

Native Plants of Midway Atoll NWR

U.S. Fish and Wildlife Service Report by John Klavitter, Honolulu, HI, December 22, 2006.

In the past, at least 37 native plant species have occurred at Midway. Currently, 20 native species (6 endemic, 1 species of concern) occur on the Refuge and at least 15 (9 endemic) have been extirpated and 2 (both endemic) are thought to be extinct. One endemic palm from Molokai is also present, but not included in Midway's native plant species count. The total number of species (native and non-native) recorded from Midway is 354 with a total of 264 being present during the last major botanical survey between April and June 1999 (Starr and Martz 1999).

The Refuge hopes to reintroduce appropriate extirpated plants back to Midway within the next 2 years and proposes using seeds to avoid accidental alien species introductions.

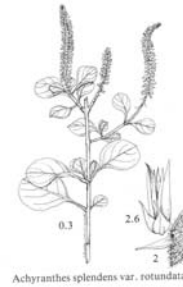
(end = endemic to Hawaii, ind = indigenous to Hawaii, nw = found in Northwestern Hawaiian Islands only, nwm = found in the Northwestern and Main Hawaiian Islands, E = endangered, T = threatened, C = species of concern, ext = extinct, exr = extirpated at Midway, rei = extirpated at Midway but reintroduced, red = rediscovered at Midway).



Lepturus repens (ind)
Lepturus (nwm), Wagner et al. 1999



Psuedognaphalium sandwicense
'Ena'ena (end, nwm)



Achyranthes atollensis (end)
Note: *A. splendens* shown above
(E, nw, ext), Wagner et al. 1999



Lepidium bidentatum var. *o-wahiiense* (end)
'Anaunau (nw) (rei from Laysan 2005)



Mariscus javanicus (ind) 'Ahu'ahu,
Wagner et al. 1999 (nwm)



Eragrostis variabilis (end) Bunch Grass,
Kawelu, Emoloa Lovegrass (nwm)



Eragrostis paupera (ind)
Dwarf Bunch Grass (nwm)



Phyllostegia variabilis (end)
Note: *P. velutina* shown above
(nw, exr, ext?) Wagner et al. 1999



Pycreus polystachyos (ind)
Native Sedge (nwm)

Photo not available

Boerhavia herbstii (end)
Alena (nwm, exr)



Capparis sandwichiana
Maiapilo (end, nwm)
(rei from Laysan 2005)



Solanum nelsonii
Popolo (end, C)
(red ~ 1995)



B. Psilotum nudum
Moa (ind?, exr?, nwm)



Cenchrus agrimonioides var.
laysanensis (end, E, exr, nwm)
Wagner et al. 1999



Cyperus laevigatus (ind)
Native Sedge, Makaloa
(rei 2004 from Laysan, nwm)



Mariscus pennatiformis (end)
(E, nwm, exr)



Cassytha filiformis (ind)
kauna'oa pehu (exr, nwm)



Ipomea indica (ind)
Morning Glory, koali 'awa (nwm)
(rei from Laysan 2005)



Ipomea pres-capre (ind)
Morning Glory, Pohuehue (nwm)



Portulaca lutea (ind) 'Ihi (nwm)



Boerhavia repens (ind)
Alena (nwm)



Fimbristylis cymosa (ind)
Button Sedge, Mau'u 'aki'aki, (nwm)



Scaevola sericea (ind)
Naupaka (nwm)



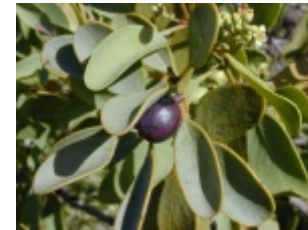
Tribulus cistoides (ind)
Puncture Vine, Nohu (nwm)



Sesuvium portulacastrum (ind)
Sea Purslane, 'Akulikuli (nwm)



Mucuna gigantean (ind)
Sea Bean (exr, nwm)



Santalum ellipticum (end) (*Santalum cuneatum* var. *laysanicum*) Coast sandlewood, 'Iliahialo'e (nwm, exr)



Pisonia grandis (ind) (nw, exr)



Helitropium curassavicum (ind)
Seaside Heliotrope, Nena
(Failed rei Laysan 2005, exr, nwm)



