



THE NICHE

The Student -Faculty Newsletter of The Department of Biology
The College of William & Mary

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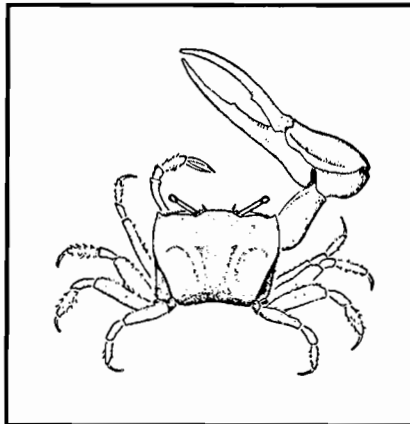
STUDENT COMMITTEE REPORTS ON BIOLOGY CURRICULUM

"We recommend that the expansion of the introductory 'Principles' course to two semesters should be adopted as soon as possible." That was the response of the ad hoc Student Curriculum Committee in its report to the Department of Biology faculty. Making up the student committee are seniors **Bryan Brendley, Elizabeth Crone, Steve Crossman, Wendy Taylor, and Ken Callicott** who acted as chair.

The students' three-page report was in response to a proposed new curriculum being formulated by the Curriculum Revision Committee of the faculty. On Friday, February 15th, the students presented their views to the faculty in a specially called meeting that lasted more than one hour. The faculty committee, chaired by **Professor Bruce Grant** (with **Professors Bradley, Capelli, Mathes, and Scott**) will make recommendations to the entire faculty for consideration before the end of the semester. *(continued on page 2, CURRICULUM)*

Eight Students Doing Honors Research in Biology

Eight Biology students have been doing independent Honors research with Biology faculty members since school began last Fall. Honors 495-496 is open to Seniors who have an overall QPA of 3.0 or a 3.0 QPA for the Junior year. The Department's Honors and Undergraduate Research Committee, Chaired by **Professor Robert Black**, oversees the program in Biology. If you are a rising Senior interested in this opportunity, please see Dr. Black (Millington Room 324, extension 12228).



This year's Honors students are working on a wide variety of research topics. **Kiram Bambha**, for example, is working with Dr. Mathes on the influence of selected antioxidants on the production of adventitious tomato roots. **Ken Callicott**, in Dr. Mangum's laboratory, is studying polymorphism in the hemocyanin protein in Fiddler crabs.

Elizabeth Crone is surveying forest vegetation in Westmoreland State Park on the Northern Neck. Working in conjunction with **Dr. Stewart Ware**, Elizabeth is examining the effects of environmental *(continued on page 2, HONORS)*

BIOLOGY



WILLIAM & MARY

Biology T-Shirts Go On Sale To Benefit Student Research

Official Department T-Shirts are available from **THE NICHE**, the Chair's Office, or through the Biology Club. The 100% cotton XL white shirts with a centered 7 by 5 inch William-and-Mary-green logo depicted above are \$10. Pocket T's with a 3 by 2 pocket logo are \$11. Sweatshirts are \$15 (depending upon availability). A few green shirts with yellow logos are available. Money will go toward graduate and undergraduate student research.

Mail orders will be taken. Add \$1 per shirt for mailing. Send to **THE NICHE**, Department of Biology, College of William and Mary, Williamsburg, VA 23185.

BIOLOGY ALUMNI CONTRIBUTE \$2,400 TO DEPARTMENT IN NICHE SUBSCRIPTIONS

Biology alumni have contributed more than \$2,400 to the Department through \$10 yearly subscriptions to **THE NICHE**. Funds raised will go toward undergraduate research opportunities. We sincerely thank all of our graduates who continue to help current students during these financially difficult times.

CURRICULUM (continued from page 1)

One of the major components of the proposed new curriculum is the expansion of Principles of Biology for concentrators to two semesters, the first concentrating on Molecular, Cellular, and Developmental Biology, and the second on Environmental, Population, and Organismal Biology. Each semester would include a required laboratory taught as a series of two-week mini-courses by individual faculty on important concepts and techniques in their particular areas of Biology. For example, there might be laboratories on molecular biology techniques, tissue culture, electron microscopy, field biology, behavior, and so forth. Each lecture course would be taught by a single faculty member.

