



**AMERICAN SAMOA
INVASIVE SPECIES STRATEGY
AND ACTION PLAN**



**The Department of
Marine and Wildlife
Resources**

American Samoa

2017

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The American Samoa Invasive Species Strategy and Action Plan

I. Vision and Scope

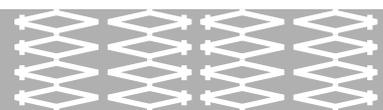
American Samoa is located among other countries and territories in the South Pacific. Like many other countries, it is facing the downside of technology with its globalized trade and travel that promote transport of invasive species. In addition, global climate change has enhanced the transport and proliferation of invasive species by expanding species ranges. Currently, the threat is minimal but this is not an assurance of security thus the need for a strategy and action plan to deal with invasive species. The major pathways that are of concern are regional and international trade and shipping, air transport and travel, shore-based developments (e.g. communication cable) and tourism. To a very minimal extent, natural forces (e.g. cyclones and hurricanes for birds) facilitate species invasion from nearby countries and islands.

As the only US territory in the south Pacific, American Samoa is faced with unique threats with its location from a national perspective. On the other hand, it also faces similar threats like other south Pacific countries and territories thus the need for both national and regional collaborations. Pacific ecosystems are one of the world's biodiversity hotspots underlining its importance as a natural heritage. There are about over 2,100 endemic species recorded. Of these species, 5.8 per cent are already extinct or exist only in captivity. Another 45 per cent are at risk of extinction. In fact, Pacific islands have one of the highest extinction rates in the world. The greatest cause of extinction is by invasive species through species displacement and habitat destruction. Since ecosystems are born out of complex relationships among various species and with their environments, any species displacement should invariably cause changes in the ecosystems. Some of these displaced species may have subtle and imperceptible roles in the ecosystems. Unfortunately, some of these species are keystone species that play major roles in ecological processes and any changes could be disruptive. Some of these species are also economically important to various Pacific island communities, thus invasive species have the ability to disrupt economies, trade, development, health and resilience of ecosystems.

The ecological integrity of American Samoa is of utmost importance in the face of invasive species. The cultural identity of American Samoans is also closely tied to the ecological integrity of its natural environment. And given its a highly limited economy, any impact by invasive species on its natural ecosystems that provide goods and services will be almost immediate. The establishment of an invasive species plan, with its clearly articulated priority actions, goals and objectives will provide a guidance to deal with the threats of invasive species. The implementation of the plan will: (1) increase awareness of their threats; (2) inspire cooperation to prevent and minimize their impacts and implement appropriate approaches; and (3) improve decision making through the process of data and information sharing from the best available science.

The priority actions for American Samoa are:

- ✓ Implement urgent and necessary actions
- ✓ Enhance capacities for informed decisions
- ✓ Advance preventive and rapid-response protocols and measures



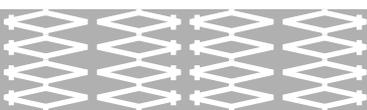
II. Introduction

American Samoa is the only territory of the United States in the South Pacific. It is located in a tropical environment, between 167° to 172° W (longitude) and 11° to 15° S (latitude) in the southwestern Pacific. Five of the seven islands comprising the Territory are volcanic in origin – Tutuila, Ta’u, Ofu, Olosega, and Aunu’u. Ta’u, Ofu, and Olosega islands are collectively referred to as Manu’a. The other two islands, Swains and Rose, are coral atolls. The islands and atolls in American Samoa are part of the larger Samoan Archipelago, a remote chain of 13 islands of varying sizes and an atoll, located 140 south of the equator near the International Date Line. Samoa has two large islands (Upolu and Savaii) and eight islets. The Samoan Archipelago sits on the northern end of the Tongan Trench. It is at the southwestern end of the Polynesian Triangle, 550 km west of the Cook Islands. The archipelago spans about 520 km east to west.

The Samoa archipelago was formed by a series of volcanic eruptions from the “Samoan hotspot” (Hart et al. 2000). The islands in the archipelago rest on a portion of the the Pacific Plate that is drifting westward at a rate of ~ 7 cm per year (McDougall 1985). Most of the islands were formed by volcanic eruptions when a portion of the plate they are resting passed over a thermal plume in the Earth’s mantle. Based on the classic hotspot model, Savaii Island (the westernmost) in Samoa would be the oldest and Tau island (the easternmost) in American Samoa the youngest of the islands in the archipelago. Geological data indicate that Savaii is about 4-5 million years old, Upolu about 2-3 million years old, Tutuila about 1.5 million years old, Ofu-Olosega about 300,000 years old and Tau about 100,000 years old. Swains and Rose are built on much older volcanoes but not part of the Samoan volcanic chain. There are also other seamounts and banks found in the Archipelago that have different geological originations (Hart et al. 2004).

The earliest settlement in the Samoan Archipelago was 3,000 bp in Ofu island by the descendants of the Lapita culture. Their descendants, the Polynesians, would populate islands from Hawaii to Easter Island, possibly even reaching the South American continent. They introduced and domesticated animals and plants to islands they colonized and populated. They introduced pigs, dogs and chicken, taro, yam, coconuts, bananas and breadfruits. These were the first truly invasive species that helped the early Polynesians establish themselves in the islands. It has been hypothesized that the early Polynesians colonized and introduced various species to many Pacific islands in a span of hundreds of years. In contrast, today’s modern technology and the globalization of trade and travel have made much the transport of invasive species much quicker.

It is estimated that pre-Western contact population was about 30,000 people in the whole Samoan archipelago. The population slightly dipped after the Western contact due to disease exposure. The current population in the Territory is slightly less than 60,000, 97% of whom reside in Tutuila (Department of Commerce Statistics Division 2005). The Manu’a islands exhibited negative growth rates (-2.2%), perhaps, as a result of immigration from the islands from lack of opportunities for employment and economic development (Department of Commerce 2003). There are no residents in Swains Island although it was previously occupied by few individual families.



