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INTRODUCTION

In 1973, with financial support provided by the World Wildlife Fund, the government of Peru established one of the largest national parks in the world. Encompassing approximately 15,320 sq. km, the Manu National Park includes nearly the entire drainage system of the Manu River and adjacent eastern Andean slopes in southeastern Peru (Fig. 1). The park lies largely in the department of Madre de Dios, with its western, mountainous border including a small segment of the department of Cuzco. Virtually the entire park consists of virgin tropical forest of several types. The westernmost fifth of the park includes a cross section of moist eastern Andean habitats, from upper tropical forests of the foothills up through all stages of subtropical cloud forest to elfin forests and moist *puna* grasslands at the summit of the eastern Cordillera.

Few areas of the earth remain as uninhabited and undisturbed as that currently protected by the Manu National Park. In an age when broad expanses of virgin tropical habitats are becoming increasingly scarce, the fauna and flora of Manu provide a priceless index of the staggering biotic diversity characterizing western Amazonia and the eastern Andes, which biologists are only beginning to inventory. In this report we present a species-level compilation of the birds and mammals found over an eight-year period at one tropical elevation site along the Manu River, and a coded summary of their ecological status at this site.

STUDY SITE AND METHODS

Cocha Cashu Biological Station is a remote outpost located about 45 km northwest (= 80 river km upstream) from the mouth of the Río Manu (Fig. 1; 11° 55′ S, 77° 18′ W; elev. approx. 380 m) and about 8 km inside the border of Manu National Park. The station is administered by the Ministerio de Agricultura, Dirección General Forestal y de Fauna, Peru. It consists of two thatched-roof houses and a network of trails, totaling roughly 20 km, cut through all major habitats associated with a meandering "white water" river and its oxbow lakes. The houses are located on the bank of one oxbow lake, Cocha Cashu, about 0.5 km from the river. The predominant habitat is a stately, river flood plain, evergreen tropical forest with a 40-m canopy; numerous emergent trees exceed 50 m. Other habitats include earlier successional stages of vegetation along the river and oxbow lake margins, large tracts of seasonally inundated swamp forest, marshes, and *Mauritia* palm stands. The only artificial clearing is about 0.5 ha surrounding the houses.

Compilation of the present list began with Terborgh's first visit to Cocha Cashu in July 1973. Various biologists, principally from Princeton University, have worked at the site and added to the list during every dry season (June–Sept.) thereafter. Since 1976, at least one researcher has been present during most wet seasons as well. Ornithologists are more numerous from June through December, but some have been

FIGURE 1. Map of Manu National Park (area within solid line), showing the location of Cocha Cashu Biological Station (solid circle) and the Pakitza Control Post (solid triangle) along the Río Manu. Inset at upper right shows approximate size and location within Peru of the enlarged map. Adapted from map provided by the Dirección General Forestal y de Fauna, Ministerio de Agricultura, Peru.

present through both climatic seasons. Emmons has undertaken live-trapping of mammals from June through December of several years.

Collection of scientific voucher specimens is prohibited in the national park. Although this presents an inconvenience for a few difficult identifications involved here, we have circumvented the problem in several ways. Most importantly, a large scale and long-term bird banding program has been under way since 1974. To date we have captured, banded, measured, photographed, and released roughly 5,000 individual birds representing about 260 of the 526 avian species reported here. Virtually without exception, these data permit positive identification even in the trickiest cases. We have also obtained specimens of several problem species, both birds and mammals, through collecting efforts along the Río Manu outside the park's boundary (Pakitza Control Post, see Fig. 1). These specimens are identified and deposited at the Museo de Historia Natural "Javier Prado" (Lima), Field Museum of Natural History (Chicago), the American Museum of Natural History (New York), and the U.S. National Museum of Natural History (Washington, D.C.; mammals only).

Mammals present the more severe problem of identification. In large part the mammal list is compiled from field observations and live-captured animals which were measured, weighed, photographed, and released unharmed. Identifications remain tentative in a few cases, especially within the genera *Oryzomys* and *Myotis*.

The bird list can be considered virtually error-free despite its reliance upon sight records and live, photographed specimens. The mammal list is less complete (especially in Rodentia and Chiroptera); confirmation of certain species awaits the availability of specimens from the area.

EVOLUTION OF THE LANDSCAPE

Much of the landscape of the lower Manu basin has been molded by the Río Manu itself, a silt-laden, meandering river about 150 m wide (Fig. 2). Each year during the rainy period that extends from December until April, the river floods many times, rising as much as 5 to 8 m above its normal level. The violent currents that accompany these floods cut deeply into exposed banks, carrying with them vast quantities of sediment and countless uprooted trees. As the waters subside sediment is deposited in backwater pools and eddies, creating the extensive beaches and mud flats that are prominent during the drier months. Tree trunks accumulate wherever there are shallows or obstacles in the river, such as islands or sharp bends.

The Manu flows through a broad alluvial plain, often many kilometers wide. Over a span of hundreds or thousands of years the main channel has shifted slowly back and forth from one side of the plain to the other. A time-lapse film taken at the speed of one or two frames a year would show the river wriggling sporadically like a slender snake. If one were to focus attention on a single bend, it would begin as a slight curve that would become more and more exaggerated at an ever accelerating pace, until it was an extended narrow-waisted loop, perhaps 1 or 2 km long. Suddenly, in the passing of a single frame, the river would ram a short cut through the narrow waist, abandoning the isolated loop to a new, more tranquil kind of geological evolution as an oxbow lake. Observing now the lake instead of the river, one would see it gradually fill in with floating mats of grasses and herbs, then tall stands of bananalike *"platanillos"* (*Heliconia* spp.) spreading from its ends and sides. Later, grotesque sprawling figs (*Ficus* spp.) supported by thickets of stiltlike adventitious roots appear. The invading figs are eventually replaced by other tree species with more conventional upright forms.

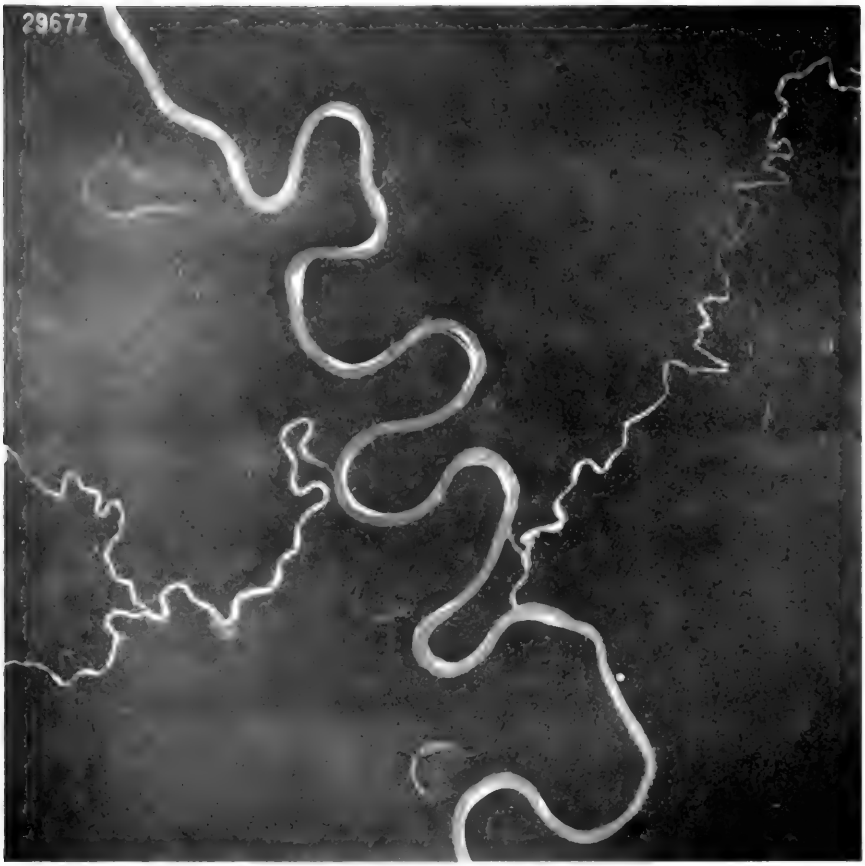

FIGURE 2. Aerial photograph of the Río Manu, taken during a dry season (26 September 1962) by the Instituto Geografico Militar, Peru. Note the meandering pathway of the river and its sand beaches, smaller tributaries, and oxbow lakes of several ages. Cocha Cashu Biological Station is located just out of the picture to the upper left (upstream). Pakitza Control Post (white dot along river) is near the lower right corner of the picture.

Traces of the long-vanished lake remain visible for many years, probably centuries. An aerial photo reveals a complex history that can be reconstructed by careful attention to the subtle shading that denotes forest types of different age and composition (see Fig. 2). With the exception of a few remnant outcroppings, there is hardly a spot that is free of indications that it was once a levee, backwater, beach, or lake bottom.

Travellers entering the Manu forest for the first time are invariably impressed by the towering trees overhead and the deep shade beneath. The appearances conform to everyone's preconception of the forest primeval. Virgin forest it is, in the sense that man has had no role in its history; in terms of tree generations, it is unlikely to be very old. The oldest forests are on elevated ground, raised river terraces, and the eroded remnants of uplifted foothills. Yet these forests are often not very impressive because the soil is less nutrient-enriched. The finest stands of giant trees are found in the much younger forests of the alluvial plain, where the soils are closer to the water table and enriched by many layers of fine silt deposited by the river's annual incursions. These

conditions are conducive to rapid tree growth and attainment of great heights, up to 50 m or more.

Subtle distinctions in forest type at Cocha Cashu appear to be only of modest importance to most birds and mammals. The age of a forest and its plant species composition are minor influences, relative to its gross structural features and its production of harvestable resources: insects, fruits, nuts, nectar, and so on. As shown by our tabulations, almost precisely the same birds occupy the young forests of the alluvial plain and the old forests on raised hilltops, although the tree species composition of these forest types is almost entirely different. In discriminating between habitats, birds seem to respond to features that are obvious even to a casual human observer. Whether the trees are tall or not; the understory is sunny or shaded; the site is subject to flooding or well-drained; the vegetation in question is continuous such as the forest, patchy such as marshes, bamboo thickets, and treefall openings, or linear such as stream margins and shores—these are the important factors. A detailed analysis of these patterns of habitat use is being prepared, but the gross patterns are evident in our habitat notes coded in Tables 1 and 2.

