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**Technical Report 98
PERMANENT FOREST PLOT DATA FROM THE
NATIONAL PARK OF AMERICAN SAMOA
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INTRODUCTION

Samoa is a volcanic archipelago situated in the south Pacific Ocean at a latitude of 13--15° south and a longitude of 168--173° west, and runs in a west-northwest direction east of Fiji, north of Tonga, south of Tokelau, and west of Niue and the Cook Islands. It comprises nine inhabited volcanic islands and two distant atolls, and has a total area of ca. 3100 km². The archipelago is divided politically into Western Samoa, which is an independent country, and American Samoa, which is an unincorporated territory of the United States (Figure 1).

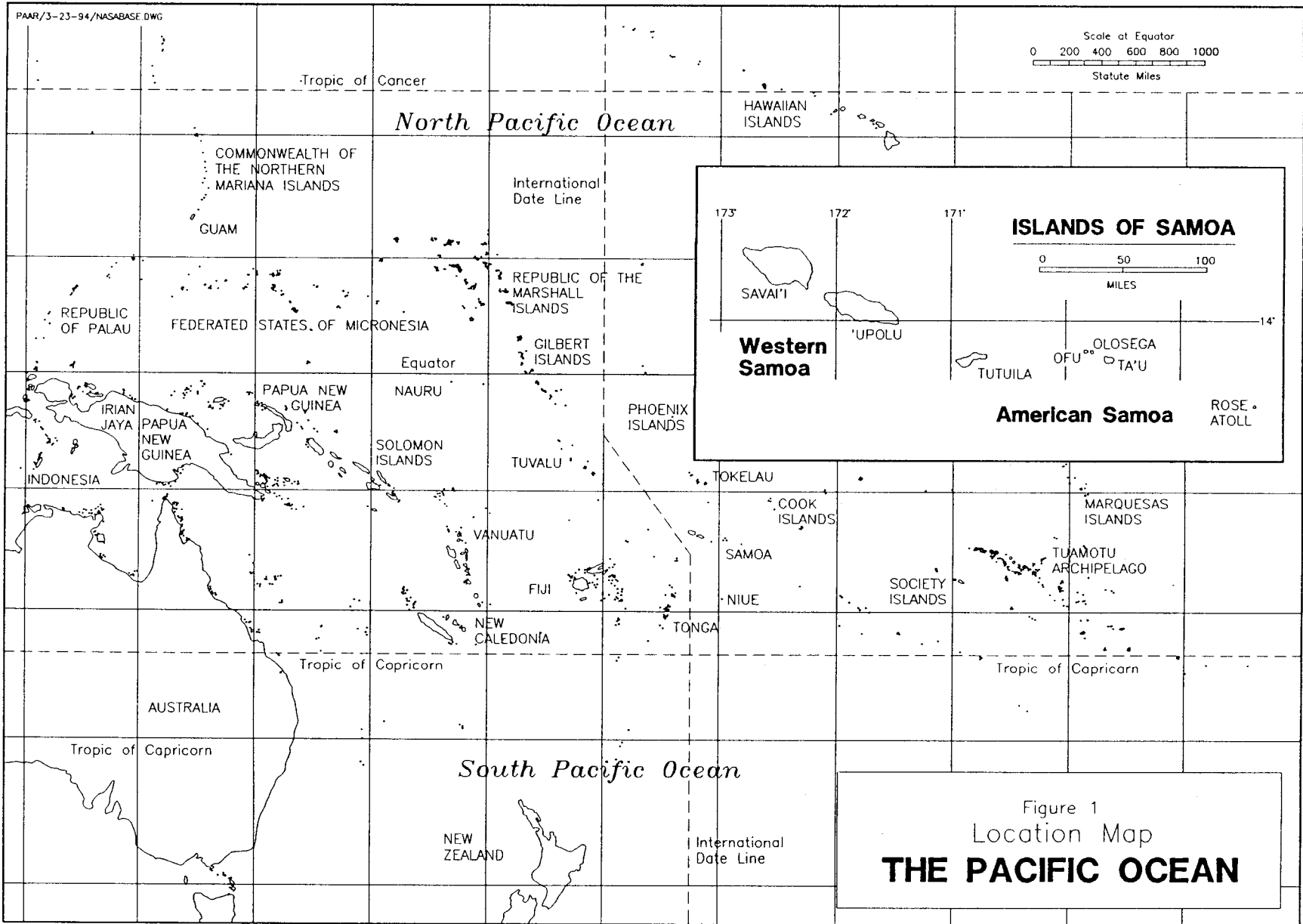
American Samoa, which comprises the east end of the archipelago, consists of five main volcanic islands (Tutuila, 'Aunu'u, Ofu, Olosega, and Ta'ū) and two atolls (Rose and Swains). Tutuila, the westernmost and by far the largest of the islands of American Samoa, has an area of approximately 142 km² and a maximum elevation of 653 m on top of Matafao (Amerson et al. 1982). Approximately 100 km to the east lies the group of islands known collectively as Manu'a, which comprises Ta'ū (39 km², 960 m elevation), 'Ofu (5 km², 459 m), and 'Olosega (4 km², 640 m).

The National Park of American Samoa (Figure 2) comprises units on three islands, Tutuila, Ta'ū, and Ofu. The Tutuila unit is located on the north central part of the island, between the villages of Fagasā on the west and Afono on the east. The Ta'ū unit is located on the eastern portion of the island from behind the village of Fiti'uta to the summit of the island. The much smaller Ofu unit is located on the eastern portion of the south side of the island--mostly along the beach and on the slopes behind it.

Prior to the present studies for the National Park, floristic work had been done on the islands by Setchell (1924), Christophersen (1935, 1938), Christensen (1943), Yuncker (1945). Vegetation studies had been carried out for all the islands by Whistler (1980, 1992a), and some mapping of the vegetation was done by Cole et al. (1988).

METHODOLOGY

The basis for this project began in December of 1990 with field work for a botanical inventory of the vegetation and flora of the proposed National Park unit on the island of Ta'ū, the culmination of which was subsequently published (Whistler 1992b). A second phase of the work began in 1992 with field work for a similar survey on the island of Tutuila, which was also published (Whistler 1994). However, these surveys did not establish any permanent plots that could be sampled at a later date to determine vegetational and successional changes and trends over time.



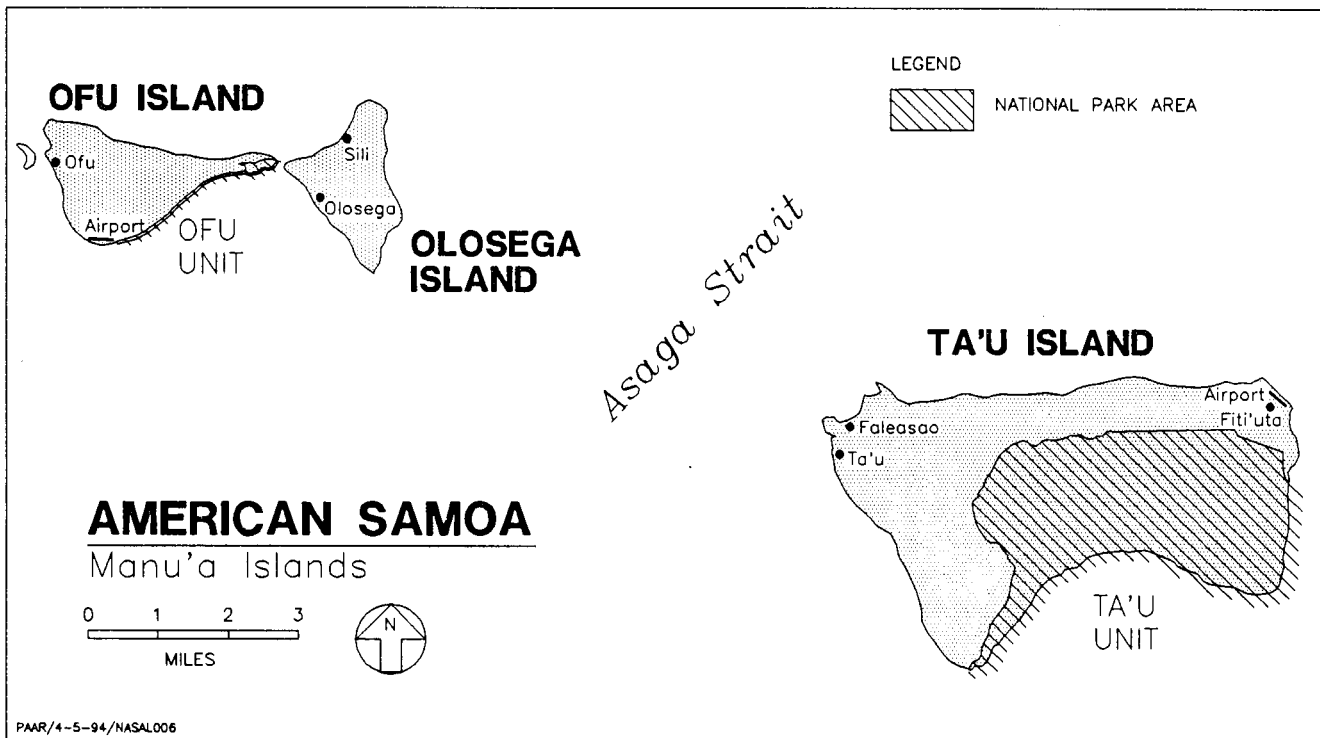
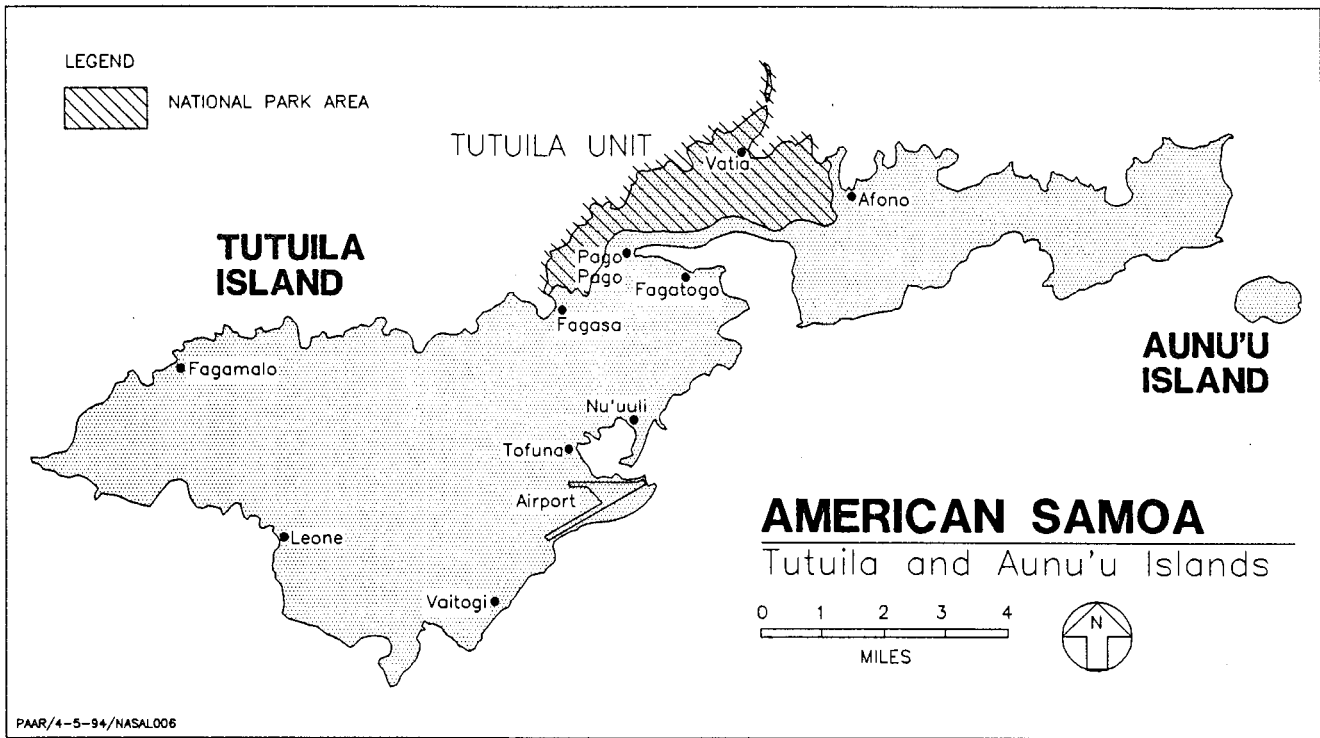


Figure 2. Major islands of American Samoa and park units of the National Park of American Samoa.

Consequently, in 1993 a new project was carried out on Tutuila and Ta'ū to establish permanent forest plots. The survey, carried out in October by a team comprising the principal investigator and three research assistants, established three permanent plots on Ta'ū and five on Tutuila in areas of secondary and primary forest.

Areas of homogeneous and apparently representative forest were located and plots of 1000 m² were established. One study site, Plot 4 on Nu'utoga Ridge on Tutuila, was comprised of only 500 m² because of geographical limitations, but it contained nearly as many trees as the other plots because of its high tree density. Most of the plots measured 50 x 20 m. Flags were placed at 10 m intervals to help establish boundaries for 10 subplots that were subsequently established. The trees were measured within each subplot to help ensure accuracy.

While the plots were being delineated, the principal investigator made a checklist of all species found in the plots. Notes were made on the frequency of vines and lianas on the trees, as well as epiphytes present. To estimate the ground cover in the plots, five quadrats of 2 x 2 m were established and the team together estimated the percent cover of each species in a modified form of the Braun-Blanquet method (Mueller-Dombois and Ellenberg 1974). Although this is rather subjective, it aided in providing a general description of the forest.

All trees over 5 cm dbh (diameter at breast height) were measured in the plots and their diameters recorded. Trees with a dbh of 10 cm or higher were marked with a numbered aluminum tag. At the beginning of the project (plot 7 at Saua, Ta'ū) the minimum size for tagging was provisionally set at 15 cm, but this criterion did not include enough trees, and was changed to 10 cm in subsequent plots. The tags were nailed into the trees with 5 cm aluminum nails and the tag was pried away from the tree surface in hopes that the tag would be pushed out by tree growth rather than swallowed. (However, after only a year some of the tags in a plot that was revisited were already being buried in new tree growth.) During the work on Ta'ū, two trees near Plot 6 were found with tags that had been placed on them 18 years earlier!

The tagged trees were arranged in a table (Appendix 1) with their tag number, plot, subplot, and dbh. The other data recorded includes relative dominance of the tree species, non-vegetation quantitative data (ground cover, climbers, epiphytes), checklist of tree species, checklist of ferns, checklist of orchids, checklist of vines and climbers, and checklist of other species are organized and placed into tables (Appendix 3--9).

In order to make the plots easier to locate in the future, a team of National Park Service personnel accompanied the principal investigator to all the sites in September 1994. The exact location of each of the plots was recorded using GPS (Global Positioning System) equipment.

The plots were located using a Trimble Pathfinder Professional Global Positioning System (GPS) and a self-installed temporary 6-channel base station. The data from the base station and the portable GPS were combined, and through a process called differential correction it was possible to calculate the locations of points in the Samoan Plane Coordinate System with sub-meter accuracy. The coordinates were taken from the main PVC pipe in each of the eight plots. There were variations in elevation readings between the pocket altimeter carried by the principal investigator and the GPS, averaging 31 m (102 ft). All of the standard parameters (PDOP levels, mask angles, datum selection, etc.) for GPS applications were followed. The temporary 6-channel base station was established at the FAA building on Tutuila because First Order base reference information was available for CGS markers at the Pago Pago International Airport. Base files for differential correction were collected for the duration of the survey, September 18-24, 1994. Post-processing and data transfer were done upon return to Honolulu.

The plant species names on the checklist in the eight plots (Appendix 3 and 4) follow those used by A. C. Smith (1979-1991) and the earlier park studies (Whistler 1992b, 1994).

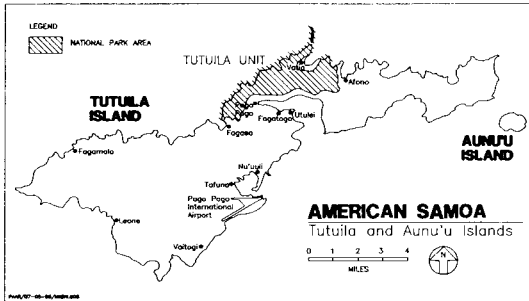
THE PLOT LOCATIONS

The following section includes a written description of how the plots may be found, along with their GPS longitude and latitude, the directions on how to reach them. Also included is some general vegetational and geographical information about the sites. Maps of the ten sites are included in Figures 3 and 4.

Plot 1. Olo Ridge Forest

The plot is situated on Tutuila above Amalau waterfall at the top of Olo Ridge, just to the west of Afono, and lies on a gentle north-facing slope at 330 m (1083 ft; GPS = 1109.86 ft) elevation. The starting point to the plot is the base of the ridge along the park road at Matape Point. The trail leads up through an abandoned, graded house site, up a short, steep embankment, and into the forest. At the time of the visit, the trail was marked with red flagging tape placed there during bat studies for the National Park. The trail continues up the ridge until it is blocked by a large rock outcropping. Just before this point, the trail leads off to the left (east), bypasses the outcropping along its eastern flank, and rejoins the ridge above the outcropping. The trail, which was still flagged in 1994, follows the ridge in a southwesterly direction until a flat area is reached, upon which the plot is located (Fig. 1). The Samoan Plane coordinates for this plot are 312711' S and 267017' W.

The long edge of the 20 x 50 m plot runs at 126° from the PVC pipe located at the center of the west end of the plot, between subplots 1 and 10, and under the only hibiscus tree in the plot. Subplot 1 is located at the southwest corner, and 2--5 are east of it; subplot 6 is at the northeast corner, and 7--10 are west of it (Figure 5).











