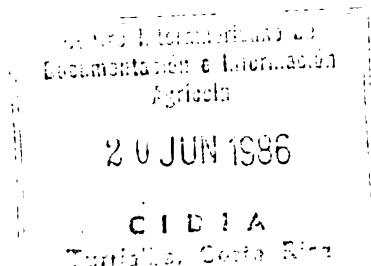


**TRAINING PERSONNEL FOR BIOSPHERE RESERVES AND OTHER
MANAGED WILDLANDS AND WATERSHEDS: CATIE'S
EXPERIENCE IN CENTRAL AMERICA**



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ABSTRACT. This paper describes the role of the Wildlands and Watershed Programme (WWP) of the Tropical Agricultural Research and Training Center (CATIE). CATIE's and WWP's objectives and principal activities including training are outlined. The characteristics of WWP's training strategy and programme are highlighted, including its regional emphasis, support to development of national training programmes, target groups, major types of activities, curricula, instructional methods and materials, linkages between activities, trainee selection process and instructors. The programme's cost effectiveness, appropriateness to local problems and situations, integrated approach to solving resource management problems, emphasis on practical experience, and strategic focus are highlighted.

1. INTRODUCTION

1.1. Wildlands and watershed management in Central America

In Central America some isolated efforts to manage wildlands and watersheds were initiated many decades ago. Concerted national and regional action to confront environmental problems increased rapidly after the First Central American Meeting on the Management of Natural and Cultural Resources, held in 1974 (IUCN, 1976). At that meeting, governmental representatives of the countries of the region resolved to redouble efforts to adequately protect and manage their natural and cultural resources. Meeting resolutions urged the establishment of a coordinated regional network of national parks and equivalent reserves, and a major accompanying effort to train resource managers. Following this meeting, the number of parks and reserves, and their total area have increased rapidly. Parallel to the great increase in the number of legally established and effectively protected wildlands in Central America, there has been a much more recent growth in interest and field action to achieve integral watershed management both outside of and including protected areas.

Several factors can be cited which have undoubtedly contributed to these positive trends in wildlands and watershed management in Central America. They include increased decision-maker awareness and support of resource conservation, as an essential component of national development plans, and considerable outside technical and financial assistance. However, the single most important cause has been the great increase within the region in the number of highly trained and motivated national professionals in the field of wildlands management. The interest in action oriented projects and training in watershed management still lags considerably behind that of wildlands management for a number of historical reasons, but that situation has begun to change rapidly over the past few years. The institution which has contributed most to these advances and changes is CATIE, whose WWP and others in fuelwood production and agroforestry have sponsored a large number of regional and national training events for conservation agency personnel throughout Central America.

2. CATIE-WWP FRAMEWORK AND OBJECTIVES

CATIE is a non-profit research and training centre, founded in 1973 and dedicated to fostering rural development in Central America through research and training in agriculture, animal husbandry and renewable natural resources management. Member institutions include the governments of five Central American countries and the Dominican Republic. Strong links and support are provided by the Inter-American Institute for Agricultural Cooperation (IICA) of the Organization of American States (OAS). El Salvador is about to join, and Belize is expected to do so within a few years. CATIE is based at Turrialba, Costa Rica, and possesses installations including extensive experimental and demonstration areas for research in the agricultural and forest sciences. The campus includes an excellent new library, new computer facilities and modern laboratories, classrooms, offices and living quarters for staff and students. In addition, field experimental plots are maintained by CATIE throughout the region.

CATIE has three major operative technical departments: crop production, animal production and renewable natural resource management, staffed by nearly 100 professionals from over 20 countries. Its principal focus is on research and training for technical cooperation to the countries of the region. Through an agreement with the University of Costa Rica (UCR) a M.Sc. programme is offered at CATIE. In addition, a large number of shorter courses, workshops, seminars, and in-service training activities are organized by each department annually.