THE LISTS AND THEIR CODES

Table 2 presents the systematic listing of 526 species of birds identified through 1982 at Cocha Cashu and vicinity. For the most part, we adopt the family and generic sequence and the taxonomy of Morony et al. (1975), but we follow Meyer de Schauensee (1966) for the Furnariidae and Traylor (ed., 1980) for the Tyrannidae, Pipridae, and Cotingidae. The tityras and becards (Tityrinae; *incertae sedis*) are listed with the Cotingidae.

Table 3 presents the systematic listing of 99 species of mammals at Cocha Cashu, including eight whose existence is strongly suspected but requires confirmation (identified by asterisks). The nomenclature of neotropical mammals undergoes frequent changes as genera are revised. No standardized list of names for mammals exists that is comparable to those available for birds. Most names given here are those in current use. For phyllostomid bats we follow Jones & Carter (1976). *Proechimys* is being revised by A. L. Gardner, J. L. Patton, and L. H. Emmons; to avoid confusion we have indicated the karyotype for species of this genus. Subspecific names have been included in a few cases where the number of valid species is in question.

Listed with each species in both tables are four columns of letter codes. These codes summarize our knowledge of habitat, foraging position, sociality (birds), activity period (mammals), and relative abundance for each species. The following brief description of the codes will aid the reader in interpreting them and show how each column should be read. All codes are summarized for more convenient reference in Table 1.

Habitats

As mentioned above, the various habitats that seem to be distinguished by the birds and mammals of the area are in large part easily recognized by humans. The distinctions are coarse, related to the stature of the vegetation, exposure to inundation, presence of edges, and the like. Here we provide a brief description of each habitat type, preceded by the code used in the checklist.

Fh High ground forest. Mature, tall forest growing on high ground above the zone of annual inundation.

Fs Swamp forest. Periodically inundated forest with trees of tall or medium stature and a more or less closed canopy. Swamp forests occur in shallow depressions that are flooded

by the river, or that accumulate rainwater during the wet months. Extensive stands develop in old lake beds. The understory is dominated by *Heliconia* species up to 3 m tall.

Fsm Forest stream margins. Designates species that characteristically inhabit the narrow zone of tangled growth that lines the banks of small streams in the forest interior.

Fo Forest openings. Treefalls are a regular occurrence in tropical forests. A particularly large tree may push over several others on the way down, creating a jumbled opening of as much as 0.5 ha. Such openings are the favored habitat of certain birds and small mammals.

Ft Transitional forest. This forms an ill-defined belt of vegetation along the river margin between the canebrakes and high ground forest. Several species of figs and mahogany are the dominant trees. Transitional forest is exposed to seasonal flooding but, unlike swamp forest, drains rapidly when the river recedes. The canopy is closed, the midstory is light and open, and the understory is typically a luxuriant growth of *platanillos* (*Heliconia* spp.), gingers, and other broadleafed plants.

Z *Zabolo* (canebrake). This is the pioneer vegetation that represents the first stage of plant succession on recently deposited banks, sandbars, and the like. It lines the Manu on both sides except where the river cuts into steep banks. The dominant plant is a robust grass called "*caña brava*" (*Gynerium* sp.) that reaches a height of 8 to 10 m. It quickly invades open ground by means of underground runners. Another pioneer species is a slender willowlike composite, *Tessaria integrifolia*, that often forms extensive even-aged stands on muddy flats. *Cecropia* sp., *Ficus insipida*, *Ochroma* (balsa), and *Erythrina* are typical elements of older phases of *zabolo*. *Caña brava* remains the dominant understory element throughout the *zabolo* zone.

Rm River margins. Species that occupy edge vegetation along the main river are given this designation. Most of these do not use the interior of the forest or the *zabolo*. Many are flycatchers that take perches on overhanging branches or in the treetops and sally out into the open airspace to capture their prey.

S Shore of river. Includes open beaches, mudflats, and the like.

R River. Species that swim in or catch their prey in the river.

O Overhead airspace. This describes the habitat of birds that soar or hunt high in the air above various kinds of vegetation.

L Lake. Species that swim in or catch their prey in oxbow lakes.

Lm Lake margins. Refers to the curtain of vines and dense growth that develops at the forest edge around lake margins.

M Marshes. Rank stands of grasses or *platanillos* without an overhead canopy of trees. Marshes develop in permanent shallow water, typically at the ends or shallow shores of oxbow lakes and *Mauritia* palm stands.

B Bamboo thickets. Dense stands of tall bamboo (*Bambusa* spp.). These usually occur in scattered open spots in transitional forest and along lake margins, occasionally along river margins.

A *Aguajales*. Poorly drained depressions with permanent standing water characterized by the presence of stately *aguaje* palms (*Mauritia vinifera*). *Aguajales* may include patches of open water and extensive marshy areas. Usually they occur well away from the main river. Some are very large, covering a few to many square kilometers.

Foraging Position

Many tropical birds and, to a lesser extent, mammals confine their foraging activities to a narrow range of heights within the forest. In general published information on this aspect of animal behavior in the Neotropics is scanty, even for the most common species. We believe that a great deal of ecological information can be coded into species lists by use of the simple designations summarized here. These designations are largely self-explanatory and are summarized for immediate reference in Table 1.

C Canopy. The highest treetops.

Sc Subcanopy. High in the trees but below the sunlit crowns.

U Understory. Species often seen at eye level but above the ground.

T Terrestrial. Foraging mainly or exclusively on the ground.

V Vine tangle thickets. Extensive vine thickets form at low to medium levels in the forest in places where past treefalls have left openings in the canopy. Several bird and monkey species characteristically frequent such tangles.

A Aerial. Species that hunt and capture their prey on the wing, e.g., swifts and swallows.

W Water. Food taken from the water.

F Fruiting trees. Frugivorous species commonly seen in aggregations at fruiting trees, especially figs.

Sociality (Birds)

Gregariousness is especially prevalent in tropical forests, where a large proportion of the bird species show some sort of flocking tendency. The species which join flocks seldom forage alone, and vice versa. Several categories of flocking behavior can be recognized. The codes are summarized in Table 1.

S Solitary. Species that forage as individuals, in pairs, or in small family groups.

G Gregarious. Species that commonly travel in flocks of their own kind.

M Mixed-species flocks. Species that typically forage in mixed groups containing two to many different species.

A Ant following. Species of birds that obtain food by catching insects that are fleeing advancing swarms of army ants (*Eciton* spp.). Such birds do not flock in the strictest sense because they are not attracted to each other. The individuals apparently gravitate independently to ant swarms; otherwise they go their own ways, and may frequently be seen alone.

Abundance

Only three designations are used: **C**, common; **U**, uncommon; and **R**, rare. These evaluations are relative and inevitably somewhat subjective. They refer to the vicinity of Cocha Cashu and are not expected to hold in other localities. Small birds and mammals maintain much greater populations on the average than large ones. This is taken into account in the evaluations, so that a common large species may be absolutely no more abundant (in pairs per square kilometer) than a rare small species. Furthermore, species listed as uncommon might actually be rather common in a narrowly restricted habitat. Certain bamboo specialists, for example, can be found during any walk through the limited stands of bamboo.

M identifies a small number of migrant species which breed in the southern part of South America (**Ms**) or in North America (**Mn**). A number of strictly tropical species (especially water birds) are seasonal in their occurrence at Cocha Cashu. In most cases the presence or absence of these species coincides with the wet (Oct.–Mar.) and dry (April–Sept.) seasons, designated by **W** and **D**.

Populations of many birds and some mammals (e.g., *Didelphis*, *Philander*, *Marmosa*, *Dasyprocta*, *T. pecari*, and *Mazama*) undergo substantial year-to-year fluctuations. The abundance designations refer to maximal observed populations.

Activity Period (Mammals)

D Diurnal

N Noctural

Other Symbols

* Hypothetical. In the bird list, indicates a small number of species that have been seen or heard only once or twice. Occurrence is considered highly likely but further confirmation is desired. In the mammal list, indicates species whose occurrence in the area is strongly suspected (Grimwood, 1969) but not yet confirmed.

+ Pakitza. Indicates a few species that have been observed just 10 km downstream from, but not at, Cocha Cashu (Pakitza Control Post, see Fig. 1).

( ) Species identity requires substantiation. A few species are difficult to separate in the field from close relatives. The name in parentheses indicates the most probable species. Positive identification will require specimens.

† Specimens collected on the lower Río Manu outside the park (mammals only).

NOTEWORTHY ORNITHOLOGICAL RECORDS

Included in our list of 526 bird species are a number of records important to the ornithogeography of Amazonia and Peru. Although the distribution of birds is better known than that of any other animal group in South America (Meyer de Schauensee, 1966), we continue to add new information and even new species to the literature that documents this knowledge. As habitats disappear in the Neotropics and synthetic studies based upon avian distributions proliferate (e.g., Haffer, 1974), we emphasize that continued publication of important records is necessary now, while the distributions of birds within South America are still more or less in their native condition. In this section we briefly discuss 25 species whose occurrences at Cocha Cashu provide significant new information regarding their status and distribution in western Amazonia.

UNDESCRIBED SPECIES (1)

Cercomacra. In 1976, we mist-netted and photographed two females of an undescribed species in the formicariid genus *Cercomacra*. Both individuals were netted in tangled vegetation at water margins. In 1980, specimens of the same form were obtained in bamboo thickets along the Río Madre de Dios (near Shintuya); in 1981 the species was encountered at 1,200 m elevation in the department of Cuzco (Consuelo). A formal description is in preparation. The species is probably allied to *Cercomacra melanaria*, of open brush habitats in Bolivia and southern Brazil. O'Neill's (1969) record of *C. "nigricans"* at Balta represents this species (specimen examined).

