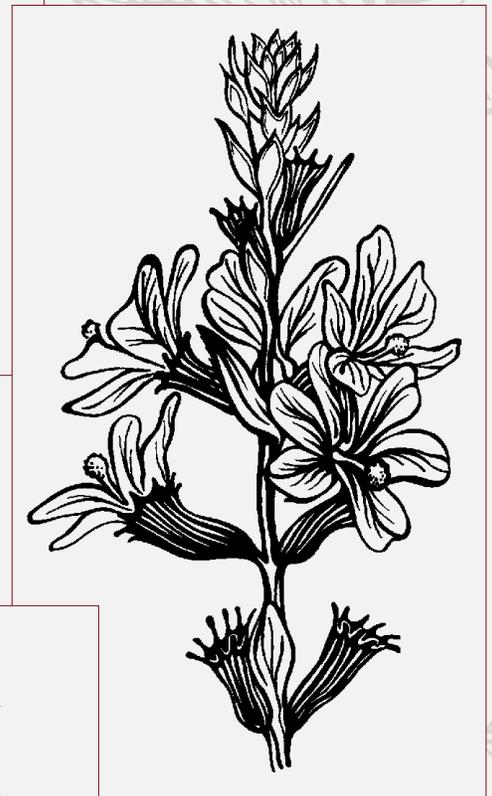
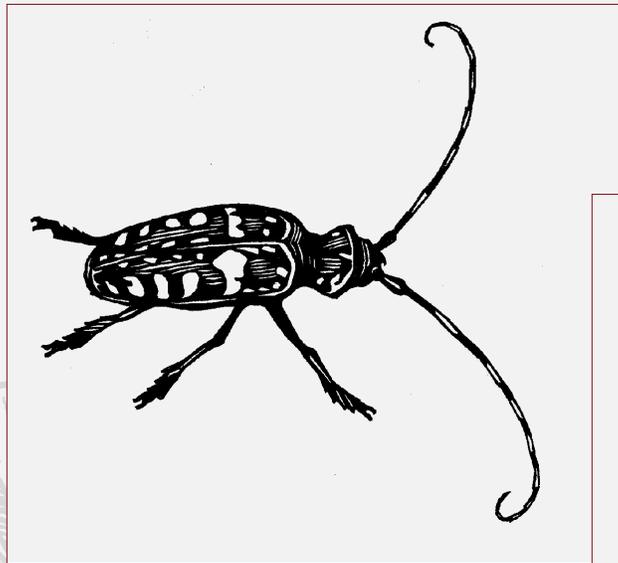


HALTING THE INVASION

State Tools for Invasive Species Management



CHAPTER VII: REGULATION

States have developed a variety of mechanisms for regulating the invasive species that it chooses to allow into the state. The regulation tools can also be used by the state to effectively eliminate unintentional introductions. The four most common regulation tools include:

- Permits and licenses
- Transportation and shipping requirements
- Monitoring
- Bonds and insurance

I. PERMITS AND LICENSES

EXPLANATION OF TOOL

The issuance of permits and licenses is an important tool for helping states regulate invasive species. Permits and licenses can be used to monitor who can possess invasive species and in what manner. Some states may not have a formal permit system but instead may require permission or authorization from a state agriculture or natural resources agency in order to regulate certain invasive species. States generally use permits and licenses to regulate the importation, transportation, possession, and release of species and to specify conditions that are tied to the receipt of the permit or license. Specific conditions most often include access to inspect facilities and operations; information on where facilities may be sited; measures to prevent the potential escape of species; and the retention of adequate records on the species and associated operations. States also use permits and licenses to regulate invasive species facilities, such as aquaculture pens and game farms, and specify the conditions tied to the receipt of a facility permit or license. States may also require dealers of certain species to register with the state.

The use of permits and licenses also serves as a means to exclude unwanted invasive species. Through a permit and license scheme, the state ensures that the importer has complied with state regulations before a species is introduced, rather than simply creating a prohibition that can only be invoked after a species has already been released.

In the statutes and regulations addressing **wildlife**, forty-five states require a permit or license to import, possess, transport, or release certain wildlife.²⁰⁰ In addition, Alabama requires permission to import certain species, and Arkansas and Louisiana require permission to release certain species. Of the states that require a permit or license, fourteen states specify conditions for the receipt of the permit or license.²⁰¹ Several states tie more than one requirement to the issuance of a permit or license. Nine²⁰² of these fourteen states have inspection requirements, seven²⁰³ have escape prevention requirements, and seven²⁰⁴ have record requirements. Delaware, New Hampshire, and Tennessee have the most extensive conditions, making the permit or license contingent upon satisfying inspection, prevention of escape, and record requirements. Thirty-four states require a permit or license to operate commercial wildlife facilities, such as game farms or hunting preserves.²⁰⁵ In addition, Virginian wildlife dealers must register with

²⁰⁰ Alabama (raptors), Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Maine, Maryland, Massachusetts, Minnesota, Mississippi, Missouri, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, and Wyoming.

²⁰¹ California, Delaware, Florida, Kansas, Minnesota, Nevada, New Hampshire, New Mexico, New York, Oregon, Rhode Island, Tennessee, West Virginia, and Wyoming.

²⁰² California, Delaware, Florida, Minnesota, New Hampshire, Rhode Island, Tennessee, West Virginia, and Wyoming.

²⁰³ Delaware, Kansas, Minnesota, New Hampshire, New Mexico, Oregon, and Tennessee.

²⁰⁴ California, Delaware, Nevada, New Hampshire, New York, Tennessee, and Wyoming.

²⁰⁵ Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Georgia, Hawaii, Idaho, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maryland, Massachusetts, Minnesota, Mississippi, Montana, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, South Dakota, Tennessee, Utah, Virginia, and West Virginia.

the state. Of these states, twenty-nine impose conditions on the receipt of the facility license or permit, a much larger number than in the first category of permits or licenses.²⁰⁶ Several states tie more than one requirement to the issuance of a permit or license. Of these twenty-nine states, twenty²⁰⁷ have inspection requirements, thirteen²⁰⁸ have escape prevention requirements, and fourteen²⁰⁹ have record requirements. Only two states, Ohio and Idaho, condition the facility permit or license on a siting requirement. In addition, Idaho has the most extensive conditions, making the permit or license contingent upon satisfying inspection, escape prevention, siting, and record requirements.

