In providing a philosophic and historical reprise of the institutionalization, growth and development of the School of Environment and Natural Resources, it will be necessary to revisit many of the growth opportunities, contacts and serendipitous associations experienced along the way. The “School” structure became a useful vehicle for bringing together an eclectic grouping of disciplines to address the need for growing a professional cadre of resource managers, researchers and educators in the 1960’s. To understand how this came to be, it might be instructive to revisit some of the early history of the School.
Training, research and continuing education related to natural resources has existed for many years at The Ohio State University. Forestry instruction was conducted as early as 1891, and in 1908, one of the earliest forestry departments in the United States was established here. In 1896 a laboratory concerned with the aquatic resources of Lake Erie was established in the Department of Zoology. An Engineering Experiment Station was established in 1913, and among its objectives was the conduct of research related to the development of the state's mineral resources. The state's Geological Survey was housed with Geology in Orton Hall on the campus until 1963.

The Conservation Laboratory for teacher education was initiated in 1940. In 1958, a Water Resources Center was established in the Engineering Experiment Station. Among other natural resources related programs that have had a long history at this University are the Cooperative Fisheries and the Cooperative Wildlife Research Units. The Ohio Agricultural Research and Development Center and the Cooperative Extension Service, which were administered through the College of Agriculture and Home Economics, had long been active in natural resources research and education.

An interdepartmental conservation curriculum was developed in the College of Agriculture in 1945. This program provided an opportunity for students to obtain a broad exposure to problems and techniques for the solution of soil, water, fisheries, and wildlife management problems. Its students graduated from the College of Agriculture with specialization in one of the above areas. Participating departments included Agronomy, Agriculture Engineering, Agricultural Economics and Rural Sociology, Education, Geography, Geology, Horticulture and Forestry, and Zoology and Entomology.

In order to strengthen all of the University's programs concerning natural resources, the Board of Trustees approved the creation of the School of Natural Resources in the College of Agriculture and Home Economics effective July 1, 1968. The Natural Resources Institute was discontinued, its functions having been assigned to the new School.

As further described in the first annual report of the new SNR, the objective of the instructional program was to develop personnel capable of filling managerial, research and education roles in natural resources. A related objective was to develop awareness by students in all disciplines of human dependence on a finite resource base and of our responsibility to manage resources in a manner to assure a quality of environment and life. Research, extension and continuing programs were viewed as related to these objectives.
LEADERSHIP AND PERSONALITIES IN THE NEW SNR

Dr. Charles A. Dambach became the first director of the new School of Natural Resources on July 1, 1968. Dr. Dambach began his career in natural resources in 1937 when he was employed in the Soil Conservation Service. He became far better known for his tour of duty as chief of the Division of Wildlife, Ohio Department of Natural Resources in the early 1950’s. As Ed Hutchins wrote in the “Columbus Dispatch” in 1969:

“Under Dambach, the administration of wildlife and related natural resources in Ohio clearly reached its zenith. Neither before nor since have we seen a comparable degree of professionalism, dedication to purpose and total objectivity.

Dambach was on leave of absence from the university while serving as wildlife chief and as nearly as possible, removed the division’s employment practices during his term from the realm of political spoils.

Probably the best evidence of the quality of personnel who were attracted to and remained with Dambach’s wildlife administration is the impressive list of their accomplishments in subsequent service with federal and state agencies and in private industry,”

Ed Hutchins,
Dispatch Outdoor Editor
Columbus Dispatch 1969

Dr. Dambach was a native of Cleveland and received his B.Sc., M. Sc. and Ph.D. at OSU. He had been associated with natural resources education at OSU for 27 years before becoming director of the new School.

On a personal note, Dr. Dambach is the individual that encouraged me to enroll in wildlife management at OSU in 1955. At that time, and in his capacity of Chief of the Division of Wildlife, my parents brought me to Columbus for an appointment with him to talk about going to college and studying wildlife. After our conversations he sent us to visit Dr. Eugene Good and Carl Johnson at OSU to obtain further information about application and enrollment procedures. Such contacts and encouragement brought me to OSU in September, 1955. As busy as he was, he always had time to talk with prospective students.

Of the many firsts initiated by Dr. Dambach was establishment of training schools for game protectors, institution of the most aggressive land acquisition program in the division’ history, including the purchase of Magee Marsh, Killdeer Plains, Cooper Hollow, Whetstone, Indian Creek, Metzger Marsh, Auburn Marsh, Hambden Orchard and Rush Run.
His dynamic leadership style, enormous array of contacts and political savvy were all brought to bear in establishing the Natural Resources Institute in 1955, and subsequently the School of Natural Resources in 1968. It was the culmination of his long efforts to find an administrative structure wherein the many disciplines could find expression in multidisciplinary teaching, research and continuing education.

Under Dr. Dambach’s leadership, the Natural Resources Institute was responsible for many outstanding interdisciplinary seminars, training and research projects and publications.

