

ANNUAL REPORT: June 1, 2011 – May 31, 2012
(i.e., Summer 2011, AY 2011-2012)
DEPARTMENT OF ENVIRONMENTAL AND FOREST BIOLOGY
SUNY-ESF

NAME: Jacqueline Leigh Frair

I. INSTRUCTIONAL ACTIVITIES

1. Regular Course Offerings

| | <u>Course No.</u> | <u>Title</u> | <u>Credit Hrs.</u> | <u>No. Students</u> | <u>No. of Lab. Sections</u> |
|---------|-------------------------------|---|--------------------|---------------------|-----------------------------|
| SUMMER: | EFB 496 | Wildlife Techniques <i>(co-taught with Greg Shriver; considering substantial changes to the course and have therefore not yet formally listed it)</i> | 3 | 13 | |
| FALL: | EFB 796/ FOR 796 | Quantitative Methods and Models in R <i>(co-taught with John Stella; have offered this course for several years but with different co-instructors so am waiting to officially list it until after the next offering)</i> | 3 | 18 | 1 |
| SPRING: | EFB 491 EFB 495 ESF 499 | Applied Wildlife Science Undergraduate Teaching Experience Honors Thesis / Project | 3 3 1 | 39 3 1 | 1 |

NOTE: PLEASE INDICATE WHICH COURSE(S) HAD A SERVICE-LEARNING COMPONENT AND BRIEFLY EXPLAIN THE NATURE OF THIS COMPONENT. For examples of service-learning in courses, see: <http://www.esf.edu/students/service/courses.htm>. Service-learning is a form of structured experiential education in which students engage with the community to be active learners, to enrich their sense of civic responsibility, and to explore practical application for course content. Faculty oversight, reflective thinking, and reciprocity are key components of service-learning. EFB courses currently listed with service-learning components include: 416/6/1, 486, 518, 521, 532, 446/646.

- EFB 496 (Wildlife Techniques) has a service-learning component where students engage with both the NYS Department of Environmental Conservation and the general public on a long-term wildlife population survey at the Wilson Hill Wildlife Management Area. This annual “goose round-up” involves herding flightless (molting) geese into pens to affix or read existing leg bands. The goals are to collect biological data on the Canada geese populations and also to bring together as many people and organizations as possible at a conservation event to improve communication and understanding. Each year over 140 people participate in the drive, and this wildlife techniques class has been involved for the past 4 summers through my class. Students receive training on how to handle large numbers of birds, proper techniques of aging and sexing geese, as well as techniques for involving the public in conservation activities. In some years we participate in additional goose drives, such as one at Saranac Lake two years ago that gave a much more personal involvement of students with the public and even led to interviews with the press.
- EFB 496 (Hunter and Trapper Education for Wildlife Professionals) is fundamentally a service-learning oriented course. Students actively engage with the hunting and trapping public both

through the training they receive for the different certification components and also in spending weekends at hunter check stations recording the demographic composition of harvested waterfowl and deer.

2. Non-Scheduled Course Offerings (e.g., 496, 899, 999)

| <u>Course No.</u> | <u>Title</u> | <u>Credit Hrs.</u> | <u>No. Students</u> |
|-------------------|---|--------------------|---------------------|
| EFB 796 | Applied Wildlife Science <i>(first time offering at grad level)</i> | 3 | 1 |
| EFB 796 | Conservation Conversation <i>(co-lead with S. Ryan and J. Gibbs)</i> | 1 | 4 |
| EFB 496 | Hunter and Trapper Education for Wildlife Professionals <i>(co-taught with Ron Giegerich)</i> | 3 | 39 |
| EFB 796 | Teaching Experience in Wildlife | 3 | 2 |
| EFB 420 | Internship in EFB | 3 | 4 |
| EFB 498 | Research Problems in EFB (Fall) | 1-2 | 6 |
| EFB 498 | Research Problems in EFB (Spring) | 1-3 | 8 |
| EFB 798 | Research Problems in EFB (Fall) | 2 | 1 |
| EFB 798 | Research Problems in EFB (Spring) | 3 | 1 |

