

## **INVASIVE SPECIES AND WILDLAND FIRE IN THE NORTHEAST-MIDWEST REGION**

### **QUESTIONNAIRE SUMMARY AND REPORT**

*Responses collected February 14 – March 3, 2023*

#### **INTRODUCTION**

Highly fragmented landscapes, the wildland urban interface, and large number of nonnative species occurring in the Northeast bioregion complicate fire and fuels management (e.g., prescribed fire for restoration or control of invasive species).

The National Invasive Species Council (NISC) and Wildland Fire Leadership Council (WFLC) Partnership has been developed a collaborative partnership to:

- Identify goals and opportunities for coordination
- Leverage federal actions across and between the wildland fire and invasive species communities
- Build collaboration and engagement with non-federal partners
- Identify goals and opportunities for implementation

This questionnaire was developed to discover the type and extent of the invasive species management challenges in wildland fire management exist in the NE-MW region and how the National Invasive Species Council (NISC) and Wildland Fire Leadership Council (WFLC) can collaborate to help address regional invasive species and wildland fire management challenges.

#### **SUMMARY**

The following is a summary of the responses to this questionnaire. The full set of responses follows the summary.

- 63 responses were received from 46 different federal, state, and local agencies, NGOs, universities, and private individuals.
- For those responding, 52% work at the state level, 25% at the local level, 14% work at a multi-state level, and 6% at the 20 NE-MW regional level.
- For those responding, 83% stated that invasive species are considered a wildland fire issue for their agency or organization.
- The invasive species of concern that were most commonly listed:
  - Common Reed (*Phragmites australis*)
  - Bush honeysuckle (*Lonicera maackii*)
  - Japanese stilt grass (*Microstegium vimineum*)
  - Glossy buckthorn (*Frangula alnus*)
  - Autumn olive (*Elaeagnus umbellata*)



- Kudzu (*Pueraria montana*)
- Spotted knapweed (*Centaurea stoebe*)
- Garlic mustard (*Alliaria petiolate*)
- Some invasive insects listed as well: spongy moth, spotted lanternfly, invasive earthworms.
- Dozens of other invasives species were also listed. (See full report below)
- Within agencies and organizations, there is a wide variety of ongoing work and coordination activities on invasive species and wildland fire listed (such as prescribed burning, herbicide treatments, cut and treat, mechanical removal, various combinations of treatments, prevention, equipment cleaning, etc.) to try to mitigate invasive species. About 15 percent of respondents said no activity was occurring.
- The most common barriers or challenges to invasive species and wildland fire coordination listed:
  - staffing shortages
  - funding shortages
  - inability to maintain/repeat treatments (lack of funding and commitment)
  - communication with other agencies and private landowners
  - lack of knowledge regarding prescribed fire benefits
  - lack awareness about the invasive species issues
  - lack of interagency coordination
- A wide variety of coordination work among partners is occurring across the region including planning, communication, information sharing, technical assistance, and on-the-ground support. But about 34% of respondents indicated no partner coordination is occurring.
- NISC/WFLC priorities that resonate most with the NE-MW region:
  - Proactive and Pre-fire Management of Invasives
  - Funding for invasive species management related to wildland fire
  - Research how to better integrate invasive plant control and prescribed burning
- Access to invasive species management subject matter expertise and information:
  - There does not appear to be definitive or recognized go-to sources regionally or nationally for invasive species information.
  - Many state agencies have in-house expertise, but they may not have wildland fire expertise as well.
  - Universities were cited as a resource.
  - Joint Fire Science Exchanges were noted as a resource.



**FULL SET OF QUESTIONNAIRE RESPONSES**

Below are the full set of responses to each of the 10 questions. Minor edits were done for clarity and to correct typos.

