

Legislative Policies and Processes for Noxious Weeds in Oklahoma

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Introduction

Environmental concerns have been rising in concern during the 20th and 21st centuries, particularly concerning human health concerns and global climate change. One significant environmental issue that most of the public remains unaware, is the prevalence of invasive species. In February 1999, US President Bill Clinton signed Executive Order 13112, which gave the first "official" definition of invasive species as "an alien species who does or is likely to cause economic or environmental harm or harm to the animal or human health." Despite this definition not existing until 1999, invasive species have been apparent wherever and whenever people are traveling to and from different regions and continents. Invasive species are known by a variety of different terms such as alien, nuisance, noxious, pest, injurious, and non-native. Many people may use some of these terms such as nuisance or pest with plants and animals that they simply find obnoxious, but true invasive species are problematic beyond public dislike. No matter what term is used, invasive species follow the same definition as presented in Clinton's executive order. Invasive species are non-native to an introduced region and they cause varying degrees of harm, which also means that a species could be native in one ecosystem, but invasive in another. These species are introduced in a variety of ways, but almost always follow the same pattern of human introduction, independent population growth, and subsequent spread.

One common factor in almost every invasive species are that they are non-native to a region. Non-native species also are almost always directly introduced by humans either intentionally or accidentally. However, not all non-native species have the ability to become invasive. After

human-caused introduction to a new region, a species must be able to reproduce, establish new populations, and spread to new areas without human help. The few species that manage to establish, spread and proceed to cause problems are the ones labeled as invasive. Non-native food crops, for example, are not invasive because they cannot survive and reproduce without human help. Commonly known invasive species in the United States include zebra mussels, kudzu, wild pigs, red imported fire ants, and diseases like West Nile virus. These invasives can lead to agricultural losses, the spread of new pathogens, as well as an overall decrease in native flora and fauna (American Society for Horticultural Science 2019). With these impacts in mind, policies have been developed to control and monitor the spread of these damaging organisms.

Invasive species policies exist on almost every level of governance from local to international. In the United States, the main existing federal policies are the Federal Noxious Weed Act of 1974 for invasive plants, the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 for invasive aquatic organisms, and the Lacey Act of 1990 for invasive wildlife in addition to Executive Order 13112 (Burdyslaw 2011, Ericson 2012). All three policies call for preventative measures to be taken by the nation to prevent the spread of invasive species. At both the state and federal level, species that require preventative tactics are listed by their corresponding policies. Each policy forbids buying, selling, trading, transporting, or possessing any listed species. The Federal Noxious Weed Act of 1974 is the only invasive species policy that requires the control of present invasive populations in addition to the aforementioned prohibitions (USDA 1974). Despite being federal laws, each policy has stipulations for state measures as well. In addition to the federal lists created by the three aforementioned policies, states have their own invasive species lists as well for noxious weeds, aquatic nuisance species, and sometimes injurious wildlife. While state lists provide the state governments with the ability

to look at invasive species on a more local scale, the separation between federal and state lists can cause significant problems. The effective area of federal lists is contained to federally-owned lands or land area used for federally-funded projects. If a particular invasive species is listed by the federal government but not the state government, the invasion of that particular species may become impossible to control. This situation can cause strain between federal and state agencies since invasive species have no concept of political boundaries. The Federal Noxious Weed Act sees the biggest challenge with this issue because the requirement of controlling noxious weeds makes complete eradication near impossible if the state and federal lists are not working together.

In Oklahoma, there are only three plant species listed on our State Noxious Weed List: musk thistle (*Carduus nutans* L.), Scotch thistle (*Onopordum acanthium* L.), and Canada thistle (*Cirsium arvense* (L.) Scop.). These species have been on the list since its' reorganization from the Thistle Law to Oklahoma's Noxious Weed Act (Medlin and Tyr1 2017). Despite the lack of species on the Noxious Weed List, Oklahoma has growing problems with unlisted invasive plant species. The purpose of this study is to evaluate Oklahoma's current policy, the process by which species are added to our list of noxious weeds, as well as compare our list and invasive plant concerns with those of our bordering states to establish what changes, if any, need to be made to the current regulations and policy regarding invasive plants in Oklahoma.

