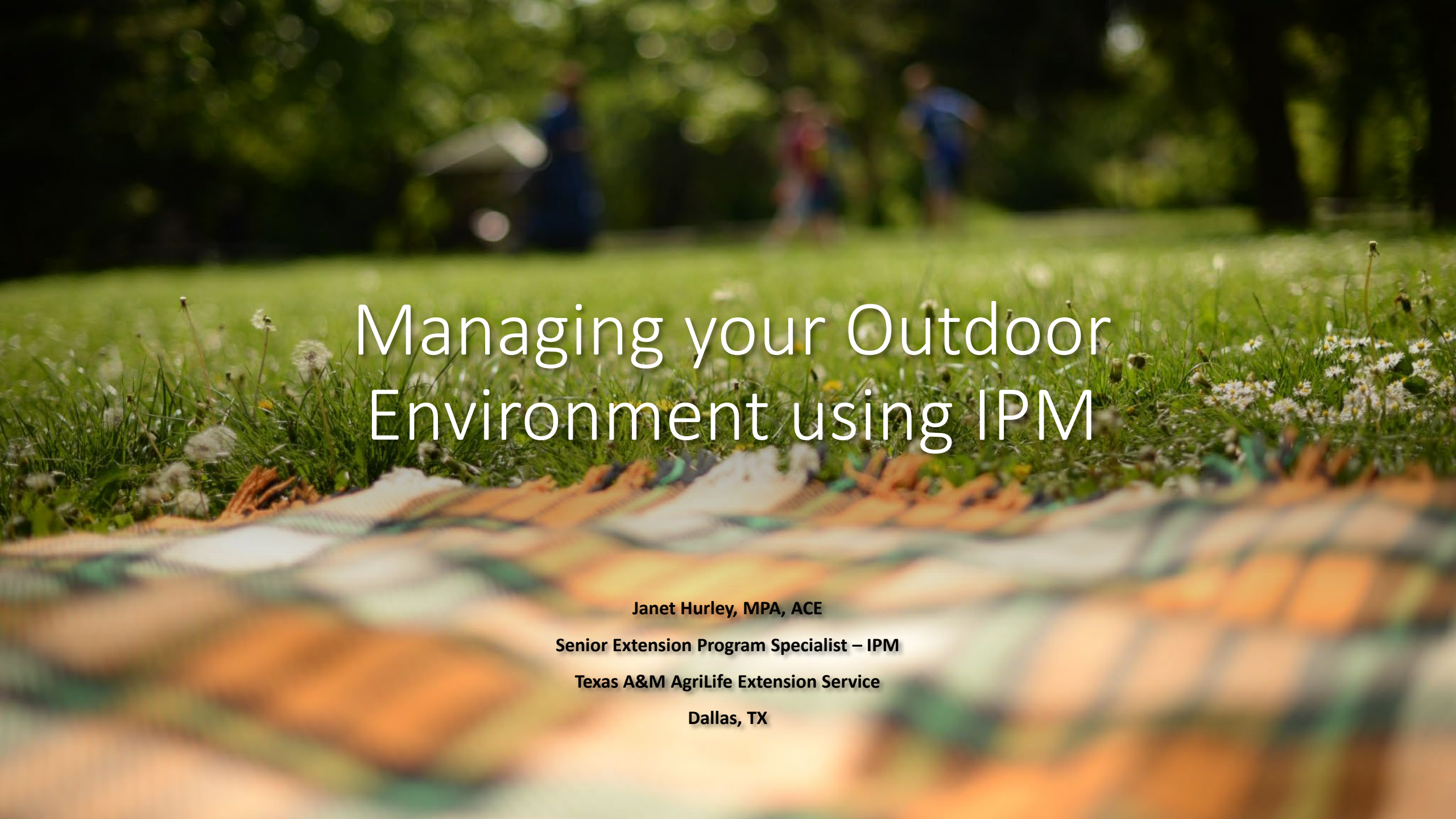

Managing your Outdoor Environment using IPM

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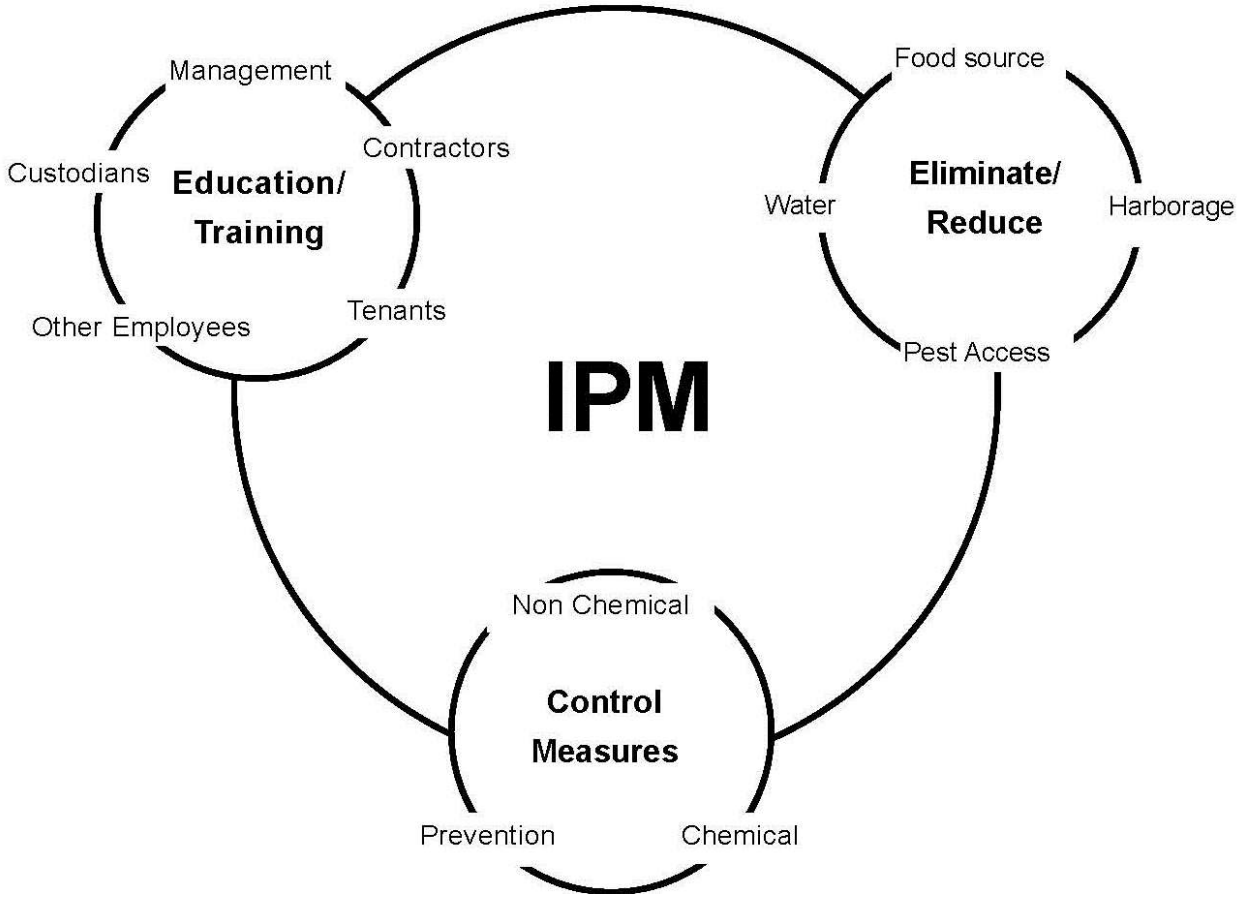
What is Integrated Pest Management?

