## SIMPOSIO DEL PACIFICO

The Simposio del Pacifico has been held by courtesy of the Government of the Republic of Mexico, in Mexico City from February 20 to 25, 1964. The need for this Simposio had become evident in view of the preponderantly European composition of the original group planning the International Biological Program (IBP), and the importance of tapping up to date experience and ideas based on tropical and subtropical regions in which a number of important research centers are now active.

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It has provided a first opportunity for a systematic analysis of the many problems of ensuring permanent reservation of an adequate series of natural areas in an extensive region of the world, to meet the future needs of science. The Simposio was prepared by a number of review papers, supplemented by site visits and interviews, sampling the Pacific coastline and its hinter-land from the Southern border of Colombia to the Northern border of Mexico.

This Simposio has been the first preparatory regional exercise for the International Biological Program, and is linked with other meetings to follow in Ecuador under the auspices of the Galapagos International Scientific Project, and the International Commission on National Parks of IUCN. The Simposio was essentially an informal working group of the utmost compactness compativle with first-hand knowledge of the areas and problems under consideration and of the international programs involved.

The chair was taken initially by Dr. Enrique Beltrán, Under-Secretary of Forest Resources and Wildlife for Mexico and Director of the Mexican Institute of Natural Renewable Resources, and subsequently by E. M. Nicholson, Convener for Conservation of the International Biological Programme and Director General of the Nature Conservancy of Great Britain. Other participants were:

United States. - The conservation Foundation. Mr. William Vogt.-United States .- Graduate Research Protessor, Dr. Archie Carr.-(Poper) University of Florida. Director Caribbean Conservation Corporation. Dr. Hugh Popence.-United States. - University of Florida, Director

Costa Rica. - Chief Forestry Development Dr. Gerardo Budowski.-Program. Instituto Interamericano de Ciencias (paper) Agrícolas de la OEA. Turrialba.

Caribbean Research Program.

(poper)

Mr. William J. Hart.-

United States. - IUCN. International Commission on National Parks.

Ing. Juan Manuel González.-

México.- Technical Assistant to the Under-Secretary.

Ing. Roberto Villaseñor. - México. - Director General. National Institute of Forest Research

Dr. Rodolfo Hernández Corzo.

Q.B.P. Ambrosio González C.-

México.- Research Chief. Mexican Institute of National Renewable Resources.

México.- Director General. Wildlife Manage-

Ing. Efraín Hernández X.- México.- Profesor, Colegio de Post Graduados. Escuela Nacional de Agricultura, Chapingo, Mex.

Those who contributed papers but were unable to attend personally were:

Dr. Francisco Cornejo.-

Panamá.- Chief Forest Service.- Ministry of Agriculture, Commerce and Industry.

Prof. Rafael L. Rodríguez. - Costa Rica. - Director of Faculty of Science, University of Costa Rica.

+ Alfredo Ruiz -ITCO

On February 22, en route to Acapulco, a session was held at Chilpancingo with representatives of the University of Guerrero and Government officials of the State of Guerrero, and interested local citizens.

Owing to difficulties and delays in explaining to potential participants the general outline and plans for IBP, it has been impossible for countries concerned to consider adequately the role which they might best play. The Simposio therefore, inquired into the general concepts and plans for the International Biological Program, of which conservation forms only one section. An underlying idea of the program is that fundament al science should be systematically developed to provide a firm basis for the applied sciences and professions concerned with promoting human welfare on the land, and that conservation should be harmonized with and treated as an essential counterpart of economic and social development. Such an approach has much relevance to current problems of Latin America. As the IBP is based on each participating country establishing

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its own National Committee to organize and direct its own program, there is ample scope for new approaches and techniques to emerge from the various institutions and scientific teams already active in the various fields covered by IBP. It was highly satisfactory, therefore, to learn of the interest in IBP in Mexico and of the possibilities of a substantial Mexican National Program, as well as the readiness to participate expressed by scientific leaders in Colombia, Costa Rica, and Panama.

The Simposio then reviewed the scientific needs for reserves and the prospects of meeting them in Colombia and the Central American territories extending thence to Mexico.

Development and conservation in Latin America are presently dominated by a few conspicuous trends, especially demographic pressure, technological changes, the large-scale injection of capital investment, and the expectation of rising standards of living.

In relation to natural habitats, two trends are evident. One is the impact of large-scale projects such as the Northern Irrigation Project in Mexico, and various colonization schemes, and the Cauca and Magdalena River development projects in Colombia. A second trend is the invasion of largely marginal lands by squatters. In a number of countries, agrarian reform programs have become important factors influencing these trends.

