

# Go Native: From Plain to Prairie

## Steps to Restore, Manage, and Maintain Prairie on Your Property

Workshop Series Sponsored by  
Grassland Heritage Foundation &  
Douglas County Conservation District

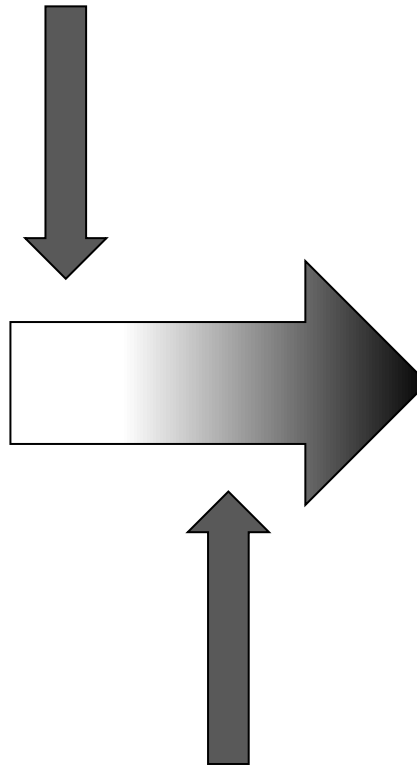
Craig C. Freeman  
R.L. McGregor Herbarium &  
Kansas Biological Survey  
University of Kansas  
Lawrence, KS 66047-3729  
ccfree@ku.edu





### Limiting factors

- ecological
- legal
- financial



### Inputs

- preparation
- materials
- maintenance

**Invasive Plants**

- Estimated 50,000 non-native species introduced in the U.S.; ca 4,000 non-native plant species outside of cultivation
- Many non-native plants are vital to the U.S. economy
- Non-native plant species among the leading threats to native species and ecosystems





- Control of non-native species begins with basic information about them
  - which ones are non-native?
  - what is their source?
  - can they persist and spread?
  - what are their life history characteristics?
  - where do they grow?
  - which ones threaten human activities?



Great Piece of Turf – Albrecht Dürer (1503)

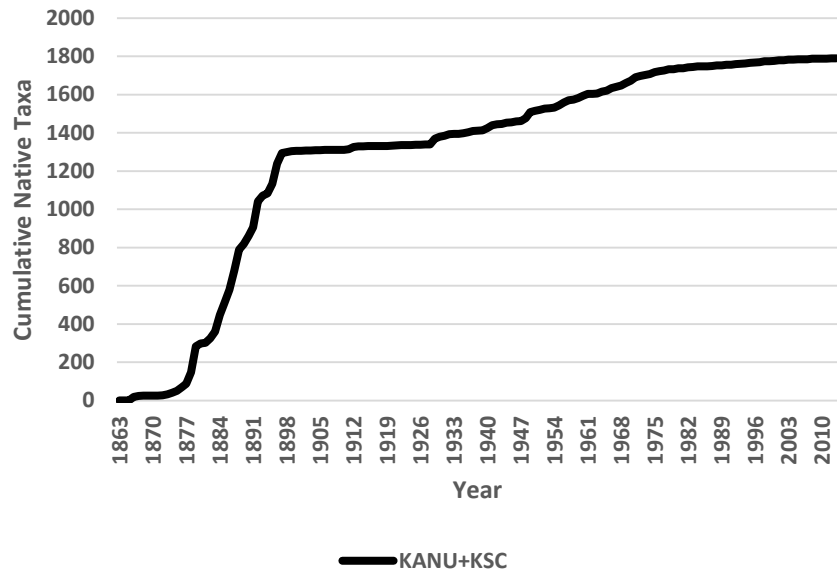


# Herbert Baker's "Ideal Weed Characteristics"

- Vegetative characteristics
  - rapid growth
  - adaptations to compete with other species
  - brittle/breakable stems, vigorous vegetative reproduction (perennials)
- Reproductive characters
  - if cross-pollinated – wind pollinated or generalist pollinators involved
  - some self-compatible
- Seed characters
  - seeds produced under wide range of environmental conditions
  - high output and continuous production
  - adaptations for short- and long-distance dispersal
  - germination possible in many environments
  - long-lived; germination discontinuous

