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Hope College Biology Department Newsletter



The purpose of the Biology Newsletter is to facilitate communication within the Biology Department and between the Department and the Dean of the Natural Science Division, as well as the other departments within the division.

Lights, Camera, Action!



On September 27, **Dr. Don Cronkite** represented our department as a panelist in a one hour broadcast by WGVU television. Don and the other panelists, one of whom was **Dr. Peter Gonthier** from Hope's Physics Department, discussed the challenges of teaching evolution at a Christian college. The telecast followed a multi-part feature on evolution in the classroom which aired on many public television stations across the country. The panel discussion revealed some of the diversity of approaches to the treatment of evolution in the higher education classroom. An important point, raised by Don, is the freedom afforded students and faculty at Christian colleges, like Hope, to openly and critically explore how their knowledge of the natural world and their faith intersect. An equally important point raised by some of the panelists was what questions we should (and should not) bring to science and to the scriptures.



Campbell Foundation Awards Additional Funds to Chase

Dr. Leah Chase received \$4,000 in addition to the \$58,900 the Campbell Foundation has already awarded her to support her research with undergraduates. Leah will use the supplemental funds to purchase additional molecular biology reagents for the expression of System x_c^- (the transporter in *Xenopus* oocytes). Her recent work in cultured cells suggests that this system may also be appropriate for her studies. Additionally, she plans to use some of the supplemental funds for travel to scientific meetings.





Reuter and Cronkite Run FrontPage Workshop

Jewell Reuter and **Don Cronkite** offered a workshop to faculty of the Natural Science Division on September 18. The basic features of FrontPage, a Microsoft web page composer, were covered while participants gained experience at individual computers in the computer lab in Peale. One ultimate goal of this and future workshops is the production of research lab web pages of individual faculty. Another goal is to give faculty the skills to include on-line learning in their classes.



Biology Gateway Gets a Facelift

Thanks to **Dr. Cronkite**, **Jewell Reuter**, and student **Lilyana Mihalkova**, the Biology Department's web page has been markedly revised. The previous web page had, over time, developed a long list of links that some users found to be confusing. The current edition has the links divided into categories for easy access. Links to the history of the department as well as Undergraduate Research within the department have been added. While still a "work in progress", the site is well on its way to better representing our department to potential students and faculty as well as foundations. For a quick tour of the new Biology web site see (<http://www.hope.edu/academic/biology/>).



Grant Writing Activity


Internal Proposals Submitted

1. **Virginia McDonough** submitted a proposal for sabbatical leave spring 2002 to write up a backlog of data, conduct some new experiments and collaborate with investigators at Rutgers University.

External Proposals Submitted

1. **Tom Bultman, Tim Evans, Chris Barney** and the **entire Biology department** submitted a proposal requesting 4 years of continued support from NSF for an REU site. The proposal was titled, REU: A Collaborative Student-Faculty Research Program in the Biological Science at Hope College.
2. **Chris Barney** submitted a proposal requesting two years of continued support from the Arnold and Mabel Beckman Foundation for support of four Beckman Scholars who will individually do research with one of 10 faculty from the departments of Biology and Chemistry

Featuring a Fascinating Faculty Member

(Someday soon this will be you) 

Eckerle Joins Biology Department

Dr. Kevin Eckerle is one of three Biology Department faculty members teaching in a term position this fall. He received a B.A. in Biology and A.A. in Theology from Thomas More College (Crestview Hills, KY) in 1992. Kevin obtained a M.S. in Biology from the University of Dayton in 1994 and a Ph.D. from Illinois State University (Normal, IL) in 2001.

Kevin's research interests are the population, behavioral, and evolutionary ecology of birds. In his master's thesis work (advisor: Dr. Randall Breitwisch) he investigated the reproductive costs to Northern cardinals of brood parasitism by brown-headed cowbirds and behavioral defenses of cardinals against these brood parasites. For his Ph.D. research, (advisor: Charles Thompson) Kevin investigated the proximate cues used by female house wrens to evaluate and select their mates, and the evolutionary benefits that females acquire by using these cues to select a mate. Kevin began teaching at Hope before completing his Ph.D., returning to Illinois State in October to successfully defend his dissertation.

Congratulations Kevin!

Kevin has also assisted and worked with colleagues on studies of the fitness consequences of egg size variation in house wrens, the nest-site preferences of house wrens, and the effect of female condition on offspring sex ratios in house wrens. Further, he co-authored the Yellow-breasted chat account for the Birds of North America series, which is being produced by the American Ornithologists' Union, Cornell Laboratory of Ornithology, and the National academy of Sciences.

Kevin is currently teaching Biology 222, Human Physiology. He will be teaching Biology 315, Advanced Topics in Ecology and Biology 240, Cells and Genetics Laboratory, in the spring semester. He is also serving as faculty advisor for Tri-Beta.

Kevin was born and raised in Edgewood, KY (a suburb of Cincinnati). He is an avid sports fan of the big four sports, (football, baseball, basketball, hockey), follows the Chicago Bears, Blackhawks, Bulls, and Cubs. He is the very proud uncle of two nieces and two nephews.



