

**PLANTS OF CONCERN
IN AMERICAN SAMOA**

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PURPOSE OF THE PRESENT STUDY

There are currently no federally listed “threatened or endangered” plant species in American Samoa. This does not mean no plants are threatened or endangered in the Territory, it simply means that none have been put through the laborious listing process. Indeed, there are a number of plant species among the approximately 343 native plant species recorded in the Territory so far whose existence there, or even in the world as a whole, is precarious. A previous study of the plants rare in American Samoa was prepared several years ago (Whistler 1998), but since that time virtually no work has been done on these species or on the preparation of any listing of threatened or endangered plant species for the Territory.

The purpose of the following study, entitled “Plants of Concern in American Samoa,” is to determine which plant species may in the future need some kind of protection in the Territory. It is intended to be a follow-up to the 1998 work, primarily to enter the records (i.e., collection data) of the plants considered to be “of concern” in the Territory of American Samoa into a GIS data base, and map these collection records. Because of field work done in the last five years (only a small portion of which was done for this survey), the list of “Plants of Concern,” as they are referred to here, has been updated to reflect changes of status of the species (e.g., new rare species being found, other species determined not to be as rare as previously thought). From the 109 Plants of Concern included on this list (Appendix A), 21 (Table 4) have been recommended for the next step, the listing process to determine if these plants meet criteria that would allow them to become federally listed threatened or endangered plant species.

INTRODUCTION

American Samoa

Samoa is a volcanic archipelago running in a north-northwest direction east of Fiji, north of Tonga, and east of the Cook Islands and Tahiti. It is divided politically into Samoa (referred to here as “independent Samoa” to avoid confusion with the term Samoa, which refers to the geographical entity, the archipelago), which is an independent country, and American Samoa, which is an unincorporated territory of the United States. The archipelago, lying at a longitude of 168–173° W and a latitude of 11–15° S, comprises nine inhabited volcanic islands, plus Swains Island and uninhabited Rose Atoll, with a total area of just over 3100 km². The main islands of independent Samoa, which comprise the western portion of the archipelago, are Savai‘i (1820 km² area, 1860 m elevation) and ‘Upolu (1110 km², 1100 m). These two islands represent about 94% of the total area of the island chain.

American Samoa, which comprises the eastern end of the archipelago, consists of five volcanic islands (Tutuila, ‘Aunu‘u, Ofu, Olosega, and Ta‘u) and two atolls (Rose and Swains). Tutuila is the westernmost and by far the largest of the islands of American Samoa. It has an area of approximately 142 km² (55 mi²) and a maximum elevation of 653 m (2140 ft) at the summit of Matafao. Lying off its southeastern end is the small tuff cone island of ‘Aunu‘u that has an area of less than 2 km² (ca. 0.6 mi²). Approximately 100 km (62 miles) to the east lie the three islands, Ofu, Olosega, and Ta‘u, that comprise the group known as Manu‘a. Ta‘u, which is the easternmost of the volcanic islands, has an area of 39 km² (15 mi²), and a maximum elevation of ca. 960 m (3150 ft) at the summit of Mt. Lata. The much smaller islands of Ofu and Olosega, with areas of 5 km² (2 mi²) and 4 km² (1.6 mi²) and elevations of 495 m (1625 ft) and

640 m (2100 ft), respectively, lie together within a common reef about 10 km (6 miles) to the west of Ta'u. East of Manu'a about 140 km (84 mi) lies uninhabited Rose Atoll, and 320 km (192 mi) north lies Swains Island, which is home to a small population. The current population of American Samoa is over 60,000.

Previous Botanical Work

The first collection of the flora of American Samoa was made during the ill-fated La Pérouse expedition that landed on the north coast of Tutuila in 1787, but the specimens were later lost when the ships, along with everyone on board, subsequently disappeared in Melanesia. A second collection was made in 1838 by another French expedition, this one under the command of Dumont D'Urville, but little is known about the specimens, which are deposited in the Paris Museum. The first significant collections were made in 1839 during the visit of the United States Exploring Expedition (USEE) to Samoa. Unfortunately, the specimens were poorly curated, and mistakes in locality are not uncommon. In fact, some specimens of endemic Samoan plant species were incorrectly labeled as having been collected in Tahiti. Even the correctly labeled USEE specimens cite only "Samoa" as the locality, so it is not certain on which islands of the archipelago they were collected—although there is some indication from the published list of specimens of Pickering (1876) and the work of Gray (1854).

The next plant collector to visit Tutuila was apparently the Rev. T. Powell, an amateur English botanist employed as a missionary by the London Missionary Society in ca. 1850–1885. Unfortunately, most of his specimens also lack localities, so it is impossible to determine which ones were collected on Tutuila and Manu'a and which ones on the other islands (he is known to have collected on Savai'i and 'Upolu as well). The only relevant publication by Powell was a list of Samoan plant names (Powell 1868). Another amateur botanist, Dr. E. Graeffe, a Swiss physician who traveled extensively in the region in the 1860s and 1870s, is known to have collected specimens in American Samoa (Tutuila) at about the same time. Unfortunately, many of his specimens, like those of the earlier collectors, lack specific localities and some are apparently mislabeled (i.e., some specimens apparently collected in Fiji are labeled as coming from Samoa).

The last botanist in the 19th century to work in Samoa was F. Reinecke, who wrote the first flora of Samoa (1896, 1898). Unfortunately, a number of Reinecke's specimens cited from American Samoa may be incorrectly labeled, since he collected some species that no one else has collected there (but which are found in independent Samoa). Several other collectors visited Tutuila before 1920, but their contributions to the flora of American Samoa are minor. The best known of these was K. Rechinger, who visited a decade after Reinecke (in 1905) and collected a few specimens on Tutuila, but the bulk of his collections were made in independent Samoa. He published his information several years later (Rechinger 1907–1915). Another botanist visited American Samoa in 1905, C. Lloyd, but the report on his work (Lloyd and Aiken 1934) does not cite any specimen numbers and it is not clear how much of the work applies to American Samoa rather than independent Samoa.

The first major collector in American Samoa since the USEE was W. A. Setchell, who visited Tutuila in 1920 and published a flora of the island (Setchell 1924). His collection includes about 580 numbers, which makes it larger than the one collected in the whole archipelago during the USEE. He was soon followed by D. W. Garber, who collected about 578 numbers on Tutuila and in Manu'a between 1921 and 1925. Garber never published any of this

Samoa work, but most of his collections were listed by Christophersen (1935, 1938) and/or Yuncker (1945). Other minor collections in American Samoa from that decade were those made by Eames in 1921 with about 30 specimens, Bryan in 1924 with about 68, and Diefenderfer in 1929 and 1930 with about 48. These minor collections were included in Christophersen's publications.

The next major collection in American Samoa after the one of Setchell was made by E. Christophersen in 1929 and 1931 (about 407 specimens from Tutuila), and were included in his two publications on the flora of Samoa, which still form the most complete published account of the flora of the archipelago. Later collections were made by W. and A. Harris (with about 350 specimens from Manu'a, mostly weeds) in 1938 and T. Yuncker (with about 444 specimens from Tutuila and Manu'a) in 1939. Both of these collections (except for Yuncker's Tutuila specimens) were listed by Yuncker (1945) in his flora of Manu'a. Other minor collections from Ta'u were made by Judd, McMullin, Swezey, and Schultz, but only a few specimens are known from each.

More recent collections have been made on Tutuila, including those of A. Wisner in 1955 (about 163 specimens, only 2/3 of which have been accounted for), C. Lamoureux (about 80 specimens) in 1965, and C. Long (about 200 specimens) also in 1965. The original botanist on the study of American Samoa by Amerson et al. (1982), J. Kuruc, collected a number of specimens from American Samoa in 1975, but most of his collections were lost or are without any data. Another collection of undetermined size was made by P. Cox from Manu'a in 1987, but no record of these has been published other than those in the genus *Meryta* (Cox 1985). The largest collection from American Samoa, with nearly 2050 numbers, was made by the present author from 1972 to 2003. Little of this work has heretofore been published other than in revisions of two genera (Whistler 1986, 1988a). Additionally, specimen numbers with little collection data are included in two National Park studies of American Samoa (Whistler 1992b, 1994).

The Flora

The angiosperm flora of the Samoan archipelago is about one third as large as that of Fiji, which lies just 1140 km (700 mi) to the west, but it is larger than that of any other tropical Polynesian archipelago or island except Hawai'i, which has more species but fewer genera. The flora is estimated to comprise about 540 native species of flowering plants (Whistler 1992a), two thirds of them dicots. These are included in about 283 genera in 95 plant families. The level of endemism of the angiosperms is estimated to be about 30% at the species level, but only one genus, *Sarcopygme* of the Rubiaceae family, is endemic to the archipelago. An additional 250 or so species are naturalized or adventive (Whistler 1988b). The fern flora is estimated to comprise 230 species, with a much lower rate of endemism. The only comprehensive publication on the ferns of Samoa was done by Christensen (1943), who never himself collected in Samoa.

The most extensive work on the flora, until recently, was done by Christophersen, who collected in Samoa in 1929 and 1931, but his work (Christophersen 1935, 1938) is not an actual flora since it lacks taxonomic keys, descriptions, and specimen citations other than those of his own collections. Some of the knowledge of the flora has been filled in by more recent monographs and revisions of Pacific genera and families. The three largest genera, *Psychotria*, *Syzygium*, and *Cyrtandra*, have recently been revised for Samoa (Whistler 1986; Whistler 1988a; Gillett 1973, respectively). Many other genera and families in Samoa have also been revised,

including Araliaceae (Smith & Stone 1968), *Ascarina* (Smith 1976), Clusiaceae (Smith & Darwin 1974), Cunoniaceae (Smith 1952c; Bernardi 1964; Hoogland 1979), *Diospyros* (Smith 1971b), *Elaeocarpus* (Smith 1953), *Geniostoma* (Smith & Stone 1962; Conn 1980), *Macropiper* (Smith 1975), Meliaceae (Smith 1952b), *Metrosideros* (Smith 1973b), Myrsinaceae (Smith 1973a), Orchidaceae (Cribb & Whistler 1996), Rutaceae (Smith 1952a), and *Terminalia* (Smith 1971a). However, many of these revisions are now out-of-date because of more recent collections, and since they are widely scattered through the literature, most are relatively inaccessible, except for those included in Smith's flora of Fiji (1979–1996).

The native vascular flora of American Samoa, based upon Whistler 1980, 1992b, 1994, 1998, and the present work, is now estimated to be about 343 flowering plants, 135 ferns, and 9 fern allies. These are listed in Appendix A of the Whistler 1998 report, except for a few additions collected since then. The largest flowering plant families represented in the flora are Orchidaceae (65 native species), Rubiaceae (19), Fabaceae (18), Cyperaceae (17), Poaceae (15), Euphorbiaceae (12), and Urticaceae (10). As noted earlier, the rate of endemism in Samoa is about 30%, but the local endemism for American Samoa is only about 1%, i.e., only about 1% (seven or eight species) of the flora of American Samoa is endemic to the Territory (see Table 1). Another 200 or so species of vascular plants (all angiosperms) have been introduced and naturalized in American Samoa. Some of these were brought in by Polynesians ("Polynesian introductions") prior to the European Era, but most were brought in during recent times ("modern introductions") after about 1830. Some of these were "intentional introductions" brought in with a purpose in mind (e.g., food plants, like breadfruit and taro), while others were "unintentional introductions" that were inadvertently brought in stuck to the clothing or livestock of the Polynesian voyagers (and which have since become "weeds").

METHODOLOGY

The present project is built upon a baseline botanical study previously prepared by the author (Whistler 1998) for the U.S. Fish and Wildlife Service. That earlier project included an annotated checklist of the naturalized and native flora of American Samoa, a list of plant species endemic to the Territory, and a list of 111 Plants of Concern (rare plant species that may be threatened or endangered). The work for the present project included three tasks: (1) modifying the flora, based on work subsequent to 1998, which included a revision of the list of Territory endemics and list of Plants of Concern; (2) compiling collection data (e.g. data on where the plant was collected) for the 109 Plants of Concern for American Samoa; and (3) entering this collection data into a Microsoft Access database linked to a geospatial data layer in ArcView 3.3 GIS that eventually produced a map American Samoa showing the distribution of Plants of Concern in American Samoa. With this map and the accompanying data, scientists, government officials, land owners, and even developers can see which areas are most sensitive to harmful disturbance, i.e., which areas should not be developed without proper biological surveys, if at all.

Modifications to the Flora

This was only a minor part of the project, since the checklist of the vascular flora had been prepared during the 1998 project and the present project involved very little field work. However, three new native species that were collected in the interim by the author have been added to the flora of American Samoa (see the Discussion section). The list of endemic species

Table 1. Endemic plant species in American Samoa.

SPECIES	FAMILY	STATUS
<i>Cyrtandra geminata</i> Reinecke	Gesneriaceae	Endemic to Tutuila
<i>Elatostema scabriusculum</i> Setchell	Urticaceae	Endemic to American Samoa
<i>Elatostema tutuilense</i> Whistler	Urticaceae	Endemic to Tutuila
<i>Liparis alavaensis</i> Cribb	Orchidaceae	Endemic to Tutuila
<i>Melicope richii</i> A. Gray	Rutaceae	Endemic to Tutuila
<i>Pandanus</i> sp. nova?	Pandanaceae	Endemic to Ta'u?
<i>Psychotria garberiana</i> Christoph.	Rubiaceae	Endemic to Manu'a
<i>Taeniophyllum whistleri</i> Cribb	Orchidaceae	Endemic to American Samoa

was also modified, because one of the three new species recorded since 1998 is endemic, and one plant species previously thought to have been endemic to American Samoa has since been collected in independent Samoa (see Table 1).

Compilation of Data

The location data for the 109 Plants of Concern is found on 405 herbarium specimens and visual records (the latter lack voucher specimens). The location data for many of the herbarium specimens is found in the publications of Christophersen (1936, 1938), Reinecke (1896, 1898), and Setchell (1924). Specimens not cited in those publications can be found in various herbaria, particularly the Bishop Museum herbarium in Honolulu. That institution houses the first set of specimens of Christophersen, Yuncker, Garber, Wilder, Harris, Bryan, Wisner, Spence, Diefenderfer, Guest, Mitchell, and Meebold. Second in importance is the herbarium of the Botany Department of the University of Hawai'i, which is the main depository for the specimens of Whistler (his personal collection), Lamoureux, Long, Solek, Lualua, and Kuruc. The last three collectors have only a few specimens total. Several of the specimens are housed only in herbarium cases located at the Department of Marine and Wildlife Resources in Pago Pago, principally the collections of Trail, Webb, and Bartley (together totaling only a few). The specimens of Reinecke were originally housed in the Berlin Herbarium, but were destroyed during World War II, with some duplicates scattered in different herbaria. Those of Powell and Sledge are at the Royal Botanic Gardens, Kew, those of Setchell are at the University of California, Berkeley, and those of the United States Exploring Expedition (which lack collection data) are at the Smithsonian Institution. It is unclear where the specimens of Tetens, Graeffe, and Uhe are located, but they represent only a few of the specimens of the Plants of Concern. The author has seen nearly all of these specimens at their respective herbaria. The most difficult specimens to deal with are those of Powell, since he rarely even recorded from which island his specimens were collected.

All of this collection data, gleaned from the publications and the author's examination of the herbarium specimens, was added to each of the 109 Plants of Concern, and is shown in Appendix A. Once this compilation stage was completed, the data was ready for entry into the GIS data base in the form of points on a map of American Samoa.

Entering the Data

The locations of the specimens and associated information shown in Appendix A were entered in a Microsoft Access database developed by Ron Salz of the U.S. Fish and Wildlife Service. Each specimen was given a unique identifier, beginning at record 1 and finishing at record 405. Known locations for specimens were mapped in an ArcView 3.3 geospatial data layer (shapefile) and linked to the Microsoft Access database based on each specimen's unique identifier. Each specimen was given an "accuracy estimate" to indicate how accurately the location was mapped. The accuracy estimates are based on those used by the Hawai'i Natural Heritage program. The accuracy estimates used were 15 m, 50 m, 100 m, 250 m, 500 m, and 1000 m, and are recorded in the specimen database. Some of these estimates are quite accurate, especially when they occurred on a point of land or islet. Three were mapped using a GPS unit carried by Dr. Eric Hansen of the Land Grant College of American Samoa (see Appendix B for an aerial photo prepared by Dr. Hansen). These records, which include *Xylocarpus moluccensis*, *Scirpodendron ghaeri*, and *Ximenia americana*, are situated at Nu'uuli on Tutuila. Some of the records in Appendix A were not given accuracy estimates, principally because the only data recorded on these specimens was the island where the collection was made (as in the case of some of the Reinecke and Powell specimens). In Appendix A, "location not mapped" was noted for these records.

DISCUSSION

Based on new work done since 1998, the checklist of the native vascular plant flora of American Samoa has modified to add three newly found native species, *Liparis alavaensis* (Orchidaceae), *Luisia teretifolia* (Orchidaceae), and *Cymbopogon refractus* (Poaceae). This increases the number of native flowering plants from 340 to 343 species. The number of endemics (Table 1) remains the same, seven or eight (depending upon the ultimate disposition of the *Pandanus* sp.), as one new species (*Liparis alavaensis*) was added and one (*Melicope vatiana*) was removed (because it has since been found in independent Samoa). Several new weed species have been added to the list of native and naturalized species in American Samoa from work done over the last five years, including *Ipomoea triloba* (Convolvulaceae), *Hyptis rhomboidea* (Lamiaceae), and *Solanum torvum* (Solanaceae). Another probable weed, now possibly no longer found in the Archipelago, was also added to the list, *Sigesbeckia orientalis* (Asteraceae), since it was omitted from the 1998 list.

From the native species, 109 species have been selected as Plants of Concern that should merit further attention. The 1998 list included 111, but several have been added in the present report, and several others have been removed for various reasons. The criteria for inclusion into this category are several, but it is difficult to produce any hard and fast definition. However, the following factors were considered during the selection:

- (1) Being endemic to the Territory. Species that fit into this category are found nowhere else in the world. If they are only indigenous, they are also naturally found elsewhere. Species endemic to the Territory and threatened there are thus threatened in the world. Being in this category, i.e., being endemic, does not bring automatic status as a Plant of Concern, since the species may be common in the Territory. In fact, only 3 of the 7 or 8

species endemic to American Samoa are included on the recommended list of threatened or endangered species in American Samoa (see Table 4).

