

**The Wallerstein Collaborative For Urban Environmental Education**  
**Year Two Report**  
**November 3, 2002**

At a critical time in the city's history, the Wallerstein Collaborative For Urban Environmental Education has established itself within New York University's Steinhardt School of Education, filling an important niche in NYC's teaching and learning community. In our second year, the project has expanded its outreach to teachers and students in schools throughout the city. Utilizing an array of strategies, teachers are introduced to environmental issues and methods in which they can incorporate environmental education across all grades and curriculum areas. New York University also provides us with the opportunity to work with pre-service teachers to sensitize them to the importance of incorporating environmental education as part of their preparation for teaching. The Collaborative serves as a vital resource for faculty, teachers, and students in the New York area.

The Collaborative also works closely with NYU faculty to enhance pre-existing program courses by integrating environmental components in several discipline areas. It has also created new courses to support NYU's programs in teacher education and environmental conservation education.

### **I. Teacher Education**

The Department of Teaching and Learning has taken a systemic approach to integrating environmental education competencies into the pre-service teacher education programs. At the undergraduate level, environmental education has become part of the field observation requirement of the Inquiries II course. At the graduate level, the Wallerstein Collaborative offers courses, independent studies, and internships for students in a variety of environmental settings. Graduate projects afford students the opportunity for in-depth studies in conservation, curriculum development, and program design. In addition, professional development opportunities are tailored to the needs of classroom teachers in New York City schools.

#### **A. Undergraduate Teacher Education**

## **Inquiries II Project**

The Department of Teaching and Learning is currently piloting an innovative approach to teaching and learning, which integrates field observations in non-school settings as part of a core course requirement. Professor Marilyn Sobelman and Mary Leou have developed a framework for integrating environmental education within the Inquiries II course. In fall 2001, two sections of Inquiries classes consisting of 60 pre-service teachers, were used as a pilot. Upon successful implementation, the project moved forward with three sections in spring 2002, and two additional sections in fall 2002, bringing the total number of students participating to date to **150**. Students enrolled in this course are introduced to environmental education through reading assignments, guest presenters, and field placements in a variety of non-school settings. In fulfillment of their field observation requirement, students observe teaching and learning in settings such as museums, parks, and botanic gardens or in schools that make extensive use of the urban environment as a context for learning.

A network of approximately **30** organizations currently supports NYU's teacher preparation program by providing a wide range of field observation sites for undergraduate students who are preparing for teaching in New York City schools. Each semester, the Collaborative hosts an orientation for the sponsoring institution building strong ties with environmental educators and NYU's Department of Teaching and Learning faculty. The success of this model is being evaluated through formative assessment strategies, which include: a review of student assignments, reports from field placements, and feedback from instructors teaching each section. At present, plans are underway to fully integrate this initiative into the 2003-2004 academic year. Ultimately the community network developed by the Wallerstein Collaborative will serve approximately **125** undergraduate students per semester by year 2004.

To date, a variety of data sets have been collected, including student portfolios, student assignments, and student course evaluations. Content analysis of these

data sets will enable us to assess the impact of the Wallerstein Collaborative in pre-service teacher preparation. Our expectation is that teachers will be more likely to integrate environmental education into their curriculum and make better use of the vast network of resources available to them as classroom teachers in the metropolitan area.

An evaluation instrument will be designed especially for Inquiries II students to assess the impact of the field component on student attitudes. Interviews with course administrators and faculty will also be part of our ongoing formative evaluation process. By fall 2003, we hope to have established a model for integrating environmental education into the Inquiries II course requirement that can be disseminated to other teacher education institutions. At present the environmental field component has become an integral part of NYU's teacher education process within the Inquiries course. More long-term research will enable us to conduct follow-up studies of graduates within classroom settings.

### **Early Childhood Education**

The opportunity to use non-formal settings for teacher preparation has expanded to the early childhood teacher education program. The Wallerstein Collaborative has facilitated placements in the Discovery Room at the AMNH, the Children's Museum of Manhattan, and the Children's Museum for the Arts this fall. Early Childhood faculty has expressed a strong interest in working with the Collaborative to enrich their program with field experiences and collaborations with science-rich institutions in the urban environment. We will continue to assess the impact of our work on Early Childhood Education.