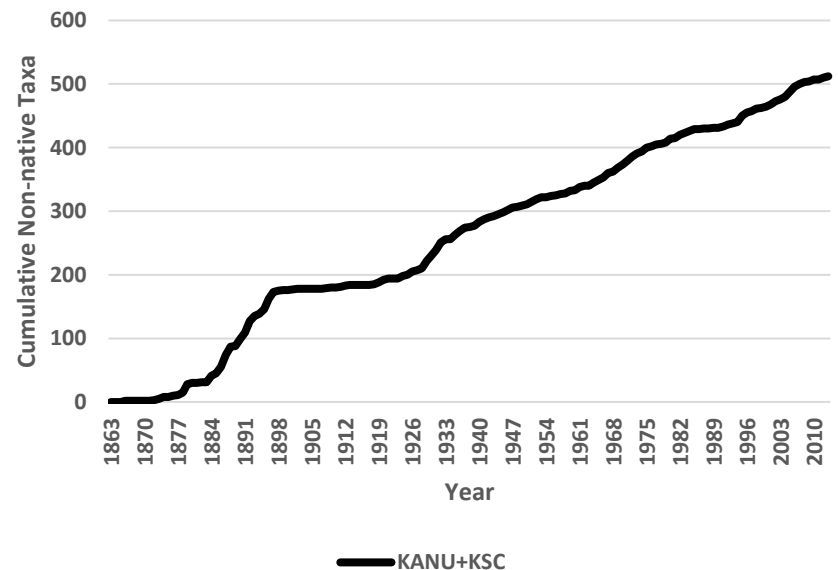


# Accumulation curves for native and non-native vascular plant taxa documented in Kansas since 1863.



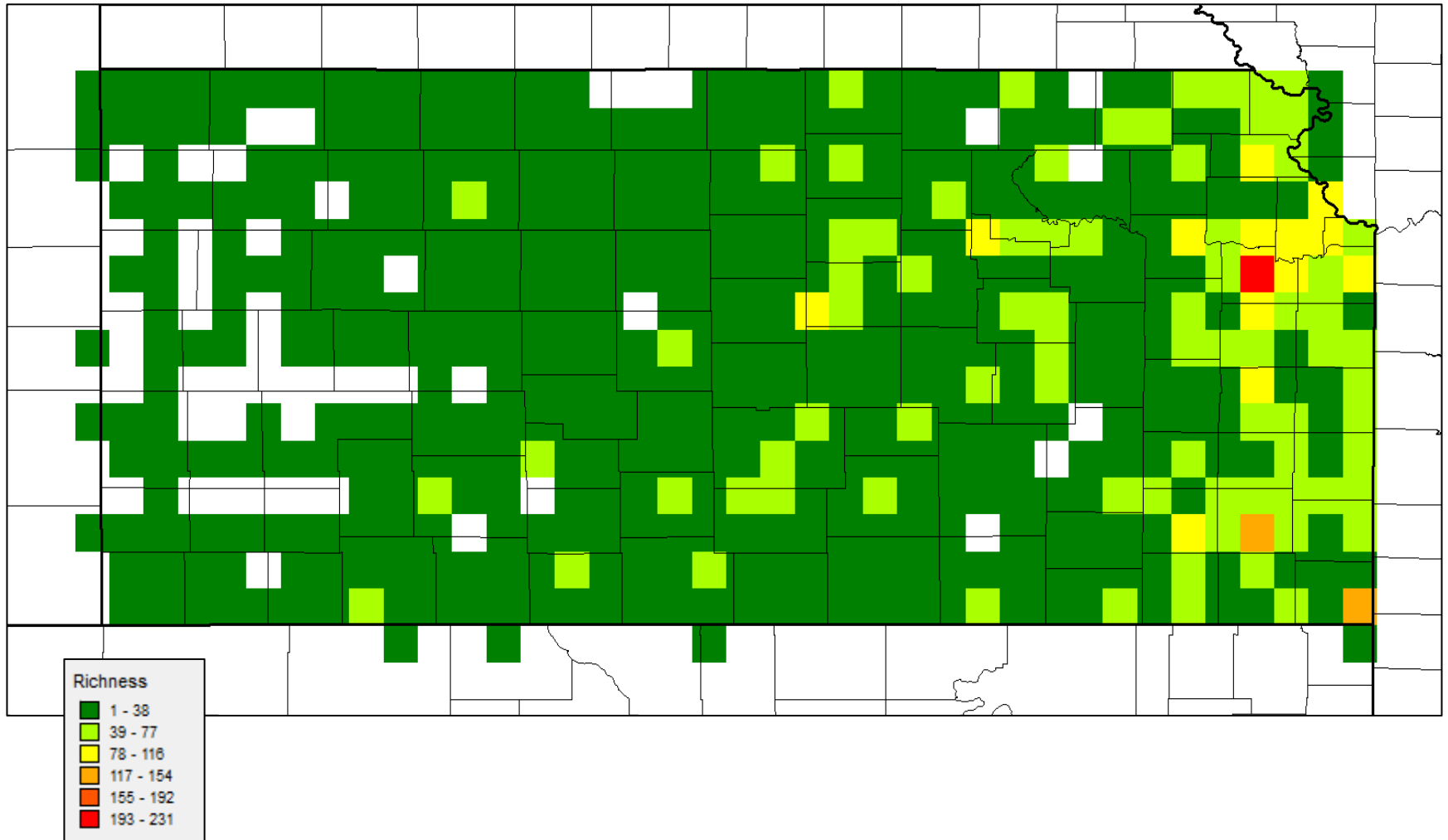
**Native taxa** (above): 50% of all native taxa were documented by the end of 1891, most of them first at KSC. Increased collecting at KANU during the past 4 decades has yielded little increase in new native species, and the accumulation curve is asymptotic around 1800 taxa.