The WWP was founded in late 1976 as an outgrowth and continuation of similar earlier regional wildlands management programmes sponsored by FAO, the Rockefeller Brothers Fund and the Tropical Center for Training and Investigation (CATIE's IICA-dependent predecessor). The WWP is part of CATIE's Renewable Natural Resources Department, which also includes other major programmes in tropical forest silviculture and production (including fuelwood production and other alternative energy sources, natural forest management, plantation forestry, etc.) and agroforestry. It also includes a Forestry Information and Documentation Center and Project for Latin America, and the Latin American Forestry Seed Bank.

Training is a principal priority of the WWP, but it should be clearly understood that it is an integrated part of an overall set of projects and activities which form a regional strategy in Central America. Besides training, the other key elements are technical cooperation or assistance, research, documentation and information services and promotion of regional cooperation, all interwoven through a set of high priority, pilot experimental-demonstration projects in the countries of the region. All projects and activities are chosen jointly with national resource management institutions and are conducted with national institutions and teams.

The WWP's forte is working successfully with national governmental resource management institutions, particularly interinstitutional-interdisciplinary teams, and in some cases national or local private citizens groups and/or universities, in the preparation and implementation of plans and strategies for national systems of wildlands/watersheds and in the training of large numbers of natural resource professionals, technicians and support personnel.

WWP also acts as an ex-officio regional liaison office for a number of aid agencies and conservation organizations which lack offices in the region, such as IUCN/WWF International, WWF-US, Unesco, the US Fish and Wildlife Service (USFWS) and US National Park Service (USNPS). Programme staff also serve as members and consultants to several IUCN Commissions (CNPPA, CEP and SSC).

Virtually all the services indicated are provided without charge to the countries. Occasionally, in certain pilot projects, particularly those involving management of critically important wildlands and watersheds, WWP takes a more direct responsibility for preparing (at cost) resource inventories, management plans, funding proposals, etc., through cooperative agreements with national governments of the region and/or international or bilateral aid agencies and conservation organizations. In those cases national teams of professionals are always involved and additional national and international personnel are sometimes contracted full or part time. Recent projects of that type include the La Amistad-Talamanca Range Biosphere Reserve Resource Inventory and Planning Project in Costa Rica (Morales *et al.*, 1983; CATIE, 1982) and a study to define a methodology for biosphere reserves systems planning and apply it to a test case in Costa Rica, funded by Unesco MAB (Cifuentes, 1983).

The programme has been very successful at obtaining small amounts of operational funding for its work in Central America and Panama as well as substantial funding for the individual "on-the-ground" projects in each country and the very frequent regional and national training events which it conducts, from a wide variety of sources: AID/Costa Rica; AID/Panama; AID-ROCAP; DDA (Swiss Development Assistance); FAO; the Fauna and Flora Preservation Society; IICA; Inter-American Foundation; IUCN; Kellogg Foundation; Rare Animal Relief Effort (RARE); UNEP; Unesco (World Heritage and MAB Programmes); USFWS; USNPS; WWF-International and WWF-US.

All of this has had a very large impact in the region in terms of the wildlands situation in every country, which has improved notably in the past decade, and particularly the past 5-6 years, largely due to the catalytic impact of WWP's work. WWP has, perhaps most importantly of all, greatly improved the quantity and quality of human resources capable of planning and managing wildlife systems, areas and institutions and of strengthening those institutions.

Principally for historical reasons WWP's emphasis until recently was on wildlands management. However, since mid-1982 a strong emphasis on an expansion of the watershed management part of the programme has begun. Full-time specialists were added, the post-graduate programme improved and regional technical assistance, training and research gradually begun, all with financial support for an initial 2-year period by ROCAP-AID.

3. WWP TRAINING PROGRAMME AND ACTIVITIES

Since 1977, WWP has sponsored or co-sponsored more than 30 regional short-term training activities and has designed, tested and improved a wildlands management specialization and partially done so for a watershed management one, both as part of the M.Sc. post-graduate studies programme in Renewable Natural Resources Management at CATIE. The following sections present the major results of that experience.