III. Problem Definition

A. Definition of ‘Invasive’ Species

Invasive species are species of plants, animals and other organisms (including pathogens) that are not native to a given ecosystem and may cause negative health, economic or environmental impact (CAFF 2016). (Disease-causing pathogens are considered invasive species. But this strategy and action plan does not include pathogens for humans as human epidemiology is unique and complex and is already widely-covered by the Territory’s Department of Health.). We have also considered a species as ‘invasive’ when it is naturally occurring but undergoes outbreaks that cause significant mortality of other species and destroys habitats, e.g. crown-of-thorns starfish *Acanthaster planci* (Hoey et al. 2016). Invasive species have driven extinct of a wide range of plants and animals (e.g. Bellard et al. 2015; McNeely et al. 2001; Wilcove et al. 1998); and thus altered biodiversity, natural biological ecosystems and ecological cycles (e.g. Chapin et al. 2000). In effect, invasive species can negatively impact forestry, agriculture, fisheries, public health and subsequently food security and economic development. For an economy like American Samoa that is tied to its natural resources, the effect of such negative impact with will be immediate.



B. Issues and problems in dealing with invasive species

American Samoa has a history of invasive species problems. It actually has a large invasive species problem with 250 species of introduced plants to start with (Whistler 2000) and probably numerous insects. The other known invasive species are: 5 species of mammals; 5 species of birds; 3 species of reptiles; 3 species of freshwater fish; 27 species of snails; 32 species of invertebrates; and 4 species of algae.

The following are the major known invasive species in American Samoa:



Jungle myna



Common myna



Bulbul

SPECIES: Jungle and common myna (*Acridotheres fuscus* and *A. tristis*), Red-vented bulbul (*Pycnonotus cafer*)

INFORMATION: Displacing native birds such as the collared kingfisher; recent project eradicated around 2,000 plus mynas



(www.californiaherps.com)

SPECIES: Marine toad (*Rhinella marina*)

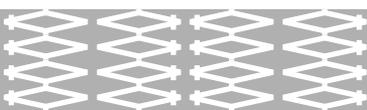
INFORMATION: Introduced from Hawaii in 1954; its range now includes all of Tutuila; Not yet recorded in Manua Islands



(Wikipedia)

SPECIES: Feral pig (*Sus scrofa*)

INFORMATION: Found throughout American Samoa; threat to the regeneration of native forest





SPECIES: *Rattus exulans* (iucngids.org); *Rattus norvegicus* (naturewatch.org.nz)

INFORMATION: Found through out American Samoa except Rose Atoll; prey on native insects and birds and can cause deforestation by preventing forest regrowth; reservoir of pathogens; cause damage to property, poultry, crops and game birds



(Wikipedia)

SPECIES: Snail (*Euglandina rosea*)

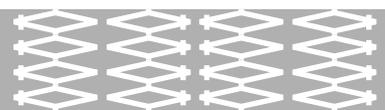
INFORMATION: Introduced in 1980 as biological control of the African snail *Achatina fulica*; Driving endemic snails to extinction



(www.idtools.org)

SPECIES: Ants including yellow crazy ant (*Anoplolepis gracilipes*)

INFORMATION: One of 56 non-native ants in American Samoa; Tropical fire ant was discovered in the Territory in 2002





(www.flickr.com)

SPECIES: Flatworm (*Platydemus manokwari*)

INFORMATION: Introduced to Samoa in 2003; Discovered in Tutuila and Tau in 2004; Not yet recorded in Ofu and Olosega.



(www.palmorg.com)

SPECIES: African tulip tree (*Spathodea campanulate*)

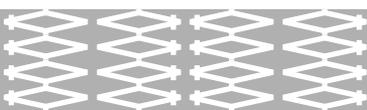
INFORMATION: Invading agro-forest in Tutuila; Not yet recorded in Manua islands.



(www.wildlifeofhawaii.com)

SPECIES: Tamaligi (*Falcataria moluccana*)

INFORMATION: 35% of Tutuila is infested by this tree in 2001; Has not yet spread beyond Tutuila; National Parks American Samoa is currently eradicating tamaligi within park areas.





(www.tropical.theferns.info)

SPECIES: Coral bean (*Adenanthera pavonina*)

INFORMATION: Formally grown for food and seeds are roasted and known as “Samoa peanuts”; Rapidly infesting native forests



(www.youtube.com)

SPECIES: Crown-of-Thorns Starfish, Alamea (*Acanthaster planci*)

INFORMATION: This starfish naturally occurs in coral reefs but in very low numbers. It undergoes cyclic abundance of epidemic proportions probably due to transport and recruitment from nearby islands coupled with high land-based nutrient inputs to the coasts. There were outbreaks in 1978 and recently in 2014. The infestation in 2014 was preceded by an infestation in Samoa in 2012.

