



Editor of this issue: Qinfeng Guo (University of New Mexico). Editors-in-Chief: Xinyuan (Ben) Wu (Ohio State University).

John Lawton's
(Modest) Advice for Graduate Students

(When reading the recent issue of *Oikos*, I found the followings may be interests to our club members, especially to current graduate students. For the full article, see *Oikos* 65:361-362, 1992 ---- Editor)

"Being a graduate student is not easy in any subject, including ecology. Lousy pay and thirty-six hour days are two of the best things to look forward to. But there are several things that it would help all aspiring graduate students in ecology (and their advisers!) to know or think about. In no particular order they include the following.

1) Avoiding re-inventing wheels.

Too many students have an appallingly poor grasp of the literature, particularly anything published before they were born, and on anything other than their study organisms and related taxa. There is an awful lot of literature out there and you are going to have to devote a great deal of your time to reading current papers and to doing experiments; it is also dangerous. Take advice from older colleagues and colleagues who work on different ecosystems and on different kinds of organisms about relevant literature. If you think you have a really new idea, pause and ask about; it is probably in something published as long as 1965, or even more obscurely, in the Origin of Species....

2) Do not, however, be put off by all this literature. The best way through it is not to try and read it all (an impossible task!), but to take advice, preferably from supervisors and colleagues who do not have IS, and be selective. And remember, if anybody is going to have a really good, new idea, it is you. Too much reading can kill creativity; too little leads to illusions of creativity. It is a difficult balance to strike, but you are going to have to try.

3) Avoiding picking a species to work on because it is "interesting", cute and cuddly, or because nothing is known about it. Species-oriented studies lead to papers that start with: "Very little/nothing is known about the (some activity, say mating habits, or migration, or digestive physiology) of the (species name), particularly in (a place, say Wyoming) during (some particular time, e.g. winter, or wet Tuesdays)". There may be ten million species on earth; picking one at random to work on is not interesting and unlikely to get you a job. It is important to be familiar with the biology of a species or group before embarking on tests of some general theory; if the biology is wrong, so the answer to the question will be wrong. moreover, there are clearly some species, charismatic vertebrates or beautiful plants for example, with threatened or endangered populations, where species-oriented work is justified in order to conserve them. for this tiny fraction of species that the public care about, money may be available to work on them for their own sake. But even here, keep your eye on the general principles. Study processes and general problems, not Latin binomials.

4) Think very hard before you set out to study niche-differences between closely related species, or coexistence, or inter-specific competition, or some combination of these in yet another pair of species or group of organisms. The literature is awash with such studies. There are still some good problems to investigate here, but if you cannot write them down on the back of a postcard, in simple, plain English, don't do it. ("Nothing is known about how species X, Y and Z coexist" is not a good reason for studying them).

5) Do not travel solely on the current bandwagon of field-oriented manipulation experiments. Hypotheses can be tested very powerfully in laboratory systems, and there are many large-scale ecological processes that cannot

be tested at all by manipulation experiments. But that does not mean that they are immune to rigorous investigation. Some of the interplay of local and regional processes, the determinants of geographical ranges, and so on.

6) Learn to love theory, but be prepared to discard even the most elegant and pleasing mathematical models, if the data say so. For example, the core-satellite hypothesis and some food-web theory have probably both served their useful lives and should quietly be retired as explanations for what happens in nature.

7) When you start to publish, avoid salami science, otherwise known as the minimum publishable bit. Publish substantial papers, not weekly comic strips that reveal the full story in thirty-six parts. Incidentally, supervisors, major professors and advisers do not have a God-given right to put their names on all your papers. They have to earn it. Authorship is tricky, of course, because job references are provided by the same people who want to put their names on your papers. One useful argument, in difficult situations, is that simply putting the head of a lab's name on a paper can lead to considerable embarrassment for that person, if the paper is subsequently shown to be mistaken, or wrong.

I could go on, but that will do for now. Personally I find giving advice very rewarding, and rarely find that people ignore it, or question it. We will develop some of these ideas in a later article, when we feel moved, once more, to offer pearls of wisdom. We do however, have one final thought: Take as much advice as you can about your work, but take it all with a pinch of salt, particularly when it is offered by somebody with IS. The evidence suggests that the best and most creative work in science is done by young people. Don't let us stop you!"

MEMBER NEWS

(1) Yude Pan completed her PhD at the SUNY at Syracuse and moved as postdoctoral research associate at the Tree Ring Lab, Lamont-Doherty Earth Observatory, Palisades, NY 10964. Phone 914-365-8517

(2) Zhigang Wang moved to the Dept of rangeland ecology & Management in Texas A&M Univ., College Station, TX 77843-2126.