3.1. Regional training needs and general design and characteristics of training strategy and programme

3.1.1. Common regional training problems and needs. Surveys and studies have demonstrated several common problems shared by all countries in terms of wildland management training needs:

- In the beginning (mid-1970's) there virtually were no trained personnel in the region, with the exception of a very few scattered Senior professionals.

- The training needs are very large in the region, totalling at least some 2500-3500 persons over a 20 year period (1980-2000).
- Training is needed at all personnel levels. The basic technician level (rangers, guides, extension agents, etc.) is the largest group, comprising approximately 70% of the total.
- No training programmes in wildlands management, even as parts of other curricula, exist in any of the countries, with the exception of recent efforts at university level (B.Sc.) in Costa Rica and short-term training programmes in a few resource management agencies in Costa Rica and Panama.
- The personnel being added rapidly to wildland management agency staffs come from a wide variety of backgrounds.
- The vast majority of wildlands personnel start their careers in resource management institutions lacking training in wildlands management but also with little or no practical experience.

3.1.2. Training strategy and programme design and characteristics. The major characteristics, principles and guidelines of the WWP's training strategy and programme are as follows:

A. Emphasis on regional activities

Overall efforts in the design and execution and amount of training done are concentrated mostly on regional level activities in which participants come from all or most of the countries, providing for greater efficiency and economies of scale.

B. Simultaneous support to development of national training programmes

National level training programmes and activities are also supported. The majority of regional training activities are conducted in the individual countries. In each case one or more national institutions co-sponsor and work closely with WWP in the design, organization, preparation of materials, execution and evaluation of the event. At the more purely national level, WWP's principal inputs are technical assistance adapted to a particular national need, to help design and evaluate training strategies, programmes and/or activities, advice on training methods and techniques and provision of training modules (curricula and instructional materials) as a basis for individual programmes and events.

C. Target groups

The great majority of WWP training activities are aimed at three target groups:

- Level B, Senior Professional/Manager/Decision Maker;
- Level C, Junior Professional/Manager;
- Level D, Professional and Senior Technicians.

Occasionally, WWP training activities are designed for two additional target groups: Level A, Senior Policy and Level E. Basic Technicians. This approach is also to achieve efficiency and economies of scale for the same reasons as outlined above.

The initial focus (1977-80) was to build a minimum critical mass in each country of trained, experienced, dedicated career personnel at levels B and C. As that was largely achieved, the focus shifted (1980 onwards) to attempt to train gradually the great majority of professionals and senior technicians in the regions and to continue to build depth in numbers, at levels B, C and D. However, because national training programmes and activities have developed somewhat slowly in general, but particularly for level E, WWP has begun to conduct a few experimental activities for that level, to further catalyze national efforts and develop tested modules.

D. Major training types

The WWP uses a wide variety of training approaches. The following descriptions provide a few essential and illustrative additional details of each type:

i) CATIE-UCR M.Sc. Programme

This selective programme is offered on the CATIE campus. It normally takes 1 to 2 years with students within the programme considered as "associate staff members" and are requested to undertake practical thesis research dealing with priority WWP projects or activities at a regional level.

ii) Regular CATIE M.Sc. Programme Courses

In addition to a strong introduction to the basic concepts and principles of wildlands management, including methodologies, methods and techniques, and all backed by extensive reading of the literature, the students must work as a team with national counterparts in Costa Rica in two intensive, in-depth practical exercises such as the preparation of a general management and development plan for a protected wildlands and of an interpretive/environmental education plan for another one.

iii) Major thematic workshops and short courses

The main feature of these very intensive, 3-4 week, single theme events, is their heavy emphasis on practical, hands-on application through field exercises. After a basic introduction to concepts, principles, methods and techniques, the participants spend 70-75% of the time working as a team guided by instructors, to prepare a product such as management plan, environmental education programme or set of interpretive designs in a protected wildland area.

