Questions for the Record by Democratic Members

Questions from Representative Haaland

Representative Haaland Question 1. Mr. Padgett, both the U.S. Forest Service and Department of the Interior testified that the proposals in H.R. 1572 were duplicative.

a. Can you briefly explain why these agencies need the authorities and requirements outlined in H.R. 1572? In other words, why are the proposals outlined in H.R. 1572 not duplicative?

Reply 1. I apologize, but I do not feel I can briefly respond to your question but have tried to address what I consider to be important aspects that need to be addressed.

The proposals outlined in H.R. 1572 are in no way duplicative. Acting Associate Deputy Chief Behm's repeated invocation of the term "duplicative" in his testimony seems to be largely based on a misunderstanding of the legislation. First, it should be kept in mind that the legislation does not pertain to the work of the Forest Service on the roughly 190 million acres over which it has oversight. The bill is, instead, focused on the Department of Interior. And, while USDA does support a variety of important research programs covering a wide range of subjects, more research – whether conducted by the Forest Service, Department of Interior, or others -- is warranted and very much needed.

It appears also that Forest Service similarly has apparently misunderstood the intent of Title II, which is to have the *Department of Interior* implement a native plant materials preference policy modelled on the existing Forest Service policy, and for the Forest Service and Department of Interior to develop and disseminate recommended activities to other agencies with significant land management roles. The Forest Service testimony lists a number of its collaborative efforts with those other agencies, all of which are very commendable and important. But it is inaccurate to assert that H.R. 1572 is redundant of these efforts – the bill does not speak to any of that existing activity.

Finally, the Forest Service has apparently confused its seed storage activities with those of the Department of Interior, the particulars of which it may be unaware. Again, these activities pertain to different purposes and different public lands.

The authorities provided in H.R. 1572 are modest in their scope and intended to expressly authorize Interior Department activities that are in need of a sustained focus or activities that require authorization. Doing so does not render these activities or these authorizations "duplicative". The loss of botanical science expertise at the Bureau of Land Management and other agencies was predicted in research that was conducted ten years ago.[1] That warning has proven true. For example, based on our research, the number of botanists in the BLM has dropped from 68 in 2000 to 46 today.

[1] https://www.bgci.org/files/UnitedStates/BCAP/kramer%20et%20al.%202013.pdf

It is appropriate to authorize an effort – entirely subject to appropriations – to address that problem. And, as discussed above, authority is necessary for the development and dissemination of an inter-agency plant preference policy. Title III of the legislation does not create a new program; it simply provides specific authority for the Interagency Plant Conservation Alliance (which presently only exists by virtue of a memorandum of understanding) and for the Plant Conservation and Restoration Program of the Bureau of Land Management.

This program was recommended in an Interagency Report to Congress in 2002, following what was then two of the worst wildland fire seasons on record, but its components and goals have never been expressly set out in authorization. It is past time to provide some statutory architecture for this activity.

In sum, H.R. 1572 is an appropriate exercise of Congress' authority to encourage much-needed research, personnel and the on-the-ground work of restoring ecosystems that have been disturbed through various acts including, but not limited to fire, livestock grazing, and post-mining and drilling operations. In addition, it allows the agencies to establish activity codes with associated goals, objectives, and targets, which have never been available for botanical work.

Representative Haaland Question 2. Mr. Padgett, can you briefly describe the importance of utilizing locally adapted plants in addition to native plants for restoring or enhancing ecosystem resiliency?

Reply 2. Locally adapted plant materials are native plant materials environmentally adapted to a restoration site that are likely to establish, persist and promote community and ecological relationships. Such plants would be: sufficiently genetically diverse to respond and adapt to changing climates and environmental conditions; unlikely to cause genetic contamination and undermine local adaptations, community interactions, and function of resident native species within the ecosystem; not likely to become invasive and displace other native species; not likely to be a source of nonnative invasive pathogens; and likely to maintain critical connections with pollinators.

