Invasive Plants Found in Mississippi Forests, 2010

Sonja Oswalt and Christopher Oswalt

FOREST INVENTORY & ANALYSIS FACTSHEET

FIA
The Nation's Forest Census

Chinese privet. (photo by James H. Miller)

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Introduction

This science update provides information on nonnative invasive plants in Mississippi's forest land based on an annual inventory conducted by the U.S. Department of Agriculture Forest Service, Forest Inventory and Analysis (FIA) program at the Southern Research Station in cooperation with the Mississippi Forestry Commission. These estimates and coverage maps will be updated on a periodic basis. Please refer to the FIA Program Information at the end of this report for more information on past inventory reports for this State, inventory program information, field sampling methodology, and estimation procedures.

Overview

For decades, foresters and ecologists have noted the spread of nonnative invasive species onto U.S. forest land. Despite causing economic losses and inestimable environmental impacts, nonnative invasive species continue to spread across managed and natural forests. This update describes results from data collected in Mississippi between 2006 and 2010, and provides illustrations of where invasive plants are being observed in forests across the State.

Findings

Invasive plants from the FIA watch list were found on 2,935 forested plots across the State (80 percent of forested plots sampled; table 1). The large percentage of invaded plots is largely due to the presence of Japanese honeysuckle (*Lonicera japonica*), which is prevalent across the Southern United States.

Invasive plants other than Japanese honeysuckle were found on 2,165 plots, or 59 percent of forested plots (figs. 1a, 1b). Fifty-two percent of plots contained two or more invasive plants from the FIA watch list. Invasive plants were detected throughout Mississippi, with at least one invasive plant (including Japanese honeysuckle; table 1) showing up in 55 percent of forested plots in the Delta, 90 percent of forested plots in the North, 90 percent of forested plots in the Central, 61 percent of forested plots in the South, and 91 percent of forested plots in the Southwest. Again, if honeysuckle is removed from the list of plants detected, invasive plants were detected on 35, 59, 58, 55, and 80 percent of plots in the Delta, North, Central, South, and Southwest units, respectively. Japanese honeysuckle was the most frequently detected plant on Mississippi forest land, found on 70 percent of forested plots in the State (table 2). Chinese and European privets (*Ligustrum sinense/L. vulgare*) were the second most frequently detected invasive plants, found on 42 percent of sampled plots in the State (table 2).

Table 1—Number of invasive species detections on Mississippi forest land, 2010, and the number and percent of plots on which they occur

Count of unique species	Survey unit					Total of invaded plots	Surveyed plots[a]
	Delta	North	Central	South	South-west		
	number of plots						*percent*
1	83	336	312	181	121	1,033	28
2	70	323	329	195	180	1,097	30
3	28	159	92	112	180	571	16
4	4	59	22	30	68	183	5
5	1	18	6	7	15	47	1
6	—	1	—	3	—	4	0
Total invaded plots (all species)	186	896	761	528	564	2,935	80
Percent of all forested plots	55	90	90	61	91	80	—
Total invaded plots (honeysuckle removed)	118	591	486	475	495	2,165	—
Percent of all forested plots	35	59	58	55	80	59	—
Total number of sampled plots	339	994	845	870	621	3,669	—

[a] Percent of survey plots out of 3,669.