iv) Brief thematic workshops and short courses

The design of these is very similar to the major thematic workshops with heavy emphasis on practical exercise and preparation of a real product in a wildland area. However, given the time, accomplishments are limited, they must be carefully designed and used only for themes which can be covered in a week or less.

v) Mobile seminars

These can provide both a broad basic introduction and first-hand exposure to a wide range of management categories, problems, tools and approaches. Although limited by time they are excellent for exposing professionals and technicians to such a range of problems and options, because a large number of different wildland and watershed areas in several countries are visited in a 2-3 week period.

vi) Technical meetings

These have become training events. By bringing together a diverse group of professionals with widely varying backgrounds and experience and focusing in a very structured manner on a specific theme, they result in considerable training through exchange of information and experience.

vii) In-service training

This option is often the best solution for individuals or small groups of trainees, in order to solve specific needs for which sufficient demand does not exist to organize a larger informal event. It also allows matching of personnel working in very specific similar situations.

In summary, all of the training types have proven to be very useful, each has its distinct advantages and drawbacks, but if designed and utilized properly can fulfil certain objectives. When combined into an integrated, linked set, i.e. a proper training programme, they can serve to fulfil in large part the training needs of an entire region in an efficient and economic way.

E. Curricula and instructional methods and materials

All WWP training events stress the importance of multi-disciplinary approaches to solving resource management problems, concentrate on strategic and tactical issues and approaches, emphasise hands-on field experience and practical exercise, and are constantly evolving according to new knowledge and experience in wildlands and watershed management. The curricula and instructional methods materials emphasize those foci.

F. Linkages between events and trainee selection process

The different training events are an integrated set which offer both several levels of depth and breadth on the same major themes as well as an array of different themes. This allows a broad coverage of training needs according to both target group levels and needs for specialization. Since the WWP staff has much contact with resource management personnel in the region, particularly through pilot projects, technical advisory missions and training activities, it is possible to pre-select appropriate candidates jointly with the national agencies.

G. Instructors

Most instructors come from the WWP staff and national agencies in the region. In some cases international or bilateral agencies have seconded employees with extensive past experience in Latin America. USNPS and USFWS have particularly excellent sources of such support. The key factors for success in such cases is that the persons be truly experienced and well-selected for the specific training tasks.

4. RELATIONSHIP TO OTHER NATIONAL AND INTERNATIONAL TRAINING PROGRAMMES

The WWP training programme cannot possibly attempt to cover all needs of the region. The strategy, therefore, includes trying to take full advantage of other available appropriate training and to support the development of such new training programmes. Certain international training activities and programmes of the appropriate type are being used extensively to complement training in the region. Particularly noteworthy are:

- a) the 4-5 short courses and workshops offered in Spanish in the USA each year by the USNPS and USFWS on various aspects of wildlands and wildlife management for Latin American personnel; and
- b) the International Seminar on National Parks and Equivalent Reserves held each year by USNPS, Parks Canada and the University of Michigan (Wetterberg, 1982).

In certain special cases WWP assists in M.Sc. and Ph.D. programmes designed for training of Latin Americans in wildlands and watershed management in foreign universities i.e. the programmes have an international focus, particularly on Latin America, and staff and graduate students with considerable experience in the region.

Finally, a large number of international and bilateral institutions have been supporting strongly, with financing, the WWP training programme and/or national programmes in the region. Particularly noteworthy are the contributions of AID, the Kellogg Foundation, Rockefeller Brothers Fund, Unesco, USFWS, USNPS and WWF-US.

5. PRESENT PROBLEMS AND FUTURE DIRECTIONS OF THE WWP TRAINING PROGRAMME

The WWP has formulated a revised strategy and detailed programme for training in the region for the period 1984-88. It is based on training requests from the countries, evaluations of events by trainees and instructors, the "spot-check" follow-up of ex-trainees, a WWP study and AID/WWP survey respectively, of regional training needs in wildlands and watershed management, and recommendations of the 1980 WWP-US report on training needs in natural resources in Latin America and the Caribbean. Its objectives, target groups and curricular foci are designed to complement and support other training programmes offered and being developed in and outside of the region (WWF-US, 1980).

