

 ***** SINO- ECOLOGISTS CLUB OVERSEAS *****
 ***** (SINO- ECO) *****

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Editors-in-Charge:

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 ***** Greenhouse Effects and Global Ecology *****

 (YEGANG@UWYO)

The problems of increasing greenhouse gas concentrations and possible future climate changes have attracted considerable attention in recent years. In the present assessment, the following major questions have been considered (Bolin et al. 1985):

- How much CO₂ has been and will be released into the atmosphere as a result of fossil-fuel combustion?
- What are the natural sources and sinks of carbon (the global carbon cycle) and what projections can be made of future atmospheric CO₂ concentration?
- What are the expected increases of other greenhouse gases that affect the Earth's radiation budget?
- How will global and regional climates change as a result of increases in CO₂ and other greenhouse gases?
- When and how will climatic changes can be detected?
- What changes of sea level can be expected as a result of a warming of the atmosphere?
- What are the responses of terrestrial ecosystems to direct effects of an increased atmospheric concentration of CO₂ and climatic change?

Uncertainties and Controversial Opinions

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Obviously, there are many uncertainties and controversial opinions. Possibly, ecologists can be devoted to discussions of:

- How to deal with the major uncertainties in our factual knowledge base.
 - What kind of the international collaboration and action might be necessary now, on the basis of present knowledge, or later, when more information has become available.
 - Research priorities to provide the best possible knowledge about the results of man's future exploitation of his natural environment and impacts on Earth's climate.
- (From Bolin et al. 1985)

1988 Ties for Warmest Year

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A consortium of British climatologists announced at the end of January, 1989, that average global temperature for 1988 was 0.34 degrees C above that of the 1950-79 reference period. The past year thus noses out 1987, at 0.33 degrees C above the reference, for the honor of warmest year in the 100-year record of instrumentally recorded global temperatures.

It was concluded that "The greenhouse warming should be clearly identifiable in the 1990s." (From Kerr, 1989)

The Sun and Future Global Climate

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Looming over all the efforts made so far to predict the global greenhouse warming is at least one giant uncertainty: the sun. Historical records suggest that subtle variations in the sun's energy output can have decidedly unsubtle effects on the earth's climate--effects strong enough either to delay the warming due to CO2 buildup for many decades or else, accelerate it dramatically. Astronomers can neither explain them nor predict them.

In conclusion, our climate depends on the sun, which varies in ways astronomers do not understand; can the clues be found in "starspot" cycle?? (From Waldrop, 1989)

I'm Not Being an Alarmist About the Greenhouse Effect

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James Hansen, head of NASA Goddard Institute for Space Studies, said "Our report on global temperature show that, without correcting for urban effects, global warming during the past century is 0.7 degrees C. When all weather monitoring stations associated with urban centers with populations of 100,000 or more are removed, the global warming is reduced to 0.6 degrees C. As yet the greenhouse warming is smaller than regional climate fluctuation." (From The Washington Post 2/11/1989)

Global Climate Changes Federal Budget

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 In "Global Climate Change" class at UW, Professor Reiners provided us with some data regarding U.S. federal funding obligations (in \$10^9):

Agency	1989	1990
NSF	39.2	53.5
DOE	20.2	27.2
USDA	18.3	22.7
NASA	14.5	21.5
EPA	27.4	35.3
NOAA	9.0	20.0
USGS	5.3	10.3

 ***** Forest Ecosystems *****

Postfire Forest Ecosystem Studies in China
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Some 20,000 sq. km (equivalent to 500,000,000 acres) of virgin forest was effected to varying degrees by fire in May-June 1987 in the Great Xingan Mountains, northeastern China. The mountainous area is China's most important lumber source. China is requesting \$400 million from the World Bank to help develop her forestry resources and industry. (From Jernow, 1989)

GAO: U.S. failing to protect rare species
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The GAO (General Accounting Office), an investigative agency of Congress, found that a third of the 500 plants and animals that the government lists as endangered or threatened are continuing to fade toward extinction because of problems with the program that is supposed to protect them. Also, only 16 percent of the species were improving. Two percent were found to be extinct and the rest are believed to be stable for now.

One of the problems with the endangered species program is that there is no centralized, up-to-date information about the status of the plants and animals in jeopardy, the GAO said. (From Denver Post, 1/19/1989)

Old-growth forests in U.S.
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Old growth is best perceived as a stage of forest development

characterized by more diversity of structure and function than that found in younger successional stages. Politics surrounding management of older forests are most volatile in the Pacific Northwest, where more than of the virgin forest has been altered, and Alaska, where significant amounts of virgin or old-growth forests with high commercial value remain.