### **B. Graduate Teacher Education**

#### **Course in Language Arts and Environmental Literacy (E11.2575)**

In summer 2001, Professors Marilyn Sobelman and Mary Leou developed a course in Language Arts and Environmental Literacy for graduate students in English Education. The course integrated field experiences to introduce

prospective teachers to urban environmental issues. Issues of urban development, open space, community gardens, and restoration ecology were introduced through visits to various sites in New York City. Teachers considered ways in which these issues might be integrated into the language arts curriculum. Students developed strategies for integrating environmental issues and field methods into their curriculum as part of their course requirements. Curriculum projects will be incorporated into the Wallerstein website as a resource for language arts teachers. Eleven teachers successfully completed this course and we received positive feedback including the following:

“Before entering the classroom, I had no knowledge of environmental issues, let alone how to use these ideas in my classroom. I am leaving with not only ideas, but exciting possibilities.”

“I think I will be more likely to approach my colleagues to explore interdisciplinary curriculum.”

“I think this has been one of the best classes I’ve ever taken. As far as my needs go... it really helped confirm the notion the environment and L.A. can be connected.”

.In year three, we would like to follow-up on these teachers to see how this course changed their attitudes and thinking about integrated teaching across discipline areas and how they implemented ideas from this course into their practice as a way of evaluating course impact on teacher behavior. We anticipate offering the course again at regular intervals.

### **Parks As Classrooms Summer Institute (E23.2304)**

Working in collaboration with Professor Robert Cohen, Director of NYU’s Social Studies Program and staff from the National Park Service, the Collaborative developed and implemented the **Parks as Classrooms Summer Institute**; a graduate course for social studies teachers in the summer of 2001. Participants from this course were introduced to national park sites and environmental issues affecting Jamaica Bay. Eleven teachers from the metropolitan area participated. We will continue to work with this group of teachers to provide them with

additional staff development opportunities this year. The Wallerstein Collaborative has served as a catalyst for change in this respect and will continue to support the efforts of the Social Studies program in the integration of environmental history and issues into the social studies teacher preparation programs. The Social Studies program will seek additional funding to continue to integrate the use of historic sites as part of the social studies teacher education program.

An evaluation of the course provided keen insights into how we can further develop resources utilizing historic sites, historians and environmentalists to provide valuable teacher education opportunities for social studies teachers.

Some particularly insightful commentary from participants included the following:

“I think I will never think of New York City in the same way.... I want to say how the environmental elements of this course have affected me. Before this, I was generally aware of the growing crisis, but, truthfully, I thought it was just so depressing, and so monumental an issue, that I felt daunted. I wanted to put my head in the sand. This course has really woken me up. It is very encouraging to know that some progress has been made on some fronts. It is even more encouraging to know that some of the steps that we can take don't have to be so monumental; individuals can do something. As a teacher, I am excited to have the opportunity to bring these issues to the attention of my students. I plan to use environmental issues as a theme throughout the year.”

“The concept of the urban area as an ecosystem was actually something I had never thought about before, at least not in terms of using urban areas as examples of habitats, etc. We tend to look for ponds, marshes, forests. It is interesting to think of the urban as the whole system, connected with its geography and history.”

Participants of the Institute completed web-based curricula materials utilizing national as well as environmental themes. These units will be posted on the Wallerstein website as examples of teacher's work this coming year.

### **Using NYC's Non-Formal Resources to Teach Science and Math (E14.2050)**

Working in collaboration with Dr. Pamela Abdur, Mary Leou co-taught the course using titled, Using NYC's Non-Formal Resources to Teach Science and Math in Summer 2002. **Twenty-eight** mathematics and science teachers enrolled in this graduate course. Field experiences included trips to Wave Hill, New York Botanic Gardens, New York Hall of Science, the American Museum of Natural History, Intrepid, and Washington Square Park. Working in collaboration with Professor Uri Zoller from the University of Haifa, a research component was built into the course to measure the effectiveness of the course in increasing teachers' Higher Order Cognitive Skills (HOCS) namely question-asking, problem-solving, and conceptualization of fundamental concepts. Research from this initiative will be presented at national conferences and published in professional journals in the coming year. Proposals for papers have been submitted to national organizations and journals for publication. The first paper has been accepted for presentation at the Association for the Education of Teachers of Science (AETS) 2003 International Conference, which will be held in St. Louis, Missouri in February. Research from this course is promising. With continued funding, we hope to conduct a follow-up study looking at teacher's impact on students' HOCS capabilities in urban classrooms.