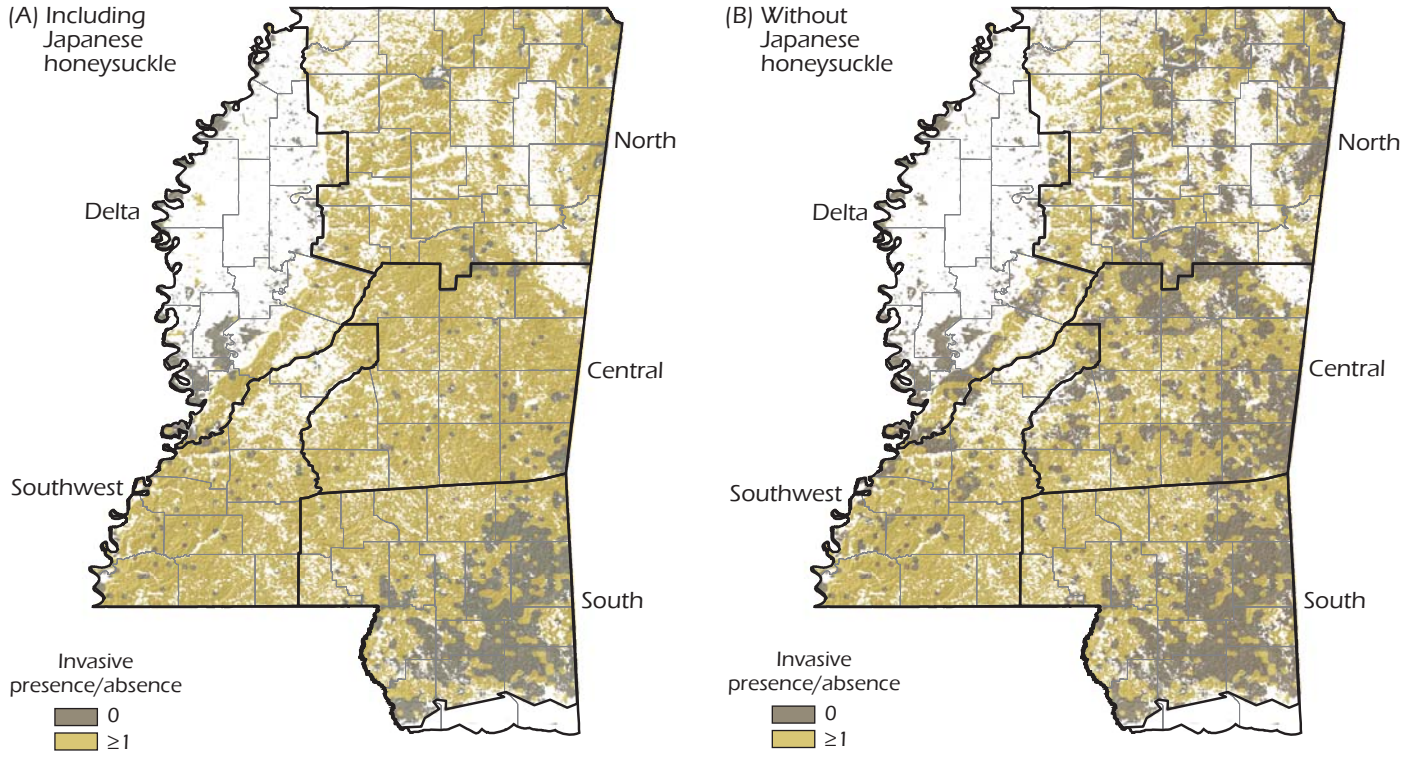

Figure 1—Presence/absence of invasive species on Mississippi forest land, statewide 2010 (A) including Japanese honeysuckle and (B) without Japanese honeysuckle.

Invasive trees were more common in South Mississippi than in any other unit, with detections on 13 percent of sampled plots. Chinese tallowtree (*Triadica sebifera*) constituted the bulk of observations in that region (fig. 2, table 2). Chinese tallowtree was the most frequently detected invasive tree in the State, followed by Mimosa (*Albizia julirissin*) (table 2). Mimosa was most commonly detected in the North and Central units. Statewide, invasive trees were found on 8 percent of sampled plots (table 2).

Invasive shrubs were common across the State, with observations on 46 percent of all sampled plots (fig. 3, table 2). Invasive shrubs were most common in the Southwest unit (60 percent of plots) and least common in the Delta (27 percent of plots). Chinese and European privets were the most common invasive shrubs (table 2). Nonnative roses (*Rosa* spp.) occurred on 4 percent of sampled plots, statewide, with a large proportion of those observations in the North unit. Japanese privet (*Lonicera japonicum*) was recorded on 3 percent of sampled plots, with almost one-half of those observations occurring in the South unit (table 2). No other shrubs were detected on >1 percent of plots.

Japanese honeysuckle was the only invasive vine occurring on >2 percent of sampled plots (table 2). The vine was detected throughout Mississippi, though it was least common in the South unit (fig. 4), where it occurred on 38 percent of sampled plots (table 2). Japanese honeysuckle occurred on 87 percent of plots that contained one or more invasive species, and was the only invasive species found on 770 invaded plots (26 percent of all plots with invasive plant detections). Japanese honeysuckle covered, on average, 14 percent of the area of subplots on which it was detected.