- IPM is a science-based, decision-making process that:
  - combines many different methods, or tactics, including cultural practices, biological control organisms, pesticides, pest-resistant plants, mechanical methods and physical barriers;
  - identifies, manages and reduces risks from pests and pest management strategies;
  - while minimizing overall economic, health and environmental impacts.

    --paraphrased from “A National Road Map for Integrated Pest Management (USDA-NIFA 2018)”.
- TDA has a definition for all SPCS applicators



Why Practice IPM?

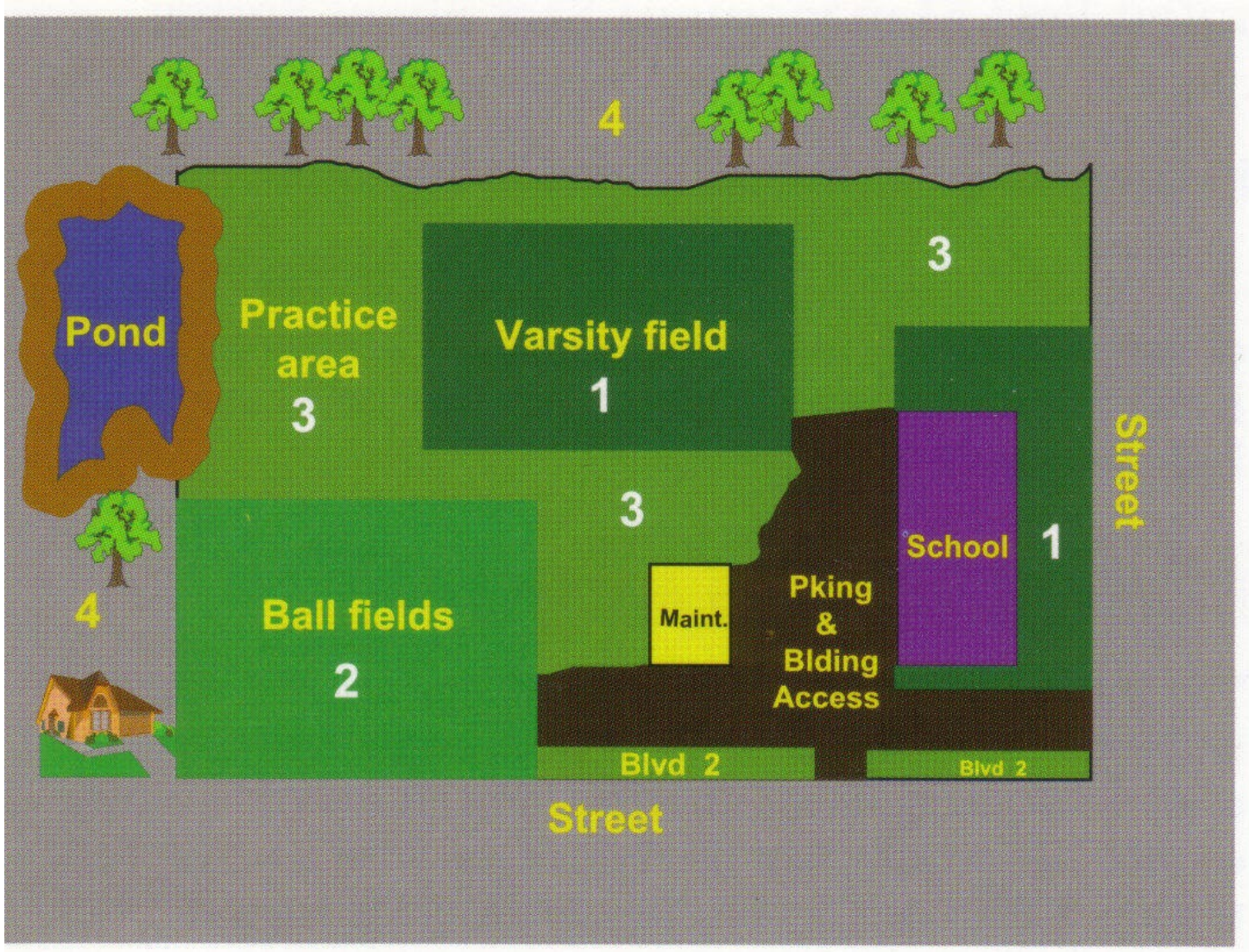
- Prevent initial pest problems.
- Keep the ecosystem intact and functioning.
- Reliance on one tactic can be problematic.
- Maximize effectiveness of control tactics.
- Promote a healthy environment and a good public image.
- Conserve natural enemies.
- Protection of soil health and crop production inputs.