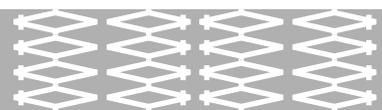
These are potential invasive species that may be coming to American Samoa:



(www.rod.com.au)

SPECIES: Brown tree snake (*Boiga irregularis*)

INFORMATION: Potential to devastate native bird and bat populations in American Samoa; Can be confused by the public with the native Pacific boa





(www.iucngisd.org)

SPECIES: Mongoose (*Herpestes javanicus*)

INFORMATION: A serious pest in Fiji; recently spotted in Samoa; potential to devastate native birds

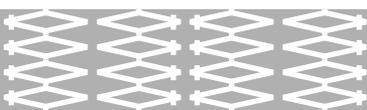


(www.en.wikipedia.org)

SPECIES: Caribbean frog (*Eleutherodactylus coqui*)

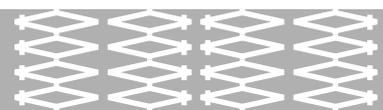
INFORMATION: Found in Hawaii where it preys heavily on native invertebrates

- ✓ These species are the priority invasive species so far for American Samoa.
- ✓ From the available data, it seems that the Manua Islands are still free of some species that have already invaded Tutuila. Therefore, a priority should be to enforce effective quarantine from Tutuila especially on the shipping and flights;
- ✓ Unfortunately, there is **very limited time and money** and **no dedicated personnel** to deal with this problem. There is a voluntary umbrella group made up of various government agencies, non-government groups and concerned citizens called ASSIST to address this problem. But like all other voluntary groups, its **interest is difficult to sustain** and keep the group active.
- ✓ It was **extremely difficult to mobilize funds** to eradicate the Crowns-of-Thorns Starfish infestation that started around 2014. There is no dedicated funding for coral reef disaster and emergency rapid response. The infestation was first reported in Samoa around 2011-2012.



- ✓ Many of these introduced species have been **perceived as not a problem** perhaps out of ignorance.
- ✓ In the past, the government agencies introduced the mangium tree (*Acacia mangium*), and the coral bean tree (*Adenantheria pavonina*), the flemengia (*Flemengia macrophylla*) for soil bioerosion, and to some extent the taro leaf blight (*Phytophthora colocasiae*) through **quarantine failures**.
- ✓ These lapses underline the **lack of information** concerning such invasive species and their threats, the **ineffective enforcement of existing regulations**, and **limited collaboration** among agencies and the communities.
- ✓ In the past, a predatory snail (*Euglandina rosea*), was introduced for biological control of the giant African snail. However, it was adequately tested for host specificity and is now having an adverse impact on Tutuila's native snail populations (Whistler 2002). The biocontrol agent, the insect *Liothrips urichi*, was released in the 1970s for control of Koster's curse (*Clidemia hirta*), an invasive plant species. However, the introduction was not appropriately monitored (Tauili'ili and Vargo 1993), and little is known about its effectiveness in the field (Baruch et al. 2000). These cases underline the **lack of adequate research** before introduction and **the lack of monitoring on the impact** of these species after introduction. These had led to failures for their purposes and underlines **the lack of coordinated invasive species management** in the territory, with associated research and monitoring.
- ✓ The native **Samoan culture on land tenure also presents challenges** to the management of invasive species. Under this tenure system, 95% of the territory's land is held communally, with authority for use controlled by local *matai* (chiefs). This increases the complexity of determining who is using a parcel of land to promote management of invasive species. Perhaps a solution to this complexity is in working with the village council in developing invasive species management plans. There is a program under the Department of Marine and Wildlife that works in working with villages on fisheries management plans. This model can be expanded in participating villages to encompass invasive species. Such models can be adapted for land-locked villages.

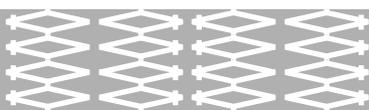
Pacific island countries like American Samoa are particularly more vulnerable to invasive species compared to continental countries. These islands have been recently colonized and more isolated thus species and ecosystems are more vulnerable to introduced species. Island species (especially the endemic ones) have not evolved or slow to cope with the impacts of predators, pests, and other more highly competitive plants and animals, and diseases brought in from continental areas. In fact, invasive species are responsible for the extinction of more island native species than any other cause. This is exacerbated by their relatively small size and limited resources to deal with invasive species. Fortunately, not all non-native species are harmful. Many non-native species are beneficial, for instance, in agriculture, and aquaculture. The latter emphasizes the importance of prioritization in the invasive species problem and the need for clear articulation of



C. The American Samoa Invasive Species Task Force (ASSIST)

The American Samoa Invasive Species Task Force (ASSIST) was created in 2002 to address these concerns about invasive species management. The members were the American Samoa Community College, Department of Agriculture, Department of Marine and Wildlife Resources; National Park of American Samoa, USDA Natural Resources Conservation Service; and the now defunct Department of Community and Natural Resources and the Rural Community Development program. The goals of ASSIST are: (1) to increase public awareness about invasive species, (2) to improve agency awareness of invasive species and the communication about strategies for their management, and (3) to coordinate management of these species.

ASSIST developed an annotated and ranked by priority (low, medium, high) a list of invasive plants in the Territory (Space and Flynn 2000). A field guide with photos and descriptions of the medium and high priority plants were also developed. The field guide is intended as a tool to familiarize local resource management professionals with the invasive plants of greatest concern and perhaps to either initiate control efforts or share information about new infestations. Despite the activities of ASSIST, there was **limited coordination of control and eradication programs among government agencies**. For instance, current invasive species management programs are confined to the eradication of selected tree species, such as *Falcataria moluccana*, within the National Parks of American Samoa boundaries on Tutuila. Expanding the management plan for these species to the rest of the territory would be more effective. The greatest challenge to **ASSIST as an organization is being its ad hoc nature without any real authority**. This has greatly limited its ability to address the issue of invasive species. On a bigger picture, the challenges of ASSIST in managing invasive species in the Territory is two-fold. Its initiatives are not fully integrated to the U.S. invasive species management programs because of its political status as a territory. Moreover, it is not a regular participant in international regional programs (e.g. SPREP) for the same reasons. The former problem hopefully will now be resolved with the initiatives of the US Department of Interior Office of Insular Affairs on invasive species.