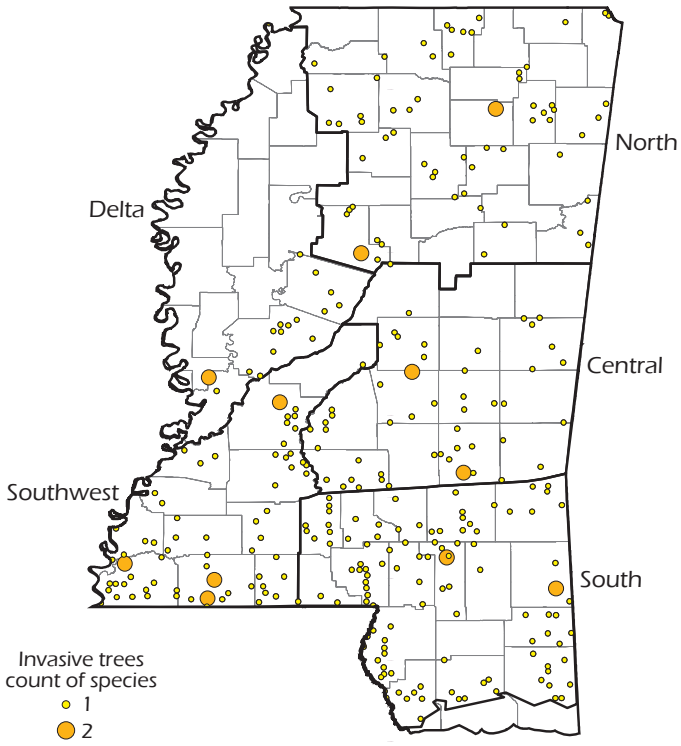

Figure 2—Number of invasive trees on plots, Mississippi, 2010.

Nepalese browntop (*Microstegium vimineum*) was the most common invasive grass in Mississippi, detected on 4 percent of plots (table 2). Invasive grasses were most frequently detected in the North and Southwest units and observations consisted primarily of both Nepalese browntop and tall fescue (fig. 5).

Table 2—Invasive species detected on Mississippi forest land with frequency of plot detections and mean percent subplot cover by common name, scientific name, life form, and survey unit, 2010

Common name	Scientific name	Life form	Survey unit						Survey unit					
			Delta	North	Central	South	Southwest	Total	Delta	North	Central	South	Southwest	Total
			number of plot detections[a]						*mean percent subplot cover*[b]					
Tree-of-heaven	*Ailanthus altissima*	Tree	—	2	2	—	—	4	—	7	5	—	—	6
Silktree, Mimosa	*Albizia julibrissin*	Tree	7	51	22	10	13	103	6	5	7	5	7	6
Princesstree, Royal Paulownia	*Paulownia tomentosa*	Tree	5	5	—	1	3	14	8	3	—	2	2	5
Chinaberry	*Melia azedarach*	Tree	6	3	14	10	19	52	10	20	10	8	7	9
Tallowtree, Popcorntree	*Triadica sebifera, Sapium sebiferum*	Tree	—	3	13	90	34	140	—	24	5	9	5	8
Autumn olive	*Elaeagnus umbellate*	Shrub	—	4	—	—	—	4	—	9	—	—	—	9
Chinese/European privet	*Ligustrum sinense/ L. vulgare*	Shrub	86	387	407	318	347	1,545	8	10	12	17	13	12
Japanese/glossy privet	*Ligustrum japonicum/ L. lucidum*	Shrub	1	12	26	46	24	109	0	10	23	21	11	18
Bush honeysuckles	*Lonicera* spp.	Shrub	—	5	2	5	1	13	—	13	12	17	5	14
Sacred bamboo, Nandina	*Nandina domestica*	Shrub	—	1	3	2	6	12	—	5	4	3	4	4
Nonnative roses	*Rosa* spp.	Shrub	9	90	7	9	25	140	7	8	9	12	6	8
Oriental or Asian bittersweet	*Celastrus orbiculatus*	Vine	1	1	—	1	—	3	0	5	—	5	—	4
Nonnative climbing yams-air yam/Chinese yam	*Dioscorea bulbifera/ D. oppositifolia*	Vine	—	1	1	1	—	3	—	95	5	5	—	35
English Ivy	*Hedera helix*	Vine	—	1	1	1	—	3	—	30	95	5	—	44
Japanese honeysuckle	*Lonicera japonica*	Vine	171	850	712	329	489	2,551	14	21	13	8	9	14
Kudzu	*Pueraria Montana var. lobata (Pueraria lobata)*	Vine	10	41	17	5	10	83	43	47	15	28	18	35
Nonnative vincas, Periwinkles	*Vinca minor/V. major*	Vine	1	—	8	5	—	14	3	—	3	13	—	6
Chinese/Japanese wisteria	*Wisteria sinensis/ W. floribunda*	Vine	—	3	5	2	—	10	—	12	5	10	—	8
Tall fescue	*Lolium arundinaceum*	Grass	2	25	9	7	36	79	9	27	13	18	15	19
Cogongrass	*Imperata cylindrica*	Grass	—	—	1	13	1	15	—	—	5	20	5	18
Nepalese browntop	*Microstegium vimineum*	Grass	4	79	9	10	32	134	19	25	4	9	11	19
Chinese silvergrass	*Miscanthus sinensis*	Grass	—	—	—	—	1	1	—	—	—	—	5	5
Nonnative bamboos	*Phyllostachys* spp./ *Bambus* spp.	Grass	—	4	1	1	—	6	—	17	5	0	—	12
Shrubby lespedeza	*Lespedeza bicolor*	Herb	—	32	19	8	3	62	—	4	3	2	0	3
Chinese lespedeza	*Lespedeza cuneata*	Herb	10	180	42	27	45	304	12	10	8	3	8	9
Tropical soda apple	*Solanum viarum*	Herb	3	5	4	—	—	12	8	4	5	—	—	5
Japanese climbing fern	*Lygodium japonicum*	Fern	12	6	39	179	279	515	2	3	3	6	8	7