PRINCIPLES OF INTEGRATED PEST MANAGEMENT PROGRAM

Understand the site management objectives; establish short- and long-term priorities

Decide on your site objectives for pest management use:

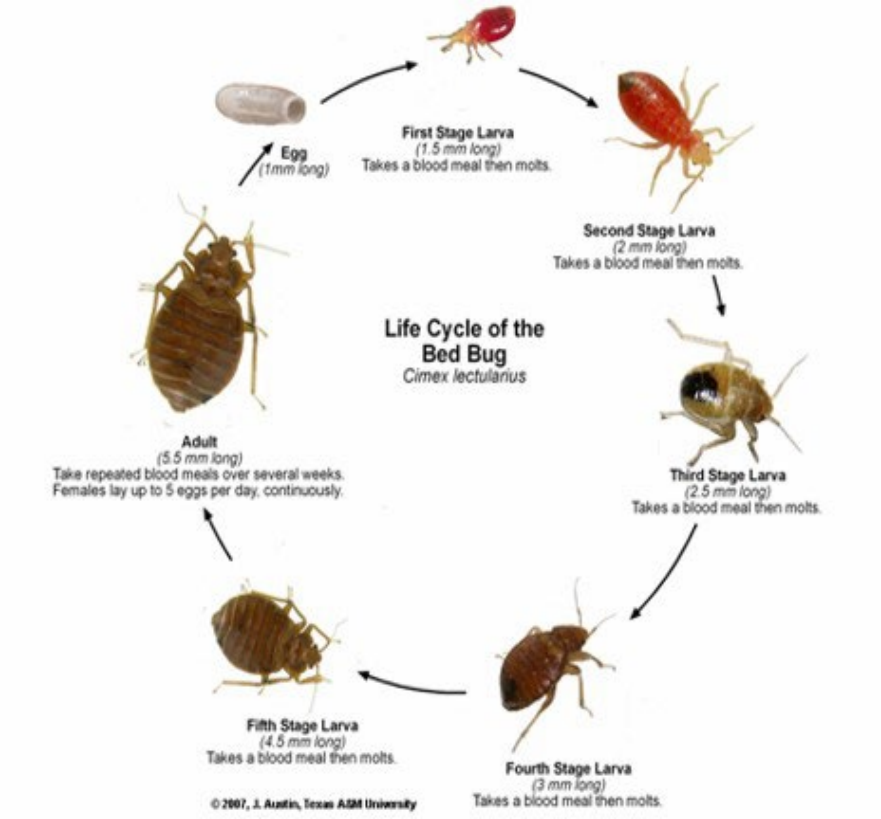
- Specific
- Measurable
- Achievable
- Realistic, and
- Time-based
- (SMART) objectives when choosing tools.

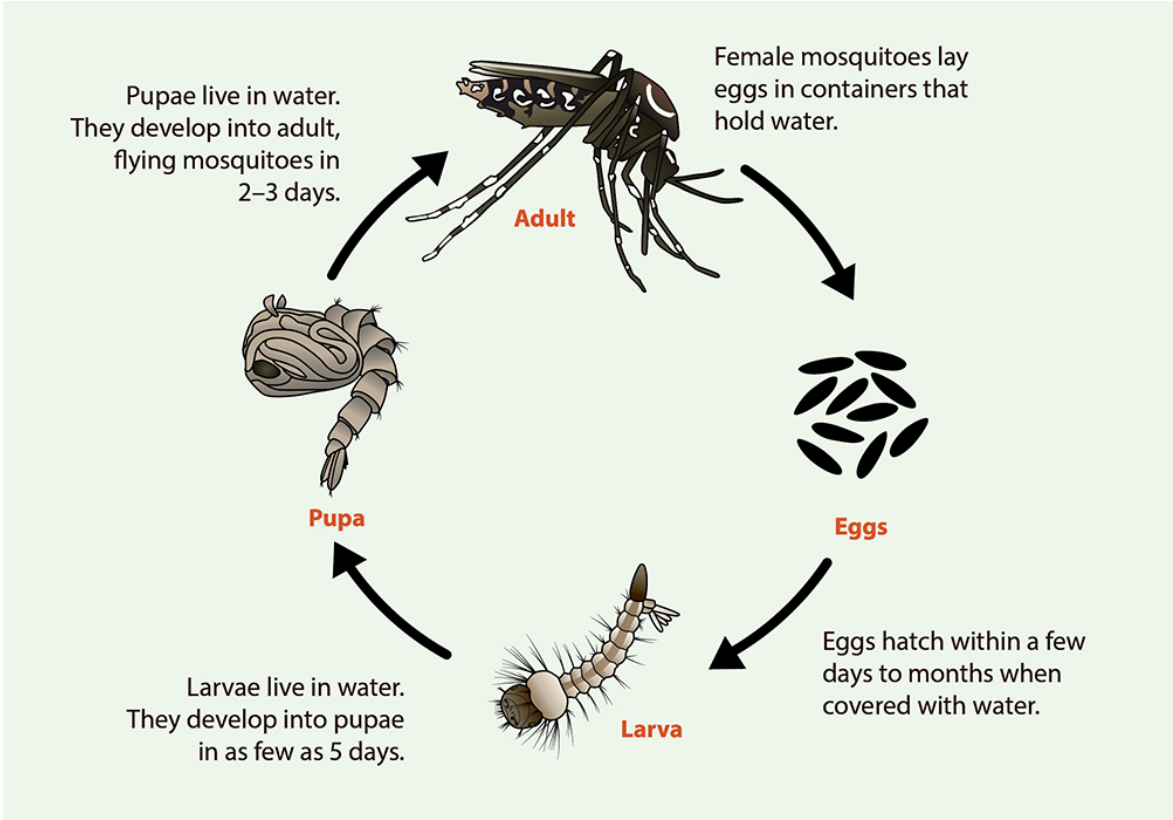




Prevent species from becoming a pest at your site.

Prevention is the first line of defense against any pest species.

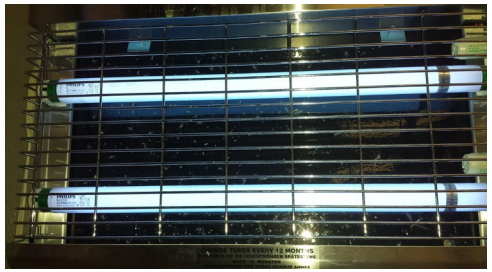




Identify and monitor the pest species.

Know the life history and the conditions that support the pest(s).