(2) Being rare in the territory. Species that fit into this category have only been collected a few times, and special emphasis was placed on ones that have not been collected in many years (e.g., before 1970). About half of all plant collections known from American Samoa (i.e., specimens now stored in major herbaria) have been collected since that date, and the collector of the vast majority of these post 1970 collections (the present author) has particularly looked for rarely collected species. In fact, of the 109 species on the list of Plants of Concern, only 15 have not been collected by him (and only one of those 15 has been collected by anyone else since 1932). Consequently, species not seen by the author are very likely to be rare in the Territory. Being rare in the Territory does not mean that the plant is necessarily rare over the rest of its range, but the status of Plant of Concern is only a local category.

(3) Being restricted to a single habitat. Plants that occur in only one habitat, e.g., littoral forest, are more likely to be threatened when that habitat is disturbed. This is particularly the case for montane scrub, where seven of the species on the list of Plants of Concern are found (see Table 2). The most threatened habitats, however, are those found near the coast, where most of the present and future development has occurred and will occur. Plants occurring in habitats that are unlikely to be undisturbed in the future, e.g., summit scrub (on Ta'u), are unlikely to be threatened by human disturbance.

(4) How conspicuous the species are. Some plants are not easily spotted, e.g., tiny epiphytic ferns, and these may sometimes be found only by an expert. The fern *Trichomanes taeniatum* fits in this category, since its one collection in the Territory was made by a fern expert (Sledge). The ferns of American Samoa are not well studied, and for this reason none were included among the plants recommended for inclusion on the Federal list of threatened or endangered plant species (see Table 4). Also fitting into this category of inconspicuous plants are orchids, especially epiphytic ones that cannot be seen from the ground. In fact, 21 of the 65 native or naturalized orchids now known in American Samoa were not recorded there before 1970, and additional native orchid species are likely to be discovered in the future.

Combining all of these factors, the present list of the 109 Plants of Concern was compiled. It may be too late for some of these—several species are thought to have been extirpated (driven to extinction in a certain area) from the Territory (Table 3). These species have been included with the Plants of Concern, nevertheless, in hopes that they may one day be found again and saved. One species is apparently endemic to American Samoa, *Elatostema tutuilense*, and was collected somewhere behind Faga'alu in 1894. If it is truly extirpated from the Territory, it is extinct as well, since its only known location is Tutuila.

One group of plants that has fared especially badly in modern times is the category of "Polynesian introduction," including both unintentional and intentional introduced species. Several Polynesian weeds have disappeared or nearly so in the Territory because of the introduction of more aggressive weeds, many of them from tropical America, and these early species are now at a competitive disadvantage in their struggle for survival. Two Polynesian

Table 2. Plant Species of Restricted Geographic Distribution in American Samoa.

<i>Species</i>	Family	Status ¹	Island/Times ²	Last Date Collected
Restricted to Montane Scrub				
<i>Cymbopogon refractus</i>	Poaceae	I	TU1	2002
<i>Cyrtandra geminata</i>	Gesneriaceae	E	TU7	1992
<i>Dioclea wilsonii</i>	Fabaceae	I	TU3	2001
<i>Ischaemum stokesii</i>	Poaceae	I	TU5	1998
<i>Melicope richii</i>	Rutaceae	E	TU8	1998
<i>Macharina falcata</i>	Cyperaceae	I	TU8	1998
<i>Mapania parvibracteata</i>	Cyperaceae	I	TU3	1998
Restricted to Summit Scrub				
<i>Alpinia samoensis</i>	Zingiberaceae	S	TA1	*ca. 1998
<i>Gahnia vitiensis</i>	Cyperaceae	I	TA3	1998
<i>Joinvillea plicata</i>	Joinvilleaceae	I	TA1	1998
Restricted to Wetlands				
<i>Erythrina fusca</i>	Fabaceae	I?	TU3	2002
<i>Limnophila fragrans</i>	Scrophulariaceae	I	TU5/OF1/TA3	1998
<i>Scirpodendron ghaeri</i>	Cyperaceae	I	TU3	1992
<i>Xylocarpus moluccensis</i>	Meliaceae	I	TU8/AU3	2000
Restricted to One to Three Localities				
<i>Aidia racemosa</i>	Rubiaceae	I	TU4/AU1	2002
<i>Boerhavia albiflora</i>	Nyctaginaceae	I	TU2	1992
<i>Caesalpinia bonduc</i>	Fabaceae	I	AU3	1998
<i>Canavalia sericea</i>	Fabaceae	I	OL4	1997
<i>Crateva religiosa</i>	Capparidaceae	I	OF5/OL1	2001
<i>Cymbopogon refractus</i>	Poaceae	I	TU1	2002
<i>Dendrocnide harveyi</i>	Urticaceae	I	TU4/TA3	2001 ³
<i>Gossypium hirsutum</i>	Malvaceae	I	TU1/AU5/OF	1998
<i>Korthalsella horneana</i>	Loranthaceae	I	TA2	1976
<i>Lepturopetium kuniense</i>	Poaceae	I	TU5	2001
<i>Luisia teretifolia</i>	Orchidaceae	I	TU1	2002
<i>Manilkara dissecta</i>	Sapotaceae	I	TU7	2002
<i>Milletia pinnata</i>	Fabaceae	I	TU2/TA3	1998
<i>Plumbago zeylanica</i>	Plumbaginaceae	I	OF1/OL3	1998
<i>Sophora tomentosa</i>	Fabaceae	I	TU2/AU4	1998
<i>Ximenia americana</i>	Olcaceae	I	TU3	1998

¹ S=Samoan endemic; E=Territory endemic; I=Indigenous.² TU=Tutuila; AU='Aunu'u; OF=Ofu; OL=Olosega; TA=Ta'u.³ Seen but not collected in that year.

Table 3. Plant Species Possibly Extinct in or Extirpated from American Samoa.

<i>Species</i>	Family	Status ¹	TU ²	AU	OF	OL	TA	Last Collection
<i>Elatostema tutuilense</i>	Urticaceae	E	1	--	--	--	--	1894
<i>Habenaria monogyne</i>	Orchidaceae	S	1	--	--	--	--	1920
<i>Euphorbia reineckeii</i>	Euphorbiaceae	S	1	--	--	--	--	1976
<i>Blumea milnei</i>	Asteraceae	I	--	--	1	1	--	1895
<i>Cenchrus calyculatus</i>	Poaceae	I	1	--	--	--	--	ca. 1840
<i>Gyrocarpus americanus</i>	Gyrocarpaceae	I	--	1	1	--	--	1925
<i>Liparis caespitosa</i>	Orchidaceae	I	2	--	--	--	--	1929
<i>Psilotum nudum</i>	Psilotaceae	I	--	--	1	--	--	ca. 1840
<i>Parinari insularum</i>	Chrysobalanaceae	P	1	--	1	?	?	1920
<i>Syzygium neurocalyx</i>	Myrtaceae	P	4	--	--	--	?	1932
<i>Senna sophora</i>	Fabaceae	P	1	--	--	--	--	1920
<i>Sigesbeckia orientalis</i>	Asteraceae	P	--	--	--	--	1	1921

¹ S=Samoa endemic; E=Territory endemic; I=Indigenous.

² TU=Tutuila; AU='Aunu'u; OF=Ofu; OL=Olosega; TA=Ta'u.

“weedy” species are thought to have been extirpated from the Territory (Table 3), *Senna sophora* (Fabaceae) and *Sigesbeckia orientalis* (Asteraceae). Several others, including *Cyathula prostrata* (Amaranthaceae), *Laportea interrupta* (Urticaceae), *Leucas decemdentata* (Lamiaceae), *Portulaca quadrifida* (Portulacaceae), *Sida samoensis* (Malvaceae), *Uraria lagopodoides* (Fabaceae), and *Urena lobata* (Malvaceae), are now uncommon or rare. Several intentional Polynesian introductions have apparently disappeared from the Territory, mostly because they are no longer cultivated, and this includes *Parinari insularum* (Chrysobalanaceae) and *Syzygium neurocalyx* (Myrtaceae), as shown in Table 3. Several others are rare to uncommon for the same reason, including *Benincasa hispida* (Cucurbitaceae), *Atuna racemosa* (Chrysobalanaceae), *Cordia aspera* (Boraginaceae), *Cucumis melo* (Cucurbitaceae), *Phaleria disperma* (Thymelaeaceae), *Solanum viride* (Solanaceae), and *Tephrosia purpurea* (Fabaceae). The fact that some of these species are “weeds” is not important to whether they should be considered Plants of Concern, since they may now be in peril over their whole range.

RECOMMENDATIONS

From the list of 109 vascular plant Species of Concern recognized here for American Samoa, 21 have been selected for recommendation as federally listed “threatened or endangered” plant species (Table 4). With such an official listing, these species will be accorded some of the protection of which they are greatly in need (since there are no plants in American Samoa that are officially recognized as being in peril). The next recommended step is to have the species evaluated by sources other than the author to determine if they would qualify for nomination as threatened or endangered species, and if so, to determine in which of the two categories they belong. Most U.S. states also have their own list of threatened or endangered species, so it is also important that the Government of American Samoa take some action on its own to protect

Table 4. Plant species recommended as threatened or endangered in American Samoa.

<i>Species</i>	Family	Status ¹	TU ²	AU	OF	OL	TA	Last Found
<i>Blumea milnei</i>	Asteraceae	I	--	--	1	1	--	1895
<i>Cenchrus calyculatus</i>	Poaceae	I	1	--	--	--	--	ca. 1850
<i>Cordia aspera</i>	Boraginaceae	I?	4	--	1	--	1	1997
<i>Crateva religiosa</i>	Capparidaceae	I	--	--	5	1	--	2001
<i>Cucumis melo</i>	Cucurbitaceae	P	2	--	1	--	4	2002
<i>Cyrtandra geminata</i>	Gesneriaceae	E	7	--	--	--	--	1992
<i>Dioclea wilsonii</i>	Fabaceae	I	3	--	--	--	--	2001
<i>Elatostema tutuilense</i>	Urticaceae	E	1	--	--	--	--	1895
<i>Gossypium hirsutum</i>	Malvaceae	I	1	5	(1)	--	--	1998
<i>Gyrocarpus americanus</i>	Gyrocarpaceae	I	--	1	1	--	--	1925
<i>Habenaria monogyne</i>	Orchidaceae	S	1	--	--	--	--	1920
<i>Ischaemum stokesii</i>	Poaceae	I	5	--	--	--	--	1998
<i>Lepturopetium kuniense</i>	Poaceae	I	5	--	--	--	--	2001
<i>Limnophila fragrans</i>	Scrophulariaceae	I	5	--	1	--	5	1998
<i>Liparis alavaensis</i>	Orchidaceae	E	1	--	--	--	--	2003 ³
<i>Manilkara dissecta</i>	Sapotaceae	I	7	--	--	--	--	2003
<i>Mapania parvibracteata</i>	Cyperaceae	I	3	--	--	--	--	1997
<i>Parinari insularum</i>	Chrysobalanaceae	P	1	--	1	?	?	1920
<i>Solanum viride</i>	Solanaceae	P?	4	--	1	--	1	2003 ³
<i>Syzygium neurocalyx</i>	Myrtaceae	P	4	--	--	--	?	1932

¹ E=American Samoan endemic; S=Samoa endemic; I=Indigenous; P=Polynesian Introduction.

² TU=Tutuila; AU=Aunu'u; OF=Ofu; OL=Olosega; TA=Ta'u.

³ Seen but not collected in that year.

the Territory's flora. This list of recommended species will serve both interests. Once the process is started, each of the species can be evaluated on its own by federal or local criteria. The listing process may be long, but a journey of a thousand miles begins with the first step.

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APPENDIX A: PLANT SPECIES OF CONCERN IN AMERICAN SAMOA.

The following list contains 109 plant species deemed to be Plants of Concern in the Territory of American Samoa. The species are listed in alphabetical order by scientific names, which are in ***bold italics***. Included for each species is the author of the species name, the taxonomic family to which the plant belongs, any known synonyms, a diagnostic description, the status of the species (indigenous, endemic, or Polynesian introduction), its range, its habitat, its Samoan name (if any, as taken from Whistler 2001), specimens collected (by island) along with their collection data, date of collection, and general information where needed. Species reported as occurring in the National Park of American Samoa are so indicated.

Two species from the Whistler 1998 list have been left off since they are no longer considered to be Plants of Concern—*Laportea interrupta* and *Thrixspermum graeffei*. *Boerhavia tetrandra*, *Neisosperma oppositifolium*, and *Pemphis acidula* have also been removed from the list, since they are littoral plants restricted in Samoa to Swains Island and/or Rose Atoll but quite common elsewhere. *Syzygium brevifolium* has been removed since its original inclusion in the flora is now believed to be in error. Three other species have been added to the list, *Liparis alavaensis*, *Luisia teretifolia*, and *Cymbopogon refractus*, which have all been recently added to the flora of American Samoa. One plant that is rare in American Samoa is not included here nor was it included on the Whistler 1998 list, *Suriana maritima*. Its presence in American Samoa is based on a single small plant growing on Rose Atoll, and the species has probably now naturally disappeared; like *Boerhavia tetrandra* and the other atoll plants listed above, it is common elsewhere in the Pacific.

The data from a few specimens was unattainable, since their collection information was not published, the specimens could not be located, or no site information was recorded. These belong mostly to the USEE (United States Exploring Expedition of 1839), Reinecke, Powell, or Sledge (mostly ferns), and are indicated as “location not mapped” in the text below.

Achyranthes velutina Hooker & Arnott

Amaranthaceae

Subshrub with opposite, densely pubescent leaves, tiny purple flowers, and sharp, grass-like fruits in terminal spikes. It occurs in sunny littoral habitats on Swains Island. Indigenous, ranging from Tokelau to the Tuamotu Islands. This shrub, called ***tamatama*** in Tokelau (adjacent to Swains Island), is a Polynesian endemic and is probably uncommon or rare throughout most of its range. Some authors consider this to be just an atoll variety (var. *velutina*) of *Achyranthes aspera* L.

SWAINS:

1. Whistler 3420—On the beach (1976) . Location not mapped.

Other Tokelau Collections: FAKAOFO: (4). NUKUNONU: (1). ATAFU: (1).

Adenostemma viscosum Forst.

Asteraceae

Adenostemma lanceolatum sensu auct. non Miq.?

Adenostemma lavenia sensu auct. non (L.) Kuntze

Adenostemma viscosum Forst. f.

Herb with opposite leaves, small white disc flowers in heads, and tuberculate achenes with 3 terminal bristles. It occurs in montane forest clearings and along forest trails, reported from 150 (5) to 1700 m elevation. Indigenous or an unintentional Polynesian introduction, ranging from Africa to eastern Polynesia. This somewhat weedy herb has not been collected on the main islands of American Samoa since 1921, but has been found more recently on Swains, and is more frequent at high elevations in independent Samoa. Reported from the National Park.

TAU:

3. Garber 593—Sani Ridge back of Fitiuta, 150 m elevation (1921). (This location was not found on any available maps.)

SWAINS:

4. Bryan 931—Roadside weed at 3–4 m (1924). Location not mapped.
5. Whistler 3357—Weed of wet places (1976). Location not mapped.

Other Samoan Collections: SAVAI: (7). UPOLU: (15). WITHOUT FURTHER LOCALITY: (3).

***Agrostophyllum megalurum* Rchb. f.**

Orchidaceae

Large epiphytic herb with linear-ligulate leaves notched at the tip, elongate, terminal racemes, and small white flowers. It occurs as an epiphyte in montane forest, reported from 200 to 600 m elevation. Indigenous, also found in Fiji. This species is known in American Samoa from a single collection in 1939 on Ta'u, but is more frequent in independent Samoa.

TAU:

6. Yuncker 9246—Epiphyte on west slope of Vaoaimanu at 450 m elevation (1939). (This location was not found on any available maps.)

Other Samoan Collections: SAVAI: (4). UPOLU: (5).

***Aidia racemosa* (Cav.) Tirvengadum**

Rubiaceae

Aidia cochinchinensis sensu auct. non Lour.

Aidia graeffei (Reinecke) Tirvengadum

Randia cochinchinensis sensu auct. non (Lour.) Merr.

Randia graeffei Reinecke

Randia graeffei var. *alba* Reinecke

Shrub or small tree with opposite leaves, interpetiolar stipules, white sympetalous flowers in dense clusters, and a small red fruit. It occurs in coastal to lowland forest, reported from near sea level to 400 m elevation. Indigenous, ranging from tropical Asia to western Polynesia. ***Olamea*** is a small tree whose stems were formerly used in making the roofing of traditional Samoan houses. It is rare in American Samoa, but is common in independent Samoa.

TUTUILA:

(Observation by Rechinger)—Near Pago Pago (1905).

7. Whistler 8459—Vainu'u Point (1992).
8. Whistler 10506—Vainu'u Point (1997).
9. Whistler 11633—West side of 'O'a Valley on steep slopes, rare there (2002).

AUNUU:

10. Whistler 10942—Southeast rim of crater in coastal forest (1998).

Other Samoan Collections: SAVAI: (19). UPOLU: (32). WITHOUT FURTHER LOCALITY: (5).

Alpinia dyeri K. Schum.

Alpinia sp. of Christoph.

Tall herb with large glossy, lanceolate leaves, and a large terminal raceme bearing white flowers. It occurs in upper montane to cloud forest, reported from 750 to 1050 m elevation. Endemic to Samoa. This species is known in American Samoa only from a single recent collection on Ta'u, but it is more common in independent Samoa. Reported from the National Park.

TAU:

11. Solek 1—Summit of Lata? (ca. 1997).

Other Samoan Collections: SAVAI: (1). UPOLU: (7). WITHOUT FURTHER LOCALITY: (1).

Anacolosa insularis Christoph.

Olacaceae

Anacolosa lutea sensu Whistler non Gillespie

Small tree with alternate leaves, domatia on the lower leaf surface, tiny white, subsessile, axillary flowers, and a yellow ellipsoid drupe. It occurs in lowland to montane forest, reported from near sea level to 450 m elevation. Endemic. This species is known in American Samoa only from Mt. Tau, Tutuila, but is more common in independent Samoa.