In the statutes and regulations that address **aquatic life**, forty-four states require a permit or license to import, possess, transport, or release aquatic life.²¹⁰ Fourteen of the forty-four states include specific conditions for the receipt of the permits or license.²¹¹ Several states tie more than one requirement to the issuance of a permit or license. Of these fourteen states, twelve states²¹² condition the permit or license on the ability to inspect,

four²¹³ on escape prevention, and two²¹⁴ on the record requirements. Thirty-five states require a permit or license to operate an aquatic facility, such as a fish hatchery, fish pond, or aquaculture facility.²¹⁵ In addition, seven states require aquatic facilities to be registered with the state.²¹⁶ Of the states requiring a permit, license, or registration, twenty-six states require conditions for their receipt, with some states requiring multiple conditions.²¹⁷ Of these twenty-six states, twenty-two states²¹⁸ have inspection requirements, seven²¹⁹ have siting requirements, eleven²²⁰ have escape prevention requirements, and twelve²²¹ have record requirements. In addition, four states, Maryland, Mississippi, Ohio, and Utah, have the most extensive conditions, requiring the applicant to satisfy inspection, siting, escape prevention, and record requirements.

Very few states authorize the use of permits or licenses in their statutes and regulations that address the importation, transportation, or possession of invasive plants, with only fifteen states doing so.²²² States primarily rely on prohibitions, quarantines, or inspection

²⁰⁶ Alabama, Arizona, Arkansas, California, Connecticut, Georgia, Hawaii, Idaho, Illinois, Indiana, Kentucky, Louisiana, Maryland, Minnesota, Mississippi, Montana, New Hampshire, New Jersey, New York, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, South Dakota, Tennessee, Utah, Virginia, and West Virginia.

²⁰⁷ Alabama, Arizona, Arkansas, California, Georgia (deer farm), Hawaii, Idaho, Illinois, Indiana, Kentucky, Maryland, Mississippi, Montana, New Hampshire, New York, North Dakota, Oregon, South Dakota, Virginia, and Utah.

²⁰⁸ Arizona, Arkansas, California, Georgia (deer farm), Idaho, Illinois, Maryland, New Hampshire, New Jersey, Oregon, Pennsylvania, Virginia, and West Virginia.

²⁰⁹ Alabama, Connecticut, Georgia (bird dealer, shooting preserve), Idaho, Kentucky, Louisiana, Maryland, Minnesota, Mississippi, New Hampshire, New York, Oregon, Rhode Island, and Tennessee.

²¹⁰ Alaska, Arizona, California, Colorado, Connecticut, Delaware, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nevada, New Hampshire, New Mexico, New York, North Carolina, North Dakota, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, and Wyoming.

²¹¹ California, Colorado, Connecticut, Delaware, Florida, Kansas, Louisiana, Minnesota, Montana, North Dakota, South Carolina, Tennessee, West Virginia, and Wyoming.

²¹² California, Colorado, Connecticut, Florida, Louisiana, Minnesota, Montana, North Dakota, South Carolina, Tennessee, West Virginia, and Wyoming.

²¹³ California, Kansas, Louisiana, and Minnesota.

²¹⁴ California (triploid grass carp) and Delaware.

²¹⁵ Alabama, Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Hawaii, Idaho, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Minnesota, Mississippi, Montana, Nebraska, Nevada, New Hampshire, New Mexico, New York, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, Tennessee, Texas, West Virginia, Wisconsin, and Wyoming.

²¹⁶ California, Delaware, Michigan, Pennsylvania, Utah, Washington, and Wisconsin.

²¹⁷ Arizona, California, Colorado, Connecticut, Delaware, Idaho, Illinois, Iowa, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Nebraska, Nevada, New Mexico, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Tennessee, Utah, Wisconsin, and Wyoming.

²¹⁸ Arizona, California, Colorado, Delaware, Illinois, Iowa, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Nebraska, Nevada, New Hampshire, Ohio, Oregon, Rhode Island, Tennessee, Utah, Wisconsin, and Wyoming.

²¹⁹ California, Idaho, Maryland, Minnesota, Mississippi, Ohio, and Utah.

²²⁰ Illinois, Kentucky, Maryland, Mississippi, New Hampshire, New Mexico, Ohio, Pennsylvania, Tennessee, Utah, and Wisconsin.

²²¹ Colorado, Connecticut, Louisiana, Maryland, Minnesota, Mississippi, New Hampshire, New York, Ohio, Oregon, Tennessee, and Utah.

²²² Alabama, Florida, Hawaii, Illinois, Indiana, Minnesota, Missouri, New Mexico, North Carolina, Ohio, Oregon, South Dakota, Virginia, Washington, and West Virginia.

TABLE 6: PERMITS AND LICENSES

The states that require the issuance of a permit or license in order to import, possess, or release an invasive species or to operate a facility containing invasive species, such as an aquaculture facility or a nursery. In addition, this chart illustrates whether the states attach specific conditions to the issuance of these permits and licenses such as allowing the state agency to inspect and requiring the maintenance of records on the invasive species.

