

ANNUAL REPORT: June 1, 2010 – May 31, 2011
(i.e., Summer 2010, AY 2010-2011)
DEPARTMENT OF ENVIRONMENTAL AND FOREST BIOLOGY
SUNY-ESF

NAME: Christopher M. Whipps

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>
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SPRING:

EFB103 General Biology II: Cell Biology and Genetics 3cr. 175

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.

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>
FALL 2010			
EFB496/796	Emerging Diseases of Fish and Wildlife	3cr.	4
EFB797	Infectious Diseases	1cr	6

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

4. Guest Lecture Activities

<u>Course No.</u>	<u>Title</u>	<u>No. of Lectures</u>
EFB132	Orientation Seminar	1
EFB796	Graduate Orientation Seminar	1
EFB217	Peoples, Plagues, and Pests	1

II. STUDENT ADVISING

A. Number of undergraduates for whom you are the student's official advisor 26 and unofficial advisor 3

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

Megan Kirchgessner, Ph.D. sought, Start Aug 2009

Kelly Fitzsimmons, MSc. sought, Start Aug 2010

CO-MAJOR PROFESSOR

William Helenbrook, Ph.D. sought, Start Aug 2008 (co-advise with Dr. William Shields)

MEMBER, STEERING COMMITTEE (other than those listed above)

Completed:

Joe Vineis MS completed Fall 2010 (Committee member, MP Horton)

Ongoing MS:

Linet Cynthia Watson, MS sought (MP Stewart)

Max Collignon, MS sought (MP Teale)

Brooke Reeve, MS sought (MP Brunner)

Andrew MacDuff, MS sought (MP Frair)

Kim Dean, MS sought (MP Fierke)

Mark Leopold, MS sought (MP Farrell)

Ongoing PhD:

Geoffrey Eckerlin, PhD candidate (MP Farrell)

Lauren Goldman, PhD sought (MP Weir)

Weidong Pan, PhD candidate (MP Nakas)

Yazmin Rivera, PhD candidate (MP Horton/Kretzer)

Rosanna Stoutenburg, PhD sought (MP Nakas)

CHAIRMAN OR READER ON THESIS EXAMS, ETC.

Alexander Mueller, MS sought (Examiner, MP Nomura)

Chengjun Zhu, PhD candidate (Examiner, MP Nakas)

Chris Addona, MS completed Spring 2011 (Examiner, MP Nakas)

Dawn Higginson (Syracuse University), PhD completed April 2011 (Chair, MP Pitnick)

III. RESEARCH COMPLETED OR UNDERWAY

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

Parasitism in Lake Pontchartrain fishes in the post-Katrina era (boot-legged - 2%)

Genome sequencing of the emerging salmon parasite *Ichthyophonus hoferi* (boot-legged -2%)

Survey of wild fish parasites in the Great Lakes and Adirondacks (boot-legged 5%)

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)

SUNY-ESF Seed Grant Program (04/01/11-06/30/12) - \$8,000. Molecular Prospecting: Genomic DNA Sequence Data for Myxozoans. (5% AY).

National Science Foundation (1/1/10-12/31/12) \$1,757,801. Renovation of Wet Labs and Cyber-Infrastructure to Enhance Integrated Research and Teaching in Aquatic Science at ESF. (5% AY – Co-Investigator. Role: Provide specifics and design for animal rooms, isolation room, microscope rooms).

NIH Subaward P0274A-A (3/1/10 - 2/28/12) \$60,000. Characterizing *Mycobacterium* species from zebrafish and diagnostic development. (1% AY)

SUNY-ESF Seed Grant Program (3/1/09 - 12/31/2010) - \$8,000. Systematics and Biodiversity of the Myxozoa.

USDA-CREES/McIntire-Stennis Program (8/15/09 – 9/30/11) - \$50,500 Monitoring populations of elusive forest wildlife: a modern approach using noninvasive genetic techniques (Co-investigator with Jacqueline Frair) (5% AY).

2. Research Proposals pending (include information as in B.1., above).
- 3.

NIH - Pathobiology of Emerging pathogens in laboratory Animals (R21) (07/01/2011-06/30/2013) \$406,247. Mycobacteriosis in zebrafish: Impacts and Control. (5% AY).

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

NSF Partnerships for Enhancing Expertise in Taxonomy (PEET) (05/01/2012-04/30/2017) \$723,585. Essential Advances in Taxonomic Expertise of Myxosporean Parasites. (10% AY).

NSF Systematic Biology and Biodiversity Inventories (05/01/2011-04/30/2014) \$466,064. Systematics and Biodiversity of Myxozoan Parasites. (10% AY).