3. Continuing Education and Extension (short courses, workshops, etc.)

- Geospatial Skills Workshop
1-day workshop at The Wildlife Society annual conference, Hawaii, 5 Nov 2011
Co-lead with Hawthorne Beyer
- Likelihood and Bayesian Approaches to Data Analysis for Ecologists
5-day workshop at SUNY ESF, 29 May-2 June 2012
Co-lead with Juan Manuel Morales

4. Guest Lecture Activities

| <u>Course No.</u> | <u>Title</u> | <u>No. of Lectures</u> |
|-------------------|---|------------------------|
| EFB 132 | Freshman Orientation Seminar | 1 |
| FOR 796 | Quantifying Uncertainty in Ecological Studies | 1 |

II. STUDENT ADVISING

- A. Number of undergraduates for whom you are the student's official advisor 28 and unofficial advisor 20
- B. Graduate Students: (Name, degree sought, starting date, month & year; if a degree was completed, please give date and full citation for the thesis or dissertation).

MAJOR PROFESSOR

- Allison Devlin, Ph.D., started Aug 2010
- Scott Warsen, M.S., started Jan 2010 – defended May 2012, “Evolving niche of coyotes in the Adirondack Mountains of New York: long-term dietary trends and interspecific competition”

- Sara Hansen, M.S., started Aug 2009
- Andrew MacDuff, M.S., started Aug 2009
- Robin Holevinski, Ph.D., started Aug 2007

CO-MAJOR PROFESSOR

- Ana-Patricia Calderon, M.S., started Aug 2011 (co-advise with James Gibbs)

MEMBER, STEERING COMMITTEE (other than those listed above)

- Courtney LaMere (EFB; McNulty), M.S. – defended Apr 2012, “Influence of variable mast production on American Black Bear reproduction and human-bear conflicts in the Adirondack Mountains of NY State”
- Elizabeth Hunter (EFB; Gibbs), M.S. – defended Apr 2012, “Ecosystem restoration through the introduction of ecological analog giant tortoises to Pinta Island, Galapagos”
- Brian Henning (EFB; Farrell), M.S. – defended May 2012, “Fish assemblage structure and responses to restored connectivity in the upper St. Lawrence River”
- Natasha Karniski (EFB; Lomolino), M.S.
- Michael Fishman (EFB; Gibbs), M.S.
- Brigham Whitman (EFB; Porter), M.S.
- Maureen Durkin (EFB; Cohen), M.S.
- Elaina Burns (EFB; Underwood), M.S.
- C.J. Hazell (EFB; Shields), Ph.D.

CHAIRMAN OR READER ON THESIS EXAMS, ETC.

III. RESEARCH COMPLETED OR UNDERWAY

A. Departmental Research (unsupported, boot-legged; title - % time spent)

- Central East Slopes Elk and Wolf Study (ongoing collaboration, unsupported, 2% AY)
- UMEB mentor to Erin Moody and Nory Alexander (1% AY)
- Honors thesis mentor to David Keiter (1% AY)

B. 1. Grant-supported Research (source, subject, amount - total award and current year, award period starting and ending dates; list graduate research assistants supported by each grant)

- Northern States Research Cooperative, “Quantifying beaver impacts on Adirondack forest communities at a landscape scale”, \$106,866, Sep 2012-Aug 2014. PI(s) J. Stella, E. Bevilacqua, and J. Frair.
- Panthera, Inc. “Validation of the critical jaguar corridor in eastern Guatemala”, \$12,035, Jan-Dec 2012. Field support for Ana-Patricia Calderon Quinonez (co-advise with J. Gibbs).
- SUNY ESF/ INECOL, “Phylogeography and recent genetic structure changes of the Neotropical Otter, *Lontra longicaudis*”, \$5,250, Dec 2011-Dec 2012. PI(s): Carolina Valdespino (INECOL) and J. Frair.
- SUNY ESF/ INECOL, “Biosphere reserves for multi-nuclei conservation: workshop and location assessment to write a NSF Dynamics of Coupled Natural and Human Systems grant”, \$5,000, Dec 2011-Dec 2012. PI(s): S. Diemont, J. Frair, and Sergio Guevara Sada (INECOL).