TUTUILA:

12. Whistler 3348—Mt. Tau at 250–300 m elevation (1976).

13. Whistler 8948—On ridge north of Mt. Tau at 130 m elevation (1992).

14. Whistler 10518—North slope of Mt. Tau (1997).

Other Samoan Collections: SAVAI: (12). UPOLU: (4).

Aneilima vitiense Seem.

Commelinaceae

Commelina nudiflora sensu Reinecke pro parte, non L.

Small herb with alternate, lanceolate leaves, white flowers bearing 3 petals, and a fuzzy fruit. It occurs in coastal to montane forest, reported from near sea level to 750 m elevation. Indigenous, also found in Fiji and Tonga. This species is uncommon in American Samoa, but is somewhat more frequent in independent Samoa and elsewhere. Reported from the National Park.

TUTUILA:

15. Whistler 9920—Secondary forest in Fagafue Bay (1996).

16. Whistler 11094—Forest near Maloata at 320 m elevation (1996).

TAU:

17. Garber 588—Sani Ridge back of Fitiuta, 100 m elevation (1921). (This location is not found on available Samoan maps.)

18. Yuncker 9230—On old rock wall south of Si'ufaga (1939).

19. Yuncker 9274—Along trail in moist soil on the west side of Mt. Vaoaimanu at 200 m elevation (1939). (This location was not found on any available maps.)

20. Bartley 369—Specimen not seen. Location not mapped (ca. 1995).
 21. Whistler 7960—Coastal forest trail between Fagamalo Cove to Afuli Cove (1991).
 Other Samoan Collections: SAVAI: (2) UPOLU: (12). WITHOUT FURTHER LOCALITY: (1)

Asplenium excisum Presl

Aspleniaceae

Asplenium unilaterale Lam. forma *major*

Medium-sized terrestrial fern with a creeping rhizome, glossy black stipes, pinnate, lanceolate lamina, lower pinnae not reduced, and numerous sori bearing a thin indusium. It occurs in foothill to montane forest, reported from 180 to 1080 m elevation. Indigenous, ranging from Malaysia to Polynesia. This species is known in American Samoa from only a single collection on Tutuila in 1992, but is widespread if not common on the islands to the west, and several recent collections are known from independent Samoa.

TUTUILA:

22. Whistler 9073—On moist shady rocks along Utumoa Stream (1992).
 Other Samoan Collections: SAVAI: (3). UPOLU: (5).

Asplenium unilaterale Lam.

Aspleniaceae

Asplenium resectum J. Sm.

Asplenium unilaterale forma *minor* Prantl

Medium-sized terrestrial fern with a scaly, creeping rhizome, dark, shiny stipe and rachis, lanceolate, pinnate lamina with a pinnatifid tip, blunt tipped pinnae up to 2.5 cm long, and numerous sori. It occurs in wet places in foothill to montane forest, reported from near sea level to 900 m elevation. Indigenous, ranging from East Asia to Polynesia. This species is known in American Samoa from only four collections, two of them (the Reinecke specimens) questionable, but the species is probably more common in the islands to the west, including independent Samoa, where at least 18 collections are known. Reported from the National Park.

TUTUILA:

23. Reinecke 35b—Specimen not seen, and doubtful since it was not listed in Christensen, only by Reinecke, and probably without further locality (1894). Location not mapped.
 24. Reinecke 35f—Specimen not seen, and doubtful since it was not listed in Christensen, only by Reinecke, and probably without further locality (1894). Location not mapped.

TAU:

25. Garber 681—Fagamalo beach on rocks at 3–5 m elevation (1921) (In Christensen but not Yuncker.)
 26. Whistler 11077—Occasional on banks of Laufuti Stream at 370 m elevation (1998).
 Other Samoan Collections: SAVAI: (4). UPOLU: (14). WITHOUT FURTHER LOCALITY: (2).

Atuna racemosa Raf.

Chrysobalanaceae

Cyclandrophora laurina (A. Gray) Kost.

Parinari glaberrimum sensu auct. non Hassk.

Parinari laurinum A. Gray

Medium-sized tree with large alternate leaves, small white flowers in racemes, and a large, brown, compressed-globose, hard-shelled fruit. It occurs in lowland to montane forest, but is often semi-naturalized and persists in old forest and sometimes forms small groves, reported from near sea level to 450 m elevation. A Polynesian introduction, ranging from tropical Asia to western Polynesia. *Ififi* produces a large, hard-shelled seed, the pulp of which was used to scent coconut oil and to caulk canoes. The tree is now rare, and its uses and even its name have nearly been forgotten in Samoa.

TUTUILA:

- 27. Setchell 325—Edge of secondary forest near Fagasa (1920).
- 28. Garber 892—Back of Pago Pago, 30 m elevation (1894).
- 29. Spence 480—Mt. Alava road at 300 m (ca. 1980).
- 30. Whistler 10525—One seen on Alava Ridge north of Afono Pass at 370 m elevation (1997).

OFU:

(Reported by Guest from informants, not collected.)

TAU:

(Reported by Guest from informants, not collected.)

Other Samoan Collections: SAVAI: (8). UPOLU: (12). WITHOUT FURTHER LOCALITY: (3).

Benincasa hispida (Thunb.) Cogn.

Cucurbitaceae

Herbaceous, high-climbing vine with alternate, lobed leaves, tendrils, large yellow, unisexual flowers solitary in the axils, and a large round, gourd fruit often covered with a waxy white substance. It occurs in disturbed places, reported from near sea level to 200 m elevation. A Polynesian introduction, probably native to Asia. The small gourd-like fruit of *fagu* was formerly used as a bottle for scented coconut oil. When Europeans arrived with their much more functional glass bottles, the cultivation of this plant became unnecessary, and the plant, its Samoan name, and its uses have now virtually been forgotten in Samoa.

TUTUILA:

- 31. Whistler 10911—Found growing on soil at the Landgrant College (1997).
- 32. Whistler 11123—One patch seen growing in a clearing in Malaeimi Valley (1998).

Other Samoan Collections: UPOLU: (2).

Blumea milnei Seem.

Asteraceae

Tall, erect, branching herb with alternate leaves, panicles of heads bearing white disc florets, and achenes bearing numerous terminal bristles. It occurs in forest clearings, and is possibly now extirpated from American Samoa, elevation not reported. Indigenous, ranging from New Guinea to Samoa. This species has probably disappeared from the whole archipelago and is rare in Tonga, where it was only recently reported (on Kao and Tofua), but may be more common on some islands to west (the present author has seen it in once in Fiji and once in Vanuatu). This plant is recommended for a threatened or endangered status because it is so rare, or now extirpated, from Samoa, and is apparently uncommon over much of the rest of its range.

OLOSEGA:

- 38. Reinecke 468—East side in a moist depression under a ridge (“Kamm”) (1894).

Other Samoan Collections: UPOLU: (3).

***Boehmeria virgata* (Forst. f.) Guillemain**

Urticaceae

Boehmeria platyphylla sensu auct. non D. Don

Small tree with coarse, opposite, mostly glabrous, ovate to elliptic leaves, tiny inconspicuous flowers in long spikes, and tiny yellow to brown achenes. It occurs in disturbed forests and clearings, reported from 180 to 1400 m elevation. Indigenous, ranging from Vanuatu and the Caroline Islands to the Marquesas. This species has been collected only three times in American Samoa, all of them on Tutuila, but it is more frequent in the montane forest of independent Samoa.

TUTUILA:

33. Christophersen 987—Reservoir trail above Naval Station, 200–300 m elevation (1929).

34. Whistler 9080—Near waterfall on Utumoa Stream (1992).

35. Whistler 10925—On talus slope near waterfall on Utumoa Stream (1998).

Other Samoan Collections: SAVAI: (16). UPOLU: (7).

***Boerhavia albiflora* Fosb.**

Nyctaginaceae

Prostrate herb with opposite leaves, tiny white flowers in stalked clusters, and tiny sticky seeds. It occurs in rocky littoral strand, reported only near sea level. Indigenous, widespread in the Pacific. This species is known in Samoa from only three specimens collected in American Samoa and three in independent Samoa, but may be more common since it is inconspicuous and is often found in inaccessible areas. Reported from the National Park.

TUTUILA:

36. Whistler 8909—On north end of Tuafanua beach at the northwest tip of Polauta Ridge (1992).

37. Whistler 9026—Cliff face north of Vatia village on the northeast tip of Polauta Ridge (1992).

404. Whistler 11711—Cliff face north of Vatia village on the northeast tip of Polauta Ridge (2003).

Other Samoan Collections: UPOLU: (3).

***Bulbophyllum betchei* F. Muell.**

Orchidaceae

Bulbophyllum atrovioleaceum H. Fleischm. & Reehinger (K)

Small creeping epiphytic orchid with closely spaced pseudobulbs, axillary, solitary flowers, and tiny greenish tepals marked with maroon. It occurs in montane forest, reported from 400 to 750 m elevation. Indigenous, ranging from New Caledonia and the Caroline Islands to Samoa. This species is known in American Samoa from only two specimens collected in Manu'a in 1976, but is more common in independent Samoa. Possibly found in the National Park.

OLOSEGA:

39. Whistler 3817—Epiphyte on the main ridge of the island at ca. 400 (?) m elevation (1976).

TAU:

40. Whistler 3727—Montane forest east of Lata, at ca. 500 m elevation (1976).

Other Samoan Collections: SAVAI: (8). UPOLU: (11).

***Bulbophyllum distichobulbum* Cribb**

Orchidaceae

Prostrate epiphytic orchid with distichously arranged pseudobulbs, small elliptic leaves, flowers in basal racemes on a thin rachis, and bright yellow, acuminate tepals. It occurs in lowland forest, reported from ca. 150 to 270 m elevation. Indigenous, also found on Niue. This small epiphytic orchid is known in Samoa only from the forest on the north and south slopes of Alava Ridge and from a ridge near Fagaʻitua, but is more frequent on Niue. Reported from the National Park.

TUTUILA:

- 41. Whistler 3757—Maugaoaliʻi ridge NE of Fagaʻitua at 130 m elevation (1976).
- 42. Whistler 8714—Siuono Ridge on a tree at 235 m elevation (1992).
- 43. Whistler 9348—One seen near Nuʻutoga in north-central Tutuila at 180 m elevation (1993).
- 44. Whistler (pers. obs. August 2002)—Siuono Ridge at 200 m elevation.

***Bulbophyllum savaiiense* Schltr.**

Orchidaceae

Bulbophyllum sp. of Yuncker

Tiny epiphytic orchid with clustered, narrowly ovoid pseudobulbs, elliptic leaves, axillary, several-flowered racemes with a zigzag, filiform rachis, and tiny white flowers. It occurs in montane forest, reported from 300 to 600 m elevation. Endemic. This species is apparently rare in American Samoa, but is more common in independent Samoa. Possibly found in the National Park.

OLOSEGA:

- 45. Whistler 3816—Epiphyte on the main ridge of the island at ca. 400 (?) m elevation (1976).

TAU:

- 46. Yuncker 9272—Forest on west slope of Mt. Vaoaimanu at 450 m elevation (1939). (This location was not found on any available maps.)
- 47. Whistler 3735—Epiphyte in forest along Faleʻiʻulu Stream at 310 m elevation (1976).

Other Samoan Collections: SAVAI: (6). UPOLU: (2).

***Caesalpinia bonduc* (L.) Roxb.**

Fabaceae

Caesalpinia bonducella Flem. f. *typica* Rechinger

Guilandina bonduc (L.) Ait.

Scandent shrub with thorny stems, bipinnately compound leaves having leafy stipules, yellow, 5-merous flowers, and white-gray seeds in a spiny pod. It occurs in littoral habitats, reported up to 60 m elevation. Indigenous, widespread in the Pacific. It is apparently restricted to a single locality in American Samoa, but is common elsewhere in the Pacific, including parts of Savaiʻi in independent Samoa. It is very similar and hard to distinguish from *Caesalpinia major*, which is a little more common in American Samoa. ‘*Anoso* is a thorny scrambling shrub with stems formerly used to make snares for flying foxes and seeds used for marbles and fashioning seed leis.

AUNUU:

48. Whistler 3767—North facing slope of the crater (1976).
49. Whistler 5736—North facing slope of the crater (ca. 1986).
50. Whistler 10930—North facing slope of the crater (1998).

Other Samoan Collections: SAVAI: (9). APOLIMA: (2). MANONO: (1). UPOLU: (2).

***Calymmodon latealatus* Copeland**

Grammitidaceae

Polypodium cucullatum sensu auct. non Bl.

Polypodium latealatum (Copeland) Christensen

Small, narrow epiphytic fern with an erect rhizome, very short stipe, linear, pinnatifid lamina up to 25 cm long, and sori borne solitary on the upper lobes. It occurs in montane forest, reported from ca. 700 to 900 m elevation. Indigenous, also found in Fiji. It may be more frequent than its collection data would indicate, since it is so small and inconspicuous. Reported from the National Park.

TAU:

51. Whistler 10991—Epiphyte at summit of Lata at 910 m elevation (1998).

Other Samoan Collections: SAVAI: (2). UPOLU: (4). WITHOUT FURTHER LOCALITY: (3).

***Canavalia sericea* A. Gray**

Fabaceae

Creeping vine with silvery pubescent, alternate, trifoliate leaves, mauve papilionaceous flowers, and a flattened-oblong pod. It occurs in littoral strands and littoral shrubland, reported from near sea level to ca. 50 m elevation. Indigenous, widespread in the Pacific. The species is restricted in American Samoa to the lower, southwest slopes of Olosega, where it is locally common, but it is also common elsewhere in the tropical Pacific.

OLOSEGA:

52. Whistler 3058—West-facing slope at the south end of the island (1975).
53. Whistler 8027—West-facing slope at the south end of the island (1991).
54. Whistler 9218—West-facing slope at the south end of the island (1993).
55. Whistler 10373—West-facing slope at the south end of the island (1997).

***Cenchrus calyculatus* Cav.**

Poaceae

Tall grass with linear leaves, a single, long, terminal spike, and soft-spiny bur-like spikelets. It occurs in coastal areas, no elevation reported. Indigenous, ranging from New Caledonia to the Society Islands. This tall burr grass is known in American Samoa from only a single collection from Tutuila over a century ago, with an ambiguous label on the specimen (“Vihilogo,” which is not a Samoan name) and has not been collected in independent Samoa since 1905. This plant is recommended for a threatened or endangered status because it is rare throughout its range, and has probably disappeared from Samoa.

TUTUILA:

56. Powell s.n.—“Vihilogo Tutuila” (ca. 1850). A questionable record, since the location name is not Samoa (there is no “h” in Samoan). Location not mapped.

Other Samoan Collections: SAVAI: (3). UPOLU: (2).

Liniocera paucifolia sensu auct. non C.B. Clarke

Medium-sized tree with opposite leaves, small yellow flowers, and a large, single-seeded, spindle-shaped drupe. It occurs in coastal and lowland forest, reported from near sea level to 400 m elevation. Indigenous, also found in Fiji, Tonga, and Niue. This species has been collected only five times in American Samoa and four times in independent Samoa, but is more common on other islands. Reported from the National Park.

TUTUILA:

- 57. Whistler 8680—Saddle area behind Vatia (1992).
- 58. Whistler 11411—Saddle area behind Vatia (2000).
- 59. Whistler 11500—In montane scrub on north facing slope of Mt. Tau at 300 m elevation (2001)..

OFU:

- 60. Whistler 8829—One seen on ridge west of Sunu'itao Peak (1992).
- 61. Whistler 11505—One seen on Nu'utele Islet (2001).

Other Samoan Collections: SAVAI: (3). UPOLU: (1)

Christella pacifica Holttum

Thelypteridaceae

Medium-sized terrestrial fern with a long-creeping rhizome, large pinnate lamina, up to 20 rather widely spaced, pinnae pairs cut about 2/5 of the way to the midrib, anastomosing veins, and medial sori with a short-hairy indusium. Similar to *Christella arida*, which has more, less deeply cut lobes and caudate apices. It occurs in lowland forest, reported from ca. 200 m elevation. Indigenous, also found in Fiji and New Caledonia. This terrestrial fern is known in Samoa from a single collection from Tutuila, but the taxonomy of this genus and family is difficult and the species may have been more recently seen but misidentified in the field as other related, similar looking species.

TUTUILA:

- 62. Yuncker 9346—Open moist areas along reservoir trail (1939).

Cordia aspera Forst. f.

Boraginaceae

Small tree with alternate leaves, small white sympetalous flowers arranged in short terminal cymes, and a white ovoid drupe. It occurs in lowland forest, reported from 30 to 275 m elevation. It is a Polynesian introduction to Samoa, or is possibly indigenous, and ranges from Tonga and Samoa to the Philippines. The species is also rare in independent Samoa and Tonga, and is of uncertain status over the rest of its range. It is listed here because of its rarity in Samoa (both independent and American) and the region, and because of its former ethnobotanical use: the small white fruits of *tou* were formerly used as a glue for pasting together layers of tapa cloth (*siapo*). Along with its use and even its name, it has now been virtually forgotten in Samoa. Reported from the National Park.

TUTUILA:

- 63. Whistler 3112—On the slope below the saddle just to the southwest of Afono (1975).
- 64. Whistler 3113—On the slope below the saddle just to the southwest of Afono (1975).

65. Whistler 9347—On Ma‘atulua Ridge on the north-central part of island, 150 m elevation (1993).
66. Webb s.n.?—Amalau Valley (ca. 1998). Specimen not seen.
OFU:
67. Whistler 10436—Along the road to the summit, in a disturbed area at 260 m, only one seen (1997).
TAU:
68. Whistler 9315—In shady forest on Li‘u Bench on the south side of the island, 270 m elevation (1993).
 Other Samoan Collections: SAVAI: (3). UPOLU: (3). WITHOUT FURTHER LOCALITY: (2).

***Crateva religiosa* Forst. f.**

Capparidaceae

Medium-sized tree with alternate, trifoliate leaves, large white flowers, and a large, brown, sausage-shaped fruit. It occurs in lowland forest, reported from near sea level to 40 m elevation. Indigenous from India to the Tuamotus, but rare over much of this range, including all of Polynesia. It is currently known from only a single place in Tonga (Tafahi Island), two localities in Samoa, and an undetermined number of sites in French Polynesia. It was first collected in American Samoa on Ofu by Garber in the 1920s, and was found again a few years ago on the same island and the adjacent Olosega. Powell, who must also have seen the plant, called it *pupu elo*, but this name has not been substantiated. In independent Samoa, it is currently known only from the western end of Savai‘i. It is proposed here for listing as threatened or endangered because it is so rare in American Samoa, independent Samoa, and over its Polynesian range. However, it should be noted that this or a related species (a single species is recognized by most current botanists) occurs in Micronesia, where on some islands (e.g., Yap) it is a minor food source. Reported from the National Park.