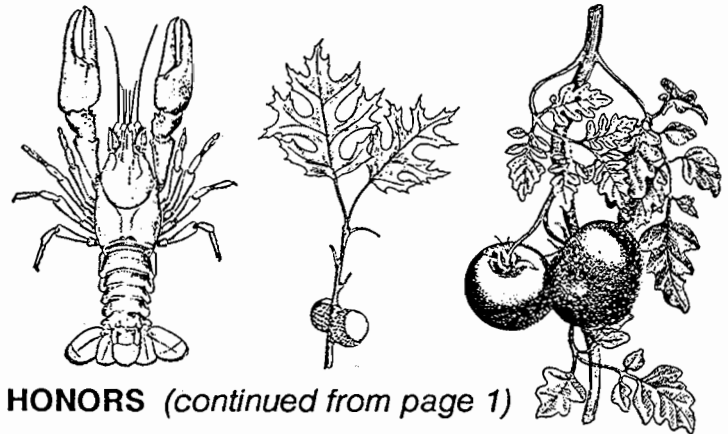
Another component of the new system would be the creation of a non-major's sequence to accompany the current Human Biology course. If the new curriculum is accepted by the faculty, non-majors will no longer be required to take Biology 101 before they are permitted to take Human Biology. Botany and Zoology would remain as concentration requirements; Genetics, on the other hand, might become optional as Advanced Genetics if general genetics can be covered sufficiently in the expanded Principles courses.

These and other possibilities are being discussed by department faculty. Student suggestions and reactions are welcome. Contact Professor Grant, Mr. Callicott, or THE NICHE.

Professor Beck Receives Commander's Award for Public Service

Professor Ruth Beck was awarded the Commander's Award for Public Service by the Norfolk District, U.S. Army Corps of Engineers. This is the highest civilian award the Corps can bestow. In a Department Greenhouse ceremony, Colonel Richard C. Johns made the presentation and praised Professor Beck's work that helped preserve the least terns, an endangered species nesting on Craney Island in Norfolk.

Mrs. Beck, chief instructor for laboratories in all three introductory Biology courses, was also awarded the Take Pride in America Award by the Virginia Department of Conservation and Recreation. Her work with the Least Tern, Red-cockaded Woodpecker, Wilson Plover, and other endangered and threatened species continues with grants and contracts awarded by the U.S. Fish and Wildlife Service, Audobon Society, Department of the Army, and the Virginia Department of Game and Inland Fisheries.



HONORS (continued from page 1)

and historical land use patterns on the present-day composition of forest vegetation. Although other forest areas have been studied in this manner, Elizabeth's work represents the only such investigation of its kind in Westmoreland State Park.

Steve Crossman is working with Dr. Terman and Dr. Bradley on the effect of social position (dominant or subordinate) on organ weights and the level of corticosterone in Prairie Deer mice. He says that this is a great experience for graduate school and has learned that research takes a great deal of foresight and planning -- finding that you always run more experiments than you were planning to run because some don't work out and mice escape!

Dawn Field is investigating the ultrastructural features of mitosis in the red alga *Bossiella* as a possible taxonomic criterion. Dawn is working with Dr. Scott on her project.

Elizabeth Peterson is working with Dr. Capelli. She is monitoring behavior patterns in crayfish using video equipment that translates motion into numerical data. Although she is going to medical school, the honors research program has allowed her to see what it's like to be a biologist, rather than just sitting in a lecture hall.

Wendy Taylor, working with Dr. Phillips, is studying the function of the *ffh* gene in *E. coli*. Like other honors students, Wendy is glad she undertook her project, despite the amount of work involved.