**Non-native taxa** (below): 50% of all native taxa were not documented until 1937. Since 1926, non-native taxa have been documented at a steady rate with no indication of the accumulation curve becoming asymptotic. New non-native species have been documented at a rate of 3.4 species/yr since 1860 (2.3 species/yr with turnover)



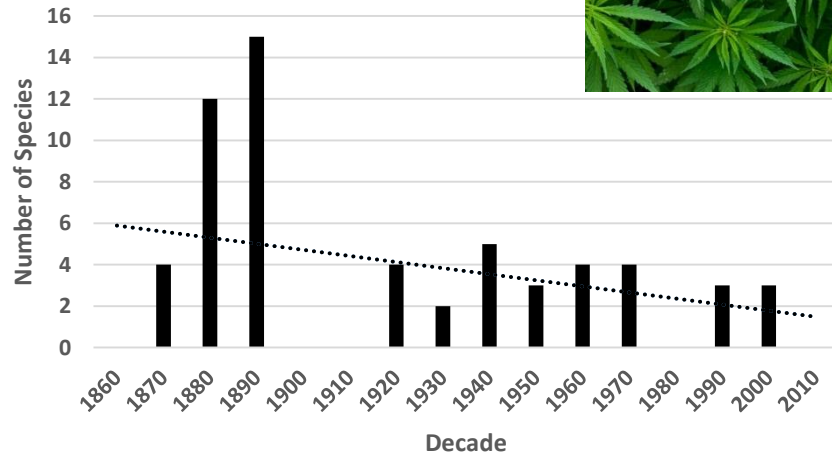


Richness of non-native species in Kansas calculated with 0.2° grid cells.