D. Governor's Executive Order 2016-004

On December 13, 2016, the Lt. Gov. Lemanu Mauga signed the Executive Order 004, on behalf of the governor, to create the American Samoa Invasive Species Council (ASISC). The ASISC will be composed of the:

- DMWR Dept. Marine and Wildlife Resources
- ASCC American Samoa Community College-Land Grant
- American Samoa Customs Office
- Department of Agriculture
- Department of Commerce
- Department of Port Administration
- Department of Homeland Security
- Federal Agencies: USDA NRCS, NP

The ASISC has the following mandate and tasks:

Goal: To provide leadership, coordination, and direction for invasive species prevention and control / eradication in American Samoa.

Tasks: Advise the Governor and legislature on issues regarding invasive species.

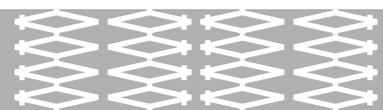
- Create and implement a plan that includes the prevention, early detection, rapid response, control (eradication), and education with respect to invasive species.
- Suggest appropriate legislation to improve the Territory's invasive species programs and policies.
- Share up to date information regarding invasive species to all ASG Agencies and the public in order to prevent introductions and reduce invasive species impacts.

American Samoa Invasive Species Committee (ASISC) will have the following Working Groups:

- TERRESTRIAL WORKING GROUP
- MARINE WORKING GROUP
- PREVENTION WORKING GROUP

The Terrestrial and Marine Working Groups will provide the following for their perspective taxon:

1. Create a list of terrestrial and marine invasive species currently in American Samoa, compile information on species and impacts.
2. Prioritize the list of invasive species based on threats to biodiversity, known impacts, or future potential impacts.
3. Suggest management actions to reduce or eliminate impacts of invasive species.
4. Create management plans for high priority invasive species.
5. Create an early detection, rapid response team to quickly eliminate new introductions.



6. Identify high priority invasive species for which there is a high risk of introduction to American Samoa and develop monitoring and rapid response plans.
7. Update Prevention Working Group, quarantine, customs, and transportation sectors on emerging invasive species threats.

The Prevention Working group

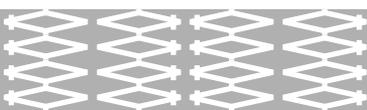
1. Will coordinate the prevention of new introductions with on and off island government agencies, transportation companies, regional partners, and the public.
2. Create and implement a comprehensive bio-security plan for American Samoa to prevent new invasive species introductions.
3. Conduct regional outreach to identify invasive species with a high potential for introduction to American Samoa, and create prevention and rapid response plans.
4. Identify pathways and develop strategies for blocking.

The local government will dedicate funding in response to invasive species response as a matching to federal funds from Department of Interior Office of Insular Affairs (DOI-OIA), NOAA, Homeland Security, USFWS, USEPA and others.

E. Invasive Species Pathways

The major pathways that are of concern are regional and international trade and shipping, air transport and travel.

- ✓ There are two airlines running several daily flights between Samoa and American Samoa. Samoa is a jump off point to many other countries in the Pacific (Fiji, New Zealand, Los Angeles). A flight route is being planned between American Samoa and Tonga. There are also flights between Tutuila and Manua.
- ✓ A single passenger/cargo boat (Lady Naomi) plies between the Samoas weekly while a boat operates intermittently between Tutuila and Manua weekly.
- ✓ There is a passenger/cargo airline that flies twice a week between Tutuila and Honolulu. The frequency can be up to thrice a week during the holiday seasons.
- ✓ There is also a cargo airplane that flies weekly between Tutuila and Honolulu.
- ✓ There are around 10 cruise ships from New Zealand and Australia that visit Tutuila every year and each one carries thousands of tourists.
- ✓ There are several cargo vessels carrying containers with consumer goods from Honolulu and California.
- ✓ There are visiting yachts in the Territory.

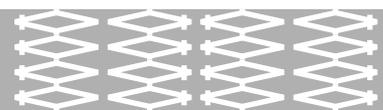


- ✓ To top these are 40 purse seine fishing boats that occasionally dock in Pago Pago Harbor in Tutuila. These boats fish in the Western and Central Pacific Ocean sometimes visiting various ports in various countries.
- ✓ There are active 4 longliners but fishing usually occurs with the American Samoa EEZ. Future scenarios, however, do not preclude these boats from fishing in the high seas and porting in nearby countries.
- ✓ Oceanography or water movement can be a natural pathway of marine organisms.

F. Impacts of Invasive Species in Pacific Island Countries and Territories

The following are the known impacts of invasive species on species biodiversity, people and economy in other Pacific islands and in American Samoa:

- ✓ In Cook Island, invasive plants are destroying the habitats native birds, such as the Rarotonga Flycatcher, the Rarotonga starling, and the Blue Lorikeet. Rats prey on the Kakerori, and Indian myna threatens native birds through disturbance and competition.
- ✓ In Vanuatu, the little fire ant makes growing of crops very difficult. They have reduced the numbers of native insects, and reptiles numbers, and contribute to the spread of plant diseases.
- ✓ In Guam, the brown tree snake has caused the extinction of ten native landbird species.
- ✓ In Samoa, the taro leaf blight caused the loss of approximately US\$340,000 to the country's export returns
- ✓ The yellow crazy ant has killed an estimated 10–15 million red crabs on Christmas Island in the Indian Ocean.
- ✓ In American Samoa, the silk tree (*Tamaligi uliuli*) can alter the structure and composition of forest ecosystem that inadvertently facilitates the invasion by other invasive species. It can displace the vegetational habitat of threatened native birds, such as the purple-capped fruit dove (*Ptilinopus porphyraceus*) and the Pacific imperial pigeon (*Ducula pacifica*). The matoni tree *Miconia calvescens* is considered one of the 100 worst invasive species in the world. It quickly grows to shade out nearly all other forest plants. Its shallow root system can cause increased erosion and landslides creating hazards to nearby communities.



