

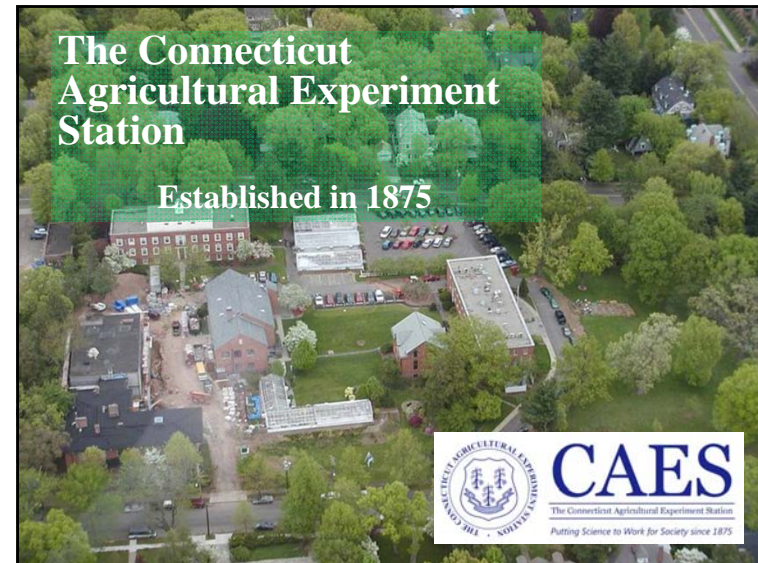
## Running bamboo (*Phyllostachys* spp.) in Connecticut



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### CGS 22a-281e with changes of PA 14-100 and PA 16-89

Sec. 22a-281e. Prohibited actions re running bamboo. Disclosure statement. Penalties. Enforcement. (a) For the purpose of this section, "**running bamboo**" means any bamboo in the genus *Phyllostachys*, including *Phyllostachys aureosulcata*.

(b) No person who plants running bamboo or who allows running bamboo to be planted on his or her property shall permit such bamboo to grow beyond the boundaries of his or her property. On and after October 1, 2013, any person who violates the provisions of this subsection shall be liable for any damages caused to any neighboring property by such bamboo, including, but not limited to, the cost of removal of any running bamboo that grew beyond the boundaries of his or her property.

(c) No person shall plant running bamboo or allow running bamboo to be planted on his or her property at a location that is forty feet or less from any abutting property or public right-of-way. Any person who violates the provisions of this subsection shall be fined one hundred dollars. In the case of a continuing violation, each day of continuance shall be deemed a separate and distinct offense until such time as such bamboo is removed. **or contained by a properly installed and constructed barrier system.**

(d) Each retail seller or installer of running bamboo shall provide to each customer who purchases running bamboo from such seller or installer a statement that discloses that running bamboo is a fast growing plant that may spread if not properly contained and a plain language summary of the provisions contained in subsections (b) and (c) of this section. Such statement shall also provide recommendations, based on best available information, on how to properly contain running bamboo. Any retail seller or installer of running bamboo who violates the provisions of this subsection shall be fined one hundred dollars for each plant sold in violation of this section.

(e) The Department of Energy and Environmental Protection, any duly authorized municipal constable, municipal tree warden, zoning enforcement officer or inland wetlands and watercourses enforcement officer may enforce the provisions of subsections (c) and (d) of this section.

(f) **Allowing running bamboo to grow beyond the boundaries of a parcel of property that a person owns shall be deemed to be a nuisance.**

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## Overview

- What is/is not running bamboo?
- Growth habitat (what is running bamboo)
- Attractive bamboo
- Nuisance bamboo
- Controlling / research



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## What is not running bamboo?



Japanese bamboo or Japanese knotweed  
*Polygonum cuspidatum*

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## What is not running bamboo?



Clumping bamboo  
*Fargesia nitida*

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## Clump bamboo vs. running bamboo



source: [kmc.nsw.gov.au](http://kmc.nsw.gov.au)



Spread by rhizomes

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## What (legally) is not running bamboo



## Running bamboos - *Phyllostachys*



- *Phyllostachys* – upwards of 75 species and 200+ cultivars
- Mature height up to 30 feet (10 meters) tall
- Culm diameter up to of 1.6 inches (4 cm)