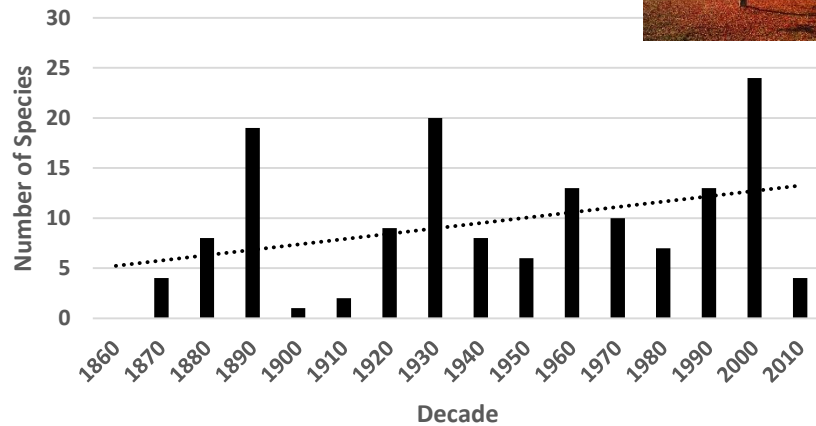


## Food/Fiber

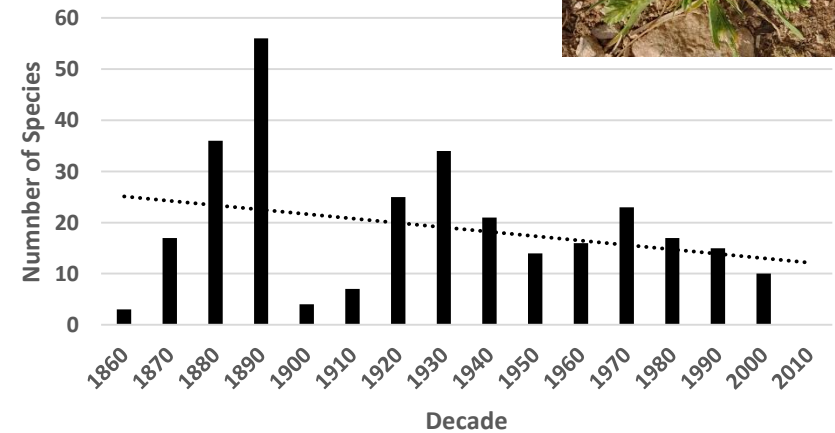


Primary classes of non-native species documented in Kansas by decade since 1860. Only ornamentals exhibit a trend line with a positive slope.

