the following sections.

III. Objectives:

1. To conduct research into the ecology, biology, and management of fish, wildlife, and other renewable natural resources and to investigate the production, utilization, management, protection, and restoration of such resources. This research will be relevant to the needs of the State, the geographical region, and the Nation.

2. To provide technical and professional education at graduate and professional levels in the fields of renewable natural resource sciences.

3. To make available to resource managers, landowners, other researchers, and other interested public, such facts, methods, literature, and new findings discovered through research.

4. To disseminate research findings through the publication of reports, bulletins, circulars, films, and journal and magazine articles. These may include scientific, technical, semi-popular, and popular media.

5. To help address the information needs of the Cooperators. This objective will include the careful linking of the Commission's information needs with those of the Survey so the many mutual interests are properly served.

IV. The Survey Agrees To:

1. Designate three or more full-time employees of the Survey to staff the Cooperative Research Unit. One of these employees shall serve as Unit Leader; others shall serve as Assistant Unit Leaders for their respective disciplines. All Unit staff appointments shall be made with the concurrence of the University and the Commission. All Survey employees shall meet the qualifications for graduate faculty status within the University.

2. Pay the salaries of Survey personnel assigned to the Unit, and to provide incidental expense funds for these personnel as provided for in PL86-686.

3. Make available such services, and facilities, including equipment, buildings, and land under control of the Survey, as may be mutually agreed upon.

4. Cooperate in the planning and development of research, education, in-service training, and the preparation of publications and demonstration programs.

5. Recognize the responsibilities of Unit scientists as educators, consistent with and supportive of the Unit mission identified in PL86-686. These include appropriate performance evaluation and professional development. Permit the Survey's scientific personnel assigned to the Unit to participate in teaching graduate courses and seminars in their areas of specialization. This commitment is expected to be limited to the equivalent of one formal graduate level course per year per person.

6. Call Coordinating Committee Meetings for the purpose of coordinating the activities and programs of the Unit and cooperating agencies in accordance with local, regional, and national requirements.

7. Recognize as participating cooperators those faculty, staff, and students of the University and employees of the Commission participating in an approved activity of the Unit. Provide funds through this Cooperative Agreement to support specific research, Unit operations, or educational projects of primary interest to the Cooperators, including mutually agreed upon university administrative and support services, which meet the terms of the Cooperative Units Act as amended. On the basis of statements of work that are mutually agreeable to all Cooperators, funds will be obligated through this agreement to the cooperating agencies to carry out the work.

8. Participate in the annual coordinating meeting as a voting member.

V. The University Agrees To:

1. In support of Unit base operations, make available to the Unit at least one and one half full-time positions for secretarial and administrative assistance; offices, laboratory and storage space; computer facilities like those regularly provided to other University faculty; publication channels; museum facilities; library; equipment; utilities, including both local and long distance telephone services in locations where Federal Telecommunications Services are not available; indirect cost waivers on Survey funded research as defined in V.4, accounting services for Cooperator contributions to the Unit and other personnel and facilities as may be mutually agreed upon for the efficient conduct of the Unit program. Monetary equivalence for services and facilities will be shown in reports of annual Cooperative Unit budgets.

2. Recognize, as regular members of the University faculty, those research scientists of the Survey who are assigned to the Unit. These personnel shall have full faculty rights and privileges and be given professional rank appropriate to their qualifications. Survey personnel shall be given graduate faculty appointments, providing such personnel meet the standards and requirements of the University. Survey personnel shall be eligible for promotion in University rank in accordance with normal University standards and procedures but will not be tenured or salaried by the University.

3. Recognize that graduate students who receive financial and logistic support through the Unit will be members of an appropriate graduate program and subject to all established admittance review and evaluation procedures of that program. All normal graduate support facilities of the

university accrue to those individuals by virtue of their being students of the university.

4. Make available the means for the Unit to establish revolving accounts (accounts with no fiscal year limitations) with the University through which operating and research expenditures may be transacted. This service will be provided by the University without overhead charges on the annual contributions from the Commission and the Survey (as defined in Section VI.3). Indirect costs at a rate of 15% will be charged on all research contracts funded by the Survey and Service; no more than the rate allowed per 216.346, F.S., will be charged on contracts funded by the Commission. The difference between the aforementioned indirect rates and the University's regular indirect cost rate on contracts will be considered as part of the University contribution to the Unit. Survey research contracts (Research Work Orders) issued under this agreement will be administered under OMB Circular A21.

5. Cooperate in planning, developing, and executing research, education, in-service training, publications, demonstration projects, and other programs of the Unit.

6. Participate in the annual coordinating meeting as a voting member.

VI. The Commission Agrees To:

1. Make available such personnel and facilities, including equipment, buildings, and land under its control, as may be mutually agreed upon for execution of the program.

2. Cooperate in research, education, in-service training, public relations, and demonstration on approved projects.

3. Cooperate through the Unit program in carrying forward approved research projects on fishery and wildlife resources.

4. In support of basic operational expenses of the Unit (i.e., equipment and supply purchases, maintenance, travel of Unit personnel and students, student stipends, etc.), the Commission shall provide the University up to $5,000 for each month beginning the month after this Cooperative Agreement is executed through December 2005 by means of a separate expenditure agreement or purchase order. Thereafter, the Commission shall provide the University up to $60,000 annually for this purpose through a separate expenditure agreement or purchase order. This amount may be supplemented by additional funds or in-kind contributions of

services or utilities for the conduct of research projects requested by the Commission and mutually agreed upon by the Cooperators. The Commission and the Survey will periodically reexamine the amount of their annual basic contributions and may make such adjustment as deemed appropriate after consideration of current economic conditions and revenues available.

5. Participate in the annual coordinating meeting as a voting member.

VII. The Institute Agrees To:

Contribute toward the activities of the Unit, on the basis of requests for individual research projects, in-service training programs and related activities. They will participate in annual coordinating committee meetings as a voting member.

VIII. The Service Agrees To:

1. Cooperate in the planning and development of research, education, in-service training and demonstration programs.

2. Make its information needs known to Unit cooperators.

3. Use available resources, as may be mutually agreed upon, for support of the Units' approved programs of research and education.

4. Actively participate in Coordinating Committee Meetings as a non-voting member.

IX. It is Mutually Agreed That:

1. The Unit shall be administered through a Coordinating Committee, consisting of a designated representative of the Survey, the University, the Commission, the Service, and the Institute.

