

TECHNICAL NOTES

The International Biological Program

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Its objective is to evaluate the biological basis of productivity in relation to human welfare. It will provide information for more nearly adequate estimates of actual and potential yield of biological resources of the land, of fresh water, and of the sea.

The biological productivity of the world, its many ecosystems and their innumerable niches occupied by plants, animals, and microbes are major determinants of human populations and their biological welfare. Conversely, direct, indirect, planned, and inadvertent intervention of man in his environment are determinants of the biological productivity of that environment.

The IBP is a nongovernmental undertaking sponsored by the International Council of Scientific Unions (ICSU). Its international governing body is a special committee of ICSU. The international headquarters are located at 7 Marylebone Road, London NW 1. Dr. E. B. Worthington, Scientific Director, and the small international staff are located at that address. The President of the special committee (SCIBP) is J. G. Baer of Switzerland.

Among seven sectional committees, four are of particular interest to range scientists:

(A) The Section Committee on Productivity Terrestrial (PT). The convener is F. Bourliere of France. The PT programs of 35 participating countries include studies of grassland, woodland, shrub communities, wetlands, and desert. These include studies of primary productivity, secondary productivity, and soil decomposition processes. The Section has advised National Committees that PT studies of primary and secondary productivity should (1) be undertaken on the same sites, insofar as possible, (2) aim at comparing wild and man-modified ecosystems in the same environmental conditions, and (3) compare the same type of widespread organisms in different environments, e.g., bracken, domestic herbivores on grasslands, rodents, granivorous birds, and grasshoppers.

(B) The Sectional Committee on Conservation Terrestrial (CT). Its convener is E. M. Nicholson of England. This Section is identifying and characterizing biologically noteworthy terrestrial sites as study sites and for designation of sites which should be preserved.

(C) The international program of the Sectional Committee on Use and Management (UM). Its convener is G. K. Davis of the University of Florida.

(D) Nutrition research is fostered by an International HA-UM Committee under leadership of C. G. King, U.S.A., current President of IUNS. The sectional program includes intensive nutritional studies of human population groups in contrasting habitats, assessment of human nutri-

tional status as a part of HA studies on working capacity, altitude tolerance, and other studies. Of special interest to range scientists is the project on wild and domesticated large herbivores, jointly sponsored by the UM and PT Sections. Scientists in several European, African, and American countries have indicated intent to participate in this study. Previous research indicates that some wild African herbivores may be more efficient converters of roughage to meat in their native habitats than are introduced domestic livestock species.

The following countries have formed National Committees for participation in the IBP:

Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, China (The National Republic of), Czechoslovakia, Finland, France, Germany (Federal Republic of), Germany (Democratic Republic of), Ghana, Greece, Hungary, India, Indonesia, Israel, Italy, Japan, Kenya, Korea (Republic of), Mexico, Netherlands, New Zealand, Nigeria, Norway, The Philippines, Poland, Rhodesia, The Republic of South Africa, Spain, Sweden, Thailand, Union of Soviet Socialist Republics, United Kingdom, United States, Uruguay, Venezuela, Republic of Vietnam, and Yugoslavia.

The scientific program of the IBP consists principally of these national programs which are coordinated through SCIBP and its Sectional Committees. The major part of the financing for the IBP is from national sources and is devoted to national programs.

The U.S. National Program

U.S. participation is sponsored by the National Academy of Sciences—National Research Council. A U.S. National Committee has been established within the Division of Biology and Agriculture. W. Frank Blair, University of Texas, is Chairman of the Committee.

The National Committee has 18 members which include the Chairmen of nine Sectional Committees. Seven of these correspond in scope to the seven Committees of IBP, although the U.S. Committee corresponding to the International Sectional Committee on Conservation Terrestrial (CT) is called Conservation of Ecosystems (CE). Subcommittees on Environmental Physiology (EP) and Systematics and Biogeography (SB) complement these seven Sectional Committees.

The PT and PF subcommittees jointly propose the study of whole systems, such as drainage basins or landscapes, through team effort by U.S.A. and foreign scientists. Where possible, ecosystems studied will include both undisturbed areas and those importantly modified by human use.

The PP subcommittee held two research planning conferences in 1967; one at San Jose, Costa Rica, organized by E. R. Lemon, Chairman of PP, dealing with physiological limitations on primary productivity under stresses of water and temperature variations. The second conference, held at Davis, California, organized by C. C. Delwiche, dealt with the cycling of nitrogen in the biosphere and the man-

agement of that element for increased food production. Participants included scientists from the U.S.A. and from Latin America countries in both conferences.

The CE subcommittee is encouraging the collation and dissemination of information on the major aquatic and terrestrial ecosystems of the U.S.A. A register of information on designated natural areas on Federal lands is in preparation by a committee of U.S. Departments of Agriculture and Interior scientists.

The subcommittee on Use and Management of Biological Resources (UM) plans to emphasize plant gene pools; use of blood traits for identifying useful animal genetic stocks; biological control; human nutrition; cereal ecology; new food protein sources; and food microbiology.

The program on analysis of ecosystems has as Director Fred Smith of the University of Michigan. Through IBP, PT, and PF, research on six major biomes will be coordinated with that in other countries. Range scientists will find opportunities for participation in studies of desert, tundra, and woodland biomes. Success of studies of native grasslands and grazable deserts, as well as alpine and arctic tundra used as rangelands, depends on their participation.

About 20 shortgrass sites from Canada through the Great Plains to Mexico have been visited. A working group met at Colorado State University on October 5, 1967, to review research sites. The major area for intensive study is the "Pawnee" site in Colorado. George Van Dyne of Colorado State University is developing the Grassland project.

The phenology program will interest many range scientists. They know and some have participated in the impressive phenological study led by J. M. Caprio at Montana State University using the common purple lilac as an

index plant. Program plans include wide participation in PF and PT phenological studies with widely distributed plant and animal species.

The Interagency Coordinating Committee (ICC) was established by the National Science Foundation in response to a letter from Donald Hornig, Director of the Office of Science and Technology, designating the NSF as coordinating agency for Federal participation in the IBP. Harve Carlson, NSF, is Chairman of ICC. The Atomic Energy Commission, the Departments of Agriculture, Defense, Commerce, Health, Education and Welfare, Interior, and State, NASA, the Smithsonian Institution, and NSF have appointed representatives to ICC. These agencies participate directly in research programs of IBP, indirectly through support funds for budgeted expenses of the U.S. National Committee, justified to the ICC and through support to IBP research submitted to the respective agencies through their respective and usual procedural routes.

Individual scientists or scientific groups who wish to participate in the IBP can become familiar with it from Report No. 2, "U.S. Participation in the International Biological Program" and Report No. 3, "Research Studies Constituting the U.S. Contribution to the International Biological Program." These publications may be obtained from the U.S. National Committee for the International Biological Program, Division of Biology and Agriculture, National Academy of Sciences—National Research Council, 2101 Constitution Avenue, Washington, D.C. 20418.

Projects to be accepted must be relevant to the IBP objectives and must benefit from international cooperation.

Proposals which require funds are to be prepared in accord with guidelines provided by granting agencies. Provision of funds for a proposal rests with the granting agency.