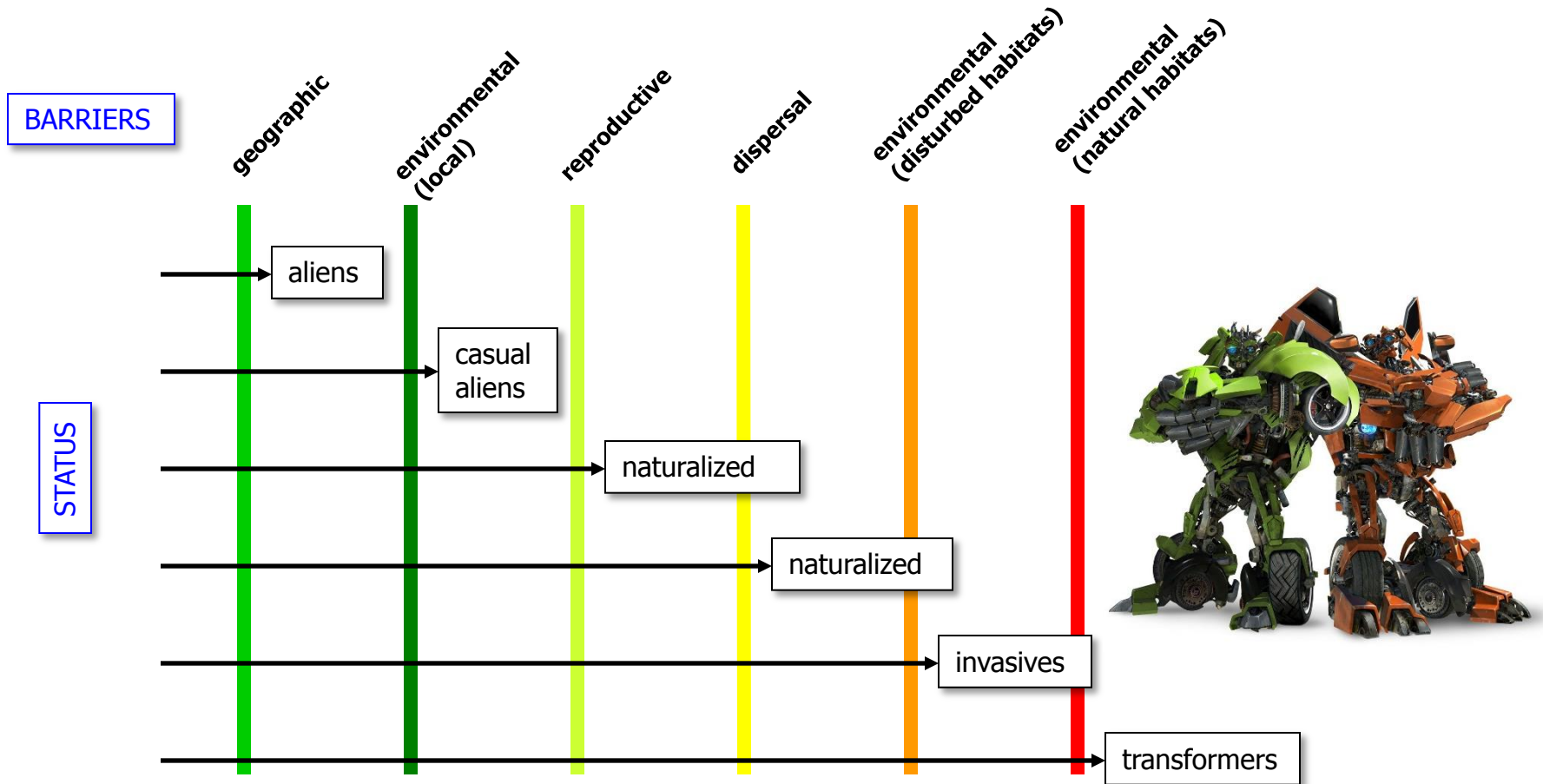
## Ornamental



## Weed



# Relationships between environmental barriers, invasiveness, and invasive plants terms in the ecological literature (adapted from Richardson et al. 2000).



# Casual Alien Plants

- Have overcome geographic and environmental barriers
- May flourish or reproduce in an area; do not form self-replacing populations
- Often rely on repeated introductions for persistence
- May be persisting or non-persisting