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

Kirchgessner, M.S., Freer, H., **Whipps, C.M.**, Wagner, B. (In Review) Detection of *Borrelia burgdorferi* Outer Surface Protein Antibodies in Wild White-Tailed Deer (*Odocoileus virginianus*) in New York and Pennsylvania, USA. Journal of Wildlife Diseases.

Whipps, C.M., Lieggi, C., Wagner, R.A. (In Review) Mycobacteriosis in zebrafish colonies. Institute for Laboratory Animal Research Journal.

Kirchgessner, M.S., Dubovi, E.J., Porter, W.F., Zylich, N.C., **Whipps, C.M.** (In Review) Antibodies to Bovine Viral Diarrhea Virus and *Coxiella burnetii* in Wild Populations of White-Tailed Deer (*Odocoileus virginianus*) in New York and Pennsylvania, USA. Journal of Zoo and Wildlife Medicine.

Whipps, C.M. (Accepted with minor revisions) Interrenal myxozoanosis in bluegills (*Lepomis macrochirus*) caused by the myxosporean parasite *Acauda hoffmani* n. gen, n. sp. Journal of Parasitology.

Liu, Y., **Whipps, C.M.**, Liu, W.S., Zeng, L.B., Gu, Z.M. (2011) Supplemental diagnosis of a myxozoan parasite from common carp *Cyprinus carpio*; synonymy of *Thelohanellus xinyangensis* with *Thelohanellus kitauei*. Veterinary Parasitology. 178(3-4):355-359.

Liu, Y., **Whipps, C.M.**, Gu, Z.M., Zeng, L.B. 2010. *Myxobolus turpisrotundus* (Myxosporea: Bivalvulida) spores with caudal appendages: investigating the validity of the genus *Henneguya* with morphological and molecular evidence. Parasitology Research. 107(3):699-706.

B. Non-refereed Publications

Kent, M.L., **Whipps, C.M.** 2010. Taxonomy, host specificity, and development of *Kudoa thyrsites* (Myxozoa), an important cause of post-harvest myoliquefaction in pen-reared Atlantic salmon. Proceedings of the *Kudoa* Workshop. Afonso, L.O.B, and Jones, S.R.M. (eds.) 7-8 Dec 2010. Campbell River, BC. Canada. p. 17-19.

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

Primary presenter:

March 1, 2011. Aquaculture America 2011. New Orleans, LA. *Mycobacteriosis in Zebrafish Facilities*. (Invited Speaker)

Co-authored:

April 17-19, 2011. 67th Annual Northeast Fish and Wildlife Conference, Manchester, NH. *Seroprevalence and distribution of bovine viral diarrhea virus and Coxiella burnetii in white-tailed deer in New York and Pennsylvania*. Kirchgessner, M.S., Dubovi, E.J., Zylich, N.C., Porter, W.F., **Whipps, C.M.**

April 12, 2011. SUNY-ESF Spotlight on Student Research, Syracuse, NY. *Comparative Analysis of Fish Parasite Communities from Adirondack Lakes With and Without Introduced Fish Species*. Bauer, E.F., **Whipps, C.M.** [Poster & Undergraduate Research]

April 12, 2011. SUNY-ESF Spotlight on Student Research, Syracuse, NY. *Ranavirus-exposed Wood Frog Tadpoles (Lithobates sylvaticus) are Robust to Three Natural Environmental Challenges*. Reeve, B.C., Crespi, E.J., and **Whipps, C.M.**, Brunner, J.L. [Poster]

April 12, 2011. SUNY-ESF Spotlight on Student Research, Syracuse, NY. *Prevalence and Spatial Epidemiology of Bovine Viral Diarrhea Virus and Coxiella burnetii in White-Tailed Deer (Odocoileus virginianus) in New York and Pennsylvania*. Kirchgessner, M.S., Dubovi, E.J., Porter, W.F., **Whipps, C.M.** [Poster].

April 12, 2011. SUNY-ESF Spotlight on Student Research, Syracuse, NY. *Expanded Morphological Characterization of Endoparasites in Mantled Howler Monkeys*. Helenbrook, W.D., **Whipps, C.M.** [Poster]

April 7-8, 2011. Northeast Natural History Conference, Albany, NY. *Ranavirus-exposed Wood Frog Tadpoles (Lithobates sylvaticus) are Robust to Three Natural Environmental Challenges*. Reeve, B.C., Crespi, E.J., and **Whipps, C.M.**, Brunner, J.L. [Poster]

Dec 7-8, 2010. *Kudoa* Workshop: Emphasizing the current knowledge of Myxozoa biology, host-pathogen interaction, diagnostic methods, and impact on fish farm and fisheries industries. Campbell River, BC, Canada. *Taxonomy, host specificity and development of Kudoa thyrsites (Myxozoa), an important cause of post-harvest myoliquefaction in pen-reared Atlantic salmon*. Kent, M.L., **Whipps, C.M.**

Oct 14-20, 2010. 13th Annual Meeting of the Association of Zoo Veterinary Technicians, Los Angeles, CA. Renal Myxozoan Infection and nephritis in a wild Cane toad *Bufo marinus* collected in Florida. Roberts J, **Whipps C.M.**, Wines M, Patterson S, Wolfe K, Medonca M.

