

ALOHA ARBORIST ASSOCIATION
MEETING MINUTES – 10/19/2016 – ADOPTED
Location: The Old Spaghetti Factory, Ward Warehouse

Members in Attendance: J Zambo, Carol Kwan, Dudley Hulbert, Desiree Page, Greg Severino, Angela Liu, Sergio Vasquez

- 1) Call to Order & Approval of Minutes – The meeting was called to order by President J Zambo at 7:07pm. The 09/21/16 Minutes were approved without changes.
- 2) Old Business
 - a) Research Committee (Chair: Dudley Hulbert) – Andy Kaufman will present his recent work to AAA at our next meeting.
 - b) LICH Conference 2016 (Steve Nimz) – The arborist track received very positive feedback.
 - c) Volunteer Workday, Queen Emma’s Summer Palace (Carol Kwan) – There are some ongoing site issues that will delay scheduling of the workday for a number of months. Per Carol, this topic will be deleted from the agenda until further notice.
 - d) Hawaii Tree Climbing Championship, February or March 2017, Location TBA – Greg Severino indicated that he, Steve Nimz and Steve Connolly have already had some productive conversations about the format of the event. J Zambo will contact Andrew Kendall to find out his availability to chair the HI TCC. We will also find out if Steve Nimz can coordinate a meeting between Andrew, Steve Nimz, Steve Connolly and Greg Severino, during which they will outline event details, and begin coordinating event logistics (insurance, advertising, volunteers, etc).
 - e) Chainsaw Workshop, Beginner Level – The group had a discussion about the components of this training:
 - i) AAA will develop a detailed lesson plan to ensure the training is focused and achieves its stated goals
 - ii) Beginner level chainsaw training does not include pruning techniques. It will focus on topics such as parts, safety, cleaning and maintenance, sharpening, and basic operational concepts related to safety.
 - iii) Greg Severino offered to conduct the program. The group discussed the possibility of holding the event in April-May 2017 at the Urban Garden Center.
 - iv) AAA may consider obtaining insurance for a one-time event. Participants also can be asked to sign a waiver, and provide proof of insurance by their own employers.
 - v) The registration fee was discussed but there was no decision as to the amount.
 - f) WCISA / AAA 2017 Hawaii Regional Workshop with John Ball (Angela Liu) – The workshop has been scheduled for Tuesday 6/27/17 through Friday 6/30/17, and will take place on Oahu, Kauai, Maui, and the Big Island. Rooms for the training are in the process of being reserved on each of the islands.
 - g) WCISA Annual Conference 2019 (Carol Kwan) – Tabled.
- 3) New Business
 - a) Pest of the Month – Mamaki Rust (*Pucciniastrum boehmeriae*)
 - i. Description: A rust disease recently observed for the first time in Hawaii.
 - ii. Distribution: Widespread in eastern Asia. On the Big Island, Hawaiian Acres, Kurtistown. On Oahu, in the Koolau Mountains.
 - iii. Hosts: First seen on endemic mamaki, aka mamake or waimea (on Kauai) (*Pipturus albidus*) in 2013 on the Big Island. Also observed on akolea (*Boehmeria grandis*) 2015 on Oahu. This rust disease is expected to become a threat for other native members of the nettle family (*Urticaceae*) that are critical forage and habitat to native fauna, including the Hawaiian crow and the Kamehameha butterfly, the official state insect.
 - iv. Symptoms and Damage: Leaves develop vein-delimited dark/chlorotic spots or lesions on the upper side of leaf surface, tiny yellow to orange pustules on the lower side of leaf surface. Trees develop canopy thinning due to defoliation.

