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**REGIONAL PROGRAM FOR TECHNICAL COOPERATION FOR THE  
CONSERVATION, REPRODUCTION, AND BIOMEDICAL USE OF  
NONHUMAN PRIMATES**



**PAN AMERICAN HEALTH ORGANIZATION**  
***Pan American Sanitary Bureau, Regional office of the***  
**WORLD HEALTH ORGANIZATION**

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PRIMATES**

**Report on Activities from 1993 to 1994**

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**Division of Communicable Diseases Prevention and Control  
VETERINARY PUBLIC HEALTH PROGRAM**

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**BACKGROUND**

The Regional Primatology Program was launched 20 years ago through an agreement between the Government of Peru and the Pan American Health Organization that allowed the establishment of the Peruvian Primatology Project, located in the city of Iquitos, in 1976.

The general objective of the program is to provide technical cooperation to the Member Countries for the establishment of programs for the conservation, reproduction, and sustained use of primates to benefit public health.

Technical cooperation activities with the countries are carried out through the Organization's Veterinary Public Health Program.

The Regional Primatology Program served as the basis for cooperation with the Governments of Brazil, Bolivia, Colombia, and Peru for the preparation and organization of national programs. Progress with Colombia was interrupted by the Nevada del Ruiz disaster that leveled the Armero Breeding Station. In Brazil, the main effort has been directed toward training for the program for the reproduction of primates in captivity at the National Primate Center in Belém.

The program in Bolivia is still in the organizational phase. An initial analysis of the situation has been made, and the program regulations have been drawn up.

The Peruvian Primatology Project has evolved into a stable organization that combines the management of natural areas, reproduction in captivity, and breeding in semicaptivity on islands under control. This project has resulted in the identification of 43 taxa among species and subspecies of the Peruvian primatological fauna and has helped to determine their geographical distribution and the main characteristics of their population dynamics. In

addition, the populations of some islands near Iquitos that have species of monkeys are allowing the development of technologies for the utilization of the nonhuman primates as renewable natural resources.

The transfer of animals for biomedical research to the United States, Europe, Japan, and other countries, with express authorization of the Ministry of Agriculture and in compliance with CITES standards, has facilitated the development of vaccines against hepatitis A and B and has led to significant progress toward the production of a vaccine against malaria. Primates have also been utilized for research on ophthalmology, neurology, nutrition, pharmacology, and, recently, AIDS.

The financing of the Regional Program has been accomplished through contributions from the biomedical community, the returns from the transfer of primates, and contributions from the governments that are promoting national programs.

At the V and VI Inter-American Meetings, at the Ministerial Level, on Animal Health (RIMSA), held in 1987 and 1989, resolutions were adopted establishing the Regional Primatology Committee for the Americas (CORP). Its first meeting, convened in 1990, made it possible to review the regional plan in order to orient the actions of the national programs.

At the request of the Peruvian authorities, an external evaluation of the Peruvian Primatology Project was carried out in 1992. It reviewed the project's principal lines of action in the areas of conservation, health, and reproduction in captivity, the promotion of public health through biomedical research, and the economic and administrative aspects of the project. The evaluation report also contains a summary of the project's achievements since its inception and recommendations for its future development.

## **EVALUATION OF THE REGIONAL PROGRAM**

In 1994, the sponsoring agencies of the Regional Program, the U.S. Agency for International Development (AID) and the National Institutes of Health (NIH) in the United States, formed a working group for the evaluation of the program's lines of action: the establishment of national programs, the provision of technical cooperation and regional coordination, the conservation of primates, the transfer of primates for biomedical research, and the financing and administration of the program's activities.

As a result, the group concurred with the recommendations of the external evaluation of the Peruvian Primatology Project carried out in 1992, emphasizing the favorable results achieved in the various lines of action and recommending the continuation of this important program and the adjustments that should be made in technical and administrative aspects of the program in order to meet its objectives.

The principal recommendations refer to the need to: diversify national projects to avoid depending solely on the transfer of primates and the contributions of the biomedical community for their financing; establish projects following the guidelines of the Peruvian Primatology Project; continue the international financing of the program, implement the recommendations of the Regional Primatology Committee; and modify aspects of the program's administration.

## **ACTIVITIES CARRIED OUT DURING THE 1993-1994 BIENNIUM**

### **Organization and Strengthening of National Programs**

#### **Peruvian Primatology Project**

As in other periods, this project has been the primary focus of the activity in the Regional Program.

The project has established as its general objective the conservation and sustainable utilization of nonhuman primates in their environment and is aimed at obtaining scientific, economic, social, and cultural benefits while considering the needs of present and future generations.