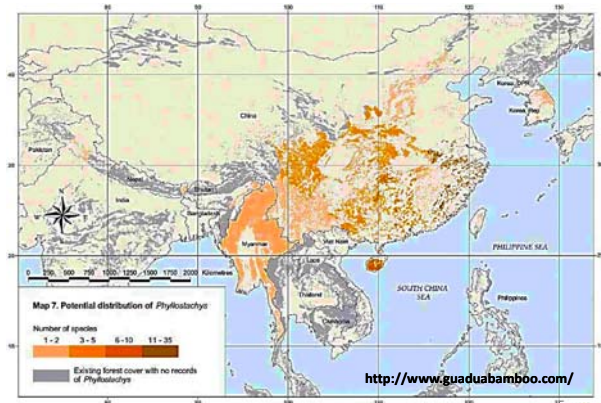


## Running bamboos - *Phyllostachys*

- *Phyllostachys atrovaginata* – Incense bamboo (30 ft)
- *Phyllostachys aurea* – Golden fishpole bamboo (35 ft)
- *Phyllostachys aureosulcata* – Yellow groove bamboo (35 ft)
- *Phyllostachys bissetii* – David Bisset bamboo (30 ft)
- *Phyllostachys mannii* 'Decora' – Beautiful bamboo (20-25 ft)
- *Phyllostachys glauca* 'Yunzhu' (40 ft)
- *Phyllostachys heteroclada* – Water bamboo (30 ft)
- *Phyllostachys incarnata*, *P. Prominens*, *P. propinqua*, *P. edulis*
- *Phyllostachys nigra* – Black bamboo (50 ft)
- *Phyllostachys nuda* – Hardy bamboo (30 ft)
- *Phyllostachys vivax* – Very tall bamboo (70 ft)

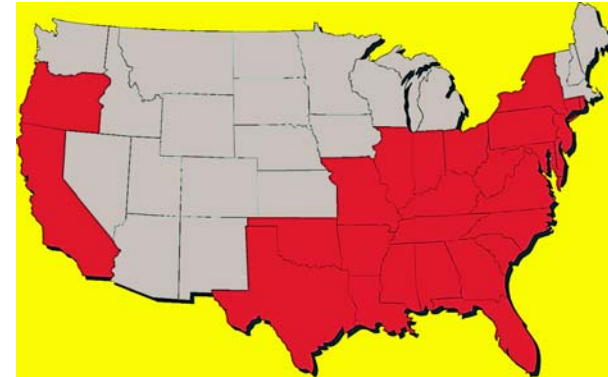


## *Phyllostachys* distribution in Asia



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## *Phyllostachys aureosulcata* & *P. aurea*



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## Yellow groove bamboo

*Phyllostachys aureosulcata*



Some stems can have a crook

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## Yellow groove bamboo

*Phyllostachys aureosulcata*



Groove in stem

Irregular branch sizes

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## Attractive bamboo



Photo credit: lewisbamboo.com



## Nuisance bamboo

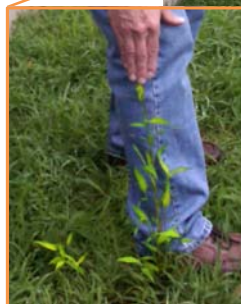


Spread by rhizomes

Photo credits: Caryn Rickel



## Nuisance bamboo



## Bad News

- Major neighbor (and legal) nuisance where not properly controlled.
- Innocuous clump bamboos could be also targeted by name association.
- If it ever begins to produce viable seeds, could be a problem very similar to Japanese knotweed – just a whole lot taller.



## Good News

- CT appears to be at northern range limit.
- Only spreads the folks moving rhizomes – planted or thrown out.
- In USA since at least 1907, no viable seed production has not been reported.
- Can be killed with herbicides.
- Great biomass potential of up to 4 ton/acre/yr (~1 ton/acre/year for forests).



## Control – physical barriers

## Control – Physical barriers



Credit: [kmc.nsw.gov.au](http://kmc.nsw.gov.au)



Credit: [Lewisbamboo.com](http://Lewisbamboo.com)



## Field research

- Control of well-established infestations
- Soaking trial of rhizomes
- Field growth trials



Pre-treatment – June 2013



Treating – June 2013



Herbicide 1 – Sept 2013





Table 1. Results of a running bamboo control study in Connecticut

	MRT	OFR	Merritt Parkway
	Woodbury	Woodbury	Easton
Original height	12-18 ft	12-15 ft	> 20ft
Date cut	9/6/2012	11/29/2012	6/6/2013
Pre-spray height	2-8 ft	2-8 ft	3-10 ft
1 <sup>st</sup> spray	8/31/2013	8/31/2013	9/5/2013
2 <sup>nd</sup> spray	9/13/2013	9/13/2012	9/19/2013
Effectiveness	99%	100%	99.9%
3rd spray	11/24/2014	Not needed	
Effectiveness	100%		



