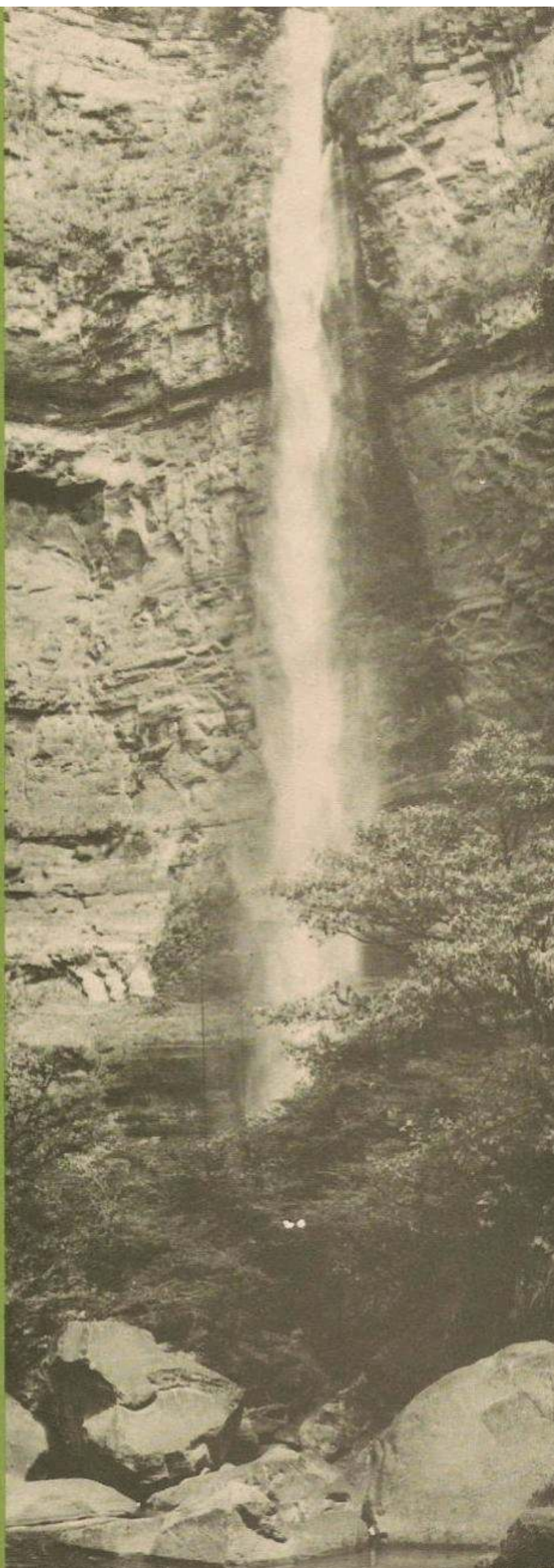


**resource conservation  
and  
the establishment  
of  
national reserves  
in latin america  
the cutibireni  
national park:  
a pilot project in the  
selva of peru**

**pan american union**





**resource conservation  
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latin america**

**the cutibireni national park:**

*Author WILL DREWES*

prepared in the  
natural resources unit  
department of economic affairs  
pan american union  
general secretariat, organization of american states  
washington, d.c. 20006  
1965



## **a pilot project in the selva of peru**

*The present issue for Latin America is development — a broad-based and intensive effort to gain higher levels of economic activity and standards of living. To achieve such development, however, without laying waste a nation's natural resources is as vital a goal as the primary objective: Development and conservation must go hand in hand. The following presentation considers a specific project which seeks to satisfy both these ends through the establishment of a national reserve.*



# introduction



As the nations of Latin America have moved more and more deeply into analytical and critical reviews of their national development programs—and the long-term prospects for resource development that form part of these programs—planning bodies have begun to express ever greater concern with over-exploitation and improper utilization of existing resources. In several instances, in fact, major development projects proposed for international financing have not been activated due to the absence of accompanying conservation measures, lack of which would have precluded or severely limited attainment of the planned goals. Thus, conservation activities, particularly in the fields of renewable resources, watershed management and soil erosion control, have been stimulated, and as a result there has emerged more clearly than at any time in Latin America's past a recognized need to establish natural reserves and national parks.<sup>1</sup> Today, establishment of such reserves and parks has been placed high on the list of development activities to be carried out by national governments, as well as by private organizations.

Both the public and private sectors have in fact come to recognize the stake they share in sound watershed management and the establishment of reserves and national parks. The direct relationship between problems such as water pollution, periodic inundation of arable land, silting-up of reservoirs or irrigation works, overgrazing or overpopulation of land in accordance with the existing resource base, and the detrimental effects of deforestation and misuse of watersheds is being made more evident every year.

Solutions for some of the serious social repercussions associated with major development projects are also possible with the establishment of national reserves. With practically every colonization and road construction project major population shifts take place which frequently involve primitive aboriginal populations along with today's immigrants or colonists. While the new settler is provided land, little consideration is given even the sedentary indigenous tribes whose livelihood depend on shifting agricultural methods in the same area; in very few cases are reservation or forestry reserves established for such tribes.<sup>2</sup>

Still another justification for the establishment of reserve areas lies in the research values of virgin natural habitats and unique bio-ecological zones, as well as the intrinsic values of scenic features, normally not considered in development operations. These have in the past been of interest only to the researcher or the tourist. More recently, however, such areas have become the interest of the general public, due in part to a substantial increase in time available for recreational activities and to the tremendous growth of the tourist industry.

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1. Natural reserves as defined in this paper are regions established for conservation and utilization of natural resources under government control, on which protection of animal and plant life will be afforded insofar as this may be consistent with the primary purpose of such reserves. National parks include those areas established for the protection and preservation of superlative scenery, flora and fauna of national significance which the general public may enjoy and from which it may benefit when placed under public control.

2. Only recently, at the Fifth Inter-American Indian Congress held in Quito, Ecuador, in October 1964, selvatic indigenous tribes were given consideration when the need for the establishment of reservations and legislation for their protection was stressed.



**past  
conferences,  
legislation  
and activities**



The first hemisphere-wide initiative<sup>3</sup> to implement conservation and national park development programs dates to 1938, when the Eighth International Conference of American States, meeting in Lima, Peru, resolved that areas of "national significance, which the general public may enjoy and from which it may benefit when placed under public control," should be set aside in the form of reserves or national parks. As a direct consequence, the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere was opened for signature in 1940, and became effective in 1942 following ratification by five countries. Under the Convention, the Governments of the American Republics stressed their desire "to protect and preserve scenery of extraordinary beauty, unusual and striking geologic formations, regions and natural objects of aesthetic, historic or scientific value, and areas characterized by primitive conditions." To date, this Convention has been ratified by 15 of the Latin American nations.

In 1948, the International Union for Conservation of Nature and Natural Resources (IUCN) was established. Since its founding, 20 governments have joined the organization, along with 250 institutional and conservation organization members from 60 countries who have participated in the Union's operations and programs. In that same year, considerable additional impetus was given to conservation activities in this hemisphere when the Pan American Union sponsored the Inter-American Conference on the Conservation of Renewable Natural Resources, held in Denver, Colorado.

A decade later, in 1958, the International Committee on National Parks of the IUCN was established, and in 1959 was asked by the United Nations Economic and Social Council to prepare and maintain a list of the world's national parks and equivalent reserves.

Although only seven countries have active park administrations established at present (see table), 10 countries are actively engaged in developing similar programs. While programs in some countries are already being sponsored and maintained under independent budgets, others are still a part of related ministries. Also notable is the multiple orientation of existing and proposed national parks programs. A comparable list of natural reserves, more closely related to today's intensification of interest in resource conservation, would more than double the number of programs listed.

In 1962, the United Nations General Assembly adopted a resolution<sup>4</sup> on "Economic Development and the Conservation of Nature, stressing the importance of natural resources, flora and fauna, to further economic development and pointing to the need to pay attention to their

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3. For greater detail regarding the development of the conservation movement in Latin America, see Harold J. Coolidge, "Fields of International Cooperation in Latin American Conservation," Symposium on Conservation in Latin America with Special Reference to Science, Conservation and Economic Development of the Galapagos; University of Guayaquil, Ecuador, March 4, 1964.

4. A/Res./183/XVII



conservation and restoration." It also calls for close cooperation between interested international and national organizations and for the provision of technical assistance to the developing countries, at their request, in the conservation and restoration of their natural resources.

The First World Conference on National Parks was held in 1962, in Seattle, Washington, under the auspices of the IUCN, UNESCO, FAO, the U.S. National Park Service and the Natural Resources Council of America. Among the 60 countries participating in the conference were representatives from Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Guatemala, Haiti, Mexico, Nicaragua, Uruguay and Venezuela. The Conference recommended "to the Pan American countries that have not done so, the ratification and implementation of the 1940 Convention." It further urged that a Latin American section of IUCN be constituted, a recommendation which sparked the establishment of the Latin American Committee on National Parks (Comité Latinoamericano de Parques Nacionales). At its first meeting, held in Quito, Ecuador, March 1964, the Committee demonstrated that its activities are very much in the spirit of the United Nations General Assembly resolution; that is, in the field of economic development and natural resource conservation. Furthermore, the Committee's orientation also coincides with that of the Organization of American States, which is presently engaged in carrying out an intensive program of natural resource evaluation and development under the Alliance for Progress.