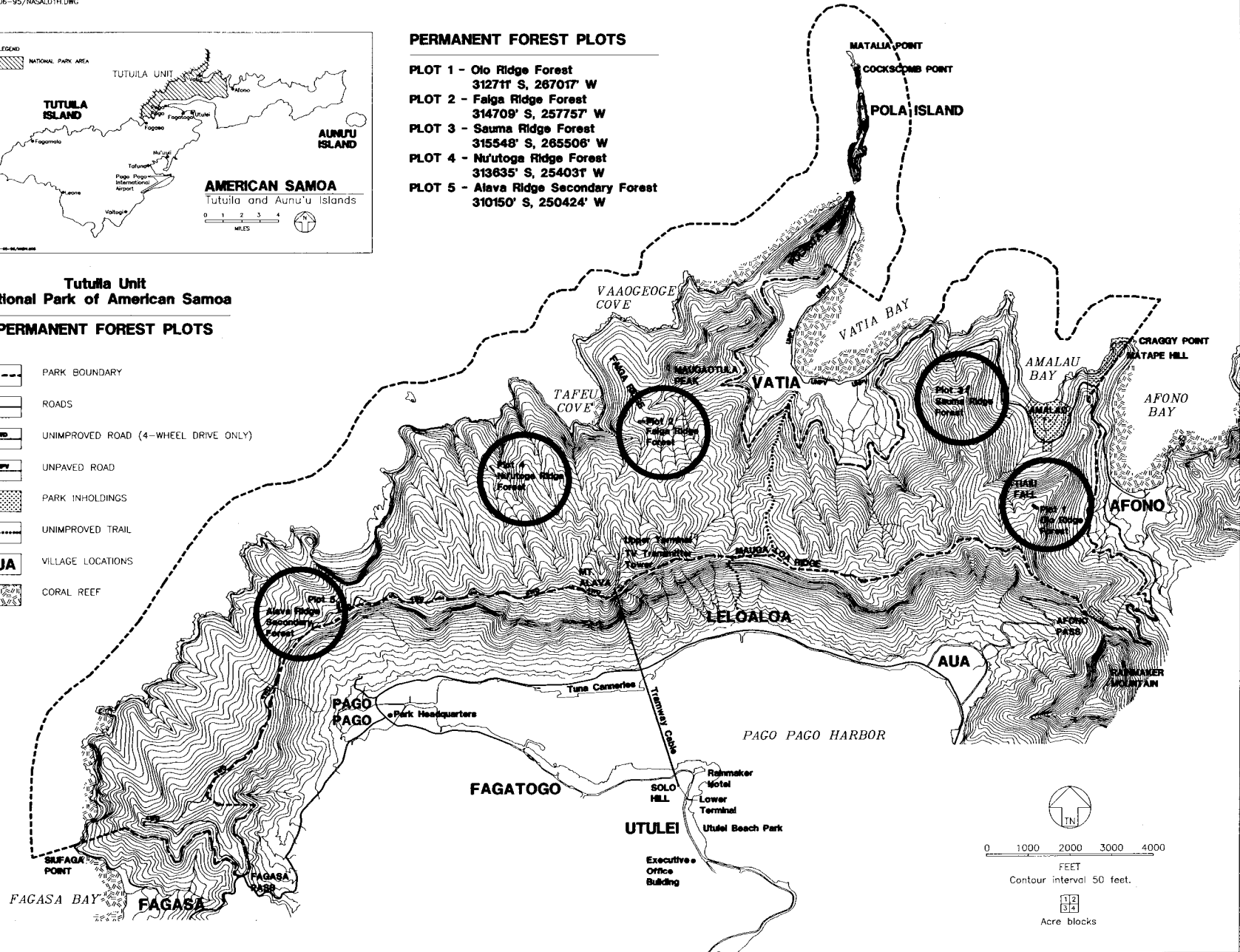
PERMANENT FOREST PLOTS

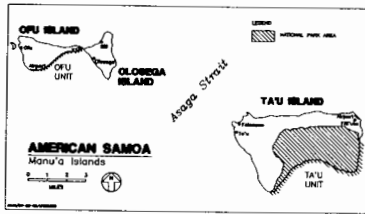
- PLOT 1 - Olo Ridge Forest**
31271' S, 267017' W
- PLOT 2 - Faiga Ridge Forest**
314709' S, 257757' W
- PLOT 3 - Sauma Ridge Forest**
315548' S, 265506' W
- PLOT 4 - Nu'utoga Ridge Forest**
313635' S, 254031' W
- PLOT 5 - Alava Ridge Secondary Forest**
310150' S, 250424' W

Tutuila Unit National Park of American Samoa

PERMANENT FOREST PLOTS

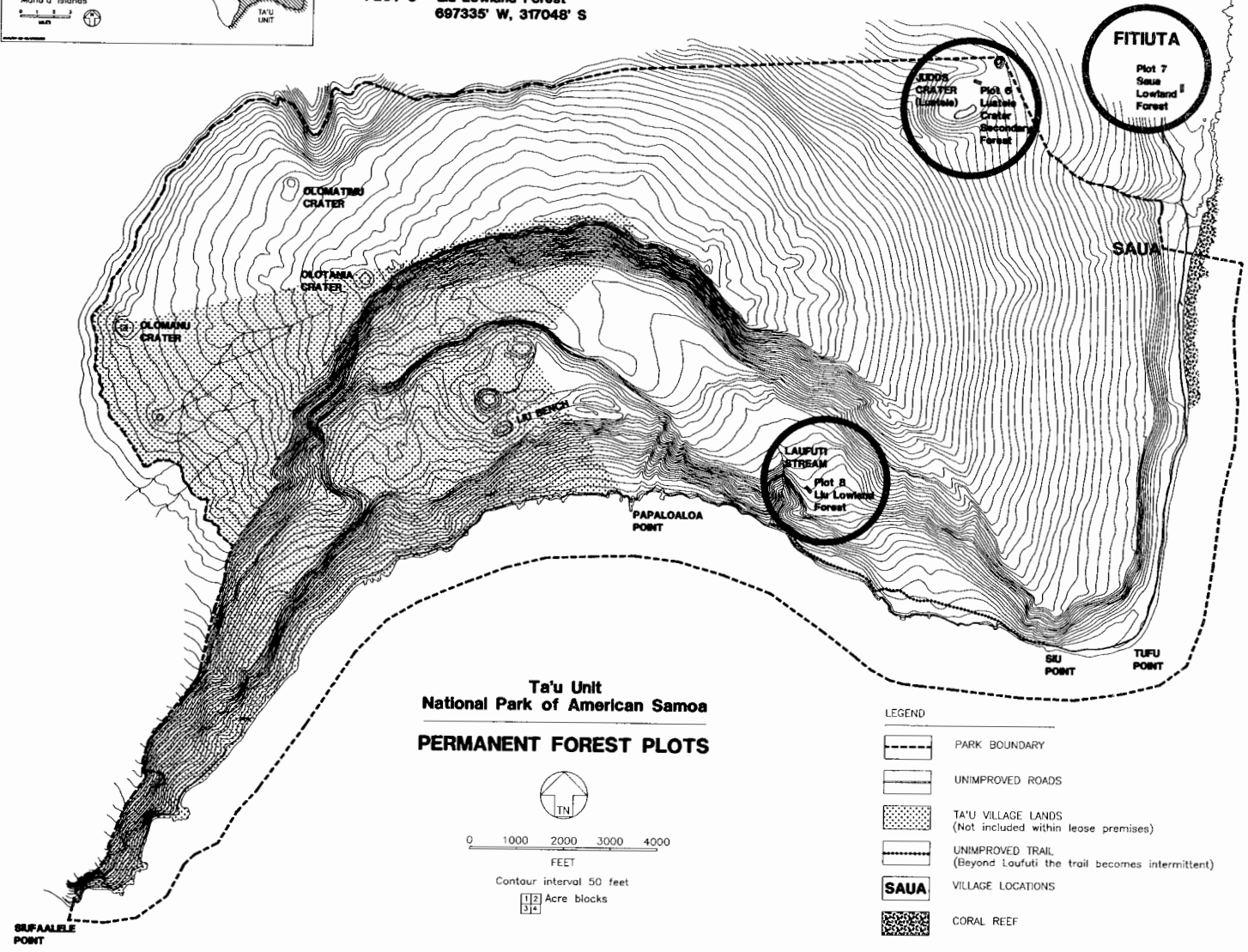
-  PARK BOUNDARY
-  ROADS
-  UNIMPROVED ROAD (4-WHEEL DRIVE ONLY)
-  UNPAVED ROAD
-  PARK INHOLDINGS
-  UNIMPROVED TRAIL
-  VILLAGE LOCATIONS
-  CORAL REEF



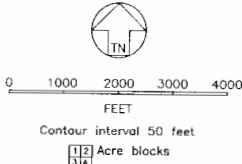


PERMANENT FOREST PLOTS

- PLOT 6 - Luatete Secondary Forest**
700985' W, 325710' S
- PLOT 7 - Saua Lowland Forest**
705295' W, 325710' S
- PLOT 8 - Llu Lowland Forest**
697335' W, 317048' S



Ta'u Unit National Park of American Samoa PERMANENT FOREST PLOTS



- LEGEND**
- PARK BOUNDARY
 - UNIMPROVED ROADS
 - TA'U VILLAGE LANDS
(Not included within lease premises)
 - UNIMPROVED TRAIL
(Beyond Lauputu the trail becomes intermittent)
 - SAUA** VILLAGE LOCATIONS
 - CORAL REEF

The soil at the site is mostly clay and wet, with few large rocks. The upper (southern) side of the plot has some disturbance, such as small clearings and pig-rooting, mostly in subplots 3--5. The ground cover is very dense, and is almost entirely composed of *Lomagramma cordipinna*. *Clidemia hirta* is present, but in very small quantities--and those mostly in the relatively disturbed areas.

Plot 2. Faiga Ridge Forest

The plot is situated on Tutuila on Faiga Ridge behind the village of Vatia, just to the southwest of Mauga-o-Tula at 200 m (656 ft; GPS = 545 ft) elevation. The trail to the plot leads west from the village along a stream that comes out of a valley. There is a water pipe along this stream that leads to a small reservoir a short distance up the valley. The poorly marked trail goes up this stream crossing it at one or more points along an unmarked route. Alternate parallel routes up the stream in this area will also suffice. About half a mile up the stream, the trail leads up the northern canyon slope in a northwest direction to the saddle just south of Mauga-o-Tula. From the saddle, the trail leads south and up the ridge, past some areas with rock outlines of ancient house sites and what appear to be excavations. Within a half mile of the saddle, the trail reaches a relatively flat crest where the plot is situated. From this crest, the trail continues down in a southerly direction and then makes its ascent up to Mt. Alava. The Samoan Plane coordinates are 314709' S and 257757' W.

The centerline of the 20 x 50 m plot runs at 266° from the PVC pipe located on the southeast side of the crest and at the center of the east side of the plot, about 2 m south of tree no. 749 between subplots 1 and 10. There is a *Barringtonia asiatica* (*futu*) tree located just outside of the southeast corner of the plot. Subplot 1 is located at the northeast corner of the plot, and 2--5 are west of it. Subplot 6 is at the southwest corner, and 7--10 are east of it (Figure 6).

The soil at the site is clay with very few rocks, and at the time of the survey it was relatively dry. There were no signs of pig disturbance, but there were several clearings, mostly on the edges of the plot (and the edges of the crest), possibly from hurricane damage (as evidenced by broken trees). The ground cover was dominated mostly by seedlings of various tree species, the most common of which were probably *Canarium vitiense* (*ma'ali*) and *Polyscias samoensis* (*tagitagi vao*). Terrestrial ferns were noticeably scarce.

Plot 3. Sauma Ridge Forest

The plot is situated on Tutuila between the villages of Vatia and Afono, on the west branch of Sauma Ridge at about 205 m (673 ft; GPS = 754) elevation. The starting point for the hike to the plot is marked on the opposite side of the Afono-Vatia road by a large

Bischofia ('o'a) tree at 80 m elevation. The trail from there leads up the road bank just to the east of the large rock on the side of the road and follows the ridge south along a trail marked with red flags. The trail and ridge level off at about 205 m elevation, where a series of bird survey flags (on of which is tag no. 50) may be found; this is where the present plot begins. The Samoan Plane coordinates are 315548' S and 265506' W.

The centerline of the 50 x 20 m plot runs at 200° from the PVC pipe located at the north end of the plot at the midpoint of its northern border. Subplot 1 is located at the northwest corner, and 2--5 are south of it. Subplot 6 is at the southeast corner, and 7--10 are north of it (Figure 7).

The soil at the site is clay, which is typical of the ridges in this area. Ground cover was light, and consisted almost entirely of seedlings of the common trees on the ridge. Disturbance was minimal, except at the corners or edges of the plot, where some hurricane damaged was noted.

Plot 4. Nu'utoga Ridge Forest

The plot is situated on Tutuila on Ma'atulia Ridge just to the west of Nu'utoga ridge, and several ridges west of Vatia, at 180 m (591 ft; GPS =759 ft) elevation. The best access is by small boat, since an overland approach from Vatia is difficult, as is an approach from Alava Ridge road. The landing, which should be attempted only in calm seas, is difficult and will probably involve a leap from the boat to the rocks at the little cove just west of Tafeu Cove. This little cove can be recognized by the small coastal waterfall on the western side; the plot is located on the ridge just west of the stream that forms the waterfall. The Samoan Plane coordinates are 313635' S and 254031' W.

From the cove, the unmarked trail leads up and west to the top of the waterfall, passing through a hibiscus thicket and *Barringtonia (futu)* forest on the steep cliff. From the stream above the waterfall, the best approach up the slope of the ridge to the west is diagonally up in a southwesterly direction, in order to avoid some of the tangled vegetation on the ridge. There may be remnants of red flagging tape marking the way. The plot is located on the ridge where it levels off for about 50 m, with a hibiscus thicket at its southwest corner. The middle of the south side of the plot is next to a large *Inocarpus (ifi)* tree.

The long side the 50 x 10 m plot runs at 140°, and the PVC pipe is located at the northwest corner. The plot consists of only five 10 x 10 subplots on the top of the ridge, since there was no room for more. Subplot 1 is located at the north end of the plot, and 2--5 are south (inland) of it (Figure 8).

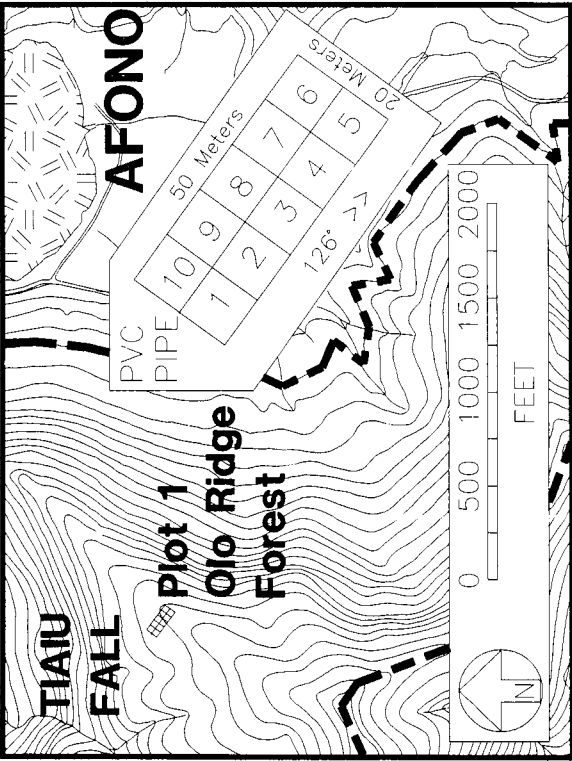


Figure 5. Olo Ridge Forest plot.

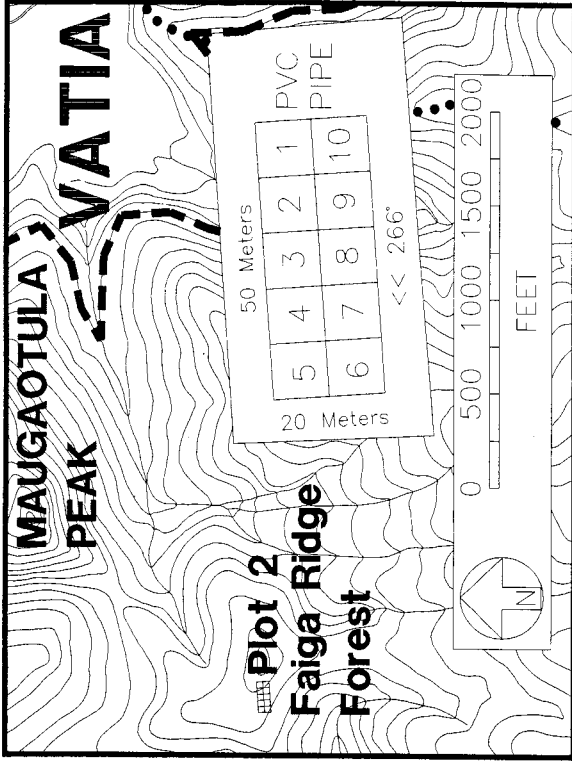


Figure 6. Faiga Ridge Forest plot.

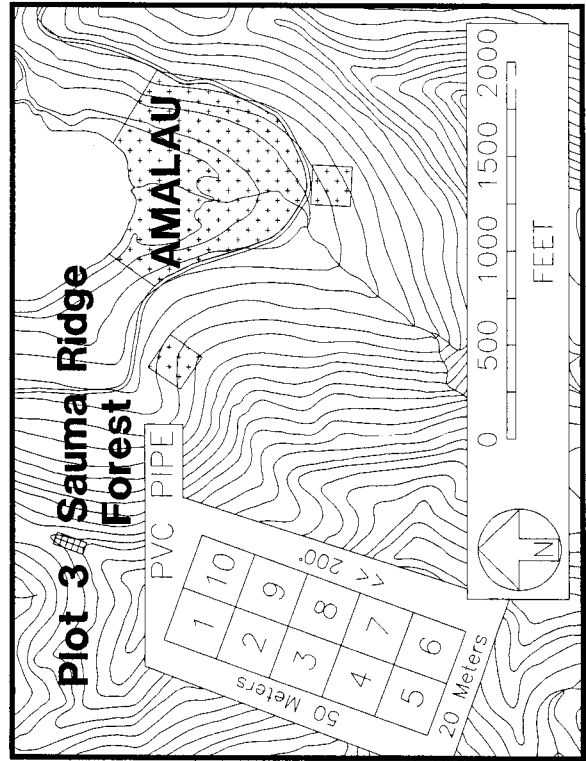


Figure 7. Sauma Ridge Forest plot.

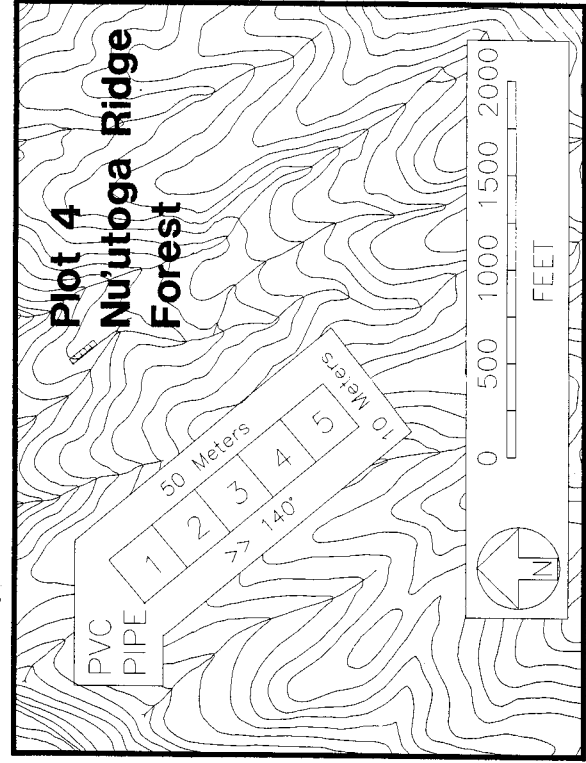


Figure 8. Nu'utoga Ridge Forest plot.

