



**UHERO**  
THE ECONOMIC RESEARCH ORGANIZATION  
AT THE UNIVERSITY OF HAWAII

## Economics of Invasive Species in Hawaii

Prepared for the  
WGA Biosecurity &  
Invasive Species Initiative workshop

Kimberly Burnett

December 10, 2018





**HISC report  
2016:  
5 species  
over 5 years  
=\$82.9  
million**



## Costs of Priority HISC Invasive Species

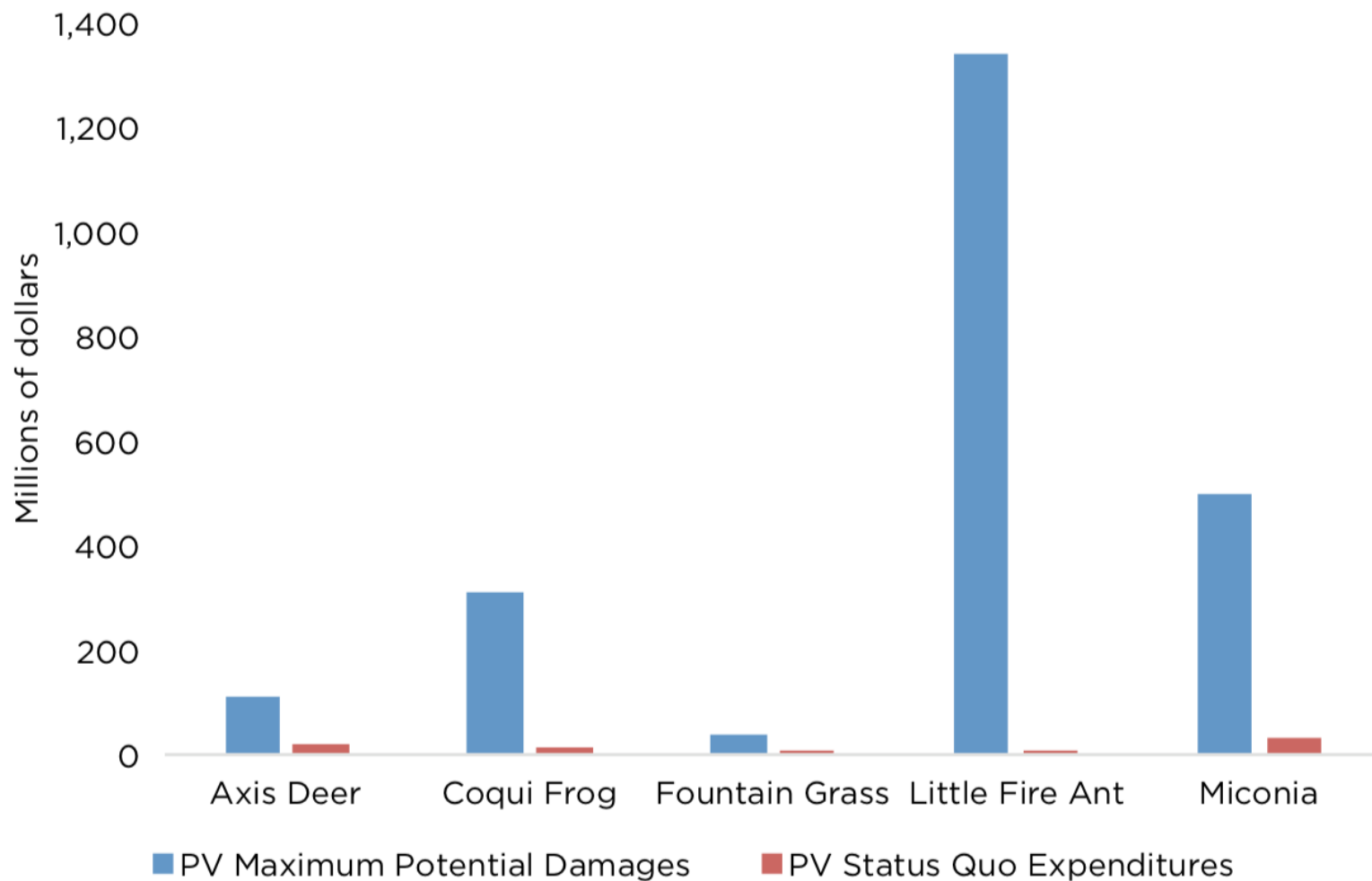
### Estimated Damage and Management Costs for Priority HISC Species