Historically, natural resources programs at OSU had been diffused throughout the University to such an extent that they had little visibility within the institution and virtually none externally. Just as now, the existing programs were significant and were guarded zealously by their parent departments. It probably didn’t help when funding became tied to credit hours taught with dollars following the students. Thus departments with long standing traditions were reluctant to engage in “interdisciplinary programs” when they were often viewed to be peripheral to the central disciplinary core.

However, as we have come to realize, environmental problems don’t exist strictly within a disciplinary context. To use a phrase I would credit to Dr. Mohan Wali: “Such problems are a (spaghettoid) arrangement at the very least.”

A different paradigm was needed to help us engage the newly emerging ecological understanding of environmental issues, approaches to research and subsequent management strategies.

A FOX CHASE THROUGH “BIG IDEAS” FOR THE NEW SNR

To understand the curricular and conceptual structure of the new School, it is necessary to go back in time to the beginnings of the nature study movement, the conservation movement and, finally the environmental movement. All three movements had their beginnings in the realm of problem solving. The biggest problem was to develop understanding of how things in nature worked. Identification, categorization, explanation and the application of knowledge so gained to the perceived problems of the day were the common processes utilized.

The nature study movement had its beginnings in tandem with the exploration and colonization of the various regions of the world. You will recall that the British ship, the Beagle had a young “naturalist” on board who later is credited with providing the conceptual context for explaining what we now call evolution. In fact the British Museum, and other great museums of the world all had their beginnings in the attempt to understand and explain the world in which we live.

The result of all of those investigations was the fund of knowledge now available to us as the identification of most of the “things and processes in nature.”
George Perkins Marsh, a Vermont naturalist, wrote "The Earth As Modified in Human Action" and coined the term "Conservation" back in 1864. That term became the guiding concept for John Muir, Gifford Pinchot and a host of others who’s names have become synonymous with nature study and the later conservation movement.

Building on Marsh’s work was a young Yale graduate, Gifford Pinchot (Summa cum laude in 1889) that has become known as the “father of Forestry” in the United States. Born in Connecticut has was proud of his French ancestry and after graduation spent more than a year studying forest conservation practices at the Ecole Nationale Foristiere in Nancy, France. He toured the most ably managed woodlands of Europe and brought that knowledge to his home in New Milford, Pennsylvania known as Grey Towers. He transformed the home place into a tree nursery and it became the first forest experiment station in the nation to encourage reforestation of denuded lands. Through his friendship with Teddy Roosevelt, he became involved in politics of the day and became the Chief Forester under President Cleveland in 1896. He was nominated to the Boone and Crockett Club in 1897, and became head of the Division of Forestry in 1898. That unit was renamed the U.S. Forest Service in 1905. Recall that during this time period OSU’s forestry instruction was initiated in 1891. This had implications for later growth and development in the School of Natural Resource. Pinchot also wrote a manifesto entitled “The Fight for Conservation.” He wrote: “Conservation means the greatest good to the greatest number of the longest time.” This provided definition for the newly emerging conservation movement, or “wise-use management.”

The personalities and competing philosophies of those involved in the nature study and conservation movements resulted in a conflict of loyalties for Teddy Roosevelt and his associates as evidenced by his commitment to the passage of the Reclamation Act on one hand, and preserving and establishing national parks and “saving the redwoods” on the other. Economic growth often took precedence over preservation. Roosevelt’s policy became viewed as: “Conservation as big business AND protection working in harmony in the Eden-like civilization. President Lyndon Johnson’s entire “New Conservationism” of the 1960’s was purposefully modeled after the ideals of T. R. Roosevelt’s policies.

This dynamic tension was also in evidence as the SNR grew into the environmental era. The “wise-use” paradigm was at the foundation of preparing undergraduate and graduate students for work related to natural resources management in the areas of Forestry, Fisheries and Wildlife Management. Those in the Conservation and Outdoor Education and Parks and Recreation areas were also aggressively pursuing more of an ecological paradigm that included preservation and nature interpretation, education and communication. Resource Development was recognized as being needed, but no one was sure as to what conceptual organization was appropriate, but watershed management seemed to be the organizing concept initially. All majors were intended to have a solid scientific
course background. General education requirements were thought to be sufficient for the social sciences and humanities.

THE CONSTRUCT OF ENVIRONMENTAL MANAGEMENT EDUCATION

As we entered the 1970’s you will recall the growing public interest in things environmental. Here at OSU we celebrated the first Earth Day through lectures, information booths and activities on the Oval and along the Olentangy River. Bill Ruckelshaus, the first Director of the newly created U.S. EPA, flew in on Air Force 2 to give a lecture in Mershon Auditorium that was broadcast nationwide. That afternoon we had a lecture in Hitchcock Auditorium by Senator Gaylord Nelson of Wisconsin who authored the Environmental Education Act that was funded, in part by the new U.S. EPA. The banner in the lobby of Kottman Hall on the south wall is a commemorative about 30 years later of that first event.

