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DRAFT

A PLAN FOR DEVELOPING THE ENVIRONMENTAL MONITORING AND ECOSYSTEM RESEARCH POTENTIAL OF THE TAYLOR RANCH WILDERNESS FIELD STATION

SUBMITTED BY:

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DRAFT COOPERATIVE PLAN

A PLAN FOR DEVELOPING THE ENVIRONMENTAL MONITORING AND ECOSYSTEM RESEARCH POTENTIAL OF THE TAYLOR RANCH WILDERNESS FIELD STATION

UNIVERSITY OF IDAHO-COLLEGE OF FORESTRY, WILDLIFE AND RANGE SCIENCES
AND
IDAHO NATIONAL ENGINEERING LABORATORY

PURPOSE

The University of Idaho-College of Forestry, Wildlife and Range Sciences Wilderness Research Center operates the Taylor Ranch Field Station as a focal point for interdisciplinary wilderness-related research by the University and cooperating organizations. This is a plan for a cooperative effort between the University of Idaho and the Idaho National Engineering Laboratory (INEL) to develop the potential of the site for environmental monitoring and research on natural ecosystem functioning. The plan calls for cooperation in training of personnel, co-planning and cost-sharing in establishing necessary instrumentation, cooperation in developing research proposals and in securing the future value of the site for monitoring and research through its official designation in international environmental monitoring programs.

This cooperative effort seeks to establish the Taylor Ranch Wilderness Field Station as an official background-monitoring site for an integrated global environmental monitoring network such as the IBGP, International Biosphere-Geosphere Program now evolving; the designation of the Frank Church-River of No Return Wilderness as a Biosphere Reserve; a joint program of research on instrumentation and methodology for ecosystem monitoring; cooperative training of faculty and research staff; affiliate faculty appointments for INEL scientists; co-authored scientific publications; and possibly national symposia or workshops on global monitoring.

CURRENT SITUATION

Background

The basic goal of the Wilderness Research Center is to facilitate and sponsor research to expand understanding of natural ecosystems, components of natural environments and natural phenomena; the comparative use of such information to evaluate man-altered environments elsewhere; and the effects of wilderness uses on resources and participants. Established in 1972, the Center's administrative offices are housed in the University of Idaho-College of Forestry, Wildlife and Range Sciences, thus taking advantage of the interdisciplinary expertise and resources of the College and the University.

For the past 14 years the Taylor Ranch Field Station has been the location of research on the ecology of wilderness wildlife species (including mountain lion, big horn sheep, bobcat, owls), animal and bird community relationships, predator-prey relationships, and habitat relationships. Archeological research (funded by the National Geographic Society) has studied the prehistoric settlement and subsistence patterns of the Big Creek drainage. Research is in progress to evaluate indicators of

biological, physical, and social conditions affected by human use of wilderness.

Location and Facilities of the Taylor Ranch

The 65-acre Taylor Ranch field station, located on the Big Creek Drainage in the heart of the 2.3 million acre Frank Church-River of No Return Wilderness in central Idaho, is ideally suited to conduct such research. It is staffed year-round; has basic laboratory facilities, residence cabins, pack stock and an airstrip; four pristine mountain streams cross the property; and it is the focal point for an ongoing research program. Because Taylor Ranch is located in the center of the largest contiguous acreage of Wilderness in the lower 48 states, it could serve as an excellent background site for a regional atmospheric monitoring program in the central and northern Rockies.

INEL Leadership in Atmospheric Monitoring

The Idaho National Engineering Laboratory has taken a leadership role in developing the concept and methodology for an integrated global background monitoring network. The Environmental and Earth Sciences Division has proposed a network that would; (1) establish reference levels for pollutants that have potential for global contamination; (2) serve as an early warning system for detecting global spread and trends of pollutants; (3) establish background levels for selected ecosystem parameters against which data from more impacted areas can be compared; and (4) contribute to the study of biogeochemical cycles. This program of integrated environmental monitoring could benefit from the cooperative use of the permanently staffed facilities in the mountains of central Idaho at the Taylor Ranch.

