ALDCNR
Invasive Plant Control Activities
State Parks

**Gulf State Park** - CIAP coastal grant enabled removal of **Chinese Tallow Tree from 40 acres within the campground** and to begin a restorative program for native grasses and planted oak/cypress trees. Treatment was hack/squirt using **Garlon 3A or 4** based on tree DBH. Trees were allowed to sit for a period of time and then removed physically or mulched in place based on the campsite locations. A recheck of treated areas was followed up after removal to monitor any sprout activity.

- **Cogon grass treatment** with a glyphosate based herbicide and surfactant mix was applied within a 35 acre zone. This treatment will be applied in a 50 acre treatment zone in 2016. Cogon grass is spot sprayed within the Park ROW as needed, are standard procedure.

**Lake Guntersville State Park Forest** - Mulching and herbicide application to stems of **Japanese privet** using a Garlon based herbicide have proven successful on road ROW and forest borders.

**Joe Wheeler State Park** - Planned herbicide phase to treat **Japanese privet** will be implemented in 2017 based on a forestry mulching plan prior to spraying. The treatment method is spraying Garlon with a surfactant in an area of approximately 180 acres within linear zones at 3 different locations within the Park which include road ROW, trails and forest border.
WFF – Wildlife Section

2015 Cogon Grass Spraying

- Autauga WMA  .5 ac
- Barbour WMA  1-2 ac
- Lowndes WMA  2-3 ac
- Fred T Stimpson - Clarke Co.  10-15 ac
- Upper State – Clarke Co.  10-12 ac

- Our treatments consist of Spring (before flowering) and late summer (before going dormant) applications with 1.5% Imazapyr/.25% glyphosate

- Primarily use a tractor mounted spray rig with PTO driven roller pump and 110 gallon tank with hose real and spray gun. Our main application is with the gun. We also have a boomless nozzle for spraying fields.

- Kawasaki Mule with a 60 gallon spray rig with a 12 volt diaphragm pump, boomless nozzle rig, and 15ft hose and gun for smaller spot treatments.
Cogon grass treatment at Fred T. Stimpson
Post-treatment around wildlife opening
State Lands Division

• Between 500-1000 acres treated for Cogon grass in the past 10 years
• Forever Wild and other State Lands Tracts in southern third of the state
• Varying rates of primarily imazapyr applied by shotgun from ATV or broadcast with tractor
• Many spots marked with GPS for re-inspection and follow-up treatment if needed
Thinned Perdido loblolly plantation
Industry-owned, thinned loblolly plantation – Eastern Baldwin Co., AL

Site received a post-thinning ground application of 32 oz. of Chopper and 20-30 oz. of Garlon. Note ineffective penetration not far beyond access row.
Thinned, mulched Perdido loblolly plantation
Mulched Perdido loblolly plantation one year after mulching
Contract mulcher used on Perdido plantations
Prescribed fire in young longleaf plantation on Perdido
Third prescribed fire in sand ridge area of thinned loblolly pine plantations on Perdido
Post-dormant season fire in young Perdido longleaf plantation
Post-dormant season fire in thinned Perdido longleaf plantation
Gopher tortoise on Perdido

If he’s happy, then we’ve done our job correctly. Doesn’t he look happy to you?!
Aerial application contractor staging area with helicopter and batch trucks – Baldwin Co., AL
Helicopter spraying pesky soybeans in WMA food plot so we can plant beautiful longleaf pines!

Actually helicopter heading off to tract beyond tree line. Extremely wet Weeks Bay Swift Tract has no upland site that could be used to stage spray crew. Aerial application to attempt to control Chinese Tallow Tree that invaded after salt water intrusion killed overstory following Ivan and Katrina
160 gallons of Clearcast herbicide was applied at a rate of 64 ounces of herbicide plus 32 ounces of methylated seed oil (MSO) surfactant per acre for aerial treatment of Chinese Tallow Tree (*Triadica sebifera*) at 15 gallons water per acre applied in a single pass in early October 2014. Chinese Tallow Tree can’t produce seed until they are 3 years old. The same treatment will be applied in the late summer or early fall of 2016, two years after the first treatment, in an attempt to kill post-2014 sprouting.
Weeks Bay

- **Terrestrial species** of concern
- **Triadica sebifera, cogon grass, kudzu, privet, Japanese climbing fern**
- **Triadica sebifera (popcorn trees):** have been treating ~ 100 acres on the Damson tract for approximately 12 years.
- **Initial treatment:** fell 178 mature popcorn trees and immediately applied a 20% solution of Garlon 3A to stumps. **Result: 90% treatment efficacy during growing season (efficacy = no coppice 1 year later).** After mid September efficacy dropped to ~10%.
- **Follow up treatments for seedlings and saplings:** thoroughly wet all leaves with Garlon 4 as a 2-percent solution in water with a surfactant within the months of June to September. For coppiced stumps recut and applied 20% Garlon 3A.
- **Reduction in Popcorn trees** within this tract estimated at 99%
Weeks Bay cont.