IV. General principles and framework

We have adopted the following general principles and approaches to guide, focus and inform actions under the American Samoa Invasive Species Strategy and Action Plan. These principles and approaches have been articulated in similar documents such as the Invasive Species Guidelines for the Pacific (SPREP 2009) and the Arctic Invasive Alien Species (ARIAS) Strategy and Action Plan

A. Invasive Species Strategy and Action Plan Principles are:

a. Prioritization of invasive species and necessary actions. Not all introduced species are invasive, and actions should be prioritized to deal first with those currently causing, or with those that have the potential to cause the most harm. There are already existing documents that have prioritized invasive species in American Samoa (e.g. ASSIST). These lists should be reviewed for current relevance and appropriately modified.

b. Adoption of science-based decisions. To be efficient, species risk assessment, decisions and actions should be based on good and best available science. Many of these invasive species have known impacts in other countries and these case studies should be guidance for species risk assessment in the Territory.

b. Adoption of the precautionary principle. If scientific knowledge is insufficient for species risk assessment, it should be assumed that impacts will occur and action should be taken to prevent the species spreading or becoming established.

B. The Hierarchical Approach to Species Management

A **hierarchical approach** to managing invasive species is adopted in the following order:

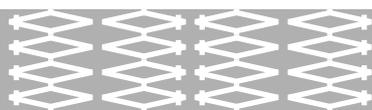
a. Prevention is more effective and more cost-efficient than management of established invasive species. Therefore, border control is the first line of defense. This approach underlines the importance of determining invasive species pathways.

b. Eradication is more effective and cost-efficient than control of invasive species in the long run.

c. Control should be applied for species that cannot be eradicated. For species that cannot be eradicated nor biologically controlled, it should be contained within delimited areas. Control by chemical and/or physical methods should be the last resort approach.

d. Restoration involves restoring species and ecosystems after eradicating and removing invasive species.

All of these constitute a holistic approach to management of invasive species.



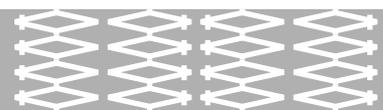
V. Priority Actions (Goals and Objectives)

A. Goal 1: Implement Urgent and Effective Actions

Enhance capacity of ASG and partners to take urgent and effective action necessary to protect the Territory's ecosystems threatened by invasive species

Objectives:

- a. Develop legal framework and legislation. A legal framework has already been signed that would provide a mandate for various ASG agencies and the communities in dealing with invasive species. This objective should also include a review of legal frameworks of various countries that are sources of entries in invasive species pathways.
- b. Organize the Invasive Species Committee and its working groups and develop/continue collaborations with national and regional partners. It would be important to revisit the ASSIST team's membership, its accomplishments and lessons learned since its existence. Its experience would provide guidance and focus on the newly-formed Invasive Species Committee.
- c. Harmonize the plan's the goals and objectives of the plan with partners and other policy-making bodies in the Territory and in the region. This would include State and Wildlife Action Plan, the Climate Change Framework, the village fisheries management plans, the various Local Action Strategy groups' guiding documents, and perhaps to the science research plans of appropriate departments.
- d. Develop education and outreach materials and conduct targeted activities. The importance of a highly-informed public cannot be overemphasized.
- e. Develop local capacity (e.g. species identification and handling protocols) at various levels of the Territory's governance structures in dealing with invasive species. Part of this objective is to review current quarantine protocols and their effectiveness for control in points-of-entry of potential invasive pathways. This should also be an avenue for needs assessment for local staff capacity to implement such protocols.



B. Goal 2: Enhance capacities for informed decisions

Enhance the capacities of the Committee, the relevant offices of ASG and the communities to make well-informed and science-based decisions in dealing with invasive alien species.

Objectives:

- a. Develop (or review existing) a list of priority invasive species of concern and actions and provisions for regular review.
- b. Produce specific assessments of priority invasive alien species. These assessments should include baseline data and provisions for regular monitoring, and development of research programs. These assessments should also consider economic, socio-cultural, legal, and traditional knowledge and perspectives.
- c. Facilitate sharing of data and other information and establish guidance for data management standards, formats, and protocols. This would also include developing a database, and a website that is linked to other national and regional partners. This objective should also include participation in regional, national and international initiatives to manage invasive species.

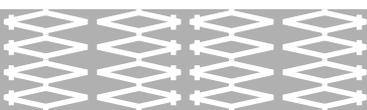
C. Goal 3: Advance prevention and rapid-response protocols and measures

Advance prevention and early detection/rapid response protocols and measures to deal with invasive species

Objectives:

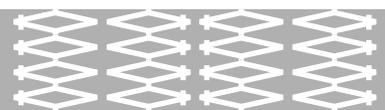
- a. Conduct risk assessment, and use relevant tools, to identify: a) extant invasive and potential invasive species and their pathways to the Territory, b) the ecosystems most vulnerable; and c) (potential) patterns and trends of introduction, distribution/spread, and impact;
- b. Review, develop and implement a wide range of biosecurity measures at points of entry, along priority pathways and in already impacted areas with established invasive species. This will also include development of guidance for best practices including habitat restoration activities if possible.
- c. Establish tools (e.g., watchlists), a monitoring and reporting network, and cooperative agreements, to enable the early detection of and rapid response to invasive species

These are the draft goals and objectives of the American Samoa Invasive Species Strategy and Action Plan that need to be reviewed by the in-coming committee. Upon approval or modification, such goals and objectives, in order to be effective need respective **activities**, **measurable outcomes/milestones** and **timeframes**. The activities under objectives should also have **responsible agencies/partners** and its outcomes have **means of verification**. Funding and assigned personnel are of utmost importance. Since local capacity is at the maximum to implement various agency mandates, additional funding and personnel is the right direction where appropriate.