## Control - Herbicides

### Effective

- 1-2 years to control with glyphosate (Roundup®)
- diclobenil (Casoron®, Barrier®)\*

### Less effective

- fluazifop-p (Fusilade II®, Ornamec®, or Grass-BGon®)
- clethodim (Envoy®)\*

\* According to literature, no personal experience



## Habitat (Imazapyr) with MSO adjuvant



## Soaking Trials



## Soaking Trials

Treatment	Start soak	End soak	Number of buds	
			Aureosulcata	Bissetii
0-hr	Planted 10 am		16	16
6-hr	9:30, September 4	15:30, September 4	16	11
15-hr	16:30, September 4	7:30, September 5	16	10
30-hr	9:30, September 4	15:30, September 5	16	11
93-hr	9:30, September 4	6:30, September 8	16	11

Soaked in a plastic tub that had been filled the day before to allow chlorine to dissipate.



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## Soaking Trials

Number of emergent culms (*Phyllostachys aureosulcata*)\*

Date	Days	Soaking Time				
		0-hr	6-hr	15-hr	30-hr	93-hr
19 Sept 2014	15	2	0	0	0	0
27 Sept	23	2	1	0	0	0
29 Sept 2014	25	4	4	0	2	0
3 Oct 2014	29	5	4	0	2	0
8 Oct 2014	34	6	4	0	2	0
16 Oct 2014	42	6	4	1	3	0
23 Oct 2014	49	6	4	2	3	0
31 Oct 2014	57	6	4	2	3	0
7 Nov 2014	64	6	4	2	3	0
13 Nov 2014	70	6	4	2	3	0
26 Nov 2014	83	6	4	2	2**	0
		<b>38%</b>	<b>25%</b>	<b>19%</b>	<b>19%</b>	<b>0%</b>

\*Checked every couple of days until first culms were observed on 19 September 2014.

\*\*What was thought to be 3 culms were found to 2 culms when root evacuated.

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## Field growth research

- Planted in April 2012 – three locations
- Phyllostachys aurea* (Golden fishpole bamboo)
- Phyllostachys aureosulcata* (Yellow groove bamboo)
- P. aureosulcata spectabilis* (Spectacular bamboo)



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## Field planting trials Growth and spread

Five year growth of bamboo in Connecticut (2012-2016)

Golden fishpole bamboo Yellow groove bamboo Spectacular bamboo  
 (*Phyllostachys aurea*) (*Phyllostachys aureosulcata*) (*P. aureosulcata spectabilis*)

### Combined average

	Golden fishpole bamboo	Yellow groove bamboo	Spectacular bamboo
Maximum spread	2.5 m ( 8.2 ft)	4.9 m ( 16 ft)	5.4 m ( 17.7 ft)
Spread per year	0.5 m/yr ( 1.6 ft/yr)	1 m/yr ( 3.2 ft/yr)	1.1 m/yr ( 3.5 ft/yr)
Maximum height	2.5 m ( 8.2 ft)	2.8 m ( 9.2 ft)	2.5 m ( 8.2 ft)

### Griswold Farm

	Golden fishpole bamboo	Yellow groove bamboo	Spectacular bamboo
Maximum spread	3.1 m ( 10.2 ft)	3.2 m ( 10.5 ft)	2.6 m ( 8.5 ft)
Maximum height	1.9 m ( 6.2 ft)	2.1 m ( 6.9 ft)	2.2 m ( 7.2 ft)

### Windsor Farm

	Golden fishpole bamboo	Yellow groove bamboo	Spectacular bamboo
Maximum spread	1.9 m ( 6.2 ft)	5.4 m ( 17.7 ft)	6.5 m ( 21.3 ft)
Maximum height	2.4 m ( 7.9 ft)	2.7 m ( 8.9 ft)	2.1 m ( 6.9 ft)

### Hamden Farm

	Golden fishpole bamboo	Yellow groove bamboo	Spectacular bamboo
Maximum spread	2.5 m ( 8.2 ft)	6 m ( 19.7 ft)	7.1 m ( 23.3 ft)
Maximum height	3.2 m ( 10.5 ft)	3.6 m ( 11.8 ft)	3.2 m ( 10.5 ft)

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## Running bamboos

- Attractive border or garden accent if controlled with properly installed and maintained root barrier.
- Major nuisance if allowed to spread. Can be controlled, but requires 1+ years with herbicide.



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