These trends have proved highly adverse to the movement towards the development of natural resources. Very few national parks or reserves have been recently established and a number of those existing have been seriously damaged through burning, grazing and cutting as a result of growing land hunger.

There is so far a failure to create a public opinion sufficiently favorable and strong to insure the preservation of natural areas. Greatly increased provision of educational materials such as films, publications, and radio and television programs, is urgently needed. It is essential that in the current reform of educational curricula much increased provision should be made for the teaching of ecology and conservation at all levels of the educational system. An essential basis of this aspect of education is an expanding program of ecological research.

Although such research is still on a very inadequate scale it is being developed by a number of active and growing institutions which are currently facing the need to broaden and deepen their background studies in order to be able to provide the necessary advice and training for sound programs of development and land use. The encouragement and support to these institutions which might accrue from participation in various a aspects of the International Biological Program could be substantial, especially since they have hitherto been somewhat handicapped by difficulties in communication.

One of the principal obstacles to effective preservation of natural areas is lack of suitable or strong enough organizations. In a number of the countries legislative powers are far-reaching and well-conceived, and would suffice to enable much to be achieved. This legislation, however, is generally quite ineffective owing to lack of funds and of highlevel backing, and to insufficient trained and experienced staff. Except in Mexico, where the Institute of Renewable Natural Resources has a great record of solid achievement and possesses the necessary powers, there are as yet, no non-governmental bodies effectively able to promote conservation and, wherever necessary, acquire and hold land as perpetual corporations for the purposes of research, conservation, education or recreation. The need for working out a suitable and legally valid model constitution with the necessary variants to meet local conditions is urgent. Important natural areas offered for such purposes by public-spirited citizens, have actually been lost in certain countries for want of a suitable non -officicial body ready to accept responsibility for them. This is not strictly a responsibility of IBP, and it is hoped that the great experience gained through the Institute of Renewable National Resources, may be enlisted in order to enable a study group consisting of conservationists, administrators, lawyers, and others of special experience, mainly from the countries concerned, to be convened as soon as possible to produce a much-needed brief document of help and guidance in these matters.

One of the principal problems for the Simposio was the need for a practical and comprehensive working classification covering plant and animal associations and their environments, whether natural or modified by human agency. Without such a foundation, or a thoroughly scientific, comprehensive and world-wide basis, it would not be possible to determine scientifically how many and which sites need to be safeguarded in order to ensure that future field research does not suffer through the destruction of its essential raw material. The wider potential applications of such a classification in agriculture, forestry and landluse have also been borne in mind.

In order to be of value for the International Biological Program, a classification of vegetation must:

- (1) be suitable as a practical instrument for selecting natural areas to be conserved
- (2) be equally applicable in all parts of the world, and by persons trained in any or no particular school of vegetation description.

- (3) be flexible and adaptable so far as possible to other probable user requirements, e.g. in land capability and land management surveys, and in making development plans, and
- (4) give full weight to existing experience and progress in such methods, e.g. to the already accomplished mapping of life-zones in countries from Guatemala to Perú inclusive.

It must also be recognised that the essence of any acceptable system must be a logical hierarchy of descriptive components, starting with background environmental factors such as climate, latitude, altitude, topography and soils, and proceeding by way of the ma jor physiognomic classes such as forests, heaths, bogs, and grasslands, as they exist today and recur in similar environmental conditions in different parts of the world. These in turn, must be related to the many different plant associations which, confront the investigator on the ground, in terms of their changing composition or relative frequency of species. Provision must next be made for the occurrence of different successional stages, either natural or induced by human actions, so that a seral stage, a modification through fire or grazing or an artefact such as an agricultural crop or a plantation for timber can be accurately assigned to its correct position in terms of the environment and of the potential vegetation types which in each life-zone or subdivion are permitted by that environment. Moreover, while vegetation perhaps affords the best basic framework for a system of landscape classification, the entities to be preserved are actually complex organizations, integrated by interplay between the plants and the associated vertebrate and invertebrate animals, as well as by their effects upon the physical substrate. The vegetation system thus should, in each separate region be reevaluated for any divergence due to important regional differences in the local fauna and flora. In other words, landscape classification by physiognomy alone, is a convenient beginning, but it should not be allowed to hide important variand conditions of internal dynamics brought about by regional faunistic and floristic differences. While classification should be based on vegetation types, ample allowance must be made for superimposing, where necessary, further explanatory or modifying factors arising from animal ecology and relevant to the analysis of animal distributions, e.g. in burrows in the earth, or pools of water or fallen logs, Sites modified by human agencies are also so important for conservation as well as land-use that a classification must cover them too.