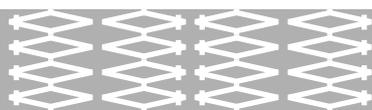
VI. Conclusion

The ecological integrity of American Samoa's natural environment is important to its cultural identity, economy and development. For such, it is critical to develop a guidance document to address the issue of invasive species. Invasive species is an increasing threat to the Territory and its Pacific neighbors. Since the Pacific islands constitute a natural species biodiversity hotspot, part of managing invasive species is to protect this natural heritage. In addition, invasive species has the grave potential to disrupt ecosystems and their good and services, human health and the economy. For its small and vulnerable economy that is highly-tied to its natural resources, it is imperative for American Samoa to manage invasive species. Since invasive species movements involve various pathways, the management involves critical regional and national collaborations for quarantine and other technical support (e.g. research and monitoring). It should also involve the private industries that are involved in relevant modes of transportation. It is only through such collaborations that invasive species can be properly managed and its impact mitigated or hopefully avoided.



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Appendix 1. Executive Order -- Safeguarding the Nation from the Impacts of Invasive Species

EXECUTIVE ORDER

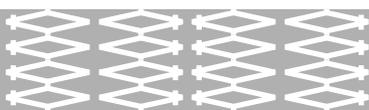
SAFEGUARDING THE NATION FROM THE IMPACTS OF INVASIVE SPECIES

By the authority vested in me as President by the Constitution and to ensure the faithful execution of the laws of the United States of America, including the National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 et seq.), the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990, (16 U.S.C. 4701 et seq.), the Plant Protection Act (7 U.S.C. 7701 et seq.), the Lacey Act, as amended (18 U.S.C. 42, 16 U.S.C. 3371-3378 et seq.), the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.), the Noxious Weed Control and Eradication Act of 2004 (7 U.S.C. 7781 et seq.), and other pertinent statutes, to prevent the introduction of invasive species and provide for their control, and to minimize the economic, plant, animal, ecological, and human health impacts that invasive species cause, it is hereby ordered as follows:

Section 1. Policy. It is the policy of the United States to prevent the introduction, establishment, and spread of invasive species, as well as to eradicate and control populations of invasive species that are established. Invasive species pose threats to prosperity, security, and quality of life. They have negative impacts on the environment and natural resources, agriculture and food production systems, water resources, human, animal, and plant health, infrastructure, the economy, energy, cultural resources, and military readiness. Every year, invasive species cost the United States billions of dollars in economic losses and other damages.

Of substantial growing concern are invasive species that are or may be vectors, reservoirs, and causative agents of disease, which threaten human, animal, and plant health. The introduction, establishment, and spread of invasive species create the potential for serious public health impacts, especially when considered in the context of changing climate conditions. Climate change influences the establishment, spread, and impacts of invasive species.

Executive Order 13112 of February 3, 1999 (Invasive Species), called upon executive departments and agencies to take steps to prevent the introduction and spread of invasive



species, and to support efforts to eradicate and control invasive species that are established. Executive Order 13112 also created a coordinating body -- the Invasive Species Council, also referred to as the National Invasive Species Council -- to oversee implementation of the order, encourage proactive planning and action, develop recommendations for international cooperation, and take other steps to improve the Federal response to invasive species. Past efforts at preventing, eradicating, and controlling invasive species demonstrated that collaboration across Federal, State, local, tribal, and territorial government; stakeholders; and the private sector is critical to minimizing the spread of invasive species and that coordinated action is necessary to protect the assets and security of the United States.

This order amends Executive Order 13112 and directs actions to continue coordinated Federal prevention and control efforts related to invasive species. This order maintains the National Invasive Species Council (Council) and the Invasive Species Advisory Committee; expands the membership of the Council; clarifies the operations of the Council; incorporates considerations of human and environmental health, climate change, technological innovation, and other emerging priorities into Federal efforts to address invasive species; and strengthens coordinated, cost-efficient Federal action.

Sec. 2. Definitions. Section 1 of Executive Order 13112 is amended to read as follows:

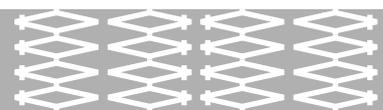
"Section 1. Definitions. (a) 'Control' means containing, suppressing, or reducing populations of invasive species.

(b) 'Eradication' means the removal or destruction of an entire population of invasive species.

(c) 'Federal agency' means an executive department or agency, but does not include independent establishments as defined by 5 U.S.C. 104.

(d) 'Introduction' means, as a result of human activity, the intentional or unintentional escape, release, dissemination, or placement of an organism into an ecosystem to which it is not native.

(e) 'Invasive species' means, with regard to a particular ecosystem, a non-native organism whose introduction causes or is likely to cause economic or environmental harm, or harm to human, animal, or plant health.



(f) 'Non-native species' or 'alien species' means, with respect to a particular ecosystem, an organism, including its seeds, eggs, spores, or other biological material capable of propagating that species, that occurs outside of its natural range.

(g) 'Pathway' means the mechanisms and processes by which non-native species are moved, intentionally or unintentionally, into a new ecosystem.

(h) 'Prevention' means the action of stopping invasive species from being introduced or spreading into a new ecosystem.

(i) 'United States' means the 50 States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the U.S. Virgin Islands, the Commonwealth of the Northern Mariana Islands, all possessions, and the territorial sea of the United States as defined by Presidential Proclamation 5928 of December 27, 1988."