Oklahoma Noxious Weed Act

In 1974, the Federal Noxious Weed Act created the Federal Noxious Weed List, which contained invasive plant species to be controlled and eradicated on federal and federally-funded properties. The states, however, did not start declaring their Noxious Weed Laws until the late

1980s with Nebraska and subsequently the other 49 states through the 1990s and early 2000s (USDA PLANTS). In 1994, the Oklahoma Legislature passed the Thistle Law, which called for controlling the presence of musk thistle, Scotch thistle, and Canada thistle within Oklahoma state boundaries (Medlin and Tyrl 2017). This law was later changed to Oklahoma's present Noxious Weed Law in 2000. Since the formation of the state's Noxious Weed Law, the only noxious weeds listed are the same three thistles that were initially listed by the Thistle Law in 1990.

Oklahoma's Noxious Weed Law itself is very brief and contains little detail beyond detection and control of the thistles listed or else there will be a fine. There was no information in the law itself about how new species could be proposed and added to the law as a designated noxious weed. According to Mike Vandeventer from the Oklahoma Department of Agriculture Food and Forestry (ODAFF), legislative action is required for new plant species to be added because the motion would require a change in the law itself (Godsey 2019). This process requires gaining support from ODAFF or a state legislator to sponsor a bill for the addition of a new species, which then would have to pass through the State House of Representatives and Senate in order to be put into the State Noxious Weed Law. Since the process of a bill becoming a law includes many steps of going through many committees to pass both the House of Representatives and the Senate, very few species would be able to make it all the way to changing the law and currently, none have been able to accomplish this in Oklahoma.

While Oklahoma's law is very minimalist in its guidelines, two of Oklahoma's bordering states – Colorado and Kansas – have very different takes on the control of noxious weeds. In both the Colorado and Kansas Noxious Weed Laws, the jurisdiction of identifying and classifying noxious weeds for the state list falls under a state advisory committee (2017 Colorado Revised Statutes, Kansas Department of Agriculture). This committee is comprised of several state

citizens within different regions and career disciplines to gather and exchange information from every perspective. This committee serves a better advantage for targeting invasive plants because different species are an issue for different members of society. In addition to the presence of a state advisory committee, both Colorado and Kansas have unique approaches to controlling noxious weeds within state boundaries.

In Colorado, noxious weeds are classified by their presence in the state and divided into three specific lists. These lists are designated A, B, and C by Colorado's Noxious Weed Act. Invasive plants designated as A-list are species that have very few, if any, occurrences in the state but require eradication "in order to protect neighboring lands and the state as a whole" (2017 Colorado Revised Statutes). Species designated as B-list are more pronounced statewide and require eradication to prevent further invasions. Finally, C-list invasive species are very widespread across the state and don't require eradication by the state, but may require control depending on local governing bodies. These lists not only establish which species need to be eradicated but also prevent species that weren't already in the state before from establishing. The addition of List C is important as well because it prioritizes funding for species that are less widespread and possible to control. By organizing species by their importance, Colorado has a better chance of preventing further invasions by prioritizing plant species that can be controlled rather than expecting eradication for all invasive plants in the state, foregoing the probability of success.

In Kansas, their noxious weed legislation also includes a statute that establishes noxious weed lists at the county level in addition to the state list and federal list (Kansas Department of Agriculture). This declaration is made through the board for county commissioners and the establishment of any new invasive plant species as noxious becomes precedent for any other

county that declares the same species as noxious in the future. This system of including lists at the county level makes it possible for local governments to play a bigger part in controlling invasive plants about which they are concerned about. Depending on population density or the major occupations of county citizens, some noxious weeds may need to be controlled more than others. These varieties are why the state and county advisory committees are comprised of citizens from various backgrounds. A county list also makes controlling more invasive plants possible because issues such as budget impact, economic impact, or individual citizen impacts can be avoided.

The various noxious weed laws all have one main component in common – the guidelines of what it means to be designated as a noxious weed. Invasive species policies in the United States like the Nonindigenous Aquatic Nuisance Prevention and Control Act call for the prevention of future population establishments by forbidding buying, selling, trading, transporting or possessing of the species listed by the state or federal agency. Noxious weed lists are the same, except that any species listed as a noxious weed also has to be controlled to try and eradicate new and current populations. This minute detail can cause significant difficulties when adding a new invasive plant to the list because the required management of listed species populations costs money. This budgetary restraint is purported to be a significant factor in why no new species have been added to Oklahoma's list. Indiana has found a solution to the lack of noxious weed management by creating a different policy aligning itself with those of ANS and the Lacey Act. As of January 2019, Indiana's Natural Resource Commission adopted this regulation to prevent some 44 invasive plants from further establishment in the state (Associated Press 2019, Bowling 2019). In addition to the creation of the prohibited list, the Commission also planned to lead education efforts for growers, nursery dealers, and the public about the listed species as the rule's

provisions were stated as “likely [to] take effect next spring” (Associated Press 2019). The motion of Indiana to take this route for invasive plants opens up a new possibility for the future of invasive plant policies.