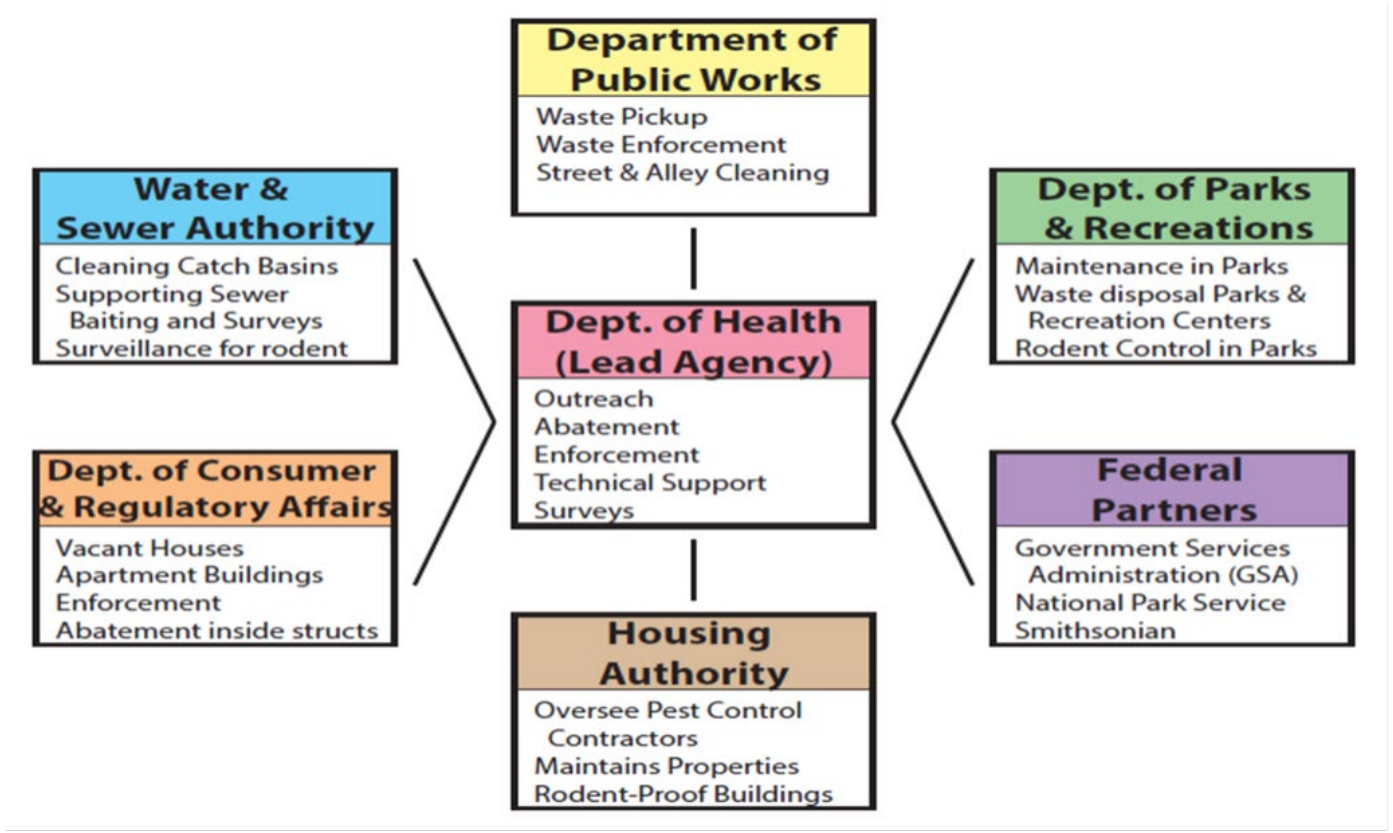
Monitoring Comes in Many Forms



Cameras

Understand the physical (air, water, food, shelter, temperature, and light) and biological factors that affect the number and distribution of pests and any natural enemies.

Conserve natural enemies when implementing any strategy.