Oct 2-6, 2010. The Wildlife Society, 17th Annual Conference, Snowbird, UT. Prevalence and distribution of bovine viral diarrhea virus and *Coxiella burnetii* in white-tailed deer in the Northeastern United States. Kirchgessner, M. S., Dubovi, E. J., **Whipps, C. M.**, Porter, W. F. [Poster]

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

V. PUBLIC SERVICE

A. Funded Service (include consulting activities)

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

2. Industrial and Commercial Groups, etc.

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

VI. PROFESSIONAL DEVELOPMENT

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

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

American Fisheries Society Fish Health Section Technical Standards Committee (appointment June 2010-June 2014)

2. Professional Society Membership

American Fisheries Society (2001-present)

American Society of Parasitologists (2002-present)

International Society of Protistologists (2008-present)

Wildlife Disease Association (2008-2010)

3. Other Professional Activities

a. Editorial activity

Journal (s)

Responsibility

Other (books, symposia, etc.)

b. Reviewer

Journal(s)

No. of manuscripts

Acta Parasitologica

1

Diseases of Aquatic Organisms

3

Journal of Eukaryotic Microbiology

2

Journal of Parasitology

2

Parasitology

4

Parasitology Research

4

Veterinary Parasitology

1

/17

Agency

No. of proposals

Other

c. Participation (workshops, symposia, etc.)

Name of workshop, etc.

Date

Place

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

D. Foreign Travel (Where, When, Purpose)

VII. ADMINISTRATIVE AND SERVICE RESPONSIBILITIES (include committee participation)

A. Department-level

EFB Curriculum Committee (Jan-Feb 2008, Aug 2008-present). Chair: Kim Schulz.

EFB Cranberry Lake Biological Research Station Undergraduate Research Fellowship Program (Chair; Dec 2009-present).

B. College-level

ESF Committee on Instruction (Aug 2010 – present). Chair: Klaus Doelle.

ESF Committee on Promotion and Tenure Policies and Procedures (Feb 2008 – Feb 2011). Chair: Don Leopold.

ESF Environmental Health Curriculum Planning Committee (Nov 2010-present). Chair: John Castello.

ESF Academic Research Building Core Team (Apr 2010 – present).

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.

Students: From a teaching perspective, I continue to teach General Biology II which had 175 enrolled this year. I have designed the class to incorporate multiple modes of instruction and evaluation, integrating the lecture content of the course with exams, readings from the primary literature, writings, self-assessments, and compilation of a portfolio at the end of the year. The ability to provide such a diversity of activities is in large part due to the support of departmental teaching assistants, who I have run weekly review sessions and develop their teaching skills. My Fish and Wildlife Disease class (EFB496/796) which I had co-taught in the previous year, was redesigned and I taught it in its entirety for the first time. The class is designed as more of a problem-based learning experience, supplementing lectures with 3 different group projects throughout the semester where students act as stakeholders in consideration of an emerging disease of wildlife. The labs are designed to include necropsy of wildlife across a broad spectrum (snail, fish, bird, mammal), training students to recognize abnormal conditions and be able to scientifically describe what they see. The lab sessions bring in experts, particularly Ron Giegerich who assists with the bird and mammal anatomy labs, as well as Kevin Hynes from the DEC Wildlife Pathology Unit who does a necropsy demonstration. This year I was also able to integrate the course with my grad student Megan Kirchgessner's research. Students went in teams to collect field samples from deer for use in laboratory assays. This past Fall, I also led a graduate seminar (EFB797) on infectious diseases which tied together popular scientific articles with those from the primary literature. Students led discussions on these topics. Beyond teaching, I formally advise 26 undergraduate students from 3 majors, with several students in the pre-health professions track. I continue to involve undergraduates in research and have adopted the

philosophy of taking on promising students very early in their studies and planning for reasonable research projects that can be carried out over several years. I believe the benefit to the student is greater when they are required to take their research to the point of publication and ultimately more satisfying when they get to see everything from the general working of a lab to the finer details of writing when a project is truly complete. I supervise 2.5 graduate students, have 1 starting in the fall, and also have served on committees of 14 grad students at ESF and SU.