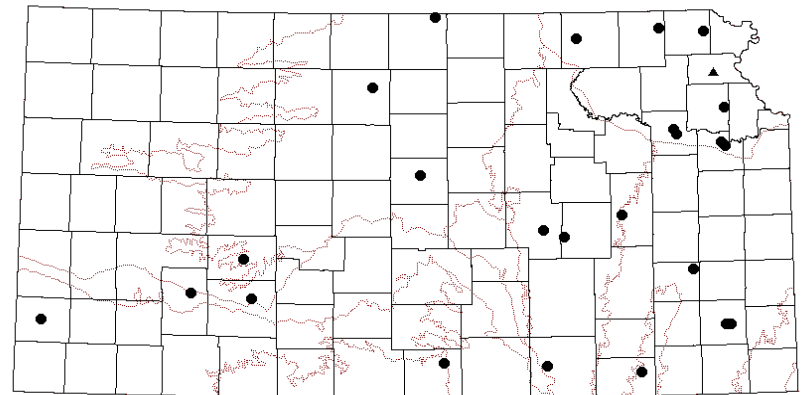




***Consolida ajacis* (L.) Schur**  
**rocket larkspur**

**Ranunculaceae – buttercup family**

**Roadsides, pastures, urban areas**  
**OVS: 1896 (KSC)**



# Naturalized Plants

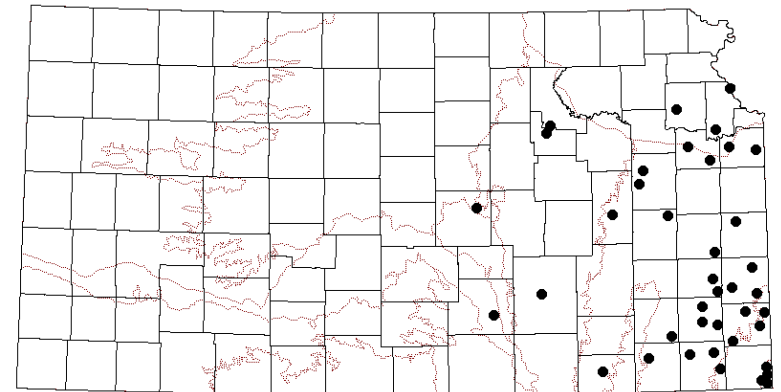
- Have overcome geographic, environmental, reproductive and, sometimes, dispersal barriers
- Do not necessarily invade disturbed, semi-natural, or natural habitats
- Reproduce consistently; sustain populations over many life cycles without direct intervention by humans
- Recruit offspring freely, often near adults



***Galium pedemontanum* (Bellardi) All.  
foothills bedstraw**

**Rubiaceae – madder family**

**Lawns, cemeteries, pastures  
OVS: 1982 (KANU)**





# Invasive Plants

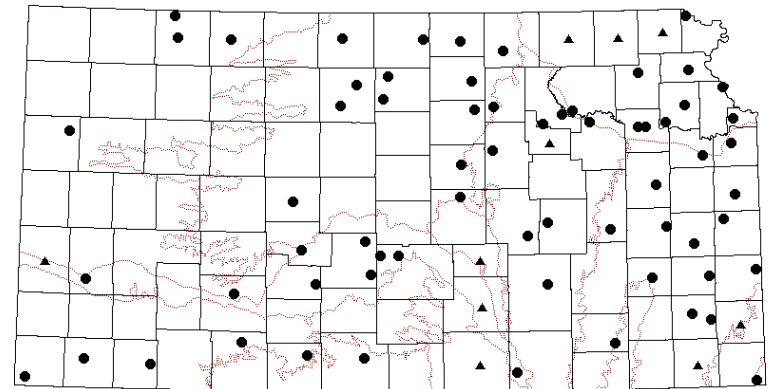
- Have overcome geographic, environmental, reproductive, and dispersal barriers
- Able to invade disturbed, semi-natural or, sometimes, natural habitats
- Produce offspring, often in large numbers, at large distances from site(s) of introduction
  - >100 m over <50 years for species spreading by seeds, bulbils, etc.
  - >6 m per 3 years for species spreading by roots, rhizomes, stolons, etc.