(3) Zhiming Wang started his PhD program in Missouri. His new address is: 1-30 Agriculture BLD, Univ. of Missouri-Columbia, MO 65211. Phone: 314-884-3756 (H), 882-4646 (O). E-mail: snrwang@mizzou1.missouri.edu.

(4) Jiquan Chen is taking a terrestrial ecologist position (assistant professor) in the School of Forestry and Wood Product, Michigan Tech Univ. Houghton, MI 49931. Use this address after Aug. 20, 1993. Phone: 906-487-2454, Email: Jiq@MTU.edu.

Sino-ECO MEMBERS GATHERING at MADISON

Sino-ECO members will have a gathering during the ESA meeting in Madison, WI. It will be hosted by Dr. Xi He between 4:30-7:30pm on Sunday, August 1 in MU-Council Room. Please bring 3-5 best, representative slides you have.

SCHOLARSHIPS

Hsu Sen Fa Scholarship (Several; each \$2000) for Ph.D. candidates from mainland China is now accepting applications for the year of 1993. Eligibility: (1) Mainland Chinese students in NY, NJ, PA. only. (2) Ph.D. candidate working on the Dissertation. Send: detailed appl. form, two ref.letters from profs., certification of Ph.D. candidate status, transcripts, dissertation outline. If you have been offered or are applying for other scholarships, please make a note of it. On similar qualifications, this scholarship will give priority to those who do not have other scholarships. Appl. accepted from 05/31-07/31/93. The scholarship will be available in Oct.,93. Write to: Mr. Hsu Sen Fa Scholarship, PO BOX 589, Glen Oaks, NY 11004.

NEW BOOKS

(1) *English-Chinese Landscape Ecology Terms* (23pp, about 1000 terms) now available; contact: (i). Dr. Jianguo Liu, HIID, Harvard University, Cambridge, MA 02138. Phone: 617-495-3621. Email: JLIU@HUSC.HARVARD.EDU. (photocopy only) or (ii). Dr. Chen Changdu, Lab of Landscape

Ecology, Dept of Urban & Environmental Sciences
Peking University, Beijing 100871, CHINA
Phone: (011-86-1-254-1179).

(2) *Wetlands*. Second Edition (W.J. Mitch and J.G. Gosselink 1993) is an essential and most welcome volume for those seeking a thorough understanding of the characteristics, management, and preservation of our nations wetlands. It provides an extensive overview of virtually every type of saline and freshwater wetland in North America. The authors cover the chemistry, biology, ecology, hydrology, geography, management, and preservation of: tidal salt marshes, mangrove wetlands, northern peatlands and bogs, freshwater marshes, southern deepwater swamps, riparian wetlands, and more. "The strength of this book is its comprehensiveness, combined with the clear evaluation of general principles and processes." --Biosciences. "Mitch and Gosselink introduce readers to a wealth of literature in a well-organized and readable manner." --Ecology. (Published by Van Nostrand Reinhold, NY. \$59.95).

NEWS

(1) *Sheng-Tai-Xue Za-Zhi* (Ecology Journal) will have one/two special issues reserved for papers authored by Sino-Eco members. This is a more general journal than *Sheng-Tai-Xue-Bao*. Submitted papers would include hot topics, new trends, new ideas, summary of a research area, summary of your own research, etc. Please contact: Dr. Weixin Cheng, Inst. of Ecology, Univ. of Georgia, Athens, GA 30602-2202, Phone: 706-542-5879 (O); Fax: 706-542-6040; Email: cheng@athena.cs.uga.edu.

(2) Based on the requests of our members, we are preparing to establish an electronic archive for the back issues of Sino-ECO Newsletter. Before the electronic archive is established, some back issues in electronic form can be obtained by sending a request through e-mail to Jianguo Wu "wu@eno.princeton.edu" or Xinyuan Wu "xwu@magnus.acs.ohio-state.edu". The back issues published in 1988 and 1989 are available now. We would like to ask those editors who edited issues since 1990 to e-mail a copy of the issue(s) you edited to the current Editor-in-Chief at "xwu@magnus.acs.ohio-state.edu".

