



FOREST INVENTORY & ANALYSIS FACTSHEET



Japanese climbing fern. (photo by Chris Evans bugwood.org)

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Invasive Plants Found in Louisiana's Forests, 2010

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Introduction

Foresters and ecologists have noted the spread of nonnative invasive species onto U.S. forest land for decades. Despite soaring costs related to the management of and removal of invasive plants, and inestimable environmental impacts (e.g., altered soil chemistry, competition with native species, altered light environment; Pimentel and others 2005), nonnative invasive species continue to spread across managed and natural forests.

This update describes current results from data collected in Louisiana between 2002 and 2010 by the Forest Inventory and Analysis (FIA) Program at the Southern Research Station of the U.S. Department of Agriculture Forest Service and provides illustrations of where invasive plants are being observed in forests across the State. These estimates and coverage maps will be updated on a periodic basis.

FIA data are collected on a systematically random sample of plots across public and private land, nationwide. Plots consist of four subplots arrayed in a triangular fashion. Up to four invasive species from a predefined watch list are recorded on each subplot by FIA field cruisers. For more information regarding past inventory reports for this State, inventory program information, field sampling methodology, and estimation procedures, please refer to the citations at the end of this report.

Findings

Invasive plants from the FIA watch list (U.S. Department of Agriculture, Forest Service 2005) were found on 1,291 forested plots across the State (55 percent of forested plots sampled; fig. 1, table 1). Twenty-eight percent of plots contained two or more invasive plants from the list. Invasive plants were detected throughout Louisiana in 2010, with 22 percent of forested plots in the North Delta unit, 56 percent of forested plots in the South Delta unit, 62 percent of forested plots in the Southwest unit, 82 percent of forested plots in the Southeast unit, and 46 percent of forested plots in the Northwest unit containing at least one invasive plant (table 1). Japanese honeysuckle (*Lonicera japonica*) was the most frequently detected plant on Louisiana forest land, and was detected on 29 percent of forested plots sampled for invasives in the State (table 2). Chinese tallowtree (*Triadica sebifera*) and Japanese climbing ferns (*Lygodium japonicum*) were the second most frequently detected invasive plants, found on 25 and 21 percent of sampled plots in the State (table 2).

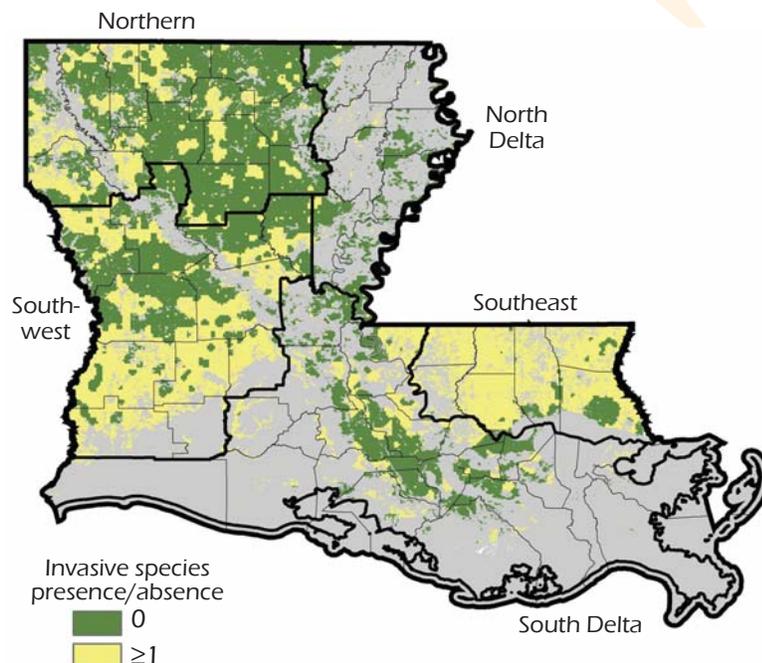


Figure 1—Presence/absence of invasive species on forest land, Louisiana, 2010.