2. The Coordinating Committee, consisting of appointed representatives of the parties to the Cooperative Agreement, will meet annually in General Session, or as otherwise mutually agreed.
At the annual meeting, the Coordinating Committee will:

   a. Review and modify as necessary, the Statement of Direction for the Unit. The Statement of Direction is a declaration of the research and teaching areas mutually agreed upon as needing primary emphasis and attention in the Unit.

b. Examine, and approve or modify, the annual research budget, which shall include new funds each year and any gift or unexpended funds of the previous year not reverting to the contributing agencies. It shall review annual statements of financial expenditures and balances, and other financial reports or information needed for evaluating the Unit s research program. Budget statements and reports will be assembled by the Unit Leader and provided to each member of the Coordinating Committee in advance of the annual meeting.

c. Examine, and approve or modify, the unit plan of activities, including proposed starts for all new projects.

d. Integrate, insofar as practicable, the research and educational programs of the unit with the research and educational programs of the Cooperators, and with the general land and water use programs of the State and Nation.

e. Exchange information so that Cooperators and interested agencies will be informed of the plans, programs, progress, needs, and probable future trends and patterns of development of the research and educational programs of the Unit.

f. Representatives of the signatory parties to this Unit Cooperative Agreement may meet in an Executive Session that is separate from the General Session, upon request of any Coordinating Committee member, to address issues or matters of Unit operation and policy.

3. Participation of the Federal Government in this project is not intended to place it in a position of liability for claims that arise as a result of Unit activities. Each party hereto shall have responsibility for acts of and injury to, or injury and damage caused by its own personnel and its own property occurring incidental to the conduct of the projects permitted hereunder.

4. Participation of the Institute in this project shall not place it in a position of incurring liability for any claim by anyone that might arise as a result of Unit activity at which the Institute is not present.

5. All equipment purchased by or for the Unit shall be the property of the contributing agency in the event of dissolution of the Unit. An equipment inventory indicating ownership, costs, and condition of each item under the auspices of the Unit shall be maintained by the Unit Leader and made available annually to the Cooperators.

6. The obligations of the Survey are contingent upon the appropriations of Congress; of the University and the Commission upon appropriations by the State Legislature; and of the Institute on contributed funds. No cooperative funds shall be spent except in furtherance of the programs of the Unit as approved by the Unit Cooperators through the Unit Coordinating Committee. Proposals for research to be undertaken by the Unit shall conform to the project protocol of the University and/or granting agencies.

7. The acquisition of special funds (contracts, grants, gifts, bequest funds, etc.) is encouraged and their use is also subject to Coordinating Committee approval.

X. Publications:

1. The principal investigator designated for a specific project supported by the Unit shall have primary responsibility for the quality of work being submitted for publication as well as for adherence to the publication guidelines of supporters of the project. The Unit Leader shall be given the opportunity to review, prior to publication, all publications arising from work sponsored or coordinated by the Unit. Time for such reviews will be limited to 30 days. Publication restrictions that may be incorporated into grant or contract research will be observed. The Unit Leader will clear the manuscript through the Cooperators as appropriate.

2. Publication may be independent or joint as agreed upon, always giving credit for cooperation of the Unit and of contributing agencies where appropriate, yet recognizing within proper limits the rights of the individual doing the work.

3. In case of failure to agree as to the manner of publication or interpretation of results, each party may publish data after due notice and submission of the proposed manuscripts to the other parties. In such instances, the party publishing the data will give credit to the cooperators, but will assume full responsibility for any statements on which there is difference of opinion.

XI. Officials Not To Benefit:

As provided in applicable federal and state statutes, no person prohibited from doing so shall be admitted to any share or part of this agreement or to any benefit that may arise there from.

XII. Nondiscrimination in Employment:

In connection with the performance of work under this agreement, the cooperators agree not to discriminate against any employee or applicant for employment because of sex, race, religion, color, or national origin. This provision shall include, but not be limited to, the following: employment, promotion, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

XIII. Certification Regarding Drug-Free Workplace Requirements:

By signing this Cooperative Agreement the signatory certifies that it will provide a drug-free workplace by:

1. Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the Cooperator s workplace and specifying the actions that will be taken against employees for violation of such prohibition;

2. Establishing a drug-free awareness program to inform employees about –

   a. The dangers of drug use in the workplace

   b. The Cooperators policy of maintaining a drug-free workplace

   c. Any available drug counseling, rehabilitation, and employee assistance programs

   d. The penalties that may be imposed upon employees for drug use violation occurring in the workplace;

3. Making it a requirement that each employee to be engaged in performance of work under this Cooperative Agreement be given a copy of the statement required by paragraph (1);

4. Notifying the employee in the statement required by paragraph (1) that, as a condition of support under this Cooperative Agreement, the employee will –

   a. Abide by the terms of the statement; and

   b. Notify the employer of any criminal drug statute conviction for a violation occurring in the workplace no later than five days after such conviction;

5. Notifying the Survey within ten days after receiving notice under subparagraph (4) (b) from an employee otherwise receiving actual notice of such conviction;

6. Taking one of the following actions, within 30 days of receiving notice under subparagraph (4) (b), with respect to any employee who is convicted by -

   a. Taking appropriate personnel action against such an employee, up to and including termination; or

   b. Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency;

7. Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs (1), (2), (3), (4), (5), and (6).

XIV. Jury Trial Waiver

As consideration of this agreement, the parties hereby waive trial by jury in any action or proceeding brought by any party against any other party pertaining to any matter whatsoever arising out of or in any way connected with this agreement. Nothing herein shall be construed in derogation of any applicable right or remedy by or with respect to the United States under the Federal Tort Claims Act, Tucker Act, Contract Disputes Act, or other applicable Federal law.

XV. Effective Date And Termination:

This agreement shall become effective on the date of last signature and shall continue in force until terminated. It is the intent of Cooperators to review the terms of the agreement every 5 years. The agreement may be terminated through mutual agreement following a written notice to the other cooperators 90 days in advance of a proposed termination date.

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Approvals:

Florida Fish and Wildlife Conservation Commission — Date: 2-Mar.-2005

University of Florida Board of Trustees — Date: 4/7/05
Dr. Joseph Glover, Interim Provost, Univ. of Florida

Cooperative Research Units, USGS — Date: 5/2/05

Wildlife Management Institute — Date: 5/20/05

US Fish and Wildlife Service — Date: 6/7/05

U.S. Geological Survey, Contracting Officer — Date: 05/04/05

ACKNOWLEDGED:

Jimmy Cheek, Sr., Vice President for
Agriculture and Natural Resources
University of Florida

4/1/05

Brian Prindle, Associate Director of Research
Division of Sponsored Research
University of Florida

Approved as to Form and Legality:

