The SUNY Center for Applied Microbiology (CAM) was created by an endowment from Dr. Chin Yang, a graduate of EFB, who worked with Dr. Chun Wang for his PhD in Mycology. The CAM has now functioned for several years and the current director is Dr. Jim Nakas.

The SUNY Center for Applied Microbiology consists of six faculty members at ESF who are located in four departments: Environmental and Forest Biology, Environmental Chemistry, Construction Management and Wood Products, and Paper and Bioprocess Engineering. The faculty members include Dr. Susan Anagnost (CM&WP), Dr. John Fieschko (PBE), Drs. Jim Nakas (EFB), Chun Wang (EFB), Dr. Christopher Whipps (EFB), and Dr. Christopher Nomura (EC).

The following represents the annual report of Center activities by each of the six faculty members.

**Dr. Susan E. Anagnost**

Annual report for Susan E. Anagnost for the period July 1, 2010-June 30, 2011

Susan E. Anagnost
- Chair and Associate Professor, Department of Sustainable Construction Management and Engineering (SCME)
- Director, N.C. Brown Center for Ultrastructure Studies as of January 1, 2011
- President, Society of Wood Science and Technology, July 1 2010- June 30 2011
- Associate Editor, International Association of Wood Anatomists Journal

**Research**

Publications (refereed)

**Anagnost, Susan E.**

Publications (non-refereed)

Research Presentations

Anagnost, Susan E.


Sponsored Research Projects for the period July 1, 2010-June 30, 2011:

Susan Anagnost
Biomass Blueprints: Constructing Photocatalysts from Cellulosic Templates.
Neal M. Abrams, Department of Chemistry, SUNY-ESF and Susan E. Anagnost, Department of Construction Management and Wood Products Engineering, SUNY-ESF. ESF Seed Grant Program, March 1 2010 to June 30 2011. $7,577

Graduate Students
Major Professor:
Steering Committees:
Jason Guiles
Bernard Ramarandriasoa

Instruction

Dr. Susan E. Anagnost
Developed a new course “CME 480/680 Fundamentals of Microscopy” for fall 2011.

Fall 2010
CME 132 SCME Orientation Seminar
CME 497 Wood Chemistry and Physics
CME 580 Microtechnique

Spring 2011
CME 376 Decay of Wood Products
CME 685 Transmission Electron Microscopy
CME 760 Biodegradation of Wood
Service

• President of the Society of Wood Science and Technology (SWST) July 2010-June 2011; attended or participated by conference call in board meetings, July 2010, December 2010, March 2011 (Gulfport, MS) and June 2011 (Portland OR). Responsibilities included preparing agenda and running the business meetings, assembling the special charges for each committee and updating the Committee Handbook, preparing correspondence when needed, attending the Agenda 2020 meetings (formerly AF&PA Agenda 2020) as the representative from SWST, presiding over the annual business meetings at the 2011 annual convention.

• CO-Chair of the SWST Annual Meeting / United Nations Economic Commission for Europe Timber Committee Meeting October 11-14, 2010, held at the United Nations, Geneva, Switzerland. Solicited abstracts for four days and six sessions of presentations; assigned session co-chairs; addressed the convention at the Opening Session, the joint Annual Market Review session, the Chairs’ Reception, and the SWST Business meeting.

• Attended the SWST Annual Convention in Portland Oregon, June 23, 2011. As President of the Society, Anagnost was in charge of the Annual Business meeting on June 23rd and the Board of Director’s meeting on June 24th.

• Anagnost will serve as Past President of SWST from July 1 2011 to June 30 2012. Responsibilities include the soliciting nominations from the Past Presidents Council for Fellows, Distinguished Service Award, and overseeing the balloting for the Marra Award.

• CORRIM Board of Directors. Attended the CORRIM Board of Directors meeting on June 22 in Portland, Oregon.