6. WWP TRAINING AND BIOSPHERE RESERVES

There are currently three Biosphere Reserves in Central America -- Darien in Panama, Talamanca Range-La Amistad in Costa Rica, and Rio Platino in Honduras. All three superintendents and many rangers from these reserves have participated in WWP training events, and WWP staff have provided technical assistance in preparation of resource inventories and management plans for all three, including comprehensive, long-term training programmes for the personnel of each. One WWP staff member also served as chief technical adviser and as an instructor in a World Heritage Programme-sponsored ranger skills course, held in the Talamanca Range-La Amistad BR in February, 1983, in which rangers from the Talamanca Range BR, Darien BR, and Biospheres Reserves and World Heritage Sites in Guatemala, Colombia and Peru took part. This event is to date the only Biosphere Reserve-specific training event in Central America.

WWP staff have also helped organize national MAB committees in Honduras and Nicaragua, and lectured on the programme and specifically on biosphere reserves during the initial meetings of these committees.

In most cases, however, it is felt that training of biosphere reserve personnel can be accomplished through regular WWP-sponsored regional training events and other CATIE training events in the fields of agroforestry, mixed production systems, fuelwood production, natural forest management, etc., and staff exchanges between existing and planned BR's in Central America and those in neighbouring countries. As noted earlier, in order to help create knowledge

of and support for the biosphere reserve concept and World Heritage Programme among all natural and cultural resource management personnel of the region, basic lectures on these two programmes are almost always included in WWP training events.

A major factor limiting the initiation of formal biosphere reserve training events, and for that matter affecting management of existing biosphere reserves in the region and the possibilities of creating more, is the limited financial assistance available through Unesco-MAB for training, applied investigations, protection, infrastructure improvement, and educational programmes in biosphere reserves. The financially pressed resource management agencies of the region are not going to be interested in any new "label" on existing or proposed protected areas and managed watersheds which does not assure at least some additional outside financial assistance. Until now, the three existing BR's in the region, which are also existing (Platano and Darien) or proposed (Talamanca Range) World Heritage Sites have received considerable financial assistance under the World Heritage Convention. However, it appears that available funding from that source, for both the reserves' protection and development and WWP training activities involving BR/WHS personnel, is dramatically decreasing. This will undoubtedly adversely affect management of these areas, regional interest in biosphere reserve and World Heritage Sites, and CATIE-WWP possibilities of training BR/WHS personnel.

REFERENCES

- CATIE, 1982. Inventario de recursos naturales y culturales: Parque Internacional La Amistad, Costa Rica - Panama, Sector Costarricense. CATIE, Turrialba, Costa Rica.
- Cifuentes, Miguel, 1983. Reservas de Biosfera: clarificación de su marco conceptual y diseñó de una metodología para la planificación de un subsistema nacional. CATIE-UCR M.Sc. thesis. Turrialba, Costa Rica.
- IUCN, 1976. Actas de la Reunión Centroamericana sobre Manejo de Recursos Naturales y Culturales, San José, Costa Rica, diciembre 1974. IUCN Publicaciones Nueva Serie No. 36.
- Morales, Róger, J. Barborak and C. MacFarland, 1983. Planning and managing a multi-component, multi-category international biosphere reserve: the case of the La AmistadTalamanca Range/Bocas de Toro wildlands complex of Costa Rica and Panama. Paper presented at the First International Biosphere Reserve Congress, Minsk, USSR, September, 1983.
- Wetterberg, Gary B. 1982. Exchange of wildlands technology: a management agency perspective. Paper presented at World National Parks Congress, Bali, Indonesia, October 1982.
- World Wildlife Fund-U.S. 1980. Strategy for training in natural resources and the environment: a proposal for development of personnel and institutions in Latin America and the Caribbean. WWF-US, Washington, D.C.