**1. Type of Agency or Organization you represent.**

Agency or Organization	Percent (%) of Responses
Federal	25
State	32
Local	3
Tribal	0
NGO	14
University	6
Research	0
Private	8
Consultant/Contractor	6
Other	5

**2. What agency or organization do you represent?**

**Summary:** received responses from 46 different federal, state and local agencies, organizations and private individuals

- New York State Dept. of Environmental Conservation
- PA-PAS (Pennsylvania)
- Star Tree Wildfire Protection LLC
- USFS
- Massachusetts Army National Guard
- USFS
- TNC, TPE, Dane County Parks
- Illinois Prescribed Fire Council executive board, Private landowner who uses fire management
- The Nature Conservancy
- WV Division of Forestry
- Rhode Island Department of Environmental Management- Division of Ag and Forest Environment
- Michigan DNR
- Tallgrass Prairie and Oak Savanna Fire Science Exchange
- National Park Service

**Northeast Region  
Cohesive Wildland Fire Management Strategy**  
Restoring Resilient Landscapes - Creating Fire Adapted Communities - Responding to Wildfires



- Private Lands Conservation LLC
- The Nature Conservancy
- Minnesota, Natural Resources, Forestry, Fire Section
- Illinois Department of Natural Resources
- Wisconsin Dept of Natural Resources
- Prescribed burn association and myself
- Massachusetts Dept Fish and Game Division Fish and Wildlife
- Missouri State Parks
- Forest Preserves of Cook County, Il.
- Missouri Botanical Garden - Shaw Nature Reserve
- Mo. Consulting Foresters Assn
- Total Resource Management
- Bureau of Indian Affairs
- Family
- LAD Foundation
- Ice Age Trail Alliance - Dane County Chapter
- Ohio Division of Forestry
- USFS
- USFS
- Vermont Forests, Parks & Recreation
- Forest consultant
- USFS
- Forest Service
- Southwest Michigan Land Conservancy
- City of Ann Arbor
- private landowner
- Maryland Forest Service
- The Nature Conservancy
- USDA Forest Service
- Southern Illinois University-Dept of Forestry & Horticulture
- Iowa DNR
- USDA Forest Service
- USDA Forest Service
- USDA Forest Service
- IL DNR
- Iowa DNR
- USDA Forest Service
- University of Illinois, Urbana Champaign
- US Forest Service Northern Research Station



- Michigan Army National Guard
- Lake County, MN
- Forest Service
- LANDFIRE
- USFS
- Stockton University
- Kalamazoo Nature Center
- University of Maryland Extension
- Maine Forest Service
- NJFFS

**3. What geographic area do you work in or support?**

Agency or Organization	Percent (%) of Responses
State	52
Local	25
Multi-state	14
Regional (20 states)	6
Other	2

**4. Are invasive species considered a wildland fire issue for your agency/organization?**

- Yes 83%
- No 17%

**5. If your response to question 4 was yes, list by priority if possible, the invasive species of most concern.**

Most commonly listed:

- Common Reed (*Phragmites australis*)
- Bush honeysuckle (*Lonicera maackii*)
- Japanese stilt grass (*Microstegium vimineum*)
- glossy buckthorn (*Frangula alnus*)
- autumn olive (*Elaeagnus umbellata*)
- kudzu (*Pueraria montana*)
- spotted knapweed (*Centaurea stoebe*)
- garlic mustard (*Alliaria petiolata*)

Some invasive insects listed as well: spongy moth, spotted lanternfly, invasive earthworms

Dozens of others listed including:

- wild raisin
- Japanese barberry (*Berberis thunbergii*),
- cedar
- dogwoods
- Russian Olive
- woody brush in general
- multiflora rose
- locust
- herbaceous garlic mustard
- sweet clover
- crown vetch
- parsnip
- perennial cool season grasses (tall fescue, smooth brome, Kentucky bluegrass)
- Round leaf bittersweet (*Celastrus orbiculatus*)
- Paulownia
- Ailanthus
- Zebra Mussels, Spiny Water Flea, others (both terrestrial and aquatic)
- Chaff Flower
- Reed Canary Grass (*Phalaris arundinacea*),
- Chinese plume grass (*Miscanthus sinensis*),
- Feathertop Grass (*Calamagrostis epigieos*),
- Sweet Bamboo (*Phyllostachys* sp.),
- Japanese Black Pine (*Pinus thunbergiana*),
- black swallow-wort (*Cynanchum louiseae*)
- Chinese bushclover (*Sericea lespedeza*)
- Border privet
- Amur honeysuckle
- Callery pear
- sericea lespedeza
- Common Buckthorn, Garlic Mustard, Leafy Spurge, Black Locust, Canada Thistle
- Autumn Olive, Emerald Ash Borer, Multiflora Rose, Wild parsnip
- Sericea, but varies depending on site
- Buckthorn species, Honeysuckle, Autumn Olive, Eastern Red Cedar, Japanese Barberry; garlic mustard, Dame's Rocket, Japanese Hedge Parsley, wild parsnip, curly dock, burdock, spotted knapweed, leafy spurge; Oriental Bittersweet
- Ailanthus, stiltgrass, paulownia, bush honeysuckles, asiatic bittersweet, callery pear, buckthorn
- Japanese Stilt Grass
- Bush honeysuckle