• Member of the NYS Toxic Mold Task Force, reviewed the final report to the NYS State Legislature for NYSDOH

• Construction Career Day at the NYS State Fairgrounds, October, 2010

• Careers in Construction Day at Tompkins Cortland Community College, May 23, 2011

• Coordinated the submission of a YouthBuild Program grant proposal with OCM BOCES. The proposal was not funded.

• Manuscript reviews for IAWA (1), Forest Products Journal (1), Environment International (1)

• Associate Editor for International Association of Wood Anatomists Journal

Dr. John Fieschko

Summary Statement

My most significant activities and accomplishments during this reporting period were to educate students to the best of my ability on real world applications of bioprocessing and biotechnology and advance the development of the Central New York Biotechnology Research Center (CNY BRC). BPE 300 was developed to provide students with exposure to various bioprocess industries and how to quantitatively solve problems typically encountered by a bioprocess engineer. BPE 481 was developed to provide students
experience working in teams on laboratory projects and translating the results of those projects into process designs. The development of the CNY BRC was furthered by starting to recruit tenant companies for the building, organizing a major regional biotechnology symposium and the writing of research grants to try to raise additional funds. Next year I plan to improve both BPE 300 and BPE 481 lectures using additional material, write research grants as the opportunities arise and organize and chair the 4th annual Central New York biotechnology research symposium.

1. Teaching
   a. BPE 300 – *Introduction to Industrial Bioprocessing* - 3 credit units, 14 students
   b. ERE 596 – graduate version of BPE 300 – *Introduction to Industrial Bioprocessing* - 3 credit units, 6 students
   c. BPE 481 – *Bioprocess Engineering Design* – 3 credit units, 7 students

2. Research –
   a. Current Grants
      i. *Central New York Biotechnology (Annual Symposium)*, submitted to multiple sponsors, Principal Investigator, amount requested $18,390
      ii. *Biodegradable Plastics from Renewable Sources for Manufacturing Medical Products in Central New York*, (co-Principal Investigator, $350,000
   b. Pending Grants
      i. *Biodegradable Plastics from Renewable Sources for Manufacturing Medical Products in Central New York* (supplement 48788), co-Principal Investigator, $26,614
   c. Submitted But Rejected Proposals:
      i. *Electron Beam Reduction in Lignocellulosic Biomass Recalcitrance and Subsequent Fermentation to Liquid Biofuels*, Principal Investigator, submitted to NYSERDA on 6/25/10, amount requested $75,000
      ii. *XVivo cGMP Manufacturing System*, co-Principal Investigator, submitted to the National Institute of Standards and Technology by Biospherix, LLC on 8/24/10, amount requested $3,400,000
      iii. *Facility Modifications for the Production of an Energy Efficient Cell Propagation System*, co-Principal Investigator, submitted to NYSERDA by BioSpherix, LLC on 9/23/10, amount requested $1,500,000
      iv. *The Filtration Processing Scale-Up and Evaluation Center*, Principal Investigator, submitted to US Department of Commerce on 4/05/11, amount requested $5,715,206
3. Outreach and Service-Developed, organized and chaired the 3rd Annual CNY Biotechnology Conference. Over 30 companies and academic institutions will participate, and as of 5/20/11, more than 125 people are registered so far for the June 2-3, 2011 event. Significant sponsorship is allowing complimentary registration for numerous students and faculty from ESF, Upstate Medical University and Syracuse University. There is also a student poster session with more than 20 posters submitted so far, many from ESF. The event fosters communication between industry and academia and helps raise awareness of biotechnology in CNY including at SUNY ESF. This year’s program can be found at http://www.esf.edu/outreach/pd/2011/biotechnology/

4. Construction on the new $22 million Central New York Biotechnology Research Center has resumed, and the URL for the Central New York Biotechnology Research Center is: http://www.upstate.edu/biocenter/