It is tentatively submitted that all these complex requirements can be met, not by any one existing system but by combining a suitable system of classification of environment with a hierarchicaly arranged series of classification units for the vegetation itself, numbered on a decimal system in terms, of four ranks of diminishing importance, the last being understood to cover successional stages and induced phases, including artificial plantations for agriculture, forestry or amenity.

This approach offers the following advantages:

- (1) It would plainly distinguish between superficially similar plant formations growing in different latitudinal, altitudinal, temperature, or other conditions, and would deal with all such limiting factors distinctly in a single group.
- (2) It would minimise subjective or premature classification of particular plant formations as belonging to particular regions or environmental conditions, or reliance on teleological or controversial categories which are not directly and objectively capable of me asurement or observation. For example it would be unnecessary to describe a formation or association as "tropical" or "montane" since this would emerge from analyses of the life-zones in which it was reported, whether as a typical, border line or except ional occurrence.
- (3) It would ensure that physiognomic characters of vegetation would always precede phyto-sociological and floristic characters in an unmistakeable logical order. The innumerable situations in which a survoyer on the ground is confronted with variant or deviant conditions not foreseen in some over-simplified and toorigid classification an thus be provided for openly and realistically, without requiring the survoyer to make dubious judgments over a needlessly broad area. or to force his observations into an unsuitable and misleading mould.

Experience in Latin America has shown that even on rather limited bio-geographic data the environmental (life-zone) boundaries can be mapped over entire countries without undue effort or difficulty on a basis of objective criteria, such as latitude, altitude, temperature or rainfall, which could, if necessary be supplemented by other physical factors.

It is equally well established through continental or regional "vegetation maps" that there is no insuperable difficulty in mapping extensive areas at the second level, on a physiognomic basis. At the third level, of plant associations, greater difficulties arise, for the following among other reasons:

- (a) the field survey and taxonomic work involved is much heavier and more exacting.
- (b) basic terminology and methods of description and recording need to be clarified and,
- (c) it is often not possible in the present state of knowledge to identify with certainty the relation between different seral or induced phases.

Nevertheless this proposed approach facilitates the handling of these problems by eliminating first the less troublesome items of environment and of physiognomy, and by ensuring that the precise areas of uncertainty or proneness to error are pinpointed unmistakeably within the framework. For the purposes of preparing a comprehensive programme of scientifically important sites, adequate material at the environmental and physiognomic levels will go a long way towards providing a sound working basis, in cases where more refined information on plant associations and successional stages may be unreliable or unavailable.

Through the possibilities opened up by a system of decimal numbering it will be possible to get free of the limitations and bias involved in verbal elements and to express the basic data in a standard series of around nine digits, the first four, for example covering environmental, the second four plant association stages and the last one animal ecological coding. Extra digits could if desired be added to cover land use, and other aspects which could thus be linked to an ecological basis and analysed by computer or other suitable methods. Any amount of more detailed data could be added for particular purposes or areas in the knowledge that they would be significantly linked to and available through an organized body of world ecological information.

The recommendation of the Simposio on this matter is therefore that the Ecological Sub-Commission of IBP be requested to give further consideration to a scheme for fulfilling the above requirements, in the light of the best available experience, with a view to its adoption as the standard basis for all relevant work within IBP.

The Simposio received, through papers and oral reports, much concrete and up-to-date information regarding developments and projects in a number of the countries concerned. Among those which seemed of particular interest and promise were: 34

1.- A statement published February 14, by the President of Colombia undertaking to launch a series of effective National Parks in Colombia, during the remainder of his term of office, accompanied by detailed priorites from The Ministry of Agriculture for the fulfillment of this assurance and by the establishment for this purpose of an official Committee including a representative of the Latin-American Committee of the International Commission of National Parks. Among the proposed Parks special importance attaches to that called the Estrella de Colombia, where the Amazonas, Caribbean and Pacific fauna and flora meet at the complex divide formed by the junction of the Central Eastern and Western cordilleras of the And<sup>s</sup>.

2.- The Simposio was impressed with the important possibilities of securing a series of National Parks, Natural reserves and other protected areas along the Inter-American Highway. It would be a particular missfortune if this great international achievement were to become known as having been the means of destroying all the significant natural areas through which it runs.

The proposal by the Instituto de Reforma Agraria and the Forest Service of Panama that the current feasibility study of the outstanding link in the Inter-American Highway, between Panamá and Colombia should be broadered to include on ecological survey team directed to survey natural areas along the route (which is still largely undertaken and unexplored); and to plan provision for preserving as National Parks or otherwise these areas of outstanding scientific value is particularly significant areas.