The most recent activity to take place in the field of resource conservation and the establishment of national parks consisted of a meeting sponsored by the National Academy of Science, in June 1964. Participating were representatives from the Latin American embassies, interested U.S. organizations, and the Organization of American States. On this occasion the Secretary General of the OAS reconfirmed his organization's interest in the field of natural resources and stressed the need for closer cooperation in conservation activities.

## **the OAS program**

The Natural Resources Program of the Department of Economic Affairs of the Organization of American States is oriented largely toward providing technical assistance to the Latin American countries for resource evaluation and development rather than for the specific implementation of conservation programs or for the establishment of national parks. However, in the course of conducting aerial photographic analyses, field investigations and cartographic compilations, which are performed as a regular phase of practical developmental operations, watershed management and soil erosion problems are frequently encountered. Consequently, recommendations are made to set aside certain areas as forestry, wildlife or other reserves.



In line with these operations, the Natural Resources Unit was asked to assist in demarcating a natural reserve or national park and to provide a reconnaissance cadaster of an area that could serve as a pilot project in a Latin American country. It was mandatory that the area should be of high ecological and research interest, one that preferably would also have high potential as a tourist attraction. For conservation and developmental reasons a watershed area was sought, control of which could possibly be used to demonstrate sound watershed management and land utilization in relation to agricultural or other pursuits carried on in adjacent areas.

Peru was selected as the site of the pilot project for several reasons, among them the fact that the country has shown great interest in implementing a conservation program, and that their National Planning Institute was already actively engaged in carrying out a dynamic program of resource evaluation. This interest was manifested by their sponsorship and activation of a pilot project for the establishment of a national park in the watershed of the Rio Cutibireni, a tributary of the Rio Ene in the headwaters of the Upper Amazon drainage system.

## status of national parks in latin america

Country	Under administration	Without administration or proposed	Funding	Present program status	Program orientation
Argentina	8	5	A	G H	S T
Bolivia	—	4	D	E	T V
Brazil	4	some	A B	G	S T X
Chile	—	19	B	E H	S V Z
Colombia	—	3	C	E G H	S T V X
Costa Rica	—	some	B	G	S T Z
Dominican Rep.	—	some	B	E G	S T X Z
Ecuador	—	some	C	E G I	S T Z
El Salvador	—	—	D	I	T X Z
Guatemala	3	9	C	E G I	S T V X
Haiti	—	1	D	G I	T X Z
Honduras	—	some	B	G	S T X
Mexico	13	35	A	G H	S T X
Nicaragua	—	some	B	E G	T
Panama	—	—	C	F G	S T V X
Paraguay	—	—	—	—	—
Peru	—	11	B	E F G	S T U X
Uruguay	3	some	A	G	S V Z
Venezuela	3	10	A	G	S T X

A. Independent budget

B. Budget part of another agency

C. Proposed budget

D. No funds

E. Administrative reforms

F. Legal reforms

G. Planning new parks

H. Establishing boundaries

I. Funds and technicians lacking

S. Scientific research

T. Tourism

U. Indian protection

V. Vanishing species

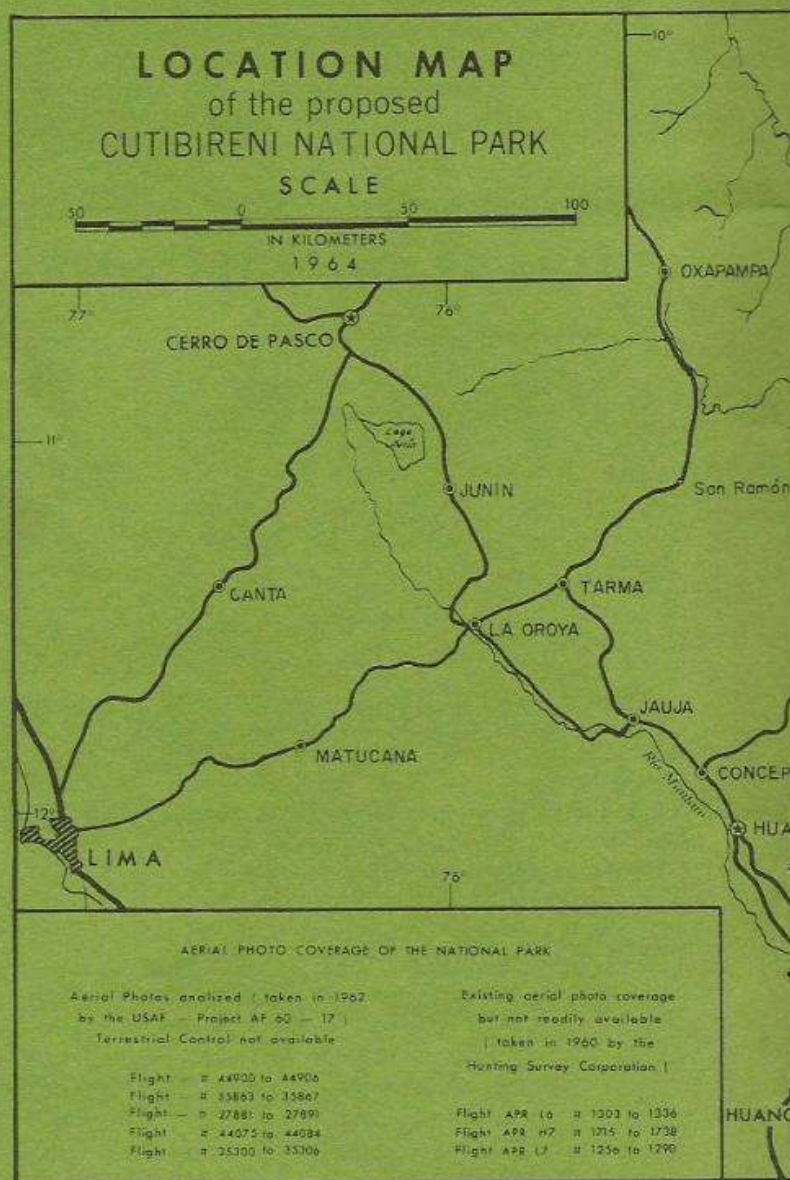
W. Wildlife management

X. Erosion and watershed protection

Z. Miscellaneous



# the proposed cutibireni national park





In 1961, during a deviation from the normal flight route used to supply a resource evaluation field team in the Apurimac valley, which was being investigated for its colonization potential, the author and Ing. José Lizárraga, his Peruvian counterpart technician, first sighted two large waterfalls on the distant western flank of the Vilcabamba range (see location map and Figures 1 and 2). On a second mission to the area as a member of the Inter-American Development Bank team that visited the Pichari colonization project in May 1964, the author suggested deviating from the normal flight route again to investigate the waterfalls, then in the height of the dry season, for hydroelectric potential which might be developed for the nearby colonization area. On crossing the first range of hills more than a dozen large waterfalls, all on tributaries of the Rio Cutibireni, were revealed. Vertical white cliffs more than a thousand feet high rose up on both sides of the Cutibireni gorge. Slopes were so steep that even the lush tropical vegetation was limited to valley floors, the upper portions of mountain ridges, and the more level plateau surface (Figure 3). Major tributaries filled with water suddenly