Dr. James P. Nakas

I. INSTRUCTIONAL ACTIVITIES

1. Regular Course Offerings

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Title</th>
<th>Credit Hrs.</th>
<th>No. Students</th>
<th>No. of Sections</th>
</tr>
</thead>
<tbody>
<tr>
<td>FALL:</td>
<td>EFB 303</td>
<td>Microbiology</td>
<td>4</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>EFB 301</td>
<td>Latin for Scientists</td>
<td>1</td>
<td>56</td>
</tr>
</tbody>
</table>

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

a.) Fall 2010

<table>
<thead>
<tr>
<th>Course No./Title</th>
<th>Credit Hrs.</th>
<th>No. Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>BTC 420 Intern. In Biotechnol.</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>BTC 498 Res. Prob. Biotechnol.</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>EFB 498 Res. Prob EFB</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>EFB 899 Masters Thesis Res.</td>
<td>6</td>
<td>2</td>
</tr>
</tbody>
</table>
b.) Spring 2011

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Title</th>
<th>Credit Hrs</th>
<th>No. Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFB 498</td>
<td>Res. Prob. EFB</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>EFB 899</td>
<td>MS Thesis Res.</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>EFB 999</td>
<td>PhD Thesis Res.</td>
<td>16</td>
<td>4</td>
</tr>
</tbody>
</table>

3. Guest Lecture Activities

   a) Invited Seminar Speaker – Syracuse Research Corporation (SRC) – Production and Characterization of Biodegradable Polymers from Renewable Feedstocks – Attendance 50 (approx.).
   b) Invited Seminar Speaker – Rutgers University, Dept. of Biochemistry and Microbiology – Characterization of Biodegradable Polymers from Biodiesel Glycerol – Attendance 75 (Approx.).

II. Graduate Students

MAJOR PROFESSOR


5.) Mr. Andrew Henwood – PhD – Part-time student – Bristol Myers Squibb Employee – Candidacy exam completed Summer 2010 – Currently Writing Thesis.

MEMBER, STEERING COMMITTEE -- Mr. Alexander Mueller, Chemistry Dept., MP Nomura
III. RESEARCH COMPLETED OR UNDERWAY

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

Ethanol production using hemicellulosic hydrolysates of wood. Supported by other sources of funding.
Time spent approximately 10%. Two students on this topic: Christopher Addona and Rosanna Stoutenburg. Mr. Addona defended his thesis on April 14, 2011. Ms. Stoutenburg will take her candidacy exam this fall (2011).

Mr. Andrew Henwood has been a Bristol Myers Squibb research scientist for the past 20 years and has spent the past 5-8 years working part-time on his PhD on a project we designed for detecting carcinogenic compounds. He has completed the required research, passed his candidacy exam this academic year, and is currently writing his thesis.

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)

NYSERDA, Welch Allyn Inc., Blue Highway, Tessy Plastics Inc., Production of Biodegradable Polymers for Manufacturing Medical Products in Central New York, $350K, last year of 3 years, Sept. 2008 – Dec., 2011. This grant has supported two graduate students, Mr. Chengjun Zhu and Mr. Wenyang Pan, and one technician, Mr. Joseph Perrotta.

2. Research Proposals Pending

Biomass Research and Development Initiative – DOE/USDA. Integrated Utilization of Willow Biomass and Forest Hardwoods for Biofuel and Bioproduct Production in Northeastern Biorefineries.
Total: approx. $7M, PIs: about 10. Due date is summer 2011. Duration: 3 years.
IV. PUBLICATIONS

A. Refereed Publications


A1. Publications (Patents)


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


V. PUBLIC SERVICE

Industrial and Commercial Groups, etc.

-- member, Institutional Biosafety Committee, Bristol Myers Squibb Inc., Syracuse, New York

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

--Member, Advisory Committee, CNY Biotechnology Research Center

VI. PROFESSIONAL DEVELOPMENT

1. Professional Society Membership

-- American Society for Microbiology
-- American Academy of Microbiology

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

1.) Students: Although on medical leave for most of the spring semester, this academic year I continued to make room in my laboratory for undergraduate students for a total of 28 credit hours which included Internship in Biotechnology (BTC 420), Res. Prob. Biotechnology (BTC 498), and Res. Prob. EFB (EFB 498). In addition, one MS student (Mr. Christopher Addona) defended his thesis, and three PhD students (Mr. Chengjun Zhu, Mr. Andrew Henwood, and Mr. Wenyang Pan) passed their candidacy exams.