- Northern States Research Cooperative, “Niche of the ‘coy-wolf’ and implications for biodiversity in northeastern forests”, \$40,045, Jun 2010-Dec 2011 (extended to Dec 2012), provided partial support for Scott Warsen (M.S.). PI(s) J. Frair and M. Teece.
- NY State Department of Environmental Conservation (Federal pass-through - USFWS), “Population Status and Foraging Ecology of Eastern Coyotes in NY State”, \$678,704, Jan 2007-Dec 2011 (extended to Dec 2012), provided partial support for Sara Hansen (M.S.) and full support for Robin Holevinski (Ph.D.). PI(s) J. Frair and J.P. Gibbs.
- NY State Department of Environmental Conservation (Federal pass-through – USFWS), “Non-harvest based assessment of river otter populations in New York”, \$160,538, Apr 2010-Mar 2012, provided research support to Andrew MacDuff (M.S.). PI: J. Frair.

Procured by my graduate students:

- Panthera, “Population viability analysis, comparative ecology & genetics of jaguar (*Panthera onca*) in the Pantanal, Brazil”, \$12,000, Jan-Dec 2011 (extended to Dec 2012). PI: A. Devlin.

2. Research Proposals pending (include information as in B.1., above).

- Panthera, Inc. “Validation of the critical jaguar corridor in eastern Guatemala” (second year of study), \$12,000, Jan-Dec 2013. Field support for Ana-Patricia Calderon Quinonez (co-advised with J. Gibbs).

3. Research Proposals submitted, but rejected (include information as in B.1, above)

- ESF Seed Grant Program, “Strong inference for directed management of predators: case study with coyotes”, \$8,352.
- McIntire-Stennis Program pre-proposal, “Critical tests of the role of managed forests and protected lands in stemming biodiversity losses”, PI(s): J. Frair and J. Cohen.

IV. PUBLICATIONS (Full bibliographic citation, i.e., do not use "with Jones," or "Jones, et al."; please list only publications published, in press, or actually submitted during this reporting period --- **do not list manuscripts in preparation**).

A. Refereed Publications

Campbell, S.P., **Frair, J.L.**, Gibbs, J.P., and Volk, T.A. (in press) Use of short-rotation coppice willow plantations by birds and small mammals in central New York. *Biomass and Bioenergy*.

Leblond, M., **Frair, J.**, Dussault, C., Fortin, D., Courtois, R., Lefort, S., Ouellet, P. and Poulin, M. (2011) Assessing the influence of resource covariates at multiple scales: an application to forest-dwelling caribou faced with intensive human activity. *Landscape Ecology*, 10: 1433-1446.

Eager, P.T., Allen, D.C., **Frair, J.L.**, and Fierke, M.K. (2011) Within-tree distributions of the *Sirex noctilio* Fabricius (Hymenoptera: Siricidae) – parasitoid complex and development of an optimal sampling scheme. *Environmental Entomology*, 40(5): 1266-1275.

B. Non-refereed Publications

C. Papers Presented at Science Meetings (give title, date, occasion, and location)

Presented by co-authors:

Modeling the cumulative effects of wolves and industrial activities on habitat effectiveness for elk in the montane and boreal forests of the Rocky Mountains of Alberta, Canada, presented by E.H. Merrill (University of Alberta), annual meeting of the Canadian Section of The Wildlife Society, Alberta, Canada (2011)

Sélection d'habitat du caribou forestier en forêt aménagée : l'importance de considérer plusieurs échelles spatiales, presented by Mathieu Leblond, Ph.D. student at the Université du Québec à Rimouski. Société Québécoise pour l'Étude Biologique du Comportement, Sherbrooke, Québec, Canada (2011)

Estimating coyote abundance in NY via vocalizations and distance sampling, presented by S. Hansen (M.S. student in the Frair lab)

—Northeast Fish and Wildlife Conference, Manchester, NH (2011)

—Spotlight on Student Research, SUNY ESF, Syracuse, NY (2011), poster presentation

**** Received award for first place**

—The Wildlife Society Annual Conference, Snowbird, UT (2010)

D. Public Service Presentations (lectures, seminars, etc. to and for the public; give group or occasion, date(s), and attendance)

ESF Foundation Board of Directors Meeting – Blue Mountain Lake, NY (2011)