The soil at the site is clay with few rocks, although some outcroppings are present, especially on the southeast corner. Scant pig damage was evident, but one pig was killed nearby and another one was seen. Ground cover was light, and terrestrial ferns were noticeably scarce.

Plot 5. Alava Ridge Secondary Forest

The plot is situated on Tutuila on the north-facing slope of Alava Ridge, just to the northwest of the large green microwave reflector on the ridge top, about 2.2 miles from Fagasā Pass, at 250 m (820 ft; GPS = 933) elevation. The road leading to the site may be impassable by vehicle and a short to moderately long walk may be required. A PVC pipe on the south side of the road marks the point across the road from the plot, but this pipe may be obscured by dense roadside vegetation. The plot is approximately 45 m down (north) the hillside across from this pipe, on a moderately steep slope of approximately 44%. The Samoan Plane coordinates are 310150' S and 250424' W.

The centerline of the 50 x 20 m plot runs at 358° from the PVC pipe located 10 m north of the center of the south endline, at the junction of the corners of the subplot 1,2,9, and 10, with the first subplot in the southwest corner. The subplots are numbered consecutively downhill on the west side from 1 to 5 and back up the slope from 6 to 10 (Figure 9). The plot was aligned to avoid hibiscus thickets, one of which is at the northwest corner.

The soil at the site is mostly clay, and there are some signs of pig disturbance. The ground cover was dense, consisting mostly of *Lomagramma cordipinna*, with considerable amounts of *Tectaria stearnsii* and prostrate individuals of the climber *Freycinetia storckii* ('ie'ie). *Clidemia hirta* is present, but in very small quantities, and these are mostly in the relatively disturbed areas. There are several open patches in the plot, and these were dominated by *Freycinetia storckii* ('ie'ie), *Faradaya amicorum* (mamalupe), *Scleria polycarpa*, and *Mikania micrantha* (fue saina), with lesser amounts of *Clidemia hirta*.

Plot 6. Luatele Secondary Forest

The plot is situated on Ta'ū in Luatele Crater (Judds Crater on the map), southwest and inland from Fiti'uta Village at 250 m (820 ft; GPS = 1106 ft) elevation. The trailhead begins behind the west end of the village, and is well-marked as it zigzags up the steep cliff to the bottom of the main slope of the island. From there, the trail proceeds inland and south to about 180 m elevation where a piece of blue flagging tape is located on the right side of the trail. At that point, the trail turns west and proceeds several hundred meters before turning inland (south) at a point marked by red flagging tape. A guide from the village would be a great asset at this point. The poorly marked trail then proceeds in a zigzag fashion generally upslope and south until reaching the rim of Luatele Crater at

about 330 m. From there the trail heads east along the rim following the flags for several hundred meters before turning south and down into the crater. The flagged trail leads down the steep crater slope and through a fern forest before reaching the plot on the crater floor. The Samoan Plane coordinates are 700985' W and 325710' S.

The northern, long side of the 50 x 20 m plot runs at 290° from the PVC pipe located at the northeast corner of the plot. Subplot 1 is located at the northeast corner and 2--5 extend toward the northwest. Subplot 6 is at the southwest corner and 7--10 extend toward the southeast (Figure 10).

The site is covered with disturbed secondary forest, with a very open canopy. The surface is relatively flat with a slight upward slope towards the east. Scattered boulders are present. The subplot corners are marked with red flags, except at the west end, where they are blue.

Plot 7. Saua Lowland Forest

The plot is situated on Ta'ū on the east coast west of the coral- and sand-covered road that leads from the village of Fiti'uta to the southeast corner of the island, and just east of the base of the cliff that marks the east coast, at about 5 m (16 ft; GPS = 2 ft) elevation. The short trail to the site is reached from the road that runs south from Fiti'uta, past the cut-off to Saua Beach, past a concrete stream crossing, past a second crossing, and then about 277 m south to a point where on the right (west) side of the road there is a tree flagged with blue tape; this point is about 100 m south of a place where about 10 *Pisonia* trees have recently been cut down. From that flagged tree, the trail leads inland (west) about 65 m along a line of red flagging tape to the northeast corner of the plot. The Samoan Plane coordinates are 705295' W and 325710' S.

The eastern, long side of the 50 x 20 m plot runs at almost due south from the PVC pipe located 50 cm northeast of the northeast corner. Subplot 1 is in the southwest corner and 2--5 are north of it. Subplot 6 is in the northeast corner and 7--10 are south of it (Figure 11).

The surface at the site is quite flat, and is composed of a mixture of sand, coral, and scattered basalt rocks that have fallen from the adjacent slope. The vegetation is a somewhat disturbed lowland *Dysoxylum* forest dominated by scattered *Dysoxylum samoense* (*maota*) trees. The ground cover was estimated to be about 40% cover, dominated by ferns.

Plot 8. Liu Lowland Forest

The plot is situated on Ta'ū, on Liu bench on the south side of island at of 270 m (886 ft; GPS = 903 ft) elevation. The starting point of the hike is at the southeast corner of the island where the road ends. From there the trails leads west along the south coast of the island, eventually going slightly inland to plantation areas. The trail is hard to locate from here, at least it was in 1994 when it was heavily overgrown with weeds. However, on the right (inland) side in a plantation is a large *Dysoxylum samoense* that has lost its top in a hurricane. From that tree the poorly marked trail heads NNW 320° up the slope of Liu Bench.

There is probably also a trail leading up to a higher plantation, but by going at the bearing above noted, a clearing is reached at 60 m elevation and a trail at 85 m. This trail continues until it reaches a taro patch (which may by now be abandoned) at 115 m, a shady glen at 170 m, and at 195 m a small stream running about NNW at 11°. Up to this point the trail has been marked by red flagging tape, but above 220 m elevation the tape is red/gray striped. (Another trail from 1991 is marked with red/gray flagging which goes up to the same general area.) At 250 m there is a narrow steep streambed, and at 270 m a patch of relatively undamaged forest (up until this point most of the forest was scrubby and open due to hurricane damage). This forest abuts a steep cliff leading down to the south coast of the island at Laufuti, and is the site of the plot. The Samoan Plane coordinates are 697335' S and 317048' W.

The southern, long side of the 50 x 20 m plot runs at 140° from the PVC pipe located at the west corner. Subplot 1 is located at the west corner and 2--5 lie east of it. Subplot 6 is located at the east corner and 7--10 lie west of it (Figure 12).

The soil at the site is very bouldery with only small pockets of humus and soil among the basaltic rocks of all sizes. The ground cover was dense and was dominated by native ferns, mostly *Lomagramma cordipinna*.

RESULTS

A total of 414 trees were tagged during the survey, belonging to 49 species. The number of tagged individuals of each species is shown in Appendix 2. By resurveying the plots in the future, successional trends of the forest can be determined, as well as the growth rates of the individual species. In the latter case, the most accurate information would be for those species with sufficient numbers of trees; ten species had at least ten individual trees tagged during the survey.

The plots are located in the same areas, or are near to the same areas, studied during previous surveys (Whistler 1992b, 1994). The forest on the ridges of Tutuila are very

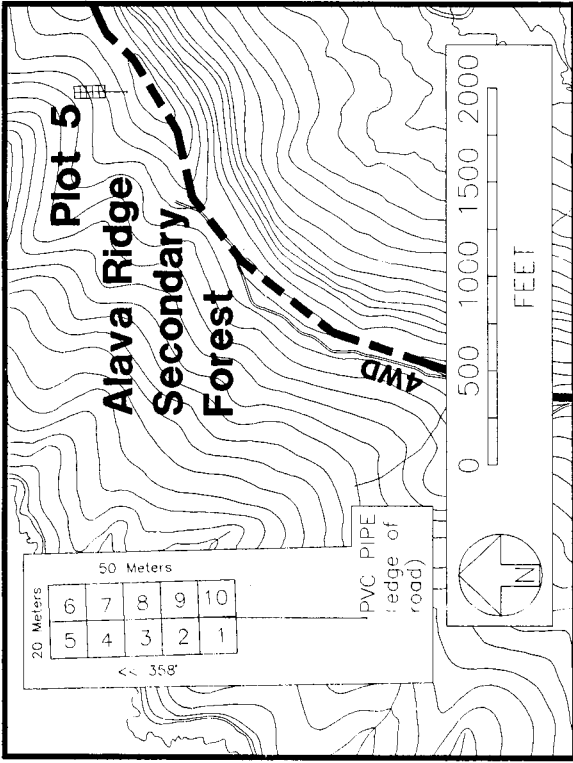


Figure 9. Alava Ridge Secondary Forest plot.

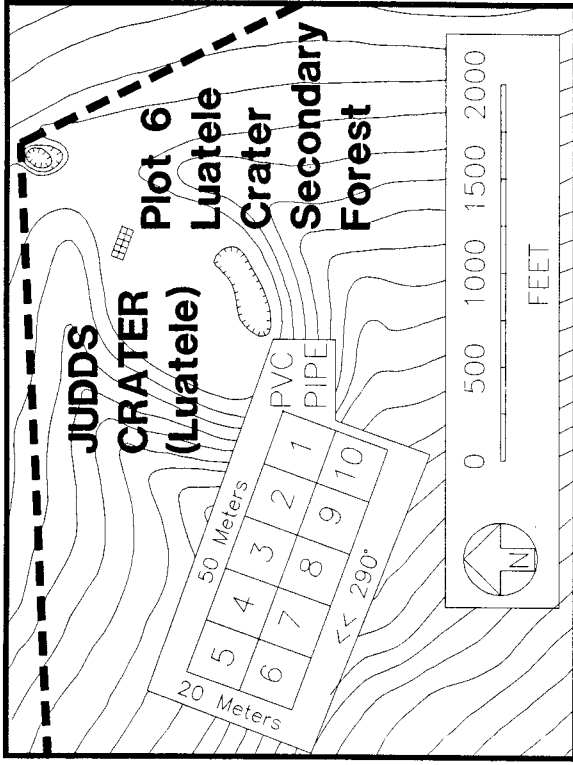


Figure 10. Luatele Crater Secondary Forest plot.

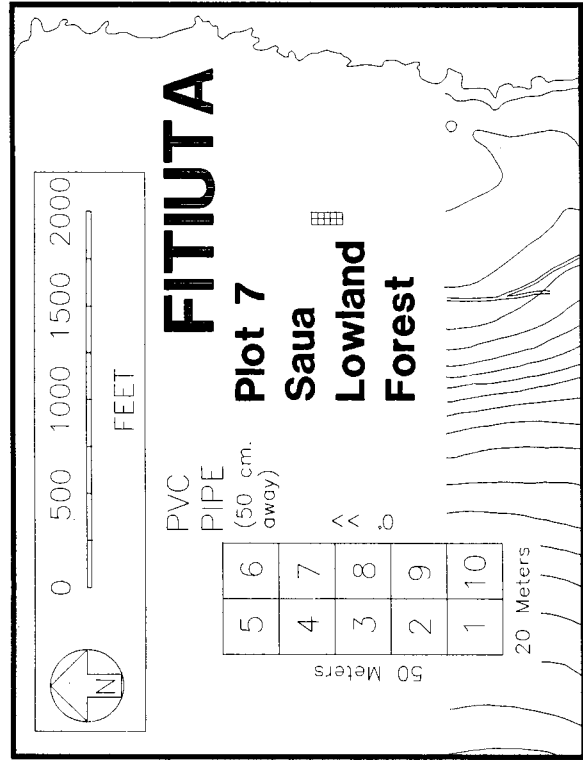


Figure 11. Saua Lowland Forest plot.

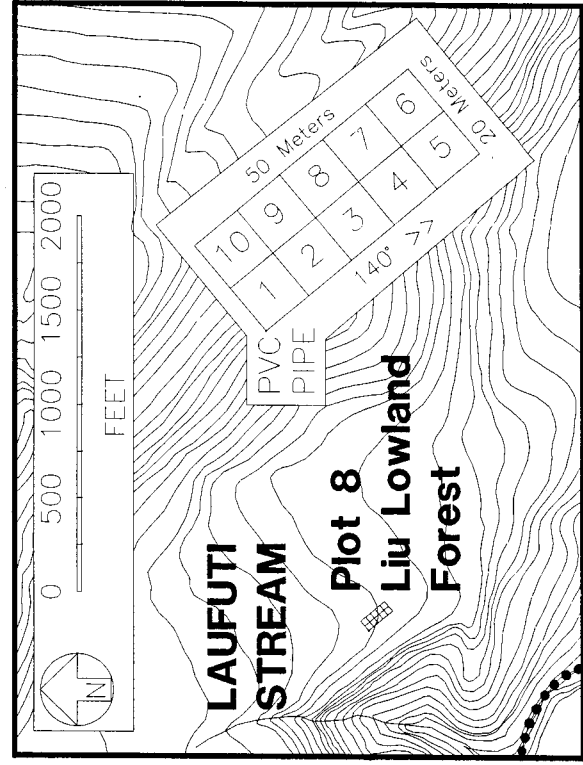


Figure 12. Liu Lowland Forest plot.

similar in species composition, and the same seven species, *Calophyllum neo-ebudicum* (*tamanu*), *Syzygium inophylloides* (*asi*), *Canarium vitiense* (*ma'ali*), *Buchanania merrillii* (no name), *Myristica fatua* (*'atone*), *Diospyros samoensis* (*'au'auli*), and *Canarium harveyi* (no name), dominated the plots of both surveys, although their relative dominance figures differed somewhat in the two. In a 1976 survey of the *Dysoxylum* lowland forest along the east coast of Ta'u (Whistler 1980), *Dysoxylum samoense* had a relative dominance of 86%, *Diospyros samoensis* had 7%, and *Pisonia umbellifera* had 3%. In the present National Park study, the same three species had relative dominances of 89%, 5%, and 3%, respectively.

RECOMMENDATIONS

During the last visit to the sites in September 1994, some of the tags were being surrounded by or "swallowed" by the new growth of the trees. Ideally the new growth would push the tags outward when the trunk expands, but in some cases this was clearly not happening, and if not corrected, the trees could be unidentifiable in a few years. Consequently, it is highly recommended that personnel from the National Park Service visit the sites as soon as possible and check all the trees to make sure that the tags are not being overgrown, and to retag any trees that need it. During the 1994 work at Plot 7 at Saau, Ta'u, two *Dysoxylum samoense* (*maota/mamala*) trees tagged in 1976 in another study were found with the tags still attached (and only partially buried), but these trees had apparently undergone little growth in the intervening 18 years. However, this slow growth is not typical of other trees or at least other trees at younger ages.

In addition to periodic checking of the tags in the plots, the plots should be resurveyed at fixed intervals, perhaps as often as every 5 years. From the new data obtained by measuring the tagged trees, the growth rates of the various species in that forest can be determined. From the measurement of all trees in the plots, the successional trends can be determined. It is likely that the plots on Tutuila will remain fairly stable, except perhaps for an increase in the relative dominance of *Canarium harveyi*. This tree was first recorded on Tutuila in 1975, and although native to the adjacent islands of Tonga, it is probably a modern introduction to Samoa. The presence of high numbers of small-sized trees in its population indicates that it may in time become the dominant species, which can be determined by the periodic resurveys.

The last recommendation is that an immediate effort be made to save the lowland forest on the east side of Ta'u. During the visit to the plots in 1994, it was evident that people from Fiti'uta were making their plantations in this *Dysoxylum samoense* forest, which is the best remaining example in all of Samoa. It is dominated by huge *Dysoxylum* (*maota/mamala*) trees, many of which are over a meter in diameter. There are plenty of other places that plantations can be established, and it is urgent that the villagers become aware of this breach of the spirit if not the letter of their covenant with the National Park Service. Once that forest is cut down, it will probably never come back.

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Figure 13 (top left).
Tom Fake, NPS with Global Positioning equipment in Olo Ridge Forest (Plot 1). Note prop roots of *Myristica fatua*.

Figure 14 (top right).
Luatele Crater (Judds Crater), site of Luatele secondary forest (Plot 6).

Figure 15 (bottom left).
Vaea Tasi Ainu`u, Chief Ranger, NPSA in Liu Lowland Forest (Plot 8).

APPENDIX I. LIST OF TAGGED TREES IN THE PERMANENT FOREST PLOTS

The tagged trees are indicated in numerical order by plot, and by subplots within the plots.