The use of locally adapted, native plant materials is critical for successful restoration activities. Species often used for revegetation purposes can easily occur over a great range of distribution. Locally distinct populations have evolved under unique climates and weather patterns. For example, bluebunch wheatgrass, a commonly used native plant for restoration in the Great Basin and Colorado Plateau, occurs from Alaska to western Texas. Populations of this species growing in the Southwest have evolved under monsoonal climate patterns, while those of Alaska certainly have not. It cannot be expected that plant materials, even from the Pacific Northwest, would establish and grow as well in southern Utah as materials from ecologically similar environments.

Foresters have long used locally adapted species timber species; in fact, "*seed transfer zones*" have been established and used whenever trees are replanted following fire or timber harvest because they are known to be better-adapted to live and grow in environments closer to where they have existed over centuries. The same selection factors apply to all species of plants. In the short and long run, this will allow for more cost-effective and successful restoration of resilient ecosystems.

It should be noted that the term "locally" adapted may connote very small or discrete eco-regions. This is largely not the case. Researchers have found that EPA Level III ecoregions[2] can often be used to define seed transfer zones.

[2] https://www.epa.gov/sites/production/files/styles/large/public/2015-11/eco_level_iii_us_sm.gif

Questions for the Record by Republican Members

Questions from Representative Bishop

Representative Bishop Question 1. The definition of "locally adapted" refers to plants that are geographically proximate to a planting area, but the term "proximate" is not defined. Would the interpretation of "proximate" be left to the discretion of each implementing agency, or should that be defined by law? If so, how do you believe it should be defined?

Reply 1. The term "proximate" is used as a general description of an area from where "locally adapted" plant materials may come from. The determination of "locally adapted" when used for identifying the appropriate seed transfer zones for timber species (Seed Zone = an area within which plant materials can be transferred with little risk of being poorly adapted to their new location)[3] has, for decades, been determined through scientific research. The same concepts and methods should be used for all native restoration species. It should not be simply left to the discretion of each implementing agency, nor should it be defined by law.

The USGS, through factors such as climatic, vegetative, and topographic similarities, has identified preliminary seed transfer zones of several commonly-used restoration species. Many of these species are also being studied by USGS, U.S Forest Service Research, and universities to better-determine the appropriate seed transfer zones. It has been suggested by the authors of the document in the footnote reference that genetics information needs to be incorporated into the recommendations.

While some genetic studies have begun to be used to evaluate the suitability of various non-tree populations and their zones of adaptation, I feel it is appropriate to rely on the above factors to determine seed transfer zones until appropriate genetic can be completed. *This illustrates the critical funding need for research, especially for all those species that will be among the most used.*

Other factors such as soil type, elevation, aspect, size and health of source population, as well as type of plant and its breeding system are important indicators of "locally adapted" as distinct from strict geographic distance. These considerations are consistent with the portion of the definition of "locally adapted" that emphasizes likelihood of success in persisting and becoming established. As such, "proximate" is best determined on a species by species basis rather than a "one size fits all" rule. We recommend that determinations as to whether a plant material is "locally adapted" be determined by agency botanists and ecologists consistent with the foregoing scientific guidance.

In a recent document, *Washington Tree Seed Transfer Zones*, the following was noted:

[3] https://www.fs.fed.us/wwetac/threat-map/TRMSeedZoneMapper.php

Choosing the appropriate seed to reforest a particular site is important for many reasons: producing a long-lived, healthy stand; limiting damage from climate or pests; promoting rapid production of commodities; and maintaining locally adapted gene pools.[4]

Representative Bishop Question 2. The definition for invasive species may be viewed as referring to species which have not yet been introduced ("will cause, or is likely to cause"). This is different from other similar definitions in current law (e.g., "the introduction of which causes, or is likely to cause" (sic). Does this bill intend to only address the introduction of future invasive species, or is it applicable for both existing and possible future invasive species?