OFU:

69. Garber 983—Exposed coast near Mafafa, 40 m elevation (1924).
 70. Trail s.n.—Specimen not seen. Location not mapped (ca. 1992).
 71. Whistler 8770—On slope just east of and behind Vaoto marsh (1992).
 72. Whistler 10372—On talus slope just east of Vaoto marsh (1997).
 73. Whistler 11507—On slope just east of and behind Vaoto marsh (2001).

OLOSEGA:

74. Whistler 10449—On the slope west of Sili on the north side of the island (1997).
 Other Samoan Collections: SAVAI: (2). UPOLU: (2).

***Cryptostylis arachnites* (Bl.) Hassk.**

Orchidaceae

Cryptostylis alismifolia F. Muell.

Medium-sized ground orchid with elliptic leaves often marked with darker venation, 7–15-flowered racemes, and greenish flowers with the lip marked with red spots. It occurs in montane to cloud forest, reported from 500 to 1200 m elevation. Indigenous, ranging from India to Fiji and Samoa. This terrestrial orchid is known in American Samoa from only two collections from Ta‘u in 1976, and is equally rare in independent Samoa, where it has been collected only once during the last century (1931). Reported from the National Park.

TAU:

75. Whistler 3199—Along the trail from Lata to Fale‘i‘ulu at ca. 800 m elevation (1975).
76. Whistler 3728—Montane forest at ca. 500 m elevation, below Olotania (1976).

Other Samoan Collections: SAVAI: (1). UPOLU: (2).

Ctenitis samoensis (Christensen) Holttum

Aspidiaceae

Aspidium chrysotrichum Christ

Dryopteris samoensis Christensen

Medium-sized terrestrial fern with an erect rhizome, tufted stipes densely scaly at base, densely chaffy rachis (when young), a deltoid, quadripinnate lamina, red-hairy upper rachis and costa of upper surface, and small sori with a small caducous indusium. It occurs in lowland to montane forest, reported from 75 to 300 m elevation. Indigenous to Samoa, also found on Rarotonga. This terrestrial fern is rare (or at least rarely collected) in both independent Samoa, where it is known from only a one recent collection (and several older ones), and American Samoa. Reported from the National Park.

TUTUILA:

77. Reinecke 92?—Specimen not seen, probably without further locality (1894). Location not mapped.
78. Sledge 1829—Specimen not seen, stored at Kew only. Location not mapped (1965).
79. Whistler 8555—Locally common north of Afono Pass at 240–300 m elevation (1992).
80. Whistler 8591—Locally common on Sauma Ridge at 320 m elevation (1992).
81. Whistler 10521—Locally common north of Afono Pass at 240 m elevation (1997).

Other Samoan Collections: UPOLU: (4). WITHOUT FURTHER LOCALITY: (9).

Cucumis melo L.

Cucurbitaceae

A prostrate vine with alternate leaves, tendrils, small yellow axillary, unisexual flowers, and a walnut-sized melon fruit. It occurs in heavily disturbed places, reported only near sea level. A Polynesian introduction, native to the Old World tropics. ‘*Atiu*’ is the Polynesian variety of cantaloupe, from which it differs most obviously in having only walnut-sized fruits. It was formerly used for making fragrant fruit leis and possibly as a minor food source, but now the plant, its Samoan name, and its uses have been virtually forgotten in Samoa. It is known in recent times only from the periphery of the Ofu and Ta‘u airports. It is recommended for a threatened or endangered status because of its rarity in Samoa and Polynesia, and its former ethnobotanical uses.

TUTUILA:

389. Wisner 92—Trail between Onenoa and Tula in rocky area at 3 m elevation (1959).
391. Garber 702—Clearing near Pago Pago, 15 m elevation (1922).

OFU:

390. Whistler 8025—At Vaoto on the south side of the new airport runway (1991).

TAU:

392. Yuncker 9284—In low waste area near Si‘ufaga (1939).
393. Whistler 7529—At the edge of the departure area of the new airport at Fitiuta (1990).
394. Whistler 7925—Disturbed area at Faleasao (1991).

387. Togia s.n.—At the edge of the departure area of the new airport at Fitiuta (ca. 2002).

388. Wilder 42—Fa‘asamene Spring, Fagamalo, 5 m elevation (1923).

Other Samoan Collections: SAVAII: (2). UPOLU: (2). WITHOUT FURTHER LOCALITY: (2).

Cyathula prostrata (L.) Bl.

Amaranthaceae

Low, weak-stemmed herb with opposite leaves, tiny green, inconspicuous flowers in narrow, long-stalked terminal spikes, and bur-like fruits. It occurs in disturbed places including secondary forest, reported from near sea level to 900 m elevation. Probably an unintentional Polynesian introduction, native to the Old World tropics. This herb has no Samoan name and no reported uses. Reported from the National Park.

TUTUILA:

82. Setchell 215—Afono Trail above Aua (1920).

83. Setchell 326—Wayside near Fagasa (1920).

TAU:

84. Garber 592—Sani Ridge back of Fitiuta, 150 m elevation (1921). (This location was not found on any available maps.)

85. Garber 669—Fitiuta trail, 150 m elevation (1921).

86. Yuncker 9170—Weed common in sandy soil at Si‘ufaga (1939).

87. Harris 215—Plantation in Fale‘i‘ulu Valley at 650 ft (1938).

88. Harris 373—Plantation in Fale‘i‘ulu Valley at 650 ft. (1938).

89. Whistler 7942—Rock cracks in Laufuti streambed at 300 m elevation (1991).

90. Whistler 11081—Rare on banks of Laufuti Stream at 370 m elevation (1998).

91. Whistler 11087—Near mouth of Laufuti Stream (1998).

Other Samoan Collections: SAVAII: (5). APOLIMA: (0). UPOLU: (16). WITHOUT FURTHER LOCALITY: (2).

Cymbopogon refractus

Poaceae

Erect, medium-sized grass with conspicuous black nodes, linear terminal panicles, spike-like paired racemes, and dissimilar, paired spikelets. Possibly native but of recent natural introduction (attached to bird feathers). It occurs in open areas in scrubby ridge forest, reported only from about 300 m elevation. Native to Australia, and possibly to the Pacific Islands. This grass was recently collected on a ridge above Vatia, a new record for Samoa. Reported from the National Park.

TUTUILA

386. Whistler 11641—Behind Vatia on Si‘uono Ridge on a recent landslip, ca. 250 m elevation (2002).

Cyrtandra geminata Reinecke

Gesneriaceae

Cyrtandra biflora sensu Setchell non Forst.

Shrub with opposite, glabrous leaves, large, showy white, salverform corolla, a pair of terminal bracts on the peduncle, and a fleshy ovoid berry. It occurs in montane scrub on Tutuila, reported from 450 to 600 m elevation. This species of *Cyrtandra* (the second largest genus in Samoa with about 19 species) is endemic to Matafao and Le Pioa (Rainmaker) at 450–600 m

elevation on Tutuila. It is recommended for a threatened or endangered status because of its restriction to only two small areas in one vegetation type on one island.

TUTUILA:

- 92. Reinecke 477—Matafao, without further locality (1894).
- 93. Setchell 548 (not cited by Gillette)—Matafao trail, 600 m elevation (1920).
- 94. Christophersen 1041—Matafao Ridge, 600 m elevation (1929).
- 95. Christophersen 3563—Top of Le Pioa, 500 m elevation (1929).
- 96. Long 3069—Fagasa to Matafao trail (1965).
- 97. Whistler 3669—Le Pioa, 450 m elevation (1976).
- 98. Whistler 9068—Le Pioa, 440 m (40 m below the measured top that day) (1992).

***Dendrobium catillare* Rchb. f.**

Orchidaceae

Dendrobium erythroxanthum sensu Reinecke non Rchb. f.

Dendrobium glomeriflorum Kraenzl.

Small epiphytic orchid with thick, ridged stems, alternate, spaced leaves, and white or pink flowers in many-flowered heads. It occurs in montane forest, reported from 250 to 500 m elevation. Indigenous, also found in Fiji. This species is probably more common than collected specimens would indicate, because it is hard to distinguish when young from two other more common orchids in the same genus. Possibly found in the National Park.

TUTUILA:

- 99. Whistler 2903—Top of Mt. Tau (1975).
- 100. Whistler 8945—On top of hill north of Mt. Tau (1992).

TAU:

- 101. Whistler 3183a—Epiphyte along Fale‘i‘ulu Stream (1975).
- 102. Whistler 7985—Epiphyte along Fale‘i‘ulu Stream at 300 m elevation (1991).

Other Samoan Collections: SAVAI: (3). UPOLU(4). WITHOUT FURTHER LOCALITY: (1).

***Dendrocnide harveyi* (Seem.) Chew**

Urticaceae

Dendrocnide vitiense sensu auct. non (Seem.) Chew??

Laportea harveyi Seem.

Laportea photiniphylla sensu auct. non Wedd.

Laportea vitiense sensu auct. non Seem.?

Medium sized, soft-wooded tree with alternate, ovate leaves 3–5-veined from the base, purple veins on the lower leaf surface, stinging hairs (usually), tiny green flowers, and tiny green achenes. It occurs in lowland to montane forest, reported from near sea level to 800 m elevation. Indigenous, ranging from Fiji to Niue. **Salato**, or stinging nettle tree, is known from only two or three locations in American Samoa—Tafuna on Tutuila, a questionable collection on Tutuila, and Amouli on Ta‘u, but it is common in independent Samoa and elsewhere. A Samoan tradition notes it as being introduced to Ta‘u from independent Samoa.

TUTUILA:

- 103. Christophersen 3583—New plantation on Alava ridge, 300 m (1931). (Identification uncertain, since it is a sapling.)

104. Whistler 8065—Ottoville rainforest (1991).
 105. Whistler 9169—Ottoville rainforest (1993).
 106. Lualua s.n.—Ottoville rainforest (ca. 1998).

TAU:

107. Garber 780—Amouli at 3 m (ca. 1923).
 108. Whistler 3854—Amouli Cove (1976).
 109. Whistler 7965—Amouli Cove (1991).

Other Samoan Collections: SAVAI: (13). UPOLU: (11). WITHOUT FURTHER LOCALITY: (4).

***Dioclea wilsonii* Standl.**

Fabaceae

Vine with alternate, trifoliate leaves, ovate leaflets, racemes of dark purple papilionaceous flowers with a yellow blotch in the center, and a pod. It occurs in montane scrub, reported only from 350 m elevation. Indigenous, ranging from Central America and Hawai'i to Fiji. This vine, which has attractive dark purple flowers, is known in American Samoa only from a small population on top of Mt. Tau on Tutuila, and is widespread but rare elsewhere in Polynesia (Hawai'i, Tahiti, and the Austral Islands) and possibly Fiji ("*Dioclea* sp."). It may originally be native to coastal forests in Honduras, if this is the same species, but has apparently spread long distances by means of its hard, seawater-resistant seeds. There is no plausible explanation as to how this vine got to the Mt. Tau summit and no place else in the archipelago. Further taxonomic work needs to be done since it is unlikely that the same species occurs in both Honduras and Polynesia. This plant is recommended for a threatened or endangered status because it is very rare in Samoa (a single known locality) and the Pacific Islands.

TUTUILA:

110. Whistler 10516—On top of Mt. Tau just west of the beacon (1997).
 111. Whistler 11502—On top of Mt. Tau just west of the beacon (2001).

***Diplazium dilatatum* Bl.**

Athyriaceae

Large terrestrial fern with an erect stock, tufted stipes scaly near the base, mostly bipinnate, broadly deltoid lamina, lanceolate pinnules up to 12 cm long and lobed shallowly or to about half way to the costa, and linear indusiate sori. It occurs in foothill to montane forest, reported from 270 to 1650 m elevation. Indigenous, ranging from India to Polynesia. A terrestrial fern known from American Samoa from only a single specimen collected in 1976, but more common in independent Samoa and elsewhere.

TUTUILA:

112. Whistler 3601—Forest north of A'asu at 350 m elevation (1976).

Other Samoan Collections: SAVAI: (10). UPOLU: (11).

***Doryopteris concolor* (Langs. & Fischer) Kuhn**

Sinopteridaceae

Pellaea concolor Baker

Small terrestrial fern with a dark, shiny stipe, deltoid, palmatifid lamina, lobed or pinnatifid pinnae, and sori continuous on the pinna margin and protected by the reflexed margin. It occurs in open sunny places in the lowlands and coast, reported from near sea level to 170 m elevation.

Indigenous, pantropical in distribution. This fern is known in American Samoa from only three collections from Ta'u, the last two, at least, on rocks in the village of Fitiuta.

TAU:

134. USEE s.n.—Without further locality (1839). [“Manu‘a”, possibly Ofu]. Location not mapped.
135. Whistler 7591—On mossy rocks at the west end of Fitiuta Village (1990).
136. Whistler 11091—Uncommon on rocks just east of the main church in Fitiuta Village (1998).
Other Samoan Collections: SAVAI: (9). UPOLU: (2). WITHOUT FURTHER LOCALITY: (1).

***Elatostema tutuilense* Whistler**

Urticaceae

Elatostema radicans Reinecke non Wedd.

Small herb with alternate leaves deeply pinnately toothed, and tiny greenish flowers and fruits. It occurs in montane forest, endemic to Tutuila. This small low herb is known only from a single collection made in 1894 in the Matafao river basin, which lies just west of Pago Pago on Tutuila. It may now be extinct, but the area above Faga‘alu should be checked. It is recommended for a threatened or endangered status because of its extreme rarity (if it still exists). It was already listed as a “species of concern” by the USFWS (Anon. 1998).

TUTUILA:

137. Reinecke 590—Matafao river basin, on old trunks or forming patches on the ravine walls (1894).

***Eleocharis geniculata* (L.) Roemer & Schultes**

Cyperaceae

Small leafless sedge with tall cylindrical, septate stems and green flowers borne in a terminal ovoid spikelet. It occurs in marshy places along the margin of the lagoon on Swains Island, but nowhere else in the Samoan archipelago. Probably indigenous, found throughout the tropics. This small sedge is weedy in many places in the Pacific (e.g., in Hawai‘i, where it was first recorded in 1909), but is apparently native to Swains Island.

SWAINS:

113. Whistler 3352A—Along north edge of the enclosed lagoon (1976). Location not mapped.

***Epiblastus sciadanthus* (F. Muell.) Schltr.**

Orchidaceae

Bulbophyllum sciadanthum F. Muell.

Eria ornithidioides Kraenzl.

Eria sciadantha (F. Muell.) Kraenzl.

Small epiphytic orchid with cylindrical pseudobulbs, long linear-lanceolate leaves appearing imbricate, and fascicles of pink, campanulate flowers red inside. It occurs in montane to cloud forest, reported from 600 to 1550 m elevation. Indigenous, ranging from the Solomon Islands to Samoa. This species is known in American Samoa only from the montane forest of Ta'u, but is more common in independent Samoa. Possibly found in the National Park.

TAU:

114. Whistler 3693—Montane forest southwest of Mt. Lata at 650 m elevation (1976).

115. Whistler 7950—Epiphyte along Fale‘i‘ulu at 500 m elevation (1991).

Other Samoan Collections: SAVAII: (4). UPOLU: (5).

Erythrina fusca Lour.

Fabaceae

Erythrina ovalifolia Roxb.

Thorny, medium-sized tree with alternate, trifoliate leaves, oval leaflets, large showy red papilionaceous flowers, and a linear-oblong pod. It occurs in swampy coastal places. Possibly a Polynesia introduction, pantropic in distribution. This tree, possibly called *gatae palagi*, may instead be a modern introduction or even indigenous to Samoa, and is currently restricted in American Samoa to the Malaeloa swamp. It is, however, more common on ‘Upolu in independent Samoa and on islands farther westward.

TUTUILA:

116. Christophersen 1035—Swampy place near Leone, 20–30 m elevation (1929).

117. Whistler 8061—Swamp at Malaeloa (1991).

118. Whistler 11648—Swamp at Malaeloa (2002).

Other Samoan Collections: SAVAII: (observed but not collected). UPOLU: (7). WITHOUT FURTHER LOCALITY: (1).

Erythroides oxyglossa Schltr.

Orchidaceae

Eria lilyana (H. Fleischm. & Rechinger) Schltr.

Physurus lilyanus H. Fleischm. & Rechinger

Small terrestrial orchid with oblong leaves, many-flowered racemes, and dull brownish white flowers with sepals 6–8 mm long. It occurs in montane to cloud forest, reported from 300 to 1300 m elevation. Indigenous, ranging from New Caledonia to Tonga and Samoa. This species is known in American Samoa only from the montane forest of Manu‘a and Tutuila, but is more common in independent Samoa. Reported from the National Park.

TUTUILA:

119. Whistler 11655—Alava Ridge at ca. 350 m elevation (2002).

OLOSEGA:

120. Whistler 3100—Ridge leading north up to Piumafua, no elevation noted (1975).

TAU:

121. Whistler 7799—Along trail from Fitiuta to Mt. Lata at 520 m elevation (1991).

122. Whistler 8012—Trail up Fale‘i‘ulu Stream at 520 m elevation (1991).

Other Samoan Collections: SAVAII: (10). UPOLU: (6).

Etilingera cevuga (Seem.) R. M. Smith

Zingiberaceae

Amomum vignauui Rechinger

Geanthus cevuga (Seem.) Loes.

Geanthus vignauui (Rechinger) Loes.

Tall, clump-forming herb with large alternate leaves, inflorescences borne on a short leafless stalk, and crepy, pale orange flowers in a short-stalked, compact head. It is uncommon but sometimes occurs in large patches in montane to cloud forest, especially along streams, reported from 300 to 800 m elevation. Indigenous, or perhaps a Polynesian introduction, ranging from Fiji to the Society Islands. Reported from the National Park. It is unclear how this species spread from Fiji, where it is presumably native (but rare) to Samoa and Tahiti.