Plot 1. Olo Ridge Forest

No.	Species	Subplot	Dbh (inches)
675.	<i>Hibiscus tiliaceus</i>	1	7.5+15.1
676.	<i>Macaranga stipulosa</i>	1	4.7
677.	<i>Myristica fatua</i>	1	6.7
678.	<i>Buchanania merrillii</i>	1	8.0
679.	<i>Canarium vitiense</i>	1	4.0
680.	<i>Myristica hypargyrea</i>	2	8.3
681.	<i>Myristica hypargyrea</i>	2	5.3
682.	<i>Myristica hypargyrea</i>	2	4.0
683.	<i>Dysoxylum huntii?</i>	2	33.5
684.	<i>Hedycarya denticulata</i>	2	4.1
685.	<i>Hedycarya denticulata</i>	2	4.1+1.9
686.	<i>Myristica fatua</i>	2	9.9
687.	<i>Myristica fatua</i>	2	8.6
688.	<i>Canarium vitiense</i>	3	9.0
689.	<i>Myristica fatua</i>	3	10.2
690.	<i>Baccaurea taitensis</i>	3	6.0
691.	<i>Inocarpus fagifer</i>	3	15.4
692.	<i>Myristica hypargyrea</i>	3	12.3
693.	<i>Myristica hypargyrea</i>	3	5.6
694.	<i>Cananga odorata</i>	4	12.8
695.	<i>Baccaurea taitensis</i>	4	5.5
696.	<i>Syzygium inophylloides</i>	4	5.3
697.	<i>Myristica fatua</i>	4	11.1
698.	<i>Myristica fatua</i>	4	5.1
699.	<i>Baccaurea taitensis</i>	5	4.6
700.	<i>Baccaurea taitensis</i>	5	10.0
701.	<i>Canarium vitiense</i>	5	14.0
702.	<i>Myristica fatua</i>	5	5.8
703.	<i>Canarium vitiense</i>	6	4.3
704.	<i>Elaeocarpus ulianus</i>	5	4.1
705.	<i>Syzygium inophylloides</i>	6	19.7
706.	<i>Palaquium stehlinii</i>	6	3.9
707.	<i>Myristica fatua</i>	6	8.6

No.	Species	Subplot	Dbh (inches)
708.	<i>Myristica fatua</i>	6	4.6
709.	<i>Canarium vitiense</i>	6	8.2
710.	<i>Baccaurea taitensis</i>	6	4.1
711.	<i>Canarium vitiense</i>	6	15.2
712.	<i>Buchanania merrillii</i>	6	6.7
713.	<i>Myristica fatua</i>	6	12.4
714.	<i>Hedycarya denticulata</i>	6	4.5
715.	<i>Canarium vitiense</i>	7	14.0
716.	<i>Myristica fatua</i>	7	8.8
717.	<i>Myristica fatua</i>	7	4.9
718.	<i>Syzygium samarangense</i>	7	7.1
719.	<i>Canarium vitiense</i>	7	16.1
720.	<i>Myristica fatua</i>	7	6.8
721.	<i>Canthium merrillii</i>	7	13.5
722.	<i>Myristica hypargyrea</i>	7	9.4
723.	<i>Canarium vitiense</i>	7	16.8
724.	<i>Myristica fatua</i>	7	14.0
725.	<i>Flacourtia rukam</i>	8	8.9
726.	<i>Myristica fatua</i>	8	8.8
727.	<i>Myristica fatua</i>	8	9.2
728.	<i>Myristica fatua</i>	8	4.1
729.	<i>Syzygium samarangense</i>	8	6.4
730.	<i>Syzygium samoense</i>	8	6.0
731.	<i>Planchonella samoensis</i>	8	ca.33.0
732.	<i>Canarium vitiense</i>	9	6.2
733.	<i>Myristica fatua</i>	9	7.9
734.	<i>Myristica fatua</i>	9	9.6
735.	<i>Myristica fatua</i>	9	4.1
736.	<i>Palaquium stehlinii</i>	9	9.8
737.	<i>Buchanania merrillii</i>	9	19.8
738.	<i>Buchanania merrillii</i>	9	11.0
739.	<i>Myristica hypargyrea</i>	9	19.7
740.	<i>Myristica hypargyrea</i>	10	9.4
741.	<i>Elaeocarpus ulianus</i>	10	14.8
742.	<i>Myristica hypargyrea</i>	10	8.7
743.	<i>Baccaurea taitensis</i>	10	5.0
744.	<i>Myristica hypargyrea</i>	10	12.4
745.	<i>Myristica fatua</i>	10	5.1
746.	<i>Myristica fatua</i>	10	6.4
747.	<i>Myristica hypargyrea</i>	10	11.0

Plot 2. Faiga Ridge Forest

No.	Species	Subplot	Dbh (inches)
748.	<i>Myristica fatua</i>	1	4.0
749.	<i>Syzygium inophylloides</i>	1	19.3
750.	<i>Myristica fatua</i>	1	6.3
751.	<i>Hernandia moerenhoutiana</i>	1	8.1
752.	<i>Diospyros samoensis</i>	1	5.6
753.	<i>Syzygium inophylloides</i>	1	9.4
754.	<i>Myristica fatua</i>	1	4.9
755.	<i>Myristica hypargyreae</i>	1	4.2
756.	<i>Syzygium inophylloides</i>	2	9.5
757.	<i>Myristica fatua</i>	2	5.1
758.	<i>Diospyros samoensis</i>	2	14.0
759.	<i>Canarium vitiense</i>	2	17.9
760.	<i>Canarium vitiense</i>	2	16.0
761.	<i>Buchanania merrillii</i>	2	6.5
762.	<i>Diospyros samoensis</i>	2	13.1
763.	<i>Myristica fatua</i>	2	6.6
764.	<i>Canarium vitiense</i>	2	12.8
765.	<i>Myristica hypargyreae</i>	3	7.2+4.4
766.	<i>Myristica fatua</i>	3	5.4
767.	<i>Myristica fatua</i>	3	4.2
768.	<i>Myristica fatua</i>	3	4.8
769.	<i>Hernandia moerenhoutiana</i>	3	12.1
770.	<i>Myristica fatua</i>	3	4.3
771.	<i>Syzygium inophylloides</i>	3	12.5
772.	<i>Canarium vitiense</i>	3	10.8
773.	<i>Syzygium inophylloides</i>	3	7.0
774.	<i>Canarium vitiense</i>	3	13.2
775.	<i>Planchonella garberi</i>	3	4.0
776.	<i>Buchanania merrillii</i>	4	16.4
777.	<i>Hibiscus tiliaceus</i>	4	6.5
778.	<i>Buchanania merrillii</i>	4	8.2
779.	<i>Myristica hypargyreae</i>	4	4.4
780.	<i>Myristica fatua</i>	4	5.0
781.	<i>Baccaurea taitensis</i>	4	3.9
782.	<i>Canarium vitiense</i>	4	7.0
783.	<i>Diospyros samoensis</i>	4	4.2
784.	<i>Meryta macrophylla</i>	4	2.2
785.	<i>Myristica fatua</i>	5	5.5
786.	<i>Diospyros samoensis</i>	5	4.1
787.	<i>Buchanania merrillii</i>	5	4.5

No.	Species	Subplot	Dbh (inches)
788.	<i>Syzygium inophylloides</i>	5	23.2
789.	<i>Myristica fatua</i>	5	7.5
790.	<i>Myristica hypargyreae?</i>	5	6.9
791.	<i>Myristica fatua</i>	5	4.4
792.	<i>Canarium harveyi</i>	5	5.0
793.	<i>Myristica fatua</i>	5	5.5
794.	<i>Canarium vitiense</i>	6	12.4
795.	<i>Myristica fatua</i>	6	5.8
796.	<i>Crossostylis biflora</i>	6	4.1
797.	<i>Crossostylis biflora</i> (same tree as 796)	6	7.1+7.4
798.	<i>Calophyllum neo-ebudicum</i>	6	20.4
799.	<i>Buchanania merrillii</i>	6	10.6
800.	<i>Buchanania merrillii</i>	6	5.8
801.	<i>Syzygium inophylloides</i>	6	6.0
802.	<i>Calophyllum neo-ebudicum</i>	6	20.2
803.	<i>Myristica fatua</i>	6	5.4
804.	<i>Garcinia vitiensis</i>	6	2.4
805.	<i>Canarium vitiense</i>	7	13.9
806.	<i>Syzygium inophylloides</i>	7	20.4
807.	<i>Myristica fatua</i>	7	6.8
808.	<i>Canarium vitiense</i>	7	7.9
809.	<i>Garcinia myrtifolia</i>	7	14.2
810.	<i>Calophyllum neo-ebudicum</i>	7	22.7
811.	<i>Buchanania merrillii</i>	7	15.8
812.	<i>Canarium vitiense</i>	7	7.0
813.	<i>Garcinia myrtifolia</i>	8	5.1
814.	<i>Garcinia myrtifolia</i>	8	8.8
815.	<i>Canarium vitiense</i>	8	13.3
816.	<i>Erythrospermum</i> <i>acuminatissimum</i>	8	2.8+3.8
817.	<i>Myristica fatua</i>	8	5.3
818.	<i>Myristica fatua</i>	8	7.0
819.	<i>Myristica fatua</i>	9	4.8
820.	<i>Diospyros samoensis</i>	9	7.8
821.	<i>Syzygium inophylloides</i>	9	10.1
822.	<i>Myristica hypargyreae?</i>	9	8.4
823.	<i>Syzygium samoense</i>	9	6.7
824.	<i>Calophyllum neo-ebudicum</i>	9	21.1
825.	<i>Syzygium samoense</i>	9	5.8
826.	<i>Canarium harveyi</i>	9	4.1

No.	Species	Subplot	Dbh (inches)
827.	<i>Planchonella garberi</i>	9	7.0
828.	<i>Buchanania merrillii</i>	9	5.7
829.	<i>Myristica fatua</i>	10	5.0
830.	<i>Diospyros samoensis</i>	10	8.2+3.2
831.	<i>Myristica fatua</i>	10	4.0
832.	<i>Myristica fatua</i>	10	4.2
833.	<i>Myristica fatua</i>	10	5.2
834.	<i>Syzygium inophylloides</i>	10	9.7
835.	<i>Myristica fatua</i>	10	5.3
836.	<i>Syzygium inophylloides</i>	10	16.6
837.	<i>Diospyros samoensis</i>	10	8.5

Plot 3. Sauma Ridge Forest

No.	Species	Subplot	Dbh (inches)
601.	<i>Diospyros samoensis</i>	1	5.8
602.	<i>Calophyllum neo-ebudicum</i>	1	9.4
603.	<i>Myristica fatua</i>	1	7.7
604.	<i>Syzygium inophylloides</i>	1	9.6
605.	<i>Canarium vitiense</i>	1	15.0
606.	<i>Dysoxylum samoense?</i>	1	16.6
607.	<i>Diospyros samoensis</i>	2	4.7
608.	<i>Canarium vitiense</i>	2	9.8
609.	<i>Barringtonia samoensis</i>	2	4.7
610.	<i>Myristica fatua</i>	2	5.5
611.	<i>Diospyros samoensis</i>	2	11.7
612.	<i>Syzygium inophylloides</i>	2	9.7
613.	<i>Myristica fatua</i>	2	4.1
614.	<i>Myristica fatua</i>	3	6.9
615.	<i>Dysoxylum samoense?</i>	3	30.7
616.	<i>Sterculia fanaiho</i>	3	4.2
617.	<i>Canarium harveyi</i>	3	4.9
618.	<i>Canarium vitiense</i>	3	25.8
619.	<i>Garuga floribunda</i>	3	4.6
620.	<i>Hibiscus tiliaceus</i>	3	7.1
621.	<i>Cananga odorata</i>	3	7.2
622.	<i>Sterculia fanaiho</i>	3	7.4
623.	<i>Myristica fatua</i>	3	4.6
624.	<i>Canarium harveyi</i>	3	4.8
625.	<i>Canarium harveyi</i>	3	4.3
626.	<i>Myristica fatua</i>	3	5.7
627.	<i>Dysoxylum samoense</i>	4	7.0
628.	<i>Cananga odorata</i>	4	6.7
629.	<i>Dysoxylum samoense</i>	4	4.2
630.	<i>Hibiscus tiliaceus</i>	4	4.7
631.	<i>Dysoxylum samoense</i>	4	5.0
632.	<i>Myristica fatua</i>	5	5.3
633.	<i>Myristica fatua</i>	5	4.0
634.	<i>Myristica fatua</i>	5	4.4
635.	<i>Hibiscus tiliaceus</i>	5	9.1+5.9
636.	<i>Hibiscus tiliaceus</i>	5	4.0+2.3
637.	<i>Hibiscus tiliaceus</i>	5	4.4
638.	<i>Dysoxylum samoense</i>	5	15.3
639.	<i>Planchonella grayana</i>	7	4.6

No.	Species	Subplot	Dbh (inches)
640.	<i>Rhus taitensis</i>	7	25.0
641.	<i>Sterculia fanaiho</i>	7	8.0
642.	<i>Diospyros samoensis</i>	7	24.5
643.	<i>Diospyros samoensis</i>	7	5.7
644.	<i>Canarium harveyi</i>	7	4.7
645.	<i>Diospyros samoensis</i>	7	5.8
646.	<i>Diospyros samoensis</i>	8	4.3
647.	<i>Diospyros samoensis</i>	8	4.1
648.	<i>Diospyros samoensis</i>	8	6.8
649.	<i>Diospyros samoensis</i>	8	4.1
650.	<i>Syzygium clusiifolium</i>	8	7.5
651.	<i>Syzygium inophylloides</i>	8	8.9
652.	<i>Diospyros samoensis</i>	8	20.2
653.	<i>Rhus taitensis</i>	8	25.2
654.	<i>Diospyros samoensis</i>	8	6.9
655.	<i>Diospyros samoensis</i>	9	11.2
656.	<i>Diospyros samoensis</i>	9	9.0
657.	<i>Diospyros samoensis</i>	9	4.7
658.	<i>Citronella samoensis</i>	9	4.4
659.	<i>Canarium vitiensis</i>	9	18.6
660.	<i>Diospyros samoensis</i>	9	30.4
661.	<i>Diospyros samoensis</i>	9	6.7
662.	<i>Diospyros samoensis</i>	9	6.1
663.	<i>Diospyros samoensis</i>	9	16.7
664.	<i>Citronella samoensis</i>	10	4.7
665.	<i>Meryta macrophylla</i>	10	4.4
666.	<i>Canarium vitiense</i>	10	6.3
667.	<i>Diospyros samoensis</i>	10	10.2
668.	<i>Citronella samoensis</i>	10	4.6
669.	<i>Rhus taitensis</i>	10	6.2
670.	<i>Rhus taitensis</i>	10	5.1
671.	<i>Rhus taitensis</i>	10	12.0
672.	<i>Rhus taitensis</i>	10	13.1
673.	<i>Cananga odorata</i>	10	8.4
674.	<i>Diospyros samoensis</i>	10	19.6

Plot 4. Nu'utoga Ridge Forest

No.	Species	Subplot	Dbh (inches)
892.	<i>Syzygium inophylloides</i>	1	6.4
893.	<i>Calophyllum neo-ebudicum</i>	1	13.3
894.	<i>Buchanania merrillii</i>	1	4.9
895.	<i>Diospyros samoensis</i>	1	7.4
896.	<i>Rhus taitensis</i>	1	6.2
897.	<i>Hernandia moerenhoutiana</i>	1	13.3
898.	<i>Syzygium inophylloides</i>	1	9.7
899.	<i>Hernandia moerenhoutiana</i>	1	9.4
900.	<i>Syzygium inophylloides?</i>	1	10.4
901.	<i>Myristica fatua</i>	2	5.6
902.	<i>Syzygium inophylloides</i>	2	9.4
903.	<i>Syzygium inophylloides</i>	2	13.3
904.	<i>Diospyros samoensis</i>	2	6.1
905.	<i>Calophyllum neo-ebudicum</i>	3	12.0
906.	<i>Diospyros samoensis</i>	3	9.1
907.	<i>Diospyros samoensis</i>	3	15.3
908.	<i>Canthium merrillii</i>	3	5.3
909.	<i>Diospyros samoensis</i>	3	4.9
910.	<i>Syzygium inophylloides</i>	3	5.4
911.	<i>Buchanania merrillii</i>	4	7.5
912.	<i>Myristica fatua</i>	4	6.7
913.	<i>Syzygium inophylloides</i>	4	4.4
914.	<i>Diospyros samoensis</i>	4	18.5
915.	<i>Diospyros samoensis</i>	4	7.5
916.	<i>Calophyllum neo-ebudicum</i>	4	10.4
917.	<i>Canarium harveyi</i>	4	4.5
918.	<i>Canarium harveyi</i>	4	6.0
919.	<i>Canarium harveyi</i>	4	4.9
920.	<i>Canarium harveyi</i>	4	4.9
921.	<i>Buchanania merrillii</i>	4	7.5
922.	<i>Myristica fatua</i>	4	7.3
923.	<i>Diospyros samoensis</i>	4	7.1
924.	<i>Calophyllum neo-ebudicum</i>	4	8.1
925.	<i>Myristica fatua</i>	4	6.4
926.	<i>Canarium vitiense</i>	5	27.9
927.	<i>Canarium harveyi</i>	5	5.4
928.	<i>Canarium harveyi</i>	5	4.5
929.	<i>Canarium harveyi</i>	5	6.0

No.	Species	Subplot	Dbh (inches)
930.	<i>Diospyros samoensis</i>	5	5.3
931.	<i>Myristica fatua</i>	5	5.9
932.	<i>Canarium harveyi</i>	5	5.2
933.	<i>Diospyros samoensis</i>	5	16.6
934.	<i>Myristica fatua</i>	5	8.5

Plot 5. Alava Ridge Secondary Forest

No.	Species	Subplot	Dbh (inches)
838.	<i>Syzygium samoense</i>	1	8.2+4.3+6.6
839.	<i>Myristica fatua</i>	1	6.0
840.	<i>Buchanania merrillii</i>	1	4.8
841.	<i>Alphitonia zizyphoides</i>	1	16.2
842.	<i>Buchanania merrillii</i>	1	5.9
843.	<i>Canarium harveyi</i>	1	4.6
844.	<i>Myristica fatua</i>	1	4.4
845.	<i>Syzygium samoense</i>	1	10.3+5.4+6.2
846.	<i>Buchanania merrillii</i>	2	20.5+6.3
847.	<i>Myristica hypargyreae</i>	2	5.5
848.	<i>Canthium merrillii</i>	2	9.2
849.	<i>Canarium vitiense</i>	2	13.1
850.	<i>Hernandia moerenhoutiana</i>	2	10.2
851.	<i>Calophyllum neo-ebudicum</i>	2	5.7
852.	<i>Canarium vitiense</i>	2	4.7
853.	<i>Canarium vitiense</i>	2	11.3
854.	<i>Adenanthera pavonina</i>	2	4.2
855.	<i>Rhus taitensis</i>	2	8.1
856.	<i>Buchanania merrillii</i>	2	8.3
857.	<i>Canarium vitiense</i>	2	8.4
858.	<i>Alphitonia zizyphoides</i>	3	10.7
859.	<i>Buchanania merrillii</i>	3	19.6
860.	<i>Alphitonia zizyphoides</i>	3	5.8
861.	<i>Syzygium samarangense</i>	3	8.1
862.	<i>Canarium vitiense</i>	3	3.7+7.5
863.	<i>Canarium vitiense</i>	4	13.5
864.	<i>Buchanania merrillii</i>	4	19.6
865.	<i>Myristica fatua</i>	4	17.4
866.	<i>Rhus taitensis</i>	4	18.5
867.	<i>Rhus taitensis</i>	4	5.9
868.	<i>Elaeocarpus ulianus</i>	4	5.6
869.	<i>Bischofia javanica</i>	5	4.2
870.	<i>Hibiscus tiliaceus</i>	5	9.2
871.	<i>Syzygium inophylloides</i>	5	4.0
872.	<i>Rhus taitensis</i>	6	24.3
873.	<i>Bischofia javanica</i>	6	8.8
874.	<i>Cananga odorata</i>	7	4.0
875.	<i>Cananga odorata</i>	7	8.1
876.	<i>Cananga odorata</i>	7	13.8

No.	Species	Subplot	Dbh (inches)
877.	<i>Myristica fatua</i>	7	5.4
878.	<i>Rhus taitensis</i>	7	20.1
879.	<i>Dysoxylum samoense</i>	7	6.3
880.	<i>Rhus taitensis</i>	8	6.8
881.	<i>Cananga odorata</i>	8	5.9
882.	<i>Adenanthera pavonina</i>	8	10.0
883.	<i>Cananga odorata</i>	8	15.5+6.9
884.	<i>Dysoxylum samoense</i>	9	5.0
885.	<i>Canarium harveyi</i>	9	10.1
886.	<i>Elaeocarpus ulianus</i>	9	5.5
887.	<i>Elaeocarpus ulianus</i>	9	10.3
888.	<i>Canarium vitiense</i>	9	10.4+11.4
889.	<i>Macaranga stipulosa</i>	9	6.6
890.	<i>Myristica fatua</i>	9	6.4+8.7+14.7
891.	<i>Canarium vitiense</i>	9	10.8

Plot 6. Luatele Secondary Forest

No.	Species	Subplot	Dbh (inches)
568.	<i>Flacourtia rukam</i>	1	6.5
569.	<i>Dysoxylum samoense</i>	1	44.6
571.	<i>Syzygium inophylloides</i>	1	27.0
572.	<i>Bischofia javanica</i>	1	10.6
574.	<i>Syzygium inophylloides</i>	1	11.1
575.	<i>Macaranga stipulosa</i>	1	7.1
576.	<i>Rhus taitensis</i>	1	6.1+6.3
577.	<i>Morinda citrifolia</i>	2	6.9
578.	<i>Glochidion ramiflorum</i>	4	7.5
579.	<i>Erythrina subumbrans</i>	4	8.0+5.8+6.6 +10.1+7.6
580.	<i>Dysoxylum samoense</i>	4	4.7+3.5+6.2
581.	<i>Pipturus argenteus</i>	6	6.0
582.	<i>Macaranga stipulosa</i>	6	21.2
583.	<i>Rhus taitensis</i>	6	7.2
584.	<i>Pipturus argenteus</i>	6	6.6
585.	<i>Spondias dulcis</i>	7	5.0
586.	<i>Dysoxylum samoense</i>	7	6.8
587.	<i>Dysoxylum samoense</i>	7	15.1
588.	<i>Alphitonia zizyphoides</i>	8	5.0
589.	<i>Glochidion ramiflorum</i>	8	5.9+5.3
590.	<i>Rhus taitensis</i>	10	6.8
591.	<i>Syzygium samoense</i>	10	19.2 (base)
592.	<i>Ficus scabra</i>	10	4.5+1.5+3.4
594.	<i>Syzygium inophylloides</i>	10	10.1
595.	<i>Fagraea berteriana</i>	10	10.2

Tags 540 and 593 were lost, 553 was on a dead tree.