Table 1—Number of unique invasive species detected on forest land, by survey unit, and percent of plots on which they occur, Louisiana, 2010

Number of unique species detected ^a	Survey unit					Total	Invaded plots ^b percent
	North Delta	South Delta	South-west	South-east	North-west		
	----- number of plots -----						
1	26	116	231	49	214	636	27
2	9	58	124	70	97	358	15
3	8	31	67	66	20	192	8
4	—	13	15	46	7	81	3
5	—	1	7	12	1	21	1
6	—	—	2	—	—	2	0
7	—	1	—	—	—	1	0
Total invaded plots (all species)	43	220	446	243	339	1,291	—
Percent of all sampled plots	22	56	62	82	46	55	—
Total number of sampled plots	192	392	723	295	730	2,332	—

— = no sample for the cell.

^aUp to 4 unique species may be noted per subplot, for a total possibility of 16 unique species per complete plot.

^bPercent of survey plots with the listed number of unique species, out of 2,332.

Invasive trees were more common in the Southeast unit of Louisiana than any other unit, with detections on 52 percent of sampled plots (fig. 2). Chinese tallowtree comprised the bulk of observations in that region (table 2). It was also the most frequently detected invasive tree in the State, followed by Chinaberry (*Melia azadarach* L.), though Chinaberry was only detected on 33 plots (table 2). Statewide, invasive trees were found on 28 percent of sampled

plots, but Chinese tallowtree was the only species noted on >1 percent of plots (table 2).

Invasive shrubs were most common in Southeast Louisiana, with observations on 63 percent of all sampled plots in that region (table 2). Invasive shrubs were least common in the North Delta unit (9 percent of plots). Chinese and European privets (*Ligustrum sinense*/*L.vulgare*) were the most common invasive shrubs, followed by Japanese and glossy privets (*Ligustrum japonica*/*L.lucidum*) (table 2). Invasive shrubs were found on 23 percent of sampled plots, statewide (table 2).

Japanese honeysuckle was the only invasive vine occurring on >1 percent of sampled plots (table 2). The vine was detected throughout Louisiana, though it was least common in the North Delta unit, where it occurred on 14 percent of sampled plots (table 2). Japanese honeysuckle occurred on 29 percent of all sampled plots that contained one or more invasive species. Japanese honeysuckle covered, on average, 7 percent of the area of subplots on which it was detected.

Japanese climbing fern occurred throughout Louisiana, though it was most common in the Southeast unit where it was found on 65 percent of sampled plots. Detections equaled 25 and 22 percent of sampled plots in the Southwest and South Delta units, respectively. On subplots where Japanese climbing fern was found it covered 6 percent of the aerial proportion, on average (table 2).

No single invasive grass or herb was noted on >1 percent of sample plots in Louisiana, though invasive forbs as a combined category were detected on 2 percent of plots in the Northwest unit (table 2).

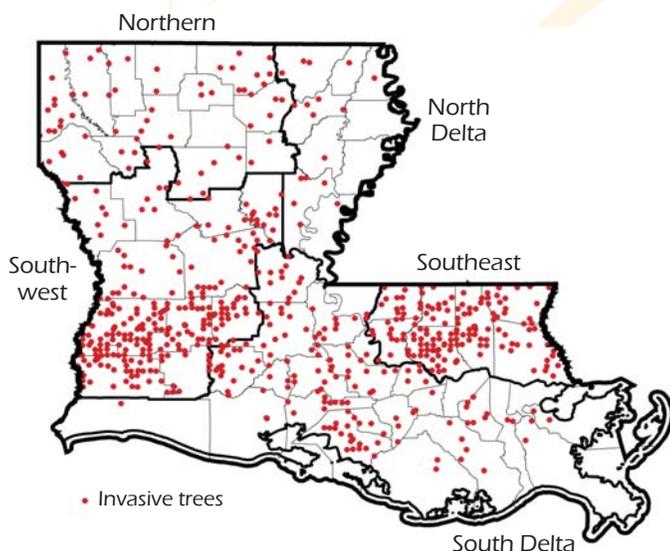


Figure 2—Invasive trees on plots, Louisiana, 2010.