2.) Department/College: During this reporting period, we published two papers, one on ethanol and one on polyhydroxyalkanoates (PHAs), produced from wood hydrolysates and biodiesel glycerol, respectively. One additional manuscript on PHAs has recently been submitted and a second will be submitted this summer. These publications will further strengthen the position of the department and the college in the area of bioconversion of renewable resources to biofuels and biomaterials, an area the college has devoted considerable effort to maintain. In addition, a provisional patent application was filed with the USP&TO and a full patent application will follow this summer as the provisional filing offers protection for one year only.

3.) Self: During the past year I have expended much effort in strengthening our corporate relationships with local companies with whom we have active collaborations and others with whom we would like to develop active
collaborations. Having established active partnerships with Welch Allyn/Blue Highway and Tessy Plastics, we continue to work towards scaling up our laboratory processes to a pilot plant level and, ultimately, towards commercialization. Some equipment problems have impeded progress but we work to resolve these issues. Recently, we have initiated a collaboration with an upstate biodiesel company for the production of biodegradable polymers from biodiesel glycerol. The company has expressed an interest in paying for the patent application and licensing the technology after the patent is issued.

**VIII. A. FUTURE PLANS** Plans for the immediate future will include continued pursuit of accomplishments as described under VII (1,2, and 3). I will continue to make my laboratory available to undergraduate students and work toward completion of the graduate programs of the graduate students for whom I am the major professor. Completion of these graduate degrees should result in the generation of additional publications on degradable polyesters produced by bacteria. We have enjoyed productive relationships with Drs. Nomura and Stipanovic and look to continue this collaboration within the Chemistry Department. Lastly, we hope to continue our collaboration with Welch Allyn/Blue Highway and Tessy Plastics for the purpose of using biodegradable polymers for the production of disposable medical products.

**Dr. Christopher T. Nomura**

2010-2011 has been a productive year. I have been approved for continuing appointment and will be promoted to the rank of Associate Professor in September. Research from my group has also been presented at international, national, and local conferences. I have received several invitations to speak at international conferences and colleges and universities worldwide. We continue to have a strong collaborative effort with Prof. Nakas’ group.

Some money from the CAM funds will be used for valuable supplies to continue microbiology experiments in my lab.

**Graduate Research**

<table>
<thead>
<tr>
<th>Student</th>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ms. Qin Wang</td>
<td>Effect of N-limitation on polyhydroxyalkanoate (PHA) production in <em>Pseudomonas putida</em>, transcriptome of <em>P. putida</em> under various PHA producing conditions</td>
</tr>
<tr>
<td>Chemistry-SB3</td>
<td></td>
</tr>
<tr>
<td>Mr. Ryan Tappel</td>
<td>Cloning of <em>phaG</em> and <em>alkK</em> genes from <em>Pseudomonas</em> strains</td>
</tr>
<tr>
<td>Chemistry</td>
<td></td>
</tr>
<tr>
<td>Mr. Chengjun Zhu</td>
<td>GC analysis of PHA from <em>Burkholderia cepacia</em>, GPC analysis of PHA polymers, Production of PHA from glycerol for medical devices</td>
</tr>
<tr>
<td>Biology (collaboration with Nakas)</td>
<td></td>
</tr>
<tr>
<td>Mr. Wenyang Pan</td>
<td>GC analysis of PHA from <em>Burkholderia cepacia</em>. Use of recombinant <em>E. coli</em> for the production of PHA polymers from cheese whey waste/Production of lactobionic acid from lactose</td>
</tr>
<tr>
<td>Mr. Alex Mueller</td>
<td>Design of FabH proteins for enhanced PHA production from unrelated carbon sources in <em>E. coli</em></td>
</tr>
<tr>
<td>Chemistry</td>
<td></td>
</tr>
<tr>
<td>Ms. Xian Wang</td>
<td>Fermentation studies for PHA production</td>
</tr>
</tbody>
</table>
GPES ESRM
Ms. Lucia Salamanca-Cardona
Chemistry
Cloning and characterization of *Streptomyces coelicolor* A3(2) cellulase and xylanse enzymes
Ms. Yuan Sha
Chemistry
Electron microscopy of bacterial ultrastructure and examination of motility in bacteria – Transferred to Dibble Lab
Mr. Alex Levine
Chemistry
Cloning and characterization of the wcaJ gene from *P. putida*
Ms. Leticia Izquierdo
GPES ESRM
*P. aeruginosa* RpoN regulon analysis

