## V. Agriculture and Domestically Useful Plants

In this chapter we review cultivation within the National Park, as well as the gathering of domestically useful plant products and woods. Medicinal plants are discussed in a separate section. We proceed by Park Unit, noting details pertinent to particular villages where appropriate, and concluding with a summary of Park-wide cultivation and gathering patterns. The following discussion is based on structured interviews. It should be read in conjunction with the analysis of the freelist data, presented below.

### Tutuila Unit.

In ancient times, we were told, the village of Pago Pago was located in the uplands for reasons of defense. By the time of Western contact, most of the families had moved down to the Bay area but continued to plant on the mountainsides above. Middle-aged informants from Pago Pago recalled that in their parents' and grandparents' time there were large taro plantations in the uplands that now lie within the National Park, and every cultivated area had a name. For centuries the typical method of clearing has been "slash-and-burn," though some farmers use chain saws today. Many families have claims in the National Park, and they view these claims as important even if they are not presently cultivating the land. We were told that, nowadays, only a few Pago Pago families cultivate land within the Park. Since we did not interview representatives of all the families owning land within the Park, however, we cannot give a precise figure. A Fagasa informant cited emigration from American Samoa as one reason why many of the upland gardens are not presently cultivated; with so many young people away, families lack the labor force to work the land. The prevalence of destructive wild pigs was mentioned as another reason.

According to local residents, the uplands belonging to Afono, Pago Pago, Fagasa, and Vatia all have the same plant varieties and soil type. Samoans assert that, at present, Pago Pago is the most dependent on Western foods and has the least subsistence use of land of any village in Samoa. The Pago Pago portion of the Park was described as the least disturbed of the three Tutuila village areas, because for many years it has been little used or traveled. It is important to note, however, that the Samoan food trees do not necessarily need regular care to remain productive. One informant likened the upland plots to "a supermarket," a food source always available in times of trouble. Even plantations that are visited infrequently can yield food when needed. One Fagasa informant told us that he intended to go up to his plantation in the near future to collect breadfruit,

even though he had not been there since 1992. Families who are not actively cultivating still return to the uplands periodically to gather bananas and coconuts.

Older Samoans are very familiar with the trails that lead up into the National Park areas. Taro was the dominant cultivated crop before "the disease." Bananas are now the most common crop in the Park areas, along with ta'amu, breadfruit, and coconuts (slide 2). Samoans recognize and cultivate several different varieties of bananas; specifically mentioned to us were soa'a, fa'i Samoa, sulasula, fa'i palagi, misiluki, and pata. In previous times it was common for the villagers to keep sleeping shelters or "shacks" in the uplands, and they would spend a few days at a time there, even cooking food in an umu. A respected chief told us that the entire village used to sleep in the upland plantations from Thursday to Saturday, and that this was their main food source. After a hurricane, the village council would order the young men to clear an area and plant taro, the fastest crop to mature. Such planted areas would be used for ten to fifteen years before being abandoned. In previous times some of the taro was sold at the market in Fagatogo, but most was used by the family or given to other villagers. Current practice continues this pattern. A very small proportion of foods grown in the uplands enters the market; most is for home consumption.

At least two Pago Pago families currently maintain and actively use structures in the Park. One structure is very comfortable, with a modern bathroom, septic tank, and catchment tank. The owner built it after Hurricane Ofa and goes up to the Park areas every day after work. He has planted citrus trees there, and he conveyed to us his desire to introduce three head of cattle into his plantation area, because of the good grass and plentiful water. Another informant, from Vatia, built a cabin with a flush toilet near his upland "nursery" before the area became Park land. He has occasionally rented out the cabin to visitors, but notes that there is little tourism in American Samoa.

Several varieties of useful trees grow in the National Park forest lands. Ifilele (*Inisia* sp.) or ironwood is common, especially near the coast and from Vatia to Fagasa. The ifilele and poumuli were used for building houses (fale). Woods mentioned as useful for canoes (paopao) include breadfruit ('ulu), ma'anunu, mamalu, moso'oi, and vaevae. Fau, moso'oi, and 'ulu are used for cricket bats. Previously used for shields and spears, ifilele is still prized for kava bowls and craft items. We were told that about twenty years ago a party from another village on the Bay went into the uplands belonging to Pago Pago to cut trees for touristic carvings. For three days they felled trees and threw the logs down into the water, but when they came down they could not find the wood. Some believe that the ancient

villagers of Pago Pago carried away the logs cut by the trespassers.

Other trees found in the National Park are ma'ali and tamanu, both used for canoes; laga'ali, used for house rafters; fau, used for cordage and for bonito boat planking; atone, the Samoan nutmeg; tufaso; tavai; toi, which was used for firewood; and lopa, the seeds of which are used for garlands (ula) and snacks. Fragrant plants for garlands, such as the laumaile, laga'ali, and moso'oi, are still gathered in the National Park, primarily by women. Importantly, pigeons (lupe) and other native birds feed on the moso'oi, atone, and tavai. Flowers and ferns such as laugasese are also collected from the Park areas for decorating houses on special occasions. Some families also gather firewood in the bush; ala'a, asi, faso, fu'afu'a, fau, futu, ifi, ifilele, mama'alava, moso'oi, tavai, and toi were mentioned as sources of firewood for the umu. Banana leaves for the umu are also gathered in National Park areas, as is bamboo for fishing rods.