NEWS FROM CONFERENCE GOERS

Tim Evans attended the annual meeting of the Botanical Society of America as well as the American Society of Plant Taxonomists in Albuquerque, New Mexico from August 12-15 where he gave a talk regarding his research:

Watson, Linda E., Timothy M. Evans, Matthew M. Unwin, and Amy B. Kornkven. Origin and Diversification of Tribe *Anthemideae* (Asteraceae), Based on Molecular Phylogenies of *ndhF* and ITS.

Tim's research student, **Dave Boerema**, also spoke at the conference:

Boerema, David, Timothy M. Evans, and Gregory K. Brown. Phylogenetic Relationships

in *Oenopsis* (Asteraceae) Based on DNA Sequences From Three Spacer Regions.



Lori Hertel and **Kathy Winnett-Murray** attended the Annual Workshop/Conference of ABLE (Association for Biology Laboratory Education) at the University of Chicago in June 2001. They presented a two part (2 day) major workshop on the lab written by the two of them and Greg Murray: Species Diversity, Island Biogeography and the Design of Nature Preserves, which uses model islands and leaf litter arthropod communities. (It is this upper level lab that was highly modified by Don Cronkite for use in Bio 150 also - that version is less quantitative and does NOT test island biogeography theory using the constructed leaf litter islands); a version is also used in GEMS 153.

Kathy wrote and submitted a final manuscript that will be included in ABLE's annual symposium volume. She also attended the annual Ecological Society of America with Greg in mid-August at Madison, Wisconsin, where she said she enjoyed seeing several Hope Biology alums attending the meeting in their capacity as ecology graduate students.

Publication Activity

Manuscripts Submitted:

1. **Bultman, T.L.**, and G. Bell. Submitted. Reversal of Wound-induced Effects in a Grass are Mediated by a Fungal Endophyte.
2. **Burnatowska-Hledin**, M., P. Zhao, K. Parmelee, B. Capps, A. Poel, L. Listenberger, B. Card, C. Van Dort, D. Murrey, and J. Kossoris. VACM-1, a Cullin Gene Family Member, Attenuates Cellular Growth *in vitro*.
3. **K. Greg Murray, Kathy Winnett-Murray, and Lori Hertel** (manuscript submitted for 2002 edition). Species Diversity, Island Biogeography, and the Design of Nature Reserves. Pages x-xx, in Tested Studies for Laboratory Teaching. Volume 23. (M. O'Donnell, Editor). Proceedings of the 23rd Workshop/Conference of the Association for Biology Laboratory Education (ABLE).

Manuscripts Accepted:

1. **Bultman, T.L.**, and M. McNeill. In review. Genotype-dependent Impacts of Fungal Endophytes in a Multitrophic Interaction. *Oikos*.
2. **McDonough, V., J. Stukey**, and T. Cavanaugh. Mutations in *erg4* Affect the Sensitivity of *Saccharomyces cerevisiae* to Medium Chain Fatty Acids. *Biochimica et Biophysica Acta*.

Department Service Activity Assignments (2001/2002)

Library Liaison - Dr. Brady Chem. Dept. Liaison
- Dr. Chase
Dr. Burnatowska-Hledin

Science Day Representative - Dr. Barney

Seminar Coordinators - Fall
Dr. Chase, Dr. Winnett-Murray

Tenure/Promotion Notebook Coordinator - Dr. Barney

Animal Care and Use Committee - Mrs. Hertel,
Dr. Gerbens, Dr. Winnett-Murray

Museum Coordinator - Mrs. Hertel

First/Second Year Advisors - Dr. Barney, Dr. Chase, Dr. Gerbens

Major Advisors - Dr. Blankespoor, Dr. Bultman, Dr. Hledin, Dr. Cronkite, Dr. Evans, Dr. McDonough, Dr. Murray, Dr. Winnett-Murray

BUD Coordinator - Dr. Cronkite

Ecology and Evolutionary Biology Coordinator - Dr. Murray

New Building Representative - Dr. Barney

Safety Coordinator - Dr. Gerbens
Radiation Safety Officer - Dr. Evans
Chair - Dr. Bultman

Associate Chair - Dr. Gerbens

Admissions Material Responsibilities - Dr. Bultman

CCLI Grant Writer - Dr. Swarthout et al
possibility (waiting for results of last proposal)

Department Assessment Coordinators - Dr. Murray, Dr. Winnett-Murray

Summer Research Program Directors - Dr. Bultman, Dr. Evans

REU Proposal Writers - Dr. Bultman, Dr. Barney, Dr. Evans

Pew Undergraduate Symposium Trip - Dr. Bultman

Seminar Coordinators - Spring Semester - Dr. Chase, Dr. Kazial

Tri-Beta Advisor - Dr. Eckerle

Field Equipment Coordinator - Dr. Winnett-Murray

Science Day Presenters - Dr. Barney, Dr. Chase, Dr. Cronkite, Dr. Murray, Dr. Winnett-Murray