### **C. Professional Development for Urban Classroom Teachers**

Environmental education supports current standards-based education, but often teachers lack training in environmental education to make those connections. One of the goals of this program is to develop professional development opportunities that serve the environmental education needs of classroom teachers. While there are hundreds of environmental resources available to schools and teachers, there is no unified system or clearing-house that provides easy access to this body of information in New York City. As a result, resources are underutilized. Teachers have expressed a strong interest in environmental education, but have little time to search for materials and experts in the field to work with. Furthermore, few if any teachers have been exposed to environmental

education as part of their formal teacher preparation. Therefore, lack of awareness and accessibility to materials prevents teachers from making more effective use of environment-based education and related resources. The Wallerstein Collaborative for Urban Environmental Education currently serves as an important resource for classroom teachers, NYU students, and faculty in New York City by providing timely information, creating a network of educators interested in environmental education, and by increasing accessibility to additional resources available through a broad range of environmental organizations and cultural institutions.

### **Teacher Workshops/Field Trips**

The Wallerstein Collaborative also works closely with the newly established Horowitz Center for Professional Development situated within the Department of Teaching and Learning. This new center will coordinate professional development opportunities throughout the department and will work with all funded projects. Plans are underway to provide an informal series of after-school workshops for teachers involving a variety of non-formal settings and environmental organizations to introduce teachers to the wealth of materials that are available to them for classroom use.

In the fall 2001 and spring of 2002 the Collaborative provided a total of eight professional development workshops for New York City classroom teachers serving over **140** classroom teachers. The workshops took place in various locations throughout the city including: Wave Hill, Brooklyn Botanic Gardens, Van Cortlandt Park, and the Gateway Environmental Study Center at Floyd Bennett Field at the Gateway National Recreation Area. We also worked in cooperation with the NYS Department of Environmental Conservation to offer *Project Learning Tree* workshops in Prospect Park, and *Project Wet workshops at Pier 26*.

## **II. Environmental Conservation Education Program**

Working with Andrew Light, director of the Environmental Education Conservation Program, we have begun to build a strong connection to the program by providing vital services to program students. Dr. Leou serves as internship advisor for program students,

serving over **20** students since the inception of the Wallerstein Collaborative. Internships have been individually developed and tailored to students' individualized needs and also meet program requirements. Internships include projects that focus on curriculum development, program design and evaluation, and conservation issues. Utilizing the resources of the Wallerstein Collaborative, student interns are placed in a variety of settings throughout the metropolitan area including the Parks Council, Alley Pond Park, John Bowne High School, the Center for Biodiversity, and NYC Soil and Water Conservation. District. In many instances, several internships have led to fruitful employment opportunities for our students.

The Wallerstein Collaborative also supported the addition of new adjunct faculty. Tom Hilde from Pennsylvania State University joined the program last spring and is currently serving as acting director of the program.

There is great potential to integrate the strengths of this program with the Department of Teaching and Learning by creating a program of study for classroom teachers who wish to complete their certification by earning a Master's in Environmental Conservation Education. A more formal arrangement between the Department of Teaching and Learning and the Environmental Conservation Education program could lead to new teacher education possibilities and will be explored more fully explored.

### **III. Collaborations in Youth Education**

#### **A. Project Must**

*Project Must* (Mentoring Urban Students for Teaching) is an NYU program designed to introduce high school students to careers in education. NYU works with 15-20 students per year from the Manhattan Center for Science and Mathematics located in East Harlem. During the past two years, the Wallerstein Collaborative has worked with *Project Must* to incorporate an environmental component into the program. Two doctoral students, partially supported with Wallerstein funds, worked with Dr. Leou to integrate environmental themes into the *Project Must* curriculum. As a result, program participants are introduced to

outdoor methods of education, environmental issues, and resources through field trips to the American Museum of Natural History and Central Park where they learn about forest ecology and water conservation. Students explore ways in which museums, parks, and other resources serve as educational settings and help people learn about environmental issues. Dr. Leou and a host of other professionals from the American Museum of Natural History, NYC Department of Environmental Protection, Audubon, and Alley Pond Park present workshops to increase students' awareness about local issues and provide students with hands-on experience in the urban environment. Student journals are used to assess student impact. Students reflect on teaching and learning in museums:

“I used to think that a museum was a boring place you go to when you are forced to do work. This trip has taught me otherwise. A museum does not necessarily have to be a boring place. Instead, it is an exciting place full of hands-on educational learning materials and ideas one can use to perceive the environment. It is a useful resource to have. It helps one learn and it also helps one teach. On the first trip I was a learner, but my group and I have already begun discussing how to be teachers and teach using the resources provided for us in the museum.”

