WR-5

WR Committee

From: Audrey Tamashiro-Kamii <audrey.lhwrp@gmail.com>
Sent: Tuesday, March 20, 2018 1:27 PM
To: WR Committee
Cc: Brian_Bardellini; Andrea Buckman
Subject: LHWRP Response to Water Resources Committee Memo
Attachments: Response to Memos for WRC 20180320.pdf; LHWRP Herbicide Summary 2017.docx

Aloha,

I apologize for the delay in submitting the requested information regarding Watershed Management and Protection for Leeward Haleakala Watershed Restoration Partnership. Please find the following attached files:

- Response to Memos for WRC Meeting 20180320
- LHWRP Herbicide Summary 2017
- Link to Reports and List for WEC 20180320 (File to large to attach. Please use link below)

https://drive.google.com/open?id=19EaW7y7A4cql6n5xgtIfrMXEuPShi2O_

Please feel free to contact our office should you have any questions or difficulties with the files

Thank you for the opportunity to share our program with you.

Mahalo,

Audrey Tamashiro-Kamii
Program & Data Assistant

Leeward Haleakalā Watershed Restoration Partnership
3620 Baldwin Ave., Suite 202/203, Makawao, HI 96768
Ph: 808-573-8989 / Fax: 808-573-1932
email: admin@lhwrp.org
website: lhwrp.org
LHWRP is a project of the Pacific Cooperative Studies Unit (PCSU) & the Hawaii-Pacific Islands Cooperative Ecosystems Studies Unit (HPI-CESU), University of Hawaii at Manoa, College of Natural Sciences, Department of Botany http://manoa.hawaii.edu/hpicesu/pcsu.htm

RECEIVED AT WR MEETING ON 3/20/18
Andrea Buckman

The Leeward Haleakalā Watershed Restoration Partnership
3620 Baldwin Ave., Suite 202/203, Makawao, HI 96768
Ph. (808) 573-8989
Fax (808) 573-1932
www.lhwrp.org

Dept. of Hawaiian Home Lands
Dept. of Land & Natural Resources
Haleakalā National Park
Haleakalā Ranch
Ka`ono`ulu Ranch
Kaupō Ranch
Nu`u Mauka Ranch
`Ulupalakua Ranch

Leeward Haleakalā Watershed Restoration Partnership (LHWRP)

Response to Water Resource Committee Meeting Memo dated 3/9/18

1. Funding from the County of Maui for the period of FY2005 – FY2018

LHWRP has been a Department of Water Supply grant recipient from FY2005 to FY2018 for a total of 14 years. Awards received to date are $1,456,000.

LHWRP has been an Office of Economic Development grant recipient from FY2008 to FY2012, and FY2017 to FY2018 for a total of 7years. Awards received to date are $670,809

*Funding to support conservation efforts in Auwahi is included in the table below up through FY2014. In 2014 the Auwahi Forest Restoration Project (AFRP) was formed. Funds dedicated to AFRP are not included in LHWRP totals from FY2015 forward.

Department of Water Supply

Year	Grant	Amount
FY2005	PO #W16289	$15,000.00
FY2006	WC0461	$25,000.00
FY2007	WC0490	$25,000.00
FY2008	WC0517	$25,000.00
FY2009	WC0572	$25,000.00
FY2010	WC0605	$45,000.00
FY2011	WC0640	$37,500.00
FY2012	WC0675	$87,500.00
FY2013	WC0723	$220,500.00
FY2014	WC0778	$187,500.00
FY2015	WC0813	$185,000.00
FY2016	WC0847	$185,000.00
FY2017	WC0906	$195,000.00
FY2018	In processing	$198,000.00
	TOTAL	**$1,456,000.00**

Office of Economic Development

Year	Grant	Amount
FY2008	G2499	$100,000.00
FY2009	G2792	$100,000.00
FY2010	G2991	$100,000.00
FY2011	G3209	$100,000.00
FY2012	G3445	$83,000.00
FY2017	G4497	$122,809.00
FY2018	In processing	$65,000.00
	TOTAL	**$670,809.00**

