

# HERBICIDE USE WHEN WILDLIFE MANAGEMENT IS A GOAL



**Ryan Mitchell**

## Remember...

- **READ THE LABEL BEFORE EACH USE.**
- **It is a violation of Federal Law to use a pesticide in a manner inconsistent with it's labeling.**
- The label lists the minimum PPE you must wear.
- Follow local, state, and federal laws when storing, handling, applying, or disposing of pesticides.
- The label is the law!

**Reasons for Owning Woods**  
The percentage of landowners in this group who cited each of these reasons for owning land as important or very important to them.

Reason	Percentage
Legacy	85
Wildlife	80
Beauty	75
Nature	70
Water	65
Investment	60
Privacy	55
Hunting	50
Family	45
Timber	40
Recreation	35
Firewood	20
MTHPC*	10

\* Non-timber forest products

**Landowner objectives are changing.**

- **NWOS of 50+ ac in the South**

<http://www.engaginglandowners.org/landowner-data/>

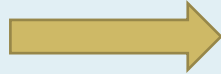
## General Wildlife Needs

- **Food**
- **Water**
- **Cover**
- **Space**

- General**
- White-tailed Deer**
- Eastern Wild Turkey**
- Bobwhite**
- Specific**

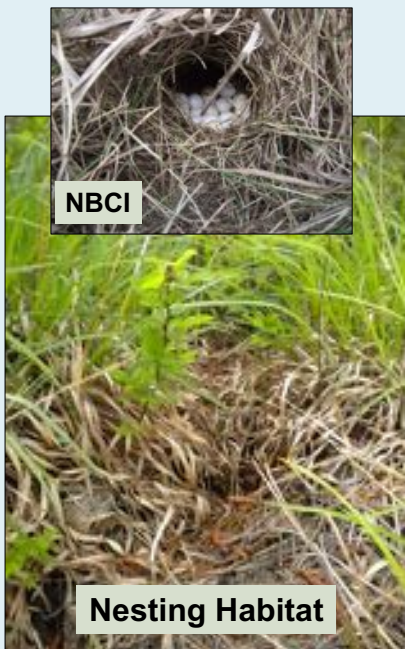
# Quail Needs

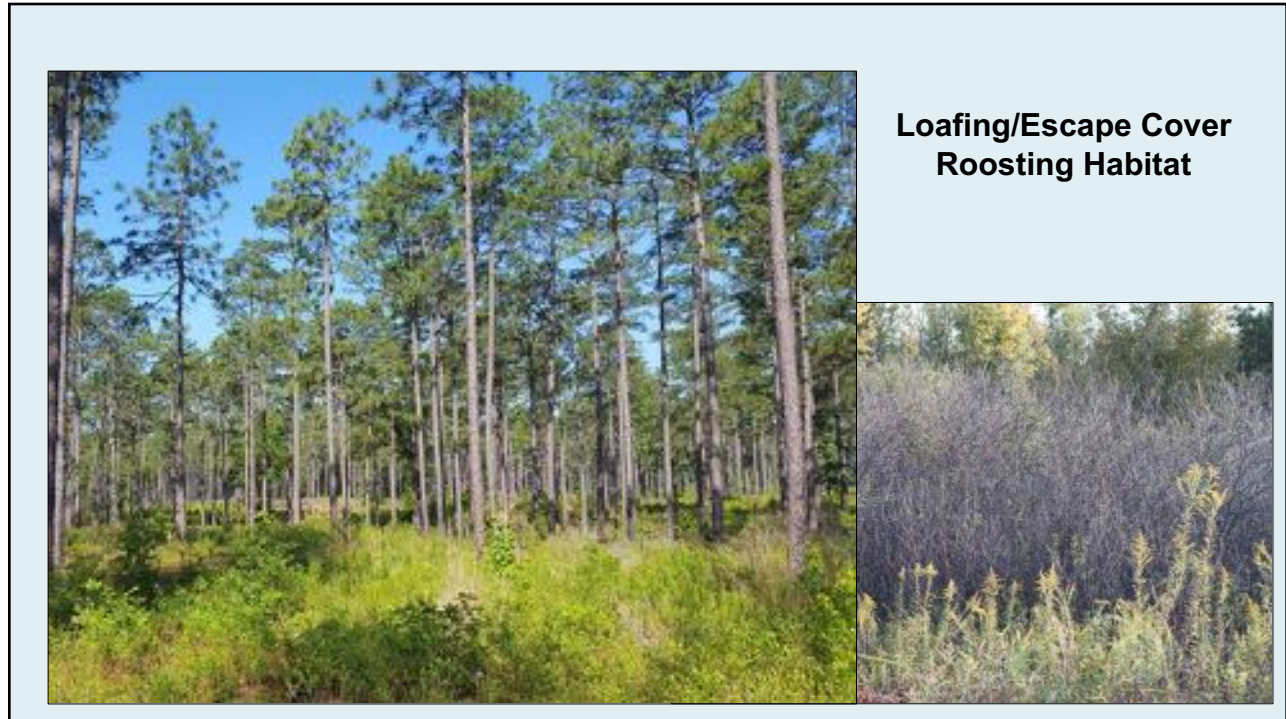
- Food
- Water
- Cover
- Space



- Nesting Habitat**
- Brood Rearing Habitat**
- Loafing/Escape Cover**
- Roosting Habitat**

- Quail have specific requirements
- Size and arrangement matter





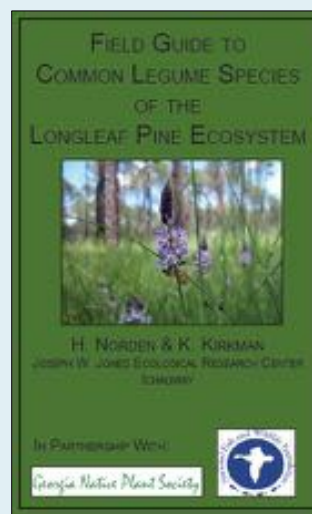
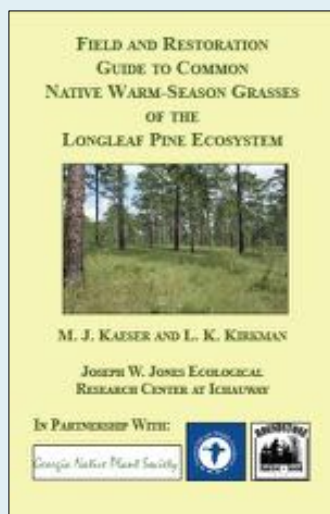