Invasive Plant Species of Concern

While discussing Oklahoma's current policies for noxious weeds, data were collected regarding invasive plant species that should be considered for the Noxious Weed List. To determine whether or not more invasive plant species should be added to Oklahoma's State Noxious Weed List, there has to be some form of concern apparent for invasive plants not already present on the current list. Information was gathered via the USDA Plants Database regarding the invasive plants listed as noxious by nearby states, specifically the states bordering Oklahoma. After gathering the noxious weed lists for Arkansas, Colorado, Kansas, and Texas, the lists were compared to one another as well as the watch lists gathered by the Oklahoma Invasive Plant Council (OkIPC), a volunteer organization in Oklahoma proactive in gathering and releasing information regarding invasive plants in the state. The plants that were singled out for this study were chosen based on two criteria: whether or not the invasive species was 1) listed on either the OkIPC “Dirty Dozen” list or their Watch List and/or 2) listed by two or more bordering states’ noxious weed lists. After creating the list, the plant species were then entered into the Oklahoma Vascular Plants Database headed by the Oklahoma Biological Survey in cooperation with the University of Oklahoma and Oklahoma State University to check for information regarding current presence in Oklahoma.

A total of 53 invasive plant species were found to match one or both criteria (see Table 1). Of these 53 species, 49 plant species were confirmed by the Vascular Plants Database to have established populations in Oklahoma. 45 of the species listed in Table 1 were also listed as

