Cal-IPC Herbicide Survey: Preliminary Results Oct. 3, 2012

Who has taken the survey?

- 101 people have taken the survey so far.
- 80% of respondents have worked 6+ years in invasive plant management (52% over 10 years).
- 93% have done field work (mapping and treating invasive plants).
- 50% have a DPR license or certificate for herbicide application
- 94% of respondents listed habitat restoration as a top goal for their invasive plant management.

How does wildlife figure into their work?

- 96% always/frequently consider the potential impact of their invasive plant control on wildlife.
- 62% use surveys or other techniques to assess potential impacts of invasive plant control on wildlife.
- 68% are very interested in learning more ways to reduce potential impacts of invasive plant control on wildlife.

What tools and techniques do people use most?

- Most frequently used non-herbicide invasive plant control methods:
  - 79% - Pulling with hand tools
  - 67% - Digging with hand tools
  - 62% - Cutting with pruners or loppers
  - 53% - Cutting with a hand saw or chainsaw
  - 55% - Weed whacking (string or plastic blade)
  - 43% - Mowing with large equipment

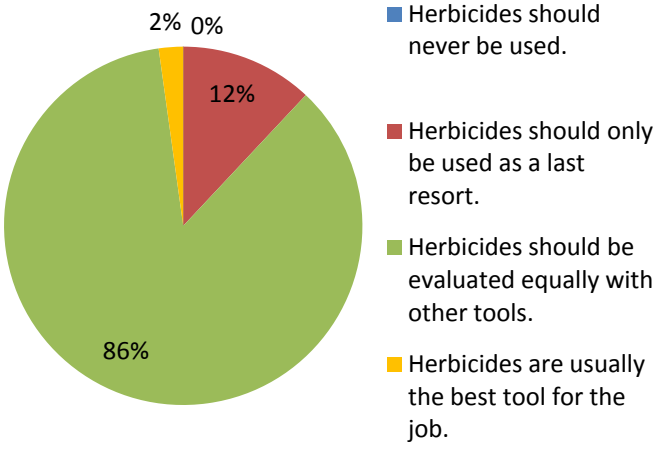
- Most frequently used herbicide-based invasive plant control methods:
  - 67% - Foliar spray - spray to wet
  - 45% - Cut stump application
  - 21% - Broadcast application
  - 19% - Foliar spray - low volume/high concentration
  - 16% - Basal bark

What herbicides do people use most?

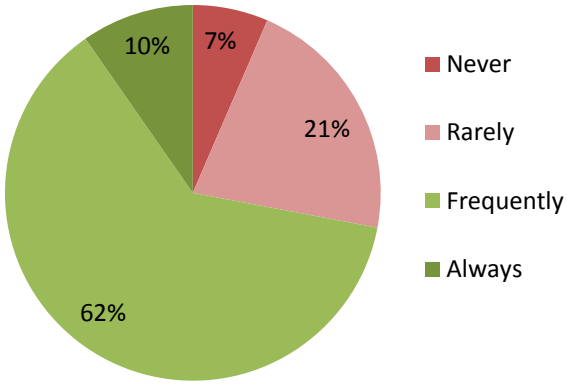
- Most frequently used active ingredients:
  - 99% - Glyphosate (e.g. RoundUp ®)
  - 74% - Triclopyr (e.g. Garlon 3A®, Milestone VM Plus®)
  - 49% - Aminopyralid (e.g. Milestone VM ®)
  - 45% - Clopyralid (e.g. Transline ®)
  - 42% - Imazapyr (e. g. Chopper ®, Stalker®, Habitat®)
  - 33% - Chlorsulfuron (e.g. Telar ®)

- Frequency of adjuvant use:
  - 98% for foliar sprays with at least some herbicides
  - 44% for broadcast application with at least some herbicides
  - 38% for cut stump, hack and squirt, basal bark and wick treatments with al least some herbicides

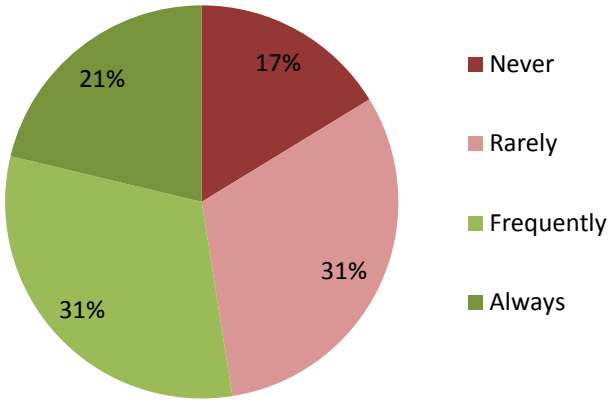
Herbicides: 86% say IPM means herbicides should be evaluated equally with other tools