**Undergraduate Research**
Ms. L. Izquierdo
Biotech
Carbon metabolism in *P. putida*
Mr. A. Mottern
Chemistry
Polysaccharide analysis in *P. putida*
Mr. M. Nonaka
Biotech
Growth and production of PHAs from various carbon sources
Mr. C. Ashe
Biotech
Purification of pyoverdine from *P. aeruginosa*
Ms. D. Dunn
Biotech
Production of beta 1,3 glucans in *E. coli*
Mr. M. Cook
Biotech
Molecular biochemistry for acetyl-CoA metabolism
Ms. J. Quinn
(Clarkeion University) SBI LSAMP SU REU
Metabolic engineering for enhanced monomer supply in *E. coli*
Ms. F. Wang
(SUNY-Oswego)
Deletion strains in *E. coli* MG1655
Ms. J. Mastroianni
Biotech
Production of PHA polymers with defined monomer composition
Ms. K. McKissick
Biotech
Use of lacZ reporter assays to monitor gene expression from RpoN promoters
Ms. K. Krishnan
EFB
Production of 3-OH PAME in recombinant *E. coli*
Mr. W. Thornton
Chemistry
Molecular biochemistry of polymer production
Mr. L. Huang
SU-Civil Engineering
Polysaccharide production in *P. putida*
Mr. T. Yancone
Bioprocess Eng
SCL-MCL PHA copolymer production
Mr. J. Kucharski
Bioprocess Eng
Controlled monomer composition of PHA polymers
Mr. M. Grassa  
Biotech  
Ms. O. Ozumba  
Trinity University SBI  
LSAMP SU REU  

**Postdoctoral Research**  
Dr. Benjamin Lundgren  
Molecular roadblocks for RpoN binding sites, metabolic engineering for biopolymer production.

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**Other**

Anthony Terrinoni, Sean Gifford  
Steve Giarusso  
Kazuki Ishida, Pat Mather  
Khalil Howard, Liviu Movileanu  
Jesse Brunner  
Keith DeRuisseau  
Zaara Sarwar  
Rick Ashby  

Antek, Inc.  
Village of Minoa Waste Water Treatment  
Syracuse University  
Syracuse University  
SUNY-ESF  
Syracuse University  
Syracuse University  
USDA ARS Eastern Regional Labs

Microbial fuel cell development, waste water treatment analysis  
Analysis of waste water influent and effluent for pharmaceutical compounds and degradation of pharmaceutical compounds  
Production of PHAs with unsaturated side chains for shape-memory foams  
Overproduction of a novel membrane protein in recombinant *E. coli.*  
Use of QRT-PCR machine  
Use of QRT-PCR machine  
Use of AKTA FPLC for protein purification.  
Molecular weight analysis of PHA polymers via GPC

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**Grant Supported Research**  
*Current Research Support: Proposals Funded and Submitted; New proposals written during this period are marked with an “*”*

