**Invasive Species Management Plan**

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| **Property Details:** |
| **Landowner/land manager:** |  | **Address:** |  |
| **County:** |  | **Area (ac.):** |  |
| **Site Visit Date:** |  | **Latitude:** |  |
|  **Follow up Date:** |  | **Longitude:** |  |

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| **Report Credits:** |
| **Written by:** |  | **Assisted by:** |  |
| **Report Date**  |  |

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| **Property goals:** |
| Plant identification & invasive plant management planning in support of Weed Wrangle Indiana opportunities. |

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| **Invasive****Species Found** | **Current % Cover1/ (range)** | **Density2/** | **General Description of Population** |
| **Forbs** (non-graminoid flowering herbaceous plants) |
| 1. Garlic mustard,

*Alliaria petiolata* | <5% | Low (TBD) | Remnants of 2nd year plants that had gone to seed and a few small basal rosettes along wooded edges & interior. Be on the lookout in fall-spring for more basal rosettes and flowering plants. |
| 1. Asiatic dayflower, *Commelina communis*
 | <5% | Low | Disturbed wooded edge area along east side of property, directly north of pond. |
| 1. Creeping Charlie, *Glechoma hederacea* \*
 | 5-25% | Low-Medium | Throughout property. Not a priority for initial control.  |
| 1. Moneywort , *Lysimachia nummularia*
 | <5% | Low-Medium | In low lying areas of property. |
| 1. Asian smartweed, *Persicaria longiseta \**
 | 5-25% | Low-Medium | Throughout property. Not a priority for initial control.  |
| **Graminoids** (grasses or grass relatives) |
| 1. Japanese stiltgrass, *Microstegium vimineum*
 | 5-25% | TBD | Not observed during site visit, but documented by David Mow in riparian area on east side of property that wasn’t covered during assessment. |
| 1. Reed canarygrass, *Phalaris arundinacea*
 | <5% | Medium-High | In mown & unmown areas adjacent to pond on east side of property. |
| **Shrubs** (low stature woody plants, ≤30 ft tall & typically multi-stemmed) |
| 1. Autumn olive, *Eleagnus umbellata*
 | <5% | Low-Medium | Along wooded edges and interior throughout property. |
| 1. Winged burning bush, *Euonymus alatus*
 | 5-25%% | Medium-High | Along wooded edges and interior throughout property. |
| 1. Border privet, *Ligustrum obtusifolium*
 | <5% | Low | Along wooded edges on eastern side of property. |
| 1. Asian bush honeysuckle, *Lonicera spp*. ≠
 | 25-50% | Medium-High | Along wooded edges and interior throughout property.. |
| 1. Multiflora rose, *Rosa multiflora*
 | 5-25% | Low-Medium | Along wooded edges and interior throughout property. |
| **Trees** (tall stature woody plants, ≥30 ft tall & typically single-stemmed) |
| 1. Tree of heaven, *Ailanthus altissima*
 | <5% | Medium-High | Several large individuals intentionally planted in northwest corner of property and multiple smaller colonies have volunteered along wooded edges along the western side of property. |
| 1. White mulberry, *Morus alba*
 | <5% | Low-Medium | Along wooded edges throughout property. |
| 1. Callery pear, *Pyrus calleryana*
 | <5% | Low-Medium | Along wooded edges and interior throughout property. |
| **Vines** (climbing and/or trailing plants, either herbaceous or woody) |
| 1. Asian bittersweet, *Celastrus orbiculatus*
 | <5% | High | In disturbed wooded edge area along east side of property, directly north of pond. |
| 1. Wintercreeper, *Euonymus fortunei*
 | 25-50% | High | Groundcover and climbing vines in wooded edges and interior throughout property, with heaviest infestations in the west and east sections. |
| 1. Japanese honeysuckle, *Lonicera japonica*
 | 5-25% | Medium-HIgh | Along open wooded edges and unmown areas of disturbance. |
| 1/ Estimate percent cover for the entire survey area.2/ Qualitative assessment of how dense the species is where it is found (e.g. low, medium, or high). Example: low = single, scattered plants versus high = very dense, almost monoculture≠ identification was not confirmed to the species level and/or multiple species in genera present \* ranked as invasive but not a primary priority for control |