NEW RECORDS FOR PERU (4)

Ictinia mississippiensis. About midday on 16 October 1982, Charles Munn and Scott Robinson spotted a tightly swirling kettle of Mississippi kites very high over the central clearing at Cocha Cashu. They observed the kites for several minutes through 15× binoculars mounted on a tripod. Of the 100 to 150 birds, most were streaked juveniles. Adults were distinguished from *I. plumbea* by the lack of rufous coloring on the primaries. The kettle was moving steadily southward, presumably en route to wintering grounds in Paraguay and Argentina. This is the first record of the species passing through Amazonian Peru, yet is not unexpected. A flock of 200 apparently passed near Baranquilla, Colombia (Meyer de Schauensee et al., 1978) in fall migration. Although information is still scanty (see Eisenmann, 1963), these two records do suggest a migration route that follows the base of the eastern Andes.

Ixobrychus involucris. In October 1976 we saw, mist-netted, and photographed a single individual of this species along grassy edges of the oxbow lake. The species is widespread through much of South America, but this represents the first documented record for Peru. The bird remained at Cocha Cashu at least through December 1976, but the species has not been seen since that month. Photographs are stored in Fitzpatrick's personal collection.

Myrmotherula iheringi. This tiny antwren, previously known only from a few specimens in western Amazonian Brazil, is uncommon but permanently present at

the study site. It occurs in understory, mixed-species flocks with other antwrens, antbirds, and furnariids (see Munn & Terborgh, 1979). It has recently been recorded near the mouth of the Río Tambopata, near Puerto Maldonado, Peru (Parker, 1982). One specimen taken on 21 October 1976 from the lower Río Manu (near Pakitza Control Post; AMNH 824069) represents the first for Peru.

Microcerculus bambla. No published record exists for this wren in Peru, although the species was mist-netted by Terborgh & Weske (pers. comm.) on the Cerros del Sira, Dept. Huánuco, in 1971. We have two mist-net records of this unmistakable species, one in seasonally inundated forest and the other along a brushy stream margin. A specimen taken from lower Río Manu (near Pakitza Control Post; AMNH 824080) represents the first for Peru. The species is widespread in northeastern Amazonia, but is known from only a few localities in the western zone.

RANGE EXTENSIONS (5)

Rallus maculatus. In July 1981, a single individual of this unmistakable rail spent several days in the grassy margins of the oxbow lake at Cocha Cashu, where it was seen repeatedly by S. Robinson. The bird was "absurdly tame," permitting close approach and careful scrutiny by Robinson. This constitutes our only record and represents the first report of the species from any site in western Amazonia (Blake, 1977). In Peru, the species was previously known only from west of the Andes. Its tendency for long-distance wandering (Parkes et al., 1978) and the brief period of conspicuous residency at Cocha Cashu both suggest that this isolated record represents a vagrant individual that emigrated from the study site soon after arriving.

Columbina picui. Meyer de Schauensee (1966) lists this species as recorded in Peru only once, in Dept. Puno (Quitún). O'Neill (1969) added an additional record that he presumed to be a vagrant, from Balta (Dept. "Loreto", now the Dept. Ucayali). To these specimens we add three from Dept. Madre de Dios (♀, FMNH Conover 19770, Río Tambopata, Collpa, coll. E. R. Blake; ♀ C27076 and ♂ 310927, from Shintuya, coll. J. W. Fitzpatrick) and two males from Dept. Cuzco (C18917 and C18918, Quincemil Huajyumbe, coll. C. Kalinowski). In 1979 one individual was collected at Shintuya along the Alto Río Madre de Dios. By 1980 the species was common there and along nearby river margins. In June 1981 S. Robinson noted one individual at Pakitza Control Post, the first record along the Río Manu. In September 1981 three individuals were noted at Pakitza by D. Stotz and Fitzpatrick. Shortly thereafter (21 September), Stotz found one individual in weedy vegetation along the sand beach at Cocha Cashu. This individual remained several days and then disappeared. Similar population expansion apparently has occurred recently in the vicinity of Puerto Maldonado. The species now appears to be common and spreading throughout the tropical zone of southeastern Peru.

Philydor rufus. This furnariid typically is known as a cloud forest foliage gleaner. Although its known distribution extends throughout the Andean foothills of Peru and adjacent Bolivia, we are aware of only one lowland tropical record for the species in either country (Balta; specimen at LSUMZ). At Cocha Cashu, the species is a regular member of mixed-species flocks, but only occurs along the river margin, especially high in dense bamboo or canebrakes. In 1980 a specimen (FMNH 310610) was obtained from similar habitats along the Alto Río Madre de Dios (near Shintuya, 420 m).

Neoctantes niger. We have two mist-netting records of this extremely rare formicariid, both of them photographed. Two independent sight records confirm that the species is restricted to dense underbrush where ferns, viny thickets, and *Heliconia*

predominate. The species is known in Peru from two localities in northeastern Dept. Loreto, and from adjacent Brazil (João Pessoa). Our records represent a southward range extension of about 650 km from the latter locality. No specimen has been obtained.

Turdus nigriceps. This is another species with a continuous Andean distribution through Peru and Bolivia, typically occurring in moist cloud forests. At Cocha Cashu it is known from a single mist-netted male captured in July 1974. In July 1980 we obtained two specimens from a nearby tropical locality (near Shintuya, 420 m). These all may represent wandering individuals, but their measurements are appreciably smaller than those of nearby Andean populations. Possibly they represent a separate, lowland population.

Rare and Little-known Species (15)

Tryngites subruficollis. This species is not well known from eastern Peru (Meyer de Schauensee, 1966). It escaped our detection during its southward migrations until 1981, when on 18 and 19 September D. and S. Stotz and Fitzpatrick observed five separate groups of buff-breasted sandpipers along the Río Manu while boating upstream from the mouth. One group of three was seen only one bend downstream from Cocha Cashu. This and most other groups were feeding together with pectoral sandpipers (*Calidris melanotos*) on sand beaches heavily overgrown with dense, low weeds. Group size varied from three to five, with the individuals always feeding within a few meters of one another.

Celeus spectabilis. We have a single mist-net record of this uncommon woodpecker, captured in a dense canebrake near the river margin. In 1980 we obtained one specimen (♂FMNH 310579) from similar habitat along the Alto Río Madre de Dios (near Shintuya, 420 m).

Automolus melanopezus. This poorly known furnariid was first recorded in Peru by O'Neill (1969) at Balta (Dept. Ucayali; see also Parker, 1982). We photographed a single mist-netted individual captured in a densely tangled blackwater stream habitat about 8 km inland from the Río Manu. In 1980 we obtained two specimens (♂FMNH 310617; im. ♀ 310618) in a dense bamboo thicket along the Alto Río Madre de Dios (near Shintuya, 420 m).

Simoxenops ucayalae. This rare furnariid is netted regularly at Cocha Cashu. It apparently favors bamboo thickets, canebrakes, and similarly structured habitats, where it joins mixed-species flocks in the understory. In August 1980 we observed but failed to collect this species with an understory flock in dense bamboo near Shintuya, where it clung to bamboo stalks and pecked in woodpecker fashion. These localities are both near the type locality of "*Megaxenops ferruginea*" Berlioz (1966), and we concur with Meyer de Schauensee (1966) that the latter name is a synonym of this form (see also Parker, 1982).

Xenops milleri. This Amazonian xenops is poorly represented in collections, presumably because of its small size and its habit of creeping up trunks and small branches high in the forest canopy. The bird is known from Peruvian specimens only in northern Dept. Loreto, but recently has been reported from sight records near Puerto Maldonado (Parker, 1982). At Cocha Cashu the species is an uncommon member of high-canopy flocks in most forested habitat types.

Myrmotherula sclateri. We learned the song of this little-known but probably widespread antwren from T. Parker, who found it along the Río Tambopata, Dept. Madre de Dios (Parker, 1982). This species is common at Cocha Cashu but restricted to the high canopy (25–40 m), especially near forest openings. Few specimens exist,

almost certainly because its small size and forest canopy habitat render it inconspicuous and difficult to collect.

Percnostola lophotes. This form was described from a clearly subadult male described in detail by Hellmayr (Cory & Hellmayr, 1924, pp. 270–71). This specimen exhibited mainly female characters, causing Berlioz (1966) to describe a fully adult male as a new species, *P. "macrolopha,"* from the Manu area (Altamira). The reddish brown females, with pale gray underparts, almost precisely match the description of *lophotes* but lack the black secondary coverts of the holotype which clearly indicate the subadult plumage of that male. Adult males in all other members of this and related formicariid genera (*Thamnophilus Pygiptila, Thamnomanes, Dysithamnis, Myrmeciza*) typically are gray or black, while females and juvenile males are brownish. It is clear that *"macrolopha"* is therefore a synonym of *lophotes.* Parker (1982) independently reaches the same conclusion. We encounter this form regularly in river margin habitats at Cocha Cashu and along the Alto Río Madre de Dios (12 specimens at FMNH, 3♀, 9♂). Preferred habitat seems to be bamboo and canebrakes, but the species also occurs in the *Heliconia*-dominated understory of seasonally inundated forest.

Formicarius rufifrons. This rare antbird had escaped detection by ornithologists since its original description by E. R. Blake (1957). A singing individual was encountered at Cocha Cashu by Theodore A. Parker, III in September 1982. It remained in the area nearly two months and was subsequently seen by many observers. The bird preferred the *Heliconia*-dominated understory of a low, seasonally inundated area several hundred meters from the Río Manu. Parker (in press) describes the behavior and distinctive vocalizations of this bird.

Grallaria eludens. Specimens of this recently described species are available only from the type locality (Balta, Dept. Ucayali; Lowery & O'Neill, 1969). In June 1977 Fitzpatrick encountered a singing antpitta in upland forest 8 km inland from the Río Manu. The same individual was heard three nights in succession, singing a hollow, two-note call ("Per-Peer") at last light of evening, from the forest floor. The bird was never seen clearly, and could not be captured. The behavior and vocal quality of the bird match those of other members of the genus *Grallaria.* Because the call matches that described by O'Neill (pers. comm.) for *eludens,* and given the relative proximity of Balta to Cocha Cashu (about 200 km), we have little doubt that this record represents a second locality for this species. We leave the specific name in parentheses in Table 2, however, pending positive confirmation.