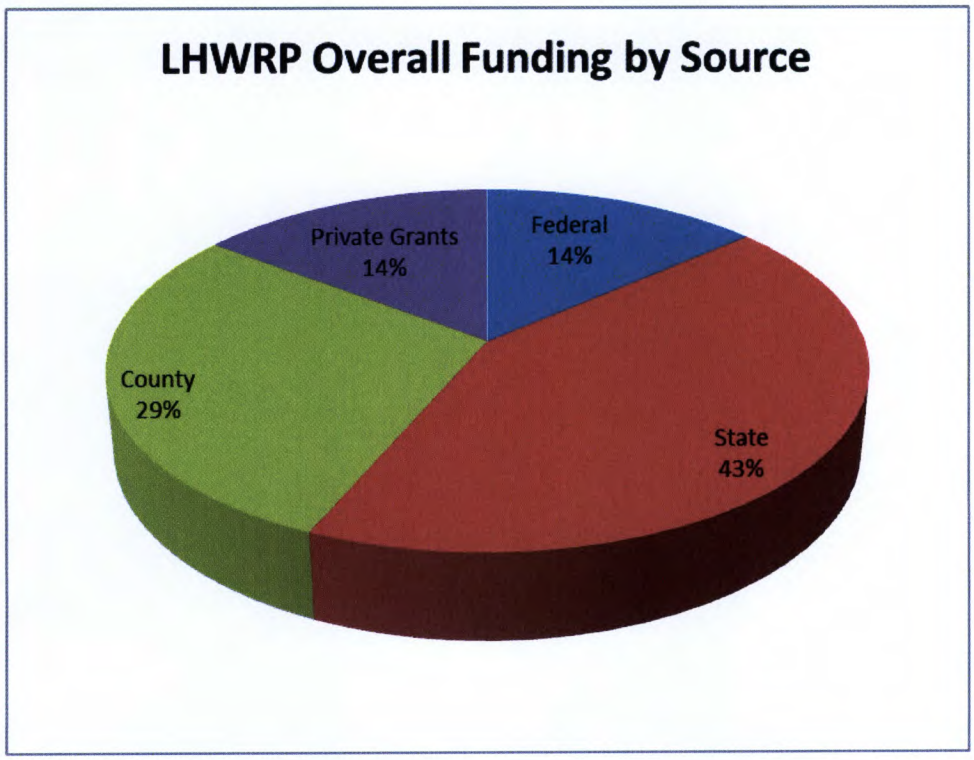
2. LHWRP FY2019 Request to the Department of Water Supply: $190,220

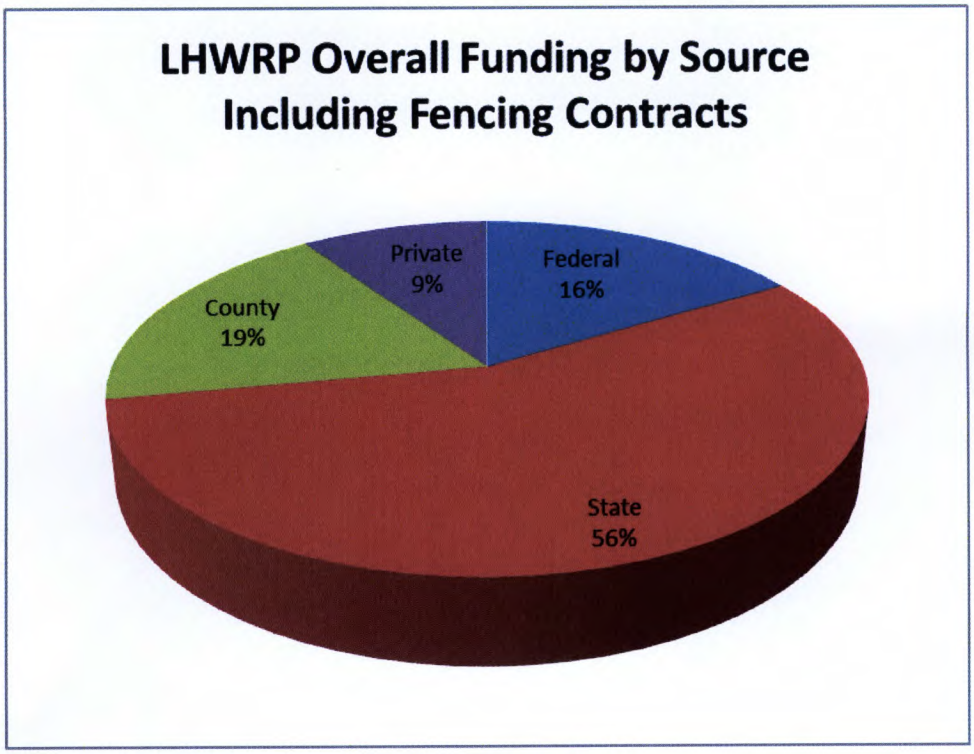
3. Projected Expenses for DWS FY2019:

   - Administrative Costs: $25,415 (UH 10% and PCSU 5%)
   - Personnel: $129,240
   - Equipment: $0 allocated
   - Chemicals to be purchased: $0 allocated at the moment

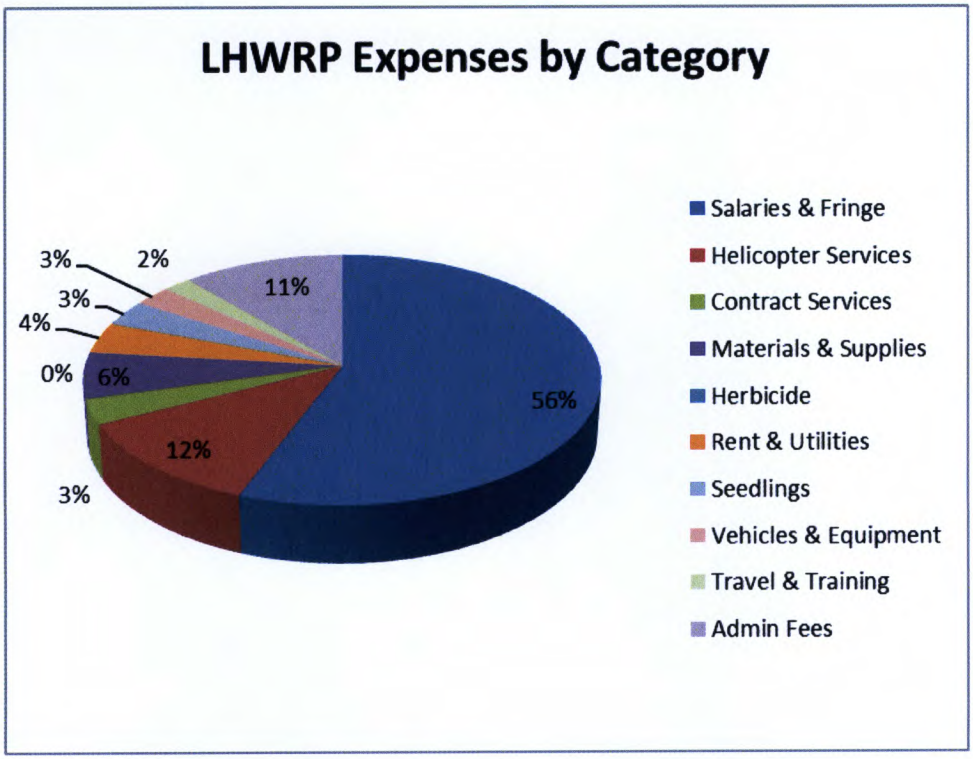
Ungulate Control: LHWRP does not conduct ungulate control at this time. Quarterly fence inspections $30,000 for staff and minimal heli time