State	Species		Facility	
	Permit/License	Conditions	Permit/License	Conditions
Alabama	W, P, D, I		W, A, I	W, I
Alaska	W, A, D		A	
Arizona	W, A, D		W, A	W, A
Arkansas	W		W, A, I	W, I
California	W, A, D, I	W, A	W, A	W, A
Colorado	W, A, I	A	A	W, A
Connecticut	W, A	A	W, A	A
Delaware	W, A, D, I	W, A	W, I	A, I
Florida	W, A, P, D	W, A	I	I
Georgia	W, A, I, D	I	W, I	W, I
Hawaii	W, A, I	I	W, A	W
Idaho	W, A	W, A, I		W, A
Indiana	W, A, I	W, A		W
Indiana	W, A, I	W, A		W
Iowa	W, A, I	I	W, A	A
Indiana	W, A, I		W, A	W
Kentucky	W, A		W, A	W, A
Louisiana	A	A	W, A, I	W, A
Maine	W, A, I	I	A	
Maryland	W, A, I		W, A, I	W, A, I
Massachusetts	W, A, I		W, A	
Michigan	A			A
Minnesota	W, A, I	W, A	W, A, I	W, A
Mississippi	W, A, I	W, A, I		W, A
Missouri	W, A, I			
Montana	A, I	A	W, A, I	W
Nebraska	I		A	A
Nevada	W, A	W	A	A
Indiana	W, A, I		W, A	W
New Jersey	W		W, I	W, I
New Mexico	W, A	W	W, A, I	A, I
Indiana	W, A, I		W, A	W
North Carolina	W, A, I			
North Dakota	W, A, I	A	W, A, I	W
Ohio	I		W, A, I	W, A, I
Oklahoma	W, A, I		A	
Oregon	W, A	W	W, A, I	W, A
Pennsylvania	W, A		W, A, I	W, A
Rhode Island	W, A, I	W, I	W, A, I	W, A
South Carolina	W, A, I	A		
South Dakota	W, I		W, I	W
Tennessee	W, A, I	W, A	W, A, I	W, A, I
Texas	W, A		A	
Utah	W, A		W, I	W, A, I
Vermont	W, A			
Virginia	W, A, I		W	W
Washington	W, A		I	I
West Virginia	W, A, I	W, A	W, A, I	W
Wisconsin	W, A		A	A
Wyoming	W, A, I	W, A, I	A, I	A, I

W – Wildlife A – Aquatic Life P – Plants D – Plant Pests and Diseases I - Insects

certificates rather than permits or licenses to regulate the importation, transportation, and possession of invasive plants. Of these fifteen states that do authorize permits or licenses, Hawaii conditions its permit on the ability to inspect, and Virginia and West Virginia condition their permits on adequate safeguards to prevent the plant's spread. Eighteen states permit or license the use of facilities, such as seed distributors,²²³ and four states require seed labelers and dealers to be registered with the state.²²⁴ Of these states requiring a permit, license, or registration, nine states require conditions for their receipt, with some states having multiple conditions.²²⁵ Two states, California and Texas, have inspection requirements; one state, California, requires adequate safeguards to prevent the plant's spread; and eight states have record requirements.²²⁶

In the statutes and regulations that address **plant pests and diseases**, thirty-four states require a permit or license to import, transport, or possess a plant pest or disease, and one state, Colorado, requires permission to do so.²²⁷ Of these states, only six states include specific conditions for the receipt of the permit, license, or permission.²²⁸ Four states, California, Illinois, Massachusetts, and North Carolina, condition the permit on inspection requirements. Two states, Virginia and West Virginia, condition the permit on adequate safeguards to prevent the spread of plant pest or diseases. Thirty-one states authorize the use of a permit or license for facilities such as nurseries,²²⁹ and seven require the reg-

²²³ Alabama, Arizona, Arkansas, California, Georgia, Hawaii, Illinois, Iowa, Maine, Mississippi, Nebraska, Oregon, South Carolina, Tennessee, Texas, Virginia, Washington, and Wyoming.

²²⁴ California, Colorado, Kentucky, and West Virginia.

²²⁵ Alabama, Arkansas, California, Illinois, Kentucky, Mississippi, Tennessee, Texas, and Virginia.

²²⁶ Alabama, Arkansas, Illinois, Kentucky, Mississippi, Tennessee, Texas, and Virginia.

²²⁷ Alabama, Alaska, Arizona, California, Delaware, Florida, Georgia, Hawaii, Illinois, Indiana, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Mississippi, Nebraska, Nevada, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, South Carolina, South Dakota, Tennessee, Vermont, Virginia, Washington, West Virginia, and Wisconsin.

²²⁸ California, Illinois, Massachusetts, North Carolina, Virginia, and West Virginia.

²²⁹ Alabama, Arkansas, California, Delaware, Georgia, Illinois, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Minnesota, Mississippi, Missouri, Montana, Nevada, New Hampshire, New Mexico, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, South Carolina, Tennessee, Utah, Virginia, Washington, and Wyoming.

istration of nursery dealer's.²³⁰ Of these states that require a permit, license, or registration, seventeen states authorize condition of their receipt, with some states authorizing multiple conditions.²³¹ Twelve states²³² authorize inspection requirements, and seven states authorize record requirements.²³³

In the statutes and regulations that address **insects**, thirty states require a permit to import or move insects.²³⁴ Seven of these thirty states condition the permit on the ability to inspect.²³⁵ On the facility use of permits or licenses, four states, Georgia, Maine, North Dakota, and Ohio, require a permit or license to sell bees, and twenty-five states require apiaries or beekeepers to be registered with the state.²³⁶ Of these states, fourteen condition the registration of the apiary or the issuance of the permit on the allowance of inspections.²³⁷ Two states, California and Pennsylvania, condition the registration of the apiary on allowing inspections and siting of the apiary.

COMPREHENSIVE MODEL

The comprehensive model should include a permit or license requirement to import, possess, transport, or

²³⁰ Colorado, Florida, Georgia, Minnesota, Tennessee, Texas, and West Virginia.

²³¹ Alabama, Arkansas, California, Colorado, Delaware, Florida, Georgia, Illinois, Kansas, Kentucky, Maryland, Minnesota, New Hampshire, New York, Rhode Island, South Carolina, and Wyoming.

²³² Arkansas, California, Colorado, Delaware, Florida, Georgia, Kansas, Maryland, Minnesota, New York, South Carolina, and Wyoming.

²³³ Alabama, Georgia, Illinois, Kentucky, Maryland, New Hampshire, and Rhode Island.

²³⁴ Alabama, California, Colorado, Delaware, Georgia, Hawaii, Illinois, Indiana, Iowa, Kansas, Maine, Maryland, Massachusetts, Minnesota, Missouri, Mississippi, Montana, Nebraska, New York, North Carolina, North Dakota, Ohio, Oklahoma, Rhode Island, South Carolina, South Dakota, Tennessee, Virginia, West Virginia, and Wyoming.

²³⁵ Georgia, Hawaii, Illinois, Iowa, Maine, Rhode Island, and Wyoming.

²³⁶ Alabama, Arkansas, Delaware, Florida, Georgia, Idaho, Illinois, Louisiana, Maryland, Minnesota, Mississippi, Montana, New Jersey, New Mexico, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, South Dakota, Tennessee, Utah, Washington, West Virginia, and Wyoming.