- Bush honeysuckle, autumn olive, Japanese stilt grass, sericea lespedeza, small carpet grass, Japanese barberry, winged burning bush, Chinese silver grass, tree of heaven, princess tree
- Japanese stilt grass
- oriental bittersweet, honeysuckle sp., autumn olive, phragmites, narrow leaved and hybrid cattails, reed canary grass, Japanese knotweed, multiflora rose, tree of heaven
- buckthorn, honeysuckle, Japanese stiltgrass, phragmites, teasel, purple loosestrife, garlic mustard
- autumn olive, honeysuckle, buckthorn, privet, garlic mustard, hedge parsley
- Autumn Olive, Bamboo, Beefsteak Plant, Bush honeysuckle(s), Callery Pear, Canada Thistle, Chinese lespedeza, Common reed (Phragmites), English Ivy, Garlic Mustard, Japanese honeysuckle, Japanese knotweed, Japanese stiltgrass, Johnson grass, Marsh dewflower, Mile-a-minute, Oriental bittersweet, Princess tree, Silk tree/mimosa, Tree-of-heaven, Wisteria
- Asian honeysuckles
- English Honeysuckle, Autumn Olive, Kudzu, Japanese Honeysuckle, Wild Mustard Japanese chaff flower, japanese stiltgrass, russian olivebush honeysuckle
- eastern red cedar, sericea lespedeza, phragmites, reed canary grass, bush honeysuckle, birdsfoot trefoil, others
- Microstegium vimineum
- 1) Autumn olive 2) bush honeysuckle 3) stiltgrass. I think stiltgrass is here to stay unless someone figures out something really effective.
- Bush honeysuckle, autumn olive, oriental bittersweet, Japanese chaff flower, Japanese stiltgrass, multiflora rose, Japanese honeysuckle, ailanthus, Bradford pear, pauwlonia, etc.
- Oriental Bittersweet, honeysuckle, garlic mustard, buckthorn
- Microstegium Vimineum (stiltgrass or Nepalese brown top) but there are many others, bush honeysuckle or Japanese chafflower is considered worse by some
- Microstegium vimineum
- 1. Invasive forest pest insects and their invasive hosts. Prominent examples are spongy moth (and its anticipated relative asiatic spongy moth which has not yet invaded), spotted lanternfly, Ailanthus altissima. 2. Invasive mesophytic plants (e.g., japanese barberry, common privet, multiflora rose, autumn olive) that foster mesophication and degradation of fire-dependent landscapes while fostering the cycle of tick-borne disease through habitat and wildlife use modification for ticks and their hosts. 3. "Native invasive" plants...ones that are native to the US but increasingly invade in habitats where they reduce ecological function...e.g., red maple, white pine. 4. Invasive forest earthworms that alter soil conditions.
- Top priority (for now, till more come our way) are Japanese Barberry, multiflora rose, autumn olive and black locust.
- Tree of Heaven, Spongy moth, spotted lanternfly
- Phragmites
- Buckthorn, reed canary grass, phragmites
- spongy moth, southern pine beetle (native invasive?)
- tree of heaven, phragmites, reed canary grass, overgrown native brambles and sassafras

- Phragmites
- Barberry

**6. What ongoing work and coordination on invasives and wildland fire is occurring within your agency/organization?**

**SUMMARY:** There is a wide variety of activities (such as prescribed burning, herbicide treatments, cut and treat, mechanical removal, various combinations of treatments, prevention, equipment cleaning, etc.) occurring to try to mitigate invasive species. About 15 percent of respondents said no activity was occurring. There are few examples inter-organizational coordination reported.