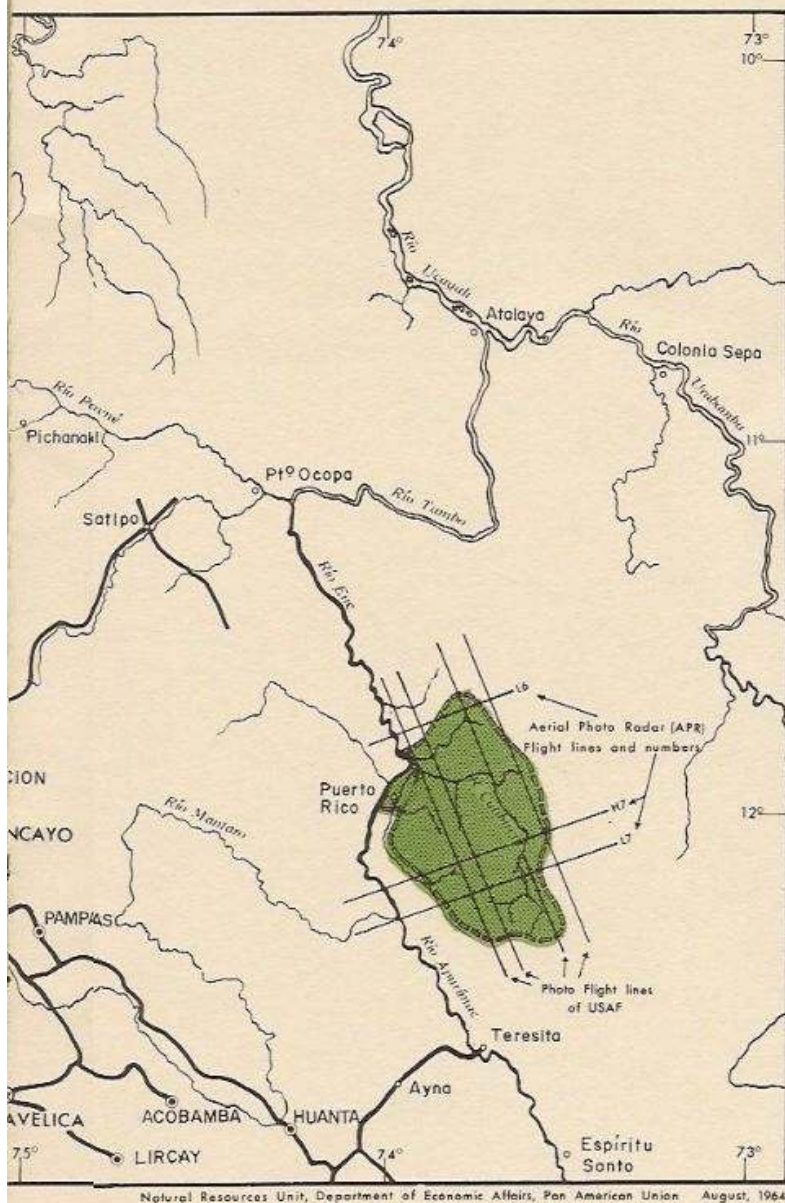




FIG. 1. Several waterfalls are located on the western flank of the Vilcabamba Cordillera, on a tributary of the Rio Quempiri. Catarata Zamora, the upper falls, is readily visible on the photograph, however, Catarata Echinique, located just a few kilometers below, has no visible waterfall. In the dry season, when this photograph was taken, its stream course issued forth only from the base of the cliff.

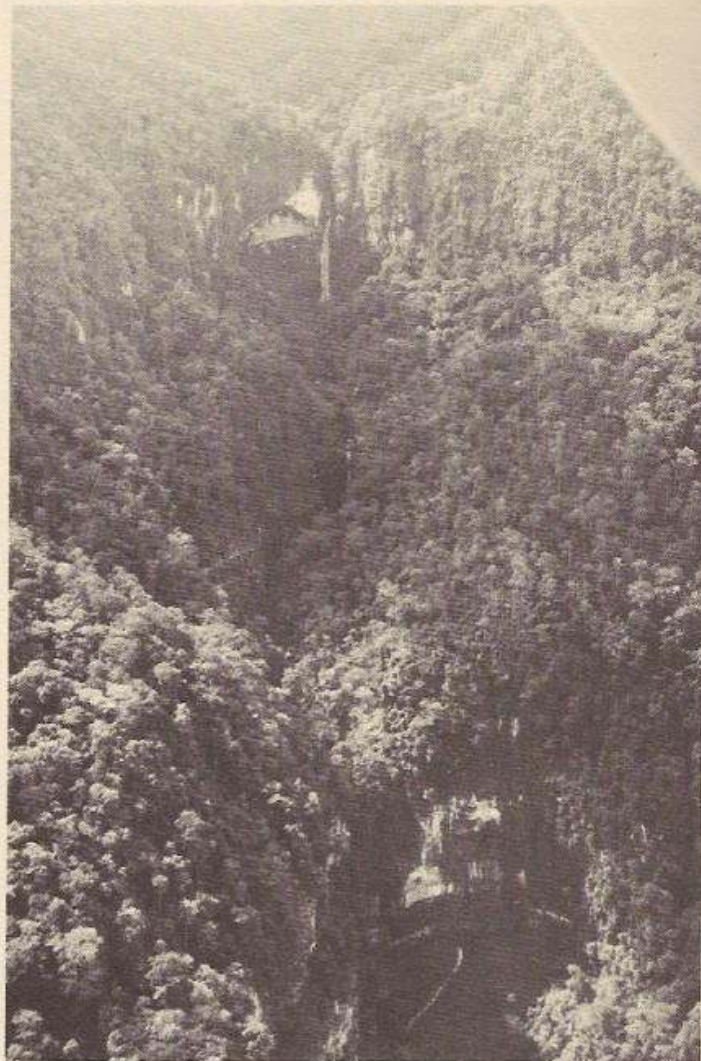


FIG. 2. Catarata Lizarra, located on another tributary of the Rio Quempiri, also drains the southern portion of the proposed national park area.



FIG. 3. (opposite) The dissected plateau surface and the steep-sided canyon walls of the upper Cutibireni gorge as seen from the air. Vegetation is sparse on the steeper slopes and vertical limestone cliffs are common.

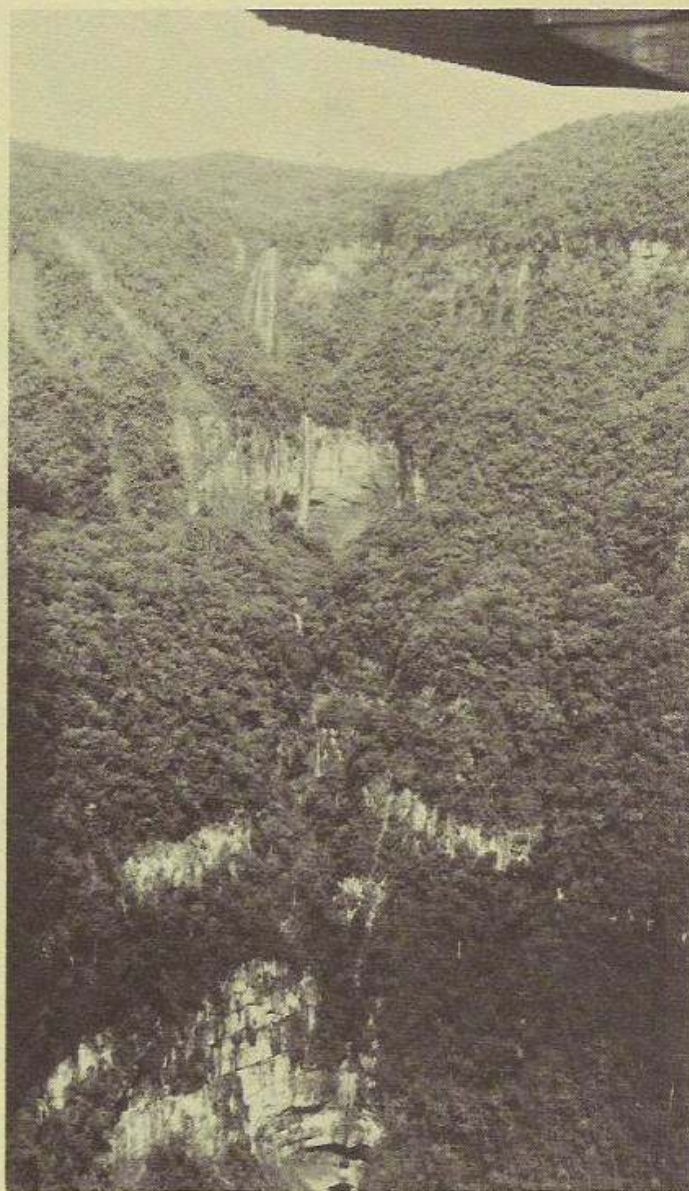






disappeared or left behind dry stream courses characteristic of limestone "Karst" topography and sinkholes which could absorb the flow of major streams (Figure 4). The same rivers frequently appeared again at lower elevations, while others seemed to be gushing from mountainsides. Sometimes the disappearing streams, passing through subterranean channels, looked almost like natural bridges from the air. Overlying the limestone strata was a hardstone cap, dark red in color, that was later determined to be an impermeable arkosic sandstone. It was this hard cap, protecting the softer underlying limestone, that during the geologic past brought on the development of the spectacular erosional features of vertical cliffs and an abundance of waterfalls. Altogether, the tremendous gorge, the white cliffs and numerous waterfalls, the high plateau surface and the lush tropical vegetation were sufficiently impressive that when a site for a pilot project in a primitive area was sought, the physical features in the Cutibireni gorge as seen from the air were recalled.

As a tourist attraction the area clearly possessed a great potential. In addition, the site selected will soon become





fairly accessible, as portions of it lie within 20-40 kilometers of Pichari, a colonization center presently being settled under the sponsorship of Peru's Agrarian Reform Institute. Furthermore, within a relatively short time it is contemplated that the road leading to Pichari will be extended on the right bank of the Rio Ene to Puerto Rico, the site of an abandoned airstrip, where it will cross the river to follow the Rio Anapati to the Satipo region. The road would then pass within a few kilometers of several large waterfalls and within 25 kilometers of one of the largest waterfalls which has a vertical drop of almost 1,000 feet.