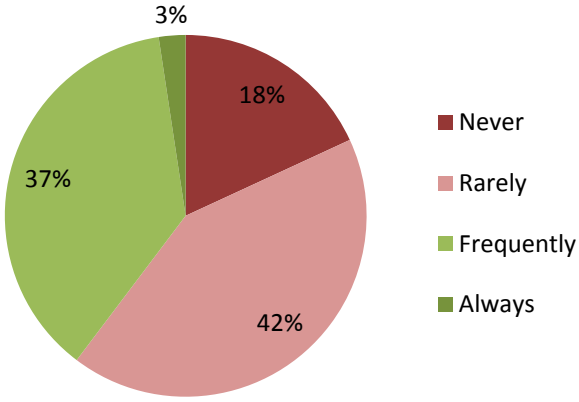
Herbicides: 63% frequently or always use herbicides for invasive plant control



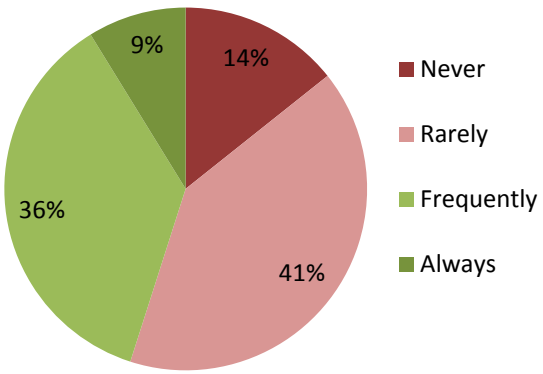
Herbicides: 52% frequently or always calibrate herbicide application rates



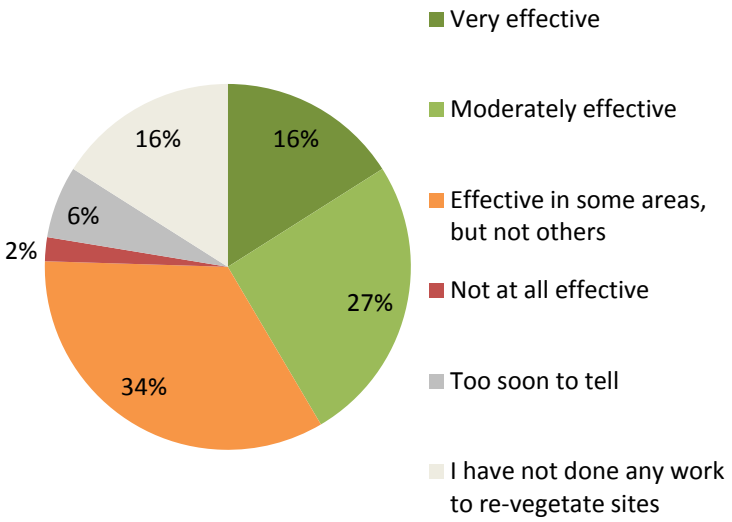
Herbicides: 40% frequently/always use a lower application rate than that listed on the herbicide label