***Robinia pseudoacacia* L.**  
**black locust**

**Fabaceae – legume family**

**Woodlands, thickets, pastures,  
roadsides  
OVS: 1890**

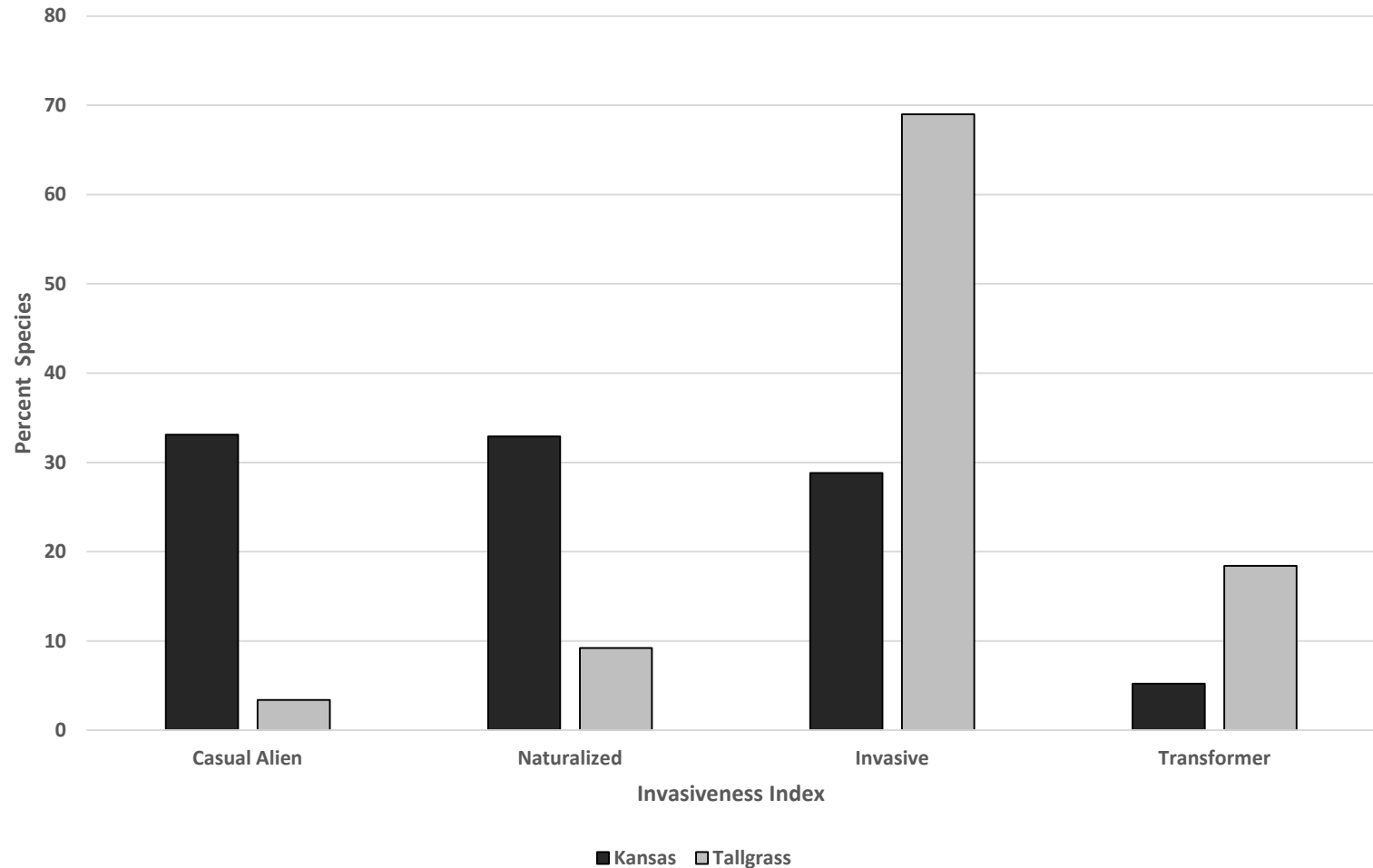


# Transformer Plants

- Have overcome geographic, environmental, reproductive, and dispersal barriers
- Able to invade disturbed, semi-natural, and natural habitats
- Change the character, condition, form, or nature of ecosystems over a substantial area relative to extent of ecosystem
- Compete for water, light, or oxygen; can disrupt ecological processes that maintain ecosystems