Office of the Vice President and General Counsel

DRAFT – Proposed Curriculum Revision			
Wildlife Ecology & Conservation Lower Division			
Course #	**Course Title**	**Credits**	**Prerequisites**
Semester 1, Fall			
Critical Tracking Course: BSC 2010 & 2010L	Integrated Principles of Biology I & Lab I (GE-B)	4	
WIS 2040	Wildlife Issues in a Changing World Gen Ed-Biology & International (GE-B&N)	3	
WIS 2041	Wildlife Issues Colloquium	1	WIE major/WIE minor
	Gen Ed-Humanities (GE-H)	3	
	Gen Ed-Composition (GE-C & 6,000 WR)	3	
	Total	14	
Semester 2, Spring			
Critical Tracking Course: BSC 2011 & 2011L	Integrated Principles of Biology II & Lab II (GE-B)	4	BSC 2010 & 2010L
Critical Tracking Course: ECO 2023 ***or*** AEB 2014 ***or*** AEB 3103	Principles of Microeconomics (GE-S) ***or*** Economic Issues, Food and You (GE-S) ***or*** Principles of Food and Resource Economics (GE-S)	4/3/4	
	Gen Ed-Humanities (GE-H & 6,000 WR)	3	
	Gen Ed-Social & Behavioral Science (GE-S)	3	
	Gen Ed-Humanities or Social & Behavioral Science (GE-H or S with D)	3	
	Total	16-17	
Semester 3, Fall			
WIS 3403C	Perspectives in Wildlife Ecology & Conservation	3	WIE major/WIE minor
Critical Tracking Course: CHM 2045 & 2045L	General Chemistry I & Lab I (GE-P)	4	Student must take Readiness Assessment on ISIS
Critical Tracking Course: STA 2023	Introduction to Statistics I (GE-MR)	3	
CALS Requirement: AEE 3030C	Effective Oral Communication Note: SPC 2600, SPC 2608, SPC 3605 or SPC 3602 will substitute	3	
CALS Requirement: AEE 3033C	Writing for Agricultural & Natural Resources (6,000 WR) Note: ENC 2210, MMC 2100 or ENC 4620 will substitute	3	
	Total	16	
Semester 4, Spring			
WIS 3402 & 3402L	Wildlife of Florida & Lab	4	
Critical Tracking Course: MAC 2311	Analytical Geometry & Calculus I (GE-M; MR)	4	Student must take Readiness Assessment on ISIS
	Invertebrate Biology Common Requirement	3-4	

	Ecology Common Requirement	3-4	
	Total	14-16	
Wildlife Ecology & Conservation Upper Division			
Course #	**Course Title**	**Credits**	**Prerequisites**
Semester 5, Fall			
WIS 3401	Wildlife Ecology & Management	3	BSC 2011 & 2011 L
	Geographic Information System Common Requirement	3	
	Plant Diversity & Taxonomy Common Requirement 1	3	
	Wildlife Biology Common Requirement ***or*** Focus Course 1	3-4	
	Elective	3	
	Total	15-16	
Semester 6, Spring			
WIS 3553	Introduction to Conservation Genetics	3	Ecology & STA 2023
WIS 4945C	Wildlife Techniques	3	WIS 3402 & Ecology
	Plant Diversity & Taxonomy Common Requirement 2	3	
	Wildlife Biology Common Requirement ***or*** Focus Course 1	3-4	
	Elective	3	
	Total	15-16	
Semester 7, Fall			
WIS 4554	Conservation Biology	3	Ecology, WIS 3401, & WIS 3553
	Human Dimensions Common Requirement	3	
	Natural Resource Policy Common Requirement	3	
	Focus Course 2	3-4	
	Focus Course 3	3-4	
	Total	15-17	
Semester 8, Spring			
WIS 4601C	Quantitative Wildlife Ecology	3	STA 2023 & WIS 3401
	Focus Course 4	3-4	
	Focus Course 5	3-4	
	Elective	3	
	Elective	3	
	Total	15-17	
	Grand Total	120-129	

Common Requirements for all majors except Preprofessional

Invertebrate Biology Common Requirement (choose 1)
ENY 3005 & 3005L - Principles of Entomology & Lab
ZOO 2203C - Invertebrate Zoology

Ecology Common Requirement (choose 1)
FOR 3153C - Forest Ecology
PCB 3601C - Plant Ecology
PCB 4043C - General Ecology (GE-B)

Geographic Information Common Requirement (choose 1)
FOR 3434C - Forest Resources Information Systems
URP 4273 - Survey of Planning Information Systems
MAC 2312 - Analytic Geometry and Calculus 11 (GE-M)
SUR 3393 & 3393L - Geographic Information Systems & Lab
GIS 3043 - Foundations of Geographic Information Systems
Any department approved course focusing on geographic information systems and their use.

Plant Diversity & Taxonomy Common Requirement (choose 2)
BOT 2011C - Plant Diversity
BOT 2710 - Practical Plant Taxonomy
BOT 3151C - Local Flora of North Florida
FNR 3131C - Dendrology/Forest Plants

Wildlife Biology Common Requirement (choose 1)
WIS 4905 - Namibian Field Mammalogy & WIS 4905 - Namibian Field Ornithology (must be taken together)
WIS 4934 - Ecology of Mammals
WIS 4934 - Reptiles & Amphibians
ZOO 2303C - Vertebrate Zoology (Note The Wildlife Society Certification Requirements)
ZOO 4427C - Avian Biology
Any department approved course dealing with the biology of birds, mammals, reptiles, and/or amphibians.

Human Dimensions Common Requirement (choose 1)
FNR 4070C - Environmental Education Program
FOR 4664 - Sustainable Ecotourism Development
WIS 4523 - Human Dimension of Natural Resource Conservation

Natural Resource Policy Common Requirement (choose 1)
AEB 4274 - Natural Resources & Environmental Policy

ECP 3302 - Environmental Economics & Resource Policy
FNR 4660C - Natural Resource Policy & Administration
Note: to fulfill University Writing Requirements, an additional course providing 6,000 words towards the University Writing Requirement must be completed prior to semester 8. This can be part of any other elective or required coursework.

Note: Elective courses can be filled with any courses of the students choosing, including, but not limited to, additional courses within the major or focus area or to fulfill requirements for a Minor or second Major.

Focus Areas

All students, except Preprofessional, must select a Focus Area within Wildlife Ecology & Conservation: ***Ecology, Wildlife Management, Human Dimensions, Quantitative, and Urban & Regional Planning.***

Five approved focus courses (≥15 credits) must be successfully completed within the Focus Area from the following lists. Courses used to fulfill common and other requirements may not be used again. All students must file a plan of study for focus area courses with WEC Student Services before completing 60 credit hours in the major. The plan must be approved by the student's faculty advisor. Course substitutions must be approved by the Undergraduate Coordinator.