The Cutibireni area, so named because it is located along the Cutibireni tributary of the Rio Ene, has traditionally been the habitat of the Campa Indians. Their principal settlement was formerly at Puerto Rico on the Rio Ene, but with the encroachment of colonists just a few kilometers to the south this selvatic tribe has now become concentrated at Quempiri, a new settlement further to the north, in the lower valley of the Cutibireni. Today, Quempiri has 160 families and is the largest known settlement



FIG. 4. (left) The Cataratas de Tres Hermanas waterfalls, on the north fork of the Rio Cutibireni just above its confluence with the south fork. While the split falls of Catarata Kristine (top) and Catarata Katrina (center) carry a substantial amount of water, only the plunge basin of Catarata Karen (bottom) is evident during the dry season. Several hundred yards below the plunge basin, however, the tributary course is again filled with water coming from subterranean channels in the underlying limestone strata.

FIG. 5. (above) The Quempiri airstrip with the townspeople watching the takeoff of the Helio-courier plane.

of Campa Indians in Peru (Figures 5 and 6). Many more Campas are located in the surrounding hills.

The area selected is composed primarily of extremely rugged terrain and is not well suited for permanent agricultural settlement. However, the more level hillside slopes and some isolated valley bottoms have been well utilized by the Campa Indians for the growing of yuca, their staple food (Figure 7). Hunting and fishing by primitive means provide the protein in their diet and most of their clothing is made from tree products native to the area. By the establishment of a national park and Indian reservation in this area, the Campa can be protected from further





FIG. 6. *Quempiri, the largest known Campa village in Peru. The airstrip can be seen behind the village.*

FIG. 7. (right) *A typical clearing of the native Campa Indians found on the higher slopes above the gorge of the Rio Cutibirenti. Some hillside agriculture is carried on providing yuca and fruits, and a cotton-like fiber obtained from a native tree is utilized to make the robes (cushmas) worn by the inhabitants.*

encroachment by colonists, can maintain a vestige of his mode of life in the hill country, or can by choice be initiated to more modern ways by contact with tourists who might venture into the fringe of the park to visit some of the spectacular waterfalls, or with researchers and scientists conducting bio-ecological investigations.

Following the two reconnaissance flights and the tentative selection of the area for the establishment of a national park, preparations were made to delineate the watershed, define the ecological zones within it and establish a cadastral demarcation for the reserve. A reconnaissance field check of the area and an attempt to measure some of the waterfalls was to be made.



## the physical setting

The location of the proposed national park is in the northernmost extension of the Cordillera Vilcabamba, an outlying Andean range almost surrounded by the selva of the Amazon Basin. The Rio Cutibireni, a major right bank tributary of the Rio Ene, drains most of the proposed reserve area. The western portion of the area is drained by the Rio Quempiri and the northern extreme is drained by the Rio Marflow, another tributary of the Rio Ene. All three of the rivers draining the area converge on the Cutibireni's confluence with the Ene. On a high bank of the Ene, just below this confluence and focal point, is the site of a recently abandoned Swiss missionary outpost. Behind



the mission and on the large island near the mouth of the Cutibireni are located several dozen Campa Indian families, each with their plot of yuca, bananas and papayas. These settlements are found primarily on the alluvial lands along the rivers and on the more gentle slopes of the mountain range rising abruptly to the east. One pronounced gorge, that of the Rio Cutibireni appears as a gap in the almost solid western flank of the Cordillera Vilcabamba. Primitive trails penetrating the cordillera's flank are used by the Campas for hunting. Only the course of the Cutibireni river provides access to the high mountain plateau area lying to the east beyond the gorge but this route can only be followed in the height of the dry season. According to the Campas, a rugged trail traverses the high divide from the Cutibireni's headwaters into the drainage of the Picha, flowing eastward into the Rio Urubamba.



In the headwaters of the Cutibireni, the south fork drains from a relatively large lake, at an elevation of 4,500 feet, that is approximately half a kilometer wide and slightly over two kilometers in length. The lake has been dammed by the debris and alluvium of a tremendous landslide which had bared the eastern half of a mountainside rising to elevations of approximately 8,000 feet (Figures 8 and 9). From the amount of alluvium evidenced in the valley below, the slide was much larger than the great lethal landslide and glacial "alluvion" that completely destroyed Ranrahirca in the Callejon de Huaylas valley of Peru in January 1962. Today, only some scrub vegetation has taken root on the Cutibireni alluvium indicating its recent deposition. Any accelerated erosion of the natural dam of the lake poses disaster for inhabitants in the valley below. Although few Campas live directly in the valley of the Cutibireni, those individuals living on the low islands and along the braided portion of the Cutibireni near its confluence with the Rio Ene could be affected by a breakthrough in this natural dam. They are generally unaware of the existence of the lake in the river's headwater or the threat that hovers over them.

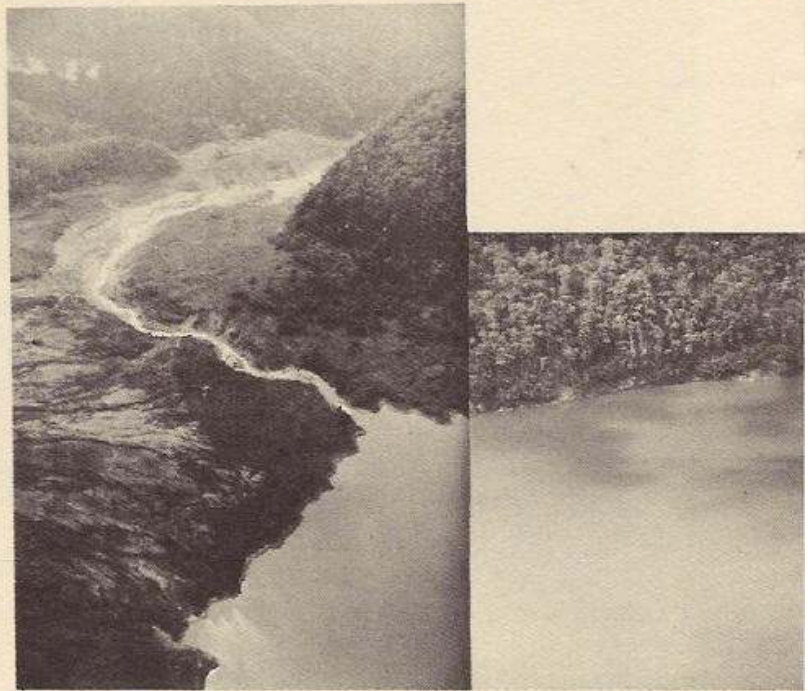
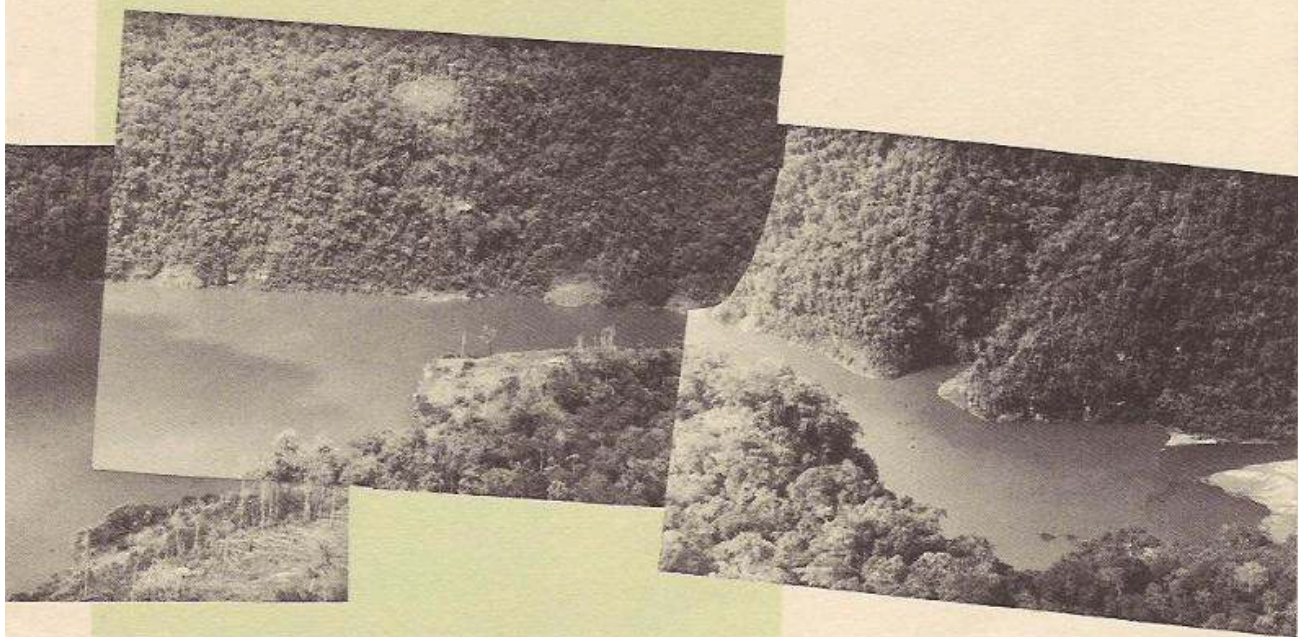






FIG. 8. Juntinasocerro, the 8,000-foot mountain which produced the landslide that dammed up the river forming the Juntinasococha Lake. This mountain, covered with landslide scars, is located west of the southern fork of the Rio Cutibireni.