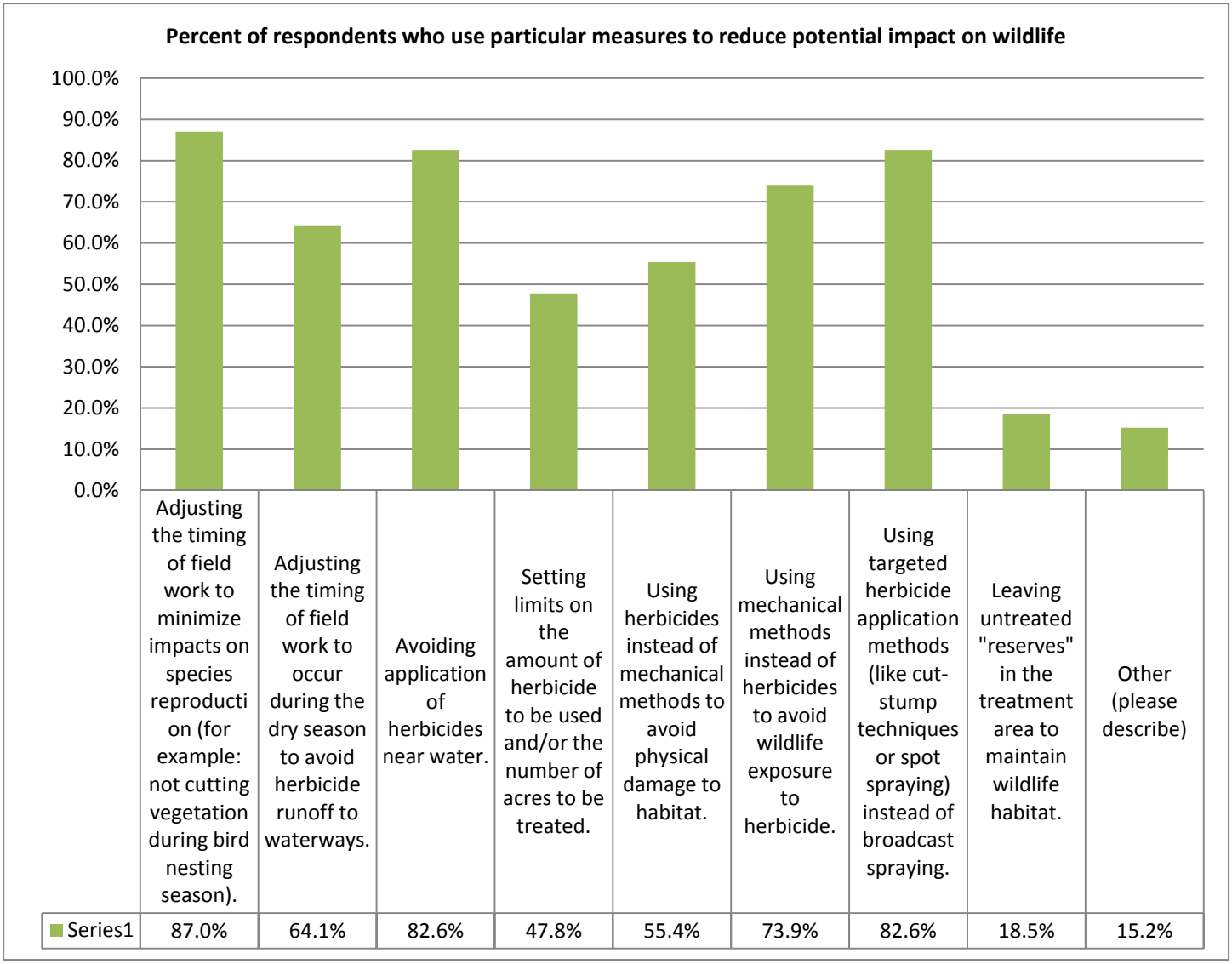


Revegetation: 45% frequently/always re-vegetate sites after herbicide application



Revegetation: 42% find revegetation to be moderately or very effective





What innovations do people use to protect wildlife when using herbicides?

1. Using brush hooks to grab and concentrate foliage, move target vegetation away from non-target species, and reduce overspray.
2. Using directed sprays with low volume, large droplet nozzle heads.
3. Using lift bucket to reach above tall vegetation (such as Arundo) in order to direct spray downward, reducing drift and non-target applications, and eliminating fallout on applicator.
4. Timing spraying to avoid impacts on annuals, early perennials and aquatic species.
5. Using plant guards, such as plant containers, canvas, or a hand-held shield to protect desirable plants in application area.
6. Preparing sites by pruning back desirable vegetation, removing leaves or branches in areas susceptible to overspray.
7. Using a bend-and-spray technique to manipulate vegetation out of the way or to the ground to avoid overspray or non-target damage.

8. Sticking with products registered for aquatic use even for upland applications when working in areas known to have sensitive amphibians.
9. Using basal bark application on broom during breeding season of sensitive birds.
10. Using herbicides only during the dry season.
11. Leaving buffer zones in the first year of treatment to allow for wildlife migration to new habitat before following up with complete removal of the infestation.
12. Selecting chemicals with a caution label that has a high LD50.
13. Paying close attention to the five factors of herbicide selectivity, herbicide concentration, seasonal timing, pre-herbicide treatments, and application technique.
14. Conducting wildlife surveys immediately prior to treatment, and leave buffer areas around active wildlife sites. Monitor wildlife during treatments. Depending on species, can relocate with baiting or hazing.
15. Conducting mechanical treatment first (such as mowing) and using herbicide for spot treatment as followup.
16. Using injection tools to eliminate drift (though this does use more concentrated herbicide than foliar spray).
17. Using spot spray or wicking whenever possible rather than broadcast spray.
18. Using mechanical treatments within 10 feet of obvious game trails.
19. Avoid spraying when a lot of pollinators are out in season.
20. Plus… concern that using herbicides at less than label rates may contribute to herbicide resistance.

From Marin Municipal Water District's Vegetation Management Plan:

1. Limit the frequency of herbicide treatment at a location to once per year, except for the initial control.
2. Limit the duration of herbicide treatment at a particular site to 5 consecutive years (except under extraordinary circumstances, such as a landslide or major wildfire).
3. Limit the number of total acres treated each year to allow better post-treatment monitoring.
4. Limit treatment methods to: cut-stump; basal bark; and foliar sprays of seedlings. Limit basal bark application to sites where mechanical access is not possible and slopes make cutting unsafe.
5. Limit herbicide treatments to the dry season (e.g. no earlier than June 1 and no later than September 15).
6. Limit amount of herbicide that can be transported in a vehicle (e.g. no more than 20 gallons of concentrated herbicide, 200 gallons of diluted herbicide). Transport concentrated herbicides in a spill-proof, sealed container in addition to the container that comes with the product. Limit herbicide mixing and loading to areas where any potential spill will not be near a water body.
7. Mow and prune vegetation (e.g. to less than 20 cm) in areas to be treated that are within 30 feet of roads and trails to minimize the probability of spraying honeybees and small mammals.
8. Designate dry stream crossings for workers in areas where treatments occur on both sides of a wet stream to avoid wash-off of herbicide from applicators' shoes.
9. Do not collect and transport herbaceous plant matter from any clopyralid treatment zone for three years after treatment to account for clopyralid's persistence in compost.