Focus Area-Ecology

Required Focus Area-Ecology courses:
SWS 3022 & 3022L - Introduction to Soils in the Environment & Lab
WIS 4203C - Introduction to Landscape Ecology
WIS 4501 - Introduction to Wildlife Population Ecology

Elective Focus Area-Ecology courses: (Choose two; others may be taken if additional elective hours are needed)
ALS 3153 - Agricultural Ecology
BSC 3402 - Theory & Practice in the Biological Sciences
ENY 3030C - Insect Field Biology
ENY 3163 - Invertebrate Field Biology
ENY 3563 - Introduction to Tropical Entomology
ENY 4161 - Insect Classification
FOR 3153C - Forest Ecology
FOR 3214C - Fire Ecology & Management
FOR 4060 - Global Forests
PCB 4043C - General Ecology
PCB 4674 - Evolution
PCB 4723C - Physiology & Molecular Biology of Animals
SOS 4244 - Wetlands

VME 4906 - Aquatic Animal Conservation Issues
WIS 3434 - Tropical Ecology
WIS 4443C - Wetland Wildlife Ecology
WIS 4905 - Biodiversity Conservation and Management
WIS 4905 - Namibian Field Mammalogy
WIS 4905 - Namibian Field Ornithology
WIS 4934 - Invasion Ecology
WIS 4934 - Big Game Ecology & Management
WIS 4934 - Ecology of Mammals
WIS 4934 - Reptiles & Amphibians
WIS 4934 - Upland Game Bird Ecology & Management
ZOO 2303C - Vertebrate Zoology
ZOO 3513C - Animal Behavior
ZOO 4435 - Comparative Biology of Birds & Mammals
ZOO 4472C - Avian Biology
WIS and other courses related to the biology and ecology of wildlife and natural resources not used to fulfill other requirements and approved by the department, including WIS 4905, 4906, 4941, and 4949, when appropriate.

Focus Area-Wildlife Management

Required Focus Area-Wildlife Management courses:
SWS 3022 & 3022L - Introduction to Soils in the Environment & Lab
WIS 4427C - Wildlife Habitat Management

Elective Focus Area-Wildlife Management courses: (Choose three; others may be taken if additional elective hours are needed)
AGR 3005 - Principles of Crop Science
AGG 3501 - Environment, Food, & Society
AGR 4231C - Forage Science & Range Management
AGR 4268C - Sustainable Agriculture Systems Analysis
ALS 3133 - Agricultural & Environmental Quality
ALS 3153 - Agricultural Ecology
ANS 3006C - Introduction to Animal Science
EES 4050 - Environmental Planning & Design
ENY 3228 - Urban Vertebrate Pest Management
FNR 4343C - Forest Water Resources
FNR 4623C - Integrated Natural Resource Management
FNR 4660C - Natural Resource Policy & Administration
FOR 3162C - Silviculture
FOR 3200C - Introduction to Forest Resources & Conservation
FOR 3214C - Fire Ecology & Management

FOR 3622C - Fire in Natural Resource Management
FOR 3855 - Agroforestry in the Southeast United States
FOR 4621 - Forest Economics & Management
FOR 4664 - Sustainable Ecotourism Development
GIS 3043 - Foundations of Geographic Information Systems
GEO 4120C - Air Photo Interpretation
GLY 2030C - Environmental & Engineering Geology
LEI 3250 - Introduction to Outdoor Recreation & Parks
LEI 3546 - Park Management
ORH 3000 - Introduction to Ecosystem Restoration
SOS 4231C - Soil, Water, & Land Use
SOS 4244 - Wetlands
SOS 4242 - Wetlands & Water Quality
SOS 4245 - Water Resource Sustainability
SUR 3331 & 3331L - Photogammetry & Lab
SUR 4380 - Remote Sensing
URP 4000 - Preview of Urban & Regional Planning
VME 4906 - Aquatic Animal Conservation Issues
WIS 4203C - Introduction to Landscape Ecology
WIS 4905 - Biodiversity Conservation and Management
WIS 4905 - Ecotourism Management in Namibia
WIS 4905 - Urban Sustainable Development and Planning
WIS 4934 - Big Game Ecology & Management
WIS 4934 - Upland Game Bird Ecology & Management
WIS 4501 - Introduction to Wildlife Population Ecology
WIS and other courses related to the management of wildlife and natural resources not used to fulfill other requirements and approved by the department, including WIS 4905, 4906, 4941, and 4949, when appropriate.

Focus Area-Human Dimensions

Required Focus Area-Human Dimensions courses:
WIS 4523 - Human Dimension of Natural Resource Conservation

Elective Focus Area-Human Dimensions courses: (Choose four; others may be taken if additional elective hours are needed)
AEB 2451 - Valuing Environmental Protection in Florida
AEB 3450 - Introduction to Natural Resource & Environmental Economics
AEB 4123 - Agricultural & Natural Resource Law
AEB 4126 - Agricultural & Natural Resource Ethics
AEB 4274 - Natural Resources & Environmental Policy
AEB 4283 - International Development Policy
AEB 4452 - Advanced Natural Resource & Environmental Economics

AEE 3070C - Digital Media Production in Agricultural & Life Sciences
AEE 3073 - Intercultural Communication
AEE 3208 - Instructional and Event Planning for Agriculture & Natural Resources
AEE 3313 - Development & Role of Extension Education
AEE 3413 - Working with People: Interpersonal Leadership Skills
AEE 3414 - Leadership Development in Agriculture & Natural Resources
AEE 4031 - The Communication Process in Agricultural & Life Sciences
AEE 4035 - Advanced Agricultural Communication Writing
AEE 4036 - Advanced Agricultural Communication Production
ECP 3302 - Environmental Economics & Resource Policy
EES 4050 - Environmental Planning & Design
FNR 4040C - Natural Resource Communication
FNR 4343C - Forest Water Resources
FNR 4623C - Integrated Natural Resource Management
FNR 4660C - Natural Resource Policy & Administration
FOR 3202 - Society & Natural Resources
FOR 4664 - Sustainable Ecotourism Development
FNR 4070C - Environmental Education Program
GEO 4554 - Regional Development
INR 4350 - International Environmental Relations
LEI 3250 - Introduction to Outdoor Recreation & Parks
LEI 3546 - Park Management
LEI 4833 - Ecotourism
PMH 3032 - Ethics & Ecology
POT 3503 - Environmental Ethics & Politics
PUP 3203 - Environmental Law & Policy
PUP 3204 - Politics & Ecology
PUP 4008 - Analyzing Public Policy
SCE 4342 - Environmental Education Methods & Materials
SPC 3602 - Advanced Public Speaking
URP 4000 - Preview of Urban & Regional Planning
VME 4906 - Aquatic Animal Conservation Issues
WIS 4203C - Introduction to Landscape Ecology
WIS 4905 - Biodiversity Conservation and Management
WIS 4905 - Ecotourism Management in Namibia
WIS 4905 - Urban Sustainable Development and Planning
WIS and other courses related to wildlife and natural resource policy, ethics, law, human dimensions, and communications not used to fulfill other requirements and approved by the department, including WIS 4905, 4906, 4941, and 4949, when appropriate.

