

Underserved Communities and Invasive Species

Invasive Species Advisory Committee - Underserved Communities Subcommittee

Introduction

Several Executive Orders including E.O. 13985, *Advancing Racial Equity and Support for Underserved Communities Through the Federal Government*, E.O. 14008, *Tackling the Climate Crisis at Home and Abroad*, and E.O. 14096, *Revitalizing Our Nation's Commitment to Environmental Justice for All*, and spending language in the Bipartisan Infrastructure Law (BIL) and the Inflation Reduction Act (IRA) direct federal agencies to focus on environmental justice, underserved communities, and climate change. The Justice 40 initiative that arose from E.O. 14096 expressly set a goal for 40% of overall benefits from certain federal investments to benefit underserved communities in seven areas related to climate and infrastructure, though not expressly including invasive species.

This paper seeks to 1) summarize some ways that invasive species impact underserved communities, and how a changing climate exacerbates those impacts; 2) illustrate ways in which some underserved communities being impacted by invasive species may or may not be identified through the new data mapping tools; 3) highlight how the almost complete absence of national invasive species datasets and guidance on the interplay between climate change and invasive species can result in an incomplete picture of harm and needs; and 4) provide best practices and recommendations that can help guide agencies in meeting the directives and the needs of underserved communities regarding invasive species.

Issue

Invasive species can have negative economic, agricultural, ecologic, public health, social, and cultural impacts. Most of the documented examples focus primarily on economic, agricultural, ecological, and public health impacts and costs. However, the impacts of invasive species on community wellness, cultural and indigenous practices, and social traditions are notoriously difficult to quantify and/or document. In addition, there are clear, synergistic effects between invasive species and climate change that are already occurring and that will likely be compounded in the coming years, with implications that should be considered and addressed in tandem. In most cases, the negative effects of these two change-drivers will likely be compounded for underserved communities, even if infestations occur outside of the geographies of those communities.

Executive Order 13985 calls on agencies to identify how they will equitably support underserved communities through their mandates, and agencies have responded by identifying and describing the underserved communities they serve, leading to a variety of similar terms and confusing descriptions of programs to serve these groups. For the purpose of this paper, we focus on the definitions in E.O. 13985 which describes the term "equity" to mean:

...the consistent and systematic treatment of all individuals in a fair, just, and impartial manner, including individuals who belong to communities that often have been denied such treatment, such as Black, Latino, Indigenous and Native American, Asian American, Native

Hawaiian, and Pacific Islander persons and other persons of color; members of religious minorities; women and girls; LGBTQI+ persons; persons with disabilities; persons who live in rural areas; persons who live in United States Territories; persons otherwise adversely affected by persistent poverty or inequality; and individuals who belong to multiple such communities. (E.O. 13985)

The term "underserved communities" refers to:

...those populations as well as geographic communities that have been systematically denied the opportunity to participate fully in aspects of economic, social, and civic life, as defined in Executive Orders 13985 and 14020. (E.O. 13985)

Identifying underserved communities as described in E.O. 13985 can be difficult in and of itself. In January 2021, E.O. 14008 directed the White House Council on Environmental Quality (CEQ) to develop a new tool to help federal agencies identify those underserved communities that can be mapped in order to prioritize and document support to these communities. The Climate and Economic Justice Screening Tool (CEJST) is a publicly available website with a map interface that uses a variety of national datasets including census data to identify geographic communities experiencing burdens in any of eight categories including climate change, energy, health, housing, legacy pollution, transportation, water and wastewater, and workforce development. The tool uses this information to identify communities that are experiencing these burdens and thus are overburdened and underserved.

However, of the thirty-four datasets currently being used, only two minor aspects of these data measure or document any aspect of invasive species. The first is data collected by the Federal Emergency Management Agency (FEMA) for the National Risk Index Tool which includes the projected agricultural loss rate but it does not include projections for agricultural loss due to invasive species, nor does it include data for the territories. The second is the public health dataset, yet only the projected wildfire risk dataset includes an aspect of invasive species (wildfire grasses), but the data does not include Hawaii, Alaska, or the territories, nor does it reflect the growing importance and expansion of "non-native" human disease pathogens and vectors. The CEJST also does not include insect and disease information from the USDA Forest Service Forest Health and Protection program which includes information for some forest pests in the continental US and the Hawaiian Islands.

Case Studies

The following case studies provide examples of how invasive species affect different underserved communities, where existing map-based data tools may help guide federal support programs, and where they are inadequate or not appropriate.