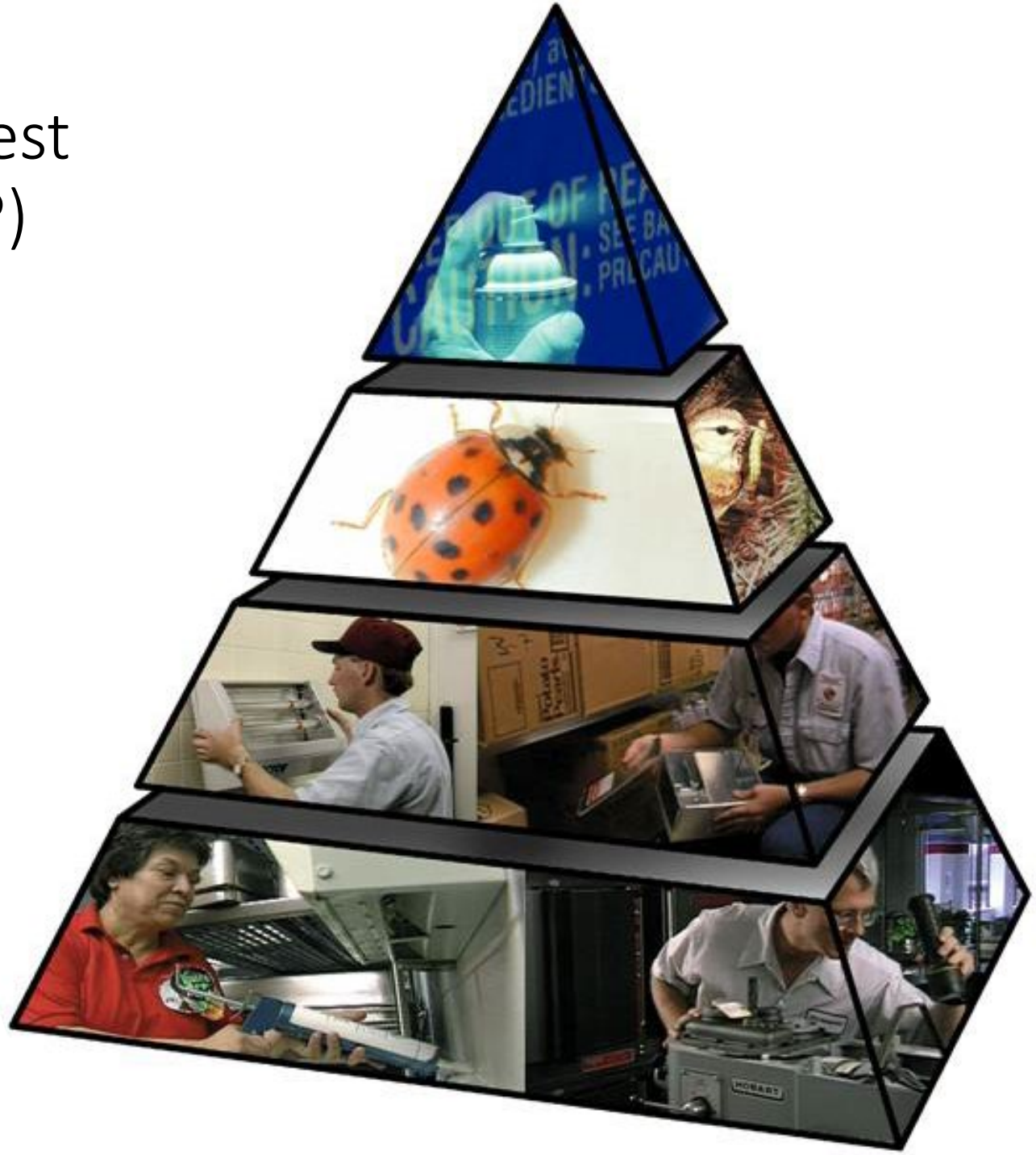


Build partnerships and consensus with stakeholders, such as communities and decision-makers.

Review available tools and best management practices (BMP) for pest management.

Tools and strategies can include:

1. no action,
2. physical (manual and mechanical),
3. cultural,
4. biological, and
5. chemicals.



Establish “action thresholds.”

Decide at the level of pests/damage you will implement a management action to control the pest population.

Location	Threshold	Action
Sports fields	4-5 mounds for bait application, <4 mounds direct treatment	Broadcast baits at 1.5 lbs per acre when justified. Individual mound treatments with liquid drenches (pyrethrins drench preferred)
Building perimeters	Single mound within ten feet of inhabited structures	Apply individual mound treatment using liquid drench (pyrethrins drench preferred). Sensitive building perimeters treated with ten-foot barrier fipronil granule.
Indoors	Respond to all complaints; treat when more than one ant observed per classroom	Use approved cleaner on ant trails, apply pyrethrin sprays to ant entry points, if necessary, in emergency. Look for, and treat, fire ant mounds outdoors, outside infested rooms.


Brown banded cockroaches on a glue board

No such thing as a threshold of zero…

Thresholds can be greater than or less than one (e.g, average number of cockroaches per trap 1 cockroach in 100 traps=0.01)

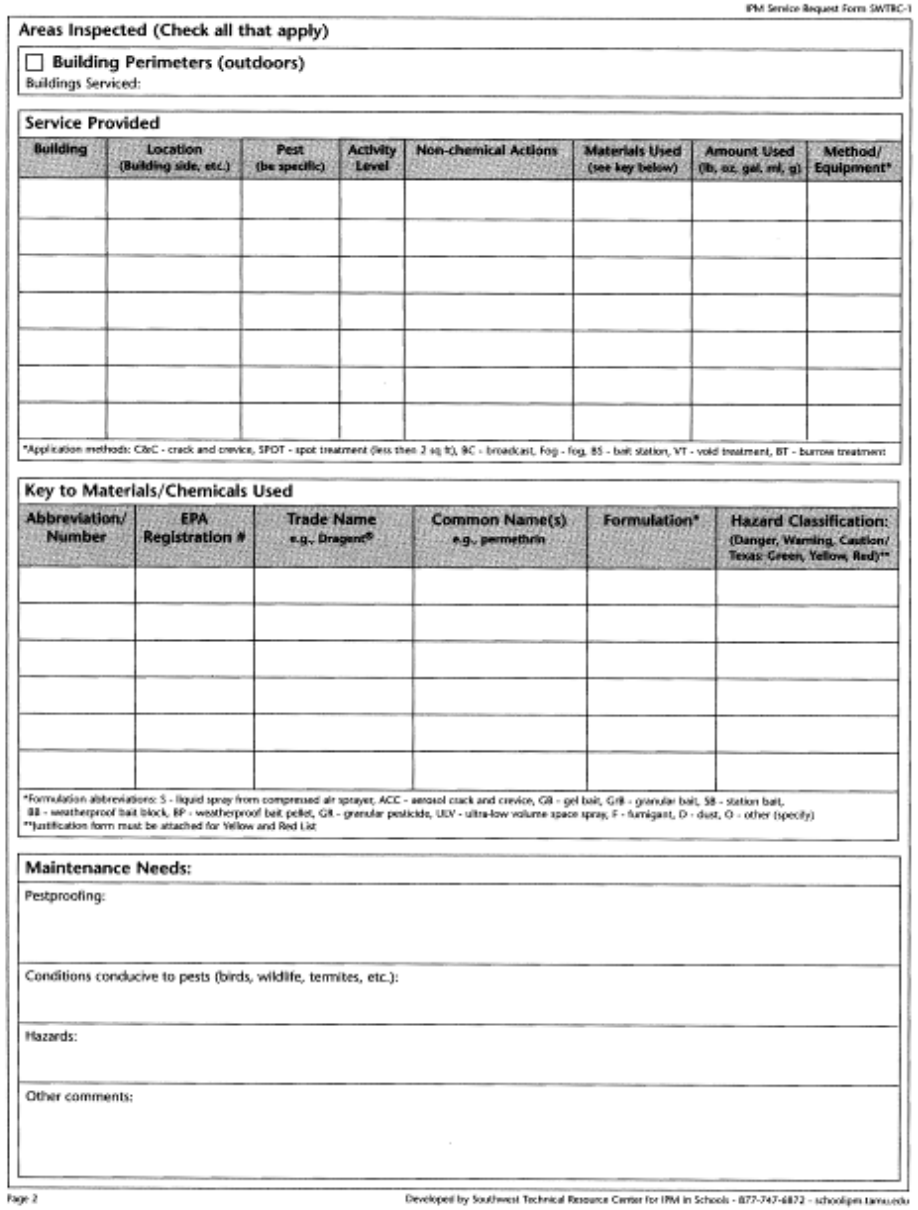
Different actions may be triggered by high, medium, low numbers of pests

Having a threshold shows that you've thought through your IPM response

Thresholds can be linked to specific responses

Follow all the laws and rules for your state

- Obtain approval, define responsibilities, and implement preventive, BMPs and control treatments in accordance with applicable laws, regulations, policies and an Integrated Pest Management Plan.