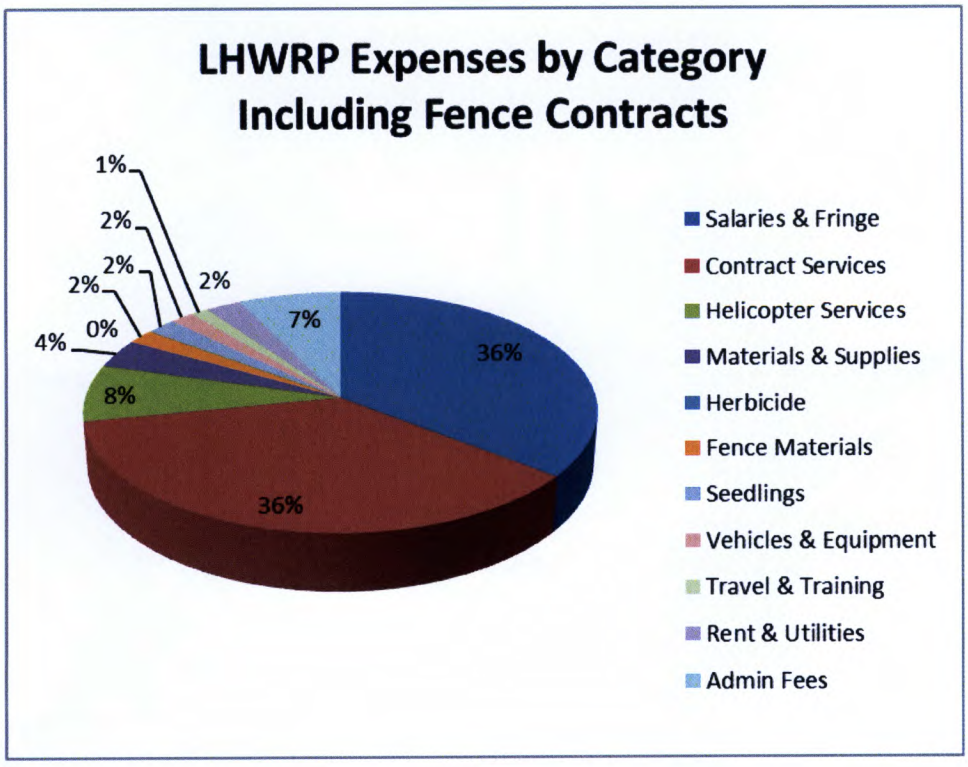
LHWRP Funding Overview by Source





LHWRP Expenses by Budget Categories





LHWRP Response to Water Resource Committee Meeting Memo dated 3/15/18

LHWRP does not claim to eradicate invasive species. We work to control them. What follows is information on LHWRP's invasive plant species control activities.

1. LHWRP funding sources for invasive species control for FY2015-FY2017:

- County – DWS
- State - DOFAW WP, DHHL and HISC
- Federal - USFWS and NPS
- Private Grants: none for invasive species control

2. LHWRP listing of funds allocated and spent on invasive species control for the period of FY2015-FY2017 by species. Totals include funds for staff salaries, and any related per diem, helicopter and supply expenses. LHWRP employs both mechanical and chemical control methods, however, aerial spraying is currently not used.

Species	**Received**	**Spent**	**Types of Funds**
Australian tree fern *(Sphaeropteris cooperi)*	$13,444	$12,694	S, F
bocconia (*Bocconia frutescens*)	$53,306	$44,626	C, S
chayote	$13,250	$12,640	F
Christmas berry *(Schinus terebinthifolius)*	$14,002	$12,642	S, F
Gorse *(Ulex europaeus)*	$33,509	$33,509	S
pine (*Pinus sp.*)	$34,739	$34,486	C, S
Rubus niveus	$2,118	$2,118	S
silk oak *(Grevillea robusta)*	$17,679	$16,929	S, F
Tibouchina herbacea	$6,118	$6,118	S
strawberry guava (*P. cattleianum)*	$9,343	$9,198	S
Others: nonnative grasses, etc.	$9,983	$9,233	S, F
Total	**$207,488**	**$194,191**	

3. LHWRP does not outsource invasive species eradication work to other organizations.

4. Description of work and amount outsourced: Not applicable.

Regarding herbicide application and invasive species control efforts:

LHWRP staff include:

Andrea Buckman - Program Manager; Keahi Bustamente – Field Supervisor, Ainoa Kaiaokamalie – Kahikinui Crew Leader and Propagation Specialist, Christian Lum – Restoration Assistant, Keali'i Kaaikala – Restoration Assistant, and Audrey Tamashiro-Kamii – Program and Data Assistant.