JOB ANNOUNCEMENTS

1) **Research assistant** (1 yr, renewable upon funding): Assist with development and maintenance of research monitoring systems for nutrient cycling and stream discharge from terrestrial ecosystems. Assist in research budget tracking, and renew research permits. Assist in the compilation, and presentation of research findings. Minimum BS in biology, natural resources, ecology, aquatic chemistry, or a related field. Prior experience with scientific research procedures. Must possess good writing and oral presentation skills and exhibit an understanding of ecological concepts. Hiking, carrying backpacks, constructing, installation of field equipments. Salary: \$18,000/yr with fringe benefits. Send resume, transcripts and three ref. letters before 8/15/93 to: Dr. George Weaver, Prof. and Head, Re: UT-CPSU Res. Asst. Forestry, Wildlife and Fisheries Dept. Univ. of Tennessee, Knoxville, TN 37901-1071 Tel.615-974-3897

2) **Graduate assistantship**: Study on interactions between microbials and parasitoides in biological control of forest insect folivores, approached from several perspectives: basic ecology, transgenic plants, forest protection. Opportunities for collaboration include molecular biologists, plant pathologists, and statisticians. Ph.D. student preferred. Funding is available for 4 yrs., beginning fall semester/93. \$15,200/yr, plus fringes and waiver of out of state tuition. Contact: Kenneth Raffa, Prof. Depts. of Entomology & Forestry, 345 Russell Laboratories, University of Wisconsin at Madison, WI 53706. FAX 608-262-3322; Email: RAFFA@MACC.WISC.EDU

3) **Post-doc**: To join in a project: "Recovery of Terrestrial Ecosystems from Major Disturbance: constraints due to Carbon/Nutrient Interactions". The project will entail an analysis of changes in the biogeochemistry of ecosystems undergoing succession following major disturbance. Ph.D. in terrestrial ecology or related field, with strong background in calculus, modelling, and biogeochemical cycles, and who works well in collaborative research. 1 yr with a possible renewal for up to 2 additional yrs. Submit resume and 3 refs to: Human Resources at the Marine Biol. Lab., Wood Hole, MA 02543.

4) **Graduate student** (Forestry/wildlife): Study the third year effects of a herbicide glyphosate on moose browse near Thunder Bay Ontario Canada. B.Sc.H. in biology, wildlife, forestry or related field. Upper B average minimum. Desire to obtain a Master degree of Forestry. Ability to work in the Boreal Forest and good background of statistics. Start: 09/1/93; Stipend: \$17,000/yr for 2 yrs. Contact: Dr. Harold Cumming, School of Forestry, Lakehead University, Thunder Bay Ontario. Canada P7B 5E1. Phone 807-343-8280, Fax 807-343-8116.

(5) **Postdoc**: Available 09/93. Quantitative ecophysiological or physiological ecologist to join a team researching the impact of elevated CO₂ on model ecosystems. The project is an investigation of the interaction of CO₂ and temperature on plant and ecosystem processes. This project has been accepted as part of the core research program of the GCTE core project of the IGSP. Experience with gas exchange techniques and/or stable isotopes, and modelling of photosynthesis, plant carbon balance, or ecosystem processes. Contribute to the on-going work program of the project but also be expected to initiate new studies utilizing the OTC experimental facility. Join a lab that is well set-up for gas exchange (LiCor and Walz systems) and other physiological measurements. Landcare Research is a New Zealand Crown research Institute with 200 scientific and technical staff located at 3 main centers. Salary: \$NZ.30,000-35,000/yr upon experience, and return airfare will be provided to the successful candidate. Appl. by 08/15/93. Send: CV, copies of 1 or 2 manuscripts and the names, addresses, and Tel# of 2 refs. to: Dr. F. Kelliher, Landscape Research, PO Box 31-011, Christchurch, New Zealand. Fax +64-3-351-7091.

(6) **Senior Lab Supervisor**(20 hrs/week): Responsible for combination of field and Lab studies in one or several of the following areas: i. transport, transformation and fate of organic and inorganic contaminants in terrestrial and aquatic ecosystems; ii. measurement of trace gas exchange between the atmosphere and the biosphere; iii. biological effects research to address the impact of airborne and soil-borne contaminants on biosphere; and iv. multimedia modeling of contaminant transport, fate and effects. MS in environmental science. 4 yrs experience in geochemistry, plant ecological physiology, or a closely related field performing studies similar to those cited above; 3 yrs of lab experience; skill in communication, professional presentations and publications; Skills through supervisory position or classroom teaching. Salary: \$15,000 (half-time to start), upon qualifications and experience. the desert Research Institute offers an excellent benefits package. Deadline: received by 06/30/93; Position available: 08/01/93. Send: letter of interest, CV, names, address, Tel # of 3 refs. to: Dr. George Taylor Jr. Biological Sciences Center, Desert Research Institute, PO Box 60220, Reno, NV 89509, Tel: 702-673-7337.