- Nearly all projects have an invasive control component
- identifying areas where there are invasives species prior to implementing treatments (RX and mechanical) and monitoring after.
- Contracted herbicide applications to suppress invasive woodies rebounding after a grassland burn. Otherwise our invasives program and wildland fire programs don't require much coordination. Our invasive species do not pose a greater fire risk than our native fuels.
- prevention measures - equipment staging in non-infested areas for RX, pre-treatments of invasives
- Prescribed burns; Cut and treat; area treating
- Decadent stands of bush honeysuckle create basically a fireproof environment. Bush honeysuckle is treated mechanically and chemically statewide, with prescribed fire being used to maintain openings and encourage natives.
- internal TNC coordination of fire operations and separately but in parallel, national coordination of invasive species; in parallel with national coordination and communication for managing for climate resilient lands;
- We are beginning to increase our prescribed fire program to address degraded forestlands. One of the multiple goals of increased Rx fire is to remove invasive species.
- BMPs are in place to minimize spread of invasives on wildland fire incidents
- reducing invasive species is one of the most common prescribed burn objectives in our region; this affects almost every burn unit
- Post-fire treatments of herbicide application, herbicide treatment while conducting fuel reduction projects
- Burns are done to kill garlic mustard (when flower is in boot), kill buckthorn seedlings after removal of adult plants, or top kill honeysuckle to make plant more vulnerable to follow-up herbicide control. Fire is also generally used to synchronize invasives for follow-up control.





- Right now our preserves have minimal but present populations of invasive species. Our current work is to decrease those populations and make sure that we don't spread those populations while maintaining fire breaks and decreasing canopy cover.
- Policies are in place to clean equipment and ensure no spread of invasives.
- Collaboration between land managers who implement invasive control and the personnel who work in the fire program.
- control with burning and spraying
- MassWildlife uses prescribed fire in combination with herbicide and mechanical treatments to control invasives at multiple sites. If timed appropriately these combination treatments are effective in reducing invasive species. MassWildlife is a member of the Massachusetts Invasive Plant Group which is a partnership of state agencies, NGOs, land managers, and researchers who track invasives statewide and work closely with the Mass Department of Agriculture.
- Making sure fire management and invasive management are coordinated
- Staff and volunteer contribute 2,000+ hours annually to invasive species control. 650 acres of Rx fire each year.
- Almost every individual consulting forester is involved with invasives to some extent. Not aware of much coordination among the entire group.
- Fuels Management tries to integrate invasive species mgmt. with all projects
- Late spring annual burning, mechanical removal, herbicide treatment.
- Developing skills to better map (EDDMaps) and treat invasives
- We combine mechanical removal of shrubs and herbiciding herbaceous invasives with prescribed fire to eliminate and control the invasives in our prairie, oak savanna, and oak woodland restorations
- Too much to list. Interagency efforts on control, control on state lands, technical assistance on private lands
- Any ground disturbance ends up in stilt grass so trying to use natural and man-made breaks and limit disturbance.
- Veg management deconfliction. We do minimal burning to reduce invasive species
- Some spraying and cutting
- Integrated herbicide treatments and prescribed fire application. Some BAER work. Some Haz Fuels reduction concentrating on high density invasive shrubs in the WUI.
- Little other than using fuels funding to help treat woody invasives
- treatment pre and post fire along with monitoring post fire
- we have been performing controlled burns on as many acres within our city parks as we can each season for the last 28 years.
- We prioritize fire timing and fuel load for maximum impact on invasives.



- Controlled burns in areas with invasive species where fire is effective in controlling plants, mechanical removal and herbicide application
- We work hand in hand with the USFS in both prescribed fire and invasives control. Our model is shared stewardship and we have a crew module that works year-around.
- Some manual removal, very little chemical removal.
- continued herbicide treatments such as cut stump, foliar spraying, and basal bark treatments
- Not lots; efforts on mechanical and chemical woody control followed by fire control
- Forest Service Botany, Wildlife, Timber, and Fire shops coordinate to treat non-native invasive plant infestations.
- One study on stiltgrass about to be conducted on the forest. But I think autumn olive is a bigger problem that can be controlled better. The first two can be knocked back. Prisoner chain-gangs like from Cool Hand Luke would help.
- In house and contracted work on state and private land. Prescribed burning, control of invasive species through combination of manual and herbicide.
- Prescribed Fire
- We try to coordinate planning and treatments between prescribed Fire and invasive plants treatment, so that we use fire to knock back invasives but limit the exacerbation of existing infestations.
- Research examining how invasion alter fire behavior and fire effects on native tree regeneration
- We are conducting research on how prescribed fire can reduce invasive forest pest insect egg masses and restores native habitat conditions that are less conducive to ticks.
- manual removal/treatment, rx fire, coordination with statewide planning body (Michigan Invasive Species Coalition).
- Fire and ability to kill spongy moth and spotted lanternfly eggs.
- In LANDFIRE we are trying to understand how to bring information on invasive species into surface fuel models given our ES and NVC vegetation classes that typically drown out plot level invasive species information with dominant lifeforms.
- On our forest not much, mostly there are concerns that rx fire and fuels activity will increase invasive sp by increasing light levels etc.
- Thinning and prescribed burning to reduce risk of southern pine beetle
- pre-treatment of basal bark or cut and dab treatments in burn units prior to and follow up years of prescribed burning, long-term fire monitoring vegetation surveys in burn units
- Very limited
- Prescribed Fire