Sec. 3. Federal Agency Duties. Section 2 of Executive Order 13112 is amended to read as follows:

"Sec. 2. Federal Agency Duties. (a) Each Federal agency for which that agency's actions may affect the introduction, establishment, or spread of invasive species shall, to the extent practicable and permitted by law,

(1) identify such agency actions;

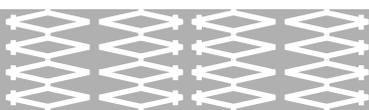
(2) subject to the availability of appropriations, and within administrative, budgetary, and jurisdictional limits, use relevant agency programs and authorities to:

(i) prevent the introduction, establishment, and spread of invasive species;

(ii) detect and respond rapidly to eradicate or control populations of invasive species in a manner that is cost-effective and minimizes human, animal, plant, and environmental health risks;

(iii) monitor invasive species populations accurately and reliably;

(iv) provide for the restoration of native species, ecosystems, and other assets that have been impacted by invasive species;



(v) conduct research on invasive species and develop and apply technologies to prevent their introduction, and provide for environmentally sound methods of eradication and control of invasive species;

(vi) promote public education and action on invasive species, their pathways, and ways to address them, with an emphasis on prevention, and early detection and rapid response;

(vii) assess and strengthen, as appropriate, policy and regulatory frameworks pertaining to the prevention, eradication, and control of invasive species and address regulatory gaps, inconsistencies, and conflicts;

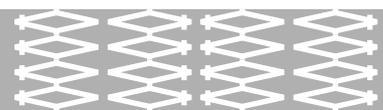
(viii) coordinate with and complement similar efforts of States, territories, federally recognized American Indian tribes, Alaska Native Corporations, Native Hawaiians, local governments, nongovernmental organizations, and the private sector; and

(ix) in consultation with the Department of State and with other agencies as appropriate, coordinate with foreign governments to prevent the movement and minimize the impacts of invasive species; and

(3) refrain from authorizing, funding, or implementing actions that are likely to cause or promote the introduction, establishment, or spread of invasive species in the United States unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions.

(c) Federal agencies shall pursue the duties set forth in this section in coordination, to the extent practicable, with other member agencies of the Council and staff, consistent with the National Invasive Species Council Management Plan, and in cooperation with State, local, tribal, and territorial governments, and stakeholders, as appropriate, and in consultation with the Department of State when Federal agencies are working with international organizations and foreign nations.

(d) Federal agencies that are members of the Council, and Federal interagency bodies working on issues relevant to the prevention, eradication, and control of invasive species, shall provide the Council with annual information on actions taken that implement these duties and identify barriers to advancing priority actions.



(e) To the extent practicable, Federal agencies shall also expand the use of new and existing technologies and practices; develop, share, and utilize similar metrics and standards, methodologies, and databases and, where relevant, platforms for monitoring invasive species; and, facilitate the interoperability of information systems, open data, data analytics, predictive modeling, and data reporting necessary to inform timely, science-based decision making."

Sec. 4. Emerging Priorities. Federal agencies that are members of the Council and Federal interagency bodies working on issues relevant to the prevention, eradication, and control of invasive species shall take emerging priorities into consideration, including:

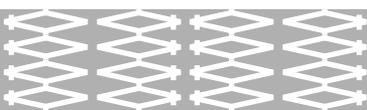
(a) Federal agencies shall consider the potential public health and safety impacts of invasive species, especially those species that are vectors, reservoirs, and causative agents of disease. The Department of Health and Human Services, in coordination and consultation with relevant agencies as appropriate, shall within 1 year of this order, and as requested by the Council thereafter, provide the Office of Science and Technology Policy and the Council a report on public health impacts associated with invasive species. That report shall describe the disease, injury, immunologic, and safety impacts associated with invasive species, including any direct and indirect impacts on low-income, minority, and tribal communities.

(b) Federal agencies shall consider the impacts of climate change when working on issues relevant to the prevention, eradication, and control of invasive species, including in research and monitoring efforts, and integrate invasive species into Federal climate change coordinating frameworks and initiatives.

(c) Federal agencies shall consider opportunities to apply innovative science and technology when addressing the duties identified in section 2 of Executive Order 13112, as amended, including, but not limited to, promoting open data and data analytics; harnessing technological advances in remote sensing technologies, molecular tools, cloud computing, and predictive analytics; and using tools such as challenge prizes, citizen science, and crowdsourcing.

Sec. 5. National Invasive Species Council. Section 3 of Executive Order 13112 is amended to read as follows:

"Sec. 3. National Invasive Species Council. (a) A National Invasive Species Council (Council) is hereby established. The mission of the Council is to provide the vision and leadership to coordinate, sustain, and expand Federal efforts to safeguard the interests of the United

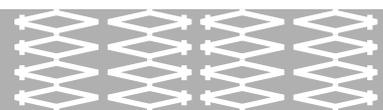


States through the prevention, eradication, and control of invasive species, and through the restoration of ecosystems and other assets impacted by invasive species.

(b) The Council's membership shall be composed of the following officials, who may designate a senior-level representative to perform the functions of the member:

- (i) Secretary of State;
- (ii) Secretary of the Treasury;
- (iii) Secretary of Defense;
- (iv) Secretary of the Interior;
- (v) Secretary of Agriculture;
- (vi) Secretary of Commerce;
- (vii) Secretary of Health and Human Services;
- (viii) Secretary of Transportation;
- (ix) Secretary of Homeland Security;
- (x) Administrator of the National Aeronautics and Space Administration;
- (xi) Administrator of the Environmental Protection Agency;
- (xii) Administrator of the United States Agency for International Development;
- (xiii) United States Trade Representative;
- (xiv) Director or Chair of the following components of the Executive Office of the President: the Office of Science and Technology Policy, the Council on Environmental Quality, and the Office of Management and Budget; and
- (xv) Officials from such other departments, agencies, offices, or entities as the agencies set forth above, by consensus, deem appropriate.