Plant Species		Listed Status						
Scientific name	Common name	Present in OK	OK	OKIPC	AR	CO	KS	TX
<i>Acrotilon repens</i> (L.) DC.	Russian knapweed	Y				Y	Y	
<i>Ailanthus altissima</i> (Mill.) Swingle	tree-of-heaven	Y		Y				
<i>Albizia julibrissin</i> Durazz.	mimosa, silk tree	Y		Y				
<i>Alhagi mavorum</i> Medik.	camelthorn	Y		Y		Y		Y
<i>Alliaria petiolata</i> (M. Bieb.) Cavara & Grande	garlic mustard, garlic root, jack-in-the-bush	Y		Y				
<i>Alternanthera philoxeroides</i> (Mart.) Griseb.	alligatorweed	Y		Y	Y			Y
<i>Arundo donax</i> L.	giant reed, Spanish reed	Y		Y				
<i>Bothriochloa bladhii</i> (Retz.) S.T. Blake	Caucasian bluestem, plains bluestem	Y		Y				
<i>Bothriochloa ischaemum</i> (L.) Keng	Yellow bluestem	Y		Y				
<i>Bromus arvensis</i> L.	Field brome	Y		Y				
<i>Bromus tectorum</i> L.	downy brome, cheatgrass	Y		Y		Y		
<i>Broussonetia papyrifera</i> (L.) L'Her. Ex Vent.	paper mulberry	Y		Y				
<i>Cadaria diaba</i> (L.) Desv.	hoary cress					Y	Y	
<i>Calystegia sepium</i> (L.) R. Br.	hedge bindweed	Y			Y			Y
<i>Cardiospermum halicacabum</i> L.	balloonvine	Y			Y			Y
<i>Carduus nutans</i> L.	musk thistle, nodding thistle	Y	Y	Y		Y	Y	
<i>Cirsium arvense</i> (L.) Scop.	Canada thistle	Y	Y	Y		Y	Y	
<i>Convolvulus arvensis</i> L.	field bindweed	Y		Y	Y	Y	Y	Y
<i>Cynodon dactylon</i> (L.) Pers.	bermudagrass	Y		Y	Y			
<i>Cyperus rotundus</i> L.	nutgrass	Y		Y	Y			
<i>Dipsacus fullonum</i> L.	common teasel	Y		Y		Y		
<i>Eichhornia crassipes</i> (Mart.) Solms	water hyacinth	Y		Y				Y
<i>Elaeagnus angustifolia</i> L.	Russian olive	Y		Y		Y		
<i>Elaeagnus pungens</i> Thunb.	thorny olive, silverthorn	Y		Y				
<i>Elaeagnus umbellata</i> Thunb.	autumn olive, elaeagnus, oleaster	Y		Y				
<i>Elymus repens</i> (L.) Gould	quackgrass					Y	Y	
<i>Euphorbia esula</i> L.	leafy spurge					Y	Y	
<i>Glaucium corniculatum</i> (L.) J.H. Rudolph	blackspot hornpoppy	Y		Y				
<i>Hydrilla verticillata</i> (L.F.) Royle	hydrilla	Y		Y		Y		Y
<i>Juniperus virginiana</i>	Eastern redcedar	Y*		Y				
<i>Lespedeza cuneata</i> (Dum. Cours.) G. Don	sericea lespedeza	Y		Y		Y	Y	
<i>Ligustrum sinense</i> Lour.	Chinese privet	Y		Y				
<i>Linaria dalmatica</i> (L.) Mill.	dalmatian toadflax, broadleaf toadflax	Y		Y		Y		
<i>Lonicera japonica</i> Thunb.	Japanese honeysuckle	Y		Y				
<i>Lonicera maackii</i> (Rupr.) Herder	bush honeysuckle, amur honeysuckle	Y		Y				
<i>Lygodium japonicum</i> (Thunb.) Sw.	Japanese climbing fern	Y		Y				
<i>Lythrum salicaria</i> L.	purple loosestrife	Y		Y	Y		Y	Y
<i>Melia azedarach</i> L.	chinaberry tree, pride-of-India, canelon	Y		Y				
<i>Mycrostegium vimineum</i> (Trin.) A. Camus	Nepalese browntop, Japanese grass, basketgrass	Y		Y				
<i>Myriophyllum spicatum</i>	Eurasian watermilfoil	Y				Y		Y
<i>Onopordum acanthium</i> L.	Scotch thistle, cotton thistle, woolly thistle	Y	Y	Y	Y			
<i>Paulownia tomentosa</i> (Thunb.) Siebold & Zucc. Ex Steud	princess tree, empress tree, foxglove tree	Y		Y				
<i>Perilla frutescens</i> (L.) Britt.	beefsteak plant, perilla mint	Y		Y				
<i>Potentilla recta</i> L.	sulfur cinquefoil, upright cinquefoil	Y		Y				
<i>Pueraria lobata</i> (Willd.) Ohwl.	kudzu	Y		Y			Y	Y
<i>Pyrus calleryana</i> Decne.	callery pear, bradford pear	Y		Y				
<i>Rottboellia cochinchinensis</i> (Lour.) W.D. Clayton	itchgrass				Y			Y
<i>Saccharum ravennae</i> (L.) L.	ravennagrass, sugarcane plumegrass	Y		Y				
<i>Salsola tragus</i> L.	Russian thistle	Y		Y	Y			
<i>Sorghum halepense</i> (L.) Pers.	johnsongrass	Y		Y	Y	Y	Y	
<i>Tamarix</i> spp.	salt cedar	Y		Y		Y		Y
<i>Ulmus pumila</i> L.	Siberian elm	Y		Y				

*both native and invasive in Oklahoma

Table 1: Invasive plant species listed in alphabetical order by scientific name and labeled for current presence in Oklahoma as well as listed status on the Noxious Weed Lists of Arkansas, Colorado, Kansas, Oklahoma, or Texas and/or the Oklahoma Invasive Plant Council’s “Dirty Dozen” or other watch lists

concern species by the Oklahoma Invasive Plant Council. Of the invasive species listed by

bordering states, Colorado had the most invasive plants listed as noxious at 18 out of 52. This

was followed by Texas and Kansas with 12 species each and Arkansas with 11 species. After gathering data, there was an interesting trend apparent regarding the similarities between the Noxious Weed Lists of Oklahoma's bordering states. A common factor found in this data was the consistencies of listing under the second criterion. A species listed by Colorado was often listed by Kansas on their Noxious Weed List and the same situation occurred with Arkansas and Texas. One invasive species on the list, *Juniperus virginiana*, is both native and invasive in Oklahoma depending on the region a population is established in. All other species are non-native in Oklahoma and are known to be of concern in other states as well as among residents of Oklahoma.