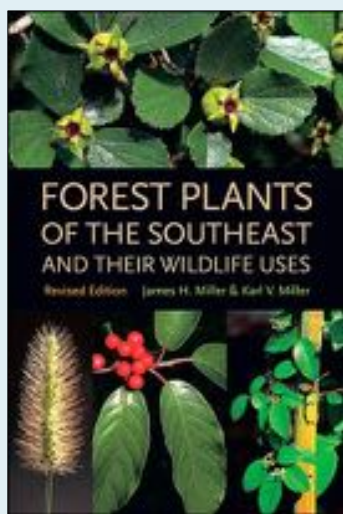
## Herbicides are used to:

- **Restore native communities**
- **Enhance wildlife habitat**
- **Improve fuel conditions**
- **Improve timber stands**
- **Improve aesthetics**
- **Control invasive species**

## Herbicide Prescription

- Determine the objective of the landowner
- An inventory of the site to be treated should reveal plants to be controlled or eliminated and plants to be spared or favored.
- The type of herbicide that is to be applied, treatment timing, and application method.
- The soil type and soil conditions at time of desired herbicide application.

## Useful resources



Common Name	Kill or Control	Limited or no effect on
Glyphosate	Growing Season – Most Grasses, Most Broadleaves, Oaks, Rubus spp., Honeysuckle	Red Maple, Ash, Hickory, Dogwood, Hollies, Wax Myrtle, Gallberry, Dogwood, Cherry, Greenbriar
Triclopyr	Waxy Species, Most Woody Brush Species, Many Broadleaves, Legumes	Grasses, Black Cherry, Eastern Redcedar
Hexazinone	Oaks, Most Legumes, Blackberry, Vines, Blackgum, Sweetgum	Yellow Poplar, American Beautyberry, Pines, Broomsedge, Wiregrass, Beautyberry, Vacciniums,
Imazapyr	Sweetgum, Many Grasses, Ragweed, Pokeberry, Vines, Beech, Autumn Olive, Oaks, Vacciniums, Persimmon	Legumes, Pines, Wax Myrtle, Blackberry/Dewberry, Honeysuckle, Cherry, Dogwood, Hickory
Sulfometuron	most broadleaves, grasses, blackberry	Perennial Grasses, Broomsedge, Croton, All Trees