**New Funding Proposals written during this last year**

*USDA/McIntire-Stennis*  
Use of cellulases and xylanases from *Streptomyces coelicolor* and synergistic pretreatment technologies to produce fermentable sugars from forest biomass  
PI: A.J. Stipanovic  
Co-PI: C.T. Nomura
Total Award: $53,401
Award Period Covered: 10/01/11-10/31/13

*New York State Environmental Facilities Corporation Green Innovation Grant Program (GIGP)*
Feasibility study for low impact destruction of pharmaceutical and personal care products in wastewater using modified constructed wetland technology powered by renewable energy from food waste/biosolids anaerobic co-digestion in Minoa, NY
Pl: S. Giarusso
Co-Pls: D.L. Johnson, **C.T. Nomura**, K. Doelle, A. Terrinoni, G. Sgromo
Total Award: $750,000

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**Continuing Funding from Prior Years**
NYSERDA PON 1195/Blue Highway LLC
Biodegradable Plastics from Renewable Sources for Manufacturing Medical Products in Central New York
Pl: A. J. Di Rienzo
Co-Pls: D. Dana, A. Drauter, J. Nakas, **C.T. Nomura**, J. Fieschko
Total Award: $350,000
Nomura share: ~$175,000
Award Period Covered: 01/01/09 – 12/31/11

**Syracuse Campus-Community Entrepreneurship Initiative**
Business Development ESF/SU Green Energy Cooperative
Pl: M. Kelleher
Co-Pls: S. Lloyd, F. Carranti, N. Abrams, C. Watters, **C.T. Nomura**
Total Award: $50,000
Award Period Covered: 07/01/09-06/30/11

**National Science Foundation**
Protein and metabolic engineering for biodegradable plastic production
Pl: **C.T. Nomura**
Total Award: $378,000
Award Period Covered: 07/01/09 – 06/31/12

**USDA/McIntire-Stennis**
Biochemical conversion of forestry-derived feedstocks to biodiesel
Pl: **C.T. Nomura**
Total Award: $53,401
Award Period Covered: 08/01/10-07/31/12
PUBLICATIONS

**Papers and Technical Reports Published (Calendar 2010 to present):**


**Manuscripts submitted or in preparation:**


**Abstracts and presentations at local, national, and international meetings (2010 – present):**


**Invited Seminars and Workshop Presentations**


**Awards and Honors**

2011 SUNY-ESF Exemplary Researcher Award
2010 Co-organizer, Pacifichem 2010 Biodegradable and Biomass Plastics Symposium
Panelist for NSF CBET and DMR

**Grant Panel Service**

USDA CSREES SBIR Proposals
NSF EFRI MIKS Panelist/Reviewer
NSF CBET Panelist/Reviewer
NSF DMR Panelist/Reviewer
ACIKITA International Conference of Science and Technology 2011 (AICST 2011) International Scientific Committee Member/Reviewer
**Editorial Board Service**

- Applied and Environmental Microbiology
- Applied Microbiology and Biotechnology
- Applied Polymer Science
- Archives of Microbiology
- Biochemistry
- Biomacromolecules
- Canadian Journal of Chemistry
- Encyclopedia of Industrial Biotechnology
- FEMS Microbiology Letters
- International Journal of Biological Macromolecules
- Journal of the American Oil Chemists Society
- Journal of Applied Microbiology
- Journal of Applied Polymer Science
- Journal of Bacteriology
- Journal of Biomolecular Screening
- Journal of Biobased Materials and Bioenergy
- Journal of Biotechnology
- Journal of Chemical Technology and Biotechnology
- Journal of Polymers and the Environment
- Macromolecules
- Malaysian Journal of Microbiology
- Nature Chemical Biology
- New Biotechnology
- Plant Biotechnology Journal
- Polymer Degradation and Stability