TUTUILA:

123. Christophersen 1124—Alava Ridge, 400 m elevation (1929).

124. Whistler, observed along Alava ridge road, not collected (ca. 2001 and earlier).

TAU:

125. Whistler 7935—In forest on Li‘u Bench at 280 m elevation (1991).

Other Samoan Collections: SAVAII: (8). UPOLU: (2). WITHOUT FURTHER LOCALITY: (2).

Eugenia reinwardtiana (Bl.) DC.

Myrtaceae

Eugenia rariflora Benth.

Jossinia reinwardtiana (Bl.) Bl.

Shrub or small tree with opposite leaves, solitary, long-stalked white flowers bearing many stamens, and a succulent, red, subglobose berry. It occurs in littoral and coastal forest, reported from near sea level to ca. 100 m elevation. Indigenous, ranging from Micronesia and Fiji to Hawai‘i. The Samoan name is *unuoi*, but this name and any former uses have virtually been forgotten.

TUTUILA:

126. Powell s.n.—Specimen not seen, probably without further locality (ca. 1850). Location not mapped.

127. Whistler 3353—On rocky shore near Masefau (1976).

128. Whistler 8401—On the coast east of Alofau Bay (1992).

129. Whistler 8467—Vainu‘u Point (1992).

130. Whistler 10510—One seen in forest on Vainu‘u Point (1997).

AUNUU:

131. Whistler 3770—Coastal forest on Fogatia Hill (1976).

132. Whistler 10943—Rare in coastal forest on the southeast crater rim (1998).

Other Samoan Collections: SAVAII: (7). APOLIMA: (2). UPOLU: (2). WITHOUT FURTHER LOCALITY: (2).

Euphorbia reineckeae Pax

Euphorbiaceae

Erect, scarcely branching shrub with milky sap, opposite leaves, greenish flowers in cyathia, and a 3-lobed schizocarp. It occurs in montane to cloud forest, reported from 200 to 1700 m elevation. Endemic. This subshrub is known in American Samoa from a single collection in 1976, but is not uncommon in montane areas of independent Samoa.

TUTUILA:

133. Whistler 3673—Collected in disturbed forest west of A‘oloautuai at 300 m elevation (1976).

Other Samoan Collections: SAVAII: (8). UPOLU: (8). WITHOUT FURTHER LOCALITY: (1).

***Gahnia vitiensis* Rendle**

Cyperaceae

Tall, erect sedge with long, linear leaves, long narrow panicles of inconspicuous flowers, and the shiny brown seeds hanging out of the flowers at maturity. It occurs in summit scrub, reported around 900 m elevation. Indigenous, also found in Fiji. It is restricted in Samoa to the summit area of Ta'u, where it is occasional, but may be more common in Fiji. Reported from the National Park.

TAU:

138. Whistler 7835—Lata summit at the top of the Fitiuta trail at 840 m elevation (1991).

139. Whistler 7860—Lata summit at the top of the Fitiuta trail at 910 m elevation (1991).

140. Whistler 11022—Lata summit at the top of the Fitiuta trail (1998).

***Goodyera rubicunda* (Bl.) Lindl.**

Orchidaceae

Goodyera anomala Schltr.

Goodyera biflora sensu Kraenzl. non Hook. f.

Goodyera grandis (Bl.) Bl.

Goodyera rubens Bl.

Goodyera waitziana sensu H. Fleischm. & Rechinger non Bl.

Medium-sized terrestrial orchid with elliptic leaves 12–18 cm long, pubescent terminal racemes, and orange, reddish brown, or greenish pink flowers. It occurs in lowland to montane forest, reported from 200 to 900 m elevation. Indigenous, ranging from Malaysia to Tonga and Samoa. This species is known in American Samoa only from the montane forest of Ofu, but is more common in independent Samoa.

OFU:

141. Whistler 3021—Forest northeast of the summit (1975).

142. Whistler 10422—Summit area at 450 m elevation (1997).

Other Samoan Collections: SAVAII: (7). UPOLU: (6). WITHOUT FURTHER LOCALITY: (3).

***Gossypium hirsutum* L.**

Malvaceae

Gossypium religiosum sensu auct. non L. (?)

Low shrub with alternate, cordate leaves, showy white, monadelphous flowers, and a splitting capsule filled with cotton. It occurs in exposed coastal areas, reported from near sea level to about 100 m elevation. The indigenous variety in Samoa, var. *taitense* Roberty, is widespread from the Marquesas to Fiji and northward to the Northern Marianas, but is reported to be found “sparingly” in Fiji, and appears to be uncommon over most of its Pacific range. In Samoa, it is known only from sea cliffs on ‘Apolima Island (independent Samoa), ‘Aunu‘u, Ofu, a single plant found on Tutuila (Onenoo), and a seedling found once on Rose Atoll. The Ofu population is inaccessible (it was spotted by means of a telescope), the Tutuila individual was not found again during a 1998 survey, and the seedling on Rose is not likely to have survived. This

plant is recommended for a threatened or endangered status because it is so rare in Samoa and is probably equally uncommon elsewhere in its Micronesian, Polynesian, and Fijian range.

TUTUILA:

143. Whistler 8393—Beside the main road on a slope face just east of the village of Onenoa (1992).

AUNUU:

144. Whistler 3277—On slope on north side of the island (1976).

145. Whistler 3766—On slope on north side of the island (1976).

146. Whistler 5737—On slope on north side of the island (ca. 1986).

147. Whistler 10931—On slope on north side of the island (1998).

OFU:

385. Whistler, not collected (pers. obs. ca. 1992)—On the cliffs on the south side of the island east of Vaoto.

ROSE:

148. Freifeld s.n. Small plant on the beach. Location not mapped (ca. 1995).

Other Samoan Collections: APOLIMA: (3). UPOLU: (1?).

***Grammitis hookeri* (Brackenridge) Copeland**

Grammitidaceae

Polypodium hookeri

Polypodium setigerum Hook. & Arnott

Small epiphytic fern with a short-creeping, scaly rhizome, crowded, hairy stipes, a simple, linear lamina, marginal hairs over 1 mm long, and round sori not immersed, arranged in a single row near the midrib. It occurs in montane forest, reported from 600 to 1500 m elevation. Indigenous, also found in Hawaii and Fiji. Christophersen 3543 at Bishop Museum was annotated as *Grammitis samoensis* (B. Parris, in 1996), and this identification needs to be checked.

TUTUILA:

149. Without collector, without further locality, and specimen not seen. Location not mapped.

150. Christophersen 3543—Top of Le Pioa in montane scrub (1931).

TAU:

151. Whistler 7821a—In the summit scrub at 800 m elevation on the trail from Fitiuta (1991).

152. Whistler 7849—In the summit scrub at 800 m elevation on the trail from Fitiuta (1991).

153. Whistler 11008—Near the top of the island at 910 m elevation on trail from Fitiuta (1998).

Other Samoan Collections: SAVAI: (1). UPOLU: (2). WITHOUT FURTHER LOCALITY: (2).

***Guioa rhoifolia* (A. Gray) Radlk.**

Sapindaceae

Guioa subfalcata Radlk.

Medium-sized tree with alternate, pinnately compound leaves, four subfalcate leaflets with domatia at the base of the lower surface, small white flowers, 8 stamens with red anthers, and a 2- or 3-valved capsule. It occurs in lowland to montane forest, reported from 240 to 750 m elevation. Indigenous, also found in Fiji. This tree is found mostly in American Samoa in areas around Matafao and Le Pioa. Reported from the National Park.

TUTUILA:

- 154. Christophersen 3483—Top of Le Pioa (1931).
- 155. Whistler 9065—One seen at the summit of Le Pioa at 480 m elevation (1992).
- 156. Whistler 10491—One seen at the top of Le Pioa at 490 m elevation (1997).
- 157. Whistler 10536—One sapling on upper Sauma Ridge at 390 m elevation (1997).
- 158. Whistler 11599—One seen at the summit of Polauta ridge at 240 m elevation (2001).

Other Samoan Collections: UPOLU: (2).

***Gyrocarpus americanus* Jacq.**

Gyrocarpaceae

Tall tree with alternate, subcordate leaves, tiny inconspicuous flowers, and a long-winged fruit that spins when it falls. It occurs in coastal forest, reported at less than 50 m elevation. Indigenous from tropical America to east Africa, but is rare in its Polynesian range at least and possibly extirpated in some of the islands where it formerly occurred. Its Samoan name is *vili* (which means to spin) or *moa* (which means chicken), both of which are based on the fluttering or spinning motion of the winged fruit thrown in the air by playful children. It was apparently collected in the 1850s or 1860s on 'Aunu'u and in the 1920s by Garber on Nu'utele Islet offshore from the village of Ofu. It was not found on 'Aunu'u during the 1998 study, nor was anyone encountered there who even knew the plant, but on Ofu some people remember it as a tree growing near the village when they were young. It is also rare in independent Samoa, where it is currently known only from the western end of Savai'i. This plant is recommended for a threatened or endangered status because it is so rare in American Samoa, independent Samoa, and Polynesia, although it may have already disappeared from American Samoa.

AUNUU:

- 159. (Powell)—“Near the sea” (ca. 1850).

OFU:

- 160. Garber 1108—Nu'utele Islet (1924).

Other Samoan collections: SAVAI: (5). WITHOUT FURTHER LOCALITY: (1).

***Habenaria monogyne* Schltr.**

Orchidaceae

Habenaria supervacanea Fleischm. & Rechinger, non Rchb. f.

Medium-sized ground orchid with lanceolate leaves, a terminal raceme, and small greenish flowers with a spur up to 1.4 cm long. It occurs in lowland to montane forest, reported from 300 to 900 m elevation. Endemic. This attractive terrestrial orchid was collected in American Samoa only once (1920) and five times in independent Samoa, but not in the latter since 1931. The Setchell specimen was on Matafao trail on Tutuila, a well-traveled and well-collected trail, so it is not from inaccessibility that the orchid has not been found again since 1920. It is recommended here for listing as threatened or endangered because of its rarity in both American and independent Samoa. This species is already listed as a “species of concern” by the USFWS (Anon. 1998).

TUTUILA:

- 161. Setchell 547—On dry slopes of Matafao trail at ca. 500 m elevation (1920).

Other Samoan Collections: SAVAI: (2). UPOLU: (3).

Hedyotis romanzoffiensis (Cham. & Schlecht.) Fosb.

Rubiaceae

Small shrub with opposite leaves, interpetiolar stipules, white sympetalous flowers in short inflorescences, and a white fleshy fruit. It occurs in sunny littoral habitats on Swains Island. It is endemic to Polynesia, ranging from Tuvalu (formerly known as the Ellice Islands) eastward to the Tuamotus and northward to Christmas Island in Kiribati (formerly known as the Gilbert Islands), mostly on sandy beaches of atolls. Its only collections in American Samoa were from Swains Island in 1839 (United States Exploring Expedition) and 1891 (Lister). It may have now disappeared from American Samoa, but the island has not often been visited by botanists. It is proposed here for listing as threatened or endangered because it is a regional endemic with uncertain abundance elsewhere in its range.

SWAINS:

162. USEE—Without further locality (1839). Location not mapped.

163. Lister—Without further locality (ca. 1892). Location not mapped.

Ischaemum stokesii Brown

Poaceae

Tall grass with long, linear leaves, paired terminal spikes spreading at maturity, and long-awned spikelets. It occurs in montane scrub of Tutuila, reported from 460 to 650 m elevation. This grass is restricted in Samoa to the summits of Matafao and Le Pioa in montane scrub vegetation, but it is also apparently native to the small distant island of Rapa, where it is reported to be rare (J. Florence, pers. comm.). It was reported by Setchell, almost certainly incorrectly, to have been introduced to Tutuila by Mrs. Robert Louis Stevenson. This plant is recommended for a threatened or endangered status because of its very limited distribution. Kew identified this as *Ischaemum byrhone*, and Clayton (on an herbarium annotation at the Bishop Museum herbarium) included it in *Ischaemum murinum*, which is, however, a smaller, littoral species occasional on the shores of American Samoa.

TUTUILA:

164. Setchell 405?—Very top of Matafao (1920). Sterile.

165. Christophersen 3545—Open place, top of Le Pioa, 500 m elevation (1931).

166. Whistler 5704—Top of Matafao at 650 m (ca. 1986).

167. Whistler 9182—Top of Matafao at 650 m elevation (1993).

168. Whistler 10484—Top of Le Pioa at 460 m elevation (1997).

Joinvillea plicata (Hook. f.) T. K. Newell & B. C. Stone

Joinvilleaceae

Joinvillea bryanii Christoph.

Joinvillea elegans Gaud. ex Brongn. & Gris.

Joinvillea elegans ssp. *bryanii* according to St. John

Erect, reed-like plant with plicate leaves, tiny flowers bearing non-splitting tepals, and red fruits. It occurs in cloud forest, reported from 760 to 1700 m elevation. Indigenous, ranging from New Caledonia to Samoa, but the subspecies *bryanii* (Christoph.) T. K. Newell is endemic to Samoa. It is rare in American Samoa, where it is restricted to the summit of Ta'u, but it is more common in independent Samoa. Reported from the National Park.

TAU:

169. Whistler 11034—Rare in summit scrub at 750 m elevation (1998).

Other Samoan Collections: SAVAI: (15). UPOLU(29). WITHOUT FURTHER LOCALITY: (2).

Korthalsella horneana V. Tieg.

Viscaceae

Korthalsella platycaula sensu Whistler, non (V. Tieg.) Engl.

Hemiparasitic shrub with leafless, jointed stems and tiny white, axillary flowers. It occurs in montane forest, reported from 300 to 600 m elevation. Indigenous, ranging from Fiji to Tahiti. This shrub is known in American Samoa only in the lowland forest on the south side of Ta'u, where it may be more common than apparent (but hard to see in the canopy). Reported from the National Park.

TAU:

170. Kuruc 14—Li'u Bench (1975).

171. Whistler 3597—Li'u Bench at ca. 450 m elevation (1976).

Other Samoan Collections: SAVAI: (1). UPOLU: (3).

Lepturopetium kuniense Morat

Poaceae

Lepturopetium marshallense Fosb. & Sachet

Small grass with linear leaves, paired terminal spikes, and spikelets embedded within the thickened rachis. It occurs on coastal rocks, reported only near sea level. It is native to several Pacific islands in Polynesia, Micronesia, and perhaps Melanesia. In American Samoa it has been found only in a small patch on basalt rock near the sea at the very eastern tip of Tutuila, and elsewhere in the Northern Cook Islands, Cocos Island, Kwajalein, the Marshall Islands, and Tuvalu. What makes this grass so unusual is that it appears to be a hybrid between species in two other grass genera (*Lepturus* and *Chloris*) that suddenly appeared in the Pacific a few decades ago (originally recognized in New Caledonia). This may be the only natural inter-generic hybrid plant known in the Pacific islands. This species is recommended for a threatened or endangered status because of its rarity and because of its unusual origin.

TUTUILA:

172. Whistler 5728—On rocks near the shore at Cape Matatula, just east of end of stairs (ca. 1986).

173. Whistler 8395—On rocks near the shore at Cape Matatula, just east of end of stairs (1992).

174. Whistler 10519—On rocks near the shore at Cape Matatula, just east of end of stairs (1997).

175. Whistler 11604—On rocks near the shore at Cape Matatula, just east of end of stairs (2001).

Leucas decemdentata (Forst. f.) Sm.

Lamiaceae

Leucas flaccida R. Br.

Herb with square stems, opposite, toothed, ovate leaves, white flowers in axillary whorls, and a fruit of 4 nutlets. It occurs in rocky coastal areas, reported from near sea level to 150 m elevation. Indigenous or a Polynesian introduction, ranging from tropical Asia to the Society Islands, probably weedy in pre-European times but now rare because of its inability to compete

with more-recently introduced weeds. It has disappeared from independent Samoa and is uncommon to rare over most of the rest of its Polynesian range, but perhaps is more common in Asia. Reported from the National Park.

OFU:

176. Whistler 3831—Nu‘upule Rock just south of the village (1976).

177. Whistler 9258—At mouth of Tufu Stream just south of the village (1993).

TAU:

178. Garber 594—Sani Ridge back of Fitiuta, 150 m elevation. (This location was not found on any available maps.)

179. Yuncker 9028—Sandy soil near beach south of Si‘ufaga (1939).

180. Harris 36—On lava cliff at Luma (1938).

181. Harris 93—On lava cliff at Luma (1938).

182. Harris 378—On lava cliff at Luma (1938).

183. Whistler 7705—Locally common just below lower Laufuti falls, ca. 20 m elevation (1990).

184. Whistler 7910—Along a stream along the north coast between Faga and ‘Au‘auli (1991).

Other Samoan Collections: SAVAI: (3). UPOLU: (4). WITHOUT FURTHER LOCALITY: (3).

Limnophila fragrans (Forst. f.) Seem.

Scrophulariaceae

Ambulia serrata Wett.

Curanga (No. 1) sensu Pickering

Weak-stemmed herb with fragrant, opposite leaves, small sympetalous, white to pale-blue flowers, and a compressed-ovoid capsule. It occurs in wet places such as taro patches, streambeds, and crater lake margins, reported from near sea level to 650 m elevation. This small fragrant herb is native from Australia and Melanesia to the Society Islands, but is rare over much of this range, including, at least, all of Polynesia. It was apparently once known as *tamole vai* in Samoa, and may have been used in traditional medicines, but it, its name, and its uses have been virtually forgotten. It is a wetland plant that is restricted mostly to marshes (typically in taro patches) and has been recorded at only four sites in American Samoa: Faga‘alu (which does not seem to have suitable habitat today), Vatia marsh (Tutuila), Ofu marsh, and Ta‘u marsh. It was not found in the two Manu‘a marshes in a search during the 1998 survey, and is currently known only from the Vatia marsh (where it was not, however, located in a brief search by the principal investigator in 2001). However, it is likely to still occur in the Ta‘u marsh, as seed anyway, since the area is currently overgrown and difficult to traverse. The plant is also rare in independent Samoa, and has not been found recently at most of its former collection sites (montane craters on ‘Upolu). This plant is recommended for a threatened or endangered status because of its rarity in Samoa and Polynesia, and the paucity of its suitable habitat remaining in the Territory. The main threat to this species seems to be limited habitat and human activities or lack of activities in its natural habitat (taro fields).