NY State DEC Regional Directors Meeting – Hamilton, NY (2011)

Erie County Federation of Sportsman's Clubs – Armor, NY (2011; 450 people)

Public talks given by my graduate students on coyote research

Victory Sportsmen Expo – Painted Post, NY (2011)

New York Houndsmen Annual meeting – Camden, NY (2011)

Tioga County and surrounding Sportsmen Federations – Owego, NY (2011)

NY State Trappers Association Annual Meeting – Delmar, NY (2011)

Affiliated Conservation Clubs of Madison County (2011)

Camillus Middle School (2011)

Montezuma Wildlife Refuge (2011)

V. PUBLIC SERVICE

A. Funded Service (include consulting activities)

1. Government Agencies (Federal, State, Local):

Consulted on wildlife injury assessment (~10 hrs)

2. Industrial and Commercial Groups, etc.

B. Unfunded Service to Governmental Agencies, Public Interest Groups, etc.

Binghamton University, consulted on deer management issue (~4 hrs)

NY State Fish and Wildlife Management Advisory Board, SUNY ESF Science Advisor

- 4 Oct 2011 (unable to make meeting but sent report)

- 27 Apr 2012 (day-long meeting)

NY State Biodiversity Conservation Advisory Committee, member

VI. PROFESSIONAL DEVELOPMENT

A. Professional Honors and Awards (for teaching, research, outreach, etc.)

2011 Wildlife Publication Award – The Wildlife Society, National Chapter, for co-authored paper Beyer et al. (2010), PTRSB 365 (1550): 2245-2254. Awarded at national conference, November 2011.

B. 1. Activities in Professional Organizations (offices held, service as chairman, member, participant or consultant)

The Wildlife Society

— College and University Wildlife Education Working Group (member, 2011-present)

— Marcellus Shale Working Group (chair, 2011-present)

— Shale Development Impacts on Wildlife Technical Review, panel member (2011-present)

2. Professional Society Membership

The Wildlife Society

Society for Conservation Biology

Ecological Society of America

3. Other Professional Activities

a. Editorial activity

Journal (s)
Journal of Applied Ecology

Responsibility
Associate Editor

Other (books, symposia, etc.)

b. Reviewer

Journal(s)
Diversity and Distributions
Ecological Applications
Journal of Applied Ecology
Journal of Wildlife Management
Wildlife Society Bulletin

No. of manuscripts
1
1
1
3
1

Agency
Northern States Research Cooperative

No. of proposals
20 pre-proposals, 11 full proposals

Other

c. Participation (workshops, symposia, etc.)

Name of workshop, etc.

Date

Place

C. Further Education/Re-training Undertaken, Leaves, Workshops, etc.

- ESF Teaching / Mentoring Colloquium, January 2012
- Safe-Capture Chemical Immobilization (recertification), 22-23 May 2012

D. Foreign Travel (Where, When, Purpose)

Russian Altai, Siberia, August 2011, Participate in Argali sheep surveys with World Wildlife Fund and Russian Parks personnel. Expedition led and funded by James Gibbs.

VII. ADMINISTRATIVE AND SERVICE RESPONSIBILITIES (include committee participation)

A. Department-level

- Wildlife Science, Curriculum Coordinator
- Roosevelt Wild Life Station, Associate Director
 - Oversee Roosevelt Wildlife Collection and supervise Ron Giegerich and
 - Coordinated Roosevelt Wildlife Collection inventory, which involved up to 8 undergraduates per semester and is ongoing.
 - Working with Mike Simonovich to get online, searchable database of collection inventory
 - Submitted successful application to Conservation Assessment Program for the Roosevelt Wildlife Collection
 - Serve as liaison for wildlife program to the NYS DEC
 - Developing an umbrella MOU for all projects eligible for funding under Pittman-Robertson Act, with annual work plan.
 - Provide support to Roosevelt Wild Life Station programs
 - Coordinating the digitization of the original station publications for publishing online, helping to design new web site and new promotional materials
 - Worked with D. Leopold, J. Gibbs and Development Office on endowment initiative
- Coordinator of Betty Moore Chamberlaine, Phyllis Roskins, and Ralph T. King departmental awards.
- Routinely participated in open houses, accepted student receptions and personal meetings with prospective and accepted students.