²³⁷ Alabama, Arkansas, Delaware, Florida, Georgia, Illinois, Maryland, New Jersey, New Mexico, Ohio, Tennessee, Utah, Washington, and Wyoming.

TABLE 7: BONDS AND INSURANCE

The states that require a person to either post a bond or obtain liability insurance in order to possess particularly harmful invasive species.

State	Bonds	Insurance
Alabama		
Alaska		
Arizona		
Arkansas		
California		
Colorado		
Connecticut		
Delaware		
Florida		
Georgia		W
Hawaii	W, A	
Idaho		
Illinois	W	
Indiana		
Iowa		
Kansas		
Kentucky		
Louisiana	A	
Maine		
Maryland		
Massachusetts		
Michigan		
Minnesota	W	
Mississippi		
Missouri		
Montana		
Nebraska		
Nevada		
New Hampshire		
New Jersey		
New Mexico		
New York		
North Carolina		
North Dakota		
Ohio		
Oklahoma		
Oregon		
Pennsylvania		
Rhode Island	A	
South Carolina	D	
South Dakota		
Tennessee		
Texas		
Utah		
Vermont		
Virginia		
Washington		
West Virginia		
Wisconsin		
Wyoming		

W – Wildlife A – Aquatic Life P – Plants D – Plant Pests and Diseases

TABLE 8: POST-RELEASE MONITORING

The states that authorize in their statutes and regulations post-release monitoring of introduced species to ensure that these species do not have unforeseen effects on other species, ecosystems, or their processes.

State	Wildlife	Aquatic Life	Plant	Plant Pest and Disease	Insect
Alabama					
Alaska					
Arizona					
Arkansas					
California					
Colorado					
Connecticut					
Delaware					
Florida		X			
Georgia					
Hawaii	X	X			
Idaho					
Illinois					
Indiana					
Iowa					
Kansas					
Kentucky					
Louisiana					
Maine					
Maryland					
Massachusetts					
Michigan					
Minnesota					
Mississippi					
Missouri					
Montana					
Nebraska					
Nevada	X	X			
New Hampshire					
New Jersey					
New Mexico					
New York					
North Carolina					
North Dakota					
Ohio					
Oklahoma					
Oregon					
Pennsylvania				X	
Rhode Island					
South Carolina					
South Dakota					
Tennessee					
Texas					
Utah					
Vermont					
Virginia					
Washington					
West Virginia					
Wisconsin					
Wyoming					

release species. In order to receive the permit or license, the applicant should also be required to meet siting, inspection, escape prevention, and record requirements. In addition, a permit or license should be required to operate a facility containing invasive species and conditions should be attached to these permits or licenses. Tennessee's permitting and licensing program contains all of these elements and thereby provides an example of a state policy that is used to closely regulate which species are allowed in the state and the conditions under which they may be possessed in the state.

INTERMEDIATE MODEL

Colorado has taken steps toward developing policies that reach the comprehensive model. Colorado's current policy requires a permit or license to import, possess, transport, or release invasive species and a permit or license to operate a facility containing invasive species. This requirement enables the state to regulate invasive species within the state but does not specifically outline the conditions necessary to receive these permits in the wildlife and insect categories. While these requirements may appear in internal agency guidelines, inclusion of these conditions in the statutes or regulations would ensure that they are enforceable and applied consistently to permittees.

2. BONDS AND INSURANCE

EXPLANATION OF TOOL

The control and management of invasive species that have escaped and infested natural and human systems are very costly to states. For example, the invasive aquatic plant hydrilla was introduced into Florida's waterways in the 1950s by the discard of tropical aquarium plants and now costs the state approximately 14.5 million dollars in control and 10 million dollars in recreational losses annually.²³⁸ To provide protection against this potential economic burden, six states have begun to require the payment of a bond or the receipt of liability insurance in order to possess specified invasive species.²³⁹ This tool is used to make people who are importing a particularly dangerous invasive species fi-

nancially contribute to control and eradication efforts if the species escapes or spreads.

In the statutes and regulations that address **wildlife**, only two states, Hawaii and Minnesota, require the posting of a bond in order to possess certain species of wildlife, and Illinois requires that an exotic game hunting area permittee obtain a ten thousand dollar bond. Only one state, Georgia, requires liability insurance to possess certain species of wildlife. In the statutes and regulations that address **aquatic life**, three states, Hawaii, Louisiana, and Rhode Island, require the posting of a bond in order to possess certain species. No states require liability insurance to possess aquatic life. In the statutes and regulations that address **plant pests and diseases**, only one state, South Carolina, requires the posting of a bond by out-of-state nursery dealers in states that do not recognize the inspections made by the commissioner of agriculture on shipments from South Carolina. There are no bond or insurance requirements in the statutes and regulations that address **insects** or **invasive plants**.

COMPREHENSIVE MODEL

A comprehensive model should require the payment of a bond or the receipt of liability insurance in order to possess particularly harmful invasive species to insure that the state is not left paying for damages caused by the escape of an invasive species. Although no state policies meet the standard of the comprehensive model, Minnesota and Georgia's policies have some strengths. Minnesota's bonding program requires that a person who possesses listed restricted species must file a bond or deposit a set amount with the state agency to pay for costs and damages if the species escapes. Minnesota's requirement transfers the financial liability for damage from the state to the permittee. Georgia is the only state whose statutes and regulations require liability insurance. Georgia's policy, which is limited to wildlife, requires that a person desiring to possess an inherently dangerous animal must obtain liability insurance. Georgia's requirement guarantees that the possessor will be able to financially contribute to any damages that the wildlife may cause.

INTERMEDIATE MODEL

Louisiana has taken incremental steps toward a strong bonding requirement. Louisiana's policy requires that a person who cultures the invasive tilapia must either post a twenty-five thousand dollar performance

²³⁸ Joyce (1992), *supra* note 8.