(There are excellent prospects that part of these surveys could be carried out by two Panamenians on leave from the Forest Service of their country and studying at the graduate school of the Inter-American Institute of Agricultural Sciences in Turrialba, Costa Rica, as a requirement leading to their master's degree). This proposal merits all possible support from the Joint International Commission for the Highway and from all other authorities concerned.

Proposals were also welcomed for other parks along the Inter-American Highway, especially Cerro Azul, East of Panamá City, the forest reserve area of the Canal Zone west of Thatcher's, Ferry Bridge and the Cerro Campana farther west of Panamá City, and the outstandingly important mountaineous area on both sides of the Panamá, Costa Rica boundary. Another exceptionally important project along the Highway is that of ITCO in Costa Rica for a natural reserve of some 20 000 or more hectares of the remaining as yet undamaged great forest of hill oaks near the highest Central American summet level of the Highway between Cartago and Villa Mills. Beyond its unique biological value this would conserve water supplies for the Rio Macho. Hydro-electric undertaking while neighboring sections already desturbed could be used for educational and recreational purposes.

3.- Another class of natural area specially important for preservation is the series of volcanoes in Central America, which support unique flora and fauna. An example in Costa Rica which is very rapidly being encroached upon by catlemen is the volcano Poas.

Several other volcanoes in Costa Rica are distinctive floristic and fauna features of high interest, and special efforts should be made to safeguard the scientific values.

4.- Priority should also be accorded to the preservation of the cloud forest, which has a very distinctive flora and fauna. These "islands" are being threatened with destruction and efforts leading to their prompt conservation should be strongly encouraged.

The virgin cloud forest that encompases the high point of Monte Cristo, where Guatemala, Honduras and El Salvador meet offers a unique opportunity to establish an international park in an area that has special importance because of its isolation; it has the added advantage of being in the possession of a single owner who would be sympathetic to have it protected as a park.

Other forested areas at high elevations in Guatemala were considered of particular interest for their flora and fauna.

5.- In Mexico exists a number of National Parks (50) some of them along the Pacific Coast (Constitución de 1854, Baja California; Volcán de Colima, Colima; Laguna de Chacahua, Oaxaca; Lagunas de Montebello, Chiapas) so for the present, the need to create new ones is not felt, but it essential to provide their administration with enough funds for improvement and for better vigilance to avoid damage caused by squatters and possible invasions promoted by the everyday increasing demographic preasures.

In regard to wildlife, the same lack of sufficient funds have hanicaped a better management, but work is being carried on mostly creating a public opinion favorable to the manysided implications of

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wildlife conservation and proper management from a scientific, cultural recreative, and economic point of view. A trend has been in action in late years to establish sancturaries, of which three are on the Pacific area: islands of Guadalupe, Rasa, and Tiburón.

There is also need of preserving important natural areas along the Pacific coast, to prevent further damage by tourist interests and others, promoted by the enlarging and bettering of highways. An example of this pressing need is found in Point San Telmo, considered to be the only breeding ground of the green turtle (<u>Chelonia agassizi</u>), in the Pacific zone, North of the Galapagos Islands to California.

Emphasis was put on the encouraging fact that, besided the official existing agencies, there exist also some private organisms such as the Mexican Institute of Natural Renewable Resources which not only carries on active research work and education, but is also in a position to acquire and hold land that may be permanently devoted to conservation purposes and wildlife refuges.

6.- The above examples represent only on advance selection of some widely significance cases mentioned in the Simposio in preparation for compiling a comprehensive list.

## CONCLUSION.

A.- As the motive for convening the simposio was to establish more effective contact between those interested in the region and the International Biological Program specially with regard to conservation matters, it should be recorded that in the opinion of the Conventer for Conservation these objects were amply fulfilled and future plans in this section of the International Biological Program will go forward in the light of a fuller appreciation of the problems, plans and reactions of this important region of the world.

B.- As the simposio was entirely informal, its findings are put on record in order to convey the impressions of the general lines of the situation and of the causes of action favoured by the participants, who will take such action as they see fit in their various other capacities. It should be emphasized that while the record is broadly agreed it should not be assumed that every statement is necessarily accepted by every participant. The working and travel facilities provided by the Government of Mexico, including its staff members, made possible such success as was achieved, and the gracious hospitality extended by the Minister of Agriculture and the University and Government of Guerrero are not only deeply appreciated, but will along be remembered by all who enjoyed them as a particularly characteristic evidence of the friendship, that traditionally Mexico has always extended to visiting scientists.