Hamilton County Invasives Partnership

Invasive Species Basics Workshop

Resources, safety, tools, tips

4/2/2022 Kim Gauen, HIP Technical Committee Co-chair

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Agenda

- Technical references
- Safety considerations
- Herbicide use
- Tools, safety gear and clothing
- Seasonal considerations
- Debris Management

Suggested Supplementary Seminar from Purdue Extension – Forestry and Natural Resources

"Invasive Plants Threaten Our Woodlands"

Part 1 - Identification

https://www.youtube.com/watch?v=ProfmAE5hd8

Part 2 – Control and Management

https://www.youtube.com/watch?v=eDu_5NdsE3I

Regional and local technical expertise

Executive Director: **Landowner Tool Kit:**	Stephanie Schuck stephanie@sicim.info www.sicim.info sicim.info/landowner-toolkit/	**Cooperative Invasive Species Management Area (CISMA):**	Hamilton County Invasives Partnership (HIP) 317-773-2181 https://www.hcinvasives.org
Soil & Water Conservation District:	Taylor Wilson 317-773-2181 Taylor.Wilson@hamiltoncounty.in.gov https://www.hamiltonswcd.org/	**Natural Resource Conservation Service:**	Angie Garrison 765-482-6355 angela.garrison@usda.gov 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- 843-4827 zmusser@dnr.in.gov www.in.gov/dnr/forestry/4750.htm
Nursery Inspector & Compliance Officer:	Kristy Stultz 765-716-0328 KStultz@dnr.IN.gov https://www.in.gov/dnr/entomolo/2899.htm	**Aquatic Invasive Species Biologist:**	Eric Fischer 317-234-3883 ais@dnr.IN.gov www.in.gov/dnr/6347.htm
Wildlife Biologist(s):	Kent Hanauer 765-529-6319 khanauer@dnr.IN.gov www.in.gov/dnr/fishwild/2716.htm	**Nature Preserves Regional Ecologist:**	Andrew Reuter 317-234-8944 AReuter@dnr.in.gov https://www.in.gov/dnr/naturepreserve/4730.htm
Watershed Specialist:	Samuel Ennett (317) 308-3206sennett@idem.in.gov https://www.in.gov/idem/nps/2359.htm	**Soil Conservation District Support Specialist**	Leah Harmon 317-607-4127 lharmon2@isda.in.gov www.in.gov/isda/2373.htm
Indiana State Forester:	https://www.findindianaforester.org/	**Consulting Foresters:**	https://www.in.gov/dnr/forestryexchange/INForestryX/FindaForester.aspx
The Nature Conservancy Land Manager:	The Nature Conservancy in Indiana 317-951-8818 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/

Gap between recommendations and implementation

- Expert advise is often general and not specific to an area
- Some advise is not applicable to your target or is incorrect or incomplete
- Your available resources and goals may not align with some advise
- Because environmental systems are complex, choosing the best approach may not be straightforward
- You will have to choose between many reasonable options at each step of the process
- How do you make these choices?

Gap between recommendations and implementation (cont.)

- Take the first and most difficult step - Start
- Try to do no harm.
- Begin with small, obviously needed tasks. As you progress, more tasks will become obvious.
- Remain flexible - adjust your technique as you gain experience and become more familiar with the target property’s needs.
- Continue to seek advice
- For teams: continuously consider process improvements, ask the team for feedback, distribute responsibility, take time for socializing with teammates, model the behavior you want in the team.