All LHWRP field and management staff are required to take the two-day Pesticide Risk Reduction Education Short Course offered by the College of Tropical Agriculture and Human Resources at UH Mānoa. Staff do not receive certifications as certification is only offered for those taking a test to qualify them for application of Restricted pesticides. LHWRP does not use Restricted pesticides so we do not require staff to take the exam, although they are welcomed to should they choose.

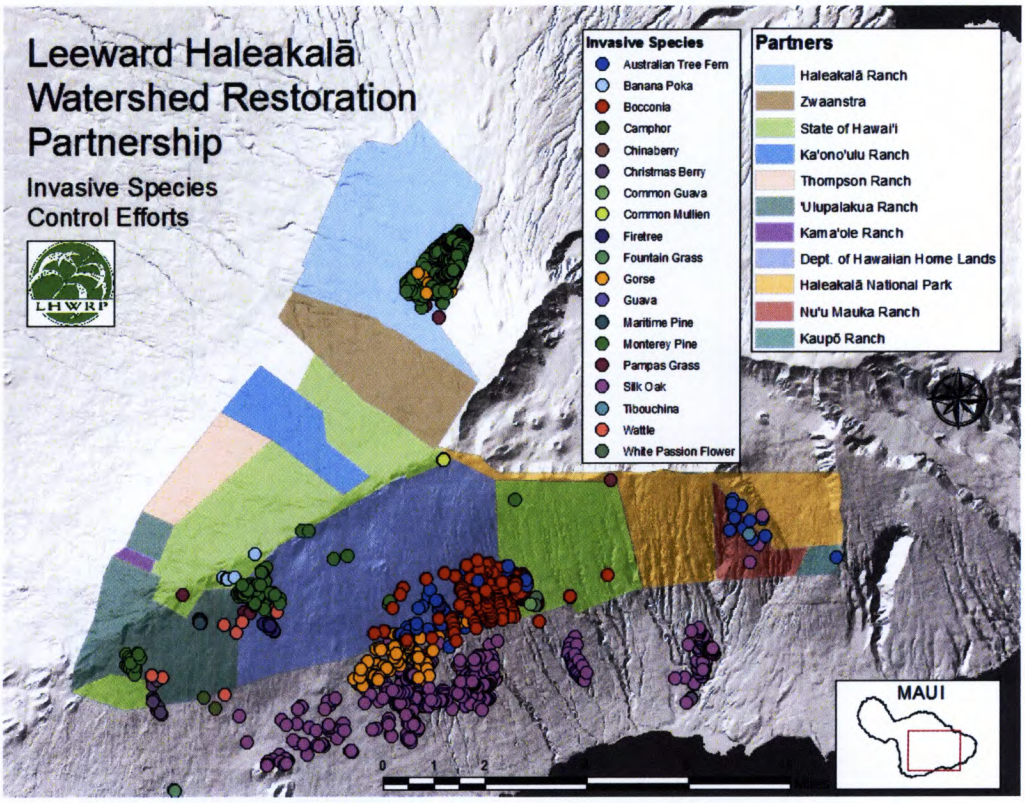
Staff are also trained by experienced Field Supervisor Keahi Bustamente and Kahikinui Crew Leader and Propagation Specialist Ainoa Kaiaokamalie. These staff have worked with LHWRP for more than 10 years, and provide thorough training on how to safely handle and administer pesticides.

All field staff are very knowledgeable of native and invasive species so that new populations of habitat modifying non-native plants can be quickly detected and controlled. For large populations, thorough surveys are conducted to ensure no rare species will be harmed, and to minimized disturbance to native habitat and the ground during treatment, which minimizes colonization by weedy species that thrive in disturbance. LHWRP crew use drones to survey areas on steep cliffs to detect isolated populations of rare plants and to plan routes for rappelling to treat plants while maximizing safety and minimizing disturbance.