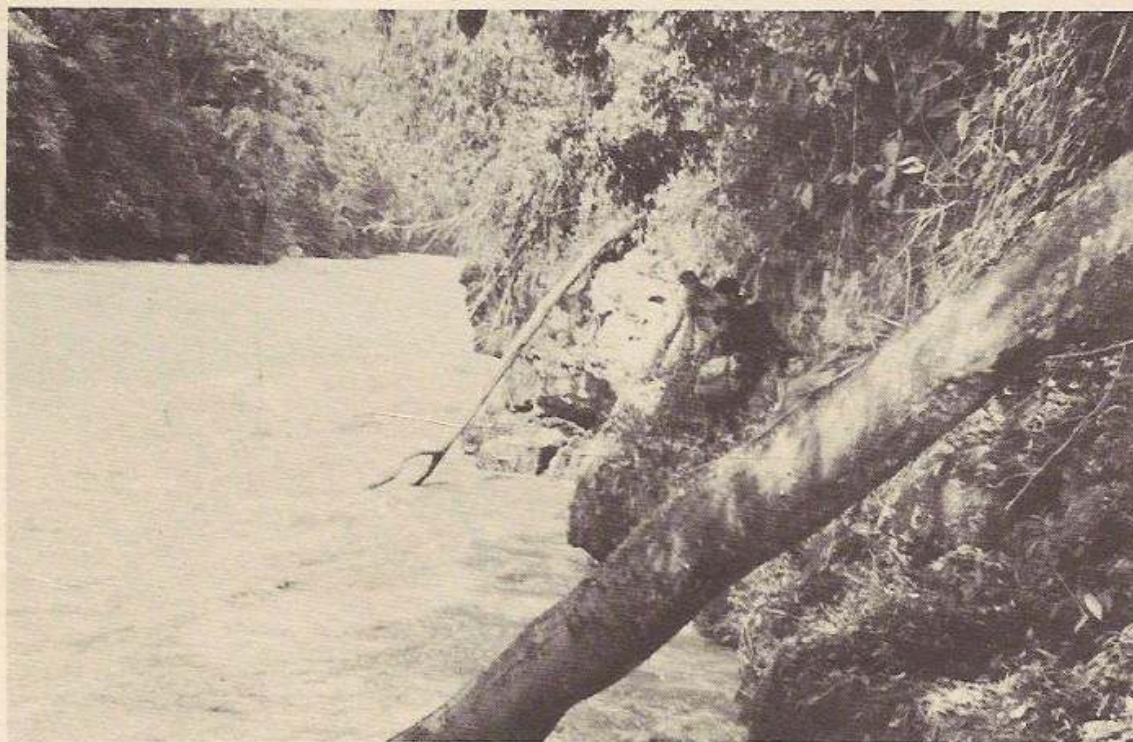
FIG. 9. (below) Juntinasococha Lake, which is dammed up at its northwestern end (left) by debris and alluvium of the large landslide carried down from Juntinasocerro mountain. Several Campa clearings are located on the edge of the lake.





Review of existing aerial photo coverage and inspection by aerial reconnaissance flights indicate that most of the area is comprised of a high, tilting plateau surface sloping slightly toward the west. The northern trending backbone of the Cordillera Vilcabamba reaches elevations of more than 12,000 feet (3,660 meters) in this area, although most of the plateau surface is located between approximately 4,000 and 8,000 feet of elevation (1,310 to 2,620 meters). In contrast, the confluence of the Cutibireni with the Ene is at only 1,273 feet (388 meters) and the lowest portion of the Cutibireni gorge is only several hundred feet higher. Due largely to the great range of elevations, a wide variety of ecological zones can be distinguished, varying from hot, wet tropical conditions, through the subtropical and high montane to the high divide where stunted trees and natural grasslands or *pajonales* are characteristic. The most outstanding physical features of the region, however, are the tremendous canyons of the dissected plateau. Rock outcroppings evident in the canyon walls run in horizontal or slightly tilted bands that can be traced for miles. The same bands can be correlated in the cliff faces on the opposite sides of the canyons. Interspersed in the white limestone banding are three major strata of harder, more impermeable rock which obviously account for the frequent development of three-step waterfalls. In accordance with the cross-section of the rock strata, the lowest waterfall is frequently slightly higher than either of the upper falls.

FIG. 10. The ascent through the gorge of the Rio Cutibireni was made by climbing along the banks of the river and crossing several mountain spurs. No semblance of a trail existed beyond the gorge. High waters prohibited an easier ascent along the course of the river. Note the Campa cargo bearers in the shadows along the riverbank.





# the OAS terrestrial reconnaissance

Field operations to visit the area on the ground were initiated in August 1964, but due to the encroachment of the rainy season, which normally lasts from September to May, only a short reconnaissance trip could be attempted. To demarcate precisely the area that might be set aside for a national park, essential in order to activate legislation for the reserve, the terrestrial reconnaissance had nevertheless to be undertaken in spite of the pressure of time. The rainy season had in fact already begun in this portion of the selva. The field team was purposely kept to a minimum, including only an ecologist and the author, to avoid the logistic problems associated with larger expeditions. Supplies included only 6 cans of tuna fish and several meals of food concentrates for emergency purposes, the majority of provisions were to be provided by hunting within the area. No maps of the area existed and only partial aerial photo coverage was available. Four flight strips of "cartographically rejected" photography, taken by the U.S. Air Force for the Peruvian government in 1962, were carefully analyzed, each stereo model being checked, which permitted locating waterfalls and other physical features with considerable accuracy. A Hunting Survey Corporation photo index showing planimetric data based on three Aerial Profile Radar Recorder (APR) flight strips running perpendicular to the U.S. Air Force photo coverage provided rudimentary photo control. Because of the lack of side lap on the photographs that were analyzed, however, gaps in information are found on the reconnaissance map that was compiled. On this compilation, rivers have been "dashed" in the gap areas to distinguish them from the more accurate data compiled from aerial photographs.

After being flown into Quempiri by a Linguistic Institute's Helio-Courier, which could land on the small soccer field pasture there, the team set out on foot with several Campa cargo bearers for the mouth of the Cutibireni gorge, several days hike to the northeast. Shortly after the second evening, near the site of a Campa clearing at the entrance of the gorge, the trail following the river all but disappeared. The daily rains in the highland had already brought on sufficient runoff so that hiking in the swift and turbulent water of the Cutibireni became impossible. The ascent through the gorge and along the river was accomplished by clinging to ledges or climbing over the tremendous boulders along the river's edge, a slow and tedious procedure (Figure 10). On two occasions, where the river was channeled through precipitous rock walls (Figure 11), detours in the route were made which led to isolated Campa clearings (*chacras*) perched on mountain spurs high above the river. By and large, however, the area east of the gorge was found to be uninhabited.

FIG. 11.





Approximately 10 days were spent in the area carrying out investigations, distinguishing variations in tropical ecological zonations, surveying a portion of the area and determining the height of several of the major waterfalls. The most outstanding of the waterfalls encountered, called Catarata Seward, is located on the Shimoyonkabene tributary of the Cutibireni. The waterfall has formed a tremendous amphitheater with vertical walled cliffs rising well over a thousand feet on either side (Figures 12 and 13). Altimeter measurements indicated a difference of 1,090 feet from the lip of the falls to the plunge basin at the bottom. However, triangulations based on Abney hand level sightings and compass and tape measurement up the course of the Shimoyonkabene permitted the securing of five rather accurate estimates (see diagram), the average measurement of which indicated the falls to have a height