# Invasiveness of non-native vascular plants in Kansas (518 species) and Kansas tallgrass prairies (88 species).



# Transformers that occur in Tallgrass Prairies

SCIENTIFIC NAME (* = KS noxious)	COMMON NAME	FAMILY	LONGEVITY
<i>Bothriochloa bladhii</i>	Caucasian bluestem	Poaceae	P
<i>Bothriochloa ischaemum</i> var. <i>songarica</i>	Turkestan bluestem	Poaceae	P
<i>Bromus inermis</i>	smooth brome	Poaceae	P
<i>Bromus japonicus</i>	Japanese brome	Poaceae	A
<i>Bromus tectorum</i>	downy brome	Poaceae	A
<i>Carduus nutans</i> *	musk-thistle	Asteraceae	B
<i>Convolvulus arvensis</i> *	field bindweed	Convolvulaceae	P
<i>Dipsacus fullonum</i>	fuller's teasel	Dipsacaceae	B
<i>Dipsacus laciniatus</i>	cut-leaf teasel	Dipsacaceae	B
<i>Elaeagnus umbellata</i>	autumn-olive	Elaeagnaceae	P
<i>Euphorbia esula</i> *	leafy spurge	Euphorbiaceae	P
<i>Lespedeza cuneata</i> *	sericea bush-clover	Fabaceae	P
<i>Lonicera maackii</i>	Amur honeysuckle	Caprifoliaceae	P
<i>Rosa multiflora</i> *	multiflora rose	Rosaceae	P
<i>Securigera varia</i>	common crown-vetch	Fabaceae	P

# Noxious Weeds

- 12 plant species designated as noxious in KS; KS Dept. of Agriculture administers state noxious weed law; mostly agricultural or rangeland pests
- Landowners responsible for control of noxious weeds on lands that they manage

## •Statewide

- Bur Ragweed (*Ambrosia grayii*)
- Canada thistle (*Cirsium arvense*)
- Field bindweed (*Convolvulus arvensis*)
- Hoary cress (*Cardaria draba*)
- Johnson grass (*Sorghum halepense*)
- Kudzu (*Pueraria lobata*)
- Leafy spurge (*Euphorbia esula*)
- Musk thistle (*Carduus nutans*)
- Pignut (*Hoffmannseggia densiflora*)
- Quack grass (*Agropyron repens*)
- Russian knapweed (*Centaurea repens*)
- Sericea lespedeza (*Lespedeza cuneata*)

## County Option (not Douglas our surrounding counties)

- Bull thistle (*Cirsium vulgare*)
- Multiflora rose (*Rosa multiflora*)





- <http://agriculture.ks.gov/divisions-programs/plant-protect-weed-control/noxious-weed-control-program>



**KANSAS DEPARTMENT OF AGRICULTURE**  
*Serving the State's Largest Industry*

Text Size: [aA](#) | [aA](#) | [Reset](#)

[Home](#) | [About Us](#) | [News & Events](#) | [Divisions & Programs](#) | [Services](#) | [Document Services](#) | [FAQs](#) | [Contact Us](#)

[Application Center](#)  
[Live Plant Dealer](#)  
[Noxious Weed Control Program](#)  
[Certified Weed Free Forage and Mulch Program](#)  
[Export Services](#)  
[Cooperative Agricultural Pest Survey - CAPS](#)  
[Photo Gallery](#)  
[Pest Watch Lists](#)  
[Emerald Ash Borer](#)  
[Thousand Cankers Disease](#)  
[Firewood](#)  
[Emergency Preparedness](#)  
[Reports and Publications](#)  
[Pest Management](#)

[Home](#) > [Divisions & Programs](#) > [Plant Protection and Weed Control](#) > Noxious Weed Control Program

## Noxious Weed Control Program



Noxious weeds are one of the greatest threats to the Kansas environment. They displace native plant species, interfere with the production of agricultural crops, increase erosion, destroy wildlife habitat and decrease property values.

The Kansas Department of Agriculture is responsible for the administration of the state Noxious Weed Law. The State Weed Specialist works to aid in the control and management of noxious and invasive weeds in Kansas. The Noxious Weed Control Program provides technical assistance to individual landowners, state and federal agencies as well as other companies and organizations that manage land in our great state.

### KANSAS NOXIOUS WEEDS

There are 12 plant species designated as noxious weeds in Kansas. Two other species are designated as county option weeds. Check with your **County Weed Department** to find out if one or both have been designated as noxious in your county.



***Carduus nutans* L.**  
**musk thistle**  
**Pastures, roadsides, disturbed sites**  
**OVS: 1932 (KSC)**