Safety considerations – initial concerns

- Herbicide exposure
- Cuts from handsaws or chainsaws
- Puncture wounds from Callery (Bradford) pear thorns
- Herbicide environmental effects and possible spillage
- Poison ivy exposure
- Tick or mosquito bites
- Encountering wildlife (snakes)
- Falling trees or large limbs

Safety considerations – learned concerns

(actual safety issues)

- Tripping hazards from grape, Japanese honeysuckle or other vines
- Fallen or cut trees or limbs that create trip hazards
- Herbicide mixing, storage and transportation
- Puncture wounds from thorny plants
- Eye or face scratches from multiflora rose thorns
- Eye or ear pokes from branch stubs
- Encountering ground wasps
- Inhalation of fine plant fibers, mostly from asters
- Fine plant fibers getting into eyes

Control terminology

- Mechanical control - pulling, cutting, girdling, burning, barriers
- “Cut Surface” or “Cut Stump” Treatment
- Foliar spray – spraying foliage
- Basal bark treatment – oil based treatment of the lowest 1 to 1.5’ of a woody stem
- “Hack and squirt”
- “Surfactants” reduce surface tension so that liquid spreads out
- “Penetrants” encourage a liquid to penetrate a porous material; useful for waxy leaved plants
- Herbicide dye
- Glyphosate is the active ingredient in RoundUp
- Herbicide label – read it; it is the law
- SDS – safety datasheet for an herbicide
- Phenology – study of biological phenomena as influenced by seasons

Cut Stump Herbicide Use

- Herbicide and application method selection: Use SICIM guidelines
  - We used dauber bottles and spray bottles
- Consider splitting tasks between “Cutters” and “Appliers”. Ratio depends on cutting method, brush density, etc.
- Apply herbicide to the outer ½ to ¾ inch of the stump
- Avoid treating plants during periods of strong sap flow
- Always add a marking dye to the herbicide
- Always read and follow the herbicide label (it’s the law)
- Wear appropriate PPE

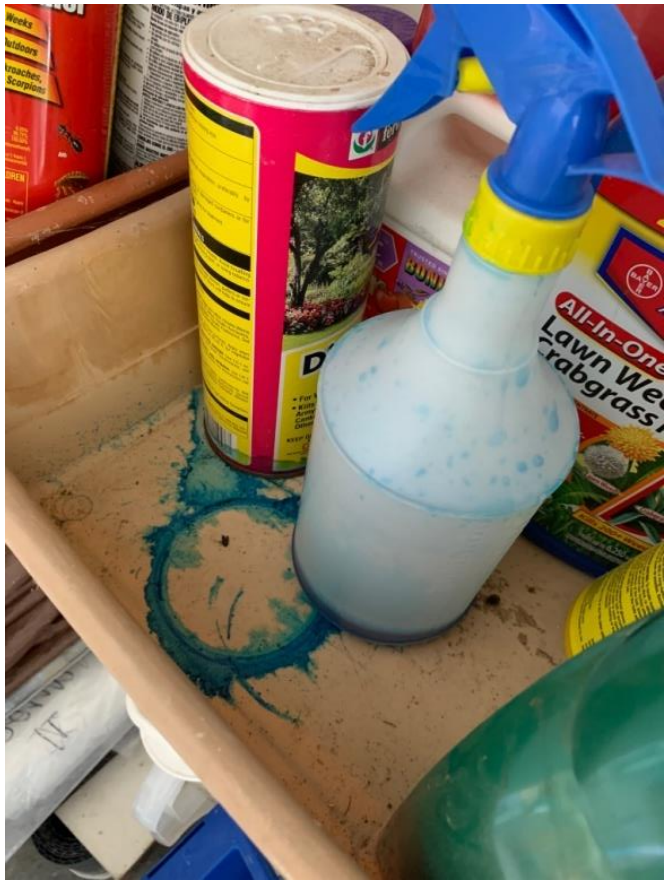
Herbicide and blue marking dye

41% glyphosate
Brand: Compare-N-Save
Local source: Tractor Supply

Not easy to dispense; cap seals degrade and eventually leak
Source: purchase on-line

Daubers vs. hand held sprayers

Dauber bottle dispenser with replacement heads
https://naisma.org/shop/buckthornblasterproducts/?LRI



Leakage from spray bottle in storage

Daubers vs. hand held sprayers (cont.)