ASSUMPTIONS ABOUT THE FUTURE

Environmental monitoring is becoming a major field of applied science with rapidly developing methodologies, instrumentation and scientific organization, and accumulating data bases. This trend will continue and the value of monitoring data from remote, pristine sites will play an important role in understanding and managing environmental impacts as they accumulate in managed areas. Internationally, environmental monitoring will become increasingly important with the industrialization of less-developed nations and the continued exploration and development of world energy reserves.

The University of Idaho has made a long-term commitment to wilderness research[1]. It will continue to provide the location, facilities, staff, and support that is unique in many respects. With the recent renovation of wet and dry laboratory facilities and the development of a research plan, the Wilderness Research Center is poised to undertake a significant program of ongoing research.

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1 The "Plan for Excellence" - College of Forestry, Wildlife and Range Sciences-University of Idaho identifies wilderness as one of 15 Quests for Excellence on which there will be a focus of future teaching and research.

The University of Idaho is a major land grant university with established cooperative agreements and relationship with federal agencies and other land grant universities. Especially close working relationships and active cooperative programs are maintained with Washington State University in Pullman, Washington, eight miles from the UI campus.

INEL has identified seven characteristics which an environmental monitoring sites should possess[2]. These are: permanence, central planning and coordination, design theory, flexibility, archived samples, quality assurance, and good research and development interaction. Sampling sites should be located in remote background areas as well as in urban, industrial, and agricultural areas. Clearly, a cooperative program of research between the INEL and the Wilderness Research Center should facilitate the mutual accomplishment of their respective goals.

DIRECTION AND ACTION:

Based on the above-stated goals, current situation and assumptions about the future, the following direction and actions are proposed:

* A field trip will be arranged to the Taylor Ranch Wilderness Field Station so INEL and University scientists can plan "on-site" the instrumentation needs and proposed details for cooperation in environmental monitoring and research.

* A priority order of business is the development of an instrumentation plan for the joint monitoring of atmospheric, meteorological, and hydrological deposition of pollutants, ecosystem functioning and throughput of these contaminants and baseline levels based on the naturalness of the site. A goal is to insure that the measurements and data collection and analyses methods are compatible with a long-range ecosystem functioning approach to monitoring.

* Develop a plan for the joint training and collaboration of personnel from UI and INEL. This will build the relationships, collegueships and commitments necessary for a strong research program. Joint training of faculty, staff, and graduate students should be considered, as well as affiliate faculty appointments for INEL scientists with the University of Idaho.

* Work towards the designation of the Frank Church-River of No Return Wilderness as a Biosphere Reserve.

* A program of cost-sharing for site development and instrumentation within the wilderness should begin immediately to build program identity. The Wilderness Research Center stands ready to commit approximately $20,000, or more, towards this goal at the Taylor Ranch Field Station during the next year. Instrumentation of the site needs to proceed in a coordinated and planned way.

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2 Wiersma, Bruce. 1983.

* Develop a plan toward inclusion of the Taylor Ranch-Wilderness Field Station as a designated site in such international, environmental background monitoring programs such as the IGBP International Biosphere-Geosphere Program now evolving.

Idaho National Engineering Laboratory

January 8, 1987

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DRAFT PLAN FOR DEVELOPING THE ENVIRONMENTAL MONITORING AND ECOSYSTEM RESEARCH POTENTIAL OF THE TAYLOR RANCH WILDERNESS FIELD STATION - GBW-02-87

Dear John:

I read your draft plan of action for developing joint projects on the Taylor Ranch Wilderness Field Station. I really like it. I have no substantive comments and would like to proceed with your suggested plan of action.

I am going to try to call you today and by the time you get this letter, you will know whether or not I was successful. However, in case we do not connect, I am taking the liberty of contacting Bill Gregg next week when I am in Washington to discuss the potential of Biosphere Reserve status for the River of No Return Wilderness. Bill Gregg is head of the U.S. Biosphere Reserve Program.

Also within the next couple of weeks, we will have a better feel for our funding and I believe that once that is properly defined, it would be wise for us to get together, perhaps at the University of Idaho and develop some specific plans.

Best Regards,

G. Bruce Wiersma, Ph.D.
Manager
Environmental & Earth Sciences

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cc: [redacted]