B. College-level

- NY State Fish and Wildlife Management Advisory Board, Science Advisor for SUNY ESF (legislatively-mandated position).
- Council for Geospatial Modeling and Analysis, member.
- Attended spring Banquet and Commencement
- Routinely attended faculty governance meetings

C. University-wide, including Research Foundation

VIII. SUMMARY OF SIGNIFICANT ACTIVITIES AND ACCOMPLISHMENTS DURING THIS REPORTING PERIOD, ESPECIALLY THOSE MOST NOTEWORTHY AND RELATIVE TO THE COLLEGE'S AND DEPARTMENT'S MISSION.

One paragraph on each of the following would be most helpful: this past year, what have you done for our students, department/college, and self professionally? NOTE: The information in this section (along with the supporting specific information elsewhere in this report) should be your strongest case for being considered for a discretionary raise, which I'll continue to award based on your contributions to the department and college this reporting period.

As in previous years, this year I engaged a moderately large cadre of undergraduate students on active research projects (helping graduate students identify wild cat and prey species from game camera photos and prey remains in coyote scats, as well as undertaking independent research projects on small mammals and marten), in projects supporting departmental as well as their own learning objectives (e.g., inventorying and repairing specimens in the Roosevelt Wild Life Collection), and as teaching assistants in my core undergraduate course. This past fall I organized a new and important experience for the future land and wildlife managers we are training – a Hunter and Trapper Education for Wildlife Professionals course. Through this course students learned from the hunting and trapping public as well as from professional wildlife managers on the social and professional value and challenges of game management. Students received firearm, bowhunter, trapper, and waterfowl ID certifications from certified instructors (members of the hunting public) and worked in the field alongside professional biologists to collect demographic data from waterfowl and deer harvested during the fall season. Course reviews indicated that the students greatly appreciated two aspects of the course: 1) the mix of public, professional, and academic instructors which provided different perspectives and showed how much cooperation is required to manage game species, and 2) the time spent outside either at the range learning how to safely handle firearms and bows or at hunter check stations. A common sentiment among students was that “I was able to see the wildlife profession in a personal way.” And many students commented on how this was their first experience interacting with “users” of the wildlife resource, as one student summarized “I never knew that hunters were such an intelligent, ethical, and important group of people. I admire them, and what they do, immensely now.” The DEC also feels this course to be of critical importance and they are working with other college's (e.g., Paul Smith's) to provide similar experiences modeled on the ESF course. I also worked for the first time this past fall with John Stella to co-teach the graduate course we used to call “The Ecological Detective” and now call “Quantitative Methods and Models in R”. This is a challenging course both for the students and for the professors that teach it, so co-teaching it is essential and I have been very fortunate to be able to teach this course first with Jesse Brunner and now with John Stella. John brings a wealth of experience that compliments mine and provides a richer experience for the 18 graduate students (4 from SU) that took the course. This is an intensive course, with a lab section and student projects, that is incredibly challenging to teach and incredibly rewarding both for the students and the instructors. I've said this before, but I believe this course is the strongest contribution I make to graduate education at this University aside from the personal mentoring of graduate students. This year I also completed my second M.S. student, Scott Warsen, who did a nice study on the evolving diets of coyotes in the Adirondacks (comparing contemporary diets to those Gary Brundige and Bob Chambers documented previously) and their competition with native carnivores in the region. Scott's research involved a very successful collaboration with Mark Teece for stable isotope analysis and should result in two papers. Scott was also the first Grober Fellow at ESF and his work for that fellowship is also being prepared for journal submission.