Species	Hexazinone	Triclopyr	Imazapyr	Glyphosate	Metsulfuron	Sulfmeturon
Oaks	Red	Yellow	Yellow	Yellow	Yellow	Green
Sweetgum	Yellow	Red	Red	Red	Green	Green
Maple	Yellow	Red	Red	Yellow	Green	Green
Hickory	Green	Red	Yellow	Green	Green	Green
Cherry	Yellow	Yellow	Green	Yellow	Red	Green
Red Bay	Green	Red	Red	Green	Green	Green
Pine	Yellow	Red	Green	Red	Green	Green
Elm	Yellow	Red	Yellow	Yellow	Red	Green
Gallberry	Green	Red	Yellow	Green	Green	Green
Blackberry	Green	Red	Green	Red	Red	Green
Grass	Yellow	Green	Red	Red	Green	Red
Broadleaf Herbaceous	Yellow	Red	Red	Red	Green	Red
Legumes	Green	Red	Green	Red	Green	Yellow

©Forest Productivity Cooperative

## Understory & Mid-story Treatments

- Control unwanted vegetation
- Remove undesirable species to increase exposure of forest floor to sunlight
- Often associated with development and maintenance of quail and RCW habitat
- Understory treatments often geared toward promoting growth of valuable wildlife foods (forbs and browse for deer)
- Follow herbicide application with prescribed fire



## Ground Application



### Skidder/Tractor

- Irregular shaped tracts
- Sensitive areas
- More water
- Pine spacing

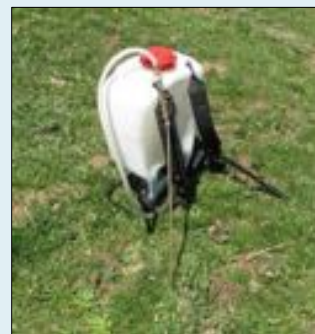
## Low Volume Foliar

- A selective application method for spotty or low density weeds and brush.
- Calibrate for 5-25 GPA
- Cover 70-80% of leaf surface with special attention to the growing points
- Consider the height and density of the vegetation
- Heights less than 6 to 8 feet
- Use surfactants
- Spray to wet



## Basal Bark Application

- Bark oils
- Year round usage
- Need low density of stems
- Low volume wand to minimize drip
- Coverage of the entire stem circumference is key to success (lower 12-15 inches)
- On root suckering species, make sure collar area is covered, treat root flares, or exposed roots
- Avoid treatment when bark is wet
- Combine with hack and squirt when diameters reach 4-6 inches or above



## Hack and Squirt - Cut Stump



Herbicide Application Techniques for Woody Plant Control

SS-AGR-260

Credits: Stephen Enloe, UF/IFAS

## Herbicides for Woody Control in Longleaf

Common Name	Trade Name	Product Rate Per Acre
Imazapyr	Arsenal® AC	12-16 oz
Tryclopyr	Garlon®,	4-8 qts
Velpar® L Velpar® DF	Hexazinone	2 to 6 qt 1 1/3 – 2 2/3 lb
Aminopyralid	Milestone®	7 oz
Glyphosate	Accord® XRT II Accord® XRT	4-8 quarts 1.5-8 quarts

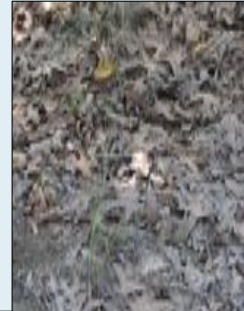
Follow the label for application guidelines







## Sandhill restoration



## Hexazinone and fire



## Chemical Site Prep

- All plants have three major requirements for growth: water, sunlight, and nutrients.
- Site preparation should optimize all three of these requirements
- Control Competition.
  - vegetation
  - invasives
- Improve planting access.
- Herbicides are often the most effective and inexpensive means of controlling woody plants.