We received inconsistent reports on the occurrence of fala plants within the National Park. Though the pandanus tree grows to a considerable height, Samoan women usually gather the lau fala for mat making while the plants are relatively young and low to the ground. For convenience, they also prefer to grow and utilize fala plants near their homes. In prior times, when the local population was larger and more dependent on handmade mats and cloth, it is likely that there was much more fala grown in the uplands than presently. Lau paogo, a broad, coarser type of fala used for floor mats, also grew in the Park, as did the siapo (bark cloth) plant (u'a). We were told that few Tutuila women are involved in making mats and siapo any longer.

Our information on herbicide use is based only on verbal reports, and the reports are somewhat contradictory. To determine the actual frequency, periodicity, and type of herbicide use in Park lands would require an extended period of residence and on-site observation. Since the cultivated areas are remote and reachable only on foot, and since the use of chemicals is known to be either prohibited or discouraged, accurate data are going to be difficult to ascertain. Vatia has had a sa (prohibition) on pesticide use for the past four to five years. However, one informant asserted that the use of "poisons" is common in bush plantations, even above watersheds and catchment areas. Most farmers told us that a bush knife and hand weeding were their primary means of tending their gardens.

The most serious animal pest in the upland plantations is the wild pig. Rats eat the ta'amu, bats eat mangoes and bananas, and manuali'i eat bananas. Pigs and manuali'i may be shot when discovered. The most dangerous insects are the greens worms

anufe and saga. Both ruin taro by eating the leaves, stalks, and roots. In previous times Samoans controlled the worms by bringing chickens, who relish these insects, to the plantation. Other control methods were to cover the soil between the taro plants with banana leaves, or to build a small smoky fire. A small white fruit fly, the "piercing moth," attacks tomatoes. A new banana pest has appeared recently, a worm that eats the corm of the root. Though a chemical treatment can be obtained in Western Samoa, we were told that the Territory's agricultural office has nothing available locally to combat this pest.

**Ta'u Unit.**

Fitiuta villagers make much more use of Park lands than Faleasao residents. In fact, we could not document any cultivation of Park lands by Faleasao villagers. There is arable, accessible land south of Fitiuta village and that area is still heavily used for plantations (slide 3), while the Park near Faleasao is for the most part wild, remote, and difficult to reach. Some Fitiuta residents formerly tended plantations in Luatele (Judd's Crater; see Map 2) and had small fale there. Inside the crater they grew taro, several varieties of banana, ta'amu, sugar cane, breadfruit, and pineapple. We were told that there is a break in the Luatele crater wall that allows entry, but this is not true of the small crater, Lualaitiiti, which has never been used for plantations. The road to Luatele was destroyed by hurricane Tusi and it is now reachable only by foot; the hike takes approximately an hour and a half.

Informants could remember people living up on the mountainside above Saua and tending plantations at higher elevations at least until the late 1950s. No one now farms "on top of the mountain," we were told, because of wild pigs and "laziness." Until the taro disease, there were many plantations at Liu, but people have since moved their gardens to the roadside near Saua. New plantations are still being cleared between Luama'a and Si'u (see Map 2), although some informants are under the impression that they should stop farming in areas that are now part of the Park. As elsewhere in Samoa, taro was formerly the preferred crop but ta'amu is now frequently grown in its place.

Plantation land is cleared by slash-and-burn methods. When taro was the primary crop, a new area would be cleared for planting every six to seven months. The taro matures in about six months; at harvest time, the young shoots would be used to plant the new ma'umaga (taro plantation). In turn, when the second plantation matured the farmer might again plant in the first garden. Informants described clearing methods in some detail. First, trees and brush are cut down with axes and knives

and piled around the largest trees. The piles are then burned, killing the big trees. At least some farmers use a system of crop rotation and shifting cultivation: taro is planted for three to four years, then ta'amu, then bananas and coconut. The tree crops are planted last in the cycle, "when you find another good place for ta'amu and taro," because the trees create too much shade and thereafter the land cannot be used for taro gardens.

Another variant of the shifting cultivation technique was described as follows: the big trees are felled and then left to dry for six months, after which the land is cleared and taro planted. After the first taro harvest, "you can tell if the land is good." If it is, the farmer plants a polili (the second planting). After that, bananas and coconuts are planted. If a hurricane ruins the coconuts, the land can be cleared and taro planted again. Alternately, the old coconut trees can be cut down to return the land to taro.