“I learned about seismology which was very interesting. ... If I was taught this stuff in class, I probably would have been disinterested, but the ‘hands-on’ made the learning experience better....the stuff I learned at the museum is easier for me to remember than stuff from the school.”

“I learned that using an outside resource for non-formal learning is an excellent way of learning. You learn a lot and have hands-on experience, as well as a visual as to what you are learning about.”

Last year, *Project Must* was evaluated by NYU's Center for Research and Evaluation to assess student performance and program outcomes. The report is available through the Center for Research and Evaluation.

## **B. The River Project**

In August 2002, The River Project received an NSF grant to enhance their Marine Biology Internship for high school students and to work with the Wallerstein Collaborative to increase their outreach to students and provide educational opportunities for classroom teachers. As part of this initiative, the Wallerstein

Collaborative hosted a *Teacher's Open House* on September 23<sup>rd</sup> 2002 at Pier 26 to introduce NYC teachers to the Hudson River estuary as resource for science education. Several organizations including the NY-NJ Harbor Estuary Program, NYS Department of Environmental Conservation, and the NYC Soil and Water Conservation District contributed a wealth of information for teachers including maps, directories, fact sheets, curricula, and information about programs along the waterfront. The program attracted over **50** NYC high school teachers, environmental educators, and faculty from nearby colleges. In spring 2003, the Collaborative will host a series of seminars on the Hudson River Estuary which will present current ecological research being conducted by scientists in the New York area and who also serve as mentors for the high school students enrolled in the Marine Biology Internship Program at The River Project. The series will be targeted to high school students, classroom teachers and their students, and the NYU community. This three year NSF initiative will be evaluated independently by Brooklyn College.

### **C. In Addition: After School Program**

The Wallerstein Collaborative has partnered with faculty from NYU's Mathematics Education Program to launch an after school program entitled, *In Addition*. Working with **21** third, fourth, and fifth grade students from P.S. 110, located in the lower East Side, the program integrates mathematical literacy with environmental education. The curriculum fosters mathematical learning through hands-on investigations in the local environment. This program will also be part of a three-year study to learn more about how children develop mathematical literacy and environmental awareness.

Results of the study will be presented at national conferences and submitted for publication in professional journals. With additional funding we hope to launch a longitudinal study and also expand the program to other urban school sites. Family workshops and teacher workshops are also included in this program.

#### **IV. Partnerships, Collaborations, and Community Outreach**

In its second year, the Wallerstein Collaborative worked with numerous organizations to offer increased opportunities for urban environmental education to NYU students, classroom teachers, and the general public. The following activities demonstrate the extent to which the Wallerstein Collaborative has strengthened its partnerships to provide education for diverse audiences.

##### **Fall 2001**

As part of our evolving relationship with the local environmental community we co-hosted two meetings with the **Metro Forest Council**. Last fall, the focus was on *Measuring Forest Fragments in the Metropolitan Region*. Presentations featured the Metro Flora Project, by Dr. Gerry Moore, Brooklyn Botanic Garden and the NY-NJ Highlands Project presented by Dr. Richard Lathrop, Director, Walton Center for Remote Sensing and Spatial Analysis, Rutgers University. This fall, the meeting featured *The Importance of Old Growth Forests in the Metro Forest Region*. Presenters included: Dr. Steward Pickett, Senior Scientist, Institute of Ecosystem Studies, Bruce Kershner, Founder Western Old Growth Forest Survey Team, and Dr. Janet Morrison, College of New Jersey. Approximately 50 individuals including students, faculty, and the public have attended each session.

We also co-hosted the annual meeting of the **Environmental Education Advisory Council** (EEAC) attracting over **50** environmental educators and classroom teachers as part of a growing network of educators in support of environmental education in New York City.

The Wallerstein Collaborative has taken a leadership role in supporting the integration of environmental education in teacher preparation. A statewide initiative known as **TEEP** (Teacher Environmental Education Preparation) is a joint project of the Council on the Environment of New York City, EEAC, and the Wallerstein Collaborative. Initiated in 1999, TEEP has hosted a series of symposia at various colleges and universities to assess the state of environmental education in pre-service teacher education. A fourth

symposium is planned for November 15th in Albany, at the NYS Education Department. Through its efforts, TEEP has created a network of faculty and representatives from environmental agencies and organizations to support environmental education initiatives in teacher preparation programs. One of the goals of TEEP is to facilitate opportunities for collaboration between formal and non-formal educational institutions. As a result, SUNY Cortlandt is proposing a Center for Environmental Education with satellites in urban areas. The NYU Wallerstein Collaborative would serve as an urban partner in this initiative, serving the needs of metropolitan area teachers. The Collaborative plans to host the 6<sup>th</sup> symposium at NYU in spring 2003.