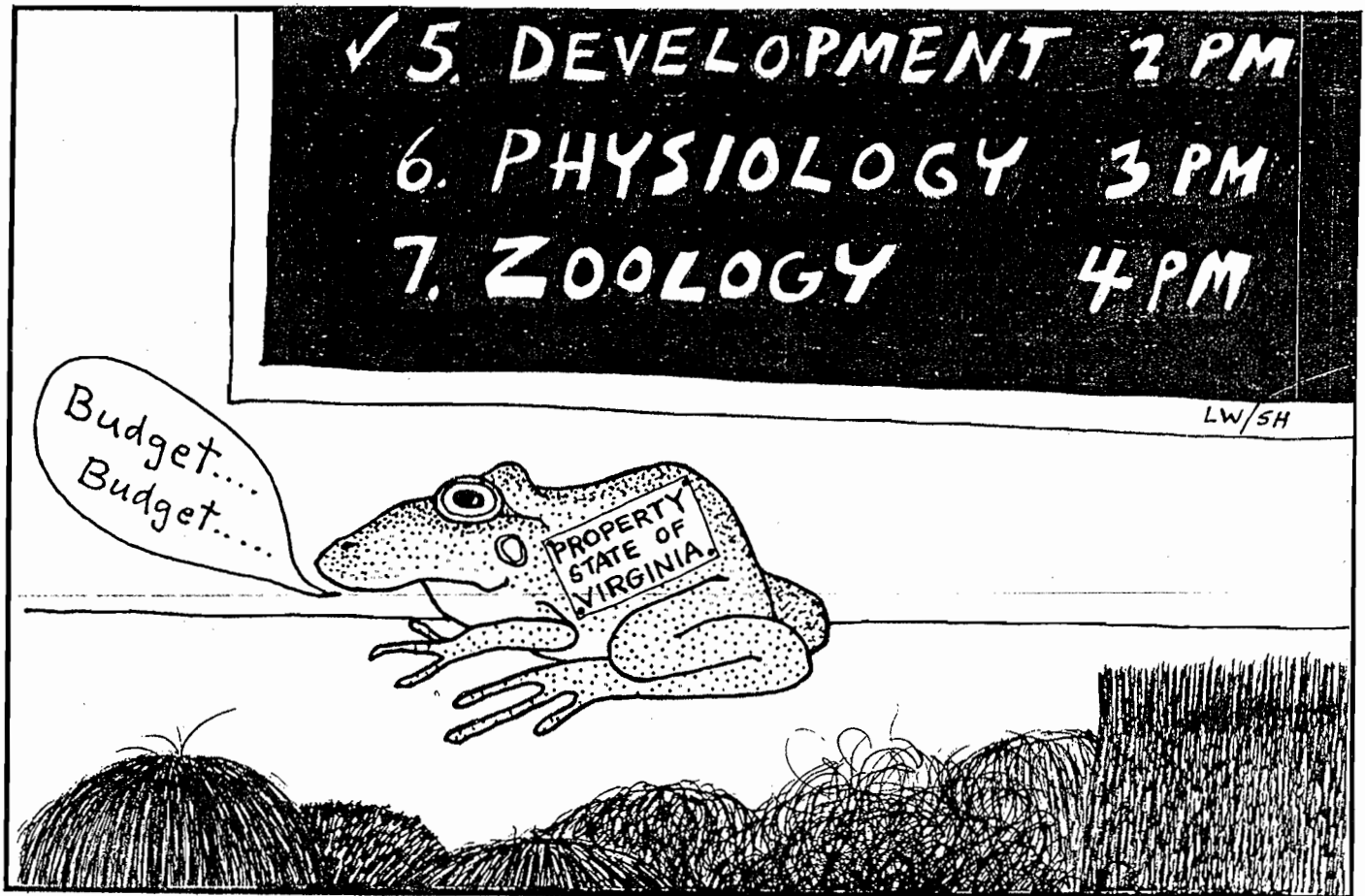
Tom Umbach is studying the fungus *Aspergillus oryzae*, investigating protein changes after light induced spoilage. Tom, who is working with Dr. Coursen, is interested in the relationship of the cell and its environment.

If you are interested in doing research, but not Honors, Biology 403/Research in Biology may be for you. See Dr. Black to discuss this option.

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The Student-Faculty Newsletter of The Department of Biology
The College of William & Mary

Published by the Department of Biology and Biology Club
Co-editors: Sally Hunsucker and Lisa Jones



Physiology class gets its turn at the Department frog.

Nature Conservancy Jobs

THE NICHE has been sent information on the following jobs with the Nature Conservancy:

1. Vegetation Research Specialist

This is a six month study of the vegetation conditions at sites used by neotropical migrant bird species. A degree in biological science or comparable research experience is required.

2. Migratory Songbird Research Specialist

This is a nine month "project to identify the most significant natural habitats for neotropical migrant songbirds."

An M.S. degree in biological science or comparable field research experience is required.