Focus Area-Quantitative

Required Focus Area-Quantitative courses:
STA 3024 - Introduction to Statistics II
WIS 4501 - Wildlife Population Ecology

Elective Focus Area-Quantitative courses: (Choose three; others may be taken if additional elective hours are needed)
CAP 4800 - Systems Simulation
CGS 3460 - Computer Programming Using C
CGS 3464 - Computer Programming Using C++
CIS 3020 - Introduction CIS
COT 3100 - Applications of Discrete Structures
COP 3530 - Data Structures & Algorithms
COP 4331 - Object-oriented Programming
COT 4501 - Numerical analysis-A Computational Approach
GEO 4120C - Air Photo Interpretation
MAC 2312 - Analytical Geometry & Calculus II
MAC 2313 - Analytical Geometry & Calculus III
MAS 4105 - Linear Algebra I
MAD 4401 - Introduction to Numerical Analysis
MAP 2302 - Elementary Differential Equations
MAP 4101 - Probability Theory & Stochastic I
MAP 4102 - Probability Theory & Stochastic II
MAS 3114 - Computational Linear Algebra
STA 4210 - Regression Analysis
STA 4222 - Sample Survey Design
STA 4504 - Categorical Data Analysis
STA 4702 - Multivariate Statistical Methods
STA 4321 - Mathematical Statistics I
SUR 3331 & 3331L - Photogammetry & Lab
SUR 4380 - Remote Sensing
WIS 4203C - Introduction to Landscape Ecology
WIS 4542L - Wildlife Population Analysis
WIS 4547C - Avian Field Techniques
WIS and other courses related to quantitative aspects of wildlife and natural resources not used to fulfill other requirements and approved by the department, including WIS 4905, 4906, 4941, and 4949, when appropriate.

Focus Area-Urban & Regional Planning

This is a Combined Degree Program (BS in WEC and MS in URP) where students take 21 credits of focus and elective courses as graduate URP courses and then complete an additional 31 credits of URP graduate coursework during a fifth year of study.

Summer Course Options

While no courses need to be taken during the summer semester to complete the degree program, several required or recommended courses are offered during the summer and may reduce fall/spring course loads. Additionally, some courses that may fulfill focus area requirements are only offered during summer.

AEB 2104 - Economic Issues, Food and You
AEE 3030C - Effective Oral Communication
AEE 3033C - Writing for Agriculture & Natural Resources
AEE 3070C - Digital Media Production in Agricultural & Life Sciences
ALS 3133 - Agricultural & Environmental Quality
ANS 3006C - Introduction to Animal Science
BOT 2011C - Plant Diversity
BOT 3151C - Local Flora of North Florida
BSC 2010 & 2010L - Integrated Principles of Biology I & Lab
BSC 2011 & 2011L - Integrated Principles of Biology II & Lab
CHM 2045 & 2045L - General Chemistry 1 & Lab
CHM 2046 & 2046L - General Chemistry 2 & Lab
ENC 2210 - Technical Writing
ECO 2023 - Principles of Microeconomics
ENY 3005 & 3005L - Principles of Entomology & Lab
ENY 3563 - Introduction to Tropical Entomology
ENY 4161 - Insect Classification
FAS 5276C - Field Ecology of Aquatic Organisms
MAC 22311 - Analytic Geometry and Calculus 1
MAC 2312 - Analytic Geometry and Calculus 2
SOS 3022 - Introduction to Soils in the Environment
STA 2023 - Introduction to Statistics I
STA 3024 - Introduction to Statistics II
WIS 2552 - Biodiversity Conservation
WIS 4547C - Avian Field Techniques
WIS 4905 - Biodiversity Conservation and Management
WIS 4905 - Ecotourism Management in Namibia
WIS 4905 - Namibian Field Mammalogy
WIS 4905 - Namibian Field Ornithology

Professional Certifications

The Wildlife Society Certification Program

Certification as an Associate Wildlife Biologist can be met with the following choices as part of the WEC curriculum:

- ***Fulfill two*** **of the Humanity** (GE-H), Social and Behavioral Sciences (GE-S), and/or focal area course electives (6 credits) using economics, sociology, psychology, political science, government, history, literature, or foreign language courses ***in addition*** to the Economics Elective course.

- ***Complete a course*** **designed to improve communications skills** such as English composition, technical writing, journalism, public speaking, or use of mass media, ***in addition*** to the required Composition (GE-C), AEE 3030C, and AEE 3033C courses (for a total of 12 credits of communications skills courses). Possible courses include, but are not limited to, AEE 4035 - Advanced Agricultural Communication Writing, AEE 4036 - Advanced Agricultural Communication Production, SPC 3602 - Advanced Public Speaking, and ZOO 4950 - Writing in the Biological Sciences; if any of these courses are used to fulfill certification requirements they may be substituted for elective focal area courses. Note: The Wildlife Society may accept a 6,000 word, writing-intensive Humanities course taken to fulfill UF writing requirements as 3 credits of communication courses if the other 9 credits of communications courses come from "traditional" composition, writing, and communications courses.

- ***Complete ≥5 credits*** **of physical science**, including chemistry, physics, geology, or soils, ***in addition*** to the courses in chemistry. Possible courses include, but are not limited to, GLY 1150L - Florida Geology Laboratory, GLY 2010C - Physical Geology, GLY 2030C - Environmental & Engineering Geology, SOS 4231C - Soil, Water, & Land Use, SOS 4244 - Wetlands, SWS 3022 & 3022L - Introduction to Soils in the Environment & Lab (these courses are already required in Ecology and Management focus areas; students in these focus areas will need only ≥1 additional physical science credits to meet the requirements), or any soils course; if any of these courses are used to fulfill certification requirements they may be substituted for elective focal area courses. Certification requires 9 credits of physical science representing at least 2 disciplines (e.g., soils and chemistry).

- **Complete 6 credits of Wildlife Management** courses, defined as courses emphasizing principles and practices of wildlife management; and demonstrate understanding and manipulating habitat relationships and population dynamics in the context of objectives and influences established by human concerns and activities. WIS 3401 - Wildlife Ecology & Management fulfills 3 credits. However, other required core courses may not be accepted. With the exception of the Management focus area, which requires habitat management that will be accepted as a management course, to assure meeting this requirement students need to take another management-oriented course.

- **Complete 6 credits of Wildlife Biology** courses, defined as courses in the biology and behavior of birds, mammals, reptiles, or amphibians; and demonstrate training and understanding the biology of wildlife species and their habitat relationships as the basis for management, and must include at least one course dealing **solely** with the science of mammalogy, ornithology, **or** herpetology. WIS 3402 & 3402L - Wildlife of Florida and lab fulfills 3 credits. The other courses within the Wildlife Biology Common Requirement, with the

exception of ZOO 2303C - Vertebrate Zoology that may not be accepted, will allow the other 3 credits to be fulfilled.
Certification as a Certified Wildlife Biologist requires fulfilling the requirements for the Associate Wildlife Biologist and obtaining 5 years of full-time employment as a wildlife professional.

The Ecological Society of America Certification Program

Certification as an Associate Ecologist can be met by graduating with the WEC BS degree (any focal area) as long as ≥5 additional physical and mathematical science courses credits are obtained ***in addition*** to the required chemistry and mathematics courses and obtaining at least one year of post-graduate professional experience gained in the performance of research or development of methods demonstrating technical competence in the current application of ecological principles and/or theory to decision making.