Underserved Communities and the loss of trees due to invasive pests

An example of how some invasive species affect underserved communities can be seen with the emerald ash borer, Asian longhorn beetle, invasive shot hole borers, and other invasive tree pests that bore into and kill trees in natural and urban areas. Invasive shothole borers have infested and

killed thousands of trees in urban landscapes and adjacent natural areas throughout southern California and have the potential to cause more damage if left unchecked. The emerald ash borer has killed tens of millions of trees in the U.S. since its introduction in 2002, and these beetles continue to spread through neighborhoods and forests. There is a projected loss of 30% of urban forests and incalculable losses to natural areas if the Asian longhorned beetle continues to spread. A loss of urban trees can result in the loss of community-wide environmental benefits such as local cooling and sun protection, increased energy needs, carbon sequestration, air pollution removal, and decreased soil erosion and run-off during extreme weather events. Loss of urban trees has also been linked to lower property values, an increase in crime, and higher stress in urban settings.

The loss of trees and canopy particularly affects historically marginalized communities that disproportionately live in urban environments where green spaces are already limited. The inclusion or use of satellite imagery datasets from the National Land Cover Database currently uses only “green space” to look at wildfire risk and does not use other land cover data. Including tree canopy cover data could potentially allow agencies to focus on communities with a loss or lack of tree canopy, due to invasive tree pests or other reasons, and it could also help with climate resilience measures. In addition, the lack of regularly updated national datasets on invasive tree pests and their impacts can be addressed by working in communities or with states, counties, and non-governmental organization liaisons to better identify those affected underserved communities.

Underserved communities and human health pathogens and their vectors

Pathogens such as West Nile virus (WNV) have impacts on human health that can be amplified within minority and low-income communities (Kollars). West Nile virus is an introduced pathogen that was first detected on the East Coast of the U.S. in 1999 and within a three-year period it had extended its range to the West Coast. The disease spreads when mosquito vectors bite infected birds, and then bite uninfected birds or other animals. In addition to its lethal and sub-lethal effects on birds and horses, West Nile virus can cause flu-like symptoms and severe illness such as encephalitis, meningitis, and even death, in 1 in 150 people (CDC). Since its introduction into the United States, researchers have worked on predictive mapping for human risk. In Orange County, California prevalence of the WNV parasite in both vectors and humans was best explained by economic variables, specifically low income, high population density, and other factors associated with urban underserved communities (Harrigan). When comparing human cases of arboviral disease in the counties of Alabama from 2007-2017, researchers found a significant convergence between the incidence of WNV and poverty rate clustered in the southern part of the state (Bisanzio). Additionally, researchers in Chatham County, Georgia found that those living in minority and indigent communities were 4.5 and 5.5 times more likely to be at risk of West Nile virus than predominately white and wealthy communities (Kollars). The economic impact of the virus on the individual households in these communities can be significant with medical costs varying from \$7,500 to \$25,000 and an overall cumulative cost to the United States of \$778 million in healthcare expenditures and lost productivity 1999 - 2014 (Hygiene, American Society of Tropical Medicine and). Climate change has and will continue to

increase the spread and impacts of human and wildlife pathogenic diseases, in large part due to the spread of vectors like mosquitoes (Mora). The CEJST would likely be able to identify many underserved communities at higher risk of invasive parasites and their vectors, but as noted previously, the health datasets do not include or capture the existing or rising risk of human health diseases associated with a changing climate.

Underserved communities and invasive pest impacts to food, culture, and way of life

A third case study can be seen with the invasion of coconut rhinoceros beetles which are native to Southeast Asia but have invaded several U.S. Pacific islands. The coconut tree is the tree of life to many Pacific Island communities. Islanders derive food, shelter, tools, and medicine from every part of the plant. In addition to its role as an island cultural icon, the coconut tree is of economic importance providing aesthetic value in the tourism industry and material for local craftsmen. Coconut palms also function as natural infrastructure, by buffering storms, and holding shorelines and soil. The beetles damage and kill coconut palms, resulting in the loss of traditional cultural knowledge and practices. There is no way to quantify the value of these cultural losses or the magnitude of the impacts from invasive species like this.

Like other Pacific islands, coconut palms in Hawaii are ubiquitous across the islands. So too are the many native Hawaiians and Pacific islanders who rely on coconut, only some of whom live in geographic locations considered “underserved” by the CEJST (<https://www.doi.gov/oia/Who-are-Pacific-Islanders>). On one hand, the CEJST can identify and map census tracts where the density of a community (e.g. people on welfare or people living near a superfund site) meets the threshold required to be considered “underserved”, but it can’t be used to identify communities (persons) that may not live in densities that meet the threshold for mapping, e.g. native Hawaiians and Pacific islanders that do not belong to federally recognized tribes and do not necessarily live in certain areas that could be mapped as underserved. The CEJST continues to evolve as new datasets get added, which is a good thing. One missing component is that the website does not clearly refer to or include a statement reflecting the full description of E.O. 13985 communities, including native Hawaiians and U.S.-affiliated Pacific Islanders, thus it may not be clear that these communities should be considered underserved. For these people, there are incalculable costs and impacts on their culture, health, and wellbeing, including the generational loss of a way of life, impacts that can’t be seen in datasets. This is one of several reasons why federal agencies must engage with communities in addition to consulting metadata, and continue to strive for policies and programs to better address non-economic loss and damage from invasive species and climate change.