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| **Priority Invasive** **Species to Control** | **Treatment Method** (Digging, Pulling, Cutting, Chemical\*, Controlled Browsing, etc.)**3/** | **Timing of Treatment(s) or Plant Growth stage for Best Effective Control** |
| 1. Garlic mustard, *Alliaria petiolata*
 | **Manual:** Pull/dig plants, making sure to remove the upper portion of the roots and stem. **Chemical:** Foliar spray with 3% glyphosate product and 1/4% non-ionic surfactant | **Manual:** April – June and/or September-November **Chemical:** Foliar spray March-April before flowering or October – November basal rosettes |
| 1. Asiatic dayflower, *Commelina communis*
 | **Manual:** Pull/dig plants, making sure to remove the upper portion of the roots and stem. **Chemical:** Foliar spray with 3% triclopyr product and 1/4% non-ionic surfactant. | **Manual:** May – October **Chemical:** Foliar spray May-June before flowering |
| 1. Moneywort, *Lysimachia nummularia*
 | **Manual:** Can pull/dig out small patches anytime**Chemical:** Foliar spray with 3% glyphosate and 1/4% non-ionic surfactant**Cultural:** For disturbed areas, restore with native plantings of taller dense herbaceous plants such as sedges and grasses to shade & and outcompete | **Manual:** Anytime**Chemical:** Foliar spray October – March**Cultural:** Dormant seeding of perennial native plants late November – early FebruaryChemical control is only shown to be marginally effective for this species. |
| 1. Japanese stiltgrass, *Microstegium vimineum*
 | **Manual/Mechanical:** Pull to uproot or string trim at ground level**Chemical:** Non-selective foliar spray with 1% glyphosate and 1/4% non-ionic surfactant (or grass-specific foliar spray with grass specific herbicide as per product label)For pre-emergent application recommendations, contact County Extension or Office of Indiana State Chemist  | **Manual/ Mechanical**: Pull or string trim: June – September**Chemical:** Foliar spray June-September**Note:** Avoid mowing to prevent spread and reduce stimulating flowering & seed set below mower height. |
| 1. Reed canaraygrass, *Phalaris arundinacea*
 | **Mechanical:** Mow/string trim in combination with chemical control**Chemical:** Foliar spray with 3-5% glyphosate and 1/4% surfactant**Cultural:** For disturbed areas, restore with native plantings of taller vegetation to shade & and outcompete | **Mechanical:** Mid-June & late September to reduce seed & encourage natives**Chemical:** May–June and/or September–October**Cultural:** Dormant seeding of perennial native plants late November – early February**Note:** For areas directly adjacent to waterway or where runoff is into surface water likely, use aquatic label glyphosate. |
| 1. Autumn olive, *Eleagnus umbellata*
2. Winged burning bush, *Euonymus alatus*
3. Border privet, *Ligustrum obtusifolium*
4. Asian bush honeysuckle, *Lonicera spp. ≠*
5. Multiflora rose, *Rosa multiflora*
 | **Manual:** Can pull/dig out smaller individual plants**Chemical:** Foliar spray with 3% glyphosate or triclopyr with 1/4% non-ionic surfactant (on small shrubs or re-sprouts below chest height)Cut-surface treatment for larger shrubs, cut near base and treat with 20% solution of glyphosate active ingredient (~50% product concentrate / 50% water)Basal bark treatment with 20-30% triclopyr and 70-80% horticultural oil or basal oil (BBT not ideal for shrubs with multiple stems/trunks) | **Manual:** Anytime**Chemical:** Foliar spray May – September Cut surface treatment June – MarchBasal bark treatment September – MarchCan also cut, brushcut, bushhog, or mow with forestry mower/mulcher in spring then foliar spray once resprouts are 3-4 ft tall in summer – early fall |
| 1. Tree of Heaven, *Ailanthus altissima*
 | **Chemical:** Foliar spray with 3% Glyphosate product and 1/4% non-ionic surfactant.Basal bark treatment with 20-30% Tricolpyr product and 70-80% horticultural oil or basal oil.Risk of prolific root sprouting if not chemically treated before or immediately following cutting. | **Chemical:** Foliar spray June – SeptemberBasal bark treatment June – March |
| 1. White mulberry, *Morus alba*
2. Callery pear, *Pyrus calleryana*
 | **Manual:** Can pull/dig out seedlings & small saplings.**Chemical:** Foliar spray 3% glyphosate with 1/4% non-ionic surfactant (on small trees or re-sprouts below chest height) Cut-surface treatment, specifically cut stump treatment, cut near base and treat with 20% solution of glyphosate active ingredient (~50% product concentrate / 50% water). Can also do hack-and-squirt for trees over 6 dbh with cut-surface solution aboveBasal bark treatment with 20-30% triclopyr and 70-80% horticultural oil or basal oil | Manual: AnytimeChemical: Foliar spray May – September Cut surface treatment June – MarchBasal bark treatment September – MarchCan also cut, brushcut, bushhog, or mow in spring then foliar spray once resprouts are 3-4 ft tall in summer – early fall. **Note:** Even young white mulberry seedlings may be difficult to dig up/pull due to long taproots. |
| 1. Asian bittersweet, *Celastrus orbiculatus*
 | **Manual:** Can pull/dig out smaller individuals **Chemical:** Cut surface treatment with 50% glyphosate and 50% water.Foliar spray with 3% glyphosate and 1/4% non-ionic surfactant | **Manual**: Anytime**Chemical:** Cut surface treatment August - December Foliar spray June – September**Note:** Do not attempt to pull large climbing vines from trees due to the danger of falling limbs and heavy vines. |
| 1. Purple wintercreeper, *Euonymus fortunei*
 | **Manual:** Cut at base to kill climbing vines on trees and structures. Pull/dig out small patches growing along ground**Chemical:** Foliar Spray with 3% Triclopyr and 1/2% non-ionic surfactant, due to waxy leaf. Cut-surface treatment of any large climbing vines with 20% solution of glyphosate active ingredient (~50% product concentrate / 50% water) | **Manual:** Anytime**Chemical:** Foliar spray October - MarchCut-surface treatment of large climbing vines October - November **Note:** Do not attempt to pull large climbing vines from trees due to the danger of falling limbs and heavy vines. |
| 1. Japanese honeysuckle, *Lonicera japonica*
 | **Manual:** Remove climbing vines and pull/dig small patches**Chemical:** Foliar spray with 3% glyphosate or triclopyr and 1/4 % non‐ionic surfactant  | **Manual:** Anytime**Chemical:** Foliar spray October - March  |
| 3/ Include specific application method(s), equipment type, herbicide type and rate.\* Before applying any chemicals, make sure to follow the manufacturer’s labels and any applicable laws. Failure to do so is against the law. |