## Site Prep Herbicides- Most Common

Common Name	Trade Name (Also generics)	Label Product Rate Per Acre
Glyphosate	Accord® XRT II	4-8 quarts
	Accord® XRT	1.5-8 quarts
Triclopyr	Garlon® 4 Ultra	4-6 quarts
	Forestry Garlon® XRT	1.25-4 quarts
Hexazinone	Velpar® L	2-6 quarts
	Velpar® DF	1.3-4 lb
Imazapyr	Chopper® Gen2,	32-64 oz
	Arsenal® AC	24-40 oz
Sulfometuron	Oust® XP	2-8 oz
Metsulfuron	Escort® XP	Not labeled for llp

From: Dr. Pat Minogue



## Control improved forages first

- Bermudagrass = high rates imazapyr (48 oz.+ Chopper Gen II)
- Bahiagrass = Escort (1.25 oz) or high rates of glyphosate
- Fescue = high rates of glyphosate
- One treatment will not be enough.
  
- TTRS – Sethoxydim





**Fully address invasive species during the site preparation.**



Protect the \_\_\_\_\_.



## In longleaf restoration...

Good site prep should:

- Assist with the successful establishment of longleaf pine
- Control hardwood competition
- Conserve keystone species
- Allow Rx fire soon after planting
- Maintain botanical diversity or allow it to quickly recover
- Discourage weeds

From: Nathan Klaus, GADNR

## In longleaf restoration...

### Bad site prep may:

- Prevent the successful use of Rx fire
- Encourage weeds such as dogfennel, climbing fern, rattlebox and blackberry that compete with longleaf and deteriorate wildlife habitat
- Eliminate much of the botanical diversity that makes longleaf pine forest the beautiful places that we enjoy

From: Nathan Klaus, GADNR

## Common Site Prep Mix

22 oz Arsenal AC  
24 oz Forestry Garlon XRT  
6 qts of glyphosate (41 % a.i.)  
32 oz+ surfactant  
10 – 20 gallons of water per acre

Sometimes add:  
2 – 8 oz Oust XP

## Site-prep



## Site-prep





## Wider window for planting behind imazapyr site prep.



24+ oz 4# wait >60 days

16-18 oz wait >45 days

\*with normal rainfall

## A Guide to Using Imazapyr for Chemical Site Preparation in Southern Pine Plantation Establishment

-Dickens, Minogue, Moorhead

Table 2: Earliest recommended planting dates based on application dates of common imazapyr rates @ 4# formulation.

Planting Date	Herbicide Site Prep Treatment Date**			
	May – June	July – August	September	October
<b>4# Herbicide product rates per acre*</b>				
<b>Loblolly Pine</b>				
October	24 oz	20 oz	NO	NO
November	26 oz	22 oz	20 oz	18 oz (NO)***
Dec-Jan	28 oz	24 oz	22 oz	20 oz
Feb-Mar	32oz	28 oz	26 oz	24 oz
<b>Longleaf and Slash Pine</b>				
October	22 oz	18 oz	NO	NO
November	24 oz	20 oz	18 oz	16 oz (NO)***
Dec-Jan	26 oz	22 oz	20 oz	18 oz
Feb-Mar	30 oz	26 oz	24 oz	22 oz

\*Imazapyr product formulations containing 4 lb acid equivalent imazapyr per gallon; trade names (manufacturers): Arsenal AC (BASF Specialty Products), Polaris AC Complete (Nufarm), and Imazapyr 45L (Alligare LLC).

\*\*Do not plant within 60 days of a 24 oz/acre or greater (4 lbs a.e./gallon) imazapyr herbicide application.

\*\*\*Do not plant within 45 days of a 16 or 18 oz/ac imazapyr rate when rainfall amounts for the area are lower than normal, soil moisture is not adequate for planting, and competing vegetation is less than 1 foot tall.

If the site has a sandy, loamy sand, or sandy loam surface soil texture, is moderately well, well to excessively well drained, and has an organic matter content < 2%, then the time interval between application and planting may be increased by one month (Tables 1 and 2). Another option is to reduce the herbicide product rate applied by 2 oz for 4 lb a.e./gal imazapyr products and by 4 oz for 2 lb a.e./gal product formulations.