Field Station Committee - Dr. Murray, Dr. Blankespoor, Dr. Evans

Equipment Maintenance Coordinator - Mrs. Hertel

Greenhouse Supervisor - Dr. Swarthout

GRE Coach/Grad School Prep - Dr. Risley

Admissions Liaison - Dr. Gerbens

Web Page Coordinator - Dr. Cronkite

Equipment Inventory Coordinator - Dr. Kazial

DeKruif Award Committee - Dr. Cronkite, Dr. McDonough, Dr. Winnett-Murray

Publicity Writers - Dr. Bultman, Dr. Gerbens

Display Case Coordinator - Mrs. Van Houten

Committee for Dr. Blankespoor's Retirement Party - Dr. Swarthout, Dr. Hledin, Dr. Murray

Arbiter of AP Credit Appeals - Dr. Cronkite



A Busy Summer For Research And A Successful Symposium in October

The following students participated in summer research in the Biology Department as well as the very successful Symposium which took place in October.

Burkhart, Megan (Hope College) Remsburg, Alysa (Wittenberg University)
Mentor: Dr. Greg Murray
Light Reduction as a Possible Mechanism of Inhibition by an Invasive Exotic Species (*Vinca minor*) in Beech Maple Forest.

Cameron, David (Hope College)
Mentor: Dr. Tim Evans
A Phylogeny of *Aneilema* (Commelinaceae) Based on DNA Sequences From the Nuclear Ribosomal Internal Transcribed spacer Region.

Remsburg, Alysa (Wittenberg University) Burkhart, Megan (Hope College)
Mentor: Dr. Greg Murray
Allelopathic Potential of *Vinca minor*, an Invasive Exotic Plant in West Michigan Forests.

Den Ouden, Christian (Hope College)
Mentor: Dr. Kathy Winnett-Murray
The Effects of Local Arthropod Densities on Nest-Site Selection by Eastern Bluebirds *Sialia sialis*.

Heetderks, Gerrit (Hope College)
Mentor: Dr. Tim Evans
A Cladistic Study of Bromelioidiae Genus *Nidularium* Based on Molecular Characteristics from Chloroplastic DNA Spacer Regions and Internally Transcribed Spacer Segments of Nuclear Ribosomal DNA.

Koedyker, Joel (Hope College)
Mentors: Dr. Donald Cronkite and Dr. Min-Ken Liao
Succession of *Bacillus Megaterium* in the *Piper nigrum* Biofilm.
Lamers, Kristin M. (Hope College)
Faculty Supervisor: Dr. Dan Gerbens
Mentors: Dr. Kathy Winnett-Murray, Dr. Virginia McDonough, Dr. Donald Cronkite, Dr. Chris Barney
Integrating Research Into Education to Improve Science Teacher Preparation and Science Literacy of Students.

Martin, Holly (Hope College)
Mentors: Dr. Jim Gentile and Glenda Gentile
Mutational Sequence Specificity of Mice Exposed to Aflatoxin B1 and *Fasciola hepatica*

Murray, Jody A. (Hope College)
Mentor: Dr. Harvey Blankespoor
Swimmer's Itch on Lakes Mitchell and Cadillac: With an Emphasis on the Intermediate and Definitive Hosts.

Nehs, Matthew (Hope College), Hardy, Lisa (Hope College), De Young, Nathan
Mentor: Dr. Christopher Barney
Effects of Losartan on Oxygen Consumption and Core Body Temperature Following Hemorrhage in Conscious Rats.

Norden, Bradley (Hope College)
Mentors: Dr. Jim Gentile, Glenda Gentile
Analysis of Mutant Frequencies in Big Blue Transgenic Mice Infected With the Parasite *Fasciola hepatica* and Aflatoxin B1.

Roth, Therese (Grand Valley)

Mentor: Dr. Virginia McDonough
Characterization of $\Delta 9$ Desaturase From *Schizosaccharomyces pombe*.

Sander Lori (Allegheny College)
Mentor: Dr. Kathy Winnett-Murray
Aggression of Eastern Bluebirds, *Sialia sialis*, Toward Intruders During the Egg Stage

Stowe, Timothy (Hope College)
Mentor: Dr. Jim Gentile, Glenda Gentile
Etheno DNA-base Adduct Formation and Depletion of Hepatic Glutathione in Response to Oxidative Stress Induced by *F. hepatica*.

Wade, Dylan (Hope College)
Mentor: Dr. Tim Evans
Phylogenetic Relationships of the Tribe Tradescantieae: A Cladistic Analysis of *ndhF* Sequences.

Burket, Erica (Hope College), Schwartz, Emily (Hope College)
Mentor: Dr. Leah Chase
Study of NBAT, a bO, +-Type Transporter and xc-a Cystine/Glutamate Antiporter.

Schultz, Sarah (Hope College)
Mentor: Dr. Maria Burnatowska-Hledin
The Role of VACM-1 in Regulating the Translocation of Aquaporin-2 to the Cell Membrane.

Huber, Jennifer (Hope College)*
Mentors: Dr. Graham Peaslee, Glenda Gentile, Dr. Jim Gentile, Dr. Paul DeYoung
The Antimutagenic Effect of Cholrophyllin on Metabolically Activated Cyclophosphamide.

*An interdisciplinary project