My largest contributions to the Department and College this year have focused on the Roosevelt Wild Life Station. Along with James Gibbs (Station Director), Don Leopold, and Bob Quinn (Development Office), I continue to work on a large endowment initiative. Together we are re-envisioning the role of the Station, seeing it as a vehicle for facilitating, supporting, and promoting our applied conservation research program. And we are steadily making progress towards a substantial endowment to provide a new faculty line and programmatic support. I have secured a Conservation Assessment of the Roosevelt Wildlife Collection that will

take place next fall, am working with Ron and undergraduates to complete an inventory and taxonomic reorganization of the collection, and am working with Mike Simonovich to get that inventory online to make the collection more accessible to instructors and researchers. I also am Curriculum Coordinator to the Wildlife Science major (139 students in Fall 2011). This year I have been working with the Curriculum Committee to complete a program assessment as well as to standardize and better communicate to students what experiences qualify for the Upper Division Field Elective and those that wish to opt out of EFB 202. I also have helped elevate ESF's presence on the national stage relative to wildlife management by offering two well-attended workshops this year. First, I co-lead a full-day "Geospatial Skills Workshop" with Hawthorne Beyer (University of Toronto) at the annual conference of The Wildlife Society in Hawaii (workshop attended by 30 people), and co-lead with Juan Manuel Morales (Universidad Nacional del Comahue, Argentina) a week-long workshop at ESF entitled "Likelihood and Bayesian Analyses for Ecologists" that engaged 26 participants from 8 different states (representing a mix of academic and professional, majority wildlife-focused). We offered this workshop under the auspices of the Roosevelt Wild Life Station, marking the first official outreach activity of the Station since it came under new leadership in 2011.

Contributions to my own professional development this year included taking on the role of Associate Editor for the Journal of Applied Ecology, becoming a reviewer for the Northern States Research Cooperative (Biodiversity and Protected Areas Management section), participating in a research expedition to the Russian Altai with James Gibbs, expanding my partnership with Panthera which now involves work on jaguar in Guatemala in addition to an ongoing project in Brazil, and (don't laugh) taking up hunting. Honestly, I think the last item is the most important given my role as mentor for wildlife science majors, my ongoing research focus on game species, and my growing research collaborations with the NYS DEC. I also became recertified this year by Safe Capture International in the chemical immobilization of wildlife.

IX. A. FUTURE PLANS, AMBITIONS, AND POTENTIAL CONTRIBUTIONS FOR YOUR OWN PROFESSIONAL DEVELOPMENT AND THE ENHANCEMENT OF THE PROGRAM IN ENVIRONMENTAL AND FOREST BIOLOGY (brief summary)

In the near future I will be planning a sabbatical leave, and am contemplating at present how to make the most of it. Given my growing research interests in Meso- and South America I need to get up to conversational speed in Spanish (at least). I will be teaching my Landscape Ecology course again this coming year and need to update all the labs to ArcGIS 10, which means I need to study up with tutorials on ArcGIS 10 (given the major software changes) and would like to develop some comparable labs using open source GIS software. In addition, following revision and assessment of the undergraduate program in Wildlife Science, this coming year I'd like to focus on the graduate program for wildlife science and management – what skill areas do we expect them to develop, what courses are offered (and missing), how does the MPS program fit in?

B. PROJECTED ACTIVITIES FOR NEXT YEAR

1. Summer 2009

a. Course(s) to be offered

Wildlife Field Techniques, CLBS, June 2012 (2 weeks)

b. Proposed research activity

Mostly focused on publishing results from past and terming research grants as well as developing proposals for new grants. Working on a simulation project (elk resource selection) with colleagues at the University of Alberta. Also supporting my graduate students conducting research this summer in Brazil and Guatemala, and working collaboratively with colleagues at INECOL in Mexico.

c. University, professional society, and public service

Work on TWS Shale Gas technical review
Associate Editor, Journal of Applied Ecology
Work on Roosevelt Wild Life Station endowment initiative
Complete Wildlife Science Curriculum Assessment

2. Fall Semester 2009

a. Course(s) to be offered

Hunter and Trapper Education for Wildlife Professionals

b. Proposed research activity

Research coordination meeting in San Cristobal, Mexico (from INECOL seed grant).
Working on publications and grant proposals. Supporting my graduate students in the field in
Brazil and Guatemala.

c. University, Professional society, and public service

Associate Editor, Journal of Applied Ecology
Work on Roosevelt Wild Life Station endowment initiative

3. Spring Semester 2010

a. Course(s) to be offered

Applied Wildlife Science
Landscape Ecology

b. Proposed research activity

c. University, professional society, and public service

Associate Editor, Journal of Applied Ecology
Work on Roosevelt Wild Life Station endowment initiative