Reply 2. As you note, the definition of invasive species is "a species that is non-native to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health." This definition was developed under Executive Order 13112 - Invasive Species[5] in 1999.

This bill is intended to address both the introduction of possible future invasive species and those that are already established and behaving in an invasive manner. I would support a clarification of the verb tense used in H.R. 1572 if this is considered necessary. Invasive species have either been introduced from foreign lands either accidentally or as a means to introduce species that for one reason or other were deemed to be advantageous at the time. One example of an intentional introduction is salt cedar, which was brought to the U.S. to help heal riparian areas that had been greatly damaged through early, uncontrolled grazing practices. This species has since invaded and is considered a threat to many riparian areas in the West.

Representative Bishop Question 3. None of the definitions in the bill (invasive, native, nonnative) directly address the concept of species that expand beyond their historic range without the direct assistance of humans. What baseline (e.g. date, historic event) is used for a "defined native ecosystem" (definition of native plant species in the bill)?

Reply 3. Native plants are indigenous species that have evolved and occur naturally in a particular region, ecosystem, or habitat. Some native species have expanded or contracted their historical distribution through an alteration of their historical fire regimes with or without the aid of non-native invasive species. We generally refer to pre-European settlement as our baseline in defining native ecosystems. We have sufficient information (either written or photographic) that dates back to days of early exploration and/or immediately following settlement from which this information is gathered. In addition, we commonly use scientific analysis of forested tree ring data that shows not only age of tree species, but also fire frequency and intensity through the analysis of scars on standing trees. Volumes of data have been written on these techniques and can be provided upon request.

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[4] https://www.dnr.wa.gov/publications/lm_wfn_seedzone_book.pdf?wwhyks

[5] https://www.govinfo.gov/content/pkg/FR-1999-02-08/pdf/99-3184.pdf

It has been estimated that on some forests in the West, the number of acres of aspen has been reduced by as much as 65 percent as a result of fire suppression and replacement by conifers under the lack of such natural disturbances[6]. At the same time we have sufficient historical knowledge that a great majority of ecosystems currently dominated by Utah juniper have expanded well-beyond their historical boundaries into landscapes previously dominated by sagebrush as a result of excessive livestock grazing (reduction in fine fuels) in combination with successful fire suppression that began in the early 1900s. Early photographic evidence as well as multiple research studies looking at the age of existing juniper stands using tree ring data confirms the age of most large stands date to settlement times. For these and many other reasons, we typically refer to pre-European settlement to define "native ecosystem".

Native plant species represent a number of different life forms, including conifer trees, hardwood trees and shrubs, grasses, forbs, and others. We acknowledge that species ranges are dynamic, but the vast majority of range shifts that have occurred post-settlement and without human assistance are relatively small -- species have rarely expanded beyond their historic range without direct assistance of humans. Accordingly, we would define a native ecosystem as "recurring assemblages of native plant species associated with local substrates and natural dynamic processes. Their composition varies in space and time in response to changes in climate and species dispersal."

Representative Bishop Question 4. Do the land management activities on federal lands under Title II include both lands and waters, or is it strictly management of terrestrial species?

Reply 4. While Forest Service objectives for use of native plant materials (Forest Service Manual 2070.2)[7] includes both aquatic and terrestrial ecosystems, Title II, however, is focused on developing a native plant materials preference policy for the Department of Interior land management agencies and sharing best practices with other land management agencies; these activities are terrestrial in nature, and do not include aquatic habitats. Title II would not affect existing Forest Service policy.

Representative Bishop Question 5. This Act would allow for specific situations where nonnative plants could be used instead of native plants in land management activities. Would these situations be considered on a case-by-case basis, or would it be a system where the circumstances for which nonnative materials maybe used are determined ahead of time? In these cases, would the use of nonnative species that are invasive still be prohibited? If so, would there be a list of prohibited species?