Ramphotrigon fuscicauda. This tyrannid was reported as known from only three specimens, one each from Ecuador, Peru, and Bolivia, by Meyer de Schauensee (1966). O'Neill (1969) reported five additional specimens from Balta. To these we add one specimen from Dept. Putumayo, Colombia (San Antonio-Guamez; Fitzpatrick & Willard, 1982), and three specimens collected by Fitzpatrick in July 1980 along the Alto Río Madre de Dios (near Shintuya), Dept. Madre de Dios. The species is an uncommon resident at Cocha Cashu, found mainly in riparian habitats and dense vine tangles in old, overgrown marshes. Its song is a slurred, nasal, descending whistle with a sharp upward terminal inflection ("peeeeouWERP"). Along the Alto Río Madre de Dios, it shares certain large bamboo thickets with *Ramphotrigon megacephala,* a species not yet encountered at Cocha Cashu. The third member of the genus, *R. ruficauda,* occurs only in high ground primary forest away from edges at Cocha Cashu and elsewhere.

Casiornis rufa. At Cocha Cashu we have two sight records of this species, the first on 1 October 1981 with a mixed-species flock in the tops of low *Cecropia* near the river bank. Until recently the species was not known to occur in Peru, but has now been

collected by J. S. Weske in dry country along the Río Ene, Dept. Junin (AMNH), in Dept. Cuzco (Kiteni; Parker & O'Neill, 1980), and in river edge vegetation near Puerto Maldonado, Dept. Madre de Dios (Parker, 1982).

Conioptilon mcilhennyi. Described by Lowery & O'Neill (1966), this peculiar cotingid has been collected only at the type locality (Balta, Dept. Ucayali). It is a reasonably common resident at Cocha Cashu, however, where it occurs singly or in groups of two to four in the canopy of swamp forests and river margins. Fitzpatrick (1982) presents an account of its known life history, based on our experience with the species at Cocha Cashu. In August 1980 Fitzpatrick encountered a lone, calling individual in the treetops of a forest opening near Shintuya, Dept. Madre de Dios.

Caryothraustes humeralis. We have a single sight record at Cocha Cashu of this extremely poorly known grosbeak (seen by Fitzpatrick on 9 June 1977). The bird was a member of a large mixed-species flock of tanagers and flycatchers in the broken forest canopy of the interior hills, 8 km inland from the river. Schulenberg & Remsen (1982) summarize the scanty specimen records of this species that was first recorded in Peru by Parker & O'Neill (1980).

Cacicus koepckeae. To date this rare cacique was known only from the two males collected at Balta, Dept. Ucayali, Peru, discussed in the original description (Lowery & O'Neill, 1965). In light of the proximity of Balta to Cocha Cashu, *koepckeae* is to be expected at our study site. At Cocha Cashu on 26 September 1981, S. and D. Stotz repeatedly flushed a small black cacique from the ground in front of them under a dense stand of *Heliconia* and cane near a stream margin. The bird showed a conspicuous yellow rump patch each time it was flushed yet appeared all black when on the ground. Several subsequent days of mist-netting in the vicinity failed to produce such a bird, but the sighting almost certainly represents the first record of *Cacicus koepckeae* away from the type locality. We list the species as hypothetical, given the possibility that the bird was a peculiar variant of *C. cela* or *C. solitarius*, both common in the area.

Agelaius xanthophthalmus. Despite the recency of its discovery (Short, 1969), this species apparently is distributed along the base of the eastern Andes from Ecuador (Limoncocha) to Bolivia (Tumi Chucua). At Cocha Cashu at least five family groups are year-round residents along the marshy edges of the oxbow lake, where they forage along the grassy lake borders and sing from perches 2 to 5 m above the water surface. Preliminary evidence suggests that the species is a cooperative breeder (R. Kiltie, unpubl. data).

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TABLE 1. Key to symbols used in Tables 2 and 3.

HABITATS (PREFERRED HABITATS LISTED FIRST)

Fh	High ground forest; 40 to 50 m canopy, clear dark understory.
Ft	Transitional forest; seasonally inundated, abundant *Heliconia*, *Ficus*.
Fs	Swamp forest; low, *Ficus*-dominated canopy, tall *Heliconia* understory.
Fsm	Forest stream margins.
Fo	Forest openings; usually from treefalls.
R	River; on water or overhead, along the Río Manu.
Rm	River margins; along flood-washed rubble or broken vegetation at banks.
S	Shore of river; sand beaches or mudflats, usually during dry season.
L	Lake; on water or overhead, along oxbow lakes (e.g., Cocha Cashu).
Lm	Lake margins; grassy edges, thick viny growth, *Cecropia* and dying trees.
M	Marshes; expanses of inundated grass, often along lakeshore.
Z	*Zabolo*; dense canebrakes, vines, and *Cecropia* along edge of beaches.
B	Bamboo thickets; dense, almost monospecific stands up to 25 m tall.
A	*Aguajales*; *Mauritia* palm stands in broad, marshy clearings.
O	Overhead airspace; usually soaring or feeding in flocks.

FORAGING POSITION

T	Terrestrial
U	Understory
Sc	Subcanopy
C	Canopy
W	Water
A	Aerial
F	Fruiting trees
V	Vine tangle thickets

SOCIALITY (BIRDS)

S	Solitary; occasionally in small family groups.
G	Gregarious; large congregations or flocks of same species.
M	Mixed-species assemblages or flocks.
A	Ant following; usually with many other species.

ACTIVITY PERIOD (MAMMALS)

D	Diurnal
N	Nocturnal

ABUNDANCE AND SEASONAL STATUS

C	Common
U	Uncommon
R	Rare
Mn	Migrant population only; from North America (Sept.–Mar.).
Ms	Migrant population only; from southern South America (Mar.–Oct.).
W	Wet season only (Oct.–May); probably short-distance migrant.
D	Dry season only (May–Oct.); probably short-distance migrant.

DOCUMENTATION

no symbol	Positively confirmed sightings or captures at Cocha Cashu.
+	Species recorded only from Pakitza Control Post.
( )	Positively confirmed record at Cocha Cashu; species identity uncertain.
*	Hypothetical; seen or heard only once, requires confirmation.
†	(Mammals only); specimens collected on lower Río Manu, deposited at USNM.

TABLE 2. List of 526 bird species and their habitats, behavior, and abundance.

Species	Habitats	Foraging Position	Sociality	Abundance
Tinamidae (8)				
Tinamus tao	Fh, Fsm, Fs	T	S	R
Tinamus major	Fh, Ft	T	S	C
Crypturellus cinereus	Ft	T	S	U
Crypturellus soui	Ft, Z	T	S	U
Crypturellus bartletti	Fh, Ft	T	S	C
Crypturellus variegatus	Fh	T	S	R
Crypturellus atrocapillus	Fh	T	S	U
Crypturellus undulatus	Z, Ft, Lm	T	S	C
Podicipedidae (1)				
Podiceps dominicus	L, Lm	W	S	U
Phalacrocoracidae (1)				
Phalacrocorax olivaceus	L, R	W	S, G	C
Anhingidae (1)				
Anhinga anhinga	L	W	S	U
Ardeidae (11)				
Ardea cocoi	S, Lm, Rm	W	S	U
Casmerodius albus	S, Lm, Rm	W	S	C
Egretta thula	S, Rm, Lm	W	S	C
Butorides striatus	Lm, Rm, Fsm	W	S	C
Agamia agami	Lm, M	W	S	U
Bubulcus ibis	Lm	T, W	G, S	R
Philherodias pileatus	S, Lm, Fsm	W	S	C
Nycticorax nycticorax	S, Lm	W	S	U
Tigrisoma lineatum	Lm	W	S	C
Ixobrychus involucris	M, Lm	W	S	R
Cochlearius cochlearius	Lm	W	S	U
Ciconiidae (2)				
Mycteria americana	S, O	W	G, S	U
Jabiru mycteria	S, O	W	S	R
Threskiornithidae (2)				
Mesembrinibis cayennensis	Lm	W	S	U
Ajaia ajaja	S	W	S	R
Anhimidae (1)				
Anhima cornuta	S, Lm, M	T	S	C
Anatidae (4)				
Dendrocygna bicolor	R	W	G	R
Neochen jubata	S, L	W	S	U
Cairina moschata	L, Lm, S	W	S	C
Oxyura dominica	M, Lm	W	G	R
Cathartidae (4)				
Sarcoramphus papa	O, Fh	A	S	U
Coragyps atratus	O, Rm, S	A	S, G	C
Cathartes aura	O, Fh	A	S	R
Cathartes melambrotus	O, Fh	A	S	C

TABLE 2. *Continued.*

Species	Habitats	Foraging Position	Sociality	Abundance
Accipitridae (26)				
+ *Gampsonyx swainsonii*	Rm	A	S	R
Elanoides forficatus	O	A	G, S	U
Leptodon cayanensis	Ft, Fs, Rm, Lm	C	S	U
Chondrohierax uncinatus	Lm, O	Sc	S	R
Harpagus bidentatus	Fh, Ft, Lm	Sc	S	U
Ictinia plumbea	O, Rm, L	A	S	C
Ictinia mississippiensis	O	A	G	R, Mn
Rostrhamus sociabilis	M	A	S	R
Accipiter bicolor	Fh, Ft, Lm	Sc, U	S	U
Accipiter superciliosus	Fh	Sc, U	S	R
Buteo albonotatus	O, Lm	A	S	R
Buteo swainsoni	O	A	S, G	R, Mn
Buteo platypterus	O	A	S	R, Mn
Buteo brachyurus	O, Fh	C	S	R
Buteo magnirostris	Rm	Sc	S	C
Buteo nitidus	Rm	Sc	S	R
Leucopternis schistacea	Fh, Ft, Fs	Sc	S	U
Leucopternis kuhli	Fh	Sc, U	S	R
Busarellus nigricollis	Lm, M	Sc, U	S	U
Buteogallus urubitinga	Rm, Lm, Fsm	Sc, U	S	U
Morphnus guianensis	Fh	C	S	R
Harpia harpyja	Fh	C	S	R
Spizastur melanoleucus	O, Rm, Lm	C	S	R
Spizaetus ornatus	Fh, Lm	C	S	U
Spizaetus tyrannus	Fh	C	S	R
Geranospiza caerulescens	Rm	Sc	S	R
Pandionidae (1)				
Pandion haliaetus	O, R, L	A	S	U, Mn
Falconidae (8)				
Herpetotheres cachinnans	Rm, Lm, Fh, Ft	C	S	U
Micrastur semitorquatus	Fh, Lm	C, Sc, U	S	R
Micrastur ruficollis	Fh, Ft	Sc	S	U
Micrastur gilvicollis	Fh	Sc	S	R
Micrastur mirandollei	Fh, Lm	Sc	S	R
Daptrius ater	Rm, Lm, Z	A, C	S, G	C
Daptrius americanus	Fh, Ft	Sc	S	U
Falco rufigularis	Rm, Lm, Fo	C, A	S	C
Cracidae (4)				
Ortalis motmot	Z, Ft, Rm, Lm	Sc, F	G	C
Penelope jacquacu	Fh, Ft	Sc, T, F	S,A	C
Aburria pipile	Fh, Ft, Lm, Rm	C, F	S	C
Crax mitu	Fh, Ft, Lm, Fsm	T	S	C
Phasianidae (2)				
Odontophorus gujanensis	Ft, Z	T	G	U
Odontophorus stellatus	Fh, Ft	T	G	U
Opisthocomidae (1)				
Opisthocomus hoazin	Lm	C, Sc	G	C
Aramidae (1)				
Aramus guarauna	Lm, M	T	S	C