Underserved communities and widespread invasive weeds

Like all federal agencies, the U.S. Department of Agriculture has been charged with developing and implementing comprehensive equity strategies which includes identifying underserved communities. One of these communities is the more than 65,000 underserved producers in Oklahoma, according to the 2017 National Agriculture Statistical Survey. One of the more aggressive invasive weeds impacting agricultural production is the musk thistle which was introduced to the United States over 150 years ago and has since spread to 40 states. Musk thistle impacts grazing lands in a short amount of time because of its prolific seed production, wind-

dispersal, and its spiny stems and leaves which significantly reduces the amount of grazable land, resulting in an economic impact. There is Federal funding specific to noxious weeds for Tribes in Oklahoma, however, this process is nationally competitive, resulting in very limited funding awards. In addition, there are no programs available for other underserved communities to address musk thistle, which results in a patchwork of control efforts, rapid reinvasion from neighboring properties not under control, an inability to plan from year to year, and inefficient use of resources in the short and long term. There is a significant education deficit on the impacts of invasive weeds, the direct impacts on agricultural production, and a lack of awareness of how to effectively manage them.

While underserved communities may be disproportionately affected by the impacts or costs of invasive species such as musk thistle, federal agencies should follow sound invasive species control strategies and apply programs and funding in a sustained and effective way across an invaded landscape to benefit all, including underserved communities.

Invasive Species Datasets

Unlike national datasets on income, poverty, or availability of broadband that come from longitudinal studies for the purpose of characterizing and comparing community-level data across the nation, there is no national dataset for invasive species, and no census-like national effort to collect and maintain invasive species data. While local, regional, and federal datasets on some species exist, the data were collected to meet different objectives and with specific caveats. Some, like musk thistle, are too widespread to accurately map, while others like West Nile virus, emerge and recede annually with their vectors, and the seasonal data may or may not be collected by counties or states. The invasive shothole borer currently occupies a relatively small area, although that doesn't accurately convey the need for early detection in surrounding areas. And then there are aquatic species such as invasive carp, marine species like the European green crab, and incredibly cryptic species like Burmese pythons that are difficult to accurately survey and map. Unfortunately, with countless non-native pathogens, fungi, plants, and animals, many thousands of which become invasive, there are too many invasive species to map or maintain accurate data as they spread and new ones arrive.

It is important to note that national datasets can play a significant role in defining the regional or national scope of some types of established invasive species but may be less helpful in other circumstances. The best and most cost-effective strategies for addressing an invasive species are determined by a variety of factors such as the extent of the infestation, available control options, ability to contain spread, funding, and even political will. The application of prevention and control strategies and even restoration post-invasion must occur at these most effective points, and should not be overly driven by proximity to underserved communities.

Recommendations

Existing data cannot identify how to meet the needs of underserved communities with respect to the many and varied invasive species and their impacts, and from the examples in this paper, one clear need is that **each community should be met where they are so that federal agencies may best understand local priorities, needs, and barriers, and work with communities to**

find culturally-informed, mutually acceptable ways to address them. One example of an agency meeting underserved communities where they are is the Department of the Interior’s (DOI) direct engagement with territories and relevant federal agency representatives to plan and gather at the Territorial Climate and Infrastructure meetings in 2022 and 2023. Planning calls were held to meet the needs of Pacific territories’ time zones, resulting in multiple late evening meeting times for federal agency leaders. After listening to purchasing and shipping challenges in remote Pacific Island territories in 2022, DOI sought approval for a temporary waiver from the Buy America requirement of the Infrastructure Investment and Jobs Act. Other liaison work can be seen with the regional outreach efforts like USDA Forest Service’s State and Private Forestry program and the USGS Climate Adaptation Science Centers as two examples. Federal agencies are applauded for these and similar efforts and urged to further explore and implement ways to engage with and support underserved communities directly and meaningfully.

The following areas are highlighted as particular needs common to many underserved communities.