- v. Control: Currently there are no fungicides specifically approved for control of this disease, however local extension advisers and licensed pesticide applicators can be consulted about use of chemical control. Remove and dispose of infected plant materials, sanitize tools, avoid overhead irrigation, and maintain growing conditions that suppress rust disease. Do not move plants in the nettle family from the infested areas. Report this pest to the HI DOA at 808 973-9546.
 - vi. Reference:
<http://hdoa.hawaii.gov/pi/files/2013/01/Pucciniastrum-boehmeriae-NPA-5-16.pdf> (See handout)
<http://apsjournals.apsnet.org/doi/abs/10.1094/PDIS-11-13-1172-PDN>
- b) Alternative Workday Event – Dudley proposed that AAA organize a volunteer workday at the Bellows Air Force Base to coincide with their Watershed Restoration Project, as an alternative until the Queen Emma workday can be scheduled. One of the elements of the restoration project is the removal of large areas of invasive ironwood trees.
- 4) Announcements
- a) ***PLEASE JOIN US!*** *The next meeting is scheduled for:*

Wednesday November 16th 2016, 6:30PM, Location to be Announced.
- 5) Adjournment – The meeting adjourned at 8:08pm.

Respectfully submitted,
Angela Liu

Attachments:

Plant Pest Control Branch, Hawaii Department of Agriculture. “Mamaki Rust: *Pucciniastrum boehmeriae*,” *New Pest Advisory*, No.16-01 (May 2016).
<http://hdoa.hawaii.gov/pi/files/2013/01/Pucciniastrum-boehmeriae-NPA-5-16.pdf>. Accessed October 2016.



Mamaki Rust

Pucciniastrum boehmeriae (Dietel) Syd. & P. Syd
(Pucciniastraceae)



Figure 1. Top view of akolea leaf infected with *Pucciniastrum boehmeriae*; inset: close-up.



Figure 2. Bottom view of view of akolea leaf infected with *Pucciniastrum boehmeriae*; inset: close-up.

Background

In August 2013, a diagnostician at the University of Hawaii (UH) Agricultural Diagnostic Service Center, Komohana Research Station incidentally detected an unfamiliar rust on a mamaki (*Pipturus albidus*) leaf sample from a Hawaiian Acres, Kurtistown residential grower on the Big Island. Consequently, the rust sample was sent to the United States Department of Agriculture, Agricultural Research Service, Systematic Mycology and Microbiology Laboratory (SMML), where it was promptly identified via morphological and molecular means as *Pucciniastrum boehmeriae* (Dietel) Syd. & P. Syd., a new record in both Hawaii and the U.S.

A subsequent visit by the UH diagnostician and Hawaii Department of Agriculture (HDOA) staff to the initial detection site yielded only two more slightly rust infected leaves. Additional surveys at mostly nurseries and botanical gardens throughout the main Hawaiian Islands failed to detect the *P. boehmeriae* rust. In November 2015, leaf lesions were spotted on wild *Boehmeria grandis* (akolea) plants in the Southern Koolau Mountains on Oahu by HDOA staff. SMML confirmed the presence of *P. boehmeriae* on the Oahu akolea leaf samples in February 2016, thus increasing both the known local distribution and susceptible endemic host plant species in the Urticaceae plant family.

Importance of the Urticaceae in Hawaii

Mamaki, akolea, and other related Hawaiian species in the Urticaceae (nettle) family have long been important food sources for various native species of Hawaiian fauna. One of these species is the alala (Hawaiian crow- *Corvus hawaiiensis*). While this species is currently extinct in the wild, it is expected to be reintroduced on Hawaii Island in the near future as part of a captive breeding and reintroduction program. According to the Committee on the Scientific Bases for the Preservation of the Hawaiian Crow (1992), between one third and one half of an adult alala's diet consists of fruit from a handful of native understory plants and climbing vines, including mamaki. Hawaii's official State Insect, the Kamehameha butterfly (*Vanessa tameamea*), also depends on *P. albidus* as its preferred host plant, part of a diet highly specific to native Urticaceae, including *Boehmeria*, *Neraudia*, *Touchardia*, and *Urera* (Swezey 1924). According to more recent studies, populations of *V. tameamea* appear to be declining, and can no longer be found in areas where they were once historically common (Tabashnik et al. 1992). While this could be the effect of multiple factors, additional host plant loss due to this rust could negatively affect populations further. Olona (*Touchardia latifolia*) were very important ethnobotanical plants for native Another Hawaiians. Their sap, stems, fruit, and leaves were used in medicine, kapa, and for prized cordage. In modern times, Urticaceae like mamaki are farmed for tea and grown for conservation and native plant landscaping.