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| **Monitoring Plan** |
| Timing | Biannually or more frequently if possible. |
| Method | Thoroughly walk property to check for control success, resprouts, increased spread, and/or new occurrences.  |

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| **Maintenance** |
| Re-treatments: |  | Spot Treatments (Y or N): |  |
| Specific recommendations for retreating areas: Keep on the lookout for invasive plants throughout your property and throughout the seasons. Areas to be on the lookout for new and continuing infestations include property borders, edge habitat, along waterways, and any disturbed sites. Disturbed sites may include canopy openings due to loss of ash trees from emerald ash borer, and in some cases invasive plant removal activities can by necessity also cause disturbance. |

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| **Additional Information** |
| *Keep it simple. Indicate plans to manage for x species in y area via weed wrangles 1 or 2 years out. If applicable capture any past Weed Wrangle accomplishment info. Plan document should be updated annually with work completed and changes to future work. Include a bulleted list or table of Weed Wrangle events. Include details for post-treatment activities including what to do with invasive plant material (leave on site or remove for destruction/disposal) and any plans to encourage regeneration or active restoration of native plant communities.* e.g., Species Prioritization List: The priority species and/or growth habit for control are ranked here roughly in order of precedence based on species of concern, the ease of access, method of control, degree of infestation, and property goals:1. First priority vines – Asian bittersweet & wintercreeper, cut and treat climbing vines
2. First priority forb – garlic mustard
3. First priority grass – Japanese stiltgrass
4. All shrubs – autumn olive, winged burning bush, border privet Asian bush honeysuckle, multiflora rose
5. First priority trees –Tree of heaven & Callery pear
6. Other vines: Japanese honeysuckle + Asian bittersweet & wintercreeper vines growing along the ground
7. Other grass: Reed canarygrass
8. Other tree: White mulberry
9. Other forbs: Asiatic daylily & Moneywort

and/ore.g., Prioritization for Property Management Efforts: Listed below are options for initial targeting of Weed Wrangle® Indiana/volunteer [with option to include & general property management activities]: 1. Spring 2021, hand pull garlic mustard in [indicate portion(s) of the property as applicable].
2. Winter-early spring 2021, cut and stump treat climbing vines of Asian bittersweet and wintercreeper [indicate portion(s) of the property as applicable].
3. June-August 2021, hand pull (or foliar spray) Japanese stiltgrass along trails and in upstream areas along waterways [indicate portion(s) of the property as applicable].
4. June 2021-March 2022, control tree of heaven above 3-6 inch dbh that can be left standing without danger of injury from falling limbs via basal bark treatment or modified hack-n-squirt treatment (see more info below), otherwise cut stump treat any trees that need to be immediately cut for public safety.
5. June-Sept 2021, foliar herbicide treatment of tree of heaven saplings and resprouts under chest height.
6. Summer 2021, foliar herbicide treatment of Asian bittersweet growing along the ground.
7. Fall 2021-early spring 2022, control of woody invasive shrubs and trees via cut stump treatment in easy to access/highly visible portions of the property.
8. Late fall 2021-early spring 2022, foliar herbicide treatment of wintercreeper growing along the ground.
9. Spring-fall 2021, cut, string trim, and/or mow perennial invasive forbs, grasses, and vines to prevent production of seed and/or fruit to limit further spread (e.g. Asiatic dayflower, reed canarygrass, Japanese honeysuckle).
10. Publicize invasive removal efforts to broaden outreach and achieve greater community support.
11. Restore areas with native plantings to follow up successful invasive management.
12. Invite friends of parks, CISMA members, other parks affiliates, city and/or county groups, property neighbors, etc. to volunteer to help with invasive management and native plantings.
13. Encourage this same audience to remove and control invasive plants and plant native on their own properties.
14. Recognize & reward support of individuals, groups, partners, neighbors, and community representatives.