(7). **Program Manager**: Ph.D. in ecology, botany, zoology, or related field or equivalent in education and experience. Experience in applied scientific research in conservation biology. Experience in securing funding, drafting proposals, developing budgets and managing accounts. Experience in organizing, coordinating, and managing multiple projects with supervision. Familiarity with Alaska ecosystems and conservation issues. Knowledge in biogeography, physical processes, and global issues in conservation biology. Experience in college teaching at undergraduate or graduate levels. Knowledge of The Nature Conservancy's Natural Heritage Program methodologies and BCD database management system and computers, database management systems, and GIS Responsible for the overall supervision and development of the Alaska Natural Heritage Program. Review will begin 07/09/93 and until the position is filled. Send a letter of appl. CV, names and phone # of 3 refs. to: Personal Services, Univ. of Alaska, Anchorage, 3890 university lake Drive, Anchorage, AK 99508. Phone 907-786-4608, Fax 907-786-4727.

(8) **Grad Research Assistantships**: 3 MS or PhD RAs to investigate the physiological ecology of semiarid plants. 2 students will examine the effects of environment and genotype on water use efficiency and stable isotope discrimination in juniper. One student examines the amount and sources of water for dominant shrub species in the Mojave Desert. Research results will form the basis of each student's thesis or dissertation research. BS into MS and MS into PhD. Minimum GPA of 3.00. GRE must be taken before admission to the Graduate School. Each \$12,000/yr. Each RA also includes a fee waiver that covers most tuition costs plus an out-of-state tuition waiver. Funding for subsequent years is predicted on satisfactory progress in the preceding year. To apply, send a letter of interests and experience, a copy of your CV and transcripts, and the names, addresses and phone # of 3 refs. to: Dr. Robert S. Nowak, Dept of ERS & EECB Program, University of Nevada, 1000 Valley Road, Reno, NV 89512. Phone: 702-784-1656, Email: nowak@unssun.scs.unr.edu. Deadline: 06/28/93 for Fall'93 admittance; 09/15/93 for starting dates after the start of the Fall'93 semester. UNR employs only US citizen and aliens lawfully authorized to work in the US.

(9) **Postdoc in Phys. Ecol.**: Funded by NSF and NSF Young Investigator Award. Up to 5 yrs (2-3 yrs optimal). Collaboration between phys. ecologist and molecular biologist. Require strong background in physiology of photosynthesis and biochemical techniques. For detail information, write to: Jim Coleman, Assistant Prof. of Biology, Syracuse Univ. Email: JSCOLEMA@SUVM.ACS.SYR.EDU Phone: 315-443-3748; FAX 315-443-2012

(10) **Fish Ecol. Job** (full time in ongoing NSF study on ecology and genetics of life history traits in striped bass, bluefish, Atlantic silversides. Maintenance of larval and adult fish cultures, seawater system, supervision lab expts, fish dissection and tissue analysis, ordering supplies, record keeping, and statistical analysis on computer. BS (MS preferred) with some training in biology, aquatic ecology, statistics, use of computers, research/work experience with aquatic animals, ability to work independently. 1-yr with strong possibility of extension (start 8/1/93, no later than 9/1/93). Send resume to: David O. Conover, Marine Research center, State Univ. New York, Stony Brook, NY 11794-5000. Phone: 516-632-8667, FAX 516-632-8820. Email: dconover@ccmail.sunysb.edu

(11) **Marine research Assoc.**: Permanent, \$2,120-3,546/MO. BA in physical or natural sci. 2-yr experience, or MA with 1-yr experience, or doctorate. Duties: develop and evaluate statistically valid sampling methods for estimating abundance of juvenile fish and conduct fisheries independent sampling in bays and nearshore areas. For more info. write to: Personnel office, Florida Marine research institute, 100 Eight Ave, SE, St. Petersburg, FL 33701-5095, Deadline: July 12, 1993.

(12) **Biologist**: Dept of Interior, Nat'l park Service, Wildlife & Vegetation Division, Natural Resources Program Branch, Washington, DC. Serve as technical expert and scientific advisor concerning the servicewide, restoration, and rehabilitation for endangered, threatened, rare or candidate species. Contact: Mr. Gary Johnson, Wildlife and Vegetation Division, 202-343-8100

(13) **Lecturer/senior lecturer** in silviculture/agroforestry Undergraduate and graduate teaching and research. Contact: Don Mead, Dept of plant science, PO Box 84, Lincoln Univ., Canterbury, New Zealand. Phone 643-325-2811; Fax 643-325-3843. Email: Draperj@lincoln.ac.nz.