Issues with Current System

Following the overview of the current noxious weed policy in Oklahoma compared with the laws of nearby states and researching invasive plants that are strong candidates for noxious weed status, the patterns suggest several problems with the current system for noxious weed control in Oklahoma. These problems could be legislative, social, or even economical and all could be reasons why the current law remains inefficient against controlling problematic invasive plants within state boundaries. Oklahoma's Noxious Weed Law seems significantly weak compared to legislation in nearby states, especially with managing current species. The present list only contains 3 noxious weed of the 53 species found in this study's data. At present, there are several issues with controlling these three species alone. To control a population of a noxious weed, the Oklahoma Department of Agriculture, Food, and Forestry has to be notified of a case and send an inspector out to check the area of concern. There are currently an inefficient number of inspectors to evaluate invasive plant presence across all of Oklahoma. This means that not every

nursery can be checked for noxious weeds and not every case submitted by a citizen can be inspected. This leads to great inefficiencies with managing any noxious weed in the state. Also, there may be a lack of public knowledge about noxious weeds and their impacts. Education on invasive species as a whole is very important for efforts to control them. Without education, the public cannot and will not report occurrences of noxious weeds on their property and they may not necessarily cooperate if an inspector arrives with a complaint from a neighbor. There are even cases where people benefit from invasive species, such as a grower in Oklahoma benefiting off of growing *Sericea lespedeza* and selling it overseas, which would block legislative action because someone is making a livelihood from that specific invasive plant. This species, as well as others like Bermuda grass, can also be submitted in some county fairs as forage crops, such as at the Rogers County Fair in Claremore, OK (Harrison 2019). These problems are significant socially-related reasons why the difficulty in adding species to the current list persists.

At the state legislative level, the law itself does not list provisions for adding new plant species to the list which is why an act of Congress is required to add a single species to the Noxious Weed Act. This also ties in with social problems since a concerned citizen must receive sponsorship from a legislator for a bill to be created for Congress. The process of a bill becoming a law contains three essential steps: the bill has to pass through the State House of Representatives, then the State Senate, and then it goes to the governor to be signed into law. However, the legislative process is typically more complicated and very few bills go through all three steps without complications. While the bill is going through Congress, it often has to go back and forth between committees of varying responsibilities before being accepted by the House and may go through the same process in the Senate. Even after acceptance by both seats in Congress, the governor could also choose to send it back through the same process to be

revised again or simply reject the proposal. There is a lot of uncertainty as to why bills for the Noxious Weed Act never get signed by the governor and where it got stopped in the State Congress. The importance of budget neutrality is one example of where these bills can be blocked in Congress.

There are also minimal efforts to stop the introduction and spread of invasive plants not listed by the Noxious Weed Act. The first issue is having access to up-to-date information on which species are in Oklahoma and where populations have been established. This information is gathered through citizen science, meaning that the data are received purely through volunteers rather than through an official government agency. The Oklahoma Invasive Plant Council, for example, is volunteer-based and remains Oklahoma's most reliable source for invasive plant information. By relying on databases that receive information from citizens voluntarily, there are often miscounts and wrongly-identified accounts along with an absence of data. Volunteer organizations are also not as likely to be well-known by the public as officially established agencies within federal and state governments or corporations.

The most effective policy Oklahoma currently has for noxious weeds is the Oklahoma Weed Free Certification Program for forage plants like hay (Enid News 2013, Oklahoma Farm Report 2010). This program is voluntary for state residents and works to reduce the spread of noxious weeds. Farmers benefit from their hay being certified weed-free because many states require this certification when importing hay and other forage crops. The increase in interstate commerce abilities can significantly contribute to the state economy, however, this program does not apply to everyone. The Weed Free Certification Program is targeted mainly at farmers who would want to sell their forage crops out-of-state, which means that anyone outside this target audience would not be required to eradicate noxious weeds prohibited by the program. Farmers and

ranchers tend to be one of the audiences that are concerned the most with invasive plants because they impact the productivity of their land and decreased profits, which in turn significantly impacts their livelihoods.