Total number of surveyed plots: Delta=339, North=994, Central=845, South=870, Southwest=621.

[a] Plot refers to the forested portion of all subplots measured. If a species was detected on more than one subplot, it is only counted once here.

[b] Percent cover in this column is the average cover on an individual subplot, not the whole plot.

Japanese honeysuckle. (photo by Chuck Bargeron, University of Georgia, Bugwood.org)

Chinese lespedeza (*Lespedeza bicolor/L. cuneata*) was the only invasive herb identified on >2 percent of sampled plots, with detections on 8 percent of plots (table 2). The species was most common in the North unit where 59 percent of observations of the species were noted, though it was found on sample plots in all units (fig. 6).

Japanese climbing fern (*Lygodium japonicum*) occurred throughout the southern part of Mississippi, though it was most common in the Southwest unit where it was found on 45 percent of sampled plots (fig. 7). Detections equaled 21 percent of sampled plots in the South unit. On subplots where it was found it covered between 2 and 8 percent of the aerial proportion, on average (table 2).

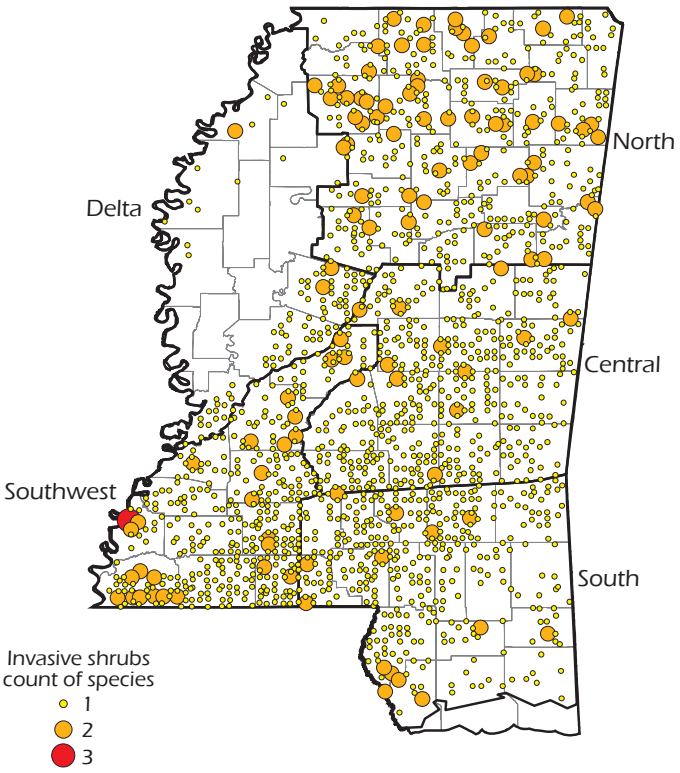

Figure 3—Number of invasive shrubs on plots, Mississippi, 2010.