*Actually 50 cm out of plot.

Plot 7. Saua Lowland Forest

No.	Species	Subplot	Dbh (inches)
503.	<i>Dysoxylum samoense</i>	1	27.8
504.	<i>Pisonia umbellifera</i>	1	8.5
505.	<i>Diospyros samoensis</i>	2	6.2
506.	<i>Dysoxylum samoense</i>	2	12.8
507.	<i>Dysoxylum samoense</i>	3	20.7
509.	<i>Dysoxylum samoense</i>	4	19.3
510.	<i>Dysoxylum samoense</i>	4	31.7+7.8
511.	<i>Dysoxylum samoense</i>	5	7.7
512.	<i>Dysoxylum samoense</i>	6	38.1
513.	<i>Dysoxylum samoense</i>	6	38.3
514.	<i>Diospyros samoensis</i>	6	5.8
515.	<i>Dysoxylum samoense</i>	6	24.8
516.	<i>Diospyros samoensis</i>	7	6.9
517.	<i>Dysoxylum samoense</i>	8	39.0
518.	<i>Dysoxylum samoense</i>	9	44.7
519.	<i>Diospyros samoensis</i>	10	7.9
520.	<i>Dysoxylum samoense</i>	10	22.0

*Tag no. 508 was lost.

Plot 8. Liu Lowland Forest

No.	Species	Subplot	Dbh (inches)
521.	<i>Bischofia javanica</i>	1	10.2
522.	<i>Bischofia javanica</i>	1	7.7
523.	<i>Syzygium inophylloides</i>	1	6.2
524.	<i>Alphitonia zizyphoides</i>	1	7.3
525.	<i>Pometia pinnata</i>	1	7.9
526.	<i>Dysoxylum samoense</i>	2	7.9
527.	<i>Syzygium inophylloides</i>	2	6.7
528.	<i>Myristica fatua</i>	2	8.4
529.	<i>Dysoxylum samoense</i>	2	12.6
530.	<i>Endiandra elaeocarpa</i>	2	8.3
531.	<i>Sterculia fanaiho</i>	3	9.7
532.	<i>Syzygium inophylloides</i>	3	8.2
533.	<i>Ficus scabra</i>	3	6.7
534.	<i>Dysoxylum samoense</i>	3	9.6
535.	<i>Syzygium inophylloides</i>	4	10.7
536.	<i>Endiandra elaeocarpa</i>	4	8.0
537.	<i>Syzygium inophylloides</i>	4	8.5
538.	<i>Syzygium inophylloides</i>	4	7.2
539.	<i>Neonauclea forsteri</i>	4	6.2
540.	<i>Bischofia javanica</i>	5	7.2
541.	<i>Ficus scabra</i>	5	8.0
542.	<i>Syzygium inophylloides</i>	5	21.6
543.	<i>Dysoxylum samoense</i>	5	13.2
544.	<i>Dysoxylum samoense</i>	6	11.7
545.	<i>Bischofia javanica</i>	6	10.0
546.	<i>Dysoxylum samoense</i>	7	7.2
547.	<i>Endiandra elaeocarpa</i>	7	12.1
548.	<i>Dysoxylum samoense</i>	7	10.0
549.	<i>Ficus scabra</i>	8	7.2
550.	<i>Syzygium inophylloides</i>	8	15.1
551.	<i>Syzygium inophylloides</i>	8	10.5
552.	<i>Syzygium inophylloides</i>	8	9.3
553.	<i>Myristica fatua</i>	8	7.2
554.	<i>Calophyllum neo-ebudicum</i>	9	17.0
555.	<i>Pisonia umbellifera</i>	9	6.7
556.	<i>Pometia pinnata</i>	9	6.5
557.	<i>Myristica fatua</i>	9	9.4+4.6
558.	<i>Bischofia javanica</i>	10	6.5
559.	<i>Pometia pinnata</i>	10	8.6+3.2

APPENDIX 2. LIST OF TAGGED TREE SPECIES

Species	Samoan Name	No. Tagged
<i>Myristica fatua</i>	`atone	(70)
<i>Diospyros samoensis</i>	`au`auuli	(45)
<i>Syzygium inophylloides</i>	asi	(37)
<i>Canarium vitiense</i>	ma`ali	(34)
<i>Dysoxylum samoense</i>	maota/mamala	(28)
<i>Buchanania merrillii</i>	(no name)	(22)
<i>Myristica hypargyrea</i>	`atone `ulu	(17)
<i>Rhus taitensis</i>	tavai	(16)
<i>Canarium harveyi</i>	mafoa ¹	(16)
<i>Calophyllum neo-ebudicum</i>	tamanu	(11)
<i>Cananga odorata</i>	moso`oi	(9)
<i>Hibiscus tiliaceus</i>	fau	(8)
<i>Bischofia javanica</i>	`o`a	(8)
<i>Syzygium samoense</i>	fega vao ¹	(6)
<i>Baccaurea taitensis</i>	(no name)	(6)
<i>Alphitonia zizyphoides</i>	toi	(5)
<i>Hernandia moerenhoutiana</i>	pu`a	(5)
<i>Elaeocarpus ulianus</i>	a`amati`e ¹	(5)
<i>Ficus scabra</i>	mati vao	(4)
<i>Sterculia fanaiho</i>	fana`io	(4)
<i>Macaranga stipulosa</i>	lau fatu	(4)
<i>Garcinia myrtifolia</i>	(no name)	(4)
<i>Pometia pinnata</i>	tava	(3)
<i>Endiandra elaeocarpa</i>	(no name)	(3)
<i>Canthium merrillii</i>	ola sina	(3)
<i>Hedycarya denticulata</i>	(no name)	(3)
<i>Syzygium samarangense</i>	nonu vao ¹	(3)
<i>Citronella samoensis</i>	(no name)	(3)
<i>Adenanthera pavonina</i>	lopa	(2)
<i>Pisonia umbellifera</i>	(no name)	(2)
<i>Glochidion ramiflorum</i>	masame	(2)
<i>Pipturus argenteus</i>	sogā	(2)
<i>Palaquium stehlinii</i>	nasu ¹	(2)
<i>Flacourtia rukam</i>	filimoto	(2)
<i>Meryta macrophylla</i>	fagufagu	(2)
<i>Planchonella garberi</i>	`ala`a	(2)
<i>Morinda citrifolia</i>	nonu atogi	(1)
<i>Erythrina subumbrans</i>	gatae palagi	(1)

Species	Samoa Name	No. Tagged
<i>Spondias dulcis</i>	<i>vi</i>	(1)
<i>Fagraea berteroana</i>	<i>pualulu</i>	(1)
<i>Neonauclea forsteri</i>	<i>afa</i>	(1)
<i>Dysoxylum huntii</i>	<i>maota mea</i>	(1)
<i>Inocarpus fagifer</i>	<i>ifi</i>	(1)
<i>Garuga floribunda</i>	<i>vīvao</i>	(1)
<i>Planchonella grayana</i>	<i>`ala`a`</i>	(1)
<i>Barringtonia samoensis</i>	<i>falagā</i>	(1)
<i>Crossostylis biflora</i>	(no name)	(1)
<i>Syzygium clusifolium</i>	<i>asi vai</i> ¹	(1)
<i>Planchonella samoensis</i>	<i>māmālava</i>	(1)

¹ These names are somewhat questionable in American Samoa.

APPENDIX 3. TREE PLOT DATA

The data in the following 8 tables include for each species the number of trees, the number with a dbh of greater than 6 inches, the total basal area, and the relative dominance. This is followed by a listing of all the individual trees over 2 inches dbh measured in each plot.

Plot 1. Olo Ridge Forest

SPECIES	NO. OF TREES	TREES >6 IN.	BASAL AREA	REL. DOM.
1. <i>Canarium vitiense</i>	12	8	1095	15%
2. <i>Myristica fatua</i>	24	13	1095	15
3. <i>Myristica hypargyrea</i>	17	10	1082	15
4. <i>Dysoxylum huntii</i>	2	1	910	12
5. <i>Planchonella samoensis</i>	3	1	865	12
6. <i>Buchanania merrillii</i>	8	5	521	7
7. <i>Syzygium inophylloides</i>	2	1	334	5
8. <i>Hibiscus tiliaceus</i>	1	1	227	3
9. <i>Baccaurea taitensis</i>	10	2	210	3
10. <i>Elaeocarpus ulianus</i>	3	1	197	3
11. <i>Inocarpus fagifer</i>	1	1	177	2
12. <i>Canthium merrillii</i>	1	1	154	2
13. <i>Cananga odorata</i>	1	1	133	2
14. <i>Syzygium samarangense</i>	5	2	99	1
15. <i>Palaquium stehlinii</i>	2	1	92	1
16. <i>Hedycarya denticulata</i>	11	0	72	1
17. <i>Flacourtia rukam</i>	2	1	71	1
18. <i>Syzygium samoense</i>	6	1	61	1
19. <i>Sarcopygme pacifica</i>	6	0	52	1
20. <i>Macaranga stipulosa</i>	1	0	20	+
21. <i>Canarium harveyi</i>	1	0	7	+
22. <i>Psychotria forsteriana</i>	1	0	7	+
23. <i>Cyathea vaupelii</i>	2	0	6	+
24. <i>Polyscias samoensis</i>	1	0	3	+
25. <i>Hernandia moerenhoutiana</i>	1	0	3	+
Totals	123	51	7293	

1. *Canarium vitiense* [12]--4.0, 9.0, 14.0, 4.3, 8.2, 15.2, 3.2, 14.0, 16.1, 16.8, 2.6, 6.2.
2. *Myristica fatua* [24]--6.7, 2.9, 9.9, 10.2, 11.1, 5.1, 5.8, 2.2, 8.6, 4.6, 2.0, 12.4, 8.8, 4.9, 6.8, 14.0, 9.2, 4.1, 7.9, 9.6, 4.1, 2.7, 5.1, 6.4.
3. *Myristica hypargyrea* [17]--8.3, 5.3, 4.0, 8.6, 12.3, 5.6, 2.3, 2.1, 9.4, 8.8, 3.3, 19.7, 2.4, 9.4, 8.7, 12.4, 11.0.
4. *Dysoxylum huntii* [2]--2.2, ca. 33.5.
5. *Planchonella samoensis* [3]--2.5, ca. 33., 2.0.
6. *Buchanania merrillii* [8]--19.8, 8.0, 2.1, 6.7, 2.9, 3.4, 11.0, 2.5.
7. *Syzygium inophylloides* [2]--5.3, 19.7.
8. *Hibiscus tiliaceus* [1]--(7.7+15.1).
9. *Baccaurea taitensis* [10]-- -6.0, 5.5, 2.4, 4.6, 10.0, 2.3, 4.1, 3.7, 2.7, 5.0.
10. *Elaeocarpus ulianus* [3]--3.0, 4.1, 14.8.
11. *Inocarpus fagifer* [1]--15.4.
12. *Canthium merrillii* [1]--13.9.
13. *Cananga odorata* [1]-- 12.8.
14. *Syzygium samarangense* [5]--2.8, 3.8, 3.7, 7.1, 6.4.
15. *Palaquium stehlinii* [2]--3.9, 9.8.
16. *Hedycarya denticulata* [11]-- 3.0, 2.1, 4.1, 2.2, (4.1+1.9), 3.9, 3.1, 4.5, (3.6+1.4), 2.0, 2.5.
17. *Flacourtia rukam* [2]-- 2.8, 8.9.
18. *Syzygium samoense* [6]--2.0, 3.0, 3.8, 6.0, 3.2, 2.3.
19. *Sarcopygme pacifica* [6]--3.5, 2.6, 3.9, 3.6, 2.0, 2.0.
20. *Macaranga stipulosa* [1]--4.7.
21. *Canarium harveyi* [1]-- 2.9.
22. *Psychotria forsteriana* [1]-- 2.6.
23. *Cyathea vaupelii* [2]--2.1, 2.4.
24. *Polyscias samoensis* [1]--2.3.
25. *Hernandia moerenhoutiana* [1]-- 2.0.

Plot 2. Faiga Ridge Forest

SPECIES	NO. OF TREES	TREES >6 IN.	BASAL AREA	REL. DOM.
1. <i>Syzygium inophylloides</i>	11	11	1731	22%
2. <i>Calophyllum neo-ebudicum</i>	4	4	1354	18
3. <i>Canarium vitiense</i>	10	10	1333	17
4. <i>Myristica fatua</i>	56	5	788	10
5. <i>Buchanania merrillii</i>	20	5	747	10
6. <i>Diospyros samoensis</i>	22	6	496	6
7. <i>Canarium harveyi</i>	26	1	277	4
8. <i>Garcinia myrtifolia</i>	5	2	248	3
9. <i>Myristica hypargyrea</i>	6	3	186	2
10. <i>Hernandia moerenhoutiana</i>	2	2	163	1
11. <i>Syzygium samoense</i>	3	2	69	1
12. <i>Crossostylis biflora</i>	1	1	54	1
13. <i>Planchonella garberi</i>	2	1	51	1
14. <i>Hibiscus tiliaceus</i>	3	1	48	1
15. <i>Erythrospermum acuminatissimum</i>	2	0	29	+
16. <i>Baccaurea taitensis</i>	3	0	27	+
17. <i>Meryta macrophylla</i>	6	0	22	+
18. <i>Polyscias samoensis</i>	5	0	22	+
19. <i>Ixora samoensis</i>	6	0	22	+
20. <i>Aglaiia samoensis</i>	3	0	13	+
21. <i>Glochidion ramiflorum</i>	2	0	10	+
22. <i>Antidesma sphaerocarpum</i>	3	0	9	+
23. <i>Psychotria insularum</i>	1	0	3	+
24. <i>Elattostachys falcata</i>	1	0	3	+
25. <i>Flacourtia rukam</i>	1	0	3	+

* Totals 204 54 7708

1. *Syzygium inophylloides* [11]--19.3, 9.4, 9.5, 12.5, 7.0, 23.2, 6.0, 20.4, 10.1, 9.7, 16.6.
2. *Calophyllum neo-ebudicum* [4]-- 20.4, 20.2, 22.7, 21.1.
3. *Canarium vitiense* [10]--17.9, 16.0, 17.8, 10.8, 7.0, 12.4, 13.9, 7.9, 7.0, 13.3.

4. *Myristica fatua* [56]-- 4.0, 2.3, 2.6, 6.3, 2.3, 4.9, 4.2, 5.1, 2.0, 2.1, 2.7, 6.6, 3.8, 5.4, 4.2, 4.8, 4.3, 2.2, 3.6, 2.5, 2.9, 2.9, 2.6, 3.3, 5.0, 2.5, 3.5, 5.7, 5.5, 7.5, 4.4, 2.3, 5.5, 5.8, 2.4, 5.4, 6.8, 2.2, 2.1, 2.7, 2.3, 2.2, 3.1, 3.6, 2.9, 5.3, 7.0, 4.8, 2.0, 5.0, 4.0, 2.8, 4.2, 5.2, 5.3, 2.7.
5. *Buchanania merrillii* [20]--3.6, 6.5, 16.4, 3.2, 4.5, 10.6, 8.2, 5.8, 2.3, 2.0, 2.5, 15.8, 2.0, 3.9, 3.0, 2.6, 2.2, 3.4, 5.7, 3.5.
6. *Diospyros samoensis* [22]-- 5.6, 3.4, 2.4, (3.1+2.3), 14.0, 2.9, 13.1, 4.2, 4.1, 2.4, 3.4, 7.8, 2.1, 2.8, 2.5, 2.5, 3.0, (8.2+3.2), 2.1, 2.2, 8.5, 2.1.
7. *Canarium harveyi* [26]--2.8, 2.3, 2.3, 2.1, 2.3, 2.0, 2.0, 13.2, 2.7, 2.2, 2.1, 2.5, 3.7, 5.0, 2.9, 3.4, 2.2, 2.1, 2.0, 2.9, 2.5, 2.1, 2.1, 2.4, 4.1, 2.5.
8. *Garcinia myrtifolia* [5]--2.4, 14.2, 2.7, 5.1, 8.8.
9. *Myristica hypargyrea* [6]--(7.2+4.4), 4.4, 6.9, 3.0, 3.5, 8.4.
10. *Hernandia moerenhoutiana* [2]--8.1, 12.1.
11. *Syzygium samoense* [3]--2.3, 6.7, 5.8.
12. *Crossostylis biflora* [1]--(4.1+7.1+2.4).
13. *Planchonella garberi* [2]--4.0, 7.0.
14. *Hibiscus tiliaceus* [3]--2.8, 2.0, 6.5.
15. *Erythrospermum acuminatissimum* [2]--3.5, 2.8+3.8.
16. *Baccaurea taitensis* [3]--3.9, 2.6, 2.8.
17. *Meryta macrophylla* [6]--2.0, 2.9, 2.1, 2.2, 2.1, 2.1.
18. *Polyscias samoensis* [5]--3.4, 3.0, 2.2, 2.0, 2.2.
19. *Ixora samoensis* [6]--2.8, 2.2, 2.0, 2.2, 2.3, 2.1.
20. *Aglaiia samoensis* [3]--3.5, 2.5, 2.1.
21. *Glochidion ramiflorum* [2]--2.8, 2.3.
22. *Antidesma sphaerocarpum* [3]-- 2.0, 2.1, 2.3.
23. *Psychotria insularum* [1]--2.1.
24. *Elatostachys falcata* [1]--2.0.
25. *Flacourtia rukam* [1]-- 2.0.