²³⁹ Georgia, Hawaii, Louisiana, Minnesota, Rhode Island, and South Carolina.

bond or present a letter of credit to the state agency. A permittee that is allowed to keep a tilapia must either post a ten thousand dollar performance bond or a letter of credit to the state agency. Louisiana's policy recognizes that the escape of tilapia would be damaging to the state's resources and thus requires the bond to ensure that the permittee can contribute to any damages. Louisiana's policy is strong in respect to tilapia but does not cover any other species. Louisiana's statutes and regulations could be strengthened by expanding this requirement to the possession of other invasives.

3. MONITORING

EXPLANATION OF TOOL

Post-introduction monitoring of invasive species is a valuable regulation tool that has not been authorized in many states. Post-release monitoring and evaluation help to minimize unforeseen effects of invasives on other species, ecosystems, or their processes.

In the statutes and regulations that address **wildlife**, only two states, Hawaii and Nevada, authorize the monitoring of introduced wildlife. In the statutes and regulations that address **aquatic life**, three states, Florida, Hawaii, and Nevada authorize the monitoring of introduced species. In the statutes and regulations that address **plant pests and diseases**, only one state, Pennsylvania, authorizes the monitoring of certain plantings. No state statutes and regulations that address invasive **plants** or **insects** authorize post-release monitoring. State statutes and regulations that address the release of biological control agents are covered in Chapter VIII.

COMPREHENSIVE MODEL

A comprehensive model should require a post-release monitoring period for all deliberately introduced species. This monitoring should continue until the species has reached a state of equilibrium in the ecosystem. No state satisfies the comprehensive model across all types of species. Hawaii's policies, however, provide authority for a comprehensive program for post-release monitoring of wildlife and aquatic species. Hawaii's policies require the state agency to conduct studies of the introduced species in the new habitat. This monitoring will continue until the species are established on a stable basis. The state agency must also monitor the rate of the species' spread and its impact on habitat. Hawaii's program provides an opportunity for quick action if it is needed. Hawaii's program would be

strengthened by expanding to the statutes and regulations addressing invasive plants, plant pests and diseases, and insects.

INTERMEDIATE MODEL

Nevada's policies provide an example of a state policy that has taken steps toward reaching the comprehensive model. Nevada's statutes and regulations authorize the inspection of introduced wildlife and aquatic species. The strength of Nevada's policy is that it does allow inspections of introduced species. However, Nevada's policy is not comprehensive since it does not provide for an evaluation of the impact of the introduced species on the environment, but instead focuses solely on inspection of the introduced species itself.

4. TRANSPORTATION AND SHIPPING REQUIREMENTS

EXPLANATION OF TOOL

Transportation and shipping requirements are used by states to regulate the transportation and shipping of invasive species through and within the state. This tool differs from importation requirements, which are discussed earlier under the prevention category, as transportation and shipping requirements regulate invasive species being shipped or transported through the state rather than just into the state. Some states do not have specific transportation requirements, but instead may rely on their importation requirements to cover the movement of invasive species, or states may have very limited requirements covering only a few species. Five types of transportation and shipping requirements are discussed:

- Prohibitions on the transportation of certain categories of invasive species
- Required permits and licenses
- Inspection authority for shipments
- Labeling requirements
- Registration of transporters

The stringency of the state's transportation and shipping requirements often depends on whether the species being shipped is wildlife, aquatic life, a plant, a plant pest or disease, or an insect. For example, in the statutes and regulations addressing wildlife, seventeen

TABLE 9: TRANSPORTATION AND SHIPPING REQUIREMENTS

The states that authorize requirements on the transportation and shipping of invasive species through the state. These requirements include: prohibitions on the movement of certain species, the issuance of a permit or certificate to shippers, the ability for the state to inspect shipments, labeling of shipments, and the registration of shippers with the state agency.

State	Prohibition	Permit/Certificate	Inspection	Labeling	Registration
Alabama	W, A	D, I	P, D, I	P	
Alaska	A, I	W, A, D	P, D, I	P, D	
Arizona		W, A, P, D	P, D	P	
Arkansas	A	W, D, I	P, D	P	
California	A, P, I	W, A, D, I	W, P, D, I	A, P, D	
Colorado	A	W, A, D, I	P, D, I	P	
Connecticut	P	A, D, I	P		
Delaware	P, I	W, A, D	P		
Florida	A	W, A, P, D, I	A, P, D	D	D
Georgia	P	W, A, D, I	P, D	P	
Hawaii	P	W, A, P, D, I	W, A, P, D, I	P, D	
Idaho	P	W, A	D	P	
Illinois	P	W, A, D, I	P	A, P	
Indiana	P	D, I	P, D	P	
Iowa	A, P	W, D, I	D	A, P	
Kansas		D, I	P, D	P	D
Kentucky	P	W, A, D	A, P, D	P	
Louisiana	A, P	W, A, D, I	A, P, D, I	A, P, D	
Maine		D, I	P	P	
Maryland	P	A, D, I	P, D, I	P	A
Massachusetts	P	A, D, I	D	P	
Michigan	P	A, D	D	A, P	
Minnesota	A	W, A, P, I	A, P, D, I	P	D
Mississippi	A, P	D	D, I	P, D	
Missouri	P	W, D, I	D	P	D
Montana		W, A, D, I	W, A, I	P	
Nebraska	A, I	P, D	P		
Nevada	W, A, P	W, A, D, I	A, P, D	P	
New Hampshire	A, P	W, A, P, D, I	W, D	A, P	
New Jersey		D, I	P, D	P	D
New Mexico	P	W, A, P, D, I	A, P, D, I	P	A
North Carolina	A, P	D	P, D		
North Dakota	W, P	W, A, D, I	W, A, P, D	P	
Ohio	W	D	D	A	
Oklahoma	A	W, A, D	P	P	
Oregon	P	W, A, D	P, D	P	
Pennsylvania	P	A, D, I	A, P, D	P	A
Rhode Island	P	W, D, I	P, D		D
South Carolina	W, A	A, D, I	P, I	A, P	D
South Dakota	P	P, D, I	P, D		
Tennessee	W, A, P	W, D, I	W, A, P, D	P	
Texas		W, D		P	
Utah	W, I	W, D, I	W, I	P	A, D
Vermont	A	D			
Virginia	P	W, A, P, D	P, D	P	
Washington	A, P	A, D, I	D, I	P	
West Virginia	P	W, A, P, D, I	A, I	P	D
Wisconsin		A, P, D	P, D, I	P	
Wyoming	A, P	W, A, D, I	P, D	W, A, P	