TUTUILA:

185. USEE s.n.—Without further locality (1839). Location not mapped.

186. Setchell 370—In the bed of Faga‘alu Creek not far from the village (1920).

187. Whistler 8044—Common among *Eleocharis* in Vatia marsh (1991).

188. Whistler 9034—Uncommon in Vatia marsh (1992).

189. Whistler 10950—Locally common at north end of Vatia marsh (1998).

OFU:

190. Whistler 8024—Locally abundant in Vaoto marsh (1991).

TAU:

191. Whistler 1317—In the marsh at Ta‘u Village (1974).

192. Whistler 3305—In a taro patch at Ta‘u Village (1976).

193. Whistler 7968—In the marsh at Ta‘u Village (1991).

Other Samoan Collections: SAVAI: (1). UPOLU: (3). WITHOUT FURTHER LOCALITY: (1).

***Lindsaea repens* (Bory) Thwaites**

Lindsaeaceae

Lindsaea merrillii sensu auct. non Copeland

Medium-sized epiphytic fern with a long-creeping rhizome, pinnate lamina narrowed at both ends, numerous, elongate-triangular pinnae, and round sori with an indusium having a concave base. It occurs in montane forest, reported at 600 m elevation. Indigenous, ranging from the Bismarck Archipelago to Samoa. This small epiphytic fern is known in American Samoa from only two collections in Manu‘a, and in independent Samoa it has been collected only twice, neither time in this century. The variety found in American Samoa is *sessilis* (Copeland) Kramer. Possibly found in the National Park.

OLOSEGA:

194. Whistler 10411—Epiphyte at summit at 620 m elevation (1997).

TAU:

195. Powell 156—Specimen not seen, probably without further locality (ca. 1850). Location not mapped.

Other Samoan Collections: UPOLU: (1). WITHOUT FURTHER LOCALITY: (2).

***Lindsaea tetragona* Kramer**

Lindsaeaceae

Davallia triquetra Baker

Lindsaea tenuifolia sensu auct. non Bl.

Lindsaea triquetra sensu auct. non (Baker) Christ?

Medium-sized terrestrial fern with a short-creeping rhizome, clustered stipes, bipinnate lamina with 3–6 pairs of pinnae, 20–35 pairs of pinnules, and oblong sori borne one to a lobe. It occurs in foothill forest, reported from 300 to 500 m elevation. Indigenous, ranging from the Celebes to Tahiti. This terrestrial fern is known in American Samoa from four collections, only one of which is from this century (Tutuila in 1993), and the other three records are questionable. Reported from the National Park.

TUTUILA:

196. USEE s.n.—Without further locality (1839). Location not mapped.

197. Tetens s.n.—Without further locality (date unknown). Location not mapped.

198. Graeffe s.n.—Specimen not seen, probably without further locality (ca. 1862). Location not mapped.

199. Whistler 9340—One seen above Amalau Falls at 330 m elevation (1993).

Other Samoan Collections: SAVAI: (3). UPOLU: (3). WITHOUT FURTHER LOCALITY: (2).

***Liparis caespitosa* (Thou.) Lindl.**

Orchidaceae

Liparis sp. pro parte of Christoph.

Tiny epiphytic orchid with clustered, ovoid pseudobulbs, oblanceolate to linear-lanceolate leaves, and short, few-flowered racemes of pale green flowers often with a brownish lip. It occurs in montane scrub, reported from 500 m elevation. Indigenous, ranging from East Africa to the Austral Islands. This orchid is known in Samoa from only two collections (made on the same day) from Le Pioa on Tutuila.

TUTUILA:

200. Christophersen 1182—Epiphyte, top of South Pioa, 500 m elevation (1929).

201. Christophersen 1200—Epiphyte, top of South Pioa, 500 m elevation (1929).

***Liparis gibbosa* Finet**

Orchidaceae

Liparis disticha auct. non Lindl.

Liparis sp. of Christoph. (in part)

Small epiphytic orchid with well-spaced pseudobulbs, linear leaves, and a long-stalked raceme of small orange and green flowers. It occurs in the montane scrub, reported from 500 to 620 m elevation. Indigenous, ranging from Southeast Asia to Samoa. This orchid is known in American Samoa only from Matafao and Le Pioa on Tutuila, and is equally rare in independent Samoa, where it is known from only a single recent collection.

TUTUILA:

202. Christophersen 1062—Epiphyte, Matafao Ridge, 500–600 m elevation (1929).

203. Christophersen 1187—Epiphyte, top of South Pioa, 500 m elevation (1929).

204. Christophersen 1191—Epiphyte, top of South Pioa, 500 m elevation (1929).

205. Whistler 10898—One epiphyte seen on Matafao trail at 560 m elevation (1997).

Other Samoan Collections: SAVAI: (1).

***Liparis alavaensis* Cribb**

Orchidaceae

Small terrestrial orchid with ovate leaves, short, several-flowered racemes, and yellowish attenuate-tipped tepals. It occurs in montane or upper lowland forest, reported from ca. 350 m elevation. Endemic to American Samoa. It has been collected only once and seen another time in the forest along Mt. Alava road. Reported from the National Park. This species was not included on the previous list (Whistler 1998), since it was first collected after that date. (This species was not officially named at the date of submission of this study, but the name will be published soon.)

TUTUILA:

206. Whistler 11494—Alava ridge in montane or upper lowland forest at ca. 350 m elevation (2001).

395. Whistler (pers. obs., ca. 2002)—Top of Alava Ridge near the first hairpin turn at 240 m elevation.

***Luisia teretifolia* Gaud.**

Orchidaceae

An epiphytic orchid with cylindrical stems and short racemes of greenish flowers marked with purple. It occurs in summit scrub vegetation, reported from about 300 m elevation. Indigenous from the Himalayan foothills eastward to Samoa. This orchid was recently observed (the specimen was lost) on a ridge behind Vatia. Reported from the National Park.

TUTUILA

401. Whistler (pers. obs., 2002)—behind Vatia on Siuono Ridge on a tree at ca. 250 m elevation.

***Macharina falcata* (Nees) Koyama**

Cyperaceae

Cladium meyenii Benth. var. *samoensis* Lauterb.

Cladium samoense (Stapf) C. B. Clarke

Mariscus raiateensis J. W. Moore

Vincentia dissoluta Stapf

Vincentia samoensis Stapf

Large sedge with basal, lanceolate leaves and dark brown spikelets in a terminal panicle. It occurs in montane scrub and along streams in montane to cloud forest, reported from 450 to 1100 m elevation. Indigenous, ranging from the Philippines and Malaysia to Samoa. This sedge is restricted in American Samoa to Matafao and Le Pioa on Tutuila, where it forms patches in some places.

TUTUILA:

207. Setchell 379—Top of Matafao (1920).

208. Christophersen 1023—Top of Matafao, 650 m elevation (1929).

209. Christophersen 3490—Top of Le Pioa, 500 m elevation (1931).

210. Whistler 2972—At the summit of Matafao (1975).

211. Whistler 3668—Top of Le Pioa at 450 m elevation (1976).

212. Whistler 10486—Top of Le Pioa at 460 m elevation (1997).

213. Whistler 10894—Trail to Matafao at 560 m elevation and above (1997).

Other Samoan Collections: SAVAI: (5). UPOLU: (1). WITHOUT FURTHER LOCALITY: (1).

***Manilkara dissecta* (L. f.) Dubard**

Sapotaceae

Medium-sized tree with milky sap, alternate, glossy, obovate leaves, clusters of axillary, 6-merous flowers, and a red, ellipsoid to ovoid, one-seeded berry. It occurs in coastal forest, reported from near sea level to 200 m elevation. It is indigenous from Vanuatu to Samoa, and in American Samoa is restricted to coastal forest between ca. 20 and 175 m elevation in the area between Masefau and Vatia on the north coast of Tutuila. It is rare in independent Samoa, where it is reported only from the east end of 'Upolu and one offshore islet there. Guest (1939), however, reported, probably based on informants rather than first hand observation, "three or four trees at Ta'u" and "one tree at A'oloau" (Tutuila). The bark of *pani* bark was formerly used to prepare a dye and the wood was employed for fashioning various artifacts, but the tree, its name, and its uses are now virtually forgotten in Samoa. This plant is recommended for a threatened or endangered status because of its rarity in American Samoa and independent Samoa,

and its restricted Pacific range. This species was already listed as a “species of concern” by the USFWS (Anon. 1998). Reported from the National Park.

TUTUILA:

- 214. Guest s.n.—Probably at Vainu‘u Point, “sea level to 500 ft” (1939).
 - 215. Whistler 8466—In forest on Vainu‘u Point (1992).
 - 216. Whistler 8679—On top of the saddle behind Vatia Village (1992).
 - 217. Whistler 10508—Uncommon in the forest on Vainu‘u Point (1997).
 - 218. Whistler 10957—On top of the saddle behind Vatia Village (1998).
 - 219. Whistler 11598—Occasional to common on the saddle behind Vatia Village, 100 m elevation (2001).
- Other Samoan Collections: UPOLU: (2). WITHOUT FURTHER LOCALITY: (1).

Mapania parvibracteata (C. B. Clarke) T. Koyama

Cyperaceae

Mapania aff. *vitiensis* (Uittien) T. Koyama

Thoracostachyum lucbanense sensu Christoph. non (El.) Kükenth.

Large sedge with linear, tufted basal leaves, and green flowers in ovoid spikelets on branches up to 3 cm long, ultimately arranged in terminal corymbs. It occurs in montane scrub, reported from 250 to 500 m elevation. Indigenous to Fiji and Samoa. This is apparently the same species as is found in Fiji, but was incorrectly identified in Samoa until recently. Prior to 1997, it had been collected only twice in American Samoa (1929, 1931), both times on Le Pioa (Rainmaker), but was collected during the 1998 survey on Mt. Tau, and appears to be restricted to montane scrub vegetation from 200 to 500 m elevation. It is proposed here for listing as threatened or endangered because of its rarity in American Samoa, its absence from independent Samoa, and its uncertain status in the rest of its range (Fiji).

TUTUILA:

- 220. Christophersen 1209—Top of Le Pioa, 500 m elevation (1929).
- 221. Christophersen 3484—Scrub forest, top of Le Pioa, 500 m elevation (1931).
- 222. Whistler 10512—In montane scrub vegetation on the north side of Mt. Tau, 200 m elevation (1997).

Melicope retusa (A. Gray) T. Hartley

Rutaceae

Small tree with opposite, simple leaves, mostly notched leaf tips, geniculate petiole enlarged at the top, axillary panicles of small white, 4-merous flowers, and a 4-lobed capsule containing several small shiny black seeds. It occurs in coastal to lowland forest, reported from near sea level to 180 m elevation. Indigenous, also found on Tonga, Niue, and Alofi. It was listed as a plant of concern by the USFWS (Anon. 1998). Reported from the National Park.

OLOSEGA:

- 396. Whistler 3804—In forest clearing along the ridge above Olosega Village at 250 m elevation (1976).
- 397. Whistler 10375—In forest clearing along the ridge above Olosega Village at 210 m elevation (1997).

TAU:

- 398. Whistler 3689—In scrubby vegetation north of the new airport at Fitiuta (1976).

399. Whistler 7550—In scrubby vegetation east of the new airport at Fitiuta (1990).
 400. Whistler 7575—In scrubby vegetation along the trail from Li‘u to Si‘u Point (1990).
 Other Samoan Collections: SAVAI: (9). UPOLU: (5). WITHOUT FURTHER LOCALITY: (4).

Melicope richii (A. Gray) T. G. Hartley

Rutaceae

Acronychia richii A. Gray

Jambolifera richii (A. Gray) Kuntze

Shrub or small tree with small, simple, opposite leaves, tiny white flowers in axillary thryses, and a 4-lobed capsule containing 4 shiny black seeds. It occurs in montane scrub and cloud forest, reported from 250 to 650 m elevation. Endemic to Tutuila. This species is restricted to Matafao and Le Pioa on Tutuila, where it is locally common.

TUTUILA:

223. USEE s.n.—Without further locality (1839). Location not mapped.
 224. Christophersen 1052—Matafao Ridge, 500–600 m elevation (1929).
 225. Christophersen 1066—Matafao Ridge, 500–600 m elevation (1929).
 226. Christophersen 3532—Scrub forest, top of Le Pioa, 500 m elevation (1931).
 227. Christophersen 3556—Scrub forest, top of Le Pioa, 500 m elevation (1931).
 228. Whistler 3664—Summit of Le Pioa at 450 m elevation (1976).
 229. Whistler 10485—Summit of Le Pioa at 460 m elevation (1997).
 230. Whistler 11142—South slope of South Pioa at 250 m elevation (1998).

Milletia pinnata (L.) Panigrani

Fabaceae

Pongamia pinnata (L.) Merr.

Large tree with alternate, pinnately compound leaves, racemes of white to pink papilionaceous flowers, and an elliptic pod. It occurs in littoral to coastal forest, reported near sea level to ca. 100 m elevation. Indigenous, ranging from the Seychelles Islands to Samoa. This tree is rare in Samoa, and in American Samoa is known from only two localities—the shores of Pala Lagoon, Tutuila (where it is rare) and on a roadside slope on the north coast of Ta‘u (where it apparently is locally common). Formerly called *Pongamia pinnata*.

TUTUILA:

231. Setchell 311—Lower edge of secondary forest near the shore at Nu‘uuli (1920).
 232. Whistler 10913—Near Logome Point (1997).

TAU:

233. Bartley 368—Overhanging the road about halfway between Luma and Fitiuta (ca. 1992).
 234. Whistler 9316—Overhanging the road about halfway between Luma and Fitiuta (1993).
 235. Whistler 11052—Overhanging the road about halfway between Luma and Fitiuta (1998).

Other Samoan Collections: UPOLU: (1).

Morinda myrtifolia A. Gray

Rubiaceae

Morinda forsteri Seem.

Morinda umbellata Seem. var. *forsteri* (Seem.) Fosb.

Woody climbing vine with opposite, elliptic, round-tipped leaves, large round domatia, small white flowers, and a subglobose, multiple fruit. It occurs in coastal to lowland forest, reported from near sea level to 200 m elevation. Indigenous, ranging from New Caledonia to the Marquesas. This vine is inconspicuous and perhaps more common in American Samoa than the record would indicate, and is more common in independent Samoa. Reported from the National Park.

TUTUILA:

236. Whistler 3670—Forest on ridge on the south side of Mt. Tau (1976).

237. Whistler 8541—Ridge north of Afono Pass at ca. 240 m elevation (1992).

TAU:

238. Whistler 7630—Auvaiolei'a Stream course, ca. 180 m elevation (1990).

Other Samoan Collections: SAVAII: (1?). APOLIMA: (1). UPOLU: (8). WITHOUT FURTHER LOCALITY: (1).

Mucuna glabra (Rein.) Wilmot-Dear.

Fabaceae

Mucuna brachycarpa sensu Whistler non Rech.

Mucuna platyphylla sensu auct. non A. Gray

Mucuna urens DC. var. *glabra* Reinecke pro parte

High-climbing woody vine with trifoliate leaves, terminal leaflet 8–11 cm wide with broadly cuneate base, petiole of leaflet sometimes pubescent, showy greenish, papilionaceous flowers in hanging racemes, and a pod with transverse ridges. It occurs in lowland to cloud forest, reported from 300 to 1200? m elevation. Indigenous, probably also found in Tonga. This liana is known in American Samoa only from its original collection on Ta'u in 1976, but it could easily be misidentified in the field (especially when lacking flowers or fruits) as the common *Mucuna gigantea*. It is much more common in independent Samoa.

TAU:

239. Whistler 3157—Along the Fale'i'ulu Stream, no elevation given (1975).

Other Samoan Collections: SAVAII: (9). UPOLU: (5). WITHOUT FURTHER LOCALITY: (1).

Nervilia aragoana Gaudich.

Orchidaceae

Gastrodia sp. of Reinecke

Pongonia flabelliformis Lindl.

Small terrestrial orchid with basal cordate leaves, a flowering scape appearing after the leaves die back, and greenish yellow flowers marked with white and red. It occurs in lowland to montane forest, reported from 10 to 500 m elevation. Indigenous, ranging from India to eastern Polynesia. This species is known in American Samoa from only four collections, and is also infrequent in independent Samoa, but is more common in some other places in its range. It is sometimes difficult to recognize since it loses its leaves when it flowers. Reported from the National Park.

TUTUILA:

240. Whistler 3776—Forest behind Fagatogo at 200 m elevation (1976).

OFU:

241. Whistler 3024—In forest northeast of the summit, no elevation given (1975).
242. Whistler 3478—North slope of the island at somewhere between 200 and 300 m elevation (1976).

TAU:

243. Whistler 11663—Locally common in one place in secondary forest at Li'u at ca. 50 m elevation (2002).
Other Samoan Collections: SAVAII: (5). UPOLU: (4).

***Ophioglossum reticulatum* L.**

Ophioglossaceae

Tiny terrestrial fern with a subglobose rhizome, stipe to 8 cm long, reniform to round lamina cordate at the base, and sori borne on a fertile spike 3–6 cm long. It occurs in foothill to montane forest, reported from near sea level to 1700 m elevation. Indigenous, ranging from tropical Asia to Polynesia. The variety in Samoa is var. *pacificum* Christophersen, and H. Wagner (pers. comm.) thought this should be recognized as a new species. This fern is known from a single old record from Tutuila (on the peak at the head of Malaeimi Valley) and from five recent collections from dry streambeds or swamps on Ta'u. Reported from the National Park.

TUTUILA:

244. Powell 127—Taumata Peak behind Fagasa (ca. 1850).

TAU:

245. Whistler 3179a—Fale'i'ulu Stream, no elevation given (1975).
246. Whistler 3582—Laufuti Stream bed at 340 m elevation (1976).
247. Whistler 7941—Laufuti Stream bed at 340 m elevation (1991).
248. Whistler 11080—Laufuti Stream bed at 350 m elevation (1998).
249. Whistler 11297—Epiphyte on the base of a tree in the swamp forest at Si'ufaga (1999).
Other Samoan Collections: SAVAII: (6). WITHOUT FURTHER LOCALITY: (3).

***Orthiopteris tenuis* (Brackenridge) Brownlie**

Dennstaedtiaceae

Davallia inaequalis Kuntze

Davallia moluccana Bl.