While many groups are concerned about the spread of invasive species (Pinto 2019, Sherriff 2019), people often have more incentive to bring in invasive plants rather than control them. Several invasive plants tend to have attributes seen as “favorable,” such as their appearance or their ability to grow quickly. Plants that are native to the country also become invasive when taken out of their native ranges for initially favorable qualities (American Society for Horticultural Science 2019). Many species of concern by the OkIPC are plants that were intentionally introduced as windbreaks, erosion control, or as ornamentals. This often means they are easily obtainable through nurseries, garden centers, or even online without the knowledge of if something is non-native and potentially invasive or if it's safe to grow. With the convenience of modern technology and lack of public information on what's invasive and what isn't, the ability of organizations like the OkIPC to track the introduction of invasive plants becomes very difficult.

Finally, one of Oklahoma's most problematic invasive species, Eastern red cedar, is a native invader. Native invaders are invasive species that are native to a region but begin to spread into neighboring areas where they originally weren't. Eastern red cedar is native to the US Midwest, which includes eastern Oklahoma, however recent decades has seen the species spread into western Oklahoma due to fire suppression and use as windbreaks and erosion control following the Dust Bowl. Since this tree species is native, Oklahoma has no way of classifying Eastern red cedar as noxious in some areas and native in others. Without state support, Eastern red cedar has

become difficult to control and contributes to higher wildfire risks in Oklahoma's western prairies (Wertz and Layden 2014).

Recommendations

Over the course of this study, Oklahoma's current Noxious Weed Act is shown to be significantly flawed due to an ill-structured policy preventing effective control of problematic invasive plants. Despite only three species existing on the current list, the system as it is now cannot effectively control what's presently listed. As such, it would be ineffective to attempt to propose adding any of the species found in this study to the law as it stands. There are several options for rectifying the issue of efficacy in invasive plant policy in Oklahoma.

The first recommendation is making legislative changes to Oklahoma's Noxious Weed Act. Since most changes in policy require legislative action, editing a law that was already made could be the simplest route to fixing Oklahoma's noxious weed policies. The current act is weak because there are very few details and directions to defining, designating, and controlling species listed on the Noxious Weed List. This current status in the law causes any amendments to add invasive species to almost always be blocked in the legislative process. The changes to the law that are recommended include expanding the law to include provisions such as some form of state advisory committee to make adding more problematic species more streamlined. However, before the state can add more species to the list there must also be changes to how currently-listed species are monitored. Managing and monitoring listed invasive species must also be given detailed sections in an amended Noxious Weed Act to increase the efficiency of control. The only problem with this recommendation is that any additions to the state Noxious Weed List will not be budget neutral, which is a major concern when amending any law.

While amending current noxious weed legislation is highly recommended, another option for Oklahoma's government is to create a new invasive plant policy. The first option is to follow Indiana's example and create a prohibited species list for invasive plants. This list would follow the same design as lists for Aquatic Nuisance Species and Injurious Wildlife except it would focus on invasive plants specifically. This type of list would bypass the issue of budget neutrality because the focus of a prohibited species list would be the prevention of new invasive species populations rather than eradicating present populations. This policy would also provide provisions and contacts for citizens who want to invest in managing pre-existing invasive plant populations. Another option for new policies is creating county-level noxious weed lists like Kansas. While this course of action would still require control of listed species, it would bypass several issues that exist for Oklahoma's current Noxious Weed Act. Since many invasive plants aren't found in every county, the citizens could focus on invasive species that are knowingly problematic. The level of control and importance would be dependent on the county's situation, especially in counties bordering other states. This type of policy can also bypass situations of individual profit-making, which prevents species from being listed because listing would be a negative impact on the individual citizen.

My final recommendation is using a combination of these options to establish a better system in Oklahoma. Amending Oklahoma's Noxious Weed Act is the baseline for creating a better system, however, there might not be much change in adding species to the Noxious Weed List while certain issues such as economic impacts are still problematic. If amendments were made and included a separate section for prohibited species similar to Colorado's designated lists, Oklahoma would be able to prioritize which invasive plants need to be controlled and which ones only need prevention tactics. The addition of county-level lists would also increase the

efficacy by allowing counties to decide which invasive species are bigger problems in their region of the state. If a very potent invasive plant is only present in five or six counties, then the counties can take control of management instead of requiring a state-wide policy change.

Conclusion

Invasive species have become a significant problem with the rise in international travel and online commerce. These species are identified as non-natives that have been introduced with human assistance, intentional or unintentional, and cause varying degrees of harm. To rectify the damages caused by invasive species, several laws were created in the US to control invasives from spreading. The Federal Noxious Weed Act of 1974 is unique when compared with other legislation like the Nonindigenous Aquatic Nuisance Prevention and Control Act or the Lacey Act because this law, which focuses on invasive plants, requires control in addition to prohibiting any form of possession. About 10 years later, the states began enacting their state-level noxious weed acts to control invasive plants outside of federal properties.