W – Wildlife A – Aquatic Life P – Plants D – Plant Pests and Diseases I – Insects

states²⁴⁰ do not have any or have very limited transportation or shipping requirements, but in the statutes and regulations addressing plant pests and diseases, every state has some type of transportation or shipping requirement. States most commonly authorize permits and/or health and inspection certificates to regulate the transportation or shipping of invasive species through their state. In addition, states may authorize inspections of the shipments, require notice to the state agency, and establish border inspection stations. The inspection authority is most commonly found in the statutes and regulations addressing plants and plant pests. Thirty-nine states²⁴¹ authorize the inspection of plant pest shipments, and thirty-five states²⁴² authorize the inspection of plant shipments, though more than half of these states only authorize the inspection of seed shipments. Only seven states²⁴³ authorize inspections in the statutes and regulations addressing wildlife, and only twelve states²⁴⁴ do so in the statutes and regulations addressing aquatic life. States may also require that shipments of invasive species be labeled. The labeling requirement is authorized most often in the statutes and regulations addressing plants with forty-one states requiring labels, prima-

rily for seed shipments.²⁴⁵ Finally, some states require that shippers of certain species be either registered with the state or on a state's official inspection registry before being allowed to ship to the state. This authorization was only found in the statutes and regulations addressing aquatic life in four states²⁴⁶ and in those addressing plant pests and diseases in eight states.²⁴⁷

In the statutes and regulations addressing **wildlife**, fourteen states do not have specific transportation requirements.²⁴⁸ In addition, three other states have very limited transportation requirements.²⁴⁹ Seven states prohibit certain types of wildlife from being transported through their state.²⁵⁰ Thirty-six states require a permit and/or a health certificate/certificate of veterinary inspection in order to transport invasive wildlife through the state.²⁵¹ Seven states have inspection requirements. Of these seven states, two, California and Hawaii, re-

²⁴⁰ Connecticut, Indiana, Kansas, Maine, Maryland, Massachusetts, Michigan, Mississippi, Nebraska, New Hampshire, New Jersey, North Carolina, Pennsylvania, South Dakota, Vermont, Washington, and Wisconsin.

²⁴¹ Alabama, Alaska, Arizona, Arkansas, California, Colorado, Florida, Georgia, Hawaii, Iowa, Idaho, Indiana, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, South Dakota, Tennessee, Virginia, Washington, Wisconsin, and Wyoming.

²⁴² Alabama, Alaska, Arizona, Arkansas, California, Colorado (seeds), Connecticut, Delaware (seeds), Florida, Georgia (seed, feed), Hawaii, Illinois, Indiana, Kansas, Kentucky (seeds), Louisiana (seeds), Maine (seeds), Maryland (seeds), Minnesota (seeds), Nebraska, Nevada (seeds), New Hampshire (seeds), New Jersey (seeds), North Carolina, North Dakota, Oklahoma (seeds), Oregon (seeds), Pennsylvania (seed, feed), Rhode Island (seed), South Carolina, South Dakota, Tennessee (seed, feed), Virginia (seed, feed), Wisconsin (seed), and Wyoming.

²⁴³ California, Hawaii, Montana, New York, North Dakota, Tennessee, and Utah.

²⁴⁴ Florida, Hawaii, Kentucky, Louisiana, Minnesota, Montana, Nevada, New Mexico, North Dakota, Pennsylvania, Tennessee, and West Virginia.

²⁴⁵ Alabama, Alaska, Arizona, Arkansas, California, Colorado, Georgia, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Jersey, New Mexico, New York, North Dakota, Oklahoma, Oregon, Pennsylvania, South Carolina, Tennessee, Texas, Utah, Virginia, Washington, West Virginia, Wisconsin, and Wyoming.

²⁴⁶ Maryland, New Mexico, Pennsylvania, and Utah.

²⁴⁷ Florida, Minnesota, Missouri, New Jersey, Rhode Island, South Carolina, Utah, and West Virginia.

²⁴⁸ Connecticut, Indiana, Kansas, Maine, Massachusetts, Michigan, Mississippi, Nebraska, New Hampshire, North Carolina, Pennsylvania, Vermont, Washington, and Wisconsin.

²⁴⁹ Maryland (intrastate shipment of game birds and mammals requires an itemized bill of sale and shipment out of Maryland requires a bill of lading), New Jersey (pheasants, partridge, and quail must be tagged when transported), and South Dakota (game birds can only be shipped by the licensee or with a bill of sale).

²⁵⁰ Alabama (infected animals), Nevada (clean and dirty list), North Dakota (species license species), Ohio (raccoon dog, monk parakeet, and blacktail prairie dog), South Carolina (dirty list, diseased or public health hazard), Tennessee (nongame wildlife and game birds), and Utah (diseased wildlife or wildlife from quarantined area).

²⁵¹ Alaska, Arizona, Arkansas, Georgia, Hawaii, Iowa, Kentucky, Louisiana (only exotic deer), Missouri, Texas, Utah, Virginia, and West Virginia – permit and health certificate/certificate of veterinary inspection; California, Colorado, Delaware (limited species), Florida, Hawaii, Idaho, Illinois (raptor), Louisiana (alligator), Minnesota, Nevada, New Mexico (limited species), New York, North Dakota (limited species), Oklahoma, Oregon, Rhode Island (limited species), Tennessee, and Utah (domestic elk) – permit or license; and Illinois, Montana, North Dakota (limited species), Utah, and Wyoming (limited species) – health certificate.

quire that shippers hold non-native species for inspection by a state agency; Montana requires that animals transported from a licensed game farm be inspected; North Dakota grants the authority for transported non-traditional livestock and farmed elk to be inspected; Tennessee authorizes the inspection of vehicles hauling animals and requires that the state agency be notified twenty-four hours in advance of the shipment of wildlife imported for release; and Utah requires that domestic elk be inspected and branded when being transported. Only one state, Wyoming, requires that containers of wildlife be labeled. Hawaii requires that people transporting animals through Hawaii fill out a declaration form.