e.g., Post Treatment: Once invasive plant management has been addressed, regeneration of existing native plant species and/or restoration with native plants to prevent erosion, support natural resource health, and reduce the decline of pollinators, birds, and other wildlife. Successful establishment of native plants limits the need for costly maintenance and/or future control requirements.  Natural regeneration of preferred species will re-colonize the site: Native trees, shrubs, vines, and understory herbaceous plants and/orThe following Native or Cover Crop species may be planted on the site: Seeding with annual rye cover crop and perennial native graminoids such as Virginia wild rye (Elymus virginiana), riverbank wild rye (Elymus riparius), beak grass (Diarrhena obovata), and native sedges (Carex & Scirpus spp.) |

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| **Property Map(s):** |
| *Include property map(s) of invasive plants by species and/or density. Also may be helpful to separately map location(s) of Weed Wrangles based on species, year, season, etc as applicable.* |

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| **Local Resources by County - Hamilton** |
| **SICIM Regional Specialist:** | Mary Welz812-219-2683mary@sicim.info[www.sicim.info](http://www.sicim.info/) | **Cooperative Invasive Species Management Area (CISMA):** | Hamilton County Invasives Partnership (HIP)317-773-2181hcinvasives@hamiltoncounty.in.gov |
| **Soil & Water Conservation District:**  | Taylor Wilson317-773-2181Taylor.Wilson@hamiltoncounty.in.gov<https://www.hamiltonswcd.org/>  | **Natural Resource Conservation Service:**  | Angie Garrison765-482-6355angela.garrison@usda.gov [www.nrcs.usda.gov/wps/portal/nrcs/in/contact/local/](http://www.nrcs.usda.gov/wps/portal/nrcs/in/contact/local/) |
| **Purdue Extension:**  | 317-776-0854<https://extension.purdue.edu/hendricks>  | **District Forester:**  | Zach Musser, 219- 843-4827zmusser@dnr.in.gov [www.in.gov/dnr/forestry/4750.htm](http://www.in.gov/dnr/forestry/4750.htm) |
| **Nursery Inspector & Compliance Officer:**  | Kristy Stultz, 765-716-0328KStultz@dnr.IN.gov <https://www.in.gov/dnr/entomolo/2899.htm>  | **Aquatic Invasive Species Biologist:**  | Eric Fischer317-234-3883ais@dnr.IN.gov[www.in.gov/dnr/6347.htm](https://www.in.gov/dnr/6347.htm)  |
| **Wildlife Biologist(s):** | Kent Hanauer765-529-6319khanauer@dnr.IN.gov [www.in.gov/dnr/fishwild/2716.htm](http://www.in.gov/dnr/fishwild/2716.htm)  | **Nature Preserves Regional Ecologist:** | Andrew Reuter 317-234-8944AReuter@dnr.in.gov<https://www.in.gov/dnr/naturepreserve/4730.htm>  |
| **Watershed Specialist:**  | Samuel Ennett (317) 308-3206 sennett@idem.in.gov <https://www.in.gov/idem/nps/2359.htm>  | **Soil Conservation District Support Specialist** | Leah Harmon317-607-4127lharmon2@isda.in.gov[www.in.gov/isda/2373.htm](http://www.in.gov/isda/2373.htm) |
| **The Nature Conservancy** **Land Manager:** | The Nature Conservancy in Indiana317-951-8818<https://www.nature.org/en-us/about-us/where-we-work/united-states/indiana/>  | **Other Land Trust(s):**  | Central Indiana Land Trust, Inc 317-631-5263 <http://www.conservingindiana.org/>  |
| **Indiana Forester Directories:**  | * <https://www.findindianaforester.org/>
* <https://www.in.gov/dnr/forestryexchange/INForestryX/FindaForester.aspx>
 | **Other:**  |   |