In Oklahoma, the Oklahoma Noxious Weed Act began as the Thistle Law before being changed to the state's noxious weed law. To add new species to Oklahoma's law, a bill must be written and pass through Congress before it can be declared as noxious. This is purported to be one of the major reasons why no new species has been added since the law was passed. In comparison, bordering states Colorado and Kansas have more efficient systems in place for their noxious weed legislation. Both states have advisory committees that oversee potential noxious weed in addition to their unique systems. Colorado's noxious weed policy divides listed species into three lists that are defined by the presence in the state, which also establishes the importance of required control of noxious weeds. Kansas has a system of county noxious weed lists in

addition to the state noxious weed list, which allows the counties to prioritize control over noxious weeds that may be more prevalent in one county than another. Finally, another state has a system that might provide another type of solution for controlling invasive plants. In Indiana, a new policy was recently established that would create a prohibited list of invasive plants similar to the Aquatic Nuisance Species List or the Injurious Wildlife list. The difference between this policy and noxious weed laws is the absence of required control. Indiana's prohibited plant species list created a policy that prevents new invasions from occurring while avoiding the financial burden on the state by requiring control.

When considering invasive plants that are or may become a problem in Oklahoma, information was gathered to assess plant species that are or should possibly be of concern. This information was gathered from handbooks and lists provided by the Oklahoma Invasive Plant Council as well as cross-referencing the noxious weeds listed by Arkansas, Colorado, Kansas, and Texas – states that share a border with Oklahoma. After gathering species listed by the OkIPC and/or two of Oklahoma's bordering states, a cumulative list of 53 invasive plants with 48 species already recorded as being found in Oklahoma according to the state's Herbarium database. Of this list, the only listed species in Oklahoma are the original three thistles: musk, Scotch, and Canada thistle.

The prevalence of species known to be problematic both outside and within the state suggests that significant flaws exist in Oklahoma's current policy for invasive plants. The first main issue is the difficulty of adding species at the legislative level. Without a clear system in place or a detailed noxious weed law, problematic invasive species cannot be added to the list because they die out going through Congress. Oklahoma also has shown minimal effort to stop the new establishment of invasive species. Without knowledge of hardworking volunteer groups like the

Oklahoma Invasive Plants Council, people have more incentives to bring in invasive plants rather than keep them out for their appearances and immediate land use benefits. One of the few successful efforts is shown in the legislation that created the Weed-Free Hay Certification Program, which meant farmers could benefit by keeping noxious weeds out of their forage and selling it out-of-state. However, this program only reaches the farmers who directly benefit from being certified weed-free rather than the entirety of the state. Finally, Oklahoma also has unique situations like Eastern red cedar, which is native to some regions of the state but very problematic in western Oklahoma. These issues all point to changes needing to be made in Oklahoma policy to create a more efficient management system for controlling the spread of noxious weeds.

There are many ways that improvements can be made to Oklahoma's invasive plant legislation. The current legislation needs to be amended to improve how species are added as well as the efficiency at which populations are monitored and controlled. However, noxious weed designation has costs that cannot necessarily be bypassed in the Noxious Weed Act alone. Other changes are possible based on how other states, especially Colorado and Kansas, have responded to invasive plants. The creation of new policies is one possibility for Oklahoma, specifically creating a prohibited list based on Indiana's actions or using Kansas's framework to create county-level noxious weed lists. Whether or not all or some of these recommendations are considered, there are many reasons why Oklahoma needs to make some form of change.

Invasive plants have various impacts on society. They can cause human health problems from increased allergens, decrease productivity for farmers and ranchers, as well as decrease Oklahoma's rich biodiversity across its numerous ecoregions. Possibly the biggest reason for change, however, is the impact on our relations with our neighboring states. By comparing

noxious weed lists alone, Oklahoma can cause invasive plant issues to worsen in states where certain species are designated as noxious weeds there, but not in Oklahoma. Oklahoma's government should expect to act as a "good neighbor" and contribute to the solution of controlling invasive species rather than causing more problems. Interstate and intrastate issues are very widespread and invasive plants are one area where Oklahoma can make amends to the problems at hand.

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