Species	Category	Annual Cost (millions)	FY2011-15 Total Cost (millions)
Axis deer	Damage	\$1.0	\$4.9
Axis deer	Management	\$1.1	\$5.5
Coqui frog	Damage	\$5.2	\$25.9
Coqui frog	Management	\$0.3	\$1.3
Fountain grass	Damage	\$0.8	\$4.0
Fountain grass	Management	\$0.05	\$0.2
Little fire ant	Damage	\$6.1	\$30.5
Little fire ant	Management	\$0.4	\$2.0
Miconia	Damage	\$0.5	\$2.4
Miconia	Management	\$1.3	\$6.3
<b>TOTAL:</b>		<b>\$16.6</b>	<b>\$82.9</b>

Burnett and Wada (2016) Assessing the Costs of Priority HISC Species in Hawaii

## High Expected Return to Biosecurity Investments

Figure 7. PV Maximum Potential Future Damages and Status Quo Expenditures by Species





## What is at Risk: Examples

- **Hawaii's agricultural sector worth \$680 million annually.**
  - **Loses approximately \$300 million each year in revenue from alien fruit fly infestations**
- **The value of the Koolau watershed estimated at \$14 billion in combined economic and ecosystem services.**
  - **ROD affecting ohia trees, dominant component of our native forests, reducing capacity to recharge water.**
- **Hawaii's annual horticultural production is estimated at \$69 million.**
  - **For example, chrysanthemum white rust could result in further quarantine restrictions on exports and the in-state sale of locally produced flowers and foliage.**

## What is at Risk cont.

- **Visitors spend \$14.9 billion per year in Hawaii.**
  - **Human-health disease outbreak, such as Zika, could have negative impacts on Hawaii's tourism economy.**
- **LFA is estimated to cost Hawaii County alone \$174 million per year in management costs and economic damage to agriculture, nurseries, residents, and other sectors.**

# Pre versus Post Border Spending

**Table 4.1. Hawaii Interagency Biosecurity Plan Funding by Program Area and Fiscal Year**

	<b>FY2018– FY2019</b>	<b>FY2020– FY2021</b>	<b>FY2022– FY2023</b>	<b>FY2024– FY2025</b>	<b>FY2026– FY2027</b>	<b>10-Year Total</b>
Preborder	\$2,750,000	\$2,160,000	\$2,690,000	\$2,690,000	\$2,690,000	\$12,980,000
Border	\$9,461,100	\$14,730,270	\$20,225,570	\$24,870,870	\$29,345,070	\$98,632,880
Postborder	\$72,082,304	\$62,856,732	\$36,391,160	\$40,789,388	\$43,188,816	\$255,308,400
Public awareness and support	\$2,310,000	\$2,310,000	\$2,310,000	\$2,310,000	\$2,310,000	\$11,550,000
<b>Grand total</b>	<b>\$86,603,404</b>	<b>\$82,057,002</b>	<b>\$61,616,730</b>	<b>\$70,660,258</b>	<b>\$77,533,886</b>	<b>\$378,471,280</b>
Construction funds	\$35,000,000	\$25,000,000	\$0	\$0	\$0	\$60,000,000
Operational funds	\$51,603,404	\$57,057,002	\$61,616,730	\$70,660,258	\$77,533,886	\$318,471,280