

# Extreme Variation in Economic Expenditures on Invasive Species Management Across the United States

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Invasive species are an increasingly pressing global issue as they can wreak havoc on ecosystems and economies. In the U.S., invasive species like zebra mussels (*Dreissena polymorpha*), wild pigs (*Sus scrofa*), and Chinese tallowtree (*Triadica sebifera*) cause millions of dollars of damage annually by outcompeting native species, causing structural damage, and disrupting natural ecosystem services (Pimental et al., 2005). The goal of this project was to synthesize natural resource agency expenditures on invasive species management. While massive resources are expended to manage invasive species, there are few comprehensive syntheses of the economic expenditures associated with this management effort. We accomplished our goal by contacting natural resource management officials from all 50 states following a standardized protocol with contact tracing. We confined our data collection to natural resource agencies because departments such as agriculture, transportation, and health can have different definitions of invasive species.

A total of 48 states expended resources towards managing invasive species. The total spent on invasive species management in the U.S. was \$3,839,365,065, with a per capita (U.S. Census, 2020) expense of \$12.24 across all 48 reporting states. Management expenditures ranged from \$8,400 (Connecticut) to \$57,488,910 (Hawaii) per year. A total of 23 states reported spending less than \$1,000,000 per year on invasive species (Figure 1). While all 48 states spent money on terrestrial species (\$441,557,590), only 33 states reported spending money on aquatic invasive species, with a total of \$603,471,468 spent on invasive species across environments. For this study, we grouped management actions into categories of control, detection, prevention, and eradication. Of the identified management actions, the most money was spent on control of invasive species (\$4,626,388).

Most concerning, we found a lack of coordination in invasive species management within and between states. Understanding the true costs of invasives is difficult, as some states reported spending millions of dollars, while others reported little to no spending, likely as a result of not keeping track of their costs. While these results are most certainly a conservative estimate of expenditures, they point to a lack of coordinated accounting and represent only a fraction of the finances needed to address the large economic costs imposed by invasive species.

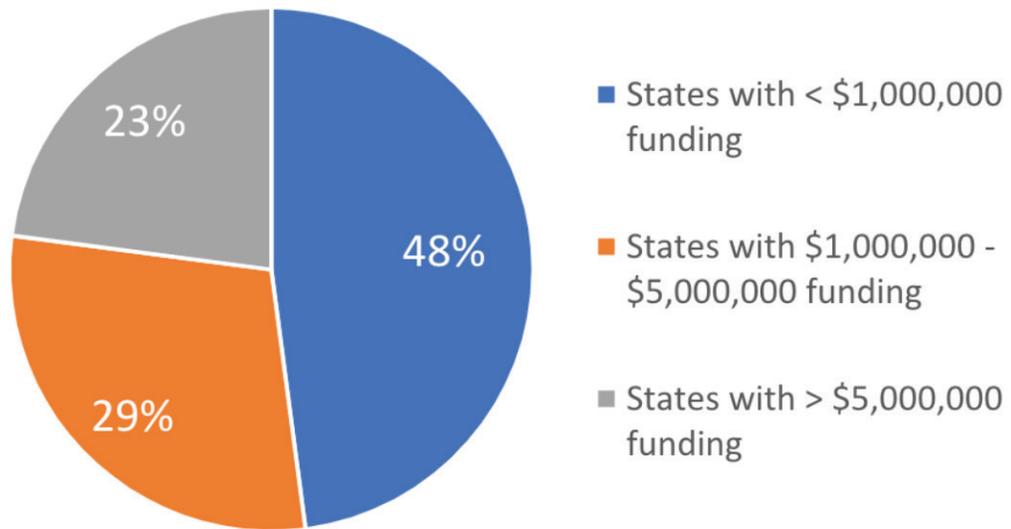
## Statement of Research Advisor

Invasive species pose a significant threat to society, and understanding the degree to which natural resource agencies are responding in terms of dollars spent is very important for determining how seriously we are addressing the problem. Allison's work is a first piece in understanding the economics of managing invasive species by government agencies in the U.S. and will provide an important piece of information for policymakers and agencies to use.

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## References

Pimentel, D., Zuniga, R., & Morrison, D. (2005). Update on the environmental and economic costs associated with alien-invasive species in the United States. *Ecological Economics*, 52 (3), 273–288. <https://doi.org/10.1016/j.ecolecon.2004.10.002>



**Figure 1:** State expenditures on invasive species.