Ecologists noted that only 2-15% of the virgin forests that existed when European settlers arrived remain today. Management plans must be based on existing stands because replacement stands cannot be produced by silvicultural practices. (From Thomas et al. 1988)

***** Opportunities of Ecological Research in China *****

Systems Ecology Lab of Eco-Environment Research Center, Sinica Academia, is now open to ecologists overseas, Professor Ma wrote to Sino-Eco recently. The Lab provides an opportunity for ecologists half way across the globe to cooperate with ecologists at home.

Furthermore, "research interests can include eco-agriculture, urban ecology, or forest and grassland ecology. Ideal research areas can be chosen in natural reserves, postfire areas, or virgin forests in different parts of the country." Professor Hanxi Yang mentioned in another letter

Please assist your major Professor or other ecologists who are interested in doing research in China to contact with:

Professor Shijun Ma
Ecological Society of China
19 Zhongguancun Lu
Beijing 100080
P. R. China

(or)

Professor Hanxi Yang
National Committee for
Man and the Biosphere
54 Sanlihe, Beijing
P. R. China

***** News in Brief *****

Plant Quantitative Ecology Symposium

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A plant quantitative ecology symposium will be held in Inner Mongolia in home country in June, 1989. For more detail, please contact Professor Hanxi Yang.

Chinese Graduate Students at the 4th Landscape Ecology Symposium

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Three out of about 170 registered for the 4th Landscape Ecology Symposium held at CSU, Ft. Collins, March 15-18, are Chinese graduate students, Habin Li, Yegang Wu, and Xiaoming Zou.

Habin Li gave a poster on "LSPA--A simulation program for Landscape Pattern Analysis".

Xiaoming Zou, with B. V. Barnes, presented their paper "Pattern of the Kirtland's warbler occurrence in landscape ecosystems of the Mack Lake burn".

Being under the weather, Jianguo Wu could not attend the meeting but his poster, with John Vankat, "A framework for studying species population dynamics of landscape patches," was presented.

The 5th Landscape Ecology Symposium will be held at Miami University, Oxford, Ohio, March 21-24, 1990. We are looking forward to seeing more Sino-ECO members there.

Suggestions From Sino-ECO Members:

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Lin, Junda: I wonder if the Sino-ECO Newsletter can provide a column for discussing the differences in graduate programs among North America, Europe, Japan, Australia, or other countries versus China. Also, some introductions to ecologists (professional as well as personal) and institutes abroad or at home may benefit the members. (That is fascinating. Please write to us about topics. -- Editors) Furthermore, can we try to put Chinese Characters of names in the members directory? (We need help for this. -- Editors)

Dong, Quan: Could we include some course projects, term papers on some interesting or new topics of ecology in our Newsletter? (Sure, why not?! -- Editors)

Are You Interested in Memberships of ESC?

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We have received some ESC membership application forms from the Ecological Society of China. If you are interested in getting a copy of the application form, please contact the editors.

* Recent Publications and Presentations of Sino-ECO Members *

Gao, W., Shaw, R. H., and K. T. Paw U. 1989. Observation of organized structure in turbulent flow within and above a forest canopy. *Boundary-layer Meteorol.* (in press)
Gao, W., R. H. Shaw, and K. T. Paw U. 1988. Structure of turbulence

"global ecologist", you have to know how man has been changing the composition of atmosphere; how greenhouse gases affect climate; and how we can test the climate change and its impacts on the Earth. Some scientists have discussed their ideas in a book:

Bolin, B., Doos, B. R., Jager, J., and Warrick, R. A. 1988. The Greenhouse Effect, Climate Change, and Ecosystems. Scope 29. John Wiley & Sons. NY. 541pp.

*** Mathematical models and empirical studies have revealed two potentially disruptive influences on ecosystems; (1) instabilities caused by nonlinear feedbacks and time-lags in the interactions of biological species, and (2) stochastic forcings by a fluctuating environment. Because both of these phenomena can severely affect system survival, ecologists are confronted with the question of why complex ecosystems do, in fact, exist. DeAngelis and Waterhouse discussed the question in their paper.

DeAngelis, D. L. and Waterhouse, J. C. 1987. Equilibrium and Nonequilibrium Concepts in Ecological Models. Ecological Monographs 57(1): 1-21.

***** New Members and Updated Information *****

Li, Mingguang PH: (701) 777-3676(O) 746-7613(H) EA: UD165805@NDSUVM1
AD: North Dakota Univ. Grand Forks, ND 58201.
RI: Botany
CS: Graduate Student

Shao, Lixin PH: (716) 833-0084 EA:
AD: Dept. of History, 544 Park Hall, Univ. Buffalo.
RI: History, interested in Ecology.
CS: Graduate Student

Wang, Yuxiang PH: (705) 748-1370(O) 748-4379(H) EA: YWANG@TRENTU.CA
AD: Watershed Ecosys. Progr. Trent Univ.,
Peterborough, Ontario, Canada K9J 7B8.
RI: Aquatic ecosystems, impact of trace metals on
freshwater mussels.
CS: Graduate Student