	Daubers	Spray Bottles
Volume	4 oz.	up to 32 oz.
Unit cost	heads need replacing	lower cost
Herbicide utilization	high	3 to 4x lower
Coverage of target area	very high	lower
Leakage in storage	unlikely	common
Drips, head leakage during use	none	common
Speed	slower	faster
Ease of use	stump must be within arm's length	can spray from > arm's length

Gloves for dispensing herbicide

- Use chemical proof gloves. They will be labeled as having: Laminate, Butyl, Nitrile, Neoprene, Natural, Polyethylene, PVC or Viton material
- These links provide more glove selection guidance:

  https://extensionpublications.unl.edu/assets/pdf/g1961.pdf

  https://ucanr.edu/blogs/blogcore/postdetail.cfm?postnum=39291
- During a work session occasionally check for blue marking dye
- Holes or tears are often not noticeable – wear a glove that will tolerate the abuse
- Segregate cutting vs. applying tasks to optimize glove selection

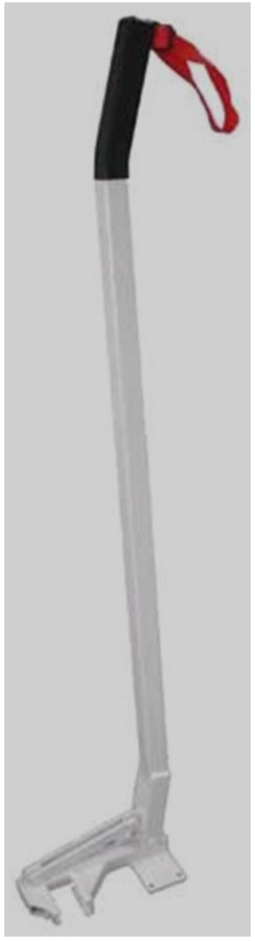
Clothing as PPE

- To avoid eye pokes and scratches, safety glasses are mandatory. Wrap around versions are preferred. A forestry helmet gives extra eye protection.
- Long sleeved shirts protect against scratches, poison ivy and the sun.
- Thorn resistant pants reduce leg pokes and scratches.
- Boots limit injuries from thorns and briars. They also reduce foot and ankle injuries. Heavy boots help clear brush. Thick tops and soles inhibit large thorns.
- Wide brimmed hats reduce sun exposure and limit pokes from the side and above.

Clothing as PPE (cont.)

- Heavy duty gloves reduce hand fatigue, protect the hand from handsaw cuts, and reduce thorn pokes. Good gloves allow more aggressive and efficient techniques.
- High visibility vests are necessary to reduce hunting accidents in some areas and seasons. They also help volunteers track each other's location for a more coordinated area sweep.

Woody Plant Pullers



Cutting tools

- Foldable saws can manage many clearing tasks. They are not as robust or versatile as a fixed blade version.
- A 13” pruning saw is an all purpose tool. It can down trees from less than 1” to at least 5” in diameter. The saw has a long reach, which is ideal for multi-stemmed trees and bushes such as multiflora rose.

Felco 660 or Silky F80
Source: purchase on-line

Ichiban GC-330-LH 13”
Source: purchase on-line

Cutting tools (cont.)

- Loppers are good for pruning medium sized limbs and cutting a narrow range of trunk diameters.
- Hand pruners are handy for cutting limbs and plants with small diameters, creating access to a trunk or bush, reducing debris after it is cut, and pruning smaller limbs. A holster is suggested.

Felco #21 lopper
Source: purchase on-line

Felco #2 hand pruner with sharpening stone
Source: purchase on-line

Chainsaws

- Gas powered tools will not be used during HIP sponsored events.
- For dense infestations or large diameter plants, chainsaws increase cutting speed by nearly tenfold as compared to hand tools.
- A herbicide applier is needed, and they can provide the required safety support for the chainsaw operator.
- The applier should always maintain a safe distance from the cutter and they should never assist the cutter with bush unless the chainsaw is stopped.
- Hearing protection is strongly recommended for the applier as well as the cutter.

Chainsaws (cont.)

- Lighter saws are preferable (16” bar length or smaller)
- Most gas powered saws are 2-cycle (dirtier than 4 cycle)
- Small battery powered saws are maneuverable, hold sufficient charge for a couple hours of work, emit no exhaust fumes
- Keep the chain sharp and oiled for battery and gas powered saws.