**Professional Societies**

- American Chemical Society
- ACS-Biotechnology Division
- ACS-Syracuse
- American Society for Microbiology
- Cellulose Research Institute – SUNY-ESF
- Michael M. Szwarc Polymer Research Institute – SUNY-ESF
- Center for Applied Microbiology – SUNY-ESF
- ESF SCIENCE Corps/SOS – SUNY-ESF
- Structural Biology, Biochemistry, Biophysics (SB³) – Syracuse University, SUNY-Upstate, SUNY-ESF
- Syracuse Biomaterials Institute (SBI)- Syracuse University, SUNY-Upstate, SUNY-ESF
Dr. Chun Wang

1. Wood-inhabiting Microfungi of New York

This project was funded by the New York State Biodiversity Research Institute and the Nature Conservancy 2007-2009. ESF Center for Applied Microbiology provided summer stipends for student research assistants Cesar Herrera, 2009, and Christina Chan, 2010. The final report was completed in August 2010. This report is now available online: http://www.esf.edu/nymicrofungi/. A printed copy of this report will be sent via UPS.

This report is an inventory and distribution records of wood-inhabiting conidial fungi collected primarily from northern hardwood forests and a few conifer plantations in 24 counties of New York from 1965 to 2004 and 2008. A small number of collections from Massachusetts, Vermont, Indiana, Ontario, Canada, and Wales, UK are included.

A total number of 2,036 collections representing 166 genera and 297 species are listed alphabetically in the text. Distribution of each species is presented in table format and in GIS map (total of 175 maps). Keys to species for genera with multiple species were prepared. Photomicrographs of already published species are included.

Twelve new conidial fungi were established from 1976 to 1998. They are: Acrodictys atroapicula; Articulophora variispora gen. & sp. nov.; Chalarodendron fuscum gen. & sp. nov.; Diplococcium hughesii; Paradidymobotryum oblongum gen. & sp. nov.; Phaeostalagmus altissimus, Phaeostalagmus arbusculus, Spadicoides americana, Spadicoides catenulata, Spadicoides constricta, Sporidesmiella setosa, and Stenocephalopsis subalutacea gen. nov. comb. nov.

Genera with the most number of species and collections are: Brachysporium, 7 species, 247 collections; Spadicoides, 7 species, 131 collections; and Pseudospiropes, 7 species, 94 collections.

The 3 most frequently collected species of conidial fungi are: Bispora betulina 185 collections; Brachysporium nigrum 158 collections and Cacumisporium capitulatum 93 collections.

New records of conidial fungi for New York state are: Conioscypha lignicola, Cordana ellipoidea, Exochalara longissima, Fusiclara dingleyae, Gloiosphaera clericiana, Guedea novae-zelandiae, lemeka sphaerospora, Mycoentrolobium platysporum, Paspalomyces aureus and Zanclospora brevispora.

A number of genera and unknown taxa are partially completed, therefore are excluded from the report. Identification work continues and results will be reported in a supplement. Data from this project are essential for my long-planned book on the Lignicolous Hyphomycetes of New York.

2. Microfungi in Culture

A book on the Microfungi in Culture is about 60% done. It is a “second edition” of the book on the fungi that decayed utility poles which was well-received. It will add
more genera and species of microfungi not published in the pole manual, as well as my records and data of type specimens that I studied in various herbaria over the years.

3. Lignicolous Hyphomycetes of New York

The final research report on the inventory and distribution records of wood-inhabiting microfungi of New York is the basis for this book. It will consist of a discussion of conidiogenesis, classification, keys, descriptions, photomicrographs of conidial fungi and a number of type specimens.

Work Plan for 2011-2012:
The three projects are interconnected; I’ll work concurrently on all 3 projects. I plan to utilize funds from Center for Applied Microbiology for managing all those Excel files, computer services and some photographic work.