- **Aquatic and emergent exotic invasive species** known to occur in Weeks Bay management boundaries
  - Hydrilla verticillata, Pistia stratiotes, Panicum repens, Myriophyllum sp., Alternathera philoxeroides, Colocasia esculenta, Phragmites australis, Salvinia minima, Eichornia crassipes.
- Physically removed *Eichornia crassipes* from approximately ¼ acre within Weeks Creek with no recurrence to date.
- Truly aquatic invasive species are ephemeral in nature, likely due to an inability to cope with the rapidly changing salinity within the bay and rivers.
- All other exotic treatment with Weeks Bay management area have been on an ad hoc basis **over the past 15 years. Treatments have occurred over approximately 700 acres of land.**
Langan Park Lake

• Here in District V Fisheries Office, we were presented an invasive species problem, in **Apple snails, specifically Pomacea maculata**. This snail an import through the pet trade was released at Langan municipal Park Lake (approx 2004??) in Mobile and spread over the course of a few years until we got involved in June 2009. Our goal in control had several aspects (and you will see how aquatic plant control comes into the picture):

• **Pick eggs off of aquatic plants (females need to lay eggs aerially over water...**typically hardy plant stems, or concrete walls (e.g., culverts, retaining walls). Used Gov’t staff, volunteers, “roundups”.

• **Direct control of adults and juveniles with copper sulfate (CHEM ONE, a granular copper sulfate pentahydrate) and copper carbonate (NATRIX, liquid copper ethanolamine). These are only 2 EPA-approved (copper-based) molluscicides!**

• **Stocking of adult redear sunfish** (1.4 million in 35 stockings) as direct control of early-stage snails.

• **Control of egg-laying habitats.** Sort of a “scorched earth” plan. Since snails must lay egg masses above water to hatch, we controlled snails by decreasing their ability to lay eggs via control of emergent aquatic plant beds. **Though this sounds extreme, we only wanted to kill plants within 12-18 inches inside of the natural water line. This zone was a bit greater with respect to tidal areas in lower Threemile Creek**
island apple snail (Pomacea maculata) Perry, 1810

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org
Island Apple Snails ingesting Wild Taro leaves

Jess Van Dyke, Snail Busters, LLC, Bugwood.org
Giant cutgrass with snail eggs (credit Steve Rider, ADCNR)
Snails also lay on stumps, cypress knees (Photo credit, Jennifer Pritchett, USFWS).
• So, long story short, 2009-2012, ADCNR made multiple applications of emergent herbicides (with some USFWS “partners” and invasive species funding) and a contractor via CIAP grant AL-36 (Estate Mgt Services) made applications 2013-2015 to control emergent vegetation in Langan Municipal Lake (42 acre lake with 2 main pools at 30 and 12-acres each and many islands) and 14+ linear miles of stream bank in Threemile Creek which flows through and downstream from lake through City of Mobile and into Mobile River to Mobile Bay. City of Mobile also partnered with ADCNR for aquatic plant control on shoreline for aesthetics, though this helped us greatly.
This is a plot pre-spray. The primary plant here is Giant cutgrass, though there are about 6 others (elephant ear (taro), torpedograss, alligator weed, water hyacinth, azolla, etc). This stuff was 8 to 10-feet above ground and some rooted another 1-2 feet down in water!
Emergent aquatic plants were abundant throughout study areas and many of the plants preferred by snails were also invasive. Spray work used Glyphosate (RODEO, AQUAMASTER), imazapyr (ECOMAZAPYR, POLARIS). Turns out, snails also had a high preference (70-90% egg masses were laid in these plants) for Giant cutgrass (zizaniopsis miliacea) and wild rice as egg substrates. Both are native. Regardless, these plants are difficult to control and resprouts on wetland soils is very common, hence the need for soil active herbicide, imazapyr when possible in wet soils (not standing water) which is a big problem. So, since plants were difficult to control, it took quite awhile to knock back plant beds and we found using several surfactants (INLET, is for general plant use; ELITE INFILATRATOR an oil d’limonene penetrant for waxy plants; and SUNENERGY, a very high quality methylated seed oil) differing needs. The latter was effective in use with imazapyr and we suggest anyone controlling such “difficult to kill” emergent plants “on exposed wetland soil” be wary that efficacy does vary greatly with your choice in surfactant. When using imazapyr in a case similar to ours, we recommend a good MSO with organosilicones.
What made treatments difficult were floating plant beds within tidal Threemile Creek, where apple snails were most abundant in the fresher portions.
Notice the kill line near waters edge. Our attempt was to not kill the entire bank, just the first 12-18 inches from the water line where snails lay eggs. See the cutgrass in foreground looks sickly, dying.
Sprayed Giant cutgrass bed (foreground) with live plants in rear bankside at tidal zone. (Photo by Armstrong, ADCNR District 5.)
Winter Sunset – Tennessee River – Lauderdale County, AL