Plot 3. Sauma Ridge Forest

SPECIES	NO. OF TREES	TREES >6 IN.	BASAL AREA	REL. DOM.
1. <i>Diospyros samoensis</i>	27	12	2698	30%
2. <i>Rhus taitensis</i>	6	5	1276	14
3. <i>Dysoxylum samoensis</i>	8	4	1238	14
4. <i>Canarium vitiense</i>	7	5	1008	11
5. <i>Ficus obliqua</i>	1	1	907	10
6. <i>Myristica fatua</i>	18	4	286	3
7. <i>Hibiscus tiliaceus</i>	13	2	240	3
8. <i>Syzygium inophylloides</i>	3	3	222	3
9. <i>Canarium harveyi</i>	30	2	268	2
10. <i>Sterculia fanaiho</i>	14	2	180	2
11. <i>Cananga odorata</i>	4	3	139	2
12. <i>Syzygium clusiifolium</i>	10	1	111	1
13. <i>Citronella samoensis</i>	8	0	89	1
14. <i>Calophyllum neo-ebudicum</i>	1	1	64	1
15. <i>Planchonella grayana</i>	5	0	44	+
16. <i>Meryta macrophylla</i>	6	0	44	+
17. <i>Garuga floribunda</i>	1	0	20	+
18. <i>Barringtonia samoensis</i>	1	0	20	+
19. <i>Elattostachys falcata</i>	2	0	16	+
20. <i>Ficus scabra</i>	2	0	16	+
21. <i>Aglaia samoensis</i>	3	0	13	+
22. <i>Psychotria insularum</i>	1	0	9	+
23. <i>Casearia</i> sp. nova	1	0	3	+
24. <i>Flacourtia rukam</i>	1	0	3	+
25. <i>Elaeocarpus tonganus</i>	1	0	3	+
Totals	171	47	8849	

1. *Diospyros samoensis* [27]-- 5.8, 4.7, 11.7, 2.6, 24.5, 5.7, 2.5, 5.8, 4.3, 4.1, 6.8, 4.1, 2.3, 20.2, 2.0, 2.4, 2.7, 11.2, 3.2, 9.0, 4.7, 30.4, 6.7, 6.1, 16.7, 10.2, 19.6.
2. *Rhus taitensis* [6]--25.0, 25.2, 6.2, 5.1, 12.0, 13.1.
3. *Dysoxylum samoensis* [8]--16.6, 30.7, 7.0, 4.2, 5.0, 15.3, 2.0, 2.8.
4. *Canarium vitiense* [7]--2.7, 15.0, 9.8, 25.8, 2.1, 18.6, 6.3.
5. *Ficus obliqua* [1]-- ca. 34.0.
6. *Myristica fatua* [18]-- 2.0, 7.7, 5.5, 2.1, 3.8, 4.1, 6.9, 3.9, 4.6, 5.7, 3.3, 2.9, 5.3, 4.0, 4.4, 3.1, 2.0, 2.5.
7. *Hibiscus tiliaceus* [13]--7.1, 4.7, 9.1+5.9, 4.0+2.3, 2.6, 2.9+2.2, 4.4, 2.3, 2.1, 3.6, 2.0, 2.2, 2.1.

8. *Syzygium inophylloides* [3]--9.6, 9.7, 8.9.
9. *Canarium harveyi* [30]--2.5, 2.2, 3.1, 2.7, 2.6, 2.1, 2.6, 2.4, 2.2, 2.7, 3.0, 2.0, 2.7, 2.0, 4.9, 2.5, 2.6, 2.1, 2.3, 3.3, 2.2, 4.8, 4.3, 2.1, 3.3, 3.1, 2.0, 4.7, 3.2, 2.2.
10. *Sterculia fanaiho* [14]-- 2.4, 3.0, 2.2, 3.2, 4.2, 3.4, 3.0, 2.9+2.8, 7.4, 2.2, 3.8, 8.0, 2.2, 3.7.
11. *Cananga odorata* [4]--7.2, 6.7, 3.6, 8.4.
12. *Syzygium clusiifolium* [10]--2.8, 2.5, 2.5, 2.3, 2.1, 7.5, 2.3+2.2, 2.9, 2.8, 3.6.
13. *Citronella samoensis* [9]--3.1, 2.5, 3.7, 2.1, 4.4, 4.7, 4.6, 2.3, 2.3.
14. *Calophyllum neo-ebudicum* [1]--9.4.
15. *Planchonella grayana* [5]-- 2.8, 3.0, 4.6, 2.1, 2.8.
16. *Meryta macrophylla* [6]--3.2, 3.1, 4.4, 3.3, 2.7.
17. *Garuga floribunda* [1]--4.6.
18. *Barringtonia samoensis* [1]--4.7.
19. *Elattostachys falcata* [2]--2.4, 3.6.
20. *Ficus scabra* [2]-- 2.1, 3.5.
21. *Aglaiia samoensis* [2]--2.7, 2.3, 2.3
22. *Psychotria insularum* [1]--2.6.
23. *Casearia* sp. nova [1]--2.1.
24. *Flacourtia rukam* [1]--2.1.
25. *Elaeocarpus tonganus* [1]-- 2.0.

Plot 4. Nu`utoga Ridge Forest

SPECIES	NO. OF TREES	TREES >6 IN.	BASAL AREA	REL. DOM.
1. <i>Diospyros samoensis</i>	13	8	972	29%
2. <i>Canarium vitiense</i>	1	1	616	18
3. <i>Canarium harveyi</i>	40	2	379	11
4. <i>Calophyllum neo-ebudicum</i>	4	4	375	11
5. <i>Syzygium inophylloides</i>	10	5	310	9
6. <i>Myristica fatua</i>	10	4	248	7
7. <i>Hernandia moerenhoutiana</i>	5	2	220	7
8. <i>Buchanania merrillii</i>	7	2	150	4
9. <i>Rhus taitensis</i>	1	1	28	1
10. <i>Canthium merrillii</i>	1	0	20	1
11. <i>Meryta macrophylla</i>	2	0	14	+
12. <i>Aglaiia samoensis</i>	1	0	7	+
13. <i>Ixora samoensis</i>	1	0	7	+
14. <i>Psychotria insularum</i>	1	0	3	+
15. <i>Syzygium clusiifolium</i>	1	0	3	+
16. <i>Flacourtia rukam</i>	1	0	3	+
Totals	98	25	3335	
Totals Per 1000 m ²	196	58	6670	

1. *Diospyros samoensis* (13)--7.4, 6.1, 9.1, 15.3, 4.9, 2.9, 18.5, 7.5, 7.1, 3.8, 2.9, 5.3, 16.6.
2. *Canarium vitiense* (1)--27.9.
3. *Canarium harveyi* (40)--2.0, 2.8, 3.5, 2.4, 3.5, 2.4, 2.0, 3.5, 2.2, 2.1, 3.3, 3.5, 2.3, 2.1, 4.5, 6.0, 4.9, 4.9, 4.9, 2.2, 2.0, 2.0, 2.1, 3.4, 2.4, 5.4, 2.2, 4.5, 2.2, 3.0, 3.7, 2.0, 2.2, 2.8, 2.7, 6.0, 5.2, 2.6, 3.9, 2.0.
4. *Calophyllum neo-ebudicum* (4)-- 13.3, 12.0, 10.4, 8.1.
5. *Syzygium inophylloides* (10)-- 6.4, 9.7, 10.4, 9.4, 3.2, 13.3, 2.9, 2.2, 5.4, 4.4.
6. *Myristica fatua* (10)--2.2, 5.6, 2.8, 6.7, 7.3, 3.2, 6.4, 5.9, 2.8, 8.5.
7. *Hernandia moerenhoutiana* (5)--3.0, 13.3, 9.4, 2.3, 3.6.
8. *Buchanania merrillii* (7)--4.9, 7.5, 3.2, 7.5, 3.8, 2.8, 2.2.
9. *Rhus taitensis* (1)--6.2.
10. *Canthium merrillii* (1)--5.3.
11. *Meryta macrophylla* (2)--2.7, 3.0.
12. *Aglaiia samoensis* (1)--2.2.
13. *Ixora samoensis* (1)--2.8.

14. *Psychotria insularum* (1)--2.2.
15. *Syzygium clusiifolium* (1)--2.1.
16. *Flacourtia rukam* (1)-- 2.0.

Plot 5. Alava Ridge Secondary Forest

SPECIES	NO. OF TREES	TREES >6 IN.	BASAL AREA	REL. DOM.
1. <i>Rhus taitensis</i>	6	5	1134	21%
2. <i>Canarium vitiensis</i>	11	7	797	14
3. <i>Buchanania merrillii</i>	8	5	756	14
4. <i>Myristica fatua</i>	28	4	539	10
5. <i>Cananga odorata</i>	5	4	472	9
6. <i>Alphitonia zizyphoides</i>	3	3	324	6
7. <i>Polyscias samoensis</i>	29	2	302	6
8. <i>Syzygium samoense</i>	2	2	228	4
9. <i>Elaeocarpus ulianus</i>	4	3	148	3
10. <i>Bischofia javanica</i>	8	2	146	3
11. <i>Canarium harveyi</i>	2	1	92	2
12. <i>Adenanthera pavonina</i>	2	1	92	2
13. <i>Hernandia moerenhoutiana</i>	2	1	86	2
14. <i>Hibiscus tiliaceus</i>	2	1	77	1
15. <i>Canthium merrillii</i>	1	1	64	1
16. <i>Syzygium samarangense</i>	2	1	57	1
17. <i>Dysoxylum samoense</i>	2	1	48	1
18. <i>Macaranga stipulosa</i>	1	1	38	1
19. <i>Syzygium inophylloides</i>	4	0	36	1
20. <i>Myristica hypargyrea</i>	1	1	28	1
21. <i>Calophyllum neo-ebudicum</i>	1	0	28	1
22. <i>Planchonella samoensis</i>	4	0	20	+
23. <i>Crossostylis biflora</i>	2	0	20	+
24. <i>Diospyros samoensis</i>	1	0	13	+
Totals	129	45	5524	

1. *Rhus taitensis* [6]--8.1, 18.5, 5.9, 24.3, 20.1, 2.8.
2. *Canarium vitiense* [11]--13.1, 4.7, 11.3, 8.4, (3.7+7.5), 13.5, 3.6, 2.1, 2.4, (10.4+11.4), 10.8.
3. *Buchanania merrillii* [7]-- 4.8, 5.9, (20.5+6.3), 2.3, 8.3, 19.6, 3.4.
4. *Myristica fatua* [28]--2.7, 2.2, 2.4, 6.0, 2.2, 4.4, 3.9, 3.3, 3.0, 2.0, 3.6, 2.6, 2.1, 2.0, 3.2, 17.4, 2.2, 2.3, 3.7, 2.7, 2.0, 3.0, 5.4, 2.1, 3.2, 2.8, 2.7, 6.4+8.7.
5. *Cananga odorata* [5]--4.0, 8.1, 13.8, 5.9, (15.5+6.9).
6. *Alphitonia zizyphoides* [3]--16.2, 10.7, 9.8.
7. *Polyscias samoensis* [29]--4.8, 2.1, 2.8, 2.2+1.6, 4.2, 2.2, 3.2, 2.0, 3.7, 2.6+2.2+2.3, 2.5, 3.2, 5.9, 3.4, 4.8, 2.7+2.0, 4.5, 2.0, 2.0, 3.8, 2.2, 5.4, 2.2, 5.3, 3.0, 3.2, 2.8, 2.3, 5.6.

8. *Syzygium samoense* [2]--(8.2+4.3+6.6), (10.3+5.4+6.2).
9. *Elaeocarpus ulianus* [4]--3.9, 5.6, 5.5, 10.3.
10. *Bischofia javanica* [8]--2.9, 3.3, 2.1, 2.8, 3.2, 4.2, 8.8, 6.8.
11. *Canarium harveyi* [2]-- 4.2, 10.1.
12. *Adenantha pavonina* [2]-- 4.2, 10.0.
13. *Hernandia moerenhoutiana* [2]--10.2, 3.4.
14. *Hibiscus tiliaceus* [2]--9.2, 3.7.
15. *Canthium merrillii* [1]-- 9.2.
16. *Syzygium samarangense* [2]--2.5, 8.1.
17. *Dysoxylum samoense* [2]--5.0, 6.3.
18. *Macaranga stipulosa* [1]--6.6.
19. *Syzygium inophylloides* [5]--2.4, 2.9, 2.1, 4.0, 3.8.
20. *Myristica hypargyrea* [1]--5.5.
21. *Calophyllum neo-ebudicum* [1]--5.7.
22. *Planchonella samoensis* [4]--3.2, 2.2, 2.4, 2.8.
23. *Crossostylis biflora* [2]--3.7, 2.8.
24. *Diospyros samoensis* [1]--3.8.

Plot 6. Luatele Secondary Forest

SPECIES	NO. OF TREES	TREES >6 IN.	BASAL AREA	REL. DOM.
1. <i>Dysoxylum samoense</i>	6	5	1899	37%
2. <i>Syzygium inophylloides</i>	3	3	746	15
3. <i>Cyathea lunulata</i>	21	14	607	12
4. <i>Macaranga stipulosa</i>	9	2	444	9
5. <i>Syzygium samoense</i>	1	1	272	5
6. <i>Erythrina subumbrans</i>	2	1	258	5
7. <i>Rhus taitensis</i>	4	3	135	3
8. <i>Glochidion ramiflorum</i>	3	2	111	2
9. <i>Bischofia javanica</i>	2	1	108	2
10. <i>Pipturus argenteus</i>	7	2	106	2
11. <i>Morinda citrifolia</i>	4	1	89	2
12. <i>Fagraea berteriana</i>	1	1	79	2
13. <i>Ficus scabra</i>	6	1	66	1
14. <i>Hibiscus tiliaceus</i>	5	0	41	1
15. <i>Flacourtia rukam</i>	1	1	38	1
16. <i>Alphitonia zizyphoides</i>	1	0	20	+
17. <i>Spondias dulcis</i>	1	0	20	+
18. <i>Elaeocarpus tonganus</i>	1	0	13	+
19. <i>Geniostoma rupestre</i>	1	0	13	+
20. <i>Pisonia umbellifera</i>	1	0	3	+
Totals	80	38	5068	

1. *Dysoxylum samoense* [6]--44.6, 3.8, 5.7, (4.7+3.5+6.2), 6.8, 15.1.
2. *Syzygium inophylloides* [3]--27.0, 11.1, 10.1.
3. *Cyathea lunulata* [21]--5.3, 8.1, 12.1, 6.7, 7.2, 5.0, 6.0, 9.3, 6.3, 5.4, 6.6, 5.3, 8.4, 7.8, 4.6, 8.4, 6.1, 5.8, 5.8, 6.1, 6.1.
4. *Macaranga stipulosa* [10]--4.8, 7.1, 21.2, 3.4, 3.9, 2.2, 2.0, 2.8, 3.3.
5. *Syzygium samoense* [1]--19.2.
6. *Erythrina subumbrans* [2]--4.3, (8.0+5.8+6.6+10.1+7.6).
7. *Rhus taitensis* [4]--(6.1+6.3), 7.2, 2.1, 6.8.
8. *Glochidion ramiflorum* [3]-- 4.2, 7.5, (5.9+5.3).
9. *Bischofia javanica* [2]--10.6, 3.6.
10. *Pipturus argenteus* [7]--3.1, (2.9+1.9), 3.0, 3.8, 6.0, 6.6, 2.1.
11. *Morinda citrifolia* [4]-- 4.8, (3.9+3.9+1.5), 6.9, 2.1.
12. *Fagraea berteriana* [1]--10.2.
13. *Ficus scabra* [6]--2.1, 3.7, 2.2, 2.8, 2.8, (4.5+1.5+3.4).
14. *Hibiscus tiliaceus* [5]-- 3.3, (2.5+2.0), 2.4, 3.5, 3.0.

15. *Flacourtia rukam* [1]--6.5.
16. *Alphitonia zizyphoides* [1]--5.0.
17. *Spondias dulcis* [1]-- 5.0.
18. *Elaeocarpus tonganus* [1]-- 4.1.
19. *Geniostoma rupestre* [1]--3.0.
20. *Pisonia umbellifera* [1]--2.1.

Plot 7. Saua Lowland Forest

SPECIES	NO. OF TREES	TREES >6 IN.	BASAL AREA	REL. DOM.
1. <i>Dysoxylum samoense</i>	12	12	8143	89%
2. <i>Diospyros samoensis</i>	37	3	433	5
3. <i>Pisonia umbellifera</i>	18	1	272	3
4. <i>Morinda citrifolia</i>	3	1	70	1
5. <i>Sterculia fanaiho</i>	3	1	68	1
6. <i>Ficus scabra</i>	9	0	53	1
7. <i>Macaranga harveyana</i>	4	0	47	+
8. <i>Flacourtia rukam</i>	4	0	16	+
9. <i>Pisonia grandis</i>	2	0	14	+
10. <i>Garuga floribunda</i>	3	0	9	+
11. <i>Psychotria insularum</i>	1	0	5	+
12. <i>Carica papaya</i>	1	0	3	+
13. <i>Polyscias samoensis</i>	1	0	3	+
Totals	97	18	9118	

1. *Dysoxylum samoense* [12]--27.8, 12.8, 20.7, 19.3, (31.7+7.8), 7.7, 38.1, 38.3, 24.8, 39.0, 44.7, 22.0.
2. *Diospyros samoensis* [37]--2.0, 3.4, 5.3, 2.7, 3.7, 6.2, (2.2+2.4), 3.0, (2.1+1.1), 5.5, (1.9+1+1), 3.7, 2.7, 5.8, 2.0, (1.5+1.4+2.4), 3.3, 3.3, 2.2, 3.5, 2.3, 3.0, 2.4, 6.9, 3.5, 2.4, 2.1, 2.3, 4.4, 5.6, 2.8, (2.1+1.8), 4.7, 3.4, 7.9, 2.0, 2.1.
3. *Pisonia umbellifera* [18]-- 4.8, (4.1+2.6), 8.5, 2.1, 2.2, 5.2, 4.9, 4.4, 2.4, 3.4, 2.1, 4.9, 4.5, 2.8, 3.5, 3.6, 4.8, 2.2.
4. *Morinda citrifolia* [3]--7.5, 2.5, 4.2.
5. *Sterculia fanaiho* [3]--5.6, 5.4, 5.0.
6. *Ficus scabra* [9]--2.5, 2.0, 2.5, 2.2, 2.5, 2.7, 3.5, 2.3, 2.1.
7. *Macaranga harveyana* [4]--4.4, 2.6, 2.2, 2.6.
8. *Flacourtia rukam* [3]--2.0, 2.8, 2.1, 2.0.
9. *Pisonia grandis* [2]-- 2.8, 3.0.
10. *Garuga floribunda* [3]-- 2.1, 2.1, 2.4.
11. *Psychotria insularum* [1]-- (1.5+1.5+1.3).
12. *Carica papaya* [1]-- 2.5.
13. *Polyscias samoensis* [1]-- 1.9.