(c) The Council shall be co-chaired by the Secretary of the Interior (Secretary), the Secretary of Agriculture, and the Secretary of Commerce, who shall meet quarterly or more frequently



if needed, and who may designate a senior-level representative to perform the functions of the Co-Chair. The Council shall meet no less than once each year. The Secretary of the Interior shall, after consultation with the Co-Chairs, appoint an Executive Director of the Council to oversee a staff that supports the duties of the Council. Within 1 year of the date of this order, the Co-Chairs of the Council shall, with consensus of its members, complete a charter, which shall include any administrative policies and processes necessary to ensure the Council can satisfy the functions and responsibilities described in this order.

(d) The Secretary of the Interior shall maintain the current Invasive Species Advisory Committee established under the Federal Advisory Committee Act, 5 U.S.C. App., to provide information and advice for consideration by the Council. The Secretary shall, after consultation with other members of the Council, appoint members of the advisory committee who represent diverse stakeholders and who have expertise to advise the Council.

(e) Administration of the Council. The Department of the Interior shall provide funding and administrative support for the Council and the advisory committee consistent with existing authorities. To the extent permitted by law, including the Economy Act, and within existing appropriations, participating agencies may detail staff to the Department of the Interior to support the Council's efforts."

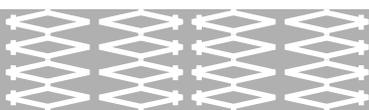
Sec. 6. Duties of the National Invasive Species Council. Section 4 of Executive Order 13112 is amended to read as follows:

"Sec. 4. Duties of the National Invasive Species Council. The Council shall provide national leadership regarding invasive species and shall:

(a) with regard to the implementation of this order, work to ensure that the Federal agency and interagency activities concerning invasive species are coordinated, complementary, cost-efficient, and effective;

(b) undertake a National Invasive Species Assessment in coordination with the U.S. Global Change Research Program's periodic national assessment, that evaluates the impact of invasive species on major U.S. assets, including food security, water resources, infrastructure, the environment, human, animal, and plant health, natural resources, cultural identity and resources, and military readiness, from ecological, social, and economic perspectives;

(c) advance national incident response, data collection, and rapid reporting capacities that build on existing frameworks and programs and strengthen early detection of and rapid



response to invasive species, including those that are vectors, reservoirs, or causative agents of disease;

(d) publish an assessment by 2020 that identifies the most pressing scientific, technical, and programmatic coordination challenges to the Federal Government's capacity to prevent the introduction of invasive species, and that incorporate recommendations and priority actions to overcome these challenges into the National Invasive Species Council Management Plan, as appropriate;

(e) support and encourage the development of new technologies and practices, and promote the use of existing technologies and practices, to prevent, eradicate, and control invasive species, including those that are vectors, reservoirs, and causative agents of disease;

(f) convene annually to discuss and coordinate interagency priorities and report annually on activities and budget requirements for programs that contribute directly to the implementation of this order; and

(g) publish a National Invasive Species Council Management Plan as set forth in section 5 of this order."

Sec. 7. National Invasive Species Council Management Plan. Section 5 of Executive Order 13112 is amended to read as follows:

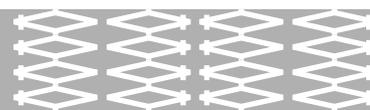
"Sec. 5. National Invasive Species Council Management Plan. (a) By December 31, 2019, the Council shall publish a National Invasive Species Council Management Plan (Management Plan), which shall, among other priorities identified by the Council, include actions to further the implementation of the duties of the National Invasive Species Council.

(b) The Management Plan shall recommend strategies to:

(1) provide institutional leadership and priority setting;

(2) achieve effective interagency coordination and cost-efficiency;

(3) raise awareness and motivate action, including through the promotion of appropriate transparency, community-level consultation, and stakeholder outreach concerning the benefits and risks to human, animal, or plant health when controlling or eradicating an invasive species;



- (4) remove institutional and policy barriers;
- (5) assess and strengthen capacities; and
- (6) foster scientific, technical, and programmatic innovation.

(c) The Council shall evaluate the effectiveness of the Management Plan implementation and update the Plan every 3 years. The Council shall provide an annual report of its achievements to the public.

(d) Council members may complement the Management Plan with invasive species policies and plans specific to their respective agency's roles, responsibilities, and authorities."

Sec. 8. Actions of the Department of State and Department of Defense. Section 6(d) of Executive Order 13112 is amended to read as follows:

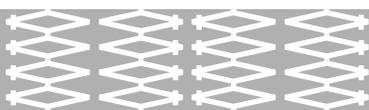
"(d) The duties of section 3(a)(2) and section 3(a)(3) of this order shall not apply to any action of the Department of State if the Secretary of State finds that exemption from such requirements is necessary for foreign policy, readiness, or national security reasons. The duties of section 3(a)(2) and section 3(a)(3) of this order shall not apply to any action of the Department of Defense if the Secretary of Defense finds that exemption from such requirements is necessary for foreign policy, readiness, or national security reasons."

Sec. 9. Obligations of the Department of Health and Human Services. A new section 6(e) of Executive Order 13112 is added to read as follows:

"(e) The requirements of this order do not affect the obligations of the Department of Health and Human Services under the Public Health Service Act or the Federal Food, Drug, and Cosmetic Act."

Sec. 10. General Provisions. (a) Nothing in this order shall be construed to impair or otherwise affect:

- (1) the authority granted by law to an executive department or agency, or the head thereof; or
- (2) the functions of the Director of the Office of Management and Budget relating to budgetary, administrative, or legislative proposals.



(b) This order shall be implemented consistent with applicable law and subject to the availability of appropriations.

(c) This order is not intended to, and does not, create any right or benefit, substantive or procedural, enforceable at law or in equity by any party against the United States, its departments, agencies, or entities, its officers, employees, or agents, or any other person.

BARACK OBAMA,

THE WHITE HOUSE

December 5, 2016.

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