IPM Service Request Form SWTRC-1

Areas Inspected (Check all that apply)

☐ **Building Perimeters (outdoors)**
Buildings Serviced:

Service Provided

Building	Location (Building side, etc.)	Pest (be specific)	Activity Level	Non-chemical Actions	Materials Used (see key below)	Amount Used (lb, oz, gal, ml, g)	Method/ Equipment*

*Application methods: C&C - crack and crevice, SPOT - spot treatment (less than 2 sq ft), BC - broadcast, Fog - fog, BS - bait station, VT - void treatment, BT - burrow treatment

Key to Materials/Chemicals Used

Abbreviation/ Number	EPA Registration #	Trade Name e.g., Dragnet®	Common Name(s) e.g., permethrin	Formulation*	Hazard Classification: (Danger, Warning, Caution/ Texas: Green, Yellow, Red)**

*Formulation abbreviations: S - liquid spray from compressed air sprayer, ACC - aerosol crack and crevice, GB - gel bait, GrB - granular bait, SB - station bait, BB - weatherproof bait block, BP - weatherproof bait pellet, GR - granular pesticide, ULV - ultra-low volume space spray, F - fumigant, D - dust, O - other (specify)
**Justification form must be attached for Yellow and Red List

Maintenance Needs:

Pestproofing:

Conditions conducive to pests (birds, wildlife, termites, etc.):

Hazards:

Other comments:

Page 2

Developed by Southwest Technical Resource Center for IPM in Schools - 877-747-6872 - schoolipm.tamu.edu

Key Elements of IPM - Reporting

- Pest sighting logs or work order systems can help school staff report and respond to pest problems
- Systems allow methodical data tracing which is required
- Report:
  - Pests found
  - Signs of pests
  - Supportive conducive conditions
  - Pest entryways
  - Unsanctioned pest control attempts

<table>
<tr><th>Jan</th><th>Feb</th><th>Mar</th><th>Apr</th><th>May</th><th>Jun</th><th>Jul</th><th>Aug</th><th>Sep</th><th>Oct</th><th>Nov</th><th>Dec</th></tr>
<tr><td colspan="12">Mowing & Trimming Bi-Weekly</td></tr>
<tr><td colspan="12">Shrub & Hedge Trimming Monthly</td></tr>
<tr><td>Irrigation Check-Up</td><td>Pre-Emergant w/ Fert.</td><td>Aerating</td><td colspan="3">Tree Trimming</td><td>Pre-Emergant w/Fert.</td><td></td><td>Thatching</td><td colspan="3">Tree Trimming</td></tr>
<tr><td colspan="2" rowspan="4"></td><td>Ant Killer</td><td>Thatching</td><td>Fertilizer</td><td>Grub Killer</td><td colspan="2"></td><td>Halloween Decorations</td><td>Fertilizer</td><td>Christmas Tree Removal</td></tr>
<tr><td colspan="7" rowspan="2">Post-Emergant Spot Treating</td><td rowspan="2">Powerwashing</td><td>Christmas Light Installation</td></tr>
<tr><td rowspan="2"></td></tr>
<tr><td colspan="9">Landscaping (Installs, Service, and Repairs)</td></tr>
<tr><td colspan="12">Hardscaping & Xeriscaping (Installs, Service, and Repairs)</td></tr>
</table>

Key Elements of IPM - Reporting

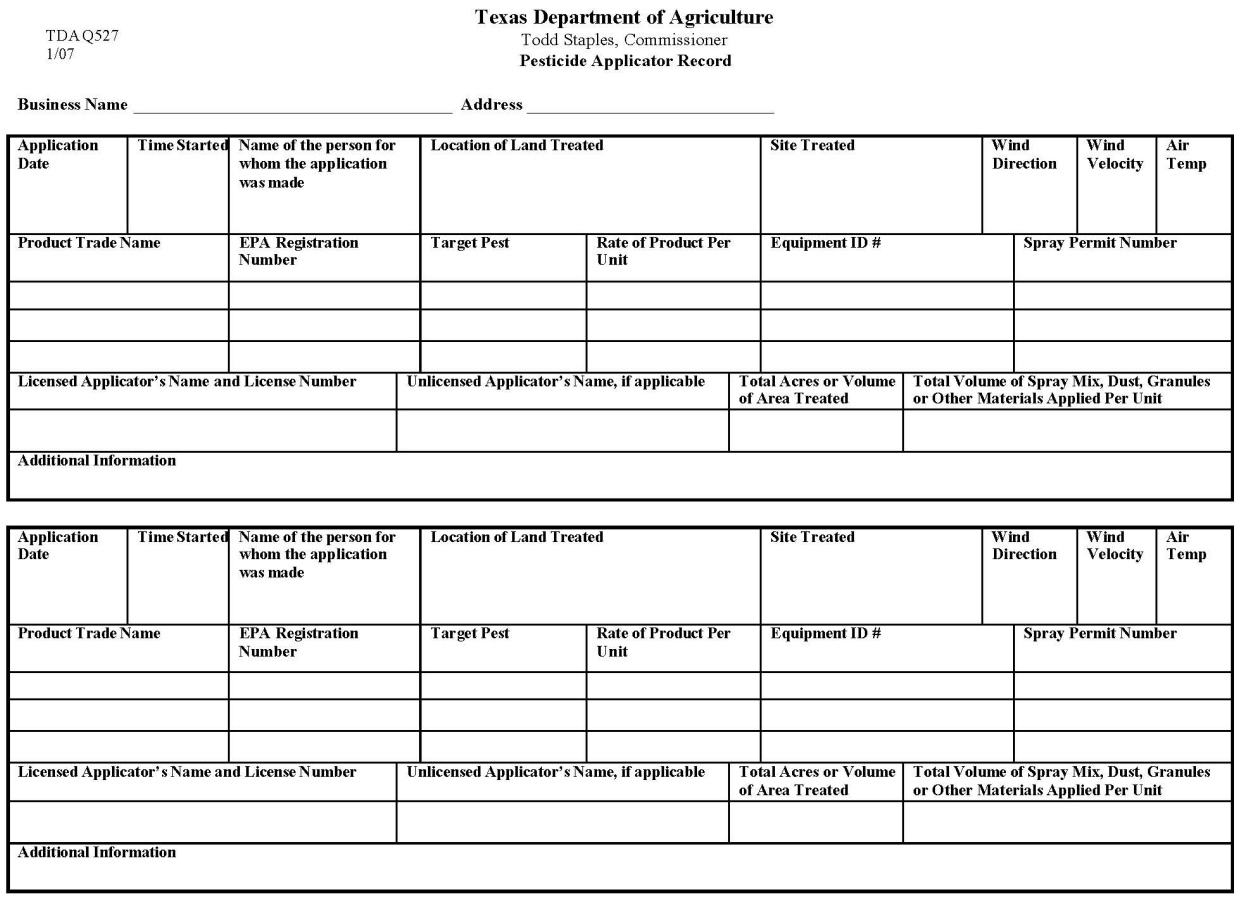
- Recordkeeping is important because it allows:
  - Accurate flow of information from one employee to another
  - IPM Coordinators can identify trends in pest populations
  - Documentation of problems and evaluation of solutions
  - Legal compliance – it’s the Law!