The curriculum of the School was in need of further conceptual change as well, and Dr. Dambach and others in the SNR had been following the research in science education particularly. That they had been following the research in which I was engaged at the University of Wisconsin was not at first known to me until I called for a reference letter from Dr. Carl Johnson, my old advisor for the B. Sc. and M.Sc. here at OSU. Dr. Dambach answered the phone and asked if I could come down “... next Tuesday” for an interview. I did and thus returned to OSU.

The research in which I was engaged at the Research & Development Center for Cognitive Learning at the University of Wisconsin was to develop a conceptual structure and fundamental concepts for environmental management education. Through a rigorous strategy of survey research a list of 112 conceptual statements was produced as reported in “Technical Report No. 126” by the Wisconsin R&D Center for Cognitive Learning in 1970.

Environmental management education is concerned with developing a cadre of environmental professionals and a citizenry that is:

1. Knowledgeable about the biophysical and socio-cultural environments of which we are a part;
2. Aware of environmental problems and management alternatives of use in solving those problems; and
3. Motivated to act responsibly in developing diverse environments that are optimum for living a quality life.

Roth 1969

The original list of 112 concepts was further refined here at OSU through the work of Dr. Mary Lynne Bowman (1972) as to placement in a major area and as to degree of importance. Later work by Dr. Robert Townsend (1982) resulted in grouping the concepts into four categories: Biophysical, Socio-cultural,
Environmental Management and Change. Each cluster of concepts is viewed as existing on a continuum and is represented in the model provided below.

**MODEL FOR ENVIRONMENTAL MANAGEMENT EDUCATION**

Through schooling and formal education (K – 16), and through non-formal education and communication experiences in living, the concepts of EME are focused on attaining and maintaining a satisfactory quality of life. The four conceptual schemes delineated are as follows:

1. Living things are interdependent with one another and their environment;
2. The culture of a group is its learned behaviors that are transmitted to its progeny;
3. Organisms and environments are in constant change; and
4. The management of natural resources and environment to meet the needs of successive generations demands long range planning.

It is suggested that using the above conceptual structure as a beginning reference point, acquiring knowledge about the various environmental issues, critically examining the relevant interrelationships and developing appropriate alternative solutions for the problems identified, are the thought processes through which one goes in developing environmental activities, courses and curricula. Following such study, the obvious next steps include examining the various solutions proposed and related consequences, deciding on a course of action, acting
responsibly, and evaluating the results. Experience has shown that the above approach has had utility and been applied in many curriculum development projects over the years and has helped to provide structure in an enormous conceptual domain.

It is necessary to also understand that the cognitive domain, or “what should we know,” the affective domain of perception, awareness, beliefs/attitudes and values, and the psychomotor domain including motivation, behavior, and action represent an additional dimension of curriculum planning and development in which one should be engaged.

One additional framework that I have found useful over the years was developed by Sterling Brubaker in his book “To Live on Earth, published in 1972 by Resources for the Future (John Hopkins Press). He proposed a listing of environmental problems by order of severity as follows:

1. Aesthetic effects - it looks bad, smells bad, sounds bad, or tastes bad;
2. Health effects – disease vectors of various kinds that impact living organisms;
3. Genetic effects – impacts on living things ranging from cancers to deleterious gene modification; and
4. Ecosystem effects – the modification of living systems of all kinds with long-term impacts (think changes in Lake Erie biota to Global Warming).

Because of the environmental management education related research in which I became involved as apparently the reason for being invited to interview for a position in the new School. The task was to further develop and teach the introductory course. In short order it went from four sections of the same course to a large enrollment course with as many a 600 students filling, first Evans Laboratory lecture hall, and then Hitchcock auditorium. For more than 20 years, the overnight, and later daylong field trip was an integral part of the course. I was delighted to learn that the present version of that course is now part of the general education offerings of the University. That was an original role and goal envisioned for the course in the new School, but it was delayed by a variety of factors ranging from disciplinary domain disputes to fiscal issues.

IN SUMMARY

The vision for the School of Natural Resources, and now the renamed School of Environment and Natural Resources is finally nearing fulfillment of the original dream. I hope retracing the early history of the nature study, conservation and environmental movements helped establish a context for the growth and development of the School and its’ curriculum. The establishment of the Environmental Professionals Network is exactly the kind of vision held by Dr. Dambach and the other faculty of the School when it was created. The present leadership and professorial staff is to be commended for their efforts in making
environmental literacy available to society in general and the next generation of environmental professionals in particular.

Aldo Leopold probably said it best when he wrote into his conservation ethic:

“Ours is not a job of building roads into lovely country side, but of making inroads into the still unlovely human mind.”
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