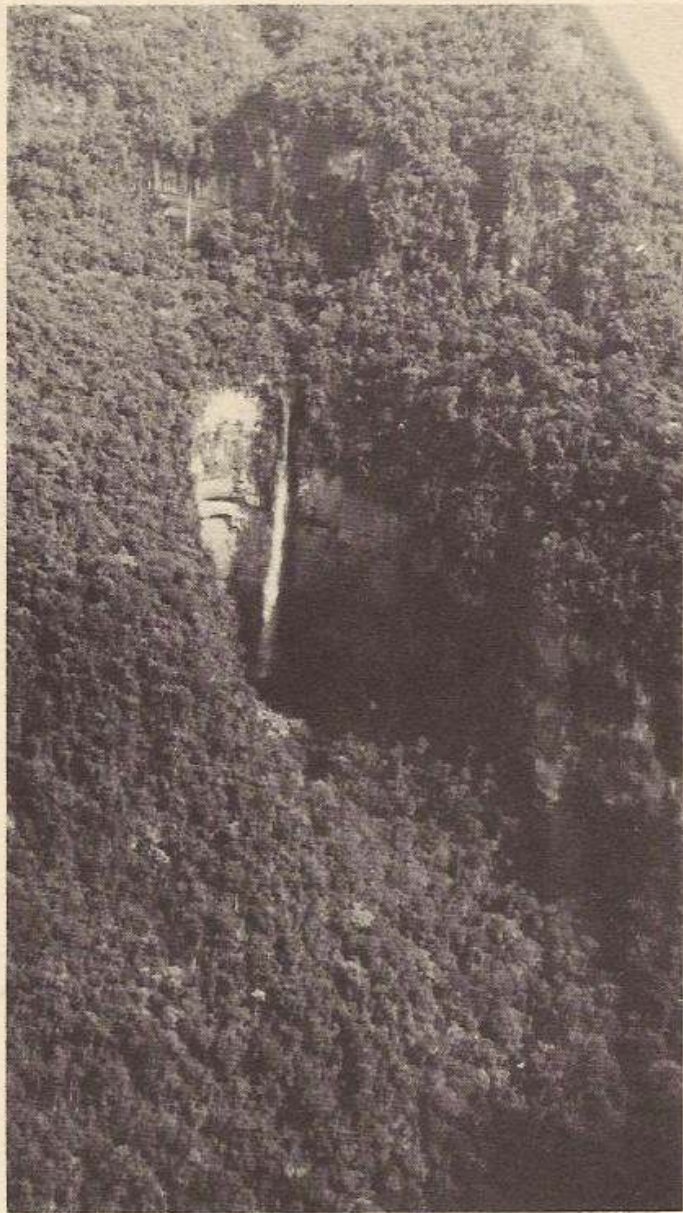
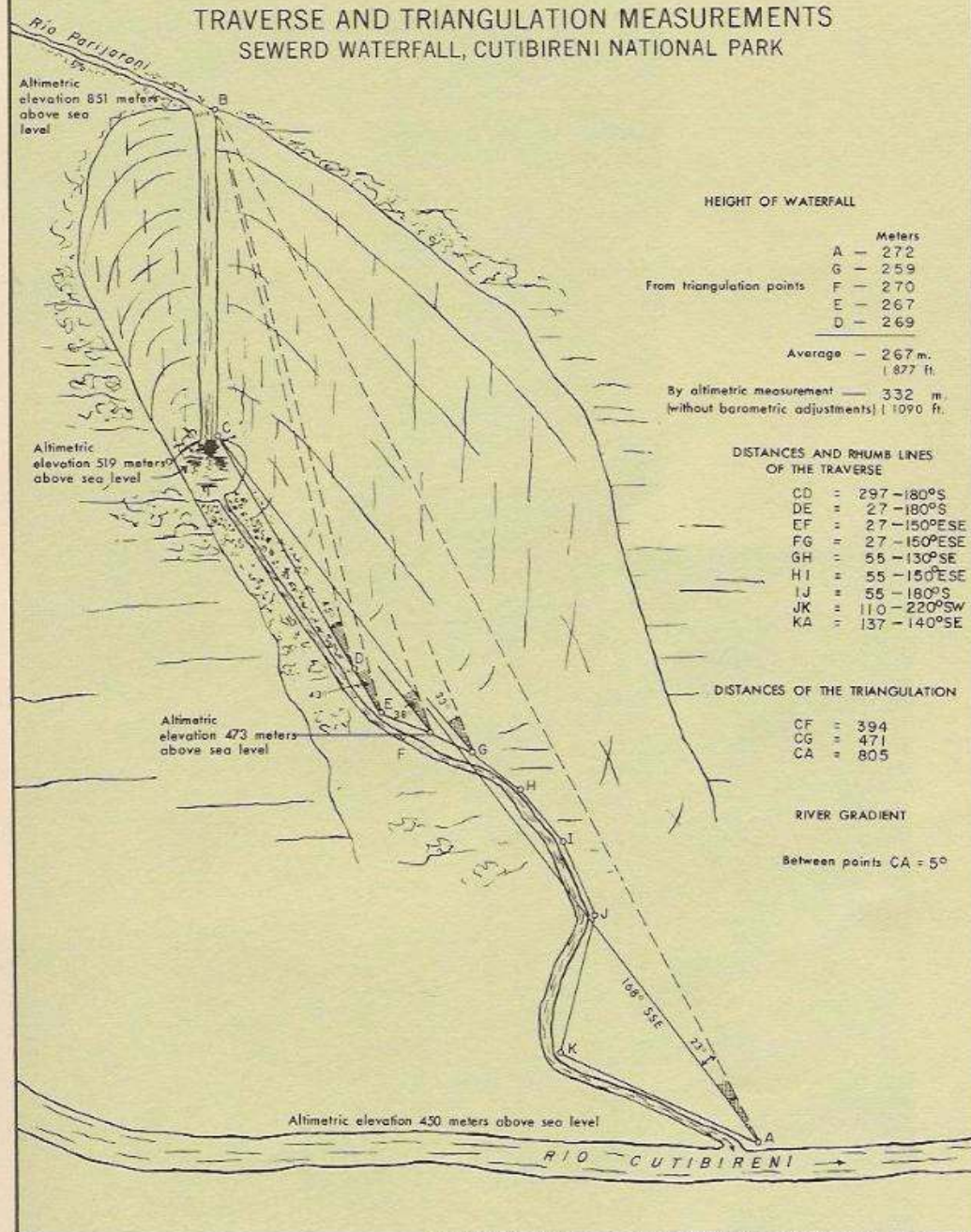


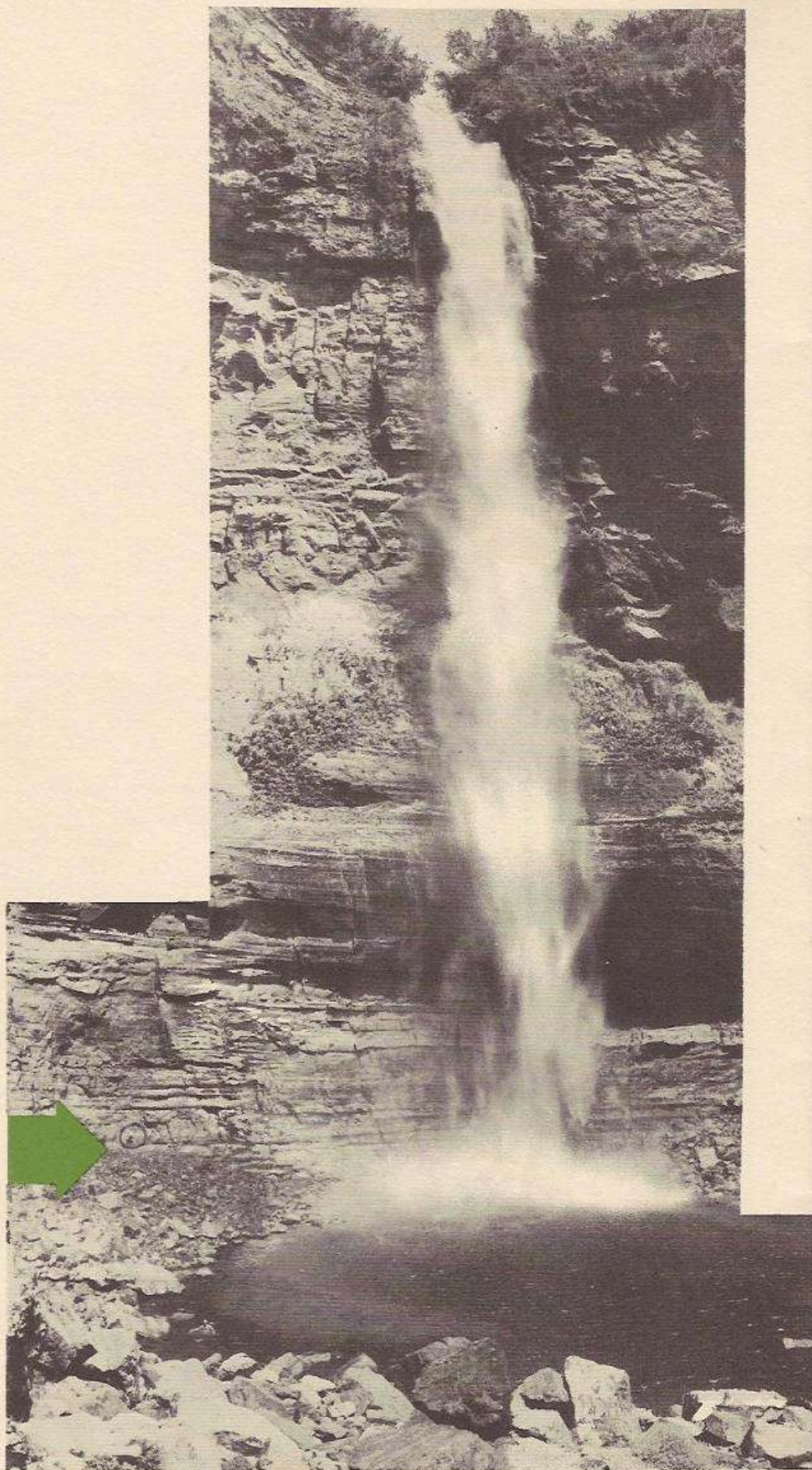
FIG. 12. Seward Waterfall as viewed from the air. Triangulation measurements and pertinent figures related to the falls are shown in the diagram to the right.