[https://www.bugwood.org/imazapyr\\_site\\_prep\\_6-2012.pdf](https://www.bugwood.org/imazapyr_site_prep_6-2012.pdf)

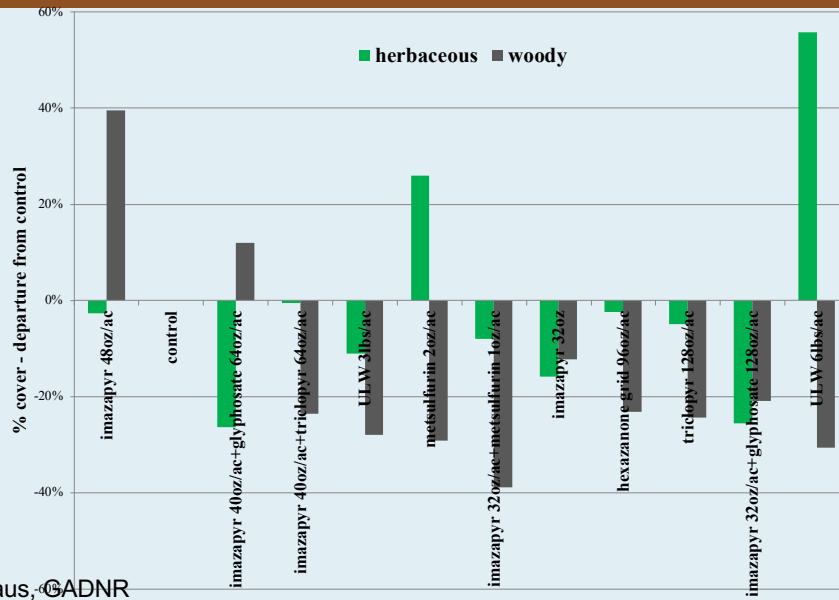
## Nathan Klaus - GADNR

### Study Questions:

- How did herbicide application affect those species typical of good longleaf pine groundcover?
- How did it affect grasses associated with longleaf pine groundcover?
- How about weeds and woody competition?
- What were the site prep effects on longleaf pine survival?