Plot 8. Liu Lowland Forest

SPECIES	NO. OF TREES	TREES >6 IN.	BASAL AREA	REL. DOM.
1. <i>Syzygium inophylloides</i>	10	10	1029	25%
2. <i>Dysoxylum samoense</i>	12	7	789	19
3. <i>Bischofia javanica</i>	7	5	332	8
4. <i>Endiandra elaeocarpa</i>	7	3	267	7
5. <i>Cyathea vaupelii</i>	29	0	252	6
6. <i>Calophyllum neo-ebudicum</i>	1	1	227	6
7. <i>Pometia pinnata</i>	6	3	195	5
8. <i>Myristica fatua</i>	5	3	181	4
9. <i>Ficus scabra</i>	7	3	169	4
10. <i>Macaranga stipulosa</i>	12	1	156	3
11. <i>Cyathea decurrens</i>	4	2	150	4
12. <i>Sterculia fanaiho</i>	1	1	79	2
13. <i>Pisonia umbellifera</i>	3	1	73	2
14. <i>Alphitonia zizyphoides</i>	2	1	58	1
15. <i>Neonauclea forsteri</i>	2	1	35	1
16. <i>Cordia aspera</i>	4	0	23	1
17. <i>Syzygium samarangense</i>	1	0	20	+
18. <i>Pipturus argenteus</i>	2	0	20	+
19. <i>Trema cannabina</i>	1	0	13	+
20. <i>Meryta macrophylla</i>	1	0	13	+
Totals	117	42	4098	

1. *Syzygium inophylloides* [10]--6.2, 6.7, 8.2, 10.7, 8.5, 7.2, 21.6, 15.1, 10.5, 9.3.
2. *Dysoxylum samoense* [12]--2.7, 7.9, 12.6, 4.2, 5.0, 9.6, 4.9, 3.5, 13.2, 11.7, 7.2, 10.0.
3. *Bischofia javanica* [7]--10.2, 5.8, 7.7, 5.5, 7.2, 10.0, 6.5.
4. *Endiandra elaeocarpa* [7]--3.3, 8.5, 3.5, 8.0, 12.1, 2.6, 4.2.
5. *Cyathea vaupelii* [29]--4.4, 3.3, 3.7, 3.1, 3.8, 2.5, 3.3, 3.0, 3.7, 3.1, 4.1, 3.0, 3.4, 3.0, 3.3, 2.7, 4.6, 3.2, 3.5, 3.0, 2.5, 3.0, 2.8, 3.2, 3.2, 3.1, 2.9, 3.3, 3.2.
6. *Calophyllum neo-ebudicum* [1]--17.0.
7. *Pometia pinnata* [6]--7.9, 5.3, 6.5, 4.1, 2.3, (8.6+3.2).
8. *Myristica fatua* [5]--8.4, (2+2.2), 2.1, 7.2, (9.4+4.6).
9. *Ficus scabra* [7]--2.7, 3.7, 6.7, 2.4, 8.0, 7.2, 5.4.
10. *Macaranga stipulosa* [12]--2.0, 3.5, 3.3, 2.0, 3.2, 2.4, 4.3, 8.8, 4.0, 4.7, 3.0, 2.1.
11. *Cyathea decurrens* [4]--9.0, 4.6, 7.2, 5.5.
12. *Sterculia fanaiho* [1]--9.7.
13. *Pisonia umbellifera* [3]-- .7, 2.9, 6.7.

14. *Alphitonia zizyphoides* [2]-- 7.3, 4.9.
15. *Neonauclea forsteri* [2]--3.0, 6.2.
16. *Cordia aspera* [4]--3.1, 4.3, 2.3, 2.9.
17. *Syzygium samarangense* [1]-- 4.8.
18. *Pipturus argenteus* [2]--3.5, 2.5.
19. *Trema cannabina* [1]--3.7.
20. *Meryta* [1]--3.2.

APPENDIX 4. SHRUB AND HERB VEGETATION DATA

The following data is for the non-tree data recorded in the plots. This includes (1) ground cover; (2) vines and climbers; and (3) epiphytes. The ground cover was estimated in a modified form of the Braun-Blanquet method (Mueller-Dombois and Ellenberg 1974) in which percentage cover was used instead of percentage classes. An "s" after a species name indicates that it is a seedling of a tree species. Also recorded is the frequency, i.e., the number of subplots in which the plant was found. It is expressed as a fraction in the right-hand column.

The climber and vines on trees were estimated by ranking them 1 to 4 on a small number of trees (usually about 10), according to the estimated biomass of the species on the tree. The number of times a species was ranked first on the tree was noted in the table, second, and so on. Epiphytes were not estimated quantitatively, but the species noted were recorded.

Plot 1. Olo Ridge Forest

The ground cover was heavy, and consisted mostly of *Lomagramma cordipinna*. It was estimated in 2 x 2 m quadrats within five of the 10 x 10 m subplots. The results, in percent cover, were as follows.

Species	Cover	Freq.
1. <i>Lomagramma cordipinna</i>	57.0%	5/5
2. <i>Dysoxylum huntii</i> (s)	1.6	2/5
3. Other tree seedlings	1.5	...
4. <i>Rourea minor</i>	1.4	2/5
5. <i>Alyxia bracteolosa</i>	0.6	4/5
6. <i>Freycinetia storckii</i> ?	0.4	1/5

Total 62.5%

The dominant vines and climbers on trees were estimated by ranking them in order of perceived dominance on 15 large trees. The results were as follows:

Species	Rank	1	2	3	4
1. <i>Lomagramma cordipinna</i>		7	4	0	0
2. <i>Piper graeffei</i>		2	3	4	1
3. <i>Epipremnum pinnatum</i>		2	4	3	0
4. <i>Freycinetia storckii</i>		3	0	0	0
5. <i>Rhaphidophora graeffei</i>		1	1	0	0
6. <i>Faradaya amicornum</i>		0	2	1	0

Epiphytes were relatively common, and the species recorded were *Asplenium australasicum*, *Dendrobium dactylodes*, *Dendrobium sladei*, *Dendrobium calcaratum*, *Procris pedunculata*, *Ctenopteris blechnoides*, *Phreatia micrantha*, *Davallia epiphylla*, *Phymatosorus scolopendria*, *Humata heterophylla*, and *Antrophyum alatum*. The dominant species was probably *Asplenium australasicum*.

Plot 2. Faiga Ridge Forest

Ground cover was moderate and was dominated by seedlings of trees. It was estimated in 2 x 2 m quadrats within five of the 10 x 10 m subplots. The results, in percent cover, is as follows:

Species	Cover	Freq.
1. <i>Canarium harveyi</i> (s)	7.9%	5/5
2. <i>Polyscias samoensis</i> (s)	6.1	3/5
3. <i>Garcinia myrtifolia</i> (s)	3.3	3/5
4. <i>Psychotria insularum</i> (s)	1.6	4/5
5. <i>Phymatosorus scolopendria</i>	1.6	1/5
6. <i>Faradaya amicornum</i>	1.6	1/5
7. <i>Gynochtodes epiphytica</i>	1.4	3/5
8. <i>Alyxia bracteolosa</i>	1.2	3/5
9. <i>Piper graeffei</i>	1.1	4/5
10. <i>Calophyllum neo-ebudicum</i> (s)	1.1	3/5
11. <i>Buchanania merrillii</i> (s)	1.0	1/5
12. <i>Macaranga stipulosa</i> (s)	0.9	2/5
13. <i>Diospyros samoensis</i> (s)	0.8	3/5
14. <i>Syzygium inophylloides</i> (s)	0.8	3/5
15. <i>Meryta macrophylla</i> (s)	0.8	1/5
16. <i>Alphitonia zizyphoides</i> (s)	0.7	3/5
17. <i>Elattostachys falcata</i> (s)	0.6	5/5
18. Others	1.3	

Total 33.8%

The dominant vines and climbers were estimated by ranking them in order of perceived dominance on 11 large trees. The number trees with vines and climbers on them was lower than in many of the other plots. The results were as follows:

Species	Rank	1	2	3	4
1. <i>Piper graeffei</i>		5	1	1	0
2. <i>Freycinetia storckii</i>		4	0	0	0
3. <i>Mikania micrantha</i>		1	0	3	0
4. <i>Gynochtodes epiphytica</i>		1	0	0	0
5. <i>Faradaya amicorum</i>		0	2	0	0

Epiphytes were relatively common. The most frequently encountered species, in rough declining dominance, were *Phymatosorus scolopendria*, *Dendrobium dactylodes*, *Dendrobium biflorum*, *Davallia epiphylla*, *Phreatia micrantha*, *Dendrobium sladei*, *Pyrrosia lanceolata*, *Flickingeria comata*, *Asplenium nidus*, *Antrophyum plantagineum*, *Davallia solida*, and *Procris pedunculata*.

Plot 3. Sauma Ridge Forest

Ground cover was very light and consisted almost entirely of seedlings of the common trees of the area--no ferns were recorded in the ground cover of the plot. It was estimated in 2 x 2 m quadrats within five of the 10 x 10 m subplots. The results, in percentage cover, is as follows:

Species	Cover	Freq.
1. <i>Faradaya amicorum</i>	1.4%	3/5
2. <i>Alyxia bracteolosa</i>	1.1	4/5
3. <i>Diospyros samoensis</i>	1.0	4/5
4. <i>Syzygium inophylloides</i>	1.0	1/5
5. <i>Gynochtodes epiphytica</i>	0.9	1/5
6. <i>Elattostachys falcata</i>	0.6	3/5
7. <i>Heliconia laufao</i>	0.5	4/5
8. <i>Myristica fatua</i>	0.5	2/5
9. <i>Piper graeffei</i>	0.4	1/5
10. <i>Garuga floribunda</i>	0.3	2/5
11. <i>Planchonella grayana</i>	0.3	2/5
12. Others	1.0	

Total 9.0%

The dominant vines and climbers on the trees were estimated ranking them in order of dominance on 10 large trees. The results were as follows:

Species	Rank	1	2	3	4
1. <i>Gynochtodes epiphytica</i>	5	-	-	-	-
2. <i>Piper graeffei</i>	3	2	1	-	-
3. <i>Epipremnum pinnatum</i>	1	1	1	-	-
4. <i>Faradaya amicornum</i>	2	-	-	-	-
5. <i>Jasminum didymum</i>	-	2	-	-	-
6. <i>Hoya australis</i>	-	-	2	-	-
7. <i>Alyxia stellata</i>	-	1	-	-	-
8. <i>Mikania micrantha</i>	-	-	1	-	-

No measure of epiphytes was taken, but they were rather light. The species recorded were *Asplenium nidus*, *Pyrrosia lanceolata*, *Dendrobium dactyloides*, *Davallia solida*, and *Phymatosorus scolopendria*.

Plot 4. Nu`utoga Ridge Forest

No actual percent cover data was recorded for this plot, but it was estimated to be about 27%. Very little of this comprised ferns, except for a few patches of *Trichomanes humile* on rocks, *Humata heterophylla*, and *Phymatosorus scolopendria*, the latter two of which may have originated on branches that fell to the forest floor. The dominant species were seedlings of the dominant tree species, especially *Canarium harveyi*, *Psychotria insularum* (an understory species), *Calophyllum neo-ebudicum*, and *Alphitonia zizyphoides*. There were a couple of patches of *Scleria polycarpa*.

The amount of vines and climbers in this forest was very low. The most common species were *Freycinetia storckii* and *Freycinetia reineckeii*, which were on just a few trees.

The dominant epiphyte species were *Dendrobium dactyloides*, *Dendrobium biflorum*, and *Pyrrosia lanceolata*, with lesser amounts of *Phymatosorus scolopendria*, *Davallia epiphylla*, and *Davallia solida*.

Plot 5. Alava Ridge Secondary Forest

Ground cover heavy, consisting mostly of *Lomagramma cordipinna*. It was estimated in 2 x 2 m quadrats within five of the 10 x 10 m subplots. The results, in relative dominance, were as follows:

Species	Cover	Freq.
1. <i>Lomagramma cordipinna</i>	52.0%	5/5
2. <i>Tectaria stearnsii</i>	13.6	3/5
3. <i>Christella harveyi</i>	3.2	5/5
4. <i>Heliconia laufao</i>	2.2	3/5
5. <i>Freycinetia storckii</i>	0.9	3/5
6. <i>Clidemia hirta</i>	0.7	5/5
7. <i>Alyxia bracteolosa</i>	0.7	3/5
8. Others	1.0	
9. Seedlings of trees	4.4	

Total 78.7%

The dominant vines and climbers on the trees were estimated by ranking them in order of perceived dominance on 11 large trees. The results were as follows:

Species	Rank	1	2	3	4
1. <i>Epipremnum pinnatum</i>		5	3	0	0
2. <i>Piper graeffei</i>		3	1	1	2
3. <i>Freycinetia storckii</i>		2	1	0	0
4. <i>Faradaya amicorum</i>		0	2	1	0
5. <i>Lomagramma cordipinna</i>		0	0	3	1
6. <i>Freycinetia reineckeii</i>		1	0	0	0
7. <i>Medinilla samoensis?</i>		0	0	1	0

Epiphytes were relatively common in this plot. The dominant species were *Asplenium nidus*, *Phymatosorus*, *Dendrobium dactylodes*, and *Dendrobium biflorum*. Other species encountered in the plot included *Dendrobium sladei*, *Humata heterophylla*, *Vaginularia angustissima*, *Asplenium polyodon*, *Procris pedunculata*, and *Antrophyum alatum*.

Plot 6. Luatele Secondary Forest

The ground cover was heavy and estimated in 2 x 2 m quadrats within each of the 10 x 10 m subplots. The abundant ground cover was because of the open canopy. There seemed to be two associations: in the shady areas the dominants were *Diplazium* and *Clidemia*, with considerably lesser amounts of *Mikania* and *Lomagramma*; in sunny areas the dominants were *Mikania*, *Nephrolepis*, *Merremia*, and *Clidemia*, roughly in that order. The results, in percent cover, was as follows:

Species	Cover	Freq.
1. <i>Clidemia hirta</i>	30.8%	10/10
2. <i>Diplazium harpeodes</i>	22.0	7/10
3. <i>Mikania micrantha</i>	13.2	9/10
4. <i>Merremia peltata</i>	6.2	3/10
5. <i>Lomagramma cordipinna</i>	4.3	4/10
6. <i>Nephrolepis hirsutula</i>	3.5	6/10
7. <i>Microsorium sylvaticum</i>	1.2	2/10
8. Others	1.1	

Total 82.3%

The dominant vines and climbers on the trees were estimated ranking them in order of perceived dominance on 5 trees. The desired number of 10 was not attained, since there were few large trees in the plot. The results were as follows:

Species	Rank	1	2	3	4
1. <i>Piper graeffei</i>	4	1	-	-	-
2. <i>Mikania micrantha</i>	1	2	1	-	-
3. <i>Faradaya amicornum</i>	0	1	1	-	-
4. <i>Lomagramma cordipinna</i>	0	1	1	-	-

Because of the paucity of large trees, the epiphytes were not ranked. However, it appeared that the dominant species were *Davallia solida*, *Phymatosorus scolopendria*, and *Nephrolepis biserrata*.

Plot 7. Saua Lowland Forest

The ground cover was dominated by ferns and was estimated in 2 x 2 m quadrats within each of the 10 x 10 m subplots. The results, in percent cover, were as follows:

Species	Cover	Freq.
1. <i>Tectaria stearnsii</i>	14.2%	8/10
2. <i>Asplenium nidus</i>	13.5	8/10
3. <i>Dysoxylum samoense</i> (s)	3.4	10/10
4. <i>Zingiber zerumbet</i>	2.4	6/10
5. <i>Epipremnum pinnatum</i>	1.4	7/10
6. <i>Pneumatopteris magnifica?</i>	1.3	2/10
7. <i>Asplenium laserpitiifolium</i>	1.3	2/10
8. <i>Piper graeffei</i>	0.6	7/10
9. <i>Pisonia umbellifera</i> (s)	0.6	5/10
10. <i>Arthropteris repens</i>	0.5	5/10
11. <i>Morinda citrifolia</i>	0.4	1/10
12. <i>Zehneria mucronata</i>	0.3	4/10
13. Others	1.3	----

Total 40.2%

The dominant vines and climbers on the trees were estimated ranking them in order of perceived dominance on 10 large trees. The results were as follows:

Species	Rank	1	2	3	4
1. <i>Piper graeffei</i>		7	2	-	-
2. <i>Zehneria mucronata</i>		1	4	3	-
3. <i>Epipremnum pinnatum</i>		2	2	-	1
4. <i>Arthropteris repens</i>		0	2	2	1
5. <i>Faradaya amicornum</i>		0	0	1	0

In this plot epiphytes were ranked in a similar way to the vines. These methods are fairly crude, but were used just to obtain some comparative figures for the epiphytes and trunk climbers. The division into two discrete categories is artificial, since some species could be included in either category. The results were as follows:

Species	Rank	1	2	3
1. <i>Asplenium nidus</i>		7	1	0
2. <i>Phymatosorus scolopendria</i>		2	1	1
3. <i>Nephrolepis epiphylla</i>		0	4	0

Plot 8. Liu Lowland Forest

The ground cover was heavy and was estimated in 2 x 2 m quadrats within five of the 10 x 10 m subplots. The results, in percent cover, were as follows:

Species	Cover	Freq.
1. <i>Lomagramma cordipinna</i>	59.4%	5/5
2. <i>Diplazium harpeodes</i>	13.0	2/5
3. <i>Asplenium feejeense</i>	2.8	4/5
4. <i>Piper graeffei</i>	0.7	4/5
5. <i>Freycinetia storckii</i>	0.4	2/5
6. <i>Nephrolepis biserrata</i>	0.3	2/5
7. <i>Mikania micrantha</i>	0.2	2/5
8. Others	0.3	---

Total 77.1%

The dominant vines and climbers on trees were estimated by ranking them in order of perceived dominance on 10 large trees. The results were as follows:

Species	Rank	1	2	3	4
1. <i>Piper graeffei</i>		8	1	-	-
2. <i>Lomagramma cordipinna</i>		1	3	2	2
3. <i>Freycinetia storckii</i>		-	2	1	-
4. <i>Mikania micrantha</i>		-	1	1	2
5. <i>Derris trifoliata</i>		-	1	2	-
6. <i>Epipremnum pinnatum</i>		1	-	-	-
7. <i>Rourea minor</i>		-	1	-	-

The epiphytes were not documented in this plot, because of the dense tree canopy. The only species that was common was apparently *Asplenium australasicum* (based on the identification of the terrestrial individuals).

APPENDIX 5. CHECKLIST OF TREES BY PLOT

An "x" indicates presence, "s" indicates that the tree was present only as a seedling.