Practice adaptive management/Evaluate

- Evaluate results of implemented management strategies through authorized:
  - Monitoring
  - Determine if objectives have been achieved, and
  - Modify strategies, if necessary.

Maintain written records

Document decisions and the treatments implemented, and record monitoring results.



TDA Q527
1/07

Texas Department of Agriculture
Todd Staples, Commissioner
Pesticide Applicator Record

Business Name _____ **Address** _____

Application Date	Time Started	Name of the person for whom the application was made	Location of Land Treated		Site Treated	Wind Direction	Wind Velocity	Air Temp

Product Trade Name	EPA Registration Number	Target Pest	Rate of Product Per Unit	Equipment ID #	Spray Permit Number

Licensed Applicator's Name and License Number	Unlicensed Applicator's Name, if applicable	Total Acres or Volume of Area Treated	Total Volume of Spray Mix, Dust, Granules or Other Materials Applied Per Unit

Additional Information

Application Date	Time Started	Name of the person for whom the application was made	Location of Land Treated		Site Treated	Wind Direction	Wind Velocity	Air Temp

Product Trade Name	EPA Registration Number	Target Pest	Rate of Product Per Unit	Equipment ID #	Spray Permit Number

Licensed Applicator's Name and License Number	Unlicensed Applicator's Name, if applicable	Total Acres or Volume of Area Treated	Total Volume of Spray Mix, Dust, Granules or Other Materials Applied Per Unit

Additional Information

Outreach and education.

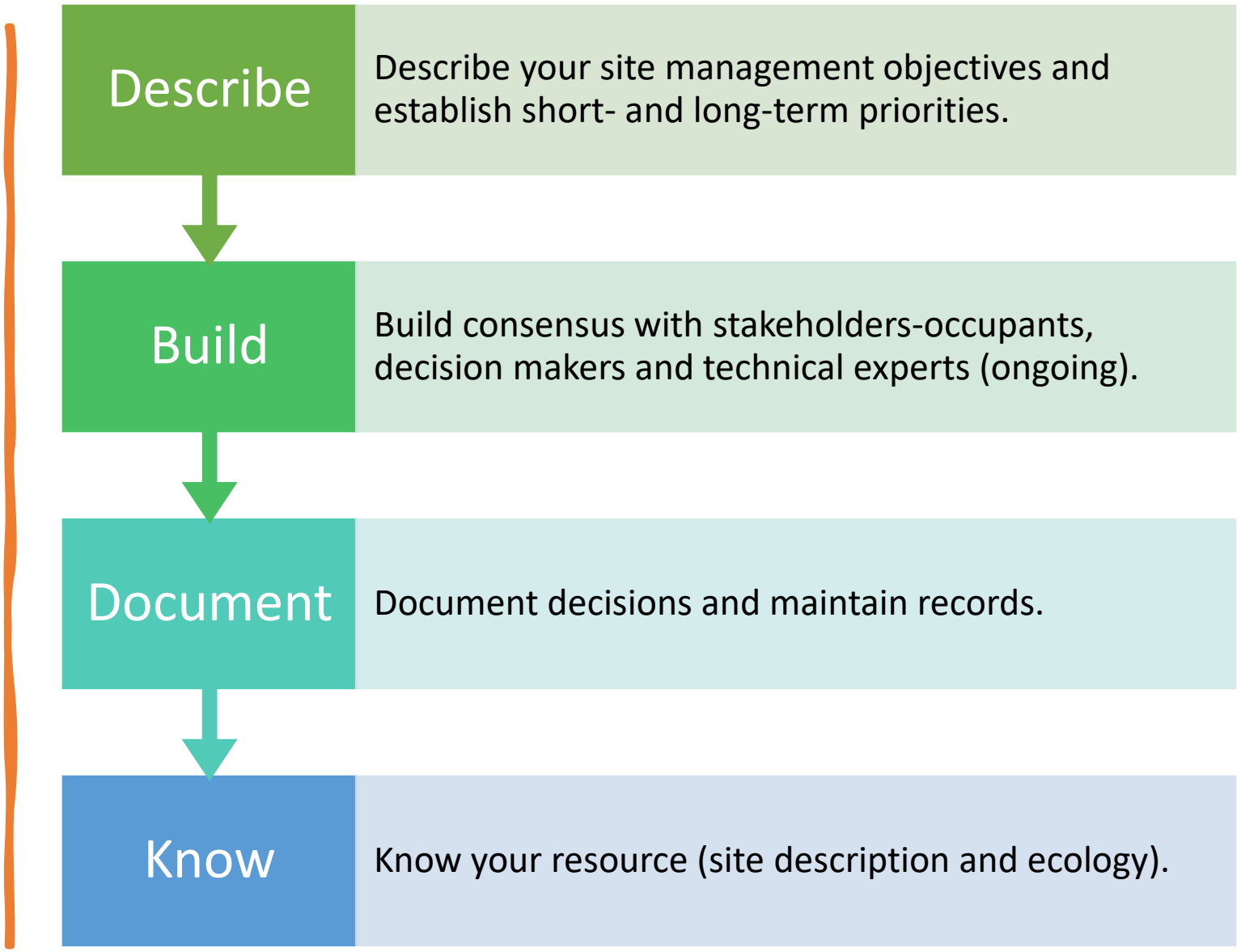
- Inform staff of the pest management issues in and around the site and prepare informative materials for outreach to visitors and others, if appropriate.
- Remind EVERYONE they have a role in the IPM process and pest management
- Pest Management is People Management
- Remember AgriLife Extension has resources to support your needs.