Interested in any of these? See the Biology Club Bulletin Board right outside room 117 for more details on these and other jobs.

Summer Research Fellowships in Molecular Biology at W&M

In June of 1989, the College was awarded a \$1 million grant from the Howard Hughes Medical Institute for undergraduate education in biological sciences. As part of the Department's program, we are sponsoring summer fellowships for undergraduate research in molecular biology.

Up to ten awards will be given to Biology and Chemistry students for work this summer with a faculty member in one of the Departments or at the School of Marine Science. The fellowship includes a free dormitory room and \$200 per week for eight weeks.

Interested students should see Dr. Black (Millington Room 324, extension 12228), Chair of the Department's Honors and Undergraduate Research Committee, as soon as possible. He has application forms and can explain the program in detail, as well as help students think about the kinds of projects available and the faculty members with whom they might like to work.

TOP TEN LIST

From the Home Office in Williamsburg, Virginia, The Top Ten Ways To Stay Awake In An 8 am Class

- 1. Savor the fact that this class will probably be cut from the budget next year.
- 2. Sit beside your latest crush or anyone else you wouldn't want to see you drool.
- 3. Caffeine, caffeine, caffeine, caffeine.
- 4. Remove one of the legs from your chair or desk.
- 5. Busy yourself thinking of an adjective other than "elegant" that biology professors can use to describe their favorite experiments.
- 6. Keep in mind that bugs like to crawl on stationary objects.
- 7. Picture the amount \$6,975 in your mind --otherwise known as your tuition.
- 8. Pull out hairs from your nose.
- 9. Correct the many spelling errors in the graffiti on your desk.
- 10. Torment your friends who are also falling asleep.

BIOLOGY CLUB CALENDAR

March 23 (SAT.) Trip to Charles City Fish Hatchery
March 26 (TUE.) Club Meeting: Voting on New Bylaws
April 2 (TUE.) Club Meeting: Elections
April 6 (SAT.) Trip to Virginia Marine Science Museum
April 9 (TUE.) Club Meeting
April 16 (TUE.) NO MEETING
April 22 (MON.) Earth Day
April 28 (TUE.) Last Meeting of Semester
Biology Club Meetings are held on Tuesdays at 7:30 PM in Millington 117. Check the Biology Club bulletin board outside Room 117 for more information on upcoming events.

MICROBIOLOGY WILL BE OFFERED

LECTURE: TT 11:00-11:50 NEXT FALL
LAB 1: MF 13:00-15:50
LAB 2: TT 8:00-10:50

Letters to THE NICHE

Please address your questions, comments, suggestions to THE NICHE, Biology Department or drop them off at our mailbox in Millington Room 118.

According to the course catalog, Biology students may use up to 8 hours of Chemistry toward the 38 credits needed for a major, with the Chemistry grades being factored into the student's Biology GPA. Is this done automatically? What if I prefer not to use my Chemistry classes toward my major? Professor Wiseman, Chair of the Department, says if you use the Chemistry courses for the major they will automatically be included in your Biology GPA. However, if you choose not to use them (i.e., you have 38 credits of Biology and opt not to use any of the Chemistry credits), they will not be used in calculating your Biology GPA. If you use just one of your Chemistry courses, you cannot choose which one (i.e., you have an A and a C, and you want to use the A). If you need three Chemistry credits, the Registrar will automatically use the last or most advanced of the four Chemistry lecture courses. If you need one credit, the last laboratory will be used. If you need four credits, the last lecture and last lab will be used, etc., working backwards from most-to-least advanced. All this has been worked out with the Registrar's Office. If you have, or suspect to have, problems with this, please see Wiseman.

What are the requirements for a student who wants to do an Honors Research Project in Biology?

To do research takes interest, curiosity, willingness to work hard, and knowledge or the ability to gain it. The Honors Program, open to Seniors, requires an overall 3.0 GPA or a 3.0 in the Junior year. Students can also do research as Biology 403. In either case, the Department's Committee on Honors and Undergraduate Research oversees the program. If you are interested in doing research you should see Dr. Black, Chair of that Committee, or Dr. Wiseman, Chair of the Department. One of the first things you should do is familiarize yourself with the different kinds of research the faculty do. You can pick up a sheet which briefly summarizes faculty research from either Professor. Also, they each have a book which includes one reprint of a research article from each faculty member in the Department. Once you decide on a few areas of interest, make appointments to talk with the individual professors. In those conversations you should ask to see other reprints they have of their scientific publications. You can also discover if they have had other undergraduates in the past who have published research done in the professor's laboratory. This will give you a good idea of the kinds of things you can do.