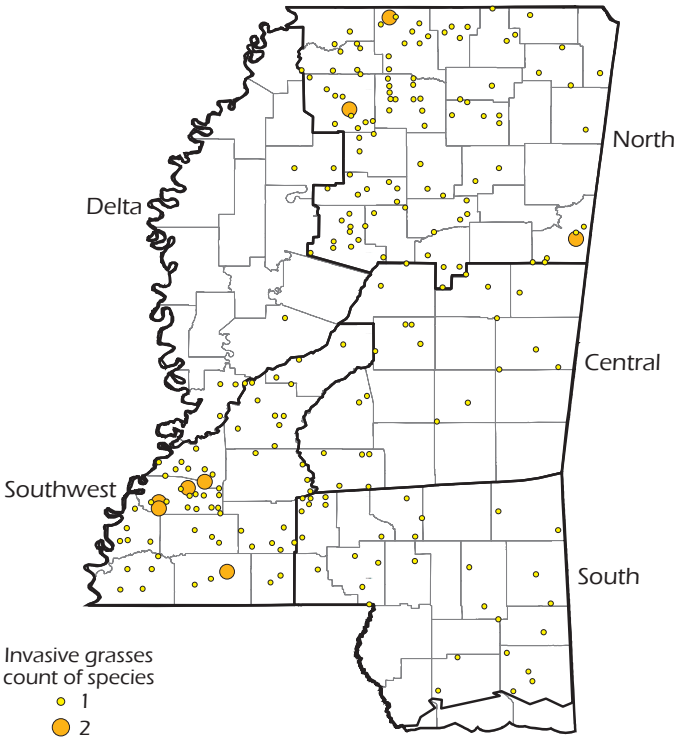

Figure 5—Number of invasive grasses on plots, Mississippi, 2010.

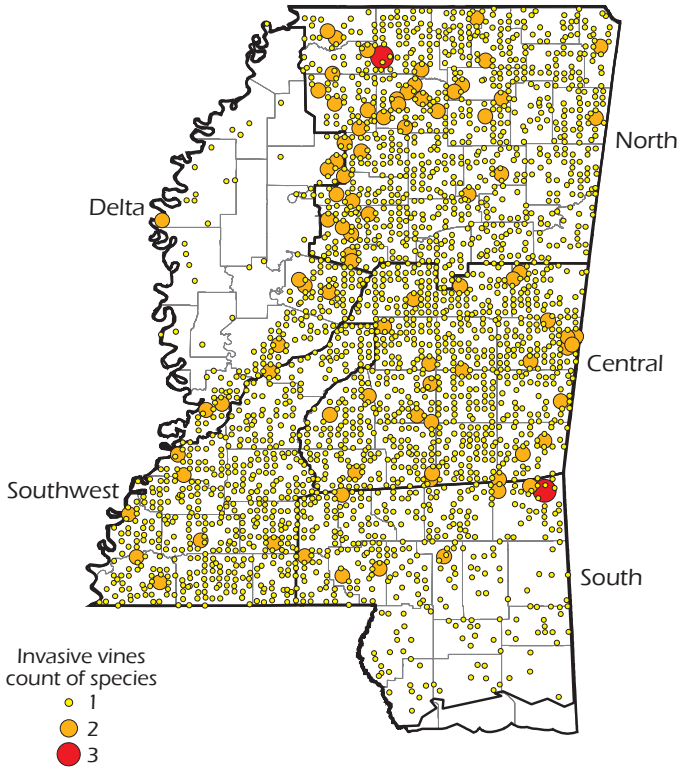

Figure 4—Number of invasive vines on plots, Mississippi, 2010.