## 7. What ongoing work and coordination on invasives and wildland fire is occurring with your partners?

**SUMMARY:** A wide variety of coordination work is occurring across the region including planning, communication, information sharing, technical assistance and on-the-ground support. About 34% of respondents indicated no partner coordination is occurring.

### Responses

- provide financial support for spraying in areas after treatment
- So far as I know, our partner agencies have a similar approach to invasives.
- Prescribed burns; Cut and treat; area treating
- Private landowners and NGOs are encouraged to manage bush honeysuckle on their properties.
- deep engagement among partners via the Wisconsin prescribed Fire Council; The JFSP Tallgrass Prairie & Oak Savana Fire Consortia; local interagency partnership to share resources for planning and fire implementation.
- GLFFC compact is working on some common BMPs, and the compact has a forest health committee
- We have coordinated with the Midwest Invasive Plant Network to hold symposia at the Upper Midwest Invasive Species Conference; we have collaborated with the Lake States Fire Science Consortium on sessions for the Burning Issues Workshop in Michigan
- Sharing of ideas and methods.
- Interagency Best Practices and standards are in place for Fire Suppression
- Collaborative meetings to keep up to date on invasive issues.
- Communication, ensuring it is happening and working well.
- We host partner staff (MDC, QFPF, Washington University) on Rx fire. We have sent staff to support Rx fire at MDC and LAD sites.
- Sharing information about successful treatment technique and chemicals
- collaboration is ongoing with NRCS, and MN DNR
- We have no partners. Attempting to join other groups to learn more.
- formation of Scenic Rivers Invasive Species Partnership, first CISMA in the state
- The same as in Question 7 with the Wisconsin Department of Natural Resources and Dane County Parks Department with some encouragement from the National Park Service and U.S. Fish & Wildlife Service.



- Botany shop tracks and we minimize activity as much as possible. Seems to be a losing battle.
- Lots of herbicide work with Autumn Olive
- Working with NWTf on partnered hazardous fuels reduction efforts, some work with local Soil and Water Conservation District in Athens County, larger Ohio Interagency efforts underway, albeit nothing much happening yet.
- Our department within the city, Natural Areas Preservation is focused on fostering native plant growth by controlling invasive species through an integrated pest management approach, which includes using historic disturbance, like fire
- We organize occasional workshops for the public in partnership with the Stewardship Network.
- In southern Illinois we have a robust partner group from NGO's, State, Federal, local CWMA, and Let the Sun Shine In. We work to address prescribed fire needs and invasives work on public and private properties.
- Manual and chemical removal of wild mustard
- Locally combined efforts between DNR and USFWS, DNR and TNC to manage invasive woody species
- We work with The Nature Conservancy Strike Team to treat non-native invasive plant infestations.
- I know the state does a lot of work but they have small parcels. Must be nice to have small parcels and enough staff to deal with that. They think they are the experts but they are not scientists, they don't publish their results. They are not research station biologists and can't even spell the word "silviculture" when they write recommendations.
- Invasive plant management
- The same partners that cooperate to do prescribed fire across boundaries also work to collectively map, prioritize, and treat invasive plant infestations. In our upcoming Joint Chief's project, we are combining prescribed fire, invasive plant treatments, and stand improvement within established stewardship clusters on Forest Service, private and state land. We also have a cooperative weed management area that focuses on coordination, grant writing, and education. This is a coalition of numerous federal, state, local, and NGOs.
- Partnering with state and federal agencies on research examining how grass invasion alters fire behavior and native tree regeneration, and increases invasion severity through feedback (i.e., grass fire cycle).
- They are doing the same as us, and we are also using our CISMA as they are.
- Fire and ability to kill spongy moth and spotted lanternfly eggs.