Chainsaws (cont.)

- Chainsaws require a higher level of personal protection than handsaws.
- Heavy duty gloves are mandatory.
- A forestry helmet, which has integrated hearing protection and a face shield, is mandatory.
- Chainsaw chaps are recommended to protect the legs.

Husqvarna 587160704
Source: purchase on-line

Husqvarna 592752602
Source: purchase on-line

Handheld brush cutter

- A hand held brush cutter (requires a harness) is a professional level tool for removing plants <3” in diameter.
- In a pinch, it cuts down 5” trees.
- Has a blade similar to that of a circular saw; also has a blade for grass or brush.
- Excellent for multi-stemmed plants such as large honeysuckle or multiflora rose
- Rotating blade creates a kickback possibility; the blade can throw debris up to 20’.
- Herbicide appliers must stay behind the operator to avoid debris and cutting accidents. This makes spotting and treating stumps more difficult.
- Battery powered brush cutters are available.

Stihl FS 460 C-EM brush cutter
Local source:
McGavic Outdoor Power

Walk behind brush cutter

- Walk behind brush cutters are good for clearing areas of small diameter plants such as multiflora rose, Japanese honeysuckle, Sericea lespedeza, etc.
- Mulches debris
- Good for areas made impassible by briars.
- Stumps may be difficult to locate and treat.
- Not easily maneuverable, best for open areas.
- Must avoid trees/bushes/debris > 2” diameter.
- Maximum treated area is about 1 acre.
- Rental cost is about $300 per day.

Billy Goat 26” brush cutter
Model BC2601HM
Source: equipment rental

Seasonal considerations

- Refer to SICIM calendar of control at:

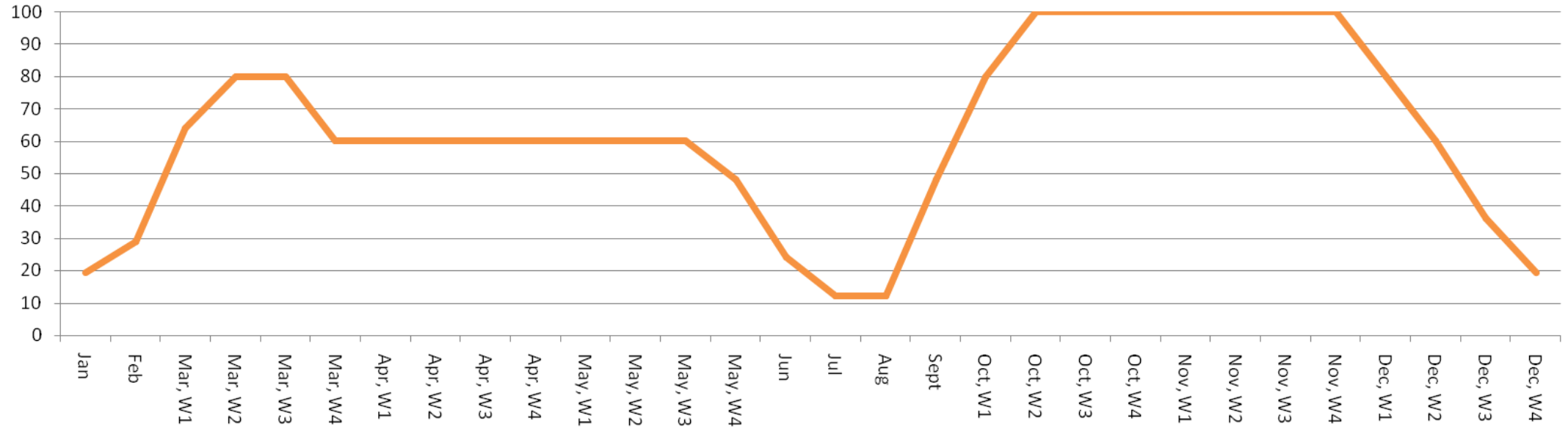
https://sites.google.com/site/bcnwp3/BCNWP-Calendar-of-Control.pdf?attredirects=1

- Match control technique to a plant's vulnerable stage
- Cut surface treatment with glyphosate is effective for woody plants except when temperature is below freezing or when sap flow is heavy in spring
- Schedule events when the target species is most conspicuous. HIP is creating a phenology study to optimize treatment timing.
- Summer events are only for the most hardened volunteers! Consider your and volunteers' comfort and safety.