# TRAVERSE AND TRIANGULATION MEASUREMENTS SEWERD WATERFALL, CUTIBIRENI NATIONAL PARK









of approximately 877 feet (267 meters).<sup>5</sup> These triangulations, being less susceptible to fluctuations in daily barometric pressures, and not being affected by the tremendous downdraft encountered within the amphitheater were undoubtedly more accurate than altimeter measurements although it is certain these could also be refined. Nevertheless, a vertical fall of such a distance is notable as it ranks among the highest dozen in the world, if not among the greatest by volumetric measurements.

Above the waterfall the Shimoyonkabene tributary is called the Parijaroni according to the one Campa guide that had visited the area once before.<sup>6</sup> In continuing up the course of the Shimoyonkabene-Parijaroni tributary the stream course became more confined. Several small ribbon falls and a number of dry falls were evident on both sides of the almost vertical valley walls. After a full day's hike, climbing constantly over immense boulders, further ascent of the tributary's course was blocked by another waterfall plunging into a cool, quiet glen. Although this waterfall, named Catarata Bergen, was only a hundred feet or so in height, it effectively blocked a further advance up the valley and the survey was terminated. Shortly prior to this point the Campa Indians had refused to proceed further, becoming concerned by the poor prospects of hunting in the narrow confines of the headwater valleys. Field operations were curtailed and a return was made to the gorge

5. A week prior to the OAS survey, a resident from the town of Pto. Ocopa, Peru, following the directions of the pilot that flew our second trip over this region, reported a waterfall of 600 meters in height in this region but could not confirm it by measurements. It could be this same waterfall or one of a dozen other large falls seen from the air.

6. The changing of river names above every major confluence or other important physical feature is characteristic in Peru. Also, within the area a number of local names were not of the Campa dialect and could undoubtedly be attributed to the influence of the Swiss mission outpost at the mouth of the Cutibireni. And occasionally, for lack of names, unknown waterfalls—many of them located strictly on the basis of aerial photo analysis—were assigned names of persons or organizations involved in past reconnaissance surveys in the area.



FIG. 13. *The Catarata Seward on the Shimoyonkabene tributary of the Rio Cutibireni. The falls appears somewhat foreshortened due to the use of a wide-angle lens, but the scale is evident from the size of the man (circled, lower left), and from the aerial view in FIG. 12.*



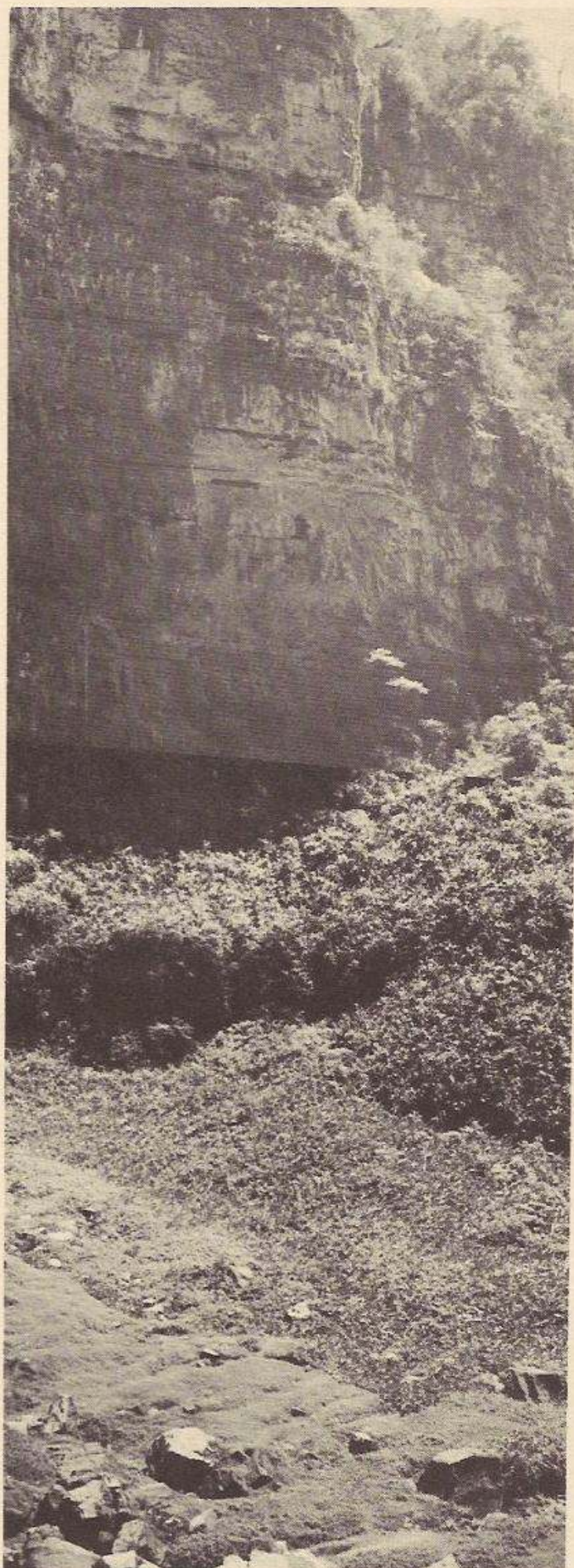


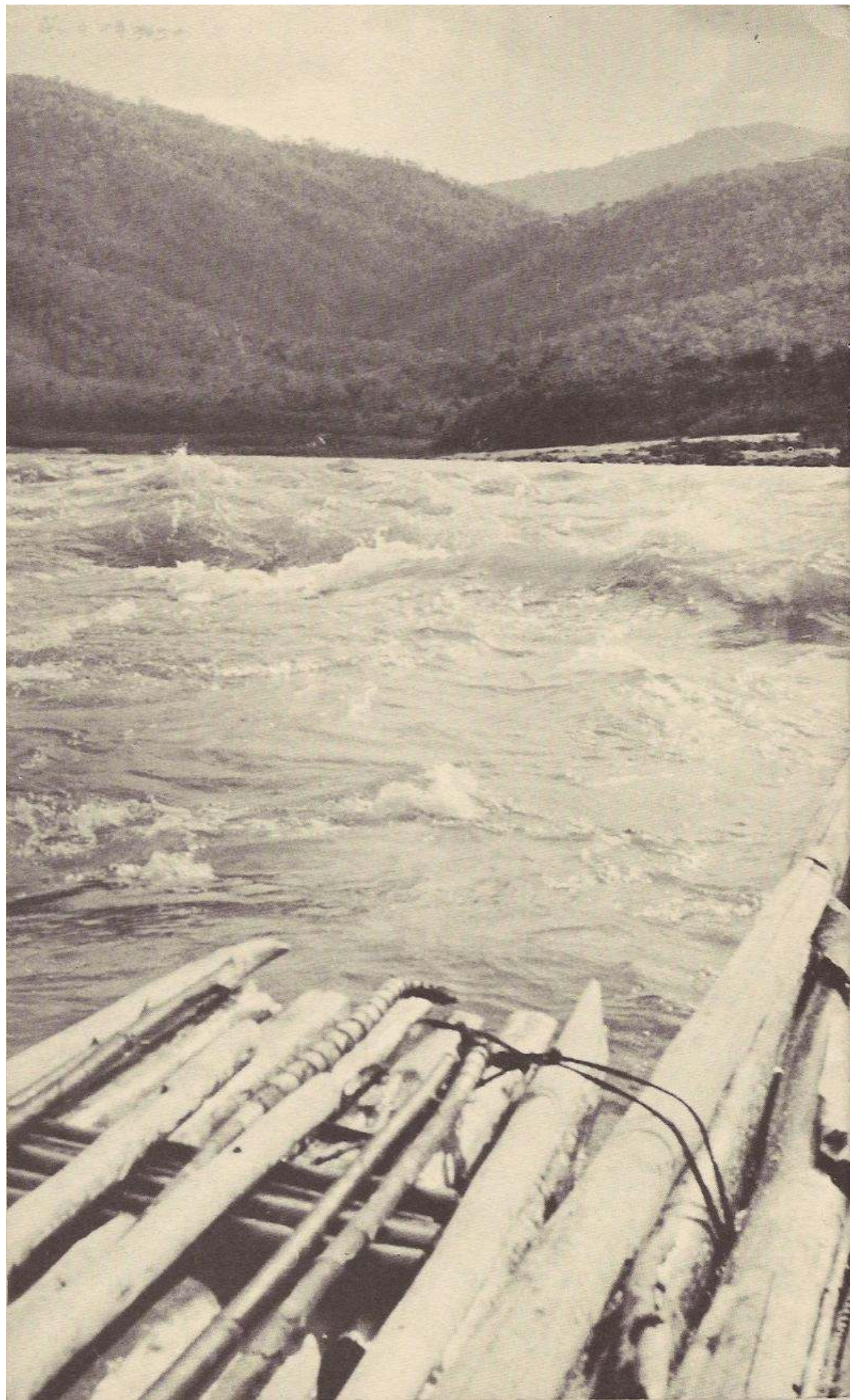


FIG. 14. Plant formations in the valley bottoms show distinct ecological zonation. Natural pastures and succulent broad-leaved shrubs are found in extreme valley bottoms as a direct response to high moisture content in the air close to the waterfalls. Lush tropical vegetation abounds where slopes are less precipitous, and no vegetation is to be found on the steeper valley walls.