- LANDFIRE leaders have been involved in working groups at the national level, and I wrote a report on the relationships between LF and invasive species several years ago.
- Thinning and prescribed burning to reduce risk of southern pine beetle; burning to kill spongy moth egg masses?
- same local strategies each on their own private lands
- It is an ongoing project/program that is getting more attention
- Herbicide treatments after top kill by prescribed burning

**8. What challenges and barriers exist for integrating invasives and wildland fire programs within your agency/organization and other partners?**

**Most commonly noted barriers/challenges:**

- staffing shortages
- funding shortages
- inability to maintain/repeat treatments (lack of funding and commitment)
- communication with other agencies and private landowners
- lack of knowledge regarding prescribed fire benefits
- lack awareness about the invasive species issue
- lack of interagency coordination

**Other comments include:**

- They are handled by different divisions within the agency.
- Wildfires are not seen as a problem in the east.
- Long term follow up. Due to their nature invasives are very prolific. Landowners don't have the funding or energy to keep doing work.
- Staffing shortages on the invasive side of the house which delays project implementation
- I wouldn't blame challenges or barriers for a lack of integration. We're fortunate that we don't have any runaway dominant invasive species and we have an unusual degree of control over our site, so we've been able to keep a measure of control of our invasives via mechanical and chemical methods. If conditions change, I'm confident in our ability to coordinate since our pest management and wildland fire programs all fall within the same Natural Resources program and cooperation is one of our strong suits.



- (Lack of) resource integration, recognition of the problem
- Safety regulations and weather and wildland/private boundary
- Some mechanical and chemical treatments do not adequately create an environment for return of prescribed fire management. Bush honeysuckle (and other invasives) thrive in areas where mesophication is an increasing concern.
- Adequate personnel and funding to keep up with this growing problem does not exist.
- Application of prescribed fire on fire dependent landscapes is also limited by adequate funding and personnel.
- Insufficient capacity by 10 fold to implement prescribed fire and invasive species control.
- Staffing levels (insufficient)
- A lack of basic understanding about wildland fire and the benefits of Rx as a land management tool. We would greatly benefit from scientific/data-based messaging on how Rx fire helps to address invasive species, and how we can relate this to combating the effects of climate change.
- 1 - as in the western US, many invasive species have fire-adaptive traits; 2 - other invasive species reduce the fire load and must be first addressed with expensive mechanical or herbicide treatments; 3 - there is limited research on first- and second-order fire effects on invasive species in the eastern United States (see Gucker et al 2012 "Characteristics of Information Available on Fire and Invasive Plants in the Eastern United States" for an overview - <https://link.springer.com/article/10.4996/fireecology.0802057>)
- Short staffed to conduct the needed treatment of invasives.
- Building capacity to get more fire on the ground safely and effectively.
- For us, our programs are already integrated. It is more finding the time, money and methods to adequately treat our problem areas. And any possible research on way that the prescribed fire program may not accelerate invasive problems as much.
- Continual updating of procedures dependent on vector agents.
- Communication among multiple agencies and getting the message out to private landowners.
- Not all areas with invasives can be treated with fire
- Funding to support research, outreach materials, and staff dedicated to invasive plant issues including surveys, prioritization of research and management needs, control techniques and wildland fire mitigation measures to reduce spread.
- Lately it has been contractor/staff capacity to keep up with the follow up work necessary.
- Funding and staffing. More of both would help.



- Many consultants do not agree with the OVERUSE of fire in high quality hardwood stands. Negative impacts on the value of high quality (and high priced) products are being generated by misapplication of prescribed fire.
- communication
- Many areas need to integrate this into management plans and haven't done so
- Finding partners is difficult.
- Lack of staff resources
- 1) Insufficient people (volunteers and staff) to comfortably manage all the areas needing invasive species control; 2) Outdated Wisconsin Statutes limiting the effectiveness of prescribed burns by too tightly controlling how and when burns can be conducted; 3) Insufficient training opportunities in both how to conduct prescribed burns safely and effectively and how to most effectively control invasive species;
- Fire introduces disturbance which largely favors invasive species. But it is impossible to eradicate invasive species completely prior to performing RX fires.
- Need a broader approach to include private land on the edge of the national forest.
- shortage of botany personnel on forest
- Not recognized as a priority due to funding and staff resources. Current RX burn objectives are for habitat management, training, and fire control.
- Funding and awareness
- Equipment cleaning not a priority in the East; we've seen the negative impacts resulting from the lack. Also, on the implementation side, lack of personnel to implement, lack of funds, lack of local contractors to carry out work.
- Many private landowner boundaries. Invasive species aren't a priority to prevent or treat.
- Time, money, resources human and physical
- The groundwork was laid for me, well before I started with the City. I'm always surprised at how widely accepted our pest control and burn programs are in our parks. That said, education will always be an ongoing thing.
- The cost of insurance. Lack of familiarity with prescribed fire.
- Staffing
- Capacity and funding are always the issues. Invasives and lack of fire are a pervasive problem and it takes a lot hands on deck.
- Public availability of invasive species for home gardening.