Department: Starting this coming year I will be teaching EFB453/653 Parasitology for the first time. I described this course, and it will be offered every other year in the Spring semester. Not only do I anticipate this will be an exciting and informative course for our students, but it will be able to satisfy the 'Invertebrate Diversity' directive elective category of some of our majors. I also officially described EFB457/657 Fish and Wildlife Disease, which is described in the above paragraph. I am currently serving on EFB's CCAC which has made several contributions to the department in general this year, but most notably, the addition of the Diversity of Life sophomore courses. Development of minors in Biology and Biotechnology are planned for next Fall, but the majority of the groundwork here is already completed. As a member of the college's Committee on Instruction (COI), I have been pleased to act as liaison between these 2 committees and the department, coordinating the activities of the CCAC with the COI. I acted as the departmental representative on the College-wide Promotion and Tenure Policies review committee, upon which I was able to advocate for the comments and suggestions made by EFB faculty, particularly the incorporation of a college level review first suggested by Dr. Turner. I have been heavily involved as an EFB representative on the planning phases of the new Academic Research Building, assisting with laboratory design and layout. I also served on a committee to develop a new major and curriculum for an Environmental Health program at ESF. Although this program will be housed in another department, the new classes associated with the program will likely draw the interest of EFB students as interesting electives.

Professional: Within my 2 main lines of research, projects are currently supported on an NIH subcontract for diagnostic development of mycobacteria in laboratory zebrafish, and an ESF Seed grant for diversity and genetics of myxozoan parasites. I was honored to be asked to submit a review paper on mycobacteriosis of laboratory zebrafish this past spring and look forward to establishing my name with this important research in the lab animal literature. In the diversity work on myxozoans, I have described several new species and have solidified a collaboration with researchers in China which has resulted in 2 publications in this reporting period. In addition to these main lines of research, I continue to collaborate with colleagues in Alaska on diseases of returning Chinook salmon, and took on an undergraduate researcher to help carry out some of this work. I have also initiated a collaboration with a colleague at the University of Lethbridge on an important parasite of deer, elk, and cattle which is found in NY. Investigation into this interesting parasite has fostered some collaboration with the wildlife health program at Cornell, which I am encouraged about for future coordination and collaboration. I serve on the American Fisheries Society Fish Health Section's Technical Standards Committee, which is responsible for the production of the AFS-FHS BlueBook, the definitive guideline for diagnostic testing in the fish health community. We have made several updates and additions to the book, including a suggested reorganization of the content by me, which will facilitate the expansion of the book as chapters are continually added. Also this year, I contributed heavily to a myxozoan chapter in a new Parasite Ecology textbook and look forward to seeing that in print this fall.

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)

My immediate future plans are the pursuit of significant funding for one or both of my two primary lines of research. Funding in these areas will bring in new grad students, provide research support for undergraduates and facilitate the purchase of needed new equipment. I will also be developing the new Parasitology class for this Spring which will require preparation of lectures from scratch but most importantly the acquisition and organization of appropriate specimens for labs. In my larger class, EFB103, I will be adopting a new interactive online review-evaluation program

with a new textbook, and incorporating these activities into the current course content. Within the college, I will continue to serve on the CCAC and COI and look forward to my involvement in curriculum at both levels. I will continue my work on the baseline parasite diversity surveys of NY fishes. As I look to possibly integrate this work with my new Parasitology course, this may provide opportunities for student research in EFB.

B. PROJECTED ACTIVITIES FOR NEXT YEAR

1. Summer 2011

a. Course(s) to be offered

b. Proposed research activity

Zebrafish mycobacteriosis

Myxozoan development and taxonomy

Genome sequencing of myxozoan parasites

Baseline data on fish diseases in NY state

Biology of the parasite *I. hoferi* from Alaskan salmon

Tracing the distribution of the lancet fluke (*Dicrocoelium dendriticum*) in NY

c. University, professional society, and public service

ESF & EFB committees as above

AFS Technical Standards Committee

2. Fall Semester 2011

a. Course(s) to be offered

b. Proposed research activity

Continue as above

c. University, Professional society, and public service

ESF & EFB committees as above

AFS Technical Standards Committee

3. Spring Semester 2012

a. Course(s) to be offered

EFB103 - General Biology II

EFB453/653 - Parasitology

b. Proposed research activity

Continue as above

c. University, professional society, and public service

ESF & EFB committees as above

AFS Technical Standards Committee