One of my Professors told me that "way back when" all Biology labs were 8 hours long. Is this true or was he just trying to make me feel better?

It depends on how long ago "way back when" was. It is true that the trend over the past several decades has been to reduce laboratory contact hours in college science courses. It was typical for many courses in the past to schedule two four-hour laboratory sessions per week. And, there were very few courses with optional labs such as we have in Genetics, Cell Biology, Developmental Biology, and so forth. Not all faculty agree on how long laboratories should be, nor do we have good data on the relationship between the quality of labs and the number of hours they meet. Perhaps your professor was telling the truth and trying to make you feel better all at the same time.

Recent Books and Book Chapters Written By Biology Faculty

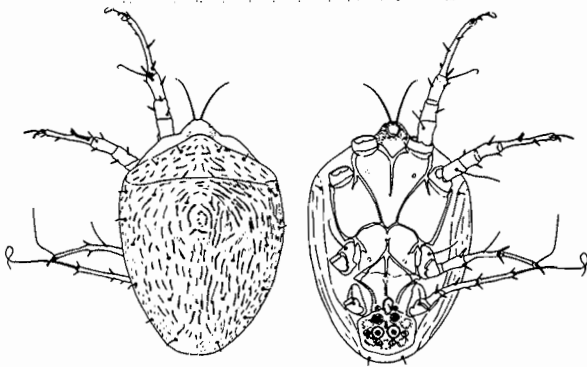
Professors Sharon Broadwater and Joe Scott authored "Cell Division," a chapter in *Biology of the Red Algae*. This major new book on red algae was published by Cambridge University Press and is designed to summarize current knowledge and provide a reference for researchers and teachers in phycology, aquatic biology, limnology, oceanography, and plant evolution.

The five chapters on ecology and evolution in Campbell's *Biology* were written by Professor Greg Capelli. This is the country's top-selling general biology college textbook. Capelli also served as consultant on the ecology and behavior chapters in the second most popular biology text, Raven and Johnson's *Biology*.

Professor Charlotte Mangum has two chapters soon to be out. "Physiological Adaptations of Crustacean Hemocyanins" in *Lung Biology in Health and Disease*, and "Recent Advances in Hemocyanin Physiology" in *Invertebrate Dioxygen Carriers* continue her widely recognized work on invertebrate oxygen carriers.

"Life History and Reproductive Patterns of Astigmatid Inhabitants of Water-Filled Treeholes" is the title of Professor Norman Fashing's chapter in a soon-to-be published book on mites. *Life Histories and Reproductive Strategies of Mites*, edited by Marilyn A. Houck, will consist of thirteen chapters, each dealing with a different aspect of mite life history or a different group of mites.

Professor Wiseman co-authored with John Thelin from the School of Education a book on intercollegiate athletics. *The Old College Try: Balancing Academics and Athletics in Higher Education* is a look at the economics and politics of big-time intercollegiate athletics. The book, reviewed in the national press, led to an invitation to the authors to testify in Washington, D.C. before the Knight Foundation Commission on Intercollegiate Athletics.



More Professors Pick Influential Books.....

In the last issue of **THE NICHE**, eight Biology Professors responded to our question, "What three books have been most influential in your life?" Three more faculty have bravely come forward with their picks.

Professor Brooks:

Why I Am Not A Christian by Bertrand Russell
Candide by Voltaire
Animal Farm by George Orwell

Professor Mangum:

The Meaning of Truth by William James
The Meaning of Evolution by G.G. Simpson
Comparative Animal Physiology (1st edition) by C.L. Prosser

Professor D. Ware:

The Flora of the Missouri by Julian A. Steyermark (or to reach back to my high school years and that "tome" that first set me on a taxonomic course: *Flowers--A Golden Guide to Familiar American Wildflowers* by Zim and Martin)
Surprised by Joy by C. S. Lewis (his autobiography)
The Road Less Traveled by M. Scott Peck

BIOLOGICAL PERSPECTIVES ON PHILOSOPHY, NEW COURSE IN DEPARTMENT

Biological Perspectives On Philosophy, a one-credit Biology course taught by Professor Greg Capelli this semester, has enrolled nine students. Several years ago Capelli received a grant from the College's Honors and Interdisciplinary Studies Committee to develop the course, the first of its kind in the Department.