Yang, Dali PH: EA:
AD: Dept. of Politics, Princeton Univ.,
Princeton, NJ 08540
RI: Politics, interested in Forestry and Ecology

Yang, Zhao CS: Graduate Student
 PH: (618) 536-3375(0) 549-2249(H) EA: GA00897@SIUCVMB
 AD: Dept. of Geography, S. Illinois Univ. Carbondale,
 IL 62901
 RI: Computerized Mapping and Landscape Ecology
 CS: Graduate Student
 Zou, Xiaoming PH: (303) 491-6576(0) 484-2241(H) EA:
 AD: Dept. of Forest and Wood Sci., Co. St. Univ.,
 Ft. Collins, CO 80523.
 RI: Wildlife & forest, Forestry, Landscape-ecology
 CS: Graduate Student

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Wu, Yegang (307) 766-4770 (H)
 Cheng, Weixin EA: DCCOLEM@USCN
 Dong, Quan EA: dqdlam@tucc
 Guan, Weihe EA: INR@UGA
 RI: Applied ecology, Geo-ecology

 ***** Introduction to Sino-ECO Members & Advisors *****

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 + This column has been to provide an opportunity for our members +
 + to know each other. Many of them have been introduced here. +
 + If you have not yet, please send your brief CV to the editors. +
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Gao, Weigang
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Weigang was born in July of 1957 in Shanghai. He got his B.S. in biometeorology and agricultural meteorology from Nanjing Institute of Meteorology in 1982 and his M.S. from the Graduate School of Chinese Academy of Agricultural Science in 1985. He entered the graduate program of the College of Forest Resources, the University of Washington, Seattle, in 1986. In the same year, he transferred to the UC-Davis to pursue a Ph.D. in the Department of Land, Air and Water Resources with the direction of two well known biometeorologists and micrometeorologists, Dr. K. T. Paw U and Dr. R. Shaw.

Weigang's current research interests involve organized characters of turbulence exchange between atmosphere and plant canopy; large scale coherent flow in canopy turbulence; surface renewable model in the atmospheric surface layer; nonlinear energy budget equation and its solution; calculation of evapotranspiration

and water and CO2 balance for vegetation surface; and microclimate of plant canopy. He is now a member of American Meteorology Society.

Guan, Wei he

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Born in 1961, Beijing; grown up in a village in Guangdong accompanied with her parents "reeducated" there for 12 years, Wei he luckily got into the Biology Department of South China Normal University in the Great 1977. Having a strong curiosity and being anxious to see the world, she was fortunate enough to become a graduate in the Geography Department, Beijing University in mid 1982, majoring in geo-ecology. Then she was a faculty member of the Institute of Urban Planning at Qinghua University, working on ecological planning in 1984. Though both universities provided her lots of chances traveling in her home country, she was not satisfied enough. Therefore, she traveled to Canada in 1986, and picked the Recreation in Ontario Parks as the topic for her second Master's thesis. After exploring the glorious natural scenery of Ontario, she move down south to Georgia in 1988, and finally started her journey towards the Ph.D. in the Ecology Program of UGA. Her resent research focus is water resource planning and management, and her supervisor, Dr. Ronald North, director of the Institute of Natural Resources, UGA, is supervising several water resource projects in China (Ningbuo, Beijing, Tianjin, etc.)

Her professional belief is: to apply ecology into reality, create economic benefits as well as ecological ones!

Han, Xi ngguo:

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Born in a big little village in the northern part of the province where Mr. Wu, Song killed one of our endangered species. He came to where Mr. Wu, Song killed one of our endangered species. He went to the Agricultural University of Shandong immediately after having terminated his membership of the People's Commune.

Majoring in Agronomy, and then teaching 3 years in the same department, Han was accidentally chosen by the university administrators to study in the Institute of ecology, UGA, under the guidance of Dr. Carl Jordan. Being interested in Agroecology, mineral cycling in terrestrial ecosystems, and some corners of theoretical ecology, he will be graduating this early June with a dissertation entitled "Organic Matter Preservation vs. Phosphorus availability".

Thin, dark, and a below-average appearance make him a lovely, but by no means attractive, guy with some distinct characteristics owned by Shandong Giant.

Wang, Yuxi ang

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Yuxiang is going to finish his Master's study soon from the biggest department, the Watershed Ecosystem Graduate Studies, in one of the smallest university, Trent University, in Canada. Known from the name of the department, his interests in aquatic ecosystems are obvious. He is working on a project of impact of trace metals on freshwater mussels, which mainly deal with biogeochemistry factors affecting bioaccumulation of certain metals.

Yuxiang graduated from Beijing Normal University and did some research in Academia Sinica before his coming to Canada.

* SINO-ECO NEWSLETTER *

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