Best Times to Treat Asian Bush Honeysuckle

(cut stump method)

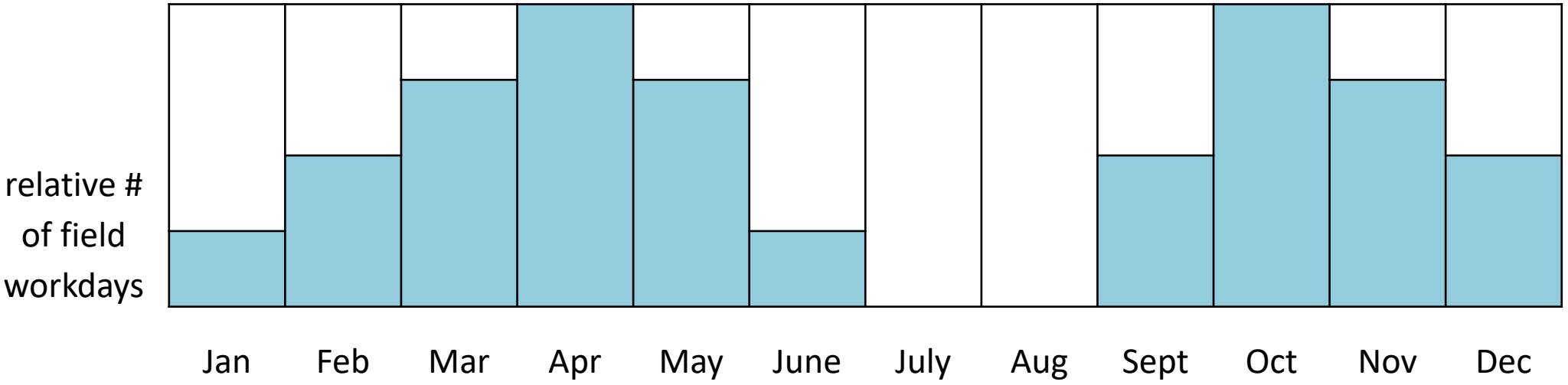
Herbicide effectiveness
Worker safety
Ease of plant ID



- Winter can be too uncomfortable; glyphosate cannot be applied in freezing weather
- Upward sap flow during spring reduces herbicide effectiveness
- Summer can be uncomfortable, buggy, poison ivy is more active, and small plants are difficult to find
- Fall conditions are ideal for herbicide effectiveness, worker safety, and ease of plant ID

Seasonal considerations (cont.)

- Relative # of field workdays during a year



Debris management

- Debris from cutting plants can be unsightly in a public setting.
- Chipping debris or moving it off sight can require more effort than cutting and treating. Additional, large equipment is needed.
- For mid to low density infestations, debris can be left in place.
- For high density infestations, gather and pile debris to serve as wildlife cover.
- Large branches of trees and large shrubs can be trimmed, perhaps before downing.
- Vines and large MFR canes can be cut in 8’ sections to reduce trip hazards.
- Most woody plants do not regenerate after cutting and can be placed in contact with the soil.
- Discuss and agree on a strategy with the land manager prior to the event.

Mapping restoration progress

- Mapping is a necessary tool to track progress, report status to stakeholders, and encourage volunteers, including the team leader.
- Hamilton County parks have access to sophisticated professional mapping software to record plant locations, plan restoration efforts, track progress and retreat areas.
- Any modern cell phone can provide adequate location data. Location is accurate to about 30’.
- Several tracking applications (e.g., MapMyWalk) allow plotting routes in Google Maps
- Photos that include GPS data can be plotted onto custom Google maps.