The map below shows LHWRP lands with priority species and population distributions. Because the landscape of LHWRP is so degraded and inhabited by grazing and browsing ungulates, many invasive species populations are at relatively low numbers, which increases restoration potential. LHWRP field crew focus on incipient populations of habitat-modifying invasive species that are not yet established, such as Australian tree fern, Tibouchina, and banana poka. For established invasive species such as Bocconia and pine, we strategically push the populations back to a core area and/or prioritize pockets of native diversity and intact habitat.

Species targeted have been identified as priority within LHWRP Management Plans, and most are identified as noxious and priority weeds within the State. Many invasive species control efforts are conducted opportunistically, as individual colonizing plants are found during the course of other efforts. If mechanical efforts are not sufficient, field crews GPS the location of new populations and return to control them in a timely manner. All invasive species control

efforts are tracked and recorded in a database and monitored regularly. Many species require consistent revisits to control seed bank and retreat individuals as needed.



Map showing general distribution and population density of priority invasive species.

MAHALO for your past and continued support!

LHWRP- 2017 Herbicide Summary

Garlon 4

DHHL Kahikinui	Kula Forest Reserve	Haleakalā Ranch
Target Species: Gorse, Blackberry **Controlled Acres:** 73.1 **Amount Used:** < 4.8 oz/73.1 acres **Limit:** 6 quarts/acre Estimated % of Maximum Application Rate Used: 0.00048%	**Target Species:** Blackberry, Bocconia **Controlled Acres:** 3.7 **Amount Used:** 0.009187 quarts/3.7 acres **Limit:** 6 quarts/acre Estimated % of Maximum Application Rate Used: 0.15%	**Target Species:** Bocconia **Controlled Acres:** 0.7 **Amount Used:** <0.1918 quarts/0.7 acres **Limit:** 6 quarts/acre Estimated % of Maximum Application Rate Used: 4.56%

Garlon 3A

DHHL Kahikinui	Kaupō Ranch	Olinda Makawao Communities	ʻUlupalakua Ranch
Target Species: Gorse, Silk Oak **Controlled Acres:** 73.1 **Amount Used:** 0.0001367 gallons/acre **Limit:** 6lb (2 gallons)/acre Estimated % of Maximum Application Rate Used: 0.00684%	**Target Species:** Strawberry guava, Silk Oak, Christmas berry **Controlled Acres:** 10 acres est. **Amount Used:** 0.014 gallons/acre **Limit:** 6lb (2 gallons)/acre Estimated % of Maximum Application Rate Used: 0.7%	**Target Species:** Bocconia **Controlled Acres:** 9.26 **Amount Used:** 0.014 gallons/acre **Limit:** 6lb (2 gallons)/acre Estimated % of Maximum Application Rate Used: 0.7%	**Target Species:** Pinus spp. **Controlled Acres:** 46 **Amount Used:** 0.017 gallons/acre **Limit:** 6lb (2 gallons)/acre Estimated % of Maximum Application Rate Used: 0.85%

Round up Pro

DHHL Kahikinui	Nu'u Mauka Ranch	'Ulupalakua Ranch
Target Species: Pines Spp. **Controlled Acres:** 153.8 **Amount Used:** 0.0243 quarts/acre **Limit:** 7 quarts/acre Estimated % of Maximum Application Rate Used: 0.347%	**Target Species:** GlyWig, MelRep, MelMul, Dig, Acr, etc. **Controlled Acres:** 0.4 **Amount Used:** 0.399 quarts/acre **Limit:** 7 quarts/acre Estimated % of Maximum Application Rate Used: 5.71%	**Target Species:** Pine spp. **Controlled Acres:** 45.98 **Amount Used:** 0.054 quarts/acre **Limit:** 7 quarts/acre Estimated % of Maximum Application Rate Used: 0.75% of annual limit