Table 2—Number of nonnative invasive species detected on forest land with frequency, by life form, common name, scientific name, survey unit, and mean percent subplot cover, Louisiana, 2010

Life form and common name	Scientific name	Survey unit					Total	Survey unit					Total
		North Delta	South Delta	Southwest	Southeast	Northwest		North Delta	South Delta	Southwest	Southeast	Northwest	
----- Number of plot detections ^a -----													
----- Mean percent subplot cover ^b -----													
Tree													
Chinese tallowtree, Popcorn tree	<i>Triadica sebifera</i> , <i>Sapium sebiferum</i>	13	151	235	147	40	586	10	13	11	9	8	11
Chinaberry	<i>Melia azedarach</i>	3	3	4	5	18	33	23	2	2	3	13	10
Silktree, Mimosa	<i>Albizia julibrissin</i>	2	—	12	1	7	22	<1	—	18	5	7	12
Princesstree, Royal paulownia	<i>Paulownia tomentosa</i>	—	—	—	—	1	1	—	—	—	—	<1	<1
Shrub													
Chinese/European Privet	<i>Ligustrum sinense</i> / <i>L. vulgare</i>	14	47	94	141	97	393	13	10	8	13	8	10
Japanese/glossy privet	<i>L. japonicum</i> / <i>L. lucidum</i>	1	15	35	19	17	87	5	11	7	16	8	10
Nandina	<i>Nandina domestica</i>	—	1	3	22	3	29	—	0	19	2	<1	4
Nonnative roses	<i>Rosa</i> spp.	2	2	3	1	2	10	2	18	6	5	15	9
Bush honeysuckles	<i>Lonicera</i> spp.	—	—	3	2	1	6	—	—	<1	<1	4	1
Autumn olive	<i>Elaeagnus umbellata</i>	—	—	—	1	—	1	—	—	—	30	—	30
Vine													
Japanese honeysuckle	<i>Lonicera japonica</i>	27	75	205	97	280	684	13	7	6	4	8	7
Kudzu	<i>Pueraria montana</i> var. <i>lobata</i> (<i>P. lobata</i>)	—	2	—	2	—	4	—	5	—	5	—	5
Chinese/Japanese wisteria	<i>Wisteria sinensis</i> / <i>W. floribunda</i>	—	1	2	—	—	3	—	70	28	—	—	42
Oriental bittersweet	<i>Celastrus orbiculatus</i>	—	1	1	—	—	2	—	<1	15	—	—	8
Nonnative vinca	<i>Vinca minor</i> / <i>V. major</i>	—	—	—	—	1	1	—	—	—	—	<1	<1
Grass													
Giant reed	<i>Arundo donax</i>	1	—	1	—	—	2	5	—	30	—	—	18
Tall fescue	<i>Lolium arundinaceum</i>	—	—	2	—	—	2	—	—	4	—	—	4
Nepalese browntop	<i>Microstegium vimineum</i>	—	1	1	—	—	2	—	70	5	—	—	38
Nonnative bamboos	<i>Phyllostachys</i> spp./ <i>Bambus</i> spp.	—	2	—	—	—	2	—	1	—	—	—	1
Fern													
Japanese climbing fern	<i>Lygodium japonicum</i>	5	88	178	193	17	481	2	7	5	7	4	6
Forb													
Chinese lespedeza	<i>Lespedeza cuneata</i>	—	—	6	—	10	16	—	—	1	—	2	1
Shrubby lespedeza	<i>L. bicolor</i>	—	—	1	—	6	7	—	—	<1	—	2	2
Tropical soda apple	<i>Solanum viarum</i>	—	—	1	—	1	2	—	—	5	—	<1	3

— = no sample for the cell.

Total number of surveyed plots: North Delta–192, South Delta–392, Southwest–723, Southeast–295, Northwest–730.

^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 aerial cover of the plant and its foliage on an individual subplot, not the whole plot.

Conclusions

Invasive plants are common on forest land throughout Louisiana. The southernmost units contained the highest number of invaded plots because of the high levels of Chinese tallowtree and Japanese climbing fern detected in those units. The North Delta unit contained the least number of invaded plots.

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 (Oswalt 2010). Chinese tallowtree is a threat to native wet prairies and other native habitats, 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. (photo by James H. Miller, Bugwood org.)

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