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Symptoms and Means of Spread

Tree: Unthrifty appearance with thinning canopy, due to premature defoliation because of the rust infection.

Leaves: Vein-delimited dark/chlorotic spots or lesions on the upper side of leaf surface (Fig. 1) and yellow to orange pustules or uredinia on the lower side of leaf surface (Fig. 2). Uredinia are scattered, minute, and dome-shaped with a central pore (Fig. 3) (Demers *et al.* 2014).

Powdery urediniospores (Figs. 3 & 4) spread by wind or splashing rain to other susceptible plants. However, since no teliospores have been observed, the exact life cycle, and whether or not the rust needs an alternate host is unclear. In general, rust diseases are most damaging under cool conditions with long periods of wetness or humidity.

Host Range and Distribution

According to the SMML database (Farr *et al.* 2016), this pathogen is known from *Abies*, *Begonia*, *Boehmeria*, and *Cypholophus* and occurs in China, Japan, Indonesia, New Caledonia, Nepal, Papua New Guinea, the Philippines, Taiwan, and Thailand. In the State of Hawaii, *P. boehmeriae* was detected on *Pipturus albidis* (mamaki) and *Boehmeria grandis* (akolea) on the Hawaii and Oahu islands, respectively. The infestation on the former does not seem to be widespread, while its distribution on the latter is still unknown and is being investigated.

Management

At present, there is no approved specific fungicide to control the disease. Some licensed broad-spectrum fungicides can be used; however, consult your local county Extension Agent for the proper ones and always read the label before buying and using pesticides. For home gardeners, botanical garden keepers and commercial growers, the Department recommends good sanitation practices, such as removing and bagging or destroying infected leaves, fruits, or other plant parts (as they may harbor the infectious mycelium or urediniospores) as soon as symptoms appear. Improve air circulation and removal of weeds (as they may be potential or alternate hosts) in the tree hedgerow or growing areas are helpful in mitigating the spread and development of the disease. Sanitizing tools before and after use and keeping the foliage dry when irrigating will help lower the disease incidence and severity. These measures may not be feasible in large natural and conservation areas, but report any suspected sightings to HDOA indicated below. Since occurrence of the rust on other islands other than the Big Island or Oahu is unknown, do not move mamaki, akolea or related plant species, including their fruits from the infested areas.

If you think you have seen mamaki rust, please report it to the Hawaii Department Of Agriculture's Plant Pathology Laboratory at 808-973-9546.

Acknowledgements

Thanks to USDA-APHIS-PPQ NIS in Beltsville, MD, for identification and confirmation of *P. boehmeriae*.



Figure 3. Dome-shaped uredinia (red arrows) with a central pore filled with urediniospores.



Figure 4. Echinulate, ellipsoid to pyriform shaped urediniospores.

References

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- Demers, J.E. *et al.* 2014. First report of rust caused by *Pucciniastrum boehmeriae* on Mamaki (*Pipturus albidus*) in Hawaii. *Plant Dis.* 98 (6): 855.
- Farr, D.F., and A.Y. Rossman. Fungal Databases. Systematic Mycology and Microbiology Laboratory, ARS, USDA. Retrieved 27 April 2016, from <http://nt.ars-grin.gov/fungaldatabases/>.
- Swezey, O.H. 1924. The insect fauna of trees and plants as an index of their endemicity and relative antiquity in the Hawaiian Islands. *Proc. Hawaiian Entomol. Soc.* 6(1) 195- 210.
- Tabshnik, B.E., W.D. Perreira, J.S. Strazanac, and S.L. Montgomery. 1992. Population ecology of the Kamehameha butterfly (Lepidoptera: Nymphalidae). *Ann. Entomol. Soc. Am.* 80(3): 282-285.

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