In accordance with the plan of action for 1993 to 1994, approved by the Directing Council of the Project, the following results were obtained:

### **Studies in natural areas**

Basic studies were continued on following projects: the flora of the *Aotus nancymae* habitat in flood-prone forests; biodiversity in the Tamshiyacu-Tahuayo community reserve; the census, evaluation, and harvesting of primates; support for the development of protected areas; determination of serum values in *Aotus vociferans* monkeys in their natural environment; consumption of plants by *Aotus nancymae* in marshy forests; a plan for managing *Saguinus mystax* in natural areas; levels of cooperation in environmental education; techniques for trapping *Aotus*; and possible zoonoses prevalent in primates.

### **Studies on the islands**

The activities on Padre and Muyuy Islands include the raising of primates in semicaptivity or under controlled natural conditions approximating those in the wild, with active community participation. The basic objective is to find more viable alternatives for reproduction and conservation of primates species that are difficult to adapt to captivity.

On Padre Island, a population of 87 *Saguinus mystax* was introduced over the period from 1977 to 1980. Progressive adaptability and high rates of reproduction have been observed. By 1994, the number had increased to 184 specimens, which represents 75% of the total population. In the past three years it has been possible to carry out three harvests, removing a total of 90 animals, and to analyze the effects of controlled harvesting on the population dynamics, to provide a basis for the development of a demographic model of harvestability.

As a basic part of this project, studies are being made of the wild flora and fauna resources, agroforestry, ecological development, and ecotourism. Emphasis is being placed on the introduction of alternative crops that give residents the possibility of guaranteeing their subsistence without resorting to hunting and the destruction of the primates. This work includes attention to the basic problems of health and education.

Similar work is being carried out on Muyuy Island, where 31 specimens of the species *Saguinus labiatus* were introduced in 1988. In the 1994 evaluation, 48 specimens were found in five groups, and progressive adaptation to conditions different than the normal habitat of that species was observed.

On Iquitos Island, observations were made of the natural populations of species of *Saimiri*, *Cebus apella*, and *Aotus nancymae*.

#### Center for Reproduction and Conservation of Primates in Iquitos

In 1994, the Center had a population of 651 animals representing five species, whose population dynamics can be seen in the following table:

Population Dynamics of the Colonies in 1994

Species	Initial number	Introductions	Births	Transfers	Deaths	Final number
<i>A. nancymae</i>	348	-	47	38	28	329
<i>A. vociferans</i>	140	-	18	-	14	144
<i>S. mystax</i>	42	-	17	4	31	24
<i>S. boliviensis</i>	132	4	15	38	30	83
<i>S. sciureus</i>	103	1	4	36	11	61
TOTAL	765	5	101	116	114	641

The work at the Center is related to the management and health of the colonies, patterns of reproduction of different animal species, production of primates in captivity,

special studies on the histopathology of coronary arteries in *Aotus* and profound cystic colitis in *Saguinus mystax*, a parasitological atlas, and the monitoring of diseases prevalent in primates bred in captivity.

The information generated by these studies served as the basis for the preparation of a manual on the reproduction and health of primates in captivity, which is being reviewed and edited. This information has been of great utility to other countries that are organizing and developing programs for the conservation of primates.

### Dissemination of Information

The annex contains a list of the works that have resulted from the activities of the Regional Primatology Program and the Peruvian Primatology Project, in particular, during the 1993-1994 biennium. The results of the research are included; they are very useful to the scientific community interested in the conservation of primates.

### Transfer of Primates for Biomedical Research

In accordance with the project objective related to the contribution to public health through the supply of primates for biomedical research, during the biennium 426 primate specimens were transferred to different research centers in the United States, as follows:

Species	1993	1994	Total
<i>Aotus nancymae</i>	44	48	92
<i>Aotus vociferans</i>	25	25	50
<i>Saguinus mystax</i>	90	65	155
<i>Saimiri boliviensis peruviansis</i>	18	85	103
<i>Saimiri sciureus macrodam</i>	-	26	26
<b>TOTAL</b>	<b>177</b>	<b>249</b>	<b>426</b>

These primates originated from breeding at the Center for Reproduction and Conservation in Iquitos and harvesting on the islands and in the areas under control through



controlled captures authorized by the Institute of Natural Resources (INRENA) of the Ministry of Agriculture.