### **Winter 2002**

In February 2002, the Collaborative co-hosted a workshop with Christodora Inc. entitled *Focus on Your Future* for **70** high school students and their parents. Christodora Inc. is a non-profit organization that develops and operates a network of experiential, environmental, and wilderness education programs serving motivated low-income New York City students. Information on internships, scholarships, and undergraduate schools were disseminated to participants. Brian Robinson, Executive Director of Christodora, Inc. reported that the event “reached 30% more students than in the past thanks to the partnership with the Wallerstein Collaborative.” We anticipate partnering again in February 2003, as part of our continued effort to educate urban youth about environmental careers.

### **Spring 2002**

In June 2002, we participated and assisted in planning a two-day national conference entitled: *The Humane Metropolis: People and Nature in the 21<sup>st</sup> Century*. **Ecological Cities** in collaboration with the Ecological Cities Project at the UMass, Amherst and NYU's Environmental Conservation Education Program. The conference attracted over **300** environmentalists, landscape architects, and urban planners to honor the work of William H. Whyte and focus on creating sustainable urban ecosystems.

Dr. Leou, chaired a session entitled: Urban Environmental Education. Panelists included Michael Houck, Urban Naturalist from Audubon Society of Portland and Director of Urban Greenspaces Institute, Dr. Alan Berkowitz, Director of Education from the Institute of Ecosystem Studies in Millbrook New York, and Dr. Chris Desousa from the University of Wisconsin. Proceedings will be published in a forthcoming book.

In May, Mary Leou also planned a staff development day for the faculty of the Department of Teaching and Learning. Over **35** faculty members attended a program hosted by the **Wildlife Conservation Society at the Bronx Zoo**. This was a ground breaking event, affording NYU faculty the opportunity to learn about the vast resources of the Wildlife Conservation Society including funded programs in K-12 education, family programs, and conservation efforts around the world. This workshop sparked much discussion and generated many ideas from faculty as to how we might develop stronger ties with the Wildlife Conservation Society including but not limited to: pre-service teacher education, professional development opportunities for teachers, and research and evaluation opportunities. We hope to cultivate these ideas further in an effort to create a more formal collaboration with the Wildlife Conservation Society.

In April, Dr. Mary Leou was a guest speaker at the Seventh Annual Conference on Environmental Issues held at Medgar Evers College, City University of New York. This year's conference was titled; *Responding to Post 9/11 Challenges to the New York City Environment*. Mary Leou served on a panel to discuss 9/11 and K-12 curricula. The conference included over **200** participants representing environmental science students, faculty, educators and community members.

In July, Dr. Leou also chaired the education panel at the annual NY ReLeaf Conference titled: Reinventing New York's Forest: Creating Greener Communities which was held at Mt. St. Vincent's College and attended by approximately **200** New York State foresters, environmental educators, and government officials.

## **V. Year Three and Beyond**

The first two years have been spent in establishing a presence within the NYU Steinhardt School of Education via a variety of activities, courses, and initiatives. Additionally the Collaborative has built a strong network of organizations that work closely with the Collaborative's director, Mary Leou and program coordinator, Amanda Levy. An extensive database of teachers, students, and faculty is maintained for outreach and communication. In addition materials, and references have been amassed as part of the Collaborative's goal to create an urban resource center for environmental education

Technology has been used extensively in an effort to disseminate information on environmental education and to communicate more effectively with students and teachers. The Wallerstein website which will be launched by the end of this year will provide timely information on programs, courses, grant opportunities, careers, and environmental curricula. The website will be monitored to determine usage, needs of users, and effectiveness.

As we move into year three, we will focus on summative evaluation processes with support from NYU's Center for Research and Evaluation. Year three will focus on analyzing much of the data we have collected and assessing the impact of many of our initiatives. This process will enable us to develop a long-range plan for research and evaluation of environmental education at NYU.

We are considering the feasibility of tracking and observing classroom teachers and measuring the impact of student performance. This design will require a thorough analysis of our activities to date, a carefully designed research agenda, and additional funds to implement long-term research projects. Thus far, the Wallerstein Collaborative has developed a strong foundation for environmental education from which further education and research can evolve. We are excited by the prospect.