Need: Assistance with Grants and Grant Processes

Successful invasive species programs are often determined by the availability of grants and the local capacity to organize, plan, apply for, fiscally administer, manage, and implement a grant and project or program, all of which ends when the grant terms unless additional funding is received. Grants tend to be awarded to those communities that have a good track record with federal grants, that employ professional grant writers, or that have local capacity to write and administer federal grants according to federal guidelines. This can lead to prioritizing projects based on submitted proposals and can exclude or perpetuate the exclusion of other communities that lack these capacities. Improving the capacity of underserved communities with grant processes could address this area.

An example of the value of technical assistance and outreach can be seen in the Native American Fish & Wildlife Society’s (NAFWS) work. In 2002, NAFWS identified a need within Tribal governmental/natural resource programs to provide technical assistance for the “America the Beautiful Challenge” (ATBC) grant. The need arose out of the complexity of the grant portal and application process and the quick turnaround necessary for drafting and submitting a fundable proposal. The NAFWS provided a 7-part ATBC webinar/workshop series that resulted in over 100 participants and 62 Tribes, overall. This outreach resulted in Tribes submitting 31% of the total ATBC funding proposals, and of the 14 Tribes that were awarded funding, 11 had attended and participated in the NAFWS webinar series.

Grant process recommendations include the following:

1. Support outreach to, and possibly embedded within, underserved communities to bring their attention to invasive species issues and opportunities, and to listen to the needs and priorities of the community. Local liaisons are key.
2. Improve and support local capacity for the fiscal administration of federal grants for invasive species-related projects through the local cooperating federal agencies.
3. Simplify and clarify grant applications and any online submittal portals

4. Provide materials in the preferred languages of the underserved communities
5. Always provide an alternate submittal option such as secure email for those areas with low bandwidth
6. Stagger the timing of due dates for different grant applications and deliverables.
7. Clarify eligibility requirements including the underserved communities that are being prioritized.
8. Agencies should consider waiving match requirements or allowing in-kind or “earnest effort” documentation in lieu of match requirements wherever possible.
9. Ensure writing assistance is available by providing funding for grant writers or personnel to provide technical writing assistance.

An example of a successful program that meets underserved agricultural producer community needs is USDA’s grant opportunities administered through the Natural Resources Conservation Service (NRCS) with programs such as Environmental Quality Incentives Program, Conservation Stewardship Program, and Regional Conservation Partnership Program which provide assistance to underserved farmers, ranchers, urban agriculture, and tribal lands. These programs rely on localized communication and assistance from the local NRCS offices and staff. Continuing to improve these connections and expanding outreach about other government, corporate, and private grants can help. Without the knowledge that they even exist, these grants are useless.

Need: Increase Data and Clarify Communications

Although currently prioritized as underserved communities, Native Hawaiians, Pacific islanders, and some others are not federally recognized tribes, which has compounding parity implications. Further, the main pages of the CEJST do not include language regarding these communities which can cause confusion. **Agencies should consider how equity goals can be met when prioritizing some but not all indigenous tribes and people.**

The CEJST is ambitious and additional datasets continue to improve its utility in many ways. Additional updates to available datasets can help, for example, the **Centers for Disease Control should update the data that feeds into the National Risk Index tool so that it incorporates national health & nutrition data**, which already exists, and **FEMA should consider how it might gather and incorporate the projected loss rate related to invasive species as a natural hazard and a category of risk that is as costly as natural disasters, and which results in ongoing loss, costs, and compounding damage (Turbelin)**. There are also national climate projections for almost every region, and **CEQ is encouraged to integrate this data within their tool**. The satellite imagery datasets from the **National Land Cover Database and any available coral reef datasets should also be explored for additional utility, perhaps including prioritizing the protection and enhancement of natural infrastructure.**

There are significant climate change and invasive species synergies. Planning projects to address either of these issues is difficult, but planning projects to best address a compounding or synergistic issue is well beyond what many underserved communities are used to. Further, the

grant opportunities do not encourage or facilitate proposals and projects that work to address both invasive species and climate issues or resilience work.

- 1. Consider multi-disciplinary, interagency efforts to synthesize and provide informational materials and communications, including through funding opportunities, that articulate the interactions and synergies, and that provide assistance to underserved communities to successfully advocate for local needs while still meeting climate and infrastructure goals.**
- 2. Agencies should continue and accelerate support for research and actions that prevent the introduction and establishment of new invasive species that could impact underserved communities at local, regional, and national levels, including additional research, horizon scanning, and risk assessments in light of geopolitical and economic shifts associate in part with a changing climate.** Regional Invasive Species and Climate Change Management Networks (RISCCs) are in various stages of formation across North America and the U.S. Pacific Islands and serve to identify and meet the needs of each region.

(END)

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