Certification as an Ecologist can be met by the successful completion of a master's or higher degree in ecology or a related science from an accredited college or university, and at least two years of full-time equivalent professional experience after degree, ***or*** at least 5 years of professional experience in addition to the education requirement for Associate Ecologist. In addition to experience required for Associate Ecologist, demonstration of ability to perform professional work in ecology such as independent studies, complex data analyses, and formulation and testing of hypotheses must follow completion of the master's degree or the degree level used to qualify for Ecologist's level.

Certification as a Senior Ecologist Successful completion of a doctoral degree in ecology or a related science from an accredited college or university, and at least five years of professional experience, ***or*** at least 10 years professional experience in addition to the education requirement for Ecologist. Additional experience necessary to qualify at this level includes: a) demonstration, in work output, of thorough knowledge of the literature, scientific principles and theories of ecology, b) demonstration of written original contributions or original interpretation of ecological information, and c) demonstration of technical or organizational competence as evidenced by supervision of projects. Experience must follow completion of the degree level used to qualify for Ecologist. An applicant who does not qualify under the above criteria may submit a statement to the Board of Professional Certification explaining why and how the intent of the education and experience requirements is satisfied.

Department of Wildlife Ecology and Conservation
Undergraduate Course Instructor Evaluations
Most recent year taught

Course	Mean for Section(s)	Mean for Department	Mean for College	Instructor	Term	Respondents
WIS 2040 Wildlife Issues in a Changing World						
Instructor Evaluation	3.83/4.07	4.13	4.29	Moulton	Fall 2009	87/212
Instructor Overall	3.85/4.16	4.21	4.34	Moulton	Fall 2009	87/212
Course Overall Evaluation	3.69/3.98	3.93	4.14	Moulton	Fall 2009	87/212
Additional Questions	4.02/4.22	4.17	4.29	Moulton	Fall 2009	87/212
Laboratory Evaluation	4.06/4.07	4.04	4.42	Moulton	Fall 2009	87/212
WIS 2552 Biodiversity Conservation: Global Perspectives						
Instructor Evaluation	3.62	4.13	4.29	Moulton	Fall 2009	40
Instructor Overall	3.65	4.21	4.34	Moulton	Fall 2009	40
Course Overall Evaluation	3.19	3.93	4.14	Moulton	Fall 2009	40
Additional Questions	3.85	4.17	4.29	Moulton	Fall 2009	40
Laboratory Evaluation	4.29	4.04	4.42	Moulton	Fall 2009	40
WIS 3401 Wildlife Ecology and Management						
Instructor Evaluation	4.12	4.13	4.29	Giuliano	Fall 2009	64
Instructor Overall	4.26	4.21	4.34	Giuliano	Fall 2009	64
Course Overall Evaluation	3.95	3.93	4.14	Giuliano	Fall 2009	64
Additional Questions	4.21	4.17	4.29	Giuliano	Fall 2009	64
Laboratory Evaluation	3.67	4.04	4.42	Giuliano	Fall 2009	64
WIS 3401 Wildlife Ecology and Management						
Instructor Evaluation	4.69	4.10	4.36	Johnson	Spring 2009	3
Instructor Overall	5.00	4.16	4.42	Johnson	Spring 2009	3
Course Overall Evaluation	4.50	4.09	4.23	Johnson	Spring 2009	3
Additional Questions	4.25	4.18	4.34	Johnson	Spring 2009	3
Laboratory Evaluation	4.50	4.28	4.46	Johnson	Spring 2009	3

WIS 3401 Wildlife Ecology and Management						
Instructor Evaluation	4.57	4.17	4.30	Miller	Fall 2008	7
Instructor Overall	4.57	4.24	4.35	Miller	Fall 2008	7
Course Overall Evaluation	4.43	4.03	4.16	Miller	Fall 2008	7
Additional Questions	4.71	4.29	4.30	Miller	Fall 2008	7
Laboratory Evaluation	5.00	4.03	4.33	Miller	Fall 2008	7
WIS 3401L Wildlife Ecology and Management Lab						
Instructor Evaluation	4.81	4.10	4.36	Johnson	Spring 2009	3
Instructor Overall	4.67	4.16	4.42	Johnson	Spring 2009	3
Course Overall Evaluation	4.67	4.09	4.23	Johnson	Spring 2009	3
Additional Questions	4.67	4.18	4.34	Johnson	Spring 2009	3
Laboratory Evaluation	4.67	4.28	4.46	Johnson	Spring 2009	3
WIS 3402 Wildlife of Florida						
Instructor Evaluation	4.76	4.17	4.30	Johnson	Fall 2008	6
Instructor Overall	4.83	4.24	4.35	Johnson	Fall 2008	6
Course Overall Evaluation	4.83	4.03	4.16	Johnson	Fall 2008	6
Additional Questions	5.00	4.29	4.30	Johnson	Fall 2008	6
Laboratory Evaluation	5.00	4.03	4.33	Johnson	Fall 2008	6
WIS 3402 Wildlife of Florida						
Instructor Evaluation	4.37	4.10	4.36	Miller	Spring 2009	13
Instructor Overall	4.67	4.16	4.42	Miller	Spring 2009	13
Course Overall Evaluation	4.31	4.09	4.23	Miller	Spring 2009	13
Additional Questions	4.42	4.18	4.34	Miller	Spring 2009	13
Laboratory Evaluation	4.36	4.28	4.46	Miller	Spring 2009	13
WIS 3402 Wildlife of Florida						
Instructor Evaluation	4.46	4.10	4.36	Sunquist	Spring 2009	81
Instructor Overall	4.54	4.16	4.42	Sunquist	Spring 2009	81
Course Overall Evaluation	4.51	4.09	4.23	Sunquist	Spring 2009	81
Additional Questions	4.40	4.18	4.34	Sunquist	Spring 2009	81
Laboratory Evaluation	4.38	4.28	4.46	Sunquist	Spring 2009	81