Reply 5. H.R. 1572 The Act authorizes the developing a native plant materials preference policy for the Department of Interior land management agencies and sharing best practices with other land management agencies. The statutory language incorporates the existing U.S. Forest Service Policy which recognizes situations where the use of a non-native would be warranted.

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[6] https://www.fs.fed.us/rm/ogden/pdfs/wasatch.pdf (Page 7)

[7] https://www.fs.fed.us/wildflowers/Native_Plant_Materials/documents/FSM_2070.pdf, page 6 of 12.

Nonnative species and cultivars may need to be used, for example, to achieve site stabilization, wildfire breaks, or invasive plant control. Generally, their use should be limited to transitional, noninvasive species and replaced by natives in subsequent ecological restoration or during natural successional processes. It is my understanding that the existing Forest Service policy is applied on a case-by-case basis where considerations of emergency conditions, impending threats to land stability, reasonable availability of native materials, and changes in ecosystem characteristics are taken into account.

Representative Bishop Question 6. A provision in Title II states that in the event that native materials are "not reasonably available", this bill would allow the Departments of Agriculture and the Interior to use nonnative plants in management activities. What would be considered "not reasonably available?"

Reply 6. As mentioned above, that language is taken directly from existing U.S. Forest Service policy (Forest Service Manual 2070.3)[8]. This guidance includes the following:

a. When emergency conditions exist where it becomes necessary to protect basic resource values (such as, soil stability, water quality, and prevention of establishment of invasive species).

b. When native plant materials are not available and/or are not economically feasible.

c. In permanently, highly altered plant communities, such as road cuts, permanent and temporary wildlife openings, log landings, skid trails, temporary roads that have been closed and are used for linear wildlife openings and sites dominated by non-native, invasive species.

d. In designated historical sites where maintenance of historical vegetation communities, including agricultural crops, is needed to maintain historical integrity (FSM 2630)[9].

That said, it is important to understand the true-life cycle costs involved in land restoration. The immediate acquisition cost of native seed vs. non-native seed being used as the decisive criteria can result in situations where, for example, revegetated lands meet the need of grazing livestock (e.g. crested wheatgrass landscapes) but lack the biodiversity to meet the needs of nearly all native wildlife and bird species. There are also instances where species such as sage grouse require the use of more costly native wildflower species to attract invertebrates, which are a critical component of their diet. In my professional opinion, increasing botanical ecological expertise of federal land managers, as this bill would do if enacted, would play a large and productive role in making good, scientifically sound decisions, not just the easiest ones or cheapest in the short term. Taking a more thoughtful land management approach will

[8] https://www.fs.fed.us/wildflowers/Native_Plant_Materials/documents/FSM_2070.pdf, pages 7-8 of 12.
[9] https://www.fs.fed.us/im/directives/fsm/2600/2630.txt

increase the demand for native seed, which will help improve the supply and, ultimately, drive down the cost of those materials so they become more cost-effective to use.

Representative Bishop Question 7. Section 303 of H.R. 1572 calls for a "robust program of activities focused on the conservation and protection of native plants" to be undertaken by the National Fish and Wildlife Foundation (NFWF). Would funding be provided for the program and if so, where would the funding come from? Would it be federal or nonfederal funding? Would donations be allowed? How would implementation of this program affect other activities implemented by National Fish and Wildlife Foundation, and would this program take precedence over those other activities?

Reply 7. The National Fish and Wildlife Foundation supports important work related to critical ecosystems pursuant to its congressional authorization. The Foundation has, at times, had grant activities that were focused specifically on flora and also incorporates plant ecosystem considerations into other broader projects. The language instructs NFWF to ensure that "a robust program of activities specifically focused on the conservation and protection of native plants is incorporated into its existing programs and activities". It does not mandate a new program or project but rather ensures that the role that conservation and protection of native plants plays in protecting "fish" and "wildlife" not be overlooked.