In the statutes and regulations addressing **aquatic life**, only seven states do not have any specific transportation/shipping requirements.²⁵² Nineteen states prohibit certain categories of aquatic life from being transported through their state.²⁵³ In addition, Maine does not allow invasive aquatic plants to be transported in a manner that may cause them to enter state waters. Thirty-two states require a permit and/or certificate of inspection or health.²⁵⁴ Nine states require certain species to be labeled.²⁵⁵ Twelve states have inspection authority.²⁵⁶ Hawaii also requires that anyone transport-

ing aquatic species through Hawaii fill out a declaration form. Four states require that out-of-state suppliers be registered.²⁵⁷

The statutes and regulations for the transportation and shipping of invasive **plants and plant pests and diseases** greatly overlap since many plant pests are found in shipments of plants. Only three states, Kansas, Ohio, and Vermont, do not have transportation or shipping requirements for invasive plants. Twenty-four states prohibit the transportation of prohibited noxious weed seeds.²⁵⁸ Five states prohibit the transportation of noxious weeds and noxious weed seeds.²⁵⁹ Hawaii prohibits the transportation of restricted plants and soil, and Oklahoma prohibits the transportation of noxious weeds. Thirteen states require a permit and/or a certificate of inspection for shipments.²⁶⁰ Forty-one states²⁶¹ require seed shipments to be labeled and Hawaii requires all shipments to be labeled. Thirty-five states authorize inspection of shipments.²⁶² Of those states that authorize inspection, only three states authorize the establishment of border inspection stations.²⁶³ In addition, Hawaii's policy requires notice of shipments of invasive

²⁵² Indiana, Kansas, Missouri, New Jersey, Rhode Island, South Dakota, and Texas.

²⁵³ Alabama (game fish), Alaska (aquatic plants), Arkansas (exotic fish, zebra mussels, undesirable species, and lythrum), California (Caulerpa species), Colorado, Florida (listed aquatic plants), Iowa (bait fish list), Louisiana (fish list), Minnesota (listed aquatic plants), Mississippi, Nevada (list), New Hampshire (exotic aquatic weeds), North Carolina (listed fish and aquatic weeds), Oklahoma (noxious aquatic plants), South Carolina (list), Tennessee (nongame fish), Vermont (list), Washington (listed aquatic weeds), and Wyoming (bait fish).

²⁵⁴ Alaska, Arizona, Connecticut, Hawaii, Louisiana, Minnesota, West Virginia, and Wyoming – permit and certificate of inspection; California, Colorado, Delaware (listed fish), Florida, Georgia, Idaho, Illinois, Kentucky, Massachusetts, Michigan (salmonid), Montana (salmonid, bait leeches), Nebraska, Nevada, New Mexico, New York, North Dakota, Oklahoma, Oregon, Pennsylvania, South Carolina, Virginia (game fish), Washington (aquaculture), and Wisconsin (rough fish) – permit; Maryland – health certificate.

²⁵⁵ California (aquatic plants, aquaculture), Illinois (aquatic products), Iowa (fish), Louisiana, Michigan (aquaculture), New York, Ohio (aquaculture), South Carolina, and Wyoming.

²⁵⁶ Florida, Hawaii, Kentucky, Louisiana, Minnesota, Montana, Nevada, New Mexico, North Dakota, Pennsylvania, Tennessee, and West Virginia.

²⁵⁷ Maryland, New Mexico, Pennsylvania, and Utah.

²⁵⁸ California, Connecticut, Georgia, Idaho, Illinois, Indiana, Iowa, Kentucky, Louisiana, Massachusetts, Michigan, Mississippi, Missouri, Nevada, New Hampshire, New Mexico, North Carolina, North Dakota, Pennsylvania, Rhode Island, Tennessee, Virginia, West Virginia, and Wyoming.

²⁵⁹ Delaware, Maryland, Oregon, South Dakota, and Washington.

²⁶⁰ Alabama and North Carolina – permit or certificate; Arkansas – certificate; Arizona, Florida, Hawaii, Minnesota, New Mexico, New York, South Dakota (seeds), Virginia, West Virginia, and Wisconsin (biological control agent).

²⁶¹ Alabama, Alaska, Arizona, Arkansas, California, Colorado, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Oklahoma, Oregon, Pennsylvania, South Carolina, Tennessee, Texas, Utah, Virginia, Washington, West Virginia, Wisconsin, and Wyoming.

²⁶² Alabama, Alaska, Arizona, Arkansas, California, Colorado (seeds), Connecticut, Delaware (seeds), Florida, Georgia (seed, feed), Hawaii, Illinois, Indiana, Kansas, Kentucky (seeds), Louisiana (seeds), Maine (seeds), Maryland (seeds), Minnesota (seeds), Nebraska, Nevada (seeds), New Hampshire (seeds), New Jersey (seeds), North Carolina, North Dakota, Oklahoma (seeds), Oregon (seeds), Pennsylvania (seed, feed), Rhode Island (seed), South Carolina, South Dakota, Tennessee (seed, feed), Virginia (seed, feed), Wisconsin (seed), and Wyoming

²⁶³ Arizona, Florida, and Hawaii.

plants and requires anyone shipping plants into Hawaii to fill out a declaration form.

All of the states have some type of transportation/shipping requirement for **plant pests and diseases** and the requirements are much more extensive than for other categories of invasives. Forty-seven states require permits and/or certificate of inspections to transport plant pests across or within their states.²⁶⁴ Sixteen states²⁶⁵ require shipments to be labeled, and thirty-eight states²⁶⁶ authorize the inspection of shipments. Of the thirty-eight states that authorize inspection, six states²⁶⁷ authorize inspection stations and seven states²⁶⁸ require notification of a state agency of the arrival of shipments of plant pests. In addition, Illinois requires notification of a state agency of the shipment of nursery stock from a foreign country. Finally, nine states require nurseries to be certified or on a state registry in order to ship nursery stock into the state.²⁶⁹

Eight states do not have transportation/shipping requirements in their statutes and regulations for **insects**.²⁷⁰ Four states prohibit the transportation of diseased bees, and Hawaii prohibits the transportation of injurious insects.²⁷¹ Thirty-eight states require a permit

²⁶⁴ Colorado, Delaware, Hawaii, Kentucky, Massachusetts, New York, Oregon, Tennessee, Vermont, Virginia, Washington, West Virginia, Wisconsin, and Wyoming – permit and certificate; Alaska, Florida, and Indiana – permit or permission; Alabama, Arizona, Arkansas, California, Connecticut, Georgia, Illinois, Iowa, Kansas, Louisiana, Maine, Maryland, Michigan, Mississippi, Missouri, Montana, Nevada, New Hampshire, New Jersey, New Mexico, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, South Dakota, Texas, and Utah – certificate.