C. Walteria indica
Uhaloa (ind?, exr?, nwm)



Sicyos maximowiczii (end)
Puaokama (nw, exr)



A. Mucuna urens
cow-itch plant (ind?, exr?, nwm)



Bacopa monnieri (ind)
'ae'ae (exr, nwm)

Photo not
available

Sicyos semitonsus (end)
(nwm, exr)



D. Solanum americanum
Glossy Nightshade (ind?, nwm)



Species similar to:
Pritchardia remota (end, E)
Loulu, (exr, nw – Nihoa, Laysan)



Sicyos pachycarpus (end)
Kupala perhaps hybrid: *S.*
maximowiczii/*pachycarpus* (nwm, exr)



Sporobolus virginicus
Beach Dropseed, 'Aki'aki
(ind, nwm, exr)



Pritchardia hillebrandii Loulu lelo,
1 tree Midway (end to Molokaii)



Chenopodium oahuense (end)
Goosefoot, Aweoweo (nwm)
(rei from Laysan 2004)



Nama sandwicensis
Hinahina (end, exr, nwm)
Failed rei from Laysan 2005



Sida fallax (ind)
'Ilima (nwm) (red 2004)



E. Tournefortia argentea
Tree Heliotrope (non-native)

Literature Cited

Bruegmann, M. 1998. Report on a botanical survey of Midway Atoll, April 1-7, 1995. U.S. Fish and Wildlife Service Report. Honolulu, HI.

Lamoureux, C. 1963. The flora and vegetation of Laysan Island. Atoll Research Bulletin 97:1-22.

Starr, F. & Martz, K. 1999. Botanical survey of Midway Atoll 1999 update. U.S. Fish and Wildlife Service Report. Honolulu, HI.

Starr, F. & Martz, K. 1999b. A botanical survey of Pearl & Hermes Atoll, Lisianski, Laysan, Gardner Pinnacles, and French Frigate Shoals. Trip report prepared for U.S. Fish and Wildlife Service, Honolulu, HI.

Starr, F. & Martz, K. 2001. Botanical Inventory of Kure Atoll. Report prepared for State Department of Land and Natural Resources. Honolulu, HI.

Starr, F., Martz, K., & Loope, L. 2006. Annotated Checklist of the Vascular Plants on Midway Atoll, Hawaii. 2006. An addendum to the 1999 Botanical Survey of Midway Atoll. Report. Honolulu, HI.

U.S. Fish and Wildlife Service, Midway Atoll National Wildlife Refuge. Unpublished data 2002 – 2006.

Wagner, W., Herbst, D. & Sohmer, S. 1999. Manual of flowering plants of Hawaii, Volumes 1 & 2. University of Hawaii Press, Bishop Museum Press. Honolulu, HI.

Appendix

Suggested Locations for Seed Collections for Reintroductions to Midway of Extirpated Plants

Boerhavia herbstii. Oahu, Lisianski.

Achyranthes atollensis. Extinct. Suggest *Achyranthes splendens* from Oahu, Maui.

Phyllostegia variabilis. Kure, Laysan. May be extinct.

Mariscus pennatiformis. Laysan, Oahu, Maui.

Boerhavia herbstii. Oahu, Lisianski, Maui.
Portulaca lutea. Suggest reintroduction since Midway's species may be hybrids. Laysan, Oahu.

Ipomea indica. Midway (very rare), Laysan, Oahu.

Bacopa monnieri. Oahu.

Sporobolus virginicus. Laysan, Oahu.

Cenchrus agrimonioides var. laysanensis. Laysan, Oahu.

Nama sandwicensis. Laysan, Oahu.

Cassytha filiformis. Kure, Oahu.

Mucuna urens. Kure, Oahu.

Sicyos maximowiczii. Kure, Laysan.

Sicyos pachycarpus. Laysan, Oahu.

Sicyos semitonsus. Laysan.

Mucuna gigantean. Oahu, Kure, Laysan.

Pisonia grandis. Lisianski (1 tree).

Pritchardia remota. Laysan, Nihoa.

Santalum ellipticum. Laysan, Oahu.

Acknowledgements

The majority of the photos for this report were from Forest and Kim Starr at the following website:

<http://www.hear.org/starr/hiplants/images/index.html>.

When photos were not available, drawings were inserted from Wagner et al (1999).