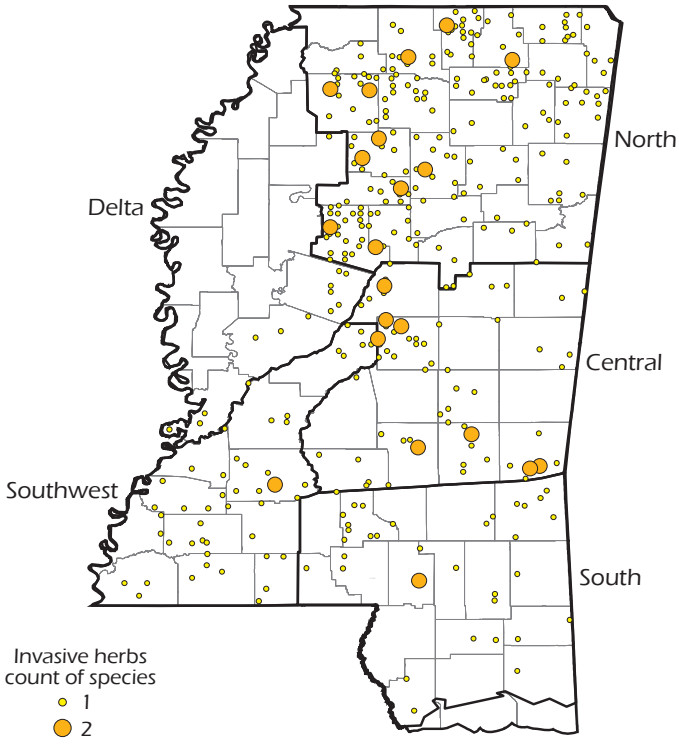

Figure 6—Number of invasive herbs on plots, Mississippi, 2010.

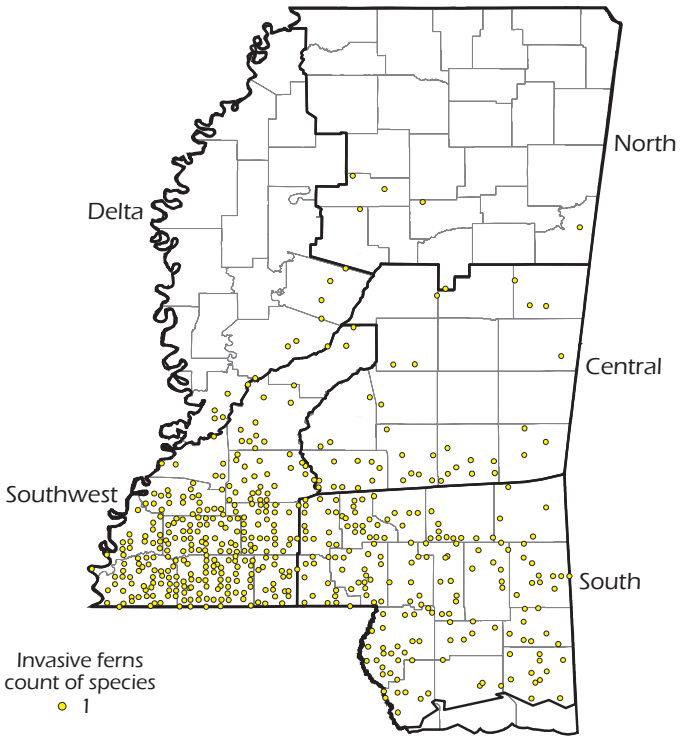

Figure 7—Number of invasive ferns on plots, Mississippi, 2010.

Conclusions

Invasive plants are common on forest land throughout Mississippi. The overwhelming presence of Japanese honeysuckle in the State obscures the dynamics of some of the other species invading Mississippi forests. When honeysuckle was removed from consideration, invasive plants were still common on more than one-half of Mississippi's forested plots. The South unit contained the fewest species, likely a result of thick understory vegetation and fire regimes used in the management of longleaf pine forests common to that unit.

Although it is localized primarily to the South, Chinese tallowtree is a species worthy of concern and continued monitoring. Populations of the tree have increased dramatically throughout the Southern United States in recent years. Chinese tallow tree is a threat to native wet prairies, replacing entire ecosystems with monoculture stands of the tree. The FIA nonnative invasive plant program provides a method for tracking the spread of common invasive plants across the landscape, and allows for a landscape-level approach to invasive species problem-solving.

FIA Program Information

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Chinese tallowtree twigs. (photo by Chris Evans, River to River CWMA, Bugwood.org)

Contact Information

Sonja Oswalt, Forester
Forest Inventory and Analysis
Southern Research Station, USDA Forest Service
4700 Old Kingston Pike
Knoxville, TN 37919
Phone: 865-862-2058 / Fax: 865-862-0262
Email: soswalt@fs.fed.us
Southern FIA: http://srsfia2.fs.fed.us
National FIA: http://fia.fs.fed.us

Christopher Oswalt, Research Forester
Forest Inventory and Analysis
Southern Research Station, USDA Forest Service
4700 Old Kingston Pike
Knoxville, TN 37919
Phone: 865-862-2068 / Fax: 865-862-0262
Email: coswalt@fs.fed.us
Southern FIA: http://srsfia2.fs.fed.us
National FIA: http://fia.fs.fed.us