WIS 3402L Wildlife of Florida Lab						
Instructor Evaluation	4.83	4.17	4.30	Johnson	Fall 2008	6
Instructor Overall	5.00	4.24	4.35	Johnson	Fall 2008	6
Course Overall Evaluation	5.00	4.03	4.16	Johnson	Fall 2008	6
Additional Questions	4.83	4.29	4.30	Johnson	Fall 2008	6
Laboratory Evaluation	5.00	4.03	4.33	Johnson	Fall 2008	6
WIS 3402L Wildlife of Florida Lab						
Instructor Evaluation	4.33	4.10	4.36	Miller	Spring 2009	14
Instructor Overall	4.43	4.16	4.42	Miller	Spring 2009	14
Course Overall Evaluation	4.36	4.09	4.23	Miller	Spring 2009	14
Additional Questions	4.36	4.18	4.34	Miller	Spring 2009	14
Laboratory Evaluation	4.65	4.28	4.46	Miller	Spring 2009	14
WIS 3402L Wildlife of Florida Lab						
Instructor Evaluation	4.46/4.43	4.10	4.36	Sunquist	Spring 2009	23/17
Instructor Overall	4.65/4.53	4.16	4.42	Sunquist	Spring 2009	23/17
Course Overall Evaluation	4.26/4.41	4.09	4.23	Sunquist	Spring 2009	23/17
Additional Questions	4.17/4.67	4.18	4.34	Sunquist	Spring 2009	23/17
Laboratory Evaluation	4.28/4.63	4.28	4.46	Sunquist	Spring 2009	23/17
WIS 3403C Perspectives in Wildife Ecology and Conservation						
Instructor Evaluation	4.06/4.40/4.21	4.13	4.29	Sieving	Fall 2009	15/18/16
Instructor Overall	4.21/4.61/4.27	4.21	4.34	Sieving	Fall 2009	15/18/16
Course Overall Evaluation	3.47/4.11/3.56	3.93	4.14	Sieving	Fall 2009	15/18/16
Additional Questions	3.59/4.42/4.06	4.17	4.29	Sieving	Fall 2009	15/18/16
Laboratory Evaluation	3.56/4.26/3.91	4.04	4.42	Sieving	Fall 2009	15/18/16
WIS 3434 Tropical Wildlife						
Instructor Evaluation	4.67	4.20	4.27	Bruna	Fall 2007	20
Instructor Overall	4.75	4.28	4.32	Bruna	Fall 2007	20
Course Overall Evaluation	4.58	4.16	4.12	Bruna	Fall 2007	20
Additional Questions	4.65	4.18	4.23	Bruna	Fall 2007	20
Laboratory Evaluation	5.00	4.09	4.31	Bruna	Fall 2007	20

WIS 3553 Introduction to Conservation Genetics						
Instructor Evaluation	4.33	4.10	4.36	Austin	Spring 2009	42
Instructor Overall	4.50	4.16	4.42	Austin	Spring 2009	42
Course Overall Evaluation	4.17	4.09	4.23	Austin	Spring 2009	42
Additional Questions	4.49	4.18	4.34	Austin	Spring 2009	42
Laboratory Evaluation	4.00	4.28	4.46	Austin	Spring 2009	42
WIS 4203C Introduction to Landscape Ecology						
Instructor Evaluation	4.47	4.10	4.36	Fletcher	Spring 2009	20
Instructor Overall	4.50	4.16	4.42	Fletcher	Spring 2009	20
Course Overall Evaluation	4.25	4.09	4.23	Fletcher	Spring 2009	20
Additional Questions	4.37	4.18	4.34	Fletcher	Spring 2009	20
Laboratory Evaluation	4.38	4.28	4.46	Fletcher	Spring 2009	20
WIS 4427C Wildlife Habitat Management						
Instructor Evaluation	4.26	4.10	4.36	Willcox	Spring 2009	24
Instructor Overall	4.36	4.16	4.42	Willcox	Spring 2009	24
Course Overall Evaluation	4.00	4.09	4.23	Willcox	Spring 2009	24
Additional Questions	4.22	4.18	4.34	Willcox	Spring 2009	24
Laboratory Evaluation	5.00	4.28	4.46	Willcox	Spring 2009	24
WIS 4443C Wetland Wildlife Ecology						
Instructor Evaluation	4.50	4.14	4.33	Miller	Spring 2008	11
Instructor Overall	4.55	4.22	4.40	Miller	Spring 2008	11
Course Overall Evaluation	4.27	4.02	4.20	Miller	Spring 2008	11
Additional Questions	4.33	4.19	4.28	Miller	Spring 2008	11
Laboratory Evaluation	4.34	4.09	4.35	Miller	Spring 2008	11
WIS 4501 Introduction to Wildlife Population Ecology						
Instructor Evaluation	3.53	4.10	4.36	Oli	Spring 2009	33
Instructor Overall	3.56	4.16	4.42	Oli	Spring 2009	33
Course Overall Evaluation	3.18	4.09	4.23	Oli	Spring 2009	33
Additional Questions	3.68	4.18	4.34	Oli	Spring 2009	33
Laboratory Evaluation	3.42	4.28	4.46	Oli	Spring 2009	33

WIS 4523 Human Dimensions of Natural Resource Conservation						
Instructor Evaluation	4.46	4.13	4.29	Jacobson	Fall 2009	19
Instructor Overall	4.44	4.21	4.34	Jacobson	Fall 2009	19
Course Overall Evaluation	4.11	3.93	4.14	Jacobson	Fall 2009	19
Additional Questions	4.47	4.17	4.29	Jacobson	Fall 2009	19
Laboratory Evaluation	5.00	4.04	4.42	Jacobson	Fall 2009	19
WIS 4547C Avian Field Techniques						
Instructor Evaluation	5.00	4.11	4.52	Sieving	Summer 2009	13
Instructor Overall	5.00	4.14	4.60	Sieving	Summer 2009	13
Course Overall Evaluation	5.00	4.19	4.45	Sieving	Summer 2009	13
Additional Questions	5.00	3.44`	3.48	Sieving	Summer 2009	13
Laboratory Evaluation	5.00	N/A	N/A	Sieving	Summer 2009	13
WIS 4554 Conservation Biology						
Instructor Evaluation	4.29	4.13	4.29	Branch	Fall 2009	30
Instructor Overall	4.41	4.21	4.34	Branch	Fall 2009	30
Course Overall Evaluation	4.20	3.93	4.14	Branch	Fall 2009	30
Additional Questions	4.25	4.17	4.29	Branch	Fall 2009	30
WIS 4601C Quantitative Wildlife Ecology						
Instructor Evaluation	4.03	4.10	4.36	Giuliano	Spring 2009	10
Instructor Overall	4.30	4.16	4.42	Giuliano	Spring 2009	10
Course Overall Evaluation	3.70	4.09	4.23	Giuliano	Spring 2009	10
Additional Questions	4.10	4.18	4.34	Giuliano	Spring 2009	10
Laboratory Evaluation	3.72	4.28	4.46	Giuliano	Spring 2009	10
WIS 4945C Wildlife Techniques						
Instructor Evaluation	4.96	4.10	4.36	Sunquist	Spring 2009	18
Instructor Overall	5.00	4.16	4.42	Sunquist	Spring 2009	18
Course Overall Evaluation	4.94	4.09	4.23	Sunquist	Spring 2009	18
Additional Questions	4.82	4.18	4.34	Sunquist	Spring 2009	18
Laboratory Evaluation	5.00	4.28	4.46	Sunquist	Spring 2009	18