- funding programs for baseline research driven by a focused overarching community/institution
- Funding, personnel, time. Equipment needs to manage more volatile fuels, mechanical removal limitation, etc.
- There has been some hesitation by some fire personnel to properly clean their equipment before returning to or entering the Forest. There is also a lack of awareness of what should be done to minimize the spread of invasives.
- The main problem is lack of manpower for both the Forest Service and our partners.
- I think some invasives react positively to fire and/or get worse making fire not a good option sometimes. We are going to have to get everyone, I mean everyone, the PAOs, front desk people, facilities manager, to deal with the invasives along with prison chain-gangs, Marine Corps, Army, National Guard, and Navy Seals. There's just so much that it's not realistic but only workable in patches or small parcels like what the state does. Going to have use a lot of herbicide (aerial spraying from planes) with fire for large parcels.
- Lack of staff, funding. Research needed.
- funding to partners and private landowners to control invasives
- Limited resources (people/time/money); over 120 identified exotic plant species with varying phenology and natural history and characteristics; conflicting treatment priorities (e.g. the optimal time to treat garlic mustard is at the peak of Rx burning conditions); a very patchy ownership pattern with a large and mobile population (I.e. numerous opportunities to introduce new species and new infestations of existing exotics); good soils, plentiful rainfall, and varied habitats allow many species to thrive here(exotic and native); treatments that reduce some invasives exacerbate others; long seed banking for some species
- Mostly financial - funding to support this type of research is almost non-existent, especially in the NC region. More funds are available for western forests.
- lack of funding, difficulty in balancing an additional objective while staffing can barely keep up with current objectives
- Not knowing how best to kill invasives with fire. That different invasives respond differently to any given prescription. We are trying to save our high quality natural communities but they are nested in a matrix of invasive/non-native species. Also, climate change impacts are going to increase the difficulty of management on every front.
- Funding to run appropriate trials
- We need accurate distribution maps of fire affected invasive spp of concern as well as the fire ecology of species and how they react to fire. We need vegetation classes that can account for both native and non-native vegetation that could be translated into fuel models. For





LANDFIRE to better help managers by providing accurate information on species distribution and fire effects, we require a fundamental change to our vegetation mapping classifications and fuel models that account for issues related to invasive species.

- Most of the invasives are not increasing fire potential besides the ones I mentioned above.
- Lack of wood processing facilities. Few places to sell timber, which limits opportunities to thin or practice other forms of silviculture
- lack of funding because not considered wildfire risk, lack of capacity not enough trained staff to conduct fire
- qualified personnel, funding, liability, current regulations
- I believe getting all the proper partners / agencies in the room to talk about this is a start, but hasn't been done consistently statewide.
- Certification of private landowners to conduct prescribed burning

**9. Which of the NISC/WFLC priorities resonate most with the NE-MW region? (Refer to the companion NISC/WFLC documents for details on the following options)**

NISC/WFLC Priorities	Percent (%) of Responses
1. Proactive and Pre-fire Management of Invasives	58
2. Identify data sources for the locations of invasive plants resulting from wildland fire activities	15
3. Post-wildfire invasive species management	31
4. Funding for invasive species management related to wildland fire	60
5. Information, Data, and Management Tools	27
6. Research how to better integrate invasive plant control and prescribed burning	61
Other	8

**10. Do you have access to invasive species management subject matter expertise to obtain information and advice? If so, list the source agency or organization.**

**SUMMARY:**

- There does not appear to be definitive or recognized go-to sources regionally or nationally for invasive species information.
- Many state agencies have in-house expertise, but they may not have wildland fire expertise as well.
- Universities were cited as a resource.
- Joint Fire Science Exchanges were noted as a resource.