TABLE 2. *Continued.*

Species	Habitats	Foraging Position	Sociality	Abundance
Psophiidae (1)				
Psophia leucoptera	Fh, Ft	T	G	C
Rallidae (7)				
Rallus nigricans	M, Lm	T	S	U
Rallus maculatus	M, Lm	T	S	R
Aramides cajanea	Lm, Fs	T	S	C
Laterallus melanophaius	M, Lm	T	S	C
Gallinula chloropus	Lm, M	T, W	S	C
Porphyrula martinica	M, Lm	T	S	C
Porphyrula flavirostris	M	T	S	R, Ms
Heliornithidae (1)				
Heliornis fulica	Lm, Fs	W	S	R(D), C(W)
Eurypygidae (1)				
Eurypyga helias	Fsm, Lm	T	S	U
Jacanidae (1)				
Jacana jacana	M, Lm	T	G	C
Charadriidae (3)				
Pluvialis dominica	S	T	S, G	R, Mn
Charadrius collaris	S	T	S	C
Vanellus cayanus	S	T	S	C
Phalaropodidae (1)				
Phalaropus tricolor	Lm, S	W, T	G, S	U, Mn
Scolopacidae (9)				
Tringa solitaria	Lm, Rm, S	T	G, S	C, Mn
Tringa flavipes	S, Lm	T	G	C, Mn
Tringa melanoleuca	S	T	G	U, Mn
Actitis macularia	S, Rm, Lm	T	S	C, Mn
Calidris fuscicollis	S	T	G	R, Mn
Calidris melanotos	S, Lm	T	G	C, Mn
Micropalama himantopus	S, Lm	T	G	U, Mn
Tryngites subruficollis	S, Rm	T	G	R, Mn
Bartramia longicauda	S	T	S	R, Mn
Laridae (2)				
Phaetusa simplex	S, R, L	W	S	C
Sterna superciliaris	S, R, L	W	S	C
Rynchopidae (1)				
Rynchops nigra	S, R, L	W	S, G	C
Columbidae (7)				
Columba cayennensis	Lm, Rm, S	C, F	G	C
Columba subvinacea	Fh	C, F	S	U
Columba plumbea	Fh, Ft	C, F	S, G	C
Columbina picui	Rm	T	S, G	R
Claravis pretiosa	Z, Rm	T	S	R
Leptotila rufaxilla	Fh, Ft, Lm, Z	T	S	C
Geotrygon montana	Fh, Ft, Fs	T	S	C

TABLE 2. *Continued.*

Species	Habitats	Foraging Position	Sociality	Abundance
Psittacidae (18)				
Ara ararauna	Fh, Rm, A	C	G	C
Ara macao	Fh, A	C, F	G	C
Ara chloroptera	Fh, A	C, Sc	S, G	U
Ara severa	Ft, Lm, Z, A	C	G	C
Ara manilata	A	C	G	U
Ara couloni	Ft, A	C	G	R
Aratinga leucophthalmus	Fh, A	C, F	G	C
Aratinga weddellii	Ft, Lm	C, Sc	G	C
Pyrrhura picta	Fh, Ft	C, F	G	C
Pyrrhura rupicola	Fh, Ft	C	G	C
Forpus sclateri	Lm, Ft	C	G	R
Brotogeris cyanoptera	Fh, Ft, Lm	C, F	G	C
Brotogeris sanctithomae	Ft, Lm, Z	C, F	G	C
Pionites leucogaster	Fh, Ft, Lm	C	G	C
Pionopsitta barrabandi	Fh	C	G	U
Pionus menstruus	Ft, A	C	G	C
Amazona ochrocephala	Fh, Lm, A	C	S, G	C
Amazona farinosa	Fh, A	C, F	G	C
Cuculidae (10)				
Coccyzus erythropthalmus	Fh, Z	Sc	S, M	R, Mn
Coccyzus americanus	Fh	Sc	M	R, Mn
Coccyzus melacoryphus	Lm, Rm, Fo, Ft	C	S	R
Piaya cayana	Fh, Ft, Lm	C, Sc	S	C
Piaya minuta	Lm, Z	U	S	U
Crotophaga major	Lm, M	U	G	C (W)
Crotophaga ani	Lm, M	U	G	U
Dromococcyx phasianellus	Lm	U	S	R
Dromococcyx pavoninus	Ft	U	S	R
Neomorphus geoffroyi	Fh, Ft, Z	T	S, A	R
Strigidae (8)				
Otus choliba	Z	Sc	S	R
Otus watsonii	Fh, Ft	Sc, U	S	C
Lophostrix cristata	Fh	Sc	S	U
Pulsatrix perspicillata	Fh	Sc	S	U
Glaucidium minutissimum	Fh, Ft	U	S	C
Glaucidium brasilianum	Lm, Z, Ft	U	S	C
Ciccaba huhula	Fh	Sc	S	R
Ciccaba virgata	Fh	Sc	S	U
Nyctibiidae (2)				
Nyctibius grandis	Lm, Rm, Fo	C	S	U
Nyctibius griseus	Lm, Rm	C	S	U
Caprimulgidae (6)				
Lurocalis semitorquatus	Lm, L	A	S	U
Chordeiles minor	O	A	S	R, Mn
Chordeiles rupestris	S, Rm, L	A, T	G	C
Nyctidromus albicollis	Ft, Rm, Lm, Z	T	S	C
Nyctiphrynus ocellatus	Fh	T	S	C
Hydropsalis climacocerca	S, Rm, Lm	T	S	C
Apodidae (6)				
Streptoprocne zonaris	O	A	G	C
Chaetura (cinereiventris)	O	A	G	C

TABLE 2. *Continued.*

Species	Habitats	Foraging Position	Sociality	Abundance
Apodidae (*contd.*)				
Chaetura (egregia)	O	A	G	R
Chaetura brachyura	O	A	G	C
Panyptila cayennensis	O	A	S, G	U
Tachornis squamata	A, R, L	A	G	U
Trochilidae (19)				
Glaucis hirsuta	Ft, Lm, Z	U	S	C
Threnetes leucurus	Fh, Ft, Fs	U	S	U
Phaethornis superciliosus	Fh, Ft	U	S	C
Phaethornis hispidus	Ft, Fs, Z, Fh	U	S	C
Phaethornis stuarti	Ft	U	S	U
Eutoxeres condamini	Fs	U	S	R
Campylopterus largipennis	Ft, Fs, Z	U	S	U
Florisuga mellivora	Fh, Ft, Rm, Lm	C	S	U
Anthracothorax nigricollis	Lm, Ft, Z	C	S	R(W)
Popelairia popelairii	Fh	C	S	R
Lophornis chalybea	Fo, Z	Sc	S	R
Thalurania furcata	Fh, Ft, Fs, Z	U, Sc	S	C
Hylocharis cyanus	Ft, Fs, Z	C, Sc	S	U
Chrysuronia oenone	Ft, Fh	C, Sc,U	S	U
Amazilia viridicauda	Ft, Lm, Z	Sc, C	S	R
Amazilia lactea	Ft, Z, Lm	C	S	U
Polyplancta aurescens	Ft, Z	U	S	R
Heliothryx aurita	Fsm, Ft, Z	C	S	R
Heliomaster longirostris	Ft, Rm, Z, Lm	U	S	U
Trogonidae (5)				
Trogon melanurus	Ft, Fs, Rm, Lm	C, Sc	S	C
Trogon viridis	Fh, Ft	Sc	S	R
Trogon collaris	Fh	Sc	S	C
Trogon curucui	Ft, Lm, Rm	C, Sc	S	C
Trogon violaceus	Ft, Lm	Sc	S	R
Alcedinidae (5)				
Ceryle torquata	R, Rm, L, Lm	Sc	S	C
Chloroceryle amazona	R, Rm, L, Lm	Sc, U	S	C
Chloroceryle americana	R, Rm, L, Lm	U	S	C
Chloroceryle inda	Lm, Fsm, Fs	U	S	C
Chloroceryle aenea	Lm, Fsm, Fs	U	S	U
Momotidae (3)				
Electron platyrhynchum	Fh, Ft, Z, Rm	Sc	S	U
Baryphthengus martii	Fh	Sc	S	U
Momotus momota	Fh, Ft, Fs, Z	Sc, U	S	C
Galbulidae (3)				
Galbalcyrhynchus purusianus	Lm, A, Rm	C, Sc	S, G	C
Galbula cyanescens	Ft, Z, Fo	U, Sc	S	C
Jacamerops aurea	Fh, Fs, Ft	Sc	S	R
Bucconidae (10)				
Notharchus macrorhynchos	Fh, Fo	C	S	R
Notharchus tectus	Fh, Fo	Sc	S	R
Bucco macrodactylus	Fs, Ft, Z	Sc	S	U
Bucco capensis	Fh	Sc	S	R
Nystalus striolatus	Fh, Fo, Ft	Sc	S	U

TABLE 2. *Continued.*

Species	Habitats	Foraging Position	Sociality	Abundance
Bucconidae (*contd.*)				
Malacoptila semicincta	Fh, Ft	U	S	U
Nonnula ruficapilla	Ft, B,Z	Sc, U	S	R
Monasa nigrifrons	Fh, Ft, Fo, Lm	C, Sc	S	C
Monasa morphoeus	Fh, Fo	Sc	S	R
Chelidoptera tenebrosa	Rm	C	S	C
Capitonidae (3)				
Capito niger	Fh, Ft	C, Sc	M, S	C
Eubucco richardsoni	Fh, Ft	C	M, S	U
Eubucco tucinkae	Ft, Fs, Lm, Z	C, Sc	M, S	U
Ramphastidae (8)				
Aulacorhynchus prasinus	Ft, Lm	C, F	G	R
Pteroglossus castanotis	Ft, Fh, Lm, Rm	C, F	G	U
Pteroglossus inscriptus	Fh, Ft, Lm	C, Sc, F	G	U
Pteroglossus flavirostris	Fh, Ft	C, F	G	U
Pteroglossus beauharnaesii	Fh, Ft, Lm	C, F	G	C
Selenidera reinwardtii	Fh	Sc	S	R
Ramphastos vitellinus	Fh, Ft, Lm	C, F	G	C
Ramphastos cuvieri	Fh, Ft, Lm, Rm	C, F	G	C
Picidae (16)				
Picumnus rufiventris	Fh, Ft, Fs, Z	U	S, M	U
Picumnus (aurifrons or *borbae)*	Fh	Sc	M	R
Colaptes punctigula	Lm	C	S	U
Piculus leucolaemus	Fh, Ft	Sc	M	U
Piculus chrysochloros	Fh, Ft	Sc	S	R
Celeus elegans	Fh, Ft	Sc	S	U
Celeus grammicus	Fh, Ft	Sc	S	U
Celeus flavus	Lm, Ft, Fs, Z	Sc, U	S	U
Celeus spectabilis	Z, B	Sc	S	R
Celeus torquatus	Fh	C	S	R
Dryocopus lineatus	Lm, Rm, Ft	Sc, C	S	U
Melanerpes cruentatus	Ft, Fh, Lm, Rm	C	G, S	C
Veniliornis passerinus	Ft, Lm, Z	Sc, U	S	U
Veniliornis affinis	Fh, Ft	Sc	S, M	U
Campephilus melanoleucos	Ft, Rm, Lm	Sc, C	S	U
Campephilus rubricollis	Fh	Sc	S	U
Dendrocolaptidae (17)				
Dendrocincla fuliginosa	Fh, Ft, Fs	U, Sc	A, S, M	C
Dendrocincla merula	Fh, Ft, Fs	U, Sc	A	C
Deconychura longicauda	Fh, Ft, Fs	Sc, U	S, M	U
Sittasomus griseicapillus	Fh, Ft, Fs	Sc, C	M	C
Glyphorhynchus spirurus	Fh, Ft, Fs	U, Sc	S	C
Nasica longirostris	Lm, Ft, Fh	C, Sc	S, M	U
Dendrexetastes rufigula	Fh, Lm, Fs	Sc, C	S, M	C
Xiphocolaptes promeropirhynchus	Fh, Ft	Sc, U	S, M	U
Dendrocolaptes certhia	Fh, Ft	Sc	S, M	U
Dendrocolaptes picumnus	Fh, Ft	Sc, U	A, S	U
Xiphorhynchus picus	Lm, Rm, Z	Sc, C, U	S	U
Xiphorhynchus obsoletus	Ft, Fs, Lm, Fh	Sc, U	M, S	R
Xiphorhynchus ocellatus	Fh, Ft	U, Sc	M	C
Xiphorhynchus spixii	Fh	U	M	C
Xiphorhynchus guttatus	Fh, Ft, Fs, Z	Sc, U, C	S, M	C

TABLE 2. *Continued.*

Species	Habitats	Foraging Position	Sociality	Abundance
Dendrocolaptidae (*contd.*)				
Lepidocolaptes albolineatus	Fh, Ft, Fs	C	M	C
Campylorhamphus trochilirostris	Z, Fs	U, Sc	M	R
Furnariidae (28)				
Furnarius leucopus	Rm, Lm, Fsm	T	S	U
Synallaxis cabanisi	Z	U	S	R
Synallaxis albigularis	Z, M	U	S	R
Synallaxis gujanensis	Z, M	U	S	U
Synallaxis rutilans	Ft	U	S	R
Cranioleuca gutturata	Ft	Sc	M	R
Metopothrix aurantiacus	Fs, Fo	Sc	M	R
Thripophaga fusciceps	Fsm, Lm, Z, B	U	S, M	R
Hyloctistes subulatus	Fh, Ft	U, Sc	M	U
Ancistrops strigilatus	Fh	Sc	M	R
Simoxenops ucayalae	Z, Ft, Fh	U	S	R
Philydor erythrocercus	Fh	Sc, C	M	C
Philydor pyrrhodes	Fh, Ft	U, Sc	M	R
Philydor rufus	Z, Rm, Ft	Sc	M	C
Philydor erythropterus	Fh, Fs	C, Sc	M	U
Philydor ruficaudatus	Fh, Ft, Fs	Sc	M	C
Automolus infuscatus	Fh	U	M	U
Automolus dorsalis	Z, B	U	M	R
Automolus rubiginosus	Fh	U	M, S	U
Automolus ochrolaemus	Fh, Ft, Fs, Z	U	M	C
Automolus rufipileatus	Z, Ft	U	M	U
Automolus melanopezus	B, Fs	U	M	R
Xenops milleri	Fh, Ft	C	M	U
Xenops rutilans	Fh, Ft	C	M	U
Xenops minutus	Fh, Ft	U, Sc	M	C
Sclerurus albigularis	Fh	T	S	R
Sclerurus mexicanus	Fh	T	S	R
Sclerurus caudacutus	Fh, Ft	T	S	C
Formicariidae (53)				
Cymbilaimus lineatus	Fo, Fh, Ft, Fs	V	M, S	C
Frederickena unduligera	Fh, Ft	U	S	R
Taraba major	Z, Rm, Lm, Ft	U	S	C
Thamnophilus doliatus	Z, Rm	U	S, M	U
Thamnophilus aethiops	Fh, Fo	U, V	S, M	U
Thamnophilus schistaceus	Fh, Ft, Fo, Fs	V	S, M	C
Thamnophilus amazonicus	Z	U	S	R
Pygiptila stellaris	Fh, Fs, Ft	Sc	M	C
Neoctantes niger	Fs	V	S	R
Thamnomanes ardesiacus	Fh, Ft	U	M	C
Thamnomanes schistogynus	Fh, Ft, Z	U	M	C
Myrmotherula brachyura	Fh, Ft	Sc, V	S, M	C
Myrmotherula sclateri	Fh, Ft	C	S, M	U
Myrmotherula surinamensis	Lm, Fsm	U	S	U
Myrmotherula hauxwelli	Fh	U, T	S, M	C
Myrmotherula leucophthalma	Fh	U	M	U
Myrmotherula ornata	Ft, B	U, V	M	R
Myrmotherula axillaris	Fh, Ft, Fs, Z	U	M	C
Myrmotherula longipennis	Fh, Ft	U	M	C
Myrmotherula iheringi	Fh, Ft, Fs	U	M	U
Myrmotherula menetriesii	Fh, Ft, Fs, Z	Sc	M	C
Dichrozona cincta	Fh	T	S	U

TABLE 2. *Continued.*

Species	Habitats	Foraging Position	Sociality	Abundance
Formicariidae (*contd.*)				
Microrhopias quixensis	B, Ft, Z, Fo	U	M, S	U
Drymophila devillei	B, Z	U, Sc	S, M	R
Terenura humeralis	Fh, Ft	C	M	U
Cercomacra cinerascens	Fh, Ft	V	S	C
Cercomacra nigrescens	Z	U	S	R
Cercomacra sp. nov.	B, Z	U	S	R
Cercomacra serva	Fs, Z, Lm	U	S	R
Myrmoborus leucophrys	Ft, Z	T	S, M	U
Myrmoborus myotherinus	Fh, Ft	T	S, M, A	C
Hypocnemis cantator	B, Fs, Ft	V	S, M	U
Hypocnemoides maculicauda	Fsm, Fs, Lm	U	S	U
Percnostola lophotes	Z, Rm, Ft	U	S	U
Sclateria naevia	Fsm, Fs, Lm	T	S	U
Myrmeciza hemimelaena	Fh, Ft, Fo	T, U	S	C
Myrmeciza hyperythra	Ft, Lm, Fsm, Fs	U, T	S	C
Myrmeciza goeldii	Ft, Z, Lm, Fs	U	S, A	C
Myrmeciza fortis	Fh	U, T	A	U
Myrmeciza atrothorax	Z, Fs, Rm	U	S	C
Gymnopithys salvini	Fh	U	A	R
Rhegmatorhina melanosticta	Fh, Ft	U	A	C
Hylophylax naevia	Ft, Fs, Fsm	U	S	U
Hylophylax poecilonota	Fh	U	A	R
Phlegopsis nigromaculata	Fh, Ft, Fs, Z	U	A	C
Chamaeza nobilis	Fh	T	S	U
Formicarius colma	Fh	T	S	U
Formicarius analis	Fh, Ft, Fs, Z	T	S, A	C
Formicarius rufifrons	Ft	T	S	R
Grallaria (eludens)	Fh	T	S	R
Hylopezus berlepschi	Z, Fs	T	S	R
Myrmothera campanisona	Fh, Fo, Ft	T	S	U
Conopophaga peruviana	Fh	T, U	S	U
Rhinocryptidae (1)				
Liosceles thoracicus	Fh	T	S	U
Tyrannidae (68)				
Zimmerius gracilipes	Fh	C	M	U
Ornithion inerme	Fh, Ft, Fo	C	S, M	U
Camptostoma obsoletus	Rm, Lm, Z, Ft	C	M, S	U
Sublegatus (obscurior)	Rm, Lm	Sc, C	S, M	R
Tyrannulus elatus	Lm, Rm, Fh, Ft, Fs	C	M, S	C
Myiopagis gaimardii	Fh, Ft, Fs, Z	C	M	C
Myiopagis viridicata	Ft, Z	C	M, S	R
Elaenia spectabilis	M, Lm	U, C	S	U, Ms
Elaenia parvirostris	Rm	Sc, U	M	R, Ms
Elaenia strepera	Fh, Rm	C, Sc	M	U, Ms
Elaenia gigas	Rm	U, C	S	R
Elaenia (cristata)	Z, Rm, Ft	U, Sc, F	S, M	U
Inezia inornata	Rm, Z	U	S	R, Ms
Mionectes olivaceus	Fh, Ft, Fs, Z	Sc, U, F	S, M	U
Mionectes oleagineus	Fh, Ft, Fs	Sc, U, F	S, M	U
Mionectes macconnelli	Ft, Z	U	S	U
Leptopogon amaurocephalus	Ft, Fs, Z	U	M, S	U
Corythopis torquata	Fh, Ft	T	S	C
Myiornis ecaudatus	Fo, Fs, Fh	Sc	S	C
Hemitriccus flammulatus	Ft, B	Sc	S	R
Hemitriccus zosterops	Fh	Sc	S	U

TABLE 2. *Continued.*

Species	Habitats	Foraging Position	Sociality	Abundance
Tyrannidae (*contd.*)				
Hemitriccus iohannis	Z, Ft	Sc, U	S	R
Todirostrum latirostre	Z	U	S	R
Todirostrum maculatum	Rm, Z	U, Sc	S	U
Todirostrum chrysocrotaphum	Ft, Fh	C	S, M	C
Ramphotrigon fuscicauda	Fs, Ft, Fo	V, U	S	R
Ramphotrigon ruficauda	Fh	Sc, U	S	U
Tolmomyias assimilis	Fh, Ft	Sc	M, S	U
Tolmomyias poliocephalus	Fh, Ft, Fs, Z	Sc	M, S	C
Tolmomyias flaviventris	Ft, Z	Sc	S	R
Platyrinchus coronatus	Fh	U	S	C
Platyrinchus platyrhynchos	Fh, Ft	U, Sc	S	C
Onychorhynchus coronatus	Ft, Fs, Fh	U	S, M	U
Terenotriccus erythrurus	Fh, Ft	U	S	U
Myiobius barbatus	Fh	U	S, M	R
Myiophobus fasciatus	Z, M	U	S	R
Contopus borealis	Lm	C	S	R, Mn
Contopus virens	Z, Ft, Fo, Lm	C, Sc	S	C, Mn
Empidonax alnorum	Z, Lm, Ft	U	S	C, Mn
Empidonax euleri	Ft, Fs, Z	U	S	U
Cnemotriccus fuscatus	Z	U	S	R
Pyrocephalus rubinus	Rm, Lm	U, Sc	S	C, Ms
Ochthoeca littoralis	Rm	U	S	C
Muscisaxicola fluviatilis	S, Rm	T	S	U
Fluvicola pica	Lm, M	U, T	S	R, Ms?
Colonia colonus	Rm, M	C	S	R
Attila bolivianus	Fh, Ft, Fs	Sc	S	C
Attila spadiceus	Fh, Ft	Sc, U	S, M	C
Casiornis rufa	Ft, Z	Sc, C	S, M	R
Rhytipterna simplex	Fh, Ft	Sc	S, M	U
Laniocera hypopyrrha	Fh, Ft	Sc	S, M	R
Sirystes sibilator	Fh, Fo, Ft	C	S, M	U
Myiarchus tuberculifer	Fo, Fs	Sc	S	U
Myiarchus swainsoni	Fh, Ft, Fs	C, Sc	M	C, Ms
Myiarchus ferox	Rm, Z, Lm	Sc	S, M	C
Myiarchus tyrannulus	Lm, Fo	C	S	R
Pitangus lictor	Lm	U	S, G	C
Pitangus sulphuratus	Lm, Rm	U, C, F	S	C
Megarhynchus pitangua	Lm, Rm, Ft	C	S	U
Myiozetetes similis	Rm, Lm	U, C, F	S, G	C
Myiozetetes granadensis	Rm, Lm, Ft, Z	C, Sc	S, G	C
Myiozetetes luteiventris	Rm, Ft	C	S	R
Myiodynastes maculatus	Ft	Sc	S	U
Myiodynastes luteiventris	Ft, Z, Lm	Sc, F	G	C, Mn
Legatus leucophaius	Lm, Fo, Fh, Rm	C, F	S	C, Mn?
Empidonomus aurantioatrocristatus	Fh	C	M	R, Ms
Tyrannus melancholicus	Rm, Lm	Sc, C	S	C
Tyrannus tyrannus	Rm, Lm, Ft	C, F	G	C, Mn
Pipridae (8)				
Schiffornis major	Fs	U	S	U
Piprites chloris	Fh, Ft, Fs	Sc	S, M	C
Tyranneutes stolzmanni	Fh	Sc	S	C
Neopelma sulphureiventer	Z, Fs	U	S	R
Machaeropterus pyrocephalus	Fs, Fsm, B	U, F	S	U
Pipra coronata	Fh	U, F	S	C

TABLE 2. *Continued.*

Species	Habitats	Foraging Position	Sociality	Abundance
Pipridae (*contd.*)				
Pipra fasciicauda	Fh, Ft, Fs	U, F, V	S	C
Pipra chloromeros	Fh, Ft	U, F	S	U
Cotingidae (15)				
Pachyramphus castaneus	Ft, Lm	C	S	R
Pachyramphus polychopterus	Rm, Ft, Z	C	S, M	C
Pachyramphus marginatus	Fh	C	M	C
Pachyramphus minor	Fh, Ft, Fs	C, Sc	M, S	C
Tityra cayana	Ft, Fo, Lm	C	S	C
Tityra semifasciata	Fh, Ft, Rm, Lm	C	S	C
Tityra inquisitor	Ft, Lm	C	S	U
Iodopleura isabellae	Lm	C	S	R
Lipaugus vociferans	Fh, Ft, Fs	Sc	S	C
Porphyrolaema porphyrolaema	Fh	C, F	S	R
Cotinga maynana	Fh, Lm	C, F	S	U
Cotinga cayana	Fh, Lm	C, F	S	R
Conioptilon mcilhennyi	Ft, Rm, Lm	C, F	S, G	C
Gymnoderus foetidus	Fh, Rm, Lm	C, F	S, G	C
Querula purpurata	Fh, Ft, Fs	C, F	S, G	C
Hirundinidae (9)				
Tachycineta albiventer	R, Rm, L, Lm	A	G	C
Progne tapera	R, Rm, L	A	G	C
Progne chalybea	R, Rm	A	G	U
Notiochelidon cyanoleuca	R, L	A	G	R
Atticora fasciata	R, Rm, L	A	G	C
Stelgidopteryx ruficollis	R, Rm, L	A	G	C
Riparia riparia	L, R	A	G	R, Mn
Hirundo rustica	L, R	A	G	U, Mn
+ *Petrochelidon pyrrhonota*	R	A	G	R, Mn
Troglodytidae (6)				
Campylorhynchus turdinus	Lm, Fo, Ft	C, Sc	S	U
Thryothorus genibarbis	B, Lm, Fs	U	S	U
Troglodytes aedon	Z, Rm	U	S	R
Microcerculus marginatus	Fh, Ft	T	S	U
Microcerculus bambla	Ft	T	S	R
Cyphorhinus arada	Fh, Ft, Fs	U, T	G	C
Mimidae (1)				
Donacobius atricapillus	M, Lm	U	S, G	C
Turdinae (7)				
Catharus ustulatus	Ft	U, F	S	U, Mn
Turdus nigriceps	Fh	U	S	R
Turdus amaurochalinus	Fh	T	S	R, Ms
Turdus ignobilis	Z, Lm, Ft	Sc, U, F	S, G	C
Turdus lawrencii	Fh, Fo	C	S	R
Turdus hauxwelli	Ft, Fh	Sc, U, F	S	C
Turdus albicollis	Fh, Ft	Sc, U, F	S	U
Polioptilinae (2)				
Ramphocaenus melanurus	Ft, Fo	U, V	S	R
+ *Polioptila plumbea*	Rm	C	S, M	R

TABLE 2. *Continued.*

Species	Habitats	Foraging Position	Sociality	Abundance
Emberizinae (9)				
Ammodramus aurifrons	Z, S	T	S	C
Sporophila americana	M, Fs, B	U	G	R
Sporophila lineola	Lm, M	T	G	R, Ms?
+ *Sporophila nigricollis*	Rm	U	G	R
Sporophila caerulescens	Z, Lm, M	U	G	U
Sporophila castaneiventris	Rm, Z	U	S, G	R
Oryzoborus angolensis	A, Rm	U	S	R
Arremon taciturnus	Ft, B, Fs	T	S	R
Paroaria gularis	Lm, M, Rm	U	G	C
Cardinalinae (5)				
Caryothraustes humeralis	Fh	Sc	M	R
Pitylus grossus	Fh, Ft	C	S, M	R
Saltator maximus	Fs, Fsm, Ft	Sc, F	S	U
Saltator coerulescens	Lm, Rm, Z	U	S	C
Passerina cyanoides	Ft, Fsm, Fs	U	S	U
Thraupinae (39)				
Schistochlamys melanopis	Rm, Z	U, C	M, S	R
Conothraupis speculigera	Z, Fs	U, Sc	S	R
Lamprospiza melanoleuca	Fh	C, F	M, G	U
Cissopis leveriana	Lm, Rm, M	C, F	S	U
Thlypopsis sordida	Lm, Z	U	S	R
Hemithraupis guira	Fh, Ft, Fs	C	M	U
Hemithraupis flavicollis	Fh	C	M	R
Nemosia pileata	Z, Rm	C	M	R
Eucometis penicillata	Ft, Fs	U	S, A	R
Lanio versicolor	Fh, Fs	Sc, C	M	C
Tachyphonus rufiventer	Fh, Ft, Fs	C, Sc	M	C
Tachyphonus luctuosus	Fh, Ft, Fs	C, Sc	M	C
Habia rubica	Fh, Ft	U	M	C
Piranga rubra	Ft	Sc	M	R, Mn
Piranga olivacea	Fh	Sc	M	U, Mn
Ramphocelus nigrogularis	Lm, Ft	Sc	G	C
Ramphocelus carbo	Z, Lm, Rm	C, U	G	C
Thraupis episcopus	Lm, Rm	C	S, M	U
Thraupis palmarum	Lm, A	C	S, M	U
Euphonia chlorotica	Rm, Z	C	S	R
Euphonia laniirostris	Z, Rm, Lm	Sc	S, M	U
Euphonia chrysopasta	Fh, Rm, Ft, Lm	C	S	C
Euphonia minuta	Ft, Fo	C	S	R
Euphonia xanthogaster	Fh, Ft, Fs	Sc, C, F	M, S	U
Euphonia rufiventris	Fh, Ft	C, Sc, U	M, S	C
Chlorophonia cyanea	Fh	C, F	M	R
Tangara mexicana	Lm, Ft, Fh	C, F	M	C
Tangara chilensis	Fh, Ft, Fs	C, F	M	C
Tangara schrankii	Fh, Ft, Fs	C, Sc, U, F	M, S	C
Tangara gyrola	Fh	Sc	M	R
Tangara nigrocincta	Fh, Ft	C, F	M	R
Tangara velia	Fh	C	M	U
Tangara callophrys	Fh, Ft, Lm	C, F	M	R
Dacnis lineata	Fh, Ft	C	M	C
Dacnis flaviventer	Lm, Ft	C	M,S	R
Dacnis cayana	Fh, Ft	C	M	C
Chlorophanes spiza	Fh, Ft	C, Sc	M	U