Dr. Christopher Whipps

I. INSTRUCTIONAL ACTIVITIES

SPRING 2010:

EFB103 General Biology II: Cell Biology and Genetics 3cr. 192
EFB797 Topics in Applied Microbiology 1cr. 5

FALL 2009:

EFB496/796 Emerging Diseases of Fish and Wildlife 3cr. 8
EFB797 Population Genetics and Molecular Biology 1cr. 12

Guest Lecture Activities
EFB132 Orientation Seminar (McGee), Dec 8&9, 2009, Biotechnology at ESF (2 lectures)
EFB796 Graduate Orientation Seminar (Farrell) Feb 22, 2010, Fish and Wildlife Diseases (1 lecture)
EFB217 Peoples, Plagues, and Pests (Castello), Mar 23, 2010, Impact of parasites on global health (1 lecture)
EFB403 Microbial Diseases of Wildlife (Nakas), Apr 1, 2010, Viral hemorrhagic septicemia virus (1 lecture)

II. STUDENT ADVISING

A. Number of undergraduates for whom you are the student’s official advisor _24_ and unofficial advisor __4__

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).

CO-MAJOR PROFESSOR
William Helenbrook, Ph.D. sought, Start Aug 2008 (co-advice with Dr. William Shields)
Megan Kirchgessner, Ph.D. sought, Start Aug 2009 (co-advice with Dr. William Porter)

MEMBER, STEERING COMMITTEE (other than those listed above)
Completed:
Lauren Goldmann, MS completed, Fall 2009 (MP Weir)

Ongoing MS:
Max Collignon, MS sought (MP Teale)
Andrew MacDuff, MS sought (MP Frair)
Brooke Reeve, MS sought (MP Brunner)
Joe Vineis, MS sought, (MP Horton)
Linet Cynthia Watson, MS sought (MP Stewart)

Ongoing PhD:
Geoffrey Eckerlin, PhD sought (MP Farrell)
Lauren Goldmann, PhD sought (MP Weir)
Yazmin Rivera, PhD sought (MP Horton/Kretzer)

CHAIRMAN OR READER ON THESIS EXAMS, ETC.
Chris Addona, MS sought Examiner (MP Nakas) - Examiner
Kathleen Baier, MS completed Fall 2009, Examiner (MP Powell) - Examiner
Pat Eager, MS completed Spring 2010, Examiner (MP Fierke) - Examiner
Joshua VanBrakle, MS completed Spring 2010 (MP Germain) - Thesis committee chair
Chengjun Zhu, PhD sought Examiner (MP Nakas) - Examiner

III. RESEARCH COMPLETED OR UNDERWAY
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)

Alaska Department of Fish and Game. $3,500 (07/01/10-06/30/11) Ichthyophonus hoferi in returning Alaskan Chinook salmon; molecular diagnostics.

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

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

USDA-CREES/MeIntire-Stennis Program (8/15/09 – 9/30/12) - $50,500 Monitoring populations of elusive forest wildlife: a modern approach using noninvasive genetic techniques (Co-investigator with Jacqueline Frair)

IV. PUBLICATIONS (during reporting period)

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

May 24-28, 2010. 35th Annual Eastern Fish Health Workshop, Shepherdstown, WV. Tracking mycobacterial infections in laboratory zebrafish (*Danio rerio*).

VI. PROFESSIONAL DEVELOPMENT

Professional Society Membership

- American Fisheries Society (2001-present)
- American Society of Parasitologists (2002-present)
- International Society of Protistologists (2008-present)
- Wildlife Disease Association (2008-present)

Editorial activity

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VII. ADMINISTRATIVE AND SERVICE RESPONSIBILITIES (include committee participation)

A. Department-level

- EFB Space Committee (Feb 2008 - present). Chair: John Farrell.
- EFB Graduate Program Advisory Committee (Aug 2008-present). Chair: Karin Limburg
- EFB Cell and Molecular Biology Search (Nov 2009 - Apr 2010). Chair: Bill Powell

B. College-level

- ESF Environmental Health Program Feasibility Program (Sept 2009-Jan 2010). Chair: John Castello
- ESF Committee on Promotion and Tenure Policies and Procedures (Feb 2008 - present). Chair: Don Leopold