The principal areas of research in which the transferred primates were utilized are:

- . Development of vaccines against malaria.
- . Experimental therapy against virus from nonhuman tumors.
- . Neurological studies.
- . Development of vaccines against hepatitis.
- . Auditory studies.
- . Development of vaccines against herpes virus.
- . Studies on drug abuse and cognitive behavior.
- . Electrophysiology and architecture of basal nodes.
- . Control of drug safety.

#### **Community incorporation in the context of sustainable development**

The primate projects' areas of influence contain human settlements, including indigenous populations, that constitute the principal predator of wild animals. The Peruvian Primatology Project, through its infrastructure, has achieved nonquantitative benefits in addition to those cited above, particularly in community development in its area of influence. In this manner, it has helped to reduce the predatory activity of the community. It has also contributed to primary health care for the population, especially in the campaign against cholera and the activities of the Expanded Program on Immunization (EPI). It has also contributed to community education, serving as intersectoral liaison for ecological

development, and to an improvement in the socioeconomic well-being of the human population through alternative agricultural production.

### **Brazil**

Support for the Primate Center in Belém was continued through the supply of some basic materials and equipment.

### **Bolivia**

There was collaboration with the authorities in updating the information on the proposal for the development of a national program that is being considered by the new Ministry of Environment. A staff member of that Ministry recently paid a visit to the Primate Center in Peru to learn about the experience of that country in developing its center.

### **Mobilization of Resources for the Regional Primatology Program**

Looking ahead to the termination of the projects financed by AID and NIH in 1994, efforts have been made for the past two years to obtain new sources of financing to strengthen the Peruvian Primatology Project and the potential projects of other countries like Bolivia.

In Peru, a commission was formed consisting of staff members from the Institute of Natural Resources (INRENA), the Peruvian Primatology Project, and PAHO. The commission has visited all the entities related to project activities and has presented profiles of aspects related to conservation of flora and fauna and medicinal plants, ecological development, and public health. A favorable response has not been obtained to date.

It should be noted that the Peruvian Primatology Project is currently self-sustainable based on the revenues derived from the transfer of some animals for biomedical research. In addition, the project has been partially incorporated into the programs of the regional headquarters, and financing of some activities has been achieved.

At PAHO, there has been an intense campaign to identify possible donors through the dissemination of information on the Regional Program. There have also been informal meetings with technical and financial cooperation agencies to explore the possibility of financing some components of the program, particularly the projects in Peru and Bolivia.

### **FINAL OBSERVATIONS**

The Technical Cooperation Program for the Conservation and Reproduction of Primates that PAHO has implemented with the countries of the Americas has helped to create an awareness in the governments of the need to establish national programs to perpetuate the primates as renewable natural resources.

Although the risks of predation and extinction of primate species still persist, due to the ongoing destruction of the habitat resulting from the pressures of colonization and the expansion of agricultural areas, information has been developed on methodological approaches that can be utilized by the countries to strengthen their conservation programs.

It is important to emphasize the contribution of the conclusions of the United Nations Conference on the Environment and Development, or Earth Summit, held in Rio de Janeiro in 1992 to benefit the conservation programs. As a result, in several countries ministries of the environment are being created whose mission is to establish the programs necessary to conserve the environment, as an inseparable aspect of the concept of sustainable development for the benefit of man.

The coordinated work of the countries with the biomedical research community has made it possible to establish a controlled exchange in which the investigators utilize only primates that are handled under strict humanitarian conditions and that are from countries with national conservation programs. This has made it possible to solve important public health problems, such as the production of the vaccine against hepatitis, and to gain an understanding of areas such as the immunology of malaria and aspects of neurology, nutrition, physiology, and pharmacology. This interrelationship has generated resources that have been devoted completely to conservation activities. It is important to note that since the

early 1990s, there has been a decreasing trend in the use of primates for biomedical research. This exchange has helped to raise the level of awareness of biomedical investigators of their responsibilities with respect to the conservation of the environment, the flora, and the fauna.

In accordance with the recommendations of the Earth Summit, in this period, work was begun with the communities in the areas where the Peruvian Primatology Project is active. The purpose was to solve some of their health-related problems and to offer alternative sources of food for their subsistence through crop production and enlist their participation in the conservation activities.

This approach, in the context of sustainable development, should be the guideline for conservation programs, and PAHO will continue to cooperate with the countries for the mobilization of resources, both national and international, from the technical and financial cooperation agencies.

The conservation experience amassed by the countries over a period of more than 20 years through the PAHO Regional Program of Technical Cooperation for the Conservation and Reproduction of Primates should be taken into account for the development of comprehensive programs for conservation of the environment and development. As the World Commission on the Environment and Development emphasized, in these projects the aspects of development, environment, and equity are inextricably linked.

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