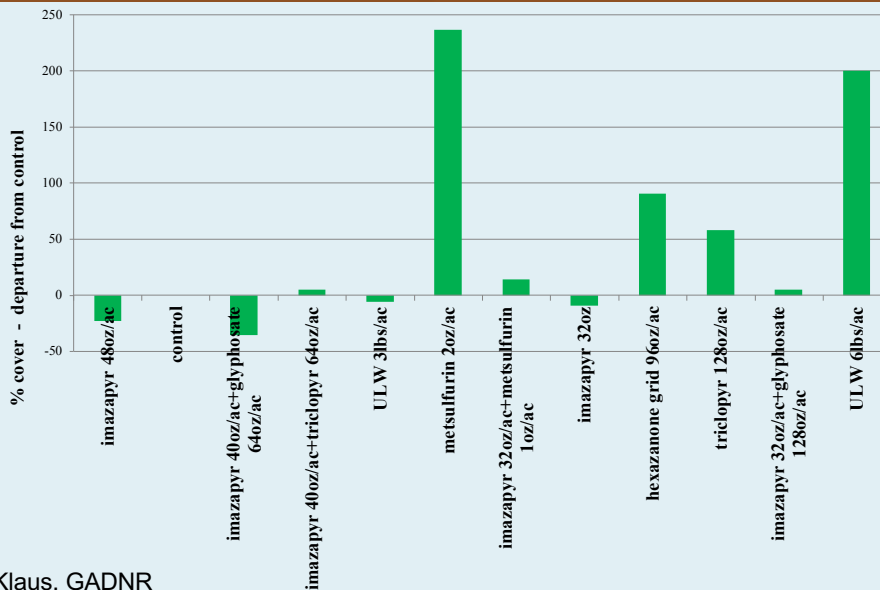


### Change in woody and herbaceous cover

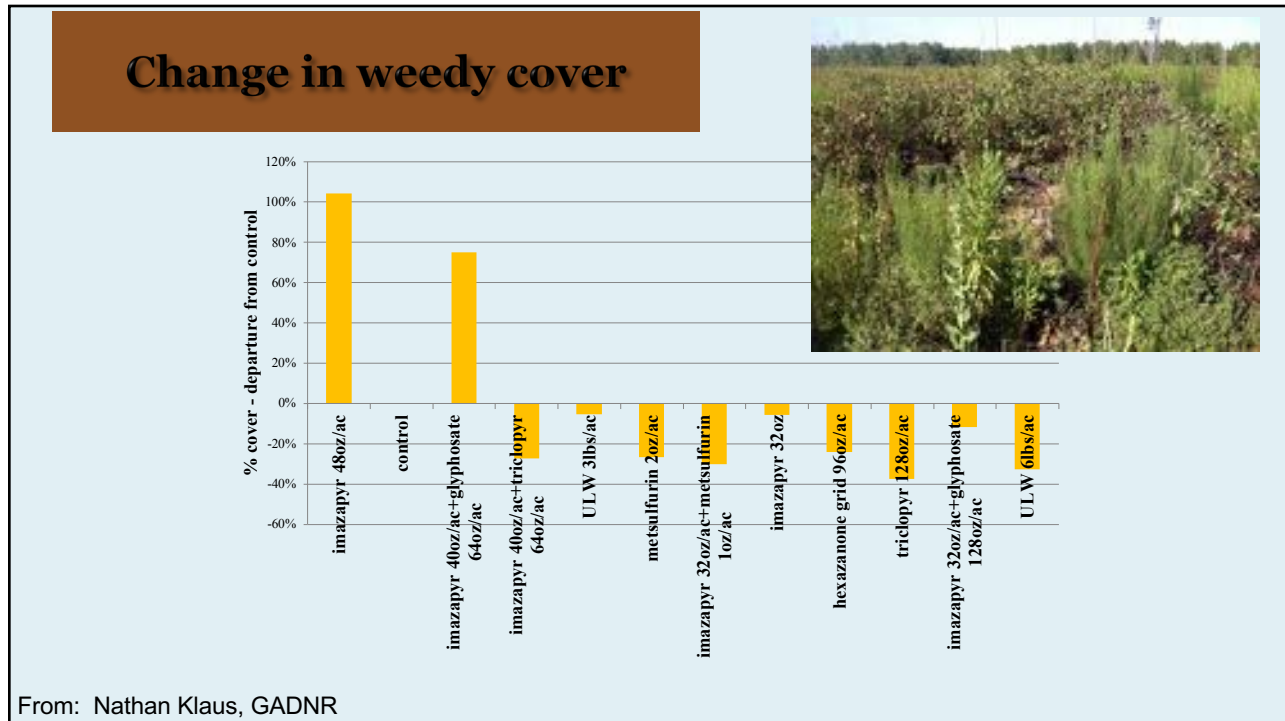


From: Nathan Klaus, GADNR

### Change in grasses associated with longleaf pine



From: Nathan Klaus, GADNR



## Garlon/Escort – TX



Industrial private landowner

## Garlon/Escort – AL



Non-industrial private landowner

## Garlon/Escort – AL



Non-industrial private landowner

## Garlon/Escort – AL



Non-industrial private landowner

## Herbicides for over-the-top HWC in Longleaf

Trade Name	Common Name	Product Rate Per Acre
Arsenal® AC	Imazapyr	4-6 oz 1 yr 12-16 oz 2-5 yr (don't recommend)
Velpar® L / Velpar® DF	Hexazinone	4-8 pints / 1.3-1.8 lb
Oust® XP	Sulfometuron	2-8 oz
Oustar®	Sulfometuron (12%) + Hexazinone (63%)	10-19 oz
Transline®	Clopyralid	¼ - 1 1/3 pints
Milestone®	Aminopyralid	3-7 oz

From: Dr. Pat Minogue

## Remember...

- No 'silver bullet' herbicide for wildlife
- Determine your wildlife objectives and their habitat needs
- Use selective herbicides to target the problems while minimizing collateral damage
- Use the least amount possible and follow with fire
- Typically it is easier to target problems during site-prep
- Do you really need HWC or will fire handle it?



Questions?

Est. 1995  
The Longleaf Alliance

Ryan Mitchell  
850-758-8559  
Ryan@longleafalliance.org