Professor Capelli says the course "examines the perspectives that modern biology brings to traditional philosophical considerations." These include two major areas: (1) the essence of human nature as related to ideas about mind, consciousness, and mind/body dualism, and (2) ethics. He emphasizes that the course is not a typical bioethics course in which ethical dilemmas posed by current biotechnology are discussed. Rather, it is an attempt to understand the possible biological basis of ethical systems.

To what extent can the human mind be explained in ordinary physical, chemical, and biological terms? How far down the phylogenetic tree do "thinking" and emotions exist? These are two of the questions students are discussing. In the process they are examining evolutionary explanations for behaviors -- altruism, deception, cheating, infanticide-- found in other species that would be couched in moral or ethical terms if they occurred in humans.

The class is concerned with the value of scientific versus non-scientific approaches to answering philosophical questions. Capelli says "the approach of philosophers to ethics mostly has been to formulate precepts, and then discuss how humans 'ought' to behave. Our emphasis is more on origins, that is, on how people in fact 'do' behave, and possible biological explanations for that behavior."

Campus Conservation Coalition Calendar

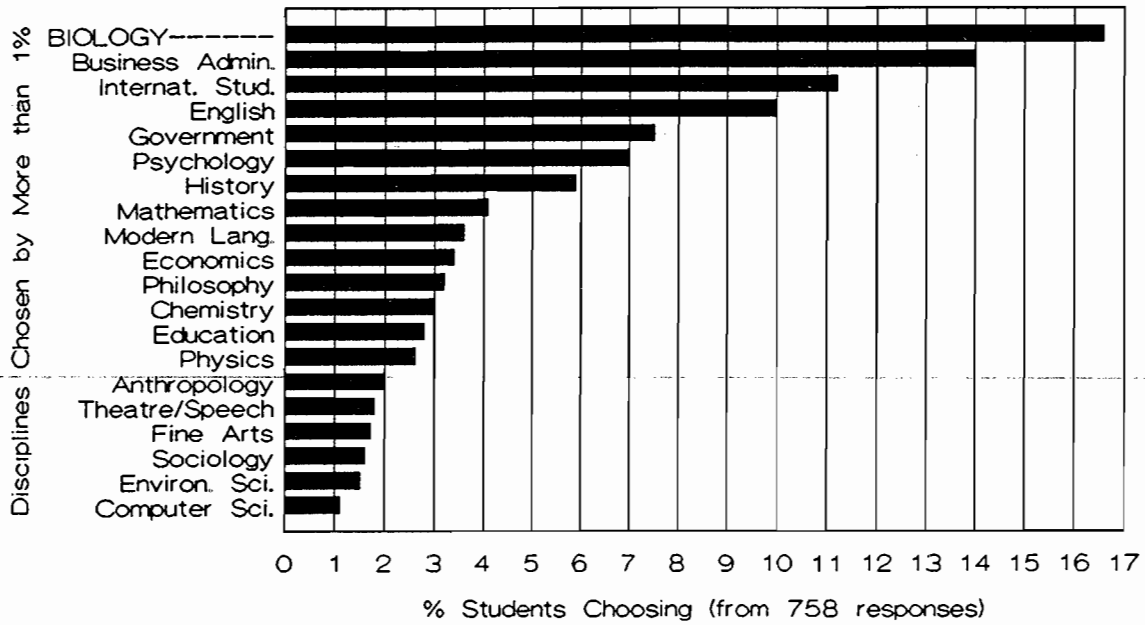
APR 6th - Historic Rivers Land Conservancy talk thru Special Programs. Call 221-4084 to register (FREE) 10-3 o'clock

APR. 22nd - EARTH DAY

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*Biology Department Newsletter
College of William and Mary*

CONCENTRATION PREFERENCES OF ENTERING W&M FRESHMEN -- Class of 1994



THE NICHE
*Department of Biology
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TO: