

Chapter 8

OTHER COUNTRIES IN SOUTH AMERICA

Countries included in this chapter are Argentina, Bolivia, Chile, Ecuador, Guyana, Paraguay, Peru, Suriname and Venezuela plus a section titled General and Geographically Non-specific. See **Regional Taxonomic Inventory** (Chapter 5)

ARGENTINA

The palm weevil grub is apparently the only insect reported as food in Argentina.

Coleoptera

Curculionidae (weevils, snout beetles)

Rhynchophorus (= *Calandra*) *palmarum* Linn., larva

According to **Cowan (1865: 69)**, Dobrizhoffer doubtless was referring to the larva of *Calandra palmarum* when he says, "The Spaniards of Santiago in Tucuman, when they go seeking honey in the woods, cleave certain palm-trees upon their way, and on their return find large grubs in the wounded trees, which they fry as a delicious food."

Hymenoptera

Apidae (honey bees, bumblebees)

So far as known, there are no reports of bee brood being consumed in Argentina, but, just as there are dairypersons with their pampered cows and special product, milk, there are beekeepers with their pampered bees and their equally special product, honey. Many indigenous populations search for bees' nests, avid for both honey and brood. Dr. Eduardo Mario **Bianchi (1977)**, biochemist and Director of the Center for Apiarian Research at the University of Santiago in Argentina, authored a brief review on the pediatric value of honey, from which the following is extracted (p. 733):

Its main components are two sugars: glucose and fructose, which are absorbed directly by the blood with no previous effort of the digestive apparatus to make any chemical change in it. Sugar (saccharose), on the other hand, requires a previous digestive process, in order to separate it into its two components, glucose and fructose.

Among the mineral substances, we find almost every element that forms part of the human bones. It is necessary to emphasize the presence of iron. This element is important from a nutritious point of view because of its relation with the blood hemoglobin, which carries oxygen to our tissues. Without its iron, hemoglobin would not have this capacity to absorb oxygen.

Bianchi continues:

Schultz, Knott, and collaborators experimented in giving different sugary meals to children from 7 to 13 years old and from 2 to 6 months. They observed that the honey sweetened meals were more rapidly assimilated, thus giving a source of effective energy. This is why athletes eat honey during their training. Knott, Shukers and Schultz experimented with 14 children, feeding them pure milk or milk enriched with vitamin B, and honey sweetened milk. In all cases the calcium retention was greater when honey was added to the milk. We all know that calcium is an important element in children's growth and it favors their teething. . . . Children fed with honey can be noticed by the good condition of their alimentary tract and by the absence of signs of flatulence. . . . The organic acids that are contained in some honeys, and perhaps the essences as well, notably excite the child's appetite. . . . [American studies have shown] the good effects of honey during lactation. In some regions of Germany honey is regularly administered and children fed with it are notably more developed than the children fed with sugar (saccharose). Philips recommends the use of honey in nursing bottles instead of sugar. . . . The positive effects of honey are due, as this author notes, to the fact that some babies cannot easily decompose saccharose.

Orthoptera

Acrididae (short-horned grasshoppers)

That locusts are often abundant enough that they could provide food or animal feed is shown by **Bodenheimer's** (1951: 39) mention of an announcement in *World Trade* (1936: 42) that almost 3,000 tons of locust flour containing 9.7% nitrogen and 12.4% fat was available in Argentina for export as fertilizer.

BOLIVIA

Only three reports are known of insect consumption in Bolivia. According to **Holmberg (1950;** vide Hitchcock 1962: 184), one tribe, the Siriono, doesn't eat insects.

Coleoptera

Curculionidae (weevils, snout beetles)

Guise (date?), who served for several years as an engineer in Bolivia, reported seeing several peons cutting into some palm trees that had been felled to make way for a road (vide Cutright 1943: 314). They were "busily opening up the fibrous centers of the logs and extracting numerous fat white grubs which they carefully put into a tin can. The peons, when asked for an explanation, replied that these larvae were *tutuyus* and that they were a great delicacy. That night they fried them over a fire and ate them with unmistakable relish."

Diptera

La Barre (1948: 59) reported that the Aymara Indians of the Lake Titacaca Plateau sometimes made a chili-flavored ragout of the larvae of an aquatic Diptera species called *cici*.

Hymenoptera

Apidae (honey bees, bumblebees)

Irvine (1957: 125) mentions that the Chaco Indians eat "bee brood."

CHILE

Coleoptera

Elmidae (riffle beetles)

Austrelmis (= *Elmis*) *chilensis* Germain, adult

Austrelmis (= *Elmis*) *condimentarius* Philippi, adult

The two species above were reported by **Netolitzky (1920)** [awaiting re-translation] and by Brygoo (1946) (both of whom were cited by Bodenheimer 1951). According to **Bodenheimer (1951: 308)**, there have been repeated reports of the use of the beetles as a paste for the preparation of a national soup called *chichi*. See discussion of *Austrelmis* taxonomy under Peru.

Diptera

Culicidae (mosquitoes)

See Cowan (1865) under Acrididae.

Orthoptera

Acrididae (short-horned grasshoppers)

Simmonds (1885: 357) referred to a 1649 report that the Indians, in the absence of grain, made bread from locusts. As reported by **Cowan (1865: 127)**: “. . . in the pampas of Chile, bread is made of Locusts and of Mosquitos.”

ECUADOR

Wallace (1993) spent time in 1981 among the Waorani in Ecuador, deep in the jungle-clad eastern slope of the Andes. "We ate ants, stingless bees, honey and larvae of some sort," among other things.

Most of the other information given here was supplied by returned Peace Corps Volunteers. The observations of **Madelyn Herman** at Zuleta in the north (4-hour bus trip from Quito) and by **Fred Loose** at Sucua in the southeast (8-hour bus trip from Cuenca) are given verbatim as described by Ann Lesperance, another former PCV in Ecuador (pers. comm. 1987). Sucua, in the Amazon basin, is a town of 2,000 Shuar Indians, also known as the Jivaro, an ex-headhunting tribe. The town of Zuleta is a rather unique situation in that it is owned by a former president of Ecuador and the Organization of American States, and the indigenous here are economically better off and have a higher standard of living than those in the southern Andes.

Loose, who made surveying trips into the jungle that lasted for weeks or months at a time, reported the following (vide Lesperance): "The people of Sucua no longer eat insects but smaller groups in the Amazon still eat them. The Shuar knew that insects are a source of protein because the Italian missionaries told them to eat them while they were in the jungle, if they weren't able to kill animals."

Coleoptera

Curculionidae (weevils, snout beetles)

Rhynchophorus sp., larva

Prof. **F.L. Salomon**, University of Wisconsin Department of Anthropology, reported (pers. comm. 1988) that palm grubs (*Rhynchophorus* sp.) are collected from rotten stumps and fried in lard. He has seen bags containing as many as 3 liters of grubs collected by one person. This record is unique in that it is the only report known to the author of palm grubs collected on the west slope of the Andes.

Scarabaeidae (scarab beetles)

At Zuleta as described by **Herman** and Lesperance:

Every spring of the year for about six weeks, a completely 'white June bug' emerges from the ground about 4:00 to 5:00 in the morning. These insects are known as *catzos* (cot-sos). Only the indigenous will go out to catch them in a few villages in and around Zuleta. The *catzos* are caught with the bare hand and wrapped in a white cloth. The *catzos* are a delicacy for the family and also a source of income. Some family members transport the live insects to Quito or other markets so they can be sold. Since they are a delicacy they are sold for high prices in the market. When they are prepared, the wings and the legs are removed and then the body is fried in pork fat and heavily salted. The *catzos* are never eaten alone but are mixed in with a corn called *tostado*, which is similar in size to the *catzo* and is also fried in pork fat.

Professor **Salomon** observed *catzos* used as food in a small village (elevation about 3,000 m) near Quito. They were available for a short season each year. Before use, the legs and wing covers were removed.

P.G. da Silva, a PCV in Ecuador in the early 1980's, stated (pers. comm. 1987): "I was impressed by the high regard in which the natives of the Province of Imbabura held a brown beetle (a scarab, if I recall correctly) that appeared at the beginning of the rainy season (around 2 Nov.) and for that reason was known as the 'Cacho de Finados.' The adults were grabbed out of the air and popped into the mouth with great relish. After about a month, they disappeared."

Family uncertain

Loose mentioned that, on his jungle treks, the people prepared 'pale white grubs (larvae)' in a number of ways. Some of the Shuar pinched their heads to make sure they were dead, then ate them raw. Other times he had them cooked in soup mixed with vegetables. Herman reported that the people in Zuleta do not eat grubs, but she heard that people in other villages do eat them.

Hemiptera

Loose, on his jungle treks, also ate something that looked like a stink bug. First, the wings and legs were pinched off and then they were either eaten raw, fresh or in a soup.

Hymenoptera

Apidae (honey bees, bumblebees)

See Wallace (1993) in the Introduction.

Formicidae (ants)

Loose reported that, in a jungle, he was also given red ants fried on a skillet. Also see Wallace (1993) in the Introduction.

GUYANA

A variety of insects has been reported as food in Guyana, but there appear to have been no recent records published.

Coleoptera

Cerambycidae (long-horned beetles)

Macrodonia cervicornis Linn., larva

Stenodontes damicornis Linn., larva

According to **Netolitzky (1920)** (awaiting re-translation) and others cited by **Bodenheimer (1951: 308)**, the *moutac* or *macoco* of Guyana is the larva of *S. damicornis*. **Ghesquière (1947)** stated that, "According to Brez (1791) and Latreille (1817), the inhabitants of Guyana seek the live larvae of long-horned beetles *Macrodonia cervicornis* in the trunks of the kapok and coconut trees."

Curculionidae (weevils, snout beetles)

Rhynchophorus palmarum Linn., larva

Bancroft (1769: 239) states that the palm tree worm, which is common in Guyana and breeds in the heart of the cabbagetree after it is cut down, is "esteemed a delicate morsel, not only by the aboriginal Natives, but by many of the White Inhabitants, particularly the *French*, who roast them before the fire, and mix them with crumbs of bread, salt, and pepper."

Brown (1876: 352) wrote, on the banks of the Corentyne: "In the nut of one palm - the urua, I believe - the men obtained the large grub-like larvae of some beetle, which they looked upon as a great delicacy, roasting them on the fire, and sometimes even eating them uncooked."

Family unknown

"Beetle grubs" were used as food at the small settlement of Pirara on Lake Amacu between the Rupununi and Pirara rivers (**Schomburgk 1848, II: 111-112**).

Hymenoptera

Apidae (honey bees, bumblebees)

Bancroft (1769: 230) notes that the bees of Guyana are armed with stings, "which they sometimes exercise upon the Negroes, who, in revenge, eat as many as they can catch."

Formicidae (ants)

Atta cephalotes Linn., winged adult

Schomburgk (1848, II: 111-112) reported on the food use of leafcutter ants, among other insects,

observed at the small settlement of Pirara on Lake Amacu (translation): "Among the signs of the nearing rainy season was the appearance of three species of winged ants, the females of which are considered the best delicacy when roasted. Young and old take part in their collection." Schomburgk must have been very much impressed by the ants because he continues (translation):

The best treats were the winged males and females of *Atta cephalotes*. If one of the large insects is sighted, the whole village is alerted and everyone heads for the well-known hills in the forest, which are surrounded by the women. The sharp, pincer-like mandibles, which both males and females are equipped with, do not bother the Indians. They grab every winged ant as it emerges from the hill, despite the bleeding injuries to their hands. If one specimen escapes, the boys chase it with palm leaves or brush. The heads are pulled off of the caught specimens and the abdomen, which is filled with a fatty substance, is then roasted or boiled. Once it is prepared in this manner, it is considered a treat more tasty than the larva of *Calandra palmarum*.

Verrill (1937: 186) mentions that in Guiana and Brazil the Indians are very fond of the large winged females of the *Atta* ants: "Many a time when I have been in the jungles, my Indian carriers have thrown down their loads as they discovered an ants' nest with the insects swarming about their winged queens." Verrill likened the taste to that of "condensed milk" and states: "Although I cannot say that I like them myself, yet the Indians consider them a great treat."

Bodenheimer (1951: 306) cites P. Barrère (1741) who mentioned a large, winged, edible ant from Guyana appearing in great numbers at the beginning of the rainy season. As summarized by Bodenheimer: "Negroes and creoles eat its abdomen which is the size of a chick-pea and is full of a whitish, honey-like liquid which apparently is nothing else than its eggs." Bodenheimer also cites E. Daguin (1900) that the Galibi of Guyana refer to *Atta* ants as *koumaka*, and they are eaten, fried with flour in fat, by Negroes, Creoles and Indians. The various castes are well-distinguished and the females with eggs are the most appreciated.

Steward (1963: 887) mentioned that the Guiana tribes use pepper juice and ants in a hunting ritual.

Vespidae (wasps, hornets)

Waterton (1825; vide Cutright 1943: 314) recounts that the young grubs of wasps are roasted in the comb and eaten (wasps were called *maribuntas*). **Brown (1876: 156)** mentions observing a party of Wapisiana Indians "busily engaged in picking out and eating the larvae of a wasp, from the comb of a nest of that insect, which they had knocked from the overhanging of a tree. The children especially seemed to enjoy the little white grub-like larvae. . ." **Bodenheimer (1951: 308-309)** cites J. Crevaux (1877) that the larva of a certain wasp is greatly appreciated everywhere in Guyana, where the Roucouyen Indians call it *ocomo*.

Isoptera

Termitidae (termites)

Termes destructor (Fabr.), winged adult

At Pirara on Lake Amacu, **Schomburgk (1848, II: 111-112)** reported:

At first they were only spotted occasionally, but as the rainy season drew near, *Termes destructor* (woodlouse of the Colonists) began to appear in larger numbers, increasing daily. Once they drop to the ground, they fall prey to lizards (*Ecpymotes torquatis*), to two other species of ants, several types of birds and to the Indians. Once the winged insects leave their hills in the savanna, all of the inhabitants of the village go to the edge of the wooded oasis and light large fires. The ants begin circling the fires until their wings are singed and the crowds can collect them into bowls and small baskets.

Family unknown

Brown (1876: 127) described how soldier termites (of a large species which build low mounds) were caught: "They captured these insects by inserting a dry grass stalk into their nests, to which the termites adhered by their mandibles, and were drawn out in hundreds." They were afterwards roasted and eaten "with evident relish."

Lepidoptera

Sphingidae (hawk-moths)

Verrill (1937: 186), on one occasion in the jungle, observed "the Indians gathering quantities of big, brown sphinx moth caterpillars which they roasted in the coals of their fire and devoured with great gusto." Curious as to their taste, Verrill had some caterpillars dropped into boiling grease: "They puffed up and browned and looked much like fritters and were delicious, tasting precisely like soft-shelled crabs."

PARAGUAY

The Guayaki were one of the "honey civilizations" described by Bodenheimer (1951: 327-330). According to Vellard (1939: 84-85), the pindo palm (*Cocos romanzoffiana*) with its passalid beetle larva is second only to honey in food importance to the Guayaki. Baldus (1943: 147; vide Clastres 1972: 153), in a short resume of Guayaki culture, asserts: "The fruit and vegetable matter from *Cocos romanzoffiana* in addition to honey or larvae constitute, rather than hunting, the subsistence base of the Guayaki."

Clastres (1972: 138-139, 152-157, 160-161) claims, contrary to previous investigators, that the Guayaki are primarily hunters of game rather than gatherers, but states nevertheless (p. 138) that: "The cyclic wandering of each band within its own territory follows a pattern organized around the harvest and preparation of *guchu* larvae beds, a sort of semi-cultivation activity." He notes (p. 139) that the winter months, June and July being the coldest, are characterized "by a serious shortage of food resources, such as larvae, honey, and small animals." Clastres states (p. 152):

As for the huge larvae of certain large insects, they are not only eaten raw but also alive. The meat is torn with the bare hands, and the juice which flows down the fingers is sucked with pleasure. The delicious marrow of the pindo palm is generally eaten as soon as it is obtained, but the women also know how to make a kind of thick soup out of it (*bruee*), to be eaten with the larvae."

Hill et al (1984), studied seasonal variance in the diet of Ache hunter-gatherers in eastern Paraguay. Meat was the most important resource, providing the greatest number of calories daily, but fluctuations in honey consumption contributed most to differences in total calories consumed daily during different seasons of the year. Larvae were among other major collected resources. Calories per kg (fresh weight) of exploited resources are reported, including the following data on insects.

Honey (from <i>Apis mellifera</i>) (<i>mynga</i>)	2673
Bee and wasp larvae (<i>mynga tay, kwee</i>)	2540
Honey + larvae, mixed	2607
<i>Rhynchophorus palmarum</i> larvae (<i>buchu, pichu</i>)	3071-3232
Palm larvae	3152
Wood larvae (<i>chaka acho, chipo acho</i>)	1822
Bamboo larvae (<i>kra'acho</i>)	3045
<i>Macrodonia cervicornis</i> (bottle tree larvae) (<i>cha'acho</i>)	1532
Kwanto beetle adults (<i>brocho</i>)	2540

In a study of men's time allocation to subsistence work among the Ache, Hill et al (1985) found that insects provided a small but consistent part of the diet.

Hurtado et al (1985) included "larvae pursuit" and "honey pursuit" in their quantitative study of female foraging in the northern group of Ache of eastern Paraguay. The former involved chopping and extracting larvae from rotten logs, and the insects mentioned by Hurtado et al include only Coleoptera. Larvae pursuit ranked only behind vegetable pursuit as a percentage of daily time spent in foraging activity, and larvae ranked only behind palm starch, palm heart, and oranges in frequency of acquisition.

It is found that Ache women's contribution to the diet is considerably less than that of the men, who do nearly all of the game hunting. The women's contribution of calories per day, on the average (based on calorie values given above by Hill et al 1984), was only 13% of the total calories produced by the foraging group studied. The foraging resource most frequently exploited by women is palm starch which is the vegetable resource with the lowest caloric value (297 cal/kg is stated by the authors, but given as 336 cal/kg in their Table 6). Honey, on the other hand, with the highest caloric value (3232 cal/kg is stated by the authors, but given as 2673 cal/kg in their Table 6) is seldom acquired by women. The authors report that the most frequently

encountered honey is that of *Apis mellifera*, which are stinging bees with hives that are high in the trees. This honey is harvested by men, while the women forage only for the honey of the stingless bees, which is found in lower tree trunks.

From the foregoing, it is obvious that the indigenous peoples of Paraguay use a wide variety of beetle grubs as food. The identity of the species is confusing, however. Vellard states that the major grub associated with the pindo palm (*C. romanzoffiana*) is a passalid. No vernacular name is given. The grub discussed by Clastres is also associated with the pindo palm. The vernacular name is *guchu*, but Clastres gives no hint as to the family to which it belongs. Hill et al (1984) and Hurtado et al list *Calandra* (*Calandra* misspelled) *palmarum* and *Rhynchophorus palmarum* separately although the former generic name is a synonym of the latter, and give different caloric values (combined under *R. palmarum* in the text table above) and slightly different vernacular names for the two, *buchu* and *pichu* (which is not too different from *guchu*). I have rather arbitrarily, until more information is available, assigned Vellard's observations to the family Passalidae and Clastres's to the family Curculionidae, although they both probably refer to the same insect and both may refer to *Rhynchophorus palmarum*.

Coleoptera

Cerambycidae (long-horned beetles)

Macrodonia cervicornis Linn., larva

Hill et al (1984) list the larva of *M. cervicornis* (= *cerrocornis*) among the foods of the Ache (see text table above). The vernacular name of the larvae is *cha'acho*.

Curculionidae (weevils, snout beetles)

Rhynchophorus palmarum Linn., larva

Clastres (1972) states that, compared to honey, the Guayaki could be classified much more accurately as:

. . . a civilization of the pindo palm, because this tree is an essential source of raw materials and sustenance for the Indians . . . The Guayaki recognize numerous varieties of larvae, and they know at first glance how to spot a half-rotten trunk which is likely to have some in it. With a quick blow from the hatchet, the soft area in the wood hollowed out by the larvae is opened. The larvae have the appearance of being more or less long, fat, and whitish, and they are eaten as soon as they are found. By far the most important variety for the Guayaki is the one that produces the eggs of the very large coleoptera (*Mynda*). This insect lays its eggs in the trunk of the pindo palm, and the resulting larva (*guchu*) is enormous, sometimes growing to 4 inches in length. It is a sort of flabby sack filled with an oily, yellowish material extremely rich in fats. The Indians eat it with relish in large quantities, cooked or raw. Everyone, including the very young children, eat *guchu*. When it is to be fed to a baby still at the breasts, the larva is pushed into the child's mouth after the hard head is removed with the fingernails.

Clastres continues:

The interest in the *guchu* larvae is not limited solely to its food value. The Guayaki consider it more than a food gathered by chance in the forest; rather it is the product of a sort of cultivation. The Indians knock down the palm tree, leaving a stump about 3 feet high. They then generally cut the fallen trunk into sections 10 or 12 feet long, preparing the wood for the insects, who can then lay their eggs more easily both in the stump and in the round sections on the ground. The larvae then reproduce and grow while feeding on the fibers of the wood. Each man is the owner of his larvae bed, since he alone cut and sectioned a certain number of palm trees. This private property is almost always respected and no one touches the larvae of another. Later, the harvest is divided and eaten collectively. Thus the Guayaki distribute a relatively abundant supply of food, which they can easily gather when returning to the larvae plantation after the beds are judged 'ripe'. It seems that the Indians eat larvae year round, but they actually do the harvesting in the summer, between October and March. The felling and preparation of the palm tree occurs preferably at the end of the summer and during the winter, in view of the summer harvest which the women gather after the men have split open the trunks and the sections of the trees. It is of great interest to see that the Guayaki, despite their being nomads, establish a fixed source of food to be gathered much later. In doing so, they are obliged to return to the cultivation area after

many months of traveling, which can easily take them far from the site. This cultivation of *guchu* therefore exerts a profound influence upon the wandering habits of the Guayaki in that it gives an order to their travels.

Homer (1992) related the following:

Juancito squatted over the split palm trunk, eyeing the fat white palm grubs that wiggled in the rotten wood's red fibers. He grabbed one between thumb and forefinger and popped it in his mouth like a canape. Slashing open more of the trunk with his axe revealed dozens of the wiggling larvae, which he proceeded to gobble up. 'It's been a long time since I've eaten *buju* [the palm grub] -- my body was craving it,' said Juancito, a Paraguayan Ache (pronounced 'ahchay') Indian. 'There are not many old palm trees near our village.'

Homer continues:

Insect larvae were once among the staple foods of the Ache, who roamed the forests of eastern Paraguay. But since these people were forced from their native lands in the seventies, palm grubs have become a prized delicacy. The Ache now live in a number of small villages on cleared land, where they struggle to make the difficult transition from hunting-and-gathering to small cash-crop agriculture.

Homer reports that in an effort to help the Ache preserve their traditions, and to protect one of the last remaining strands of untouched forest wilderness in the country, the Nature Conservancy and its Paraguayan partner, the Moises Bertoni Foundation, have helped establish the new Mbaracayu nature reserve in eastern Paraguay.

Hill et al (1984) reported caloric values of *R. palmarum* larvae (see text table above), which are known as *buchu* or *pichu* by the Ache people.

Passalidae (bess beetles)

Vellard (1939: 84-85) described the importance of the pindo palm (*Cocos romanzoffiana*) and pindo flour to the Guayaki Indians and also their use of a passalid beetle larva (translation):

The pindo palm offers yet another alimentary resource for the Guayakis. The fallen, rotting trunks are home to large, white, soft larvae of the Coleoptera, Passalidae, 10 or 12 cm long and the thickness of a finger. The forestial Indians seem very fond of these larvae or of others analogous to them which live in different wood. Each time that my Mbwiha guides had the chance, they gathered them and, in the evening at camp, grilled them pierced on skewers over the fire. They curled up upon being scorched and a very fluid fat leaked out; browned just right, they emit a not too disagreeable odor. They melt in one's mouth like fat balls and their taste is similar to that of brains; with a little bit of salt, a condiment unknown to the Indians of these parts, they make an acceptable dish.

The Guayakis are less refined: they take them delicately by the head and consume them live. They were a joy to a little Guayaki that I called Louis and who accompanied me often in my hunt for insects. Towards the end of my trip, as soon as my big pickaxe began to smash open an old stump where a world of insects and spiders of all kinds was nestled, his agile fingers would sort the debris and he would gobble up with the most evident satisfaction those beautiful fat larvae, very surprised no doubt -- but Indians rarely show their surprise -- to see me turn up my nose at such a delicacy.

"The curiosity of a naturalist should know no bounds. Mine, alas, is limited; the proof is clear: it stops at roasted larvae. I have frequently tested them browned just right with my Mbwihas, in the evening in our camps in the forest, but I admit with shame that I have never had the physical courage to gulp them down still wriggling as the Guayakis do.

Miscellaneous Coleoptera

Hill et al (1984) reported wood larvae (known as *chaca acho*), bamboo larvae (*kra'acho*) and the kwanto beetle (*brocho*) among the coleopteran foods of the Ache (see the text table above for the caloric values of these

insects).

Hymenoptera

Apidae (honey bees, bumblebees)

Irvine (1957: 125) mentions that the Chaco Indians eat "bee brood." **Clastres (1972)** notes that the Guayaki are very fond of honey and distinguish 13 different types of bees. Although they eat a great amount of honey, the quantity is less than the amount of meat eaten and they should not be described as a honey culture. Neither Clastres, Bodenheimer, nor Vellard make any mention of bee larvae or pupae being used as food, but see Hill et al (1984) in the Introduction.

Formicidae (ants)

Ant nests are mentioned by **Clastres** as among the animals most often "killed" by the Guayaki.

Vespidae (wasps, hornets)

The Guayaki know eight different types of wasps "which do not make honey or make so little that the Indians are satisfied simply to eat handfuls of the young larvae (*tay*) of these insects, of which they are very fond" (**Clastres 1972**). Three types of wasps are tabooed as food. See also Hill et al (1984) in the Introduction.

PERU

Denevan (1971) reported the use of several kinds of insects as food by the Campa, an Arawakan-speaking tribe who live in the eastern foothills of the central Andes. According to Denevan, the degree of acculturation is considerable along the rivers and in the west but is relatively slight in many parts of the uplands. The Campa are often characterized as hunters, but most of their food comes from cultivated plants. Since large game is not plentiful, reliance is mainly on small game which includes, among other things, ants, beetles, larvae and other insects. "Children especially spend a lot of time scavaging for insects, and this may reflect their relatively greater need for protein" (p. 511). Denevan found protein intake for adult males to be variable over time and on the minimal side for dietary needs, depending on the game supply. For other family members, for whom fewer data were gathered, he states (p. 514) that, "children and mothers seemed to have a more varied diet and obtained relatively more protein than the adult males. Children clearly consume more insects, frogs, and the like than adults do."

Coleoptera

Curculionidae (weevils, snout beetles)

Paul G. da Silva, a Peace Corps volunteer in Ecuador in the early 1980's, later observed (pers. comm. 1987) in the upper Peruvian Amazon region, "and almost ate what I think were large, oily caterpillars [probably *Rhynchophorus*]. I think someone told me that they lived on a local palm. At any rate, they were sold on small plates in the market in Iquitos."

See also Métraux (1963, as food of the Cocama and Omagua) and Steward and Métraux (1963, as food of several tribes in northeastern Peru).

Elmidae (riffle beetles)

Austrelmis (= *Elmis*) *condimentarius* Philippi, adult

Austrelmis (= *Elmis*) *chilensis* Germain (?), adult

Brown (1987: 264) quotes as follows from **Philippi's (1864)** paper describing *Austrelmis* (= *Elmis*) *condimentarius* as a new species:

A short time ago I received from Dr. Barranca in Lima some insects in a paper package, and in a bit of paper a clump of small beetles with the following note: 'Insects that people form into lumps of paste known here under the term chiche; they serve as seasoning for food which they call chupe de chiche [a soup]. They are found in the quiet waters of brooks and streams of the

mountains, and their commercial value is not inconsiderable.'

The generic name of the group of riffle beetles to which this species belongs has transitioned from *Elmis* to *Cylloepus* to *Macrelmis* to, finally, *Austrelmis* (**Brown 1984**). Presumably, this "national soup," as **Bodenheimer (1951: 398)** called it, is still part of Peruvian cuisine, although the writer has not seen recent published references to it.

Ephemeroptera

Gillies (1996) critiques a recent translation of a portion of the 17th century Jesuit Bernabé Cobo whose *Historia del Nuevo Mundo* was republished with notes in 1890-1893; Gillies furnishes the following re-translation (in part):

The chichu or chi-che is a little animal . . . It is small, long, dark coloured and with many feet like those of the prawn (or shrimp), it breeds in rivers between stones and rocks, the Indians eat them just as they are taken from the river and I have seen them sold fresh in Indian villages, and by keeping them alive in a seething heap, in this way the Indians eat them by the handful with as much pleasure as if they were comfits. They also keep them for sauce, preparing them as follows: after toasting and grinding them they shape them into little cakes (as is done with caterpillars) which keep for a long time and from which with plenty of chili added they make a sauce, very delicious and appetising for the Indians, and not badly received by the Spaniards, especially those born in this land whom we call Creoles. This sauce is eaten with fish or anything else and is used both on ordinary days and in lent Footnote: the chichu is the worm or larva of a species of Ephemera. . . . its maximal development in both number and volume coincides with Lent in some places in Peru . . .

According to Gillies, the most likely mayfly to fit the above description is *Euthyplocia* or possibly *Campylocia*.

Hymenoptera

Formicidae (ants)

See Denevan (1971) in the Introduction above, and Métraux (1963, as food of the Cocama and Omagua) under References Cited.

Lepidoptera

Miscellaneous Lepidoptera

Bodenheimer (1951: 307) cited Daguin (1900) who reported that in the Peruvian Andes, a caterpillar called *sustillo*, which resembles the silkworm, is collected in large quantities from *Mimosa nigra* as a most delicate dish.

SURINAME

Coleoptera

Curculionidae (weevils, snout beetles)

Rhynchophorus palmarum Linn., larva

Stedman (1796: 22-23) provides the following account:

Another negro also brought me a regale of *groe-groe*, or cabbage-tree worms, as they are called in Surinam. This reptile is produced in a tree called the *mountain-cabbage-tree*, which is one of the palm species. The worm grows to the size and thickness of a man's thumb, is produced from the spawn of a black beetle, and is extremely fat. However disgusting to appearance, these worms are a delicious treat to many people, and they are regularly sold at Paramaribo. The manner of dressing them, is by frying them in a pan with a very little butter and salt, or spitting them on a wooden skewer.

Stedman says (p. 115): "We here found concealed near the trunk of an old tree a case-bottle filled with excellent butter, which the rangers told me they made by melting and clarifying the fat of the palm-tree worms: this fully answers all the purposes of European butter, and I found it in fact even more delicious to my taste."

According to **Ghesquière (1947)**, "Merian had already reported in 1705 that the larvae of *Rhynchophorus palmarum*, or 'Gru-gru,' were appreciated by the Indians of Surinam." **Bodenheimer (1951: 308)** attributes this information to **Merian (1771)**, whose account (vide Bodenheimer) follows:

A whitish worm creeps in the centre over a green leaf, the palmworm, which feeds on this tree The natives say that it grows for fifty years, before becoming fully-grown. Then they cut it from the base of the leaves; they also cut open the stem of the tree at the height of a man, where it begins to grow soft. They cook it as we cook cauliflour. The taste is more agreeable than artichokes. Certain worms burrow in the trunk of this tree, feeding on its marrow They are fried and certain people find them very delicate. A black weevil hatches from these palmworms . . . this the Indians call the mother of the palmworm, which is the *grou-grou* of the West Indians.

Passalidae (bess beetles)

Passalus interruptus Linn., larva

Bodenheimer (1951: 308) cites Brygoo (1946) who mentions that the larvae of *P. interruptus* are collected as food in Suriname.

Hymenoptera

Formicidae (ants)

Steward (1963: 887) mentioned that the Guiana tribes use pepper juice and ants in hunting ritual.

VENEZUELA

Cowan (1865: 98-99) cites an earlier report that the inhabitants of Cumana (a city in Venezuela) ate grasshoppers, spiders and bees among other things.

Smole (1976: 163-168), working mainly in Venezuela, to a lesser extent in Brazil, states that entomophagy is a well-developed Yanoama culture trait, and, from a nutritional point of view, the insect foods are an important segment of the diet. Citing mainly other sources, he mentions palmworms, caterpillars, termites, ants, and wasp larvae. These and several other insects are mentioned by a number of other authors.

Coleoptera

Bruchidae (?) (seed beetles)

Wilbert (1960: 108-109) mentions several insects included in the diet of the Pariri tribe of the Yukpa Indians, among them being beetle larvae of 1.5 cm length and 0.5 cm diameter which are found in the nuts of the "Coruba-Palm" (translation): "The nuts are shattered by the women and the larvae are carried home, where they are skewered and lightly roasted over a fire. The beetles themselves are prepared and eaten in the same manner" (see Ruddle (1973) under Colombia).

Curculionidae (weevils, snout beetles)

The Guaraunos of the Orinoco (**Southey 1810, I: 109-110**) find a large white grub [probably *Rhynchophorus palmarum* or a related species], about the size of a man's little finger, which breeds between the joints of a species of cane, and is fat enough to be fried in its own grease. "The Indians eat them, and the Spaniards being now forced to make the proof, admitted that they were savoury." [Venezuela or Brazil?]

André (1904: 131-133) was surprised to learn that the people at La Prision (on the Caura) were ignorant of foods supplied by the palm family, i.e., the heart of the upper part or crown and the grub (*Rhynchophorus palmarum*) generally considered elsewhere as "one of the daintiest of delicacies." **Spruce (1908, I, p. 483)** mentioned palm grubs as follows:

Indians of the Rio Negro, Uaupés, Casiquiari, Orinoco (and perhaps of the Amazon) eat the large grubs bred on various growing palm stems. . . They are said to be of the size of the forefinger, and the mode of eating them is this. By a sudden twist of the head, it is pulled away along with the intestinal canal, and the animal is then roasted on the budari or mandiocca oven.

Helena Valero (see **Biocca 1970**: 106) mentions: "The men were beating hard on the trunks of *pupugna* trees to find *mushiba*, those fat larvae which live under the bark of *pupugnas* and *bacabas* [a palm], and which are good to eat."

Hymenoptera

Apidae (honey bees, bumblebees)

Smole (1976: 167) states that honey is a favorite Yanoama food. It is called *buu* by the Barafiri, and a wide variety is collected, mostly from bees but also from wasps. Smole states:

Apart from the nutritive value of honey itself, the Yanoama manner of eating it is also important nutritionally. Their custom is to consume honey together with the wax combs, the adult bees, eggs, maggots, pupae, and pollen that might be in the hive. The mixture is often a runny paste, studded with bees in varying stages of the metamorphic process. Except for the wax, these added ingredients are also nourishing. The maggots and pollen are particularly valuable sources of protein, and the pollen also has a high concentration of vitamins.

According to **Wilbert (1960**: 108-109), beehives are smoked by the Pariri and the combs, containing both honey and larvae, are chewed by the men and the women.

Formicidae (ants)

Atta spp., winged adults

Spruce (1908, I, p. 484) stated:

I have many times seen Indians eat the saúba ant (called bacháco in Venezuela). The large kinds only are eaten, and at those times when the bachácos pour from their holes in great numbers (probably sending forth colonies after the manner of bees), if it be near any pueblo at all the unoccupied Indians in the place turn out to collect them. The head and thorax is the part eaten, the abdomen being nipped off (at San Carlos I constantly see them eaten entire), and it is eaten uncooked. The taste to me is strong, fiery, and disagreeable, but those who have eaten the bachaco fried in turtle oil tell me it is quite palatable.

Bachaco culón, according to **Anduze (1960**: 198; vide Smole 1976: 166, 248), is a popular Venezuelan term for certain species of *Atta* ants which are particularly attractive as food. In the opinion of Helena Valero (**Biocca 1970**: 100), the *sauba* (*Atta*) ants are particularly good to eat.

Steward (1963: 887) mentioned that the Guiana tribes use pepper juice and ants in hunting ritual. According to **Steinworth-Goetz (1969**: 164; vide Smole 1976: 166), the "white larvae of ants" are reported to be "an integral part of the Waika [a Yanoama group] diet." The reference to larvae here suggests that these are not *Atta* ants.

Vespidae (wasps, hornets)

Wasp larvae are collected and eaten similarly to bee larvae by the Pariri (**Wilbert 1960**: 108-109). See also Smole (1976) under Apidae above.

Isoptera

Helena Valero (**Biocca 1970**: 100) describes in detail how termites are collected and prepared. **Steinworth-Goetz (1969**: 164; vide Smole 1976: 166) states, concerning the Waika, that termite larvae [?] are a favorite snack and easy to prepare.

Lepidoptera

Noctuidae (noctuids)

Anduze (1960: 198, 213; vide Smole 1976: 166) identifies the *kasha* as caterpillars belonging to the family Noctuidae. According to **Smole** (p. 166), one of the favorite insect foods of the Barafiri (a Yanoama group) consists of lepidopterous pupae they call *kasha*. He describes its collection and preparation as follows:

The edible portion of each *kasha* is the oily material, of a pasty consistency, contained within a large cocoon up to an inch in length. The individual cocoons are attached to one another in what approximate parallel rows, forming sheets covering up to several square feet, but only one cocoon thick. Over the entire mass is a thin, paperlike layer. These sheets of *kasha* are to be found attached to tree trunks and need only be peeled off by the fortunate person who discovers them. Pieces of the sheet are roasted over hot embers before breaking open the cocoons to eat the contents.

Miscellaneous Lepidoptera

Spruce (1908, I: 483) states that:

There is another grub or caterpillar found on Marima trees which they are very fond of. When this insect is in season, it constitutes a principal part of the food of the Maquiritari Indians, and Don Diego Pina related to me that, traveling once on Alto Orinoco with a crew of those Indians, he was near perishing of hunger, for they would neither fish nor seek after any sort of food but these caterpillars, and wherever they stopped by the way they climbed into the Marima trees in search of them.

Helena Valero (**Biocca 1970: 45**) describes how certain "butterfly grubs" or "caterpillars" called *mana* are collected, packaged, and cooked.

For western Venezuela, the reader should consult Ruddle (1973) and others under Colombia, and for southern Venezuela, Chagnon (1968)(the Yanomama) and others under Brazil.

GENERAL AND GEOGRAPHICALLY NON-SPECIFIC

Gilmore (1950, pp. 416-422) includes insects in a broad discussion of neotropical ethnozoology. Large beetle larvae are used as food, especially those of the rhino-beetle, which infests palms, and those of the large wood-boring longicorn beetles (no indication is given, however, as to insect species, identity of tribes that use them or specific geographic location). A variety of hymenopterous larvae are used as food. These include the larvae of some species of wasps, and probably also of bees, although the latter is not specifically stated. Both stingless and stinging species of native bees as well as *Apis mellifera* which is feral in many places are exploited for their honey, which is "highly desired" as food. Gilmore cites A. Metraux (1942) that the Paressi of eastern Bolivia keep the stingless bee, *Trigona jati*, in calabashes for their honey, and cites Ignacio de Armas (1888) that this practice has existed in Venezuela and Colombia. Leafcutter ants of the worker caste are "eaten occasionally." Relative to termites, Gilmore says: "Individuals of the worker caste are small, and soft, and are eaten roasted. They are caught by breaking the nest, or by inserting a straw to which many immediately cling . . . The winged drones and females are captured around lights, where they swarm on nuptial flight . . ."

Gilmore states that some of the large lepidopterous larvae are used as food, ". . . though the skin is leathery; some other larvae have toxic stinging hairs and are avoided." Grasshoppers and locusts "are utilized as food where obtainable in numbers and when necessary." Gilmore cites R. von Ihering (1934) that the migratory locusts, *Schistocerca paranensis* and *S. cancellata*, known as *gafanhota de praga*, invade Guiana-Brazilia from the southwest from time to time and cause extensive agricultural damage; these are probably among the species that have been eaten.

Posey (1978) gives a brief ethnoentomological summary of several previous reports on Amerind groups in lowland Latin America.

Coleoptera

Cerambycidae (long-horned beetles)

Larvae of the large wood-boring longicorn beetles are eaten (see Gilmore 1950 above).

Scarabaeidae (scarab beetles)

Gilmore's mention of "the rhino-beetle" infesting palms (Introduction above) is the only indication known to this author of the use of palm rhinoceros beetles or their larvae as food in the Western Hemisphere.

Family uncertain

Lamia tribulis Fabr., larva

Bodenheimer (1951: 308) cites E. Brygoo (1946) that the grubs of *L. tribulis* are roasted over burning coals in South America. According to Bodenheimer (p. 307), beetle grubs, except those of the palmworms, are less commonly eaten than caterpillars in South America.

Hymenoptera

Apidae (honey bees, bumblebees)

Bodenheimer (pp. 312-330) summarizes at length the extensive information on honey-hunting and bee-keeping in South America, Central America and Mexico.

Formicidae (ants)

Atta cephalotes Linn., winged adult

Atta sexdens (Linn.), winged adult

Myrmecocystus spp., honeypots

Bodenheimer (p. 306) notes that there are many early references to the "esteem" in which the large sexuals of the leaf-cutting ants, *Atta sexdens* and *A. cephalotes*, and the honeypot ants, genus *Myrmecocystus*, are held by many of the South American Indians.

Vespidae (wasps, hornets)

Wasp larvae (see Gilmore 1950 above).

Isoptera

De Wavrin (1937: 123; vide Bodenheimer 1951: 304) mentions the eating of termites. Also see Gilmore (1950) above.

Lepidoptera and Orthoptera

See Gilmore (1950) above.

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Items Needing Attention

- p. 16 Southey (1810), Curculionidae, in Brazil or Venezuela?
- p. 19 What family does *Lamia tribulis* belong to?
- p.20 Baldus (1943), title of paper?
- p. 21 Gillin, J. (1936), paper temporarily misplaced
- p. 21 Guise, date?
- p. 22 Merian, awaiting re-translation
- p. 22 Netolitzky (1920), awaiting re-translation
- p. 22 Philippi (1864), awaiting re-translation