WIS 4934 Ecology of Mammals						
Instructor Evaluation	4.11	4.13	4.29	Moulton	Fall 2009	34
Instructor Overall	4.06	4.21	4.34	Moulton	Fall 2009	34
Course Overall Evaluation	3.91	3.93	4.14	Moulton	Fall 2009	34
Additional Questions	3.92	4.17	4.29	Moulton	Fall 2009	34
Laboratory Evaluation	4.50	4.04	4.42	Moulton	Fall 2009	34
WIS 4934 Ecology of Mammals						
Instructor Evaluation	4.34	4.13	4.29	Sunquist	Fall 2009	30
Instructor Overall	4.45	4.21	4.34	Sunquist	Fall 2009	30
Course Overall Evaluation	4.17	3.93	4.14	Sunquist	Fall 2009	30
Additional Questions	4.16	4.17	4.29	Sunquist	Fall 2009	30
Laboratory Evaluation	5.00	4.04	4.42	Sunquist	Fall 2009	30
WIS 4934 Amphibians & Reptiles						
Instructor Evaluation	5.00/4.79	4.13	4.29	Johnson	Fall 2009	2/15
Instructor Overall	5.00/4.93	4.21	4.34	Johnson	Fall 2009	2/15
Course Overall Evaluation	4.50/4.80	3.93	4.14	Johnson	Fall 2009	2/15
Additional Questions	5.00/4.73	4.17	4.29	Johnson	Fall 2009	2/15

Department of Wildlife Ecology and Conservation
Graduate Course Instructor Evaluations
Most recent year taught

Course	Mean for Section	Mean for Department	Mean for College	Instructor	Term	Respondents
WIS 5496 Research Design in Wildlife Ecology						
Instructor Evaluation	4.66	4.13	4.29	Sieving	Fall 2009	21
Instructor Overall	4.80	4.21	4.34	Sieving	Fall 2009	21
Course Overall Evaluation	4.67	3.93	4.14	Sieving	Fall 2009	21
Additional Questions	4.68	4.17	4.29	Sieving	Fall 2009	21
Laboratory Evaluation	5.00	4.04	4.42	Sieving	Fall 2009	21
WIS 5521 Plant-Animal Interactions						
Instructor Evaluation	4.61	4.17	4.30	Bruna	Fall 2008	8
Instructor Overall	4.71	4.24	4.35	Bruna	Fall 2008	8
Course Overall Evaluation	4.38	4.03	4.16	Bruna	Fall 2008	8
Additional Questions	4.44	4.29	4.30	Bruna	Fall 2008	8
Laboratory Evaluation	5.00	4.03	4.33	Bruna	Fall 2008	8
WIS 5555C Conservation Biology						
Instructor Evaluation	4.76	4.13	4.29	Branch	Fall 2009	10
Instructor Overall	4.70	4.21	4.34	Branch	Fall 2009	10
Course Overall Evaluation	4.60	3.93	4.14	Branch	Fall 2009	10
Additional Questions	4.95	4.17	4.29	Branch	Fall 2009	10
Laboratory Evaluation	4.50	4.04	4.42	Branch	Fall 2009	10
WIS 6444 Advanced Wetlands Ecology						
Instructor Evaluation	4.22	4.11	4.52	Kitchens	Summer 2009	4
Instructor Overall	4.50	4.14	4.60	Kitchens	Summer 2009	4
Course Overall Evaluation	4.25	4.19	4.45	Kitchens	Summer 2009	4
Additional Questions	4.67	3.44	3.48	Kitchens	Summer 2009	4
Laboratory Evaluation	4.50	N/A	N/A	Kitchens	Summer 2009	4

WIS 6455 Wildlife Population Ecology						
Instructor Evaluation	3.70	4.10	4.36	Oli	Spring 2009	3
Instructor Overall	3.67	4.16	4.42	Oli	Spring 2009	3
Course Overall Evaluation	3.00	4.09	4.23	Oli	Spring 2009	3
Additional Questions	3.50	4.18	4.34	Oli	Spring 2009	3
WIS 6466 Wildlife Population Modeling						
Instructor Evaluation	3.51	4.14	4.33	Oli	Spring 2008	7
Instructor Overall	3.29	4.22	4.40	Oli	Spring 2008	7
Course Overall Evaluation	3.14	4.02	4.20	Oli	Spring 2008	7
Additional Questions	3.43	4.19	4.28	Oli	Spring 2008	7
WIS 6468C Pattern and Process in Landscape Ecology						
Instructor Evaluation	4.64	4.10	4.36	Fletcher	Spring 2009	19
Instructor Overall	4.68	4.16	4.42	Fletcher	Spring 2009	19
Course Overall Evaluation	4.47	4.09	4.23	Fletcher	Spring 2009	19
Additional Questions	4.03	4.18	4.34	Fletcher	Spring 2009	19
Laboratory Evaluation	4.57	4.28	4.46	Fletcher	Spring 2009	19
WIS 6525 Environmental Interpretation						
Instructor Evaluation	4.53	4.17	4.30	Jacobson	Fall 2008	6
Instructor Overall	4.63	4.24	4.35	Jacobson	Fall 2008	6
Course Overall Evaluation	4.38	4.03	4.16	Jacobson	Fall 2008	6
Additional Questions	3.94	4.29	4.30	Jacobson	Fall 2008	6
WIS 6544 Administration in Natural resources						
Instructor Evaluation	4.60	4.10	4.36	Percival	Spring 2009	9
Instructor Overall	5.00	4.16	4.42	Percival	Spring 2009	9
Course Overall Evaluation	4.33	4.09	4.23	Percival	Spring 2009	9
Additional Questions	4.50	4.18	4.34	Percival	Spring 2009	9
Laboratory Evaluation	4.25	4.28	4.46	Percival	Spring 2009	9

WIS 6575 Mammalian Carnivores: Conservation and Management Issues						
Instructor Evaluation	4.64	4.10	4.36	Sunquist	Spring 2009	12
Instructor Overall	4.67	4.16	4.42	Sunquist	Spring 2009	12
Course Overall Evaluation	4.58	4.09	4.23	Sunquist	Spring 2009	12
Additional Questions	4.76	4.18	4.34	Sunquist	Spring 2009	12
Laboratory Evaluation	5.00	4.28	4.46	Sunquist	Spring 2009	12
WIS 6578 Human Dimensions of Biological Conservation						
Instructor Evaluation	4.55	4.13	4.29	Jacobson	Fall 2009	13
Instructor Overall	4.75	4.21	4.34	Jacobson	Fall 2009	13
Course Overall Evaluation	4.08	3.93	4.14	Jacobson	Fall 2009	13
Additional Questions	4.42	4.17	4.29	Jacobson	Fall 2009	13
WIS 6934 Molecular Ecology						
Instructor Evaluation	4.13	4.10	4.36	Austin	Spring 2009	9
Instructor Overall	4.11	4.16	4.42	Austin	Spring 2009	9
Course Overall Evaluation	3.89	4.09	4.23	Austin	Spring 2009	9
Additional Questions	4.28	4.18	4.34	Austin	Spring 2009	9
Laboratory Evaluation	3.77	4.28	4.46	Austin	Spring 2009	9
WIS 6934 Foundations of Wildlife Ecology and Conservation						
Instructor Evaluation	4.84	4.13	4.29	Hayes	Fall 2009	17
Instructor Overall	4.87	4.21	4.34	Hayes	Fall 2009	17
Course Overall Evaluation	4.59	3.93	4.14	Hayes	Fall 2009	17
Additional Questions	4.24	4.17	4.29	Hayes	Fall 2009	17