Davallia moluccana var. *amboynensis* Hooker

Ithycaulon minus (Hooker) Christensen

Microlepia inaequalis var. *minor* Brackenridge

Large terrestrial fern with an erect rhizome, brown, mostly glabrous stipes, a tripinnate, deltoid, glabrous lamina, and marginal sori in a cone-like structure pointing outwards. It occurs in foothill to montane forest, reported from 350 to 1120 m elevation. Indigenous, also found eastward to Indonesia, according to Christensen. Brownlie (1977) noted that the Fijian species, *Orthiopteris tenuis* (Brackenridge) Brownlie, is possibly endemic, but the genus is in need of revision. Sledge annotated this species as *Orthiopteris campylura* (Kuntze) Copeland on an herbarium specimen, as did Parris in ca. 1971, so more work is needed here. In American Samoa, this fern is most easily found on Le Pioa. Reported from the National Park.

TUTUILA:

250. Whistler 9050—Along trail from Mt. Alava to Vatia at ca. 400 m elevation (1992).

251. Whistler 11139—Trail from Lauli‘i to South Pioa at 200 m elevation (1998).

Other Samoan Collections: SAVAI: (7). UPOLU: (5). WITHOUT FURTHER LOCALITY: (1).

Pandanus sp.

Pandanaceae

Tree-like monocot with prop roots, long, narrow leaves with thorny edges, separate male and female trees, and ovoid fruits composed of many woody phalanges having a single stigma. The status of this unidentified species of screwpine is unknown, since the single collection does not match any other *Pandanus* species found in the archipelago. It is similar to the Samoan endemic *Pandanus reineckeii* in that it has a unicarpellate fruit with one stigma per phalange, but the surface of the fruit is flat and the shape is distinctly ovoid rather than round. Found in montane forest on Li‘u Bench, where only a single individual was seen. Reported from the National Park.

TAU:

252. Whistler 11082—Laufuti Stream bank at 370 m elevation (1998).

Parinari insularum A. Gray

Chrysobalanaceae

Medium-sized tree with alternate leaves, small white flowers having numerous free stamens, and fragrant, mottled brown, ovoid fruits containing a single large, fragrant seed. It occurs in secondary forest, probably as a relict of former cultivation. It is probably native to Fiji, but appears to have been an ancient Polynesian introduction to Samoa, Tonga, and Wallis Island. It is called *sea*, a name that nowadays is usually mistaken for *seasea* (*Syzygium corynocarpum*) or *sea* (a sea cucumber), and has a large odoriferous seed formerly used for making fragrant fruit leis. The tree has probably now disappeared from Samoa (last collected there at Papauta, independent Samoa, on “open slope at 500 ft” in 1956), along with the knowledge of its name and its uses, and has not been collected in American Samoa since 1920, and prior to that only one other time in the Territory (Ofu in 1895, if this record is reliable). This plant is recommended for a threatened or endangered status because of its rarity in or disappearance from the archipelago, and its uncertain status in the rest of its restricted geographical range.

TUTUILA:

253. Setchell 560—“Povaiai” [Pava‘ia‘i?] near Leone (1920).

OFU:

254. Reinecke 469—Without further locality (1894). Location not mapped.

OLOSEGA:

Reported by Guest from informants, not collected (1939).

TAU:

Reported by Guest from informants, not collected (1939).

Other Samoan Collections: SAVAI: (1). UPOLU: (7). WITHOUT FURTHER LOCALITY: (3).

Passiflora aurantia Forst. f.

Passifloraceae

Passiflora samoensis Exell

Climbing herbaceous vine with tendrils, alternate, trilobed, glabrous leaves, white flowers with a corona, and an ovoid berry. It occurs in montane forest, reported from 400 to 1060 m

elevation. Indigenous, ranging from eastern Australia to Niue. This passionfruit vine is known in American Samoa from only a single collection on Ofu, but is more common in the mountains of independent Samoa.

OFU:

255. Whistler 10421—Near the summit of the island at 450 m elevation (1997).

Other Samoan Collections: SAVAI: (4). UPOLU: (8). WITHOUT FURTHER LOCALITY: (4).

Peperomia leptostachya Hooker & Arn.

Piperaceae

Peperomia leptostachya var. *attenuapica* Yuncker

Small terrestrial, puberulent herb with opposite leaves, long terminal spikes, and tiny green flowers and fruits. It occurs in coastal forest, rarely in montane forest, reported from near sea level to 500 m or more elevation. Indigenous, widespread from Australia to Hawai'i. This herb is uncommon in both Samoas, but is widespread in the tropical Pacific.

TUTUILA:

256. Setchell 196—Stone walls at Aua (1920).

257. Setchell 288—Stone walls at Aua (1920).

258. Whistler 2950—On rocks near the shore at Aoa (1975).

259. Whistler 11107—Rock outcropping at Mt. Leila south of Sailele at 200 m elevation (1998).

OLOSEGA:

260. Whistler 3340—Along coastal trail east of Sili? (1976)

TAU:

261. Garber 596—Sani Ridge back of Fitiuta at 500 ft. elevation (1921). (This location was not found on any available maps.)

262. Garber 599—Sani Ridge back of Fitiuta at 500 ft. elevation (1921). (This location was not found on any available maps.)

Other Samoan Collections: SAVAI: (12). APOLIMA: (1). MANONO: (4). UPOLU: (6).

Peristylus whistleri Cribb

Orchidaceae

Habenaria vaupelii Schltr. nomen illeg., non Rechb. f. & Warm.

Large terrestrial orchid with lanceolate leaves 12–21 cm long, terminal racemes 19–55 cm long, and small greenish yellow flowers. It occurs in montane cloud forest, reported from 500 to 800 m elevation. Endemic. This species is known in American Samoa only from a single collection on Ta'u in 1976, but is known from several recent collections in independent Samoa. Possibly found in the National Park.

TAU:

263. Whistler 3729—Forest northwest of Mt. Lata at 500 m elevation (1976).

Other Samoan Collections: SAVAI: (3). UPOLU: (6). WITHOUT FURTHER LOCALITY: (1).

Phaleria disperma (Forst. f.) Baill.

Thymelaeaceae

Leucosmia burnettiana Benth.

Phaleria burnettiana (Benth.) Kunth

Shrub or small tree with opposite leaves, fragrant, long, white, tubular flowers in terminal umbels, and a red subglobose fruit. It occurs in littoral and coastal forest, reported from near sea level to 100 m elevation. Indigenous or perhaps a Polynesian introduction, also found in Fiji, Tonga, and the Horne Islands. It is now rare in American Samoa, where it is known from only a few coastal locations on three of the islands (one of them an 80 year old record). *Suni* was probably once widely cultivated in Samoa, but has now fallen into disuse and is now virtually unknown there.

TUTUILA:

- 264. Whistler 2848—Between Steps Point and Fagatele Bay? (1975)
- 265. Whistler 3856—Puatauapa Point near Larsens Cove (1976).
- 266. Whistler 8434—Headland at center of Fogama'a Cove (1992).
- 267. Whistler 11121—Just to the west of Fogama'a Cove (1998).

OFU:

- 268. Whistler 10361—On southeast quarter of Nu'utele Islet in coastal forest (1997).

TAU:

- 269. Garber 772—Exposed cliff, Si'ulagi Point, 75 m elevation (1922).

Other Samoan Collections: SAVAI: (3). APOLIMA: (2). MANONO: (2). UPOLU: (14).
WITHOUT FURTHER LOCALITY: (2).

Phreatia paleata Rchb. f.

Orchidaceae

Phreatia obtusa Schltr.

Medium-sized, laterally compressed epiphytic orchid with ovoid pseudobulbs, oblong-lanceolate leaves, and small white flowers borne on a long basal raceme. It occurs in montane forest, reported from 400 to 740 m elevation. Indigenous, ranging from New Caledonia to Samoa. This species, which was first collected in American Samoa in 1992, is uncommon, but is more frequent in independent Samoa. Reported from the National Park.

TUTUILA:

- 270. Whistler 9000—Forest on Sauma Ridge at 350 m elevation (1992).
- 271. Whistler 10540—Forest on Sauma Ridge at 340 m elevation (1997).

Other Samoan Collections: SAVAI: (3). UPOLU: (8).

Phyllanthus virgatus Forst. f.

Euphorbiaceae

Phyllanthus simplex Retz.

Erect herb with spirally arranged branches, small alternate leaves, tiny green, unisexual, axillary flowers arranged on the lower side of the branchlets, and a tiny green, globose capsule. It occurs in sunny or disturbed places in the forest, reported from 40 to 320 m elevation. This herb is apparently now uncommon to rare over most of its Polynesian range. Indigenous or a Polynesian introduction, ranging from Asia to eastern Polynesia. Reported from the National Park.

TUTUILA:

- 272. Setchell 330—Along trail from Alava Ridge to Vatia (1920).

273. Whistler 8694—Olo Ridge at base of the cliff at 260 m elevation (1992).
 274. Whistler 10524—Rock face along the pinnacles just north of Afono Pass, 320 m elevation (1997).

OLOSEGA:

275. Garber 1074—Along trail at Olosegauta, 250 m elevation (1924).

TAU:

276. Garber 693—Luma—Faleasao trail, 40 m elevation (1922).
 277. Yuncker 9133—Moist bank along Luma to Faleasao Trail at 50 m elevation (1939).
 278. Whistler 7632—In rock cracks in Auvaiolei‘a at 135 m elevation (1990).

Other Samoan Collections: SAVAI: (5). MANONO: (1). UPOLU: (2). WITHOUT FURTHER LOCALITY: (2).

***Plumbago zeylanica* L.**

Plumbaginaceae

Sprawling subshrub with alternate, ovate leaves, panicles of white, salverform flowers, and an oblong, sticky indehiscent nut. It occurs in open places, reported from near sea level to ca. 200 m elevation. Indigenous, widespread in the Old World tropics. The herb is known in Samoa only from the northwest part of Olosega and the south and eastern part of Ofu, but is widespread if not common elsewhere in the Pacific, including Hawai‘i.

OFU:

279. Whistler 10443—On rocky outcrops just to the west of Sunu‘itao and the pass (1975).

OLOSEGA:

280. Garber 987—Rocky shore, Lotofaga by Sili (1924).
 281. Whistler 3103—On rocky slope at the northwest tip of the island near the shore (1975).
 282. Whistler 10413—Along the coast east of Sili Village (1997).

***Pneumatopteris costata* (Brackenridge) Holttum**

Thelypteridaceae

Dryopteris christophersenii Christensen

Nephrodium haenkeanum sensu auct. non Presl.

Medium-sized to large terrestrial fern with an erect rhizome, a bipinnatifid lamina, up to 30 pairs of pinnae, the basal 4–6 pairs gradually reduced, the upper ones lobed to about 2/3 of the way to the midrib, and sori medial, exindusiate or with a small indusium. It occurs in foothill to montane forest on stream rocks and banks, reported from 200 to 950 m elevation. Indigenous, ranging from Bali to Tahiti. This fern is known in American Samoa from only two collections from Ta‘u. However, the taxonomy of this genus and family is difficult and the species may have been misidentified in the field as other similar looking, related species. Reported from the National Park.

TAU:

283. Whistler 7627—In rock cracks in the dry bed of Auvaiolei‘a at ca. 180 m elevation (1990).
 284. Whistler 9310—Between rocks beside Laufuti Stream at ca. 20 m elevation (1993).

Other Samoan Collections: SAVAI: (2). UPOLU: (6). WITHOUT FURTHER LOCALITY: (4).

***Pneumatopteris rodigasiana* (T. Moore) Holttum**

Thelypteridaceae

Aspidium pennigerum sensu Reinecke, non Bl
Aspidium truncatum sensu auct. non (Poiret) Mett
Dryopteris transversaria var. *rodigasiana* T. Moore
Dryopteris truncata sensu Setchell 127, non (Poiret) Kuntze
Nephrodium truncatum sensu Baker, non Presl

Large terrestrial fern with an erect rhizome, lamina with about 9 pairs of reduced pinnae on fertile fronds, pinnae lobed about half way to costa, and inframedial sori with a thin indusium. It occurs in lowland to montane forest, reported from 50 to 600 m elevation. Indigenous, ranging from the Solomon Islands to Niue. This fern is known in American Samoa from only a single collection on Tutuila and a questionable one in 1895 from “Manua.” The taxonomy of the genus and family is difficult and the species may have been misidentified in the field as other related, similar looking species.

TUTUILA:

285. Setchell 519—Specimen not seen, and collection site not listed by Christensen (1920). Location not mapped.

TAU:

286. Reinecke 22? (“Manua”)—Without further locality (1894). Location not mapped.
 Other Samoan Collections: UPOLU: (5).

***Polyscias reineckei* Harms**

Araliaceae

Small tree with pinnately compound leaves, sheathing petiole bases, flowers in compound umbels, and flattened, angular, round fruits. It occurs in coastal to montane forest, reported from 100 to 750 m elevation. Endemic. It is known in American Samoa only from two recent collections, but is more common in independent Samoa.

TUTUILA:

287. Whistler 10901—In ridge forest on the west side of Malaeimi Valley at 350 m elevation (1997).

288. Whistler 10983—Along a stream north of Nu‘uuli, no elevation given (1998).

Other Samoan Collections: SAVAI: (11). UPOLU: (9). WITHOUT FURTHER LOCALITY: (1).

***Polystichum aculeatum* (L.) Schott**

Aspidiaceae

Medium-sized terrestrial fern with tufted stipes densely covered with pale brown scales, a narrowly deltoid to lanceolate, bipinnate to tripinnate lamina, segments with aristate margins, and small sori with a small caducous indusium. It occurs in montane forest, reported from 700 to 1750 m elevation. This fern is rare in American Samoa, where it is known from only two collections from Ta‘u, but is more common in the montane regions of Savai‘i in independent Samoa. Reported from the National Park.

TAU:

289. Powell 220—Specimen not seen, probably without further locality (ca. 1850). Location not mapped.

290. Whistler 11067—Along Laufuti Stream at 340 m elevation (1998).

Other Samoan Collections: SAVAI: (9). UPOLU: (1). WITHOUT FURTHER LOCALITY(4).

***Portulaca quadrifida* L.**

Portulacaceae

Portulaca (No. 3) sensu Pickering

Tiny prostrate herb with opposite, succulent leaves, small yellow, 4-merous flowers, and a capsule opening by the top splitting off. It occurs in sunny littoral habitats and is occasionally weedy, reported only from coastal areas. Probably a Polynesian introduction, pantropic in distribution. This herb has no reported Samoan name (although *tamole* may refer to the whole genus) or uses.

TUTUILA:

- 291. Garber 816—Goat Island (1924).
- 292. Garber 822—Goat Island (1924).
- 293. Whistler 2947—In sand at Aoa Bay (1975).

AUNUU:

- 294. Whistler 8043—Occasional in patches in the village (1991).

TAU:

- 295. Harris 77—On beach at Papatea (1938). (This location was not found on any available maps.) Location not mapped.
- 296. Harris 98—On beach at Papatea (1938). (This location was not found on any available maps.) Location not mapped.
- 297. Whistler 7593—One patch behind a house at the west end of Fitiuta Village (1990).

Other Samoan Collections: SAVAI: (4). MANONO: (1). UPOLU: (3).

***Psilotum nudum* (L.) Grisebach**

Psilotaceae

Psilotum triquetrum Sw.

Small to medium-sized terrestrial fern-ally with minute, scale-like leaves, erect stems triangular in cross-section, and sori terminal or on short lateral branches. It is found on lava flows and in lowland to foothill forest, reported from near sea level to 600 m elevation. Indigenous, widespread in the tropics. This fern-ally is known in American Samoa from only a single collection, listed as a small islet off the island of Ofu (perhaps Nu‘utele).

OFU:

- 298. Powell 49—On an islet, without further locality (ca. 1850).

Other Samoan Collections: SAVAI: (11). UPOLU: (3). WITHOUT FURTHER LOCALITY: (4).

***Sapindus saponaria* L.**

Sapindaceae

Sapindus vitiensis A. Gray

Medium-sized tree with alternate, pinnately compound leaves, apetalous flowers in a large panicle, and a globose fruit. It occurs in coastal forest, reported from near sea level to 450 m elevation. Indigenous, ranging from tropical America to Fiji. This tree is rare in American Samoa, but is perhaps more frequent in independent Samoa, Fiji, and Tonga. Reported from the National Park.

TUTUILA:

299. Whistler 8066—In forest near the tip of Matape Point west of Afono (1991).

300. Whistler 9056—Stream behind Vatia at 100 m elevation (1992).

301. Whistler 10507—One sapling seen in forest on Vainu‘u Point (1997).

302. Whistler 11488—Overhanging road from Afono to Vatia on embankment (2001).

Other Samoan Collections: SAVAI: (2). APOLIMA: (1). UPOLU: (11). WITHOUT FURTHER LOCALITY: (1).

Scirpodendron ghaeri (Gaertn.) Merr.

Cyperaceae

Scirpodendron costatum (Thw.) Kurz

Large pandanus-like sedge with large, irregularly-globose inflorescences. It occurs along coastal marshes and estuaries, and inland in montane craters and swamp forests, reported from near sea level to 400 m elevation. Indigenous, ranging from Ceylon to Samoa. This sedge is restricted in American Samoa to one area of littoral/coastal forest at Logome Point at Pala Lagoon, but is more common in marshes of independent Samoa and elsewhere.

TUTUILA:

303. USEE s.n.—Without further locality (1839). Location not mapped.

304. Whistler 8056—Logome Point near sea level (1991).

305. Whistler 8506—Logome Point near sea level (1992).

402. Whistler (pers. obs. in 2003)—Uncommon at Logome Point.

Other Samoan Collections: SAVAI: (3). UPOLU: (7). WITHOUT FURTHER LOCALITY: (2).

Senna sophera (L.) Roxb.

Fabaceae

Cassia sophera L.

Subshrub with alternate, pinnately compound leaves, ovate leaflets, yellow, 5-parted flowers, and a narrow, flattened pod shorter than those of *Senna occidentalis*. It occurs in disturbed places, reported only from the lowlands. A Polynesian introduction, native to and widespread in the Old World Tropics. It is known in American Samoa only from its original collection in 1920, but has probably disappeared from the archipelago. ***Lau matui*** may have possibly been used medicinally (for treating ringworm), but the plant, its name, and its possible use have now been virtually forgotten in Samoa.

TUTUILA:

306. Setchell 293—Pago Pago (1920).

Other Samoan Collections: SAVAI: (1).

Sida samoensis Rechinger

Malvaceae

Sida parvifolia sensu auct. non DC.

Sida retusa sensu auct. non L.