Samoan subsistence gardens do not require daily care. Some Fitiuta villagers go to their plantations only twice a week to harvest; weeding may be done as infrequently as every other month. The cultivated banana varieties include fa'i Samoa, fa'i palagi, fa'i fuamaualuga, soa'a, and paka. Along with the cultivated bananas, coconut, taro, and ta'amu, papayas and ufi may be found growing semi-wild. Fala is grown in a few plantations. Several informants mentioned lautalotalo as a food crop, describing it as another kind of taro. Most Fitiuta villagers appear to depend heavily on Samoan subsistence production for their staple foods. It is customary for families to go to their plantations at least on Saturday, in order to harvest Samoan foods for the weekly to'ona'i. Most of the planters also regularly give part of their harvest to the Congregational minister, a long-established custom in Samoa.

No one knew where to find u'a (the bark cloth plant) growing. We were told that siapo is no longer made in Fitiuta. Many women make floor mats and sleeping mats, but only four or five still make fine mats (slide 4). Stands of fala plants may be seen behind several houses in the village. Fala is also planted alongside the road through Saua (alide 5). One informant recalled her grandmother's u'a plantation; although she and her mother were taught how to make siapo, they do not produce it any longer. The methods of processing and decoration described to us are virtually the same as documented in the general Samoan ethnography, and have much in common with Hawaiian methods of kapa cloth production. Shells were used to scrape the bark. Masoa was rubbed on pieces to join them together, and when the cloth was dry it was decorated with upeti, or with the paogo fruit used as a brush. Some older men in Fitiuta still make sennit twine from coconut fiber (slide 6).

An informant described the taloloa first fruits ceremony, which was last performed in Fitiuta in 1963 for the dedication of the previous Congregational church. A taloloa is a special communal planting done for special occasions such as a church dedication, and it is planned so that the taro will be mature by the day of the event. First, the young men of the village clear the land and divide it by straight lines to make fata. They make the ta (felling of the large trees) and then clear the smaller growth. A food offering called an umufono is left in the bush, "for the God of the bush." The first food must be eaten in the bush, not brought back to the village. At harvest time, the young men take one hundred taro corms from each fata and divide them among the village, the minister, and the guests. Each family provides other food for the event. We were told that the rationale behind the taloloa is to ensure that everyone works together, without competing, and contributes the same amount. When the current Congregational church was dedicated, families gave foods from their own plantations.

Most of the weeding and cleaning of Fitiuta plantations is done by hand. Before the lega (the taro blight), the Department of Agriculture formerly sprayed the taro gardens to kill the anufe worm, which fed on taro leaves. Without spraying, anufe were controlled by picking them off and burning them. We were told that people approved of the spraying, but Fitiuta banned the use of herbicides and pesticides before hurricane Tusi (1987). Mice will damage ta'amu, but farmers can control this pest if they promptly remove cuttings and plant rubbish from the gardens. Birds and coconut crabs are nuisances that attack bananas, but the Fitiuta planters we interviewed did not advocate artificial measures to control them. There is also a disease that stunts the bananas and causes the fruit to fall before it is mature. Wild pigs are not a problem in the lower plantations, but they are common further up the mountain.

**Ofu Unit.**

The arable land within the Ofu Unit of the National Park consists of a narrow sandy strand between the road and the beach. The strand is wider and better for cultivation nearer to the village. It narrows and becomes more sandy as one travels toward Fa'ala'aga. Not surprisingly, fishing and marine gathering overshadow agriculture as subsistence activities within this Unit of the Park. The soil quality and small size of the Ofu vegetation strand limit the extent to which food crops can be grown there. Taro, for example, could not be grown in this area. Nevertheless, the strand is heavily planted in coconut trees, fala plants (both lau fala and lau 'ie), and, closer to Ofu village, bananas (slide 7). This area is also an important source of wild-growing medicinal plants, discussed further below. Many Ofu families have active plantations at To'aga, but these

are on the mountain side of the road, outside the Park boundary.

Residents do collect woods for the *umu* from the National Park land: *milo*, which is also used for cricket bats, *fau*, *talie*, and *maota*, which is also used to make canoes. We found many *masoa* (arrowroot) plants growing semi-wild on Park land, though nowadays Samoans generally use store-bought starch products instead. There is apparently no *u'a* growing on Park land, and we did not find any women who make *siapo* any longer. Formerly *u'a* grew on the mountain side of the road at To'aga, and informants could remember processing the fiber and making *siapo* with their grandmothers. Ofu women do continue to make fine mats as well as sleeping and floor mats, and they grow *fala* for this purpose on the beach side of the road, within the Park.

**Summary.**

The National Park of American Samoa supports a characteristically Samoan set of food crops and domestically useful plants and woods. Throughout the Park, the methods of clearing and planting are based on simple technology and hand labor. On Tutuila, most of the Park consists of uplands that are no longer extensively used for plantations. Tutuila residents are also generally less reliant on subsistence production than their counterparts on Ta'u and Ofu. However, Tutuila residents continue to maintain some upland plantations as a "bank" and a storehouse to be tapped during emergencies or times of special need. Fitiuta village in the Ta'u Unit is heavily involved in subsistence agriculture on Park land, with many active plantations. Because of the narrowness and sandy soil of the Ofu Park land, the range of cultigens found there is more limited and subsistence cultivation is not extensive.