Other Comments:

- Yes, NYS DEC Division of Lands and Forests
- We have in-house staff on invasive species, but they have little connection to wildland fire
- Our prescription is based on the landowner goals usually based on their own assessment or that of another hired consultant
- no
- Massachusetts Department of Agricultural Resources, MA Division of Fisheries and Wildlife, Army National Guard Integrated Pest Management Program
- PA invasive species council
- Various leaders w/in the orgs. listed above
- Yes - Illinois Department of Natural Resources and Illinois Nature Preserves Commission
- yes; JFSP TPOS; strong fire networking and information exchange opportunities both in the State of WI and within The Nature Conservancy
- Unknown
- Staff within other sections and divisions in our agency (MI DNR) have excellent invasive species expertise
- yes - many practitioners in state agencies, The Nature Conservancy, and smaller NGOs
- Local biologists and natural resource specialists
- Yes. Wisconsin DNR, UW-Madison, UW-Stevens Point
- Land grant university cooperative extension. For us Penn State.
- Yes, Minnesota, Natural Resource, Forestry, Invasive Species program.
- River to River Cooperative Weed Management Area
- no
- Yes the internet
- Massachusetts Invasive Plant Program (inter-agency/NGO group), <https://www.massnrc.org/mipag/publications.htm> , state botanists/ecologists within MassWildlife track native and non-native species and make recommendations for control statewide, Mass Department of Agricultural Resources (maintains Mass Prohibitive Plant list and regulations related to herbicides), Fire Effects Information System
- Our professional staff, contractors/consultants, partners (including Universities we work with) and longtime volunteers.

- yes. Great Plains Fire Science Exchange
- NRCS, MN DNR
- Our primary subject matter expertise is the DNR and website research.
- variety of places - other professional colleagues, online sources, EDDMaps
- The Invasive Plants Association of Wisconsin provides considerable information and expertise in control of invasive species
- Our division of forestry have forest health specialists that are our local experts.
- Southern Indiana Cooperative Invasives Management
- We have local botanists and the Fire Effects Information System
- One In-house expert for invasive plants only for non-fire activities. Currently working on integrating invasive species management in all aspects of agency.
- Fed. Agencies only
- Yeah. USFS, Ohio Invasive Plant Council, Midwestern Invasive Plant Network, etc.
- yes, Forest Service
- Yes, probably too many to list, worth a conversation
- The Stewardship Network, Michigan Prescribed Fire Council
- Yes, The Stewardship Network, other burn professionals and the Michigan Prescribed Fire Council
- River to River CWMA, U of I Extension Forestry, TNC's Invasive Species Management Council, USFS, TNC's Invasive Species and Stewardship Listserv's.
- USDA NRCS, USFS, and state DNR folks
- Yes, via in-house and partners.
- Yes, the Midwest Invasive Species Network, Woody Invasives of the great Lakes, Midwest Invasive Plant Network, local CWMAs or CISMAs
- USDA Forest Service, Dixon Springs Agricultural Center, and River to River Cooperative Weed Management Agency.
- Some state pamphlets on invasive species management for plants in southern IL. Books on invasive management on wild pigs. Seems like a book on management of invasive plants would be good (i.e. funding for a comprehensive management guide--book). It's been done for wild pigs which are bigger problem but fire doesn't nothing to them.
- Yes, one good example is U of I Extension Forestry.

**Northeast Region  
Cohesive Wildland Fire Management Strategy**  
Restoring Resilient Landscapes - Creating Fire Adapted Communities - Responding to Wildfires



- Iowa DNR
- River to River Cooperative Weed Management Area; University of Illinois Extension, The Nature Conservancy, US Forest Service, Oak Woodlands and Forests Fire Consortium, Illinois DNR, Oklahoma and Kansas State University Extensions (specific to services lespedeza)
- Yes. USFS Northern Research Station, North Atlantic Fire Science Exchange, Forestry Programs
- MISC, MDNR contacts.
- No specific person/agency, but I have a few contacts that could help me in NPS and USFS
- We have a forest botanist and an invasives removal program. I keep up on new invasives to our area especially those with fire potential.
- USDA Forest Service, NJ DEP Forest Service
- MI Natural Features Inventory, Midwest Invasive Species Information Network (MISIN)
- yes, internally, partner extension organizations
- I need to be more involved with this at this point.
- Invasive species task force/Dukes Farm Foundation