Sida (No. 4) sensu Pickering

Prostrate, somewhat woody herb with alternate leaves, pale orange monadelphous flowers lacking bracts below the calyx, and a rotate schizocarp. It occurs in coastal villages and sunny

disturbed places, reported only near the coast. Possibly a Polynesian introduction, native to Fiji and western Polynesia. This herb has no reported Samoan name or uses.

TUTUILA:

307. Powell 89—Probably without further locality, specimen not seen (ca. 1850). Location not mapped.

AUNUU:

308. Whistler 3281—Weed in coral rubble in village (1976).

309. Whistler 11487—In a coral rubble road northwest of the village, only one seen (2001).

OFU:

310. Whistler 3445—Weed in disturbed places in the village (1976).

TAU

311. Yuncker 9167—In sand near the beach near Fagamalo (1939).

Other Samoan Collections: SAVAI: (9). MANONO: (2). UPOLU: (0).

***Sigesbeckia orientalis* L.**

Asteraceae

Erect herb with opposite, toothed, deltoid leaves, yellow disc and ray florets in heads arranged in panicle clusters, and sticky achenes. It occurs in Samoa in disturbed places, perhaps now no longer found in the archipelago, since it has not been collected there since 1929. An unintentional Polynesian introduction, indigenous to the Old World tropics. The plant, probably originally called '*a'ami'a*', was used to scent coconut oil, and probably grew as a weed before it was overrun by more recently introduced, aggressive weeds.

TAU:

2. Garber 604—Sani Ridge back of Fitiuta at 150 m elevation (1921). (This location was not found on any available maps.)

Other Samoan Collections: SAVAI: (4). UPOLU: (1). WITHOUT FURTHER LOCALITY: (2).

***Solanum viride* Forst. f. ex Spreng.**

Solanaceae

Solanum inamoenum Benth.

Solanum aff. *inamoenum* sensu Christoph.

Solanum ornans Wit.

Solanum patameense Wits.

vars. *grandifolium* Wit. & *parvifolium* Wit.

Solanum savaiense Wit.

Solanum upoluense Wit.

Solanum uporo Dunal

Shrub with alternate, mostly pubescent leaves, many-flowered inflorescences of white rotate flowers, and a small red, tomato-like fruit. It occurs in disturbed places and coastal forest, reported from near sea level to ca. 50 m elevation. *Polo iti* was introduced by Polynesians or perhaps is indigenous to Samoa, and ranges from Fiji to Hawai'i. This plant has been collected in American Samoa on Tutuila, Ofu, Ta'u, and Swains Island a total of five times. It is recommended for a threatened or endangered status because of its rarity in American Samoa and in the rest of its range (including Hawai'i, where it is believed to have been extirpated), and because of its former ethnobotanical uses. Its fruits were formerly a minor source of food and an

element in colorful fruit leis, but the plant, its Samoan name, and its uses have virtually now been forgotten. Reported from the National Park.

TUTUILA:

- 312. Wilder 20—Rocky coast 1 mile east of Pago Pago Harbor (1923).
- 313. Meebold 8236—Pago Pago (1936).
- 314. Whistler 8067—On cliff edge at the tip of Matape Point west of Afono (1991).
- 315. Whistler (pers. obs., 2001)—On the cliffs on the west side of Polauta Ridge.

OFU:

- 316. Garber 1107—Nu‘utele Islet at 3 m elevation (ca. 1924).

TAU:

- 317. Whistler 9304—On east slope of Laufuti canyon (1993).

Other Samoan Collections: SAVAI: (7). APOLIMA: (1). UPOLU: (9). WITHOUT FURTHER LOCALITY: (3).

***Sophora tomentosa* L.**

Fabaceae

Shrub with silvery, alternate, pinnately compound leaves, showy yellow papilionaceous flowers, and a narrow pod constricted between the seeds. It occurs on sandy beaches and spits, reported only near sea level. Indigenous, pantropical in distribution. This shrub is restricted to three localities in American Samoa (and one in independent Samoa)—Pala Lagoon (Tutuila), ‘Aunu‘u, and Va‘oto (Ofu)—but is common elsewhere in the tropics. Reported from the National Park.

TUTUILA:

- 318. Setchell 127—Coconut Point (1920).
- 319. Whistler 3531—Coconut Point (1976).

AUNUU:

- 320. Whistler 3258—Shore on the south side of the island (1976).

OFU:

- 321. Garber 985—Beach at Muliulu, a location not on available maps (1925).
- 322. Yuncker 9496—On the southeast shore (1939).
- 323. Whistler 3048—On the southeast coast (1975).
- 324. Whistler 10369—South point of the island at Va‘oto (1997).

Other Samoan Collections: UPOLU: (3). WITHOUT FURTHER LOCALITY: (1).

***Sphenomeris chinensis* (L.) Maxon**

Lindsaeaceae

Davallia tenuifolia sensu auct. non Sw.

Lindsaea chinensis Mett.

Sphenomeris chusana (L.) Copeland

Stenoloma chusanum (L.) Chang

Medium-sized terrestrial fern with a short-creeping rhizome, a tripinnate to quadripinnatifid, ovate to lanceolate lamina with the ultimate segments cuneate, and terminal sori close to the apex of the segment, with the indusium attached at base and side and opening towards the margins. It occurs in foothill to montane forest, reported from 200 to 900 m elevation. Indigenous, ranging from Madagascar to Hawai‘i. This fern is known from American Samoa by one specimen from

Ta'u and another old, questionable record from Olosega. It is common elsewhere in the Pacific, including Hawai'i. Reported from the National Park.

OLOSEGA:

325. Reinecke 178—Without further locality (1894). Location not mapped.

TAU:

326. Whistler 7629—Along Auvaiolei'a Stream, below 180 m elevation (1990).

Other Samoan Collections: SAVAI: (7). WITHOUT FURTHER LOCALITY: (3).

Syzygium neurocalyx (A. Gray) Christoph.

Myrtaceae

Eugenia formosa sensu Rechinger non Niedenzu

Small tree with long, sessile, opposite leaves, large terminal sessile flowers, and a large, edible, subglobose, drupe-like fruit. It occurs in montane forest up to 650 m elevation, and is rarely or no longer cultivated nowadays. Indigenous or a Polynesian introduction, also found in Tonga, Futuna, and Fiji. In American Samoa it is known only from cultivation, and may have disappeared from the territory. '*Oli* or *fena* has a large fruit formerly used to make fragrant fruit leis, but the plant, its Samoan name, and its use are now virtually forgotten in Samoa. This plant is recommended for a threatened or endangered status because of its rarity (or extirpation) in American Samoa.

TUTUILA:

327. Setchell 295—Bush back of Pago Pago (1920).

328. Setchell 298b—Bush back of Pago Pago (1920).

329. Setchell 514—Bush back of Pago Pago (1920).

330. Mitchell 562—Without further locality (1932). Location not mapped.

Other Samoan Collections: SAVAI: (2). UPOLU: (10). WITHOUT FURTHER LOCALITY: (3).

Taeniophyllum whistleri Cribb in Cribb & Whistler

Orchidaceae

Taeniophyllum gracile sensu Yuncker, non (Rolfe) Garay

Tiny leafless and stemless epiphytic orchid consisting of flattened photosynthetic roots, scapose racemes of tiny white flowers, and a cylindrical capsule borne on a rachis 2.5–8 cm long. It occurs in the lowland forest, reported from 150 to 250 m elevation. Endemic to American Samoa. This orchid is easily mistaken for another Samoan species of the same genus, *Taeniophyllum savaiiense*, which is endemic to Savai'i. It was mistakenly attributed to Savai'i in Cribb and Whistler (1996) in the "Distribution" section, but not in the cited specimens. Reported from the National Park.

TUTUILA:

331. Yuncker 9309a—Epiphyte in open grove along the Afono to Fagasa [Vatia?] trail (1939).

332. Whistler 3117—On the saddle between Afono and Pago Pago (1975).

382. Whistler 9102—On Tiatauala Ridge east of Vatia at 120 m elevation (1993).

TAU:

333. Garber 641 (pro parte)—Epiphyte, near South Point, Fitiuta trail, 150 m elevation (1921).

Tephrosia purpurea (L.) Pers.

Fabaceae

Tephrosia piscatoria (Ait.) Pers.

Small subshrub with pinnately compound leaves, small white papilionaceous flowers, and a small, flat, papery pod. It occurs on coastal rocks and on lowland lava flows, reported from near sea level to 200 m elevation. Indigenous or aboriginally introduced, ranging from tropical Africa to Hawai‘i. ‘*Avasa*’ was formerly grated and used as a fish poison, but the plant, its Samoan name, and its use have been virtually forgotten in Samoa.

AUNUU:

383. Diefenderfer 1236—Plantation near ‘Aunu‘u village (ca. 1932).

OFU:

334. Garber 988—“Aloafao” [=Alaufau?] (1925).

335. Yuncker 9490—Back of Ofu in sandy soil near beach (1939).

336. Whistler 8029—Rocky outcrop at north end of Nu‘utele island on summit ridge (1991).

337. Whistler 10367—Rocky outcrop at north end of Nu‘utele island on summit ridge (1997).

OLOSEGA:

Observed by Whistler ca. 1991, but not collected and no location recorded.

TAU:

338. Yuncker 9229—Sandy soil south of Si‘ufaga (1939).

Other Samoan Collections: SAVAI: (14). APOLIMA: (2). MANONO: (3). UPOLU: (3).
WITHOUT FURTHER LOCALITY: (1).

Trichomanes taeniatum Copeland

Hymenophyllaceae

Trichomanes digitatum sensu auct. non Sw.

Tiny epiphytic fern with a wide-creeping rhizome, digitate or dichotomous lamina, ciliate lamina margins, and tiny sori on the tips of the lobes. It occurs in foothill to montane forest, reported from ca. 400 m elevation. Indigenous, also found in the Cook and Society Islands. It is known in American Samoa from a single recent collection, but is inconspicuous and easily missed by anyone other than an expert on filmy ferns (ferns in the Hymenophyllaceae family). It is also rare or rarely collected in independent Samoa, where it has been found only once in this century. Possibly found in the National Park.

TUTUILA:

339. Sledge 1824—Specimen not seen, stored at Kew (1965). Location not mapped.

Other Samoan Collections: UPOLU: (4). WITHOUT FURTHER LOCALITY: (3).

Uraria lagopodoides (L.) Desv. ex DC.

Fabaceae

Uraria lagopoides DC.

Low subshrub with alternate, trifoliate leaves, purple, papilionaceous flowers in a dense, hairy, terminal raceme, and a segmented pod. It occurs in lawns and other disturbed places, reported only from the lowlands. A Polynesian introduction, native to southern Asia.

TUTUILA:

340. Wilder 11—Roadside, Amaluia [just west of Leone] (1923).

AUNUU:

- 341. Setchell 350—Without further locality (1920).
- 342. Whistler 8041—Disturbed trailside area above the village (1991).
- 343. Whistler 10932—Grassy area away from the village (1998).

OFU:

- 344. Reinecke 578?—Without further locality in “Manua” (1894). Location not mapped.

TAU:

- 345. Garber 645b—Plateau back of Luma, 100 m elevation (1921).

Other Samoan Collections: SAVAI: (4). MANONO: (2). UPOLU: (3). WITHOUT FURTHER LOCALITY: (1).

***Urena lobata* L.**

Malvaceae

Erect subshrub with alternate leaves, pink monadelphous flowers, and a subglobose, bur-like fruit. It occurs in disturbed places, reported only from the lowlands. A Polynesian introduction, probably native to tropical Asia. This *mautofu* (a name applied to several shrubby weeds) is more common elsewhere over its range. Reported from the National Park.

TUTUILA:

- 346. Garber 897—“Open” area back of Pago Pago (1924).
- 347. Diefenderfer 19—Pago Pago Harbor (ca. 1932)
- 348. Whistler 3235—Uncommon weed in disturbed areas of Malaeimi Valley (1975).

OFU:

- 349. Yuncker 9492—Weed in a plantation near Ofu Village (1939).
- 350. Whistler 3458—Roadside weed without further locality (1976).

TAU:

- 351. Garber 545—Plateau back of Luma, 50 m elevation (1921).
- 352. Yuncker 9142—Sandy soil on the shore two miles south of Si‘ufaga (1939).
- 353. Whistler 7722—Rare in plantation on Li‘u Bench at 100 m elevation (1990).

Other Samoan Collections: SAVAI: (7). APOLIMA: (2) MANONO: (1). UPOLU: (8).

***Vigna adenantha* (G. F. W. Meyer) Maréchal, Mascherpa, & Stainier**

Fabaceae

Phaseolus adenanthus G. F. W. Meyer

Prostrate vine with alternate trifoliate leaves, lavender and white, contorted papilionaceous flowers, and a narrow, cylindrical pod. It occurs in coastal areas, marshes, and plantations, reported only from the lowlands. Probably indigenous, pantropic in distribution. This vine is found in scattered localities in American Samoa, but is not readily visible when lacking flowers. Possibly found in the National Park.

TUTUILA:

- 360. Mitchell 538—Faga‘alu valley (1932).
- 361. Wisner 91—Tafuna at 3 m elevation (1959).
- 362. Whistler 308—Cleared area at Puapua near north of Taputimu (1972).
- 363. Whistler 8733—In plantation at Vatia at 30 m elevation (1992).
- 364. Whistler 10929—Plantation weed along Utumoa Stream (1998).

OFU:

365. Whistler 2991—Common weed along a trail on the south side of the island (1975).

366. Whistler 8806—Common roadside weed without further locality (1992).

TAU:

367. Whistler 9203—In the coastal marsh at Ta‘u Village (1993).

Other Samoan Collections: SAVAI: (5). UPOLU: (3). WITHOUT FURTHER LOCALITY: (2?).

Vrydagzenea samoana Schltr.

Orchidaceae

Vrydagzenea albida (Bl.) Bl. var. *purpurascens* Kraenzl. (K)

Vrydagzenea whitmeei sensu H. Fleischm. & Rechinger, non Schltr., as *V. whitmei*.

Vrydagzenea sp. of Yuncker (Garber 630)

Small terrestrial orchid with ovate to elliptic leaves and small, pale green to greenish white flowers densely packed at the top of the terminal raceme. It occurs in montane forest, reported from 175 to 650 m elevation. Indigenous, also found in Fiji and Vanuatu. This species is known in American Samoa from a single collection on Ta‘u in 1921, and another one during a recent survey. Reported from the National Park.

TAU:

354. Garber 630—On mossy rock, Amouli trail, 175 m elevation (1921).

355. Whistler 11060—On a rock in the forest on Li‘u Bench at 300 m elevation (1998).

Other Samoan Collections: SAVAI: (4). UPOLU: (7).

Vrydagzenea vitiensis Rchb. f.

Orchidaceae

Vrydagzenea whitmeei Schltr.

Erythrodes sp. of Yuncker

Small ground orchid with ovate with a silvery median strip and small white flowers in a terminal raceme. It occurs in lowland to montane forest, reported from 250 to 1050 m elevation. Indigenous, also found in Vanuatu, Tonga, and Fiji. It is known in American Samoa from only two old and questionable records from Tutuila and two more recent ones from Ta‘u, but it is more common in independent Samoa. Reported from the National Park.

TUTUILA:

356. USEE s.n.—Without further locality (1839). Location not mapped.

357. Lister s.n.—Without further locality (ca. 1892). Location not mapped.

TAU:

358. Yuncker 9269—In forest on the west slope of Mt. Vaoaimanu at 500 m elevation (1939). (This location was not found on any available maps.)

359. Whistler 3553—Forest on Li‘u Bench at 350 m elevation (1976).

Other Samoan Collections: SAVAI: (6). UPOLU: (9). WITHOUT FURTHER LOCALITY: (1).

Ximenia americana L.

Olcaceae

Ximenia elliptica Forst. f.

Thorny shrub with small alternate leaves, white flowers hairy inside, and an orange, globose, large-seeded drupe. It occurs on the seaward margin of littoral forest, reported only near sea level. Indigenous, ranging from India to the Tuamotus. This shrub, called *moli tai*, is known in American Samoa only from the Pala Lagoon area of Tutuila, but is somewhat more frequent in independent Samoa and is a widespread littoral species. The fruit is sometimes eaten by children.

TUTUILA:

- 368. Whistler 4661—Near Logome Point (1980).
- 369. Whistler 8074—Edge of mangroves at Nu‘uuli (1991).
- 370. Whistler 10915—Near Logome Point (1997).
- 403. Whistler (pers. obs. in 2003)—Rare near the sea at Logome Point.

Other Samoan Collections: SAVAI: (10). MANONO: (1). UPOLU: (2). WITHOUT FURTHER LOCALITY: (1).

Xylocarpus moluccensis (Lam.) Roemer

Meliaceae

Xylocarpus granatum sensu auct. non Koen.

Small to medium-sized tree with alternate, pinnately compound leaves, tiny white flowers in long panicles, and large green globose fruits containing several large, tan seeds packed tightly together. It occurs in littoral forest and mangrove swamp margins. Indigenous, ranging from Madagascar to Samoa. It is known in Samoa from only a few localities, including two in American Samoa—Pala Lagoon and ‘Aunu‘u. Much of the latter population was decimated recently during construction of a church. *Le‘ile‘i*, called puzzlenut tree, may have had minor uses for timber and medicine.

TUTUILA:

- 371. Setchell 439—Shores of lagoon near Tafuna (1920).
- 372. Garber 1118—Nu‘uuli on Pala Lagoon (1925).
- 373. Christophersen 1177—South shore of lagoon north of Tafuna (1929).
- 374. Yuncker 9380—Coastal trail west of Nu‘uuli (1939).
- 375. Uhe 111—Specimen not seen. Location not mapped (ca. 1968).
- 376. Whistler 2810—Shores of the lagoon near Tafuna housing area (1975).
- 377. Whistler 2811—Shores of the lagoon near Tafuna housing area (1975).
- 378. Whistler 10916—Near Logome Point on Pala Lagoon (1997).
- 384. Whistler (pers. obs., ca. 2000)—Coconut Point.
- 405. Whistler (pers. obs. in 2003)—Uncommon near the sea at Logome Point.

AUNUU:

- 379. Whistler 3256—South side of island (1976).
- 380. Whistler 5744—South side of island (1987).
- 381. Whistler 11421—South side of island (2000).

Other Samoan Collections: SAVAI: (5). MANONO: (1).