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### Outline

- Introduction -What is Silviculture...
- How can Silviculture affect amphibians...
- How is Silviculture causing amphibian decline...
- Overview - Importance of Silviculture...

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### Silviculture

- **U.S. Forest Service** - The art and science of controlling the establishment, growth, composition, health and quality of forests and woodlands to meet the diverse needs and values of landowners and society on a sustainable basis.

"Silviculture." US Forest Service Forest Management - N.p., n.d. Web. 17 Apr. 2013.

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### Silviculture's effects on Amphibians

- Amphibian Characteristics
  - Ectothermic
  - Small Home Range
  - Permeable Skin
  - In Decline\*

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### Silviculture's effects on Amphibians

- Amphibian Needs
  - Vegetation in terrestrial and breeding areas.
  - Abundance and quality of coarse woody debris.
  - Ample leaf litter
  - Appropriate temperature and humidity.
  - Limited disturbance.
  - Juxtaposition/Interspersion/Edge

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## Silviculture's effects on Amphibians

- Practices that are detrimental to amphibians.
  - Clearcutting/Tree harvest
  - Monotypic planting/Pine
  - Prescribed Fire.
  - Herbicide
  - Insecticides
  - Fertilizers
  - Faulty SMZ's/Buffers
  - Poor BMP's




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## Evidence of Silviculture Related Declines

- Clearcutting – Clemson University
  - 2-20 y/o clearcuts compared to mature hardwoods and hardwood/conifer forests.
  - Large study = 7 individual studies over 20 years.
  - Up to 9.3 times greater abundance in mature stands.
  - "Effects of Clearcutting on Amphibians and Reptiles." Effects of Clearcutting on Amphibians and Reptiles. N.p., n.d. Web. 17 Apr. 2013.

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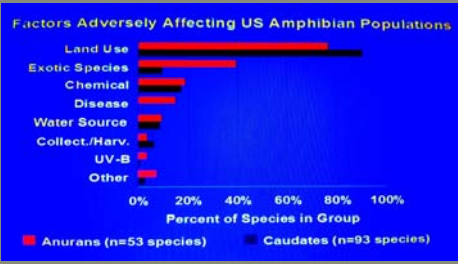
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## Evidence of Silviculture Related Declines

- Means, 2000
 

**Factors Adversely Affecting US Amphibian Populations**



Factor	Anurans (n=53 species)	Caudates (n=93 species)
Land Use	~85%	~85%
Exotic Species	~40%	~40%
Chemical	~20%	~20%
Disease	~15%	~15%
Water Source	~10%	~10%
Collect./Harv.	~5%	~5%
UV-B	~5%	~5%
Other	~5%	~5%

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## Silviculture! *It's Obvious*

- The most contributing factor to Amphibian

Decline!!!

The most devastating  
The most widespread  
The least controllable

- = Silviculture promotes all other factors  
of decline

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