Establish & Maintain an IPM Program

Questions to Consider:

- Some important questions to consider while determining an effective IPM strategy include the following:
  - Is it a pest? (Is it interfering with your management objectives?)
  - Is it a native or non-native organism?
  - What conditions foster the pest?
  - What management zone is it in?
  - What are the chances of successful management?

The Process – how do you keep it going or started



Know your pest. Identify potential pest species, understand their biology, and conditions conducive to support the pest(s) (air, water, food, shelter, temperature, and light)

Carpenter, Crazy, Acrobat, Argentine, Fire Ants

Review available tools and best management practices

- Develop a management strategy specific to your site and the identified pest(s). Tools can include:
- 1) no action,
- 2) physical,
- 3) mechanical,
- 4) cultural,
- 5) biological, and
- 6) chemical management strategies
  - should be the last option not the first choice

Repeat the Process all the time.

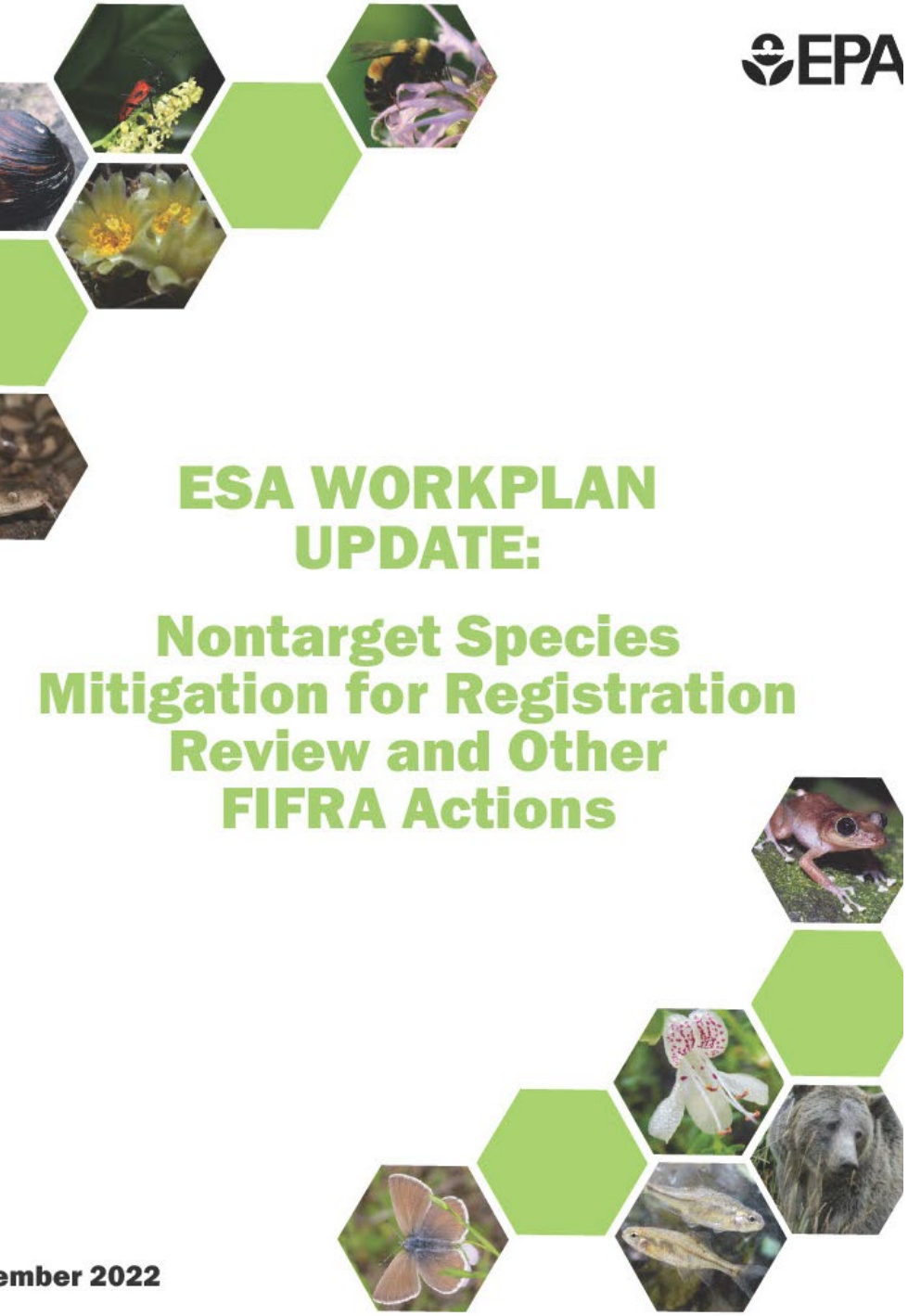
Monitor pests, pathways, and human and environmental factors, including population levels and phenological data.

Establish "action thresholds," the point at which no additional damage or pest presence can be tolerated.

Define responsibilities and implement the lowest risk, most effective pest management strategy, in accordance with applicable laws, regulations, and policies.

Evaluate results; determine if objectives have been achieved; modify strategy if necessary (adaptive management).

Education and outreach. Continue the learning cycle, return to Step 1



Educational Outreach – What?

- Each of us can educate others about IPM and Pesticide Stewardship
- We can all pay attention to what is happening in the areas we live, work and play in.
- We can do more to learn about how climate change is affecting the biology, distribution and outbreak potential of pests in a vast range of crops and across all land uses and landscapes.

Questions

Thank you for your time today

Janet Hurley, ACE ja-hurley@tamu.edu