Species	Plot No.	1	2	3	4	5	6	7	8
1. <i>Adenantha pavonina</i>		-	-	-	-	x	-	-	-
2. <i>Aglaia samoensis</i>		x	x	x	x	s	-	x	x
3. <i>Allophylus timoriensis</i>		-	-	-	-	-	-	x	-
4. <i>Alphitonia zizyphoides</i>		-	x	x	s	x	x	-	x
5. <i>Antidesma sphaerocarpum</i>		x	x	-	x	x	-	x	-
6. <i>Baccaurea taitensis</i>		x	x	-	-	x	-	-	-
7. <i>Barringtonia asiatica</i>		-	x	x	-	-	-	x	-
8. <i>Barringtonia samoensis</i>		-	-	x	-	-	-	x	-
9. <i>Bischofia javanica</i>		-	x	s	-	x	x	s	x
10. <i>Buchanania merrillii</i>		x	x	-	x	x	-	-	-
11. <i>Calophyllum neo-ebudicum</i>		x	x	x	x	x	-	-	x
12. <i>Cananga odorata</i>		x	x	x	s	x	-	-	-
13. <i>Canarium harveyi</i>		x	x	x	x	x	-	-	-
14. <i>Canarium vitiense</i>		x	x	x	x	x	-	-	-
15. <i>Canthium merrillii</i>		x	x	-	x	x	-	-	x
16. <i>Carica papaya</i>		-	-	-	-	-	-	x	-
17. <i>Casearia sp. nova</i>		x	x	x	-	-	-	-	-
18. <i>Citronella samoensis</i>		x	x	x	-	x	-	-	-
19. <i>Cordia aspera</i>		-	-	-	-	-	-	-	x
20. <i>Crossostylis biflora</i>		-	x	-	-	x	-	-	-
21. <i>Cyclophyllum barbatum</i>		-	-	x	-	-	-	-	-
22. <i>Diospyros elliptica</i>		-	-	x	-	-	-	-	-
23. <i>Diospyros samoensis</i>		s	x	x	x	x	-	x	-
24. <i>Dysoxylum huntii</i>		x	-	-	-	-	-	-	-
25. <i>Dysoxylum samoense</i>		s?	-	x	s?	x	x	x	x
26. <i>Elaeocarpus tonganus</i>		s	-	-	-	s	x	-	x
27. <i>Elaeocarpus ulianus</i>		x	-	x	-	x	-	-	-
28. <i>Elattostachys falcata</i>		-	x	x	s	x	-	s	x
29. <i>Endiandra elaeocarpa</i>		-	-	-	-	-	-	-	x
30. <i>Erythrospermum acuminatissimum</i>		-	x	-	x	-	-	-	-
31. <i>Erythrina subumbrans</i>		-	-	-	-	-	x	-	-
32. <i>Euodia samoensis</i>		-	-	-	-	-	x	-	x
33. <i>Fagraea berteriana</i>		x	-	e	s	-	x	-	-
34. <i>Ficus godeffroyi</i>		x	-	-	-	-	-	-	x
35. <i>Ficus obliqua</i>		-	-	x	s	-	-	-	-
36. <i>Ficus scabra</i>		-	-	x	-	x	x	x	x

Species	Plot No.	1	2	3	4	5	6	7	8
37. <i>Ficus tinctoria</i>		-	-	-	S	X	-	X	X
38. <i>Flacourtia rukam</i>		X	X	X	S	X	X	X	-
39. <i>Garuga floribunda</i>		-	-	X	-	-	-	X	-
40. <i>Garcinia myrtifolia</i>		X	X	-	-	S	-	-	-
41. <i>Geniostoma rupestre</i>		-	-	-	-	-	X	-	-
42. <i>Glochidion ramiflorum</i>		-	X	-	X	X	X	-	-
43. <i>Hedycarya denticulata</i>		X	-	-	-	-	-	-	-
44. <i>Hernandia moerenhoutiana</i>		X	X	S	X	X	-	-	-
45. <i>Hibiscus tiliaceus</i>		X	X	X	X	X	X	-	-
46. <i>Inocarpus fagifer</i>		X	-	-	X	-	-	-	-
47. <i>Ixora samoensis</i>		-	X	X	X	X	-	-	-
48. <i>Leucosyke corymbulosa</i>		-	-	-	-	X	-	-	-
49. <i>Macaranga harveyana</i>		-	-	-	-	-	-	X	X
50. <i>Macaranga stipulosa</i>		X	X	X	S	X	X	-	-
51. <i>Melochia aristata</i>		-	-	-	-	-	-	-	X
52. <i>Meryta macrophylla</i>		X	X	X	X	X	-	-	X
53. <i>Micromelum minutum</i>		X	-	-	-	X	-	-	-
54. <i>Morinda citrifolia</i>		-	-	-	-	-	X	X	-
55. <i>Myristica fatua</i>		X	X	X	X	X	-	X	X
56. <i>Myristica hypargyrea</i>		X	X	-	-	X	-	-	-
57. <i>Neonauclea forsteri</i>		-	-	-	-	X	-	-	X
58. <i>Omalanthus nutans</i>		-	-	S	X	-	X	S	-
59. <i>Palaquium stehlinii</i>		X	-	S	-	S	-	-	-
60. <i>Pipturus argenteus</i>		-	-	-	-	-	X	-	X
61. <i>Pisonia umbellifera</i>		-	-	-	-	-	X	X	X
62. <i>Planchonella garberi</i>		-	X	S	-	-	-	-	-
63. <i>Planchonella grayana</i>		-	-	X	-	-	-	-	-
64. <i>Planchonella samoensis</i>		X	X	S	-	X	-	-	-
65. <i>Polyscias samoensis</i>		X	X	X	X	X	-	X	-
66. <i>Pometia pinnata</i>		-	-	-	-	-	-	-	X
67. <i>Psychotria forsteriana</i>		X	-	-	-	-	-	-	-
68. <i>Psychotria insularum</i>		X	X	X	X	X	-	-	X
69. <i>Rhus taitensis</i>		-	X	X	X	X	X	S	-
70. <i>Sarcopygme pacifica</i>		X	-	-	-	-	X	-	-
71. <i>Spondias dulcis</i>		-	-	-	-	-	X	-	-
72. <i>Sterculia fanaiho</i>		X	X	X	S	X	-	X	X
73. <i>Syzygium clusiifolium</i>		-	-	X	X	-	-	-	-
74. <i>Syzygium corynocarpum</i>		-	X	-	-	-	-	-	-
75. <i>Syzygium inophylloides</i>		X	X	X	X	X	X	S	X
76. <i>Syzygium samarangense</i>		X	X	-	S	X	X	-	X
77. <i>Syzygium samoense</i>		X	X	-	-	X	X	-	-

Species	Plot No.	1	2	3	4	5	6	7	8
78. <i>Tarennia sambucina</i>		-	-	-	-	-	-	-	X
79. <i>Terminalia richii</i>		-	S	-	S	-	-	-	S
80. <i>Trema cannabina</i>		-	-	-	-	-	-	-	X

APPENDIX 6. CHECKLIST OF VINES AND CLIMBERS BY PLOT

Abundance data was taken in some but not all plots. An "x" indicates the species was present, a "1" indicates it was present and common, and a "2" indicates it was present and very common.

Species	Plot No.	1	2	3	4	5	6	7	8
1. <i>Alyxia bracteolosa</i>		1	x	2	1	x	-	-	x
2. <i>Aristolochia cortinata</i>		-	-	x	r	-	-	-	-
3. <i>Derris trifoliata</i>		-	-	-	-	-	-	-	x
4. <i>Embelia vaupelii</i>		x	-	-	-	x	-	r	x
5. <i>Epipremnum pinnatum</i>		2	-	x	-	x	-	x	x
6. <i>Dioscorea bulbifera</i>		-	-	x	-	-	-	-	-
7. <i>Dioscorea nummularia</i>		-	-	-	-	-	x	-	-
8. <i>Faradaya amicomum</i>		1	x	2	x	x	x	x	x
9. <i>Freycinetia reineckeii</i>		-	-	-	x	-	-	-	-
10. <i>Freycinetia storekii</i>		x?	x	-	x	x	x?	x?	x
11. <i>Gynochtodes epiphytica</i>		1	x	x	x	x	-	-	-
12. <i>Hoya australis</i>		-	-	x	x	-	-	x	x
13. <i>Hoya pottsii</i>		x	-	x	r	x	-	x	-
14. <i>Ipomoea macrantha</i>		-	-	-	-	-	-	x	-
15. <i>Jasminum didymum</i>		-	x	x	r	-	-	-	-
16. <i>Medinilla samoensis</i>		x	-	-	-	x	-	-	-
17. <i>Merremia peltata</i>		-	-	-	-	-	x	-	-
18. <i>Mikania micrantha</i>		-	-	x	-	-	x	x	x
19. <i>Mucuna gigantea</i>		-	-	-	-	-	-	x	-
20. <i>Operculina</i> sp.		-	-	-	-	-	-	x	-
21. <i>Piper graeffei</i>		1	1	x	r	x	1	x	x
22. <i>Puararia lobata</i>		-	-	x	-	-	-	-	-
23. <i>Rhaphidophora graeffei</i>		x	-	-	-	-	-	-	-
24. <i>Rourea minor</i>		1	x	-	x	x	-	-	x
25. <i>Zehneria mucronata</i>		-	-	-	-	x	x	x	-

APPENDIX 7. CHECKLIST OF FERNS BY PLOT

Abundance was recorded in some but not all plots. An "x" indicates the species was present, a "1" indicates it was present and common, a "2" indicates it was present and very common, and a "3" indicates it was present and abundant. The species are divided into terrestrial and epiphytic ferns; some species occurred as both, and are included in both categories.

Species	Plot No.	1	2	3	4	5	6	7	8
Terrestrial									
1. <i>Angiopteris evecta</i>		1	-	-	-	x	1	x	2
2. <i>Arachnoides aristatum</i>		-	-	-	x	-	-	-	-
3. <i>Arthropteris repens</i>		-	-	-	-	-	-	x	-
4. <i>Asplenium australasicum</i>		x	-	-	-	x	x	-	x
5. <i>Asplenium cuneatum</i>		-	-	-	-	-	-	-	x
6. <i>Asplenium feejeense</i>		-	-	-	-	-	-	x	x
7. <i>Asplenium nidus</i>		-	-	-	-	-	-	x	-
8. <i>Asplenium polyodon</i>		-	-	x	-	-	-	-	-
9. <i>Christella harveyi</i>		-	x	x	x	x	x	-	-
10. <i>Cyathea decurrens</i>		-	-	-	-	-	-	-	x
11. <i>Cyathea lunulata</i>		x	-	-	x	-	x	-	-
12. <i>Cyathea vaupelii</i>		x	-	-	-	-	x	-	x
13. <i>Davallia epiphylla</i>		-	x	x	1	-	-	-	-
14. <i>Davallia solida</i>		-	x	x	-	-	-	-	-
15. <i>Diplazium harpeodes</i>		-	-	-	-	-	2	x	x
16. <i>Diplazium proliferum</i>		-	-	-	-	x	x	-	-
17. <i>Humata banksii</i>		-	x	-	-	-	-	-	-
18. <i>Humata heterophylla</i>		-	-	-	x	-	-	-	-
19. <i>Lindsaea tetragona</i>		x	-	-	-	-	-	-	-
20. <i>Lomagramma cordipinna</i>		3	-	-	-	3	x	x	2
21. <i>Microsorium sylvaticum</i>		x	-	-	-	-	x	-	-
22. <i>Nephrolepis biserrata</i>		-	-	-	x	x	-	-	-
23. <i>Nephrolepis hirsutula</i>		-	-	-	-	-	x	-	-
24. <i>Phymatosorus nigrescens</i>		-	-	-	-	x	-	-	-
25. <i>Pleocnemia leuzeana</i>		-	-	-	-	-	-	-	x
26. <i>Pneumatopteris glandulosa</i>		-	-	-	-	x	-	-	-
27. <i>Pneumatopteris magnifica</i>		-	-	-	-	-	-	x	x
28. <i>Pteris tripartita</i>		-	-	-	-	-	-	x	-
29. <i>Schizaea dichotoma</i>		-	-	-	-	-	-	-	-

Species	Plot No.	1	2	3	4	5	6	7	8
30. <i>Selaginella whitmeei</i>		-	x	-	x	x	-	-	x
31. <i>Tectaria dissecta</i>		x	-	x	-	1	x	1	x
32. <i>Trichomanes boryanum</i>		x	-	-	x	-	-	-	-
33. <i>Trichomanes dentatum</i>		-	-	-	x	-	-	-	x
34. <i>Trichomanes humile</i>		-	-	-	x	-	-	-	-

Epiphytes

1. <i>Antrophyum alatum</i>		1	-	x	-	x	-	-	-
2. <i>Antrophyum plantagineum</i>		x	x	-	x	x	-	-	-
3. <i>Arthropteris repens</i>		-	-	-	-	-	-	1	-
4. <i>Asplenium australasicum</i>		1	-	-	x	x	x	-	x
5. <i>Asplenium laserpitiifolium</i>		x	x	-	x	x	x	x	x
6. <i>Asplenium nidus</i>		-	x	x	x	-	-	x	-
7. <i>Asplenium polyodon</i>		-	-	-	-	x	-	-	-
8. <i>Ctenopteris blechnoides</i>		-	-	-	x	-	-	-	-
9. <i>Ctenopteris contigua</i>		x	-	-	-	-	-	-	-
10. <i>Davallia epiphylla</i>		1	-	-	-	1	-	x	-
11. <i>Davallia solida</i>		-	x	-	x	-	x	-	x
12. <i>Humata banksii</i>		-	-	-	x	-	-	-	-
13. <i>Humata heterophylla</i>		x	x	x	x	x	x	-	-
14. <i>Hymenophyllum polyanthos</i>		-	x	-	x	x	-	-	-
15. <i>Lomagramma cordipinna</i>		1	-	-	-	2	2	1	x
16. <i>Lycopodium phlegmaria</i>		x	-	x	-	-	-	-	-
17. <i>Nephrolepis biserrata</i>		x	x	-	-	x	x	-	x
18. <i>Ophioglossum pendulum</i>		-	-	-	-	x	-	-	-
19. <i>Phymatosorus scolopendria</i>		x	x	x	x	x	x	x	x
20. <i>Phymatosorus nigrescens</i>		-	-	-	-	-	x	-	x
21. <i>Pyrrosia lanceolata</i>		-	1	x	x	-	-	-	-
22. <i>Trichomanes bipunctatum</i>		2	-	x	-	-	-	-	-
23. <i>Trichomanes humile</i>		x	x	-	-	x	x	-	x
24. <i>Trichomanes taitensis</i>		1	x	x	-	x	-	-	-
25. <i>Vaginularia angustissima</i>		x	x	-	-	x	-	-	-
26. <i>Vittaria elongata</i>		x	-	-	-	-	-	-	-

APPENDIX 8. CHECKLIST OF ORCHIDS BY PLOT

Abundance was recorded in some but not all of the plots. An "x" indicates the species was present, a "1" indicates it was present and common, and a "2" indicates it was present and very common. The majority of the orchids here are epiphytic.

Species	Plot No.	1	2	3	4	5	6	7	8
1. <i>Bulbophyllum longiscapum</i>		-	x	-	-	-	-	-	-
2. <i>Bulbophyllum ebulbe</i>		-	x	-	-	-	-	-	-
3. <i>Bulbophyllum</i> sp. indet.		x	-	-	x	-	-	-	-
4. <i>Bulbophyllum</i> sp. nova		-	-	-	x	-	-	-	-
5. <i>Calanthe triplicata</i>		-	x	-	-	-	-	-	-
6. <i>Dendrobium biflorum</i>		x	1	-	-	x	-	-	-
7. <i>Dendrobium calcaratum</i>		x	-	-	-	-	-	-	-
8. <i>Dendrobium dactyloides</i>		x	2	x	2	x	-	-	-
9. <i>Dendrobium samoense</i>		-	x	-	-	-	-	-	-
10. <i>Dendrobium sladei</i>		x	x	-	x	x	-	-	-
11. <i>Didymoplexis micradenia</i>		-	-	x	-	x	-	-	-
12. <i>Eria robusta</i>		x	-	-	-	-	-	-	-
13. <i>Flickingeria comata</i>		x	1	-	x	-	-	-	-
14. <i>Liparis condylobulbon</i>		x	-	-	-	-	-	-	-
15. <i>Malaxis resupinata?</i>		-	-	-	-	x	-	-	x
16. <i>Malaxis samoensis</i>		-	x	-	-	-	-	-	-
17. <i>Oberonia equisetifolia</i>		-	-	-	x	-	-	-	-
18. <i>Phreatia matthewsii</i>		x	x	-	x	-	-	-	-
19. <i>Phreatia micrantha</i>		x	x	-	x	-	-	-	-
20. <i>Vrydagzenia</i> sp.?		-	-	-	-	-	-	-	x

APPENDIX 9. CHECKLIST OF OTHER SPECIES BY PLOT

These are species that do not fit well into the categories above (Appendices 4, 5, 6, and 7). Abundance was recorded in some but not all plots. An "x" indicates the species was present, an "r" indicates it was present but rare, and a "2" indicates it was present and very common.

Species	Plot No.	1	2	3	4	5	6	7	8
1. <i>Alocasia macrorrhiza</i>		-	-	-	-	-	-	x	-
2. <i>Alyxia stellata</i>		-	-	-	x	-	-	-	-
3. <i>Amyena artensis</i>		-	x	-	-	-	-	-	-
4. <i>Capsicum frutescens</i>		-	-	-	-	-	-	x	-
5. <i>Centosteca lappacea</i>		-	-	-	-	x	x	-	-
6. <i>Clidemia hirta</i>		x	x	x	x	x	2	r	x
7. <i>Cordyline fruticosa</i>		x	x	x	x	x	x	x	x
8. <i>Cyrtandra samoensis</i>		-	-	-	-	-	x	-	-
9. <i>Cyrtandra</i> sp. nova		-	-	-	-	-	-	-	-
10. <i>Geophila repens</i>		-	-	-	-	-	-	x	-
11. <i>Heliconia laufao</i>		-	x	x	-	x	-	-	-
12. <i>Melastoma denticulatum</i>		-	-	-	x	-	-	-	-
13. <i>Mikania micrantha</i>		x	x	-	x	x	-	-	-
14. <i>Oplismenus hirtellus</i>		-	x	-	-	x	-	-	-
15. <i>Paspalum conjugatum</i>		-	-	-	-	-	x	-	-
16. <i>Phaleria glabra</i>		x	-	-	-	-	-	-	-
17. <i>Procris pedunculata</i>		x	x	x	x	x	-	-	-
18. <i>Scleria lithosperma</i>		-	x	-	-	-	-	-	-
19. <i>Scleria polycarpa</i>		-	-	-	x	x	-	-	-
20. <i>Zingiber zerumbet</i>		x	x	x	x	x	-	x	-