TABLE 2. *Continued.*

Species	Habitats	Foraging Position	Sociality	Abundance
Thraupinae (*contd.*)				
Cyanerpes caeruleus	Fh, Ft	C, Sc	M	R
Cyanerpes cyaneus	Fh	C	M	R
Tersininae (1)				
Tersina viridis	Rm	U, C	S	R
Parulidae (4)				
Geothlypis aequinoctialis	M	U	S	R
**Basileuterus chrysogaster*	Fh	U	M	R
Phaeothlypis fulvicauda	Fsm	T	S	R
Conirostrum speciosum	Z, Rm, Ft	Sc	M	R
Vireonidae (6)				
Cyclarhis gujanensis	Ft, Lm	C	S	R
Vireolanius leucotis	Fh, Fo	C, Sc	M	C
Vireo olivaceus	Fh, Ft, Fs, Z	Sc, C	M, S	C
Hylophilus hypoxanthus	Fh, Ft	C, Sc	M	C
Hylophilus thoracicus	Fh.	C	M	R
Hylophilus ochraceiceps	Fh, Ft	U	M	C
Icteridae (12)				
Psarocolius oseryi	Fh, Ft, Fs	C	G	U
Psarocolius decumanus	Fh, Ft	C, Sc	G, S	R
Psarocolius angustifrons	Fh, Ft, Rm, Lm, Z	C, Sc	G	C
Psarocolius yuracares	Ft, Fh	C	S, G	U
Cacicus cela	Lm, Fh, Ft, Rm, Fs	C, Sc	G	C
**Cacicus koepckeae*	Z	U	S	R
Cacicus solitarius	Ft, Fs, Z, Lm	U	S	C
Icterus cayanensis	Rm, Lm, Fh	C	S, M	U
Icterus icterus	Lm, M	Sc	S	R
Agelaius xanthophthalmus	Lm, M, A	U	S	C
Scaphidura oryzivora	S, Rm, Lm	T, C, F	G, S	C
Dolichonyx oryzivorus	M	U	S, G	R, Mn
Corvidae (1)				
Cyanocorax violaceus	Ft, Rm, Lm, Z	C	G	U

TABLE 3. List of 99 mammal species and their habitats, behavior, and abundance.

Species	Habitats	Foraging Position	Activity	Abundance
Marsupialia (9)				
Didelphidae				
†*Metachirus nudicaudatus*	Fh	T	N	C
Marmosa cinerea	Fh	Sc, U, C	N	C
Marmosa noctivaga	Fh, Fo	U, V, T	N	C
Caluromysiops irrupta	Fh	C, Sc	N	U
Caluromys lanatus	Fh	C, Sc	N	R
Philander opossum	Lm, Fo, Fh	T, U, V	N	U
**Philander andersoni*	?	?	N	?
Didelphis marsupialis	Fh, Fo	T, Sc, C	N	C
+ *Chironectes minimus*	Lm, Fsm	W	N	R
Chiroptera (25)				
Emballonuridae				
Rhynchonycteris naso	Lm, Rm	A	N	U
Saccopteryx sp.	Fo, Fh	A	N	R
Noctilionidae				
Noctilio albiventris	Lm, Rm	A, W?	N	C
Phyllostomidae				
Tonatia bidens	Fh	F	N	U
†*Tonatia sylvicola*	Fh	F	N	C
Phyllostomus elongatus	Fh	F	N	C
Phyllostomus hastatus	Fh	F	N	U
Phylloderma stenops	Fh	?	N	U
Trachops cirrhosus	Fsm, Fs	U	N	C
Chrotopterus auritus	Fh	?	N	R
Vampyrum spectrum	Fh	?	N	R
Lonchophylla thomasi	Fh	?	N	U
†*Carollia castanea*	Fh	U, F	N	U
†*Carollia brevicauda*	Fh	U, F	N	C
Carollia perspicillata	Fh	U, F	N	U
Uroderma bilobatum	Fh	F, U	N	C
Vampyressa pusilla	Fh	F	N	U
Vampyressa nymphaea	Fh	F	N	U
Mesophylla macconnelli	Fh	F	N	U
Artibeus jamaicensis planirostris	Fh	F	N	C
Artibeus fuliginosus	Fh	F	N	C
Artibeus lituratus	Fh	F	N	U
Sphaeronycteris toxophyllum	Fh?	?	N	R
Thyropteridae				
Thyroptera tricolor	Rm	A	N	?
Vespertillionidae				
Myotis nigricans	Fo	A	N	?
Primates (13)				
Cebidae				
Aotus trivirgatus	Fh	Sc, C	N	C
Callicebus moloch	Lm, Rm, Fh	Sc, C, U	D	C
Pithecia monachus	Fh	C, Sc	D	R
Alouatta seniculus	Fh	C, Sc, F	D	C
Cebus apella	Fh	C, Sc.F, U	D	C
Cebus albifrons	Fh	C, Sc, F, U	D	C
Saimiri sciureus	Fh	Sc, V, C, F	D	C
Ateles paniscus	Fh, Ft	C, F	D	C
Lagothrix lagothricha	Fh	C, F	D	R

TABLE 3. *Continued.*

Species	Habitats	Foraging Position	Activity	Abundance
Primates (*contd.*)				
Callitrichidae				
Cebuella pygmaea	Rm	Sc, V, U	D	R
Saguinus fuscicollis	Fh, Fo	V, Sc, C	D	U
Saguinus imperator	Fh, Fo	V, Sc, C	D	U
Callimico goeldii	B?	V, U?	D	R
Edentata (8)				
Myrmecophagidae				
Myrmecophaga tridactyla	Fh	T	D, N	R
Tamandua tetradactyla	Fh	T, Sc, C	D, N	U
Cyclopes didactylus	Fh?	C	N?	?
Bradypodidae				
Bradypus variegatus	Fh	C	D	R
+ *Choloepus hoffmanni*	Fh	C	N	R
Dasypodidae				
Dasypus novemcinctus	Rm, Fh	T	N, D	R
**Dasypus kappleri*	Fh	T	N, D	?
Priodontes maximus	Fh	T	N, D	R
Lagomorpha (1)				
Leporidae				
Sylvilagus brasiliensis	Fs, Fo	T	N	U
Rodentia (22)				
Sciuridae				
†*Sciurus spadiceus*	Fh, Lm	T, U, Sc, V	D	C
†*Sciurus ignitus*	Fh, Lm	U, Sc, V	D	U
†*Sciurus sanborni*	Fh?	T, U?	D	R
Microsciurus flaviventer	Fh	Sc, C	D	R
Muridae (Cricetini)				
Oryzomys capito	Fh	T	N	C
Oryzomys nitidus	Fh	T	N	C
Oryzomys macconnelli	Fh	T	N	U
†*Oryzomys longicaudatus*	Fh	T, U	N	U
Oecomys concolor	Fh	U, Sc, C	N	U
Oecomys bicolor	Fh	U, Sc, C	N	U
Nectomys squamipes	Fh, Lm	T	N	R
Rhipidomys leucodactylus	Fh	C, Sc	N	R
Erethizontidae				
Coendou bicolor	Fh	C	N	R
Hydrochoeridae				
Hydrochoerus hydrochaeris	Lm, Rm, Z	T	D, N	U
Dasyproctidae				
Agouti paca	Fh	T	N	C
Dasyprocta variegata	Fh	T	D	C
Myoprocta pratti	Fh	T	D	C
Dinomyidae				
**Dinomys branickii*	?	T	N	?
Echimyidae				
†*Proechimys simonsi* 2N = 32	Fh	T	N	C
†*Proechimys steerei* 2N = 24	Fh	T	N	C
Mesomys hispidus	Fh	U, Sc	N	R
Dactylomys dactylinus bolivianus	Lm, Rm, B	Sc, C, V	N	U

TABLE 3. *Continued.*

Species	Habitats	Foraging Position	Activity	Abundance
Carnivora (16)				
Canidae				
**Speothos venaticus*	Fh	T	D	R
**Atelocynus microtis*	Fh	T	D	R
Procyonidae				
Procyon cancrivorous	Fsm	T, W	N	R
Nasua nasua	Fh	T, Sc, C	D	R
Potos flavus	Fh	C, Sc	N	C
Bassaricyon gabbii alleni	Fh	C, Sc	N	U
Mustelidae				
**Galictis vittata*	Fh?	T	N?	R
Eira barbara	Fh	T, Sc, C	D	U
Lutra longicaudis	R, L	W	D,N?	R
Pteronura brasiliensis	L, R	W	D	C
Felidae				
Felis concolor	Fh	T	N, D	U
Felis pardalis	Fh	T	N, D	C
Felis wiedii	Fh	T, U	N, D?	R?
**Felis tigrina*	?	?	?	?
**Felis yagouaroundi*	Fh	T, C?	D?	?
Panthera onca	Fh, Rm	T	N, D	U
Perissodactyla (1)				
Tapiridae				
Tapirus terrestris	Fs, Rm, Fh, A	T	N, D	U
Artiodactyla (4)				
Tayassuidae				
Tayassu pecari	Fh, A	T	D, N	U
Tayassu tajacu	Fh	T	D	C
Cervidae				
Mazama americana	Fh	T	N, D	C
Mazama gouazoubira	Fh	T	D?	R

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