FIG. 15. Campa cargo bearers holding some of the game hunted en route, including three Maquisapo monkeys, a partially plucked paujil, a type of wild turkey, and a loro (parrot). These animals when roasted or cooked provide the Campas with their basic protein intake. This game is typical of the wildlife found in the area, which could be depleted quickly by indiscriminate hunting.









of the Cutibireni. Below the gorge, the Campas departed for Quempiri and a small balsa raft (Figures 16 and 17) was assembled for the OAS team for their three day river journey down the turbulent lower portion of the Cutibireni and the Rio Ene to the small jungle outpost of Puerto Prado. From this site an additional two days were required to hike into Satipo for the return to civilization.

The first phase of operations was completed. The aerial photographs had been analyzed, field investigations had proven it to be a unique virgin area,<sup>7</sup> and a reconnaissance cadaster outlining the suggested limits of the proposed national park had been mapped. Legislation could now be initiated to reserve the site.

7. Reports exist that a large natural bridge, supposedly the largest in the world is located in the area. In all probability this bridge is outside of the Cutibireni Park area since it was not made evident in the analysis of the almost complete photo coverage of the area. A number of expeditions recently engaged in looking for it have experienced difficulties; one three man expedition disappeared completely in September 1964. In March 1965, one of the Campa Indians who had participated in the expedition reported that the three men were being held captive by a hostile tribe in the headwater area.



FIG. 16, 17. The OAS team's balsa raft traversing turbulent and placid sections of the Rio Ene in its descent from the Cutibireni. The mosquito netting mounted in the raft served as protection from insects.



# **the proposed program**



In Lima, a number of agencies interested in the implementation of the second phase of operations were contacted after completion of the reconnaissance survey. ONERN, the National Office for the Evaluation of Natural Resources of the National Planning Institute, which had carried out the resource evaluations in the valley of the nearby Rio Apurimac-Ene, and provided the OAS with aerial photographs of the region, will undoubtedly become involved in refining the reconnaissance data with more detailed surveys. The Forest Service of the Ministry of Agriculture, the agency which is officially in charge of, and has had a long standing interest in, the establishment and preservation of national parks in Peru, has included the area as one of 11 that have been selected as reserves. They also plan to initiate more detailed surveys in the area as part of their proposed program for the coming year.

Conservationists and resource personnel from the University of San Marcos and a number of museums were also anxious to participate in the detailed bio-ecological surveys that were scheduled to follow. In addition, the national agencies working for the propagation of tourism showed great interest in the establishment of the national park; and recently the Asociación Peruana de Preservadores de Areas Naturales has been organized for the specific purpose of promoting and activating legislation for the establishment of national parks and reserves.

Although the second phase of operations related to the establishment of the national park should be carried out largely by the local and national organizations in Peru, technical assistance and guidance to facilitate future survey operations and assure receiving the maximum benefit to all concerned can be provided by the OAS upon request. As a result of completion of the reconnaissance phase of investigations it has now been recommended that the following phases be undertaken by the Peruvian Government:

- ☐ Activate legislation to reserve the area outlined on the reconnaissance map for a National Park. Upon further definition of studies a suitable portion of the area might be designated specifically as a reservation for the Campa Indians of the area.
- ☐ Initiate action to carry out detailed geographic, ecological, forestry and geologic surveys during the May-August dry season of 1965.
- ☐ Determine, in accordance with the results of the detailed studies suggested above, the type of park that should be established.
- ☐ Define specifically the orientation for rational development for the reserve area, i.e., watershed management, erosion control, Indian reserve, wildlife preservation, tourism, etc.
- ☐ Establish necessary contacts with international and U.S. agencies that might wish to participate in the development of the park.
- ☐ Initiate training of personnel who will eventually become involved in park operations and maintenance.
- ☐ Provide, pending completion of the road in the valley of the Rio Ene, the basic research facilities for future





FIG. 18. View of the northern extent of the Vilcabamba range, toward the side of the proposed Cutibireni National Park. The western slopes visible in the background are unsuitable for colonization but include an abundance of physical features that might be included in the park. The area in the foreground, characteristic of the left bank of the Apurimac-Ene River system, slightly south of the proposed national park, is already partially settled, and will eventually undergo further colonization.

investigations, as well as necessary tourist facilities for the public.

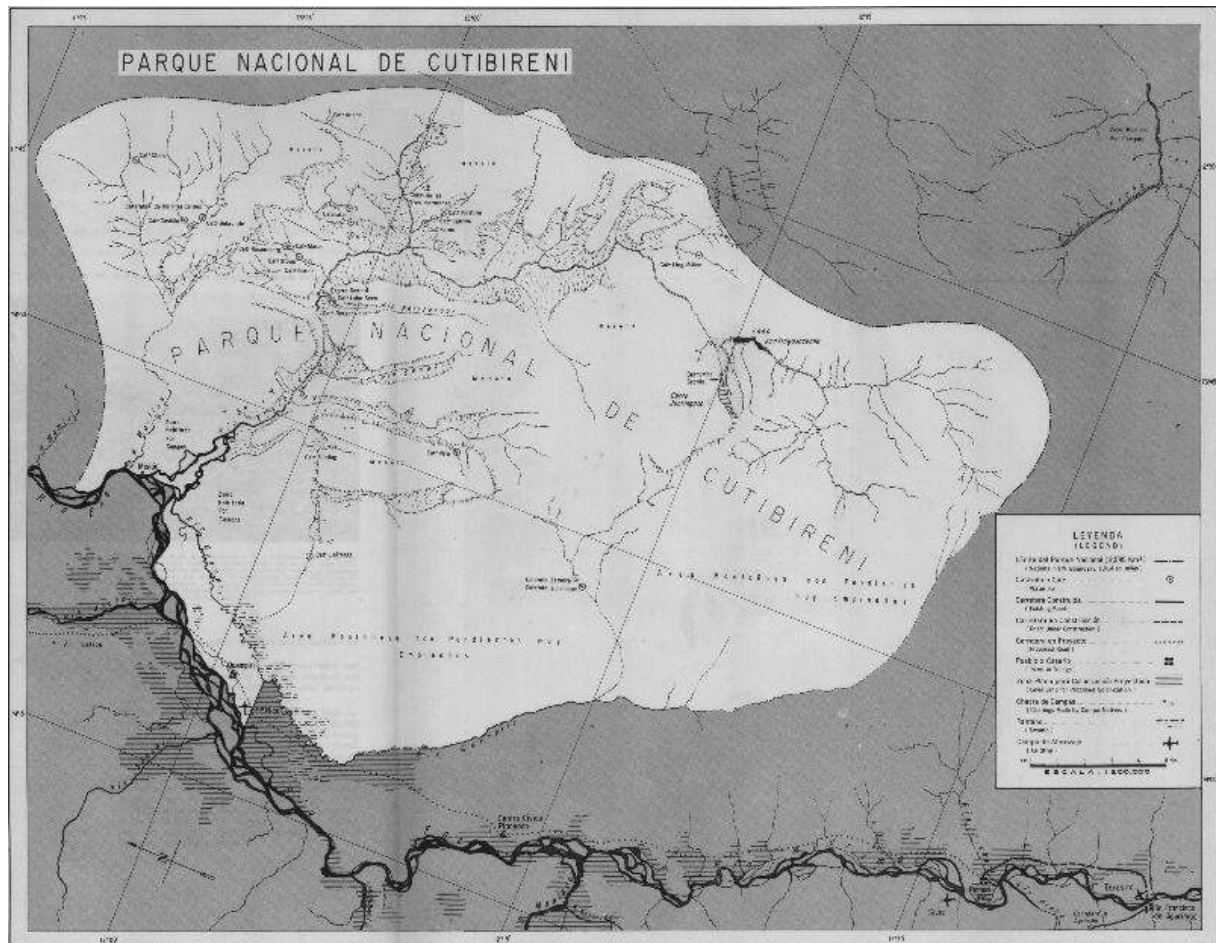
- Coordinate local and international conservation and natural resource agencies for maximum efficiency and full assurance for the execution of a sound development program of this pilot project.

The limits of the proposed national park have been demarcated on the following map, and the major physical features of the region have been located. The scenic beauty and tourist potentials have been presented by the photographic record, supported by rudimentary triangulations and measurements, that accompany the text. Together they may provide the basic justification for the establishment of a new reserve area. Along with the colonization and development of adjacent regions, perhaps the splendors of the Cutibireni can be made accessible, but be preserved, so that future generations of Campas, colonists, and tourists can enjoy more of the natural environment that they all too often take for granted today.



## EDITOR'S NOTE (December 2007):

The following is a quick view of the detailed map of the proposed national park mentioned in page 30 of this work. For a full resolution (2.3 MB) scanned version of this map [click here](#).



This map contains the locations of 20 important waterfalls that were identified by the authors of the booklet from 1961 to 1964. However, the map contains important errors in georeferencing, which are in process of being corrected with modern computer based geographic systems.





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