²⁶⁵ Alabama, Alaska, Arizona, Arkansas, California, Colorado, Florida, Iowa, Louisiana, Maryland, Minnesota, Mississippi, Missouri, New Mexico, Ohio, and Oregon.

²⁶⁶ Alabama, Alaska, Arizona, Arkansas, California, Colorado, Florida, Georgia, Hawaii, Idaho, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, South Dakota, Tennessee, Virginia, Washington, Wisconsin, and Wyoming.

²⁶⁷ Alaska, California, Florida, Hawaii, Louisiana, and Mississippi.

²⁶⁸ Hawaii, Massachusetts, Michigan (foreign), New Jersey, Ohio (foreign), Rhode Island, and South Dakota (foreign).

²⁶⁹ Florida, Kansas, Minnesota, Missouri, New Jersey, Rhode Island, South Carolina, Utah, and West Virginia.

²⁷⁰ Arizona, Idaho, Kentucky, Michigan, Oregon, Texas, Vermont, and Virginia.

²⁷¹ Alaska, California, Delaware, and Utah.

and/or a health certificate to transport or ship insects through their state.²⁷² Sixteen states authorize inspections of shipments.²⁷³ Seven of the sixteen states that authorize inspection require notification to the state department when shipping or transporting insects.²⁷⁴

COMPREHENSIVE MODEL

A comprehensive model should include requiring either a permit or a health/inspection certificate to transport or ship invasive species through the state, the ability to inspect shipments, and the authority to establish inspection stations. Hawaii's statutes and regulations contain all of these elements, and they contain them across all of the different types of invasive species. The transportation of wildlife, aquatic life, plants, plant pests and diseases, and insects into Hawaii requires a permit. Hawaii's policy also authorizes the inspection of shipments and establishes inspection stations for all types of invasive species. In addition, Hawaii's policy goes beyond simply authorizing inspection of shipments and establishing inspection stations to also require anyone who transports or ships wildlife, aquatic life, plants, plant pests, or insects into Hawaii to notify the State Department of Agriculture in order to have their shipment inspected. Furthermore, everyone arriving in Hawaii by a common carrier must fill out a declaration form for the agriculture department if transporting wildlife, aquatic life, or plants. Therefore, Hawaii's statutes and regulations authorize a comprehensive program that results in awareness and approval of potential invasive species transported or shipped into or through the state.

INTERMEDIATE MODEL

Arizona has taken incremental steps toward reaching the comprehensive model for transportation and

²⁷² Colorado, Georgia, Illinois, Iowa, Kansas, Maine, Maryland, Massachusetts, Minnesota, Montana, Nebraska, Rhode Island, South Carolina, and South Dakota – permit and certificate; North Carolina, Ohio, and Oklahoma – permit or certificate; Alabama (fire ants), California (fire ants), Indiana, Missouri, New York, and North Dakota – permit; Arkansas, California, Connecticut, Florida, Hawaii, Louisiana, Nevada, New Jersey, New Mexico, Pennsylvania, Tennessee, Utah, Washington, West Virginia, and Wyoming – certificate.

²⁷³ Alabama, Alaska, California, Colorado, Hawaii, Louisiana, Maryland, Minnesota, Mississippi (fire ants), Montana, New Mexico, South Carolina, Utah, Washington, West Virginia, and Wisconsin.

²⁷⁴ Colorado, Hawaii, Maryland, New Mexico, Pennsylvania, Utah, and West Virginia.



Fire ants (*Solenopsis* genus)

shipping requirements. Arizona's policy requires a health certificate or permit to transport or ship wildlife, aquatic life, certain plants, and plant pests into and through the state. Arizona's policy also authorizes inspections of invasive plants and plant pests but does not include these inspection requirements in the invasive wildlife, aquatic life, and insect statutes and regulations. Arizona's inspection authority includes the inspection of all shipments of plants and plant pests and the establishment of border inspection stations. A carrier must declare all commodities at a port-of-entry and hold the commodity until it is inspected and a certificate of release issued. Also all commodities entering a bulk mail facility must be held for inspection, and any commodity shipped by railroad must be inspected at its destination. In addition, nursery stock shipments cannot enter Arizona on weekends or during a legal holiday. Extending Arizona's inspection authority to include invasive wildlife, aquatic life, and insects would place the state among those that have comprehensive transportation and shipping requirements.

REGULATION TRENDS

States almost universally rely on permits and licenses to regulate the possession of invasive species and the manner in which they may be possessed. Permit and license programs are used to ensure that importers have complied with state regulations before a species is imported.

A handful of states have adopted requirements for posting bonds or purchasing liability insurance in or-

der to possess certain particularly harmful invasives. This approach places the liability for costs incurred from the introduction of invasives on the possessor rather than the state. Three states have adopted bonding requirements for wildlife and one state requires liability insurance. Three states require bonding for aquatic life and one state requires bonding for plant pests and diseases.

Post-release monitoring is an important tool that has only been adopted in a few states. This tool is particularly important for verifying that an intentionally released invasive species is not disrupting the ecosystem or negatively affecting native species. Only two states authorize the monitoring of introduced wildlife, only three states authorize the monitoring of introduced aquatic life, and only one state authorizes the monitoring of certain plants.

Transportation and shipping requirements are regularly used by states to control the manner and type of species that may be transported through the state. The stringency of the state's transportation and shipping requirements often depends on whether the species being shipped is wildlife, aquatic life, a plant, a plant pest or disease, or an insect. For example, sixteen states do not have any or have very limited transportation or shipping requirements for wildlife, but every state has some requirements for plant pests and disease. Similarly, while thirty-seven states authorize the inspection of shipments of plant pests, only six states have such authority for wildlife. States can enhance the effectiveness of this tool by extending requirements to shipments and transportation of all categories of invasives.