

The Competitive Nature of Weeds

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The Competitive Nature of Weeds

- Outline:

Why are weeds so tough??

- Common characteristics.

- Weeds in our area that demonstrate these characteristics.

How do we protect what we have??

Why/How are weeds so competitive?

-They have no Natural enemies.....

Eurasia(Russia) in
early 1800's.
Seed grain

Spurgia esulae



Urophora cardui



Aphthona



Litura

Europe in early 1600's
Ship ballasts, legislation in 1795

Why/How are weeds so competitive?

- **Prolific Seed Production.**

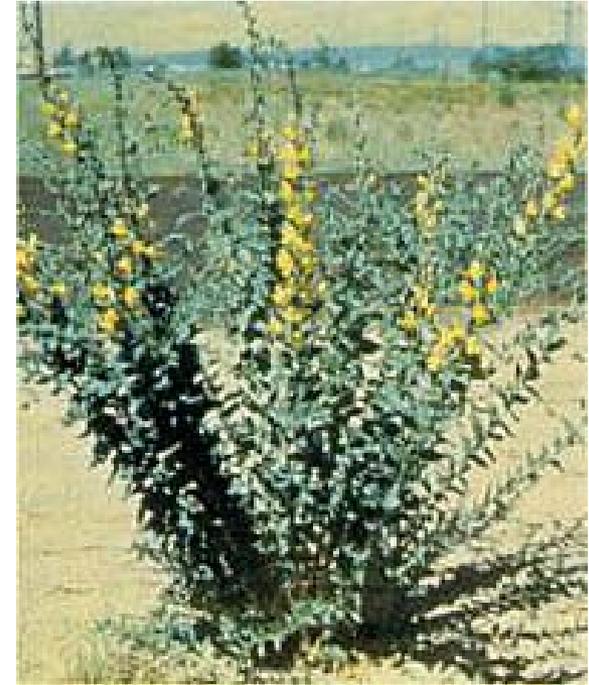
Black henbane

- Prolific seed production increases the spread of this plant.
- Seeds are small and black.
- single plant can produce up to half a million seeds.



Perennial pepperweed

- An acre of well established pepperweed can produce 6.4 billion seeds. (Young et al. 1998).



Dalmatian Toadflax

- A single mature plant can produce **500,000** seeds annually , with germination rates as high as 75% (Robocker 1970).
- Can remain dormant for up to 10 yrs.

Why/How are weeds so competitive?

- Dispersal Strategies

Hounds tongue

- Each flower produces 4 nutlets (seeds).
- seeds have a Velcro characteristic thus easily attaches to animals and clothing...



Leafy Spurge

- reproduces readily from seed dispersed by an explosive ejection from the seed capsule.
- seeds can travel 20 feet.
- seeds have high germination rate.



Hounds tongue dispersal



Prolific Root Systems..

- Russian knapweed

- produces extensive vertical and horizontal roots.
- reach several feet in depth.
- horizontal roots or stems produce buds that will produce new stems. (rhizomenous)
- thus forming dense colonies.



-Root fragments created by soil disturbances such as tilling and plowing can produce new shoots.

- Allelopathic

Russian Roots



Prolific Root Systems..

- Canada thistle

- creeping root system
- horizontal roots extend up to 15 feet.
- vertical roots reaching 10-15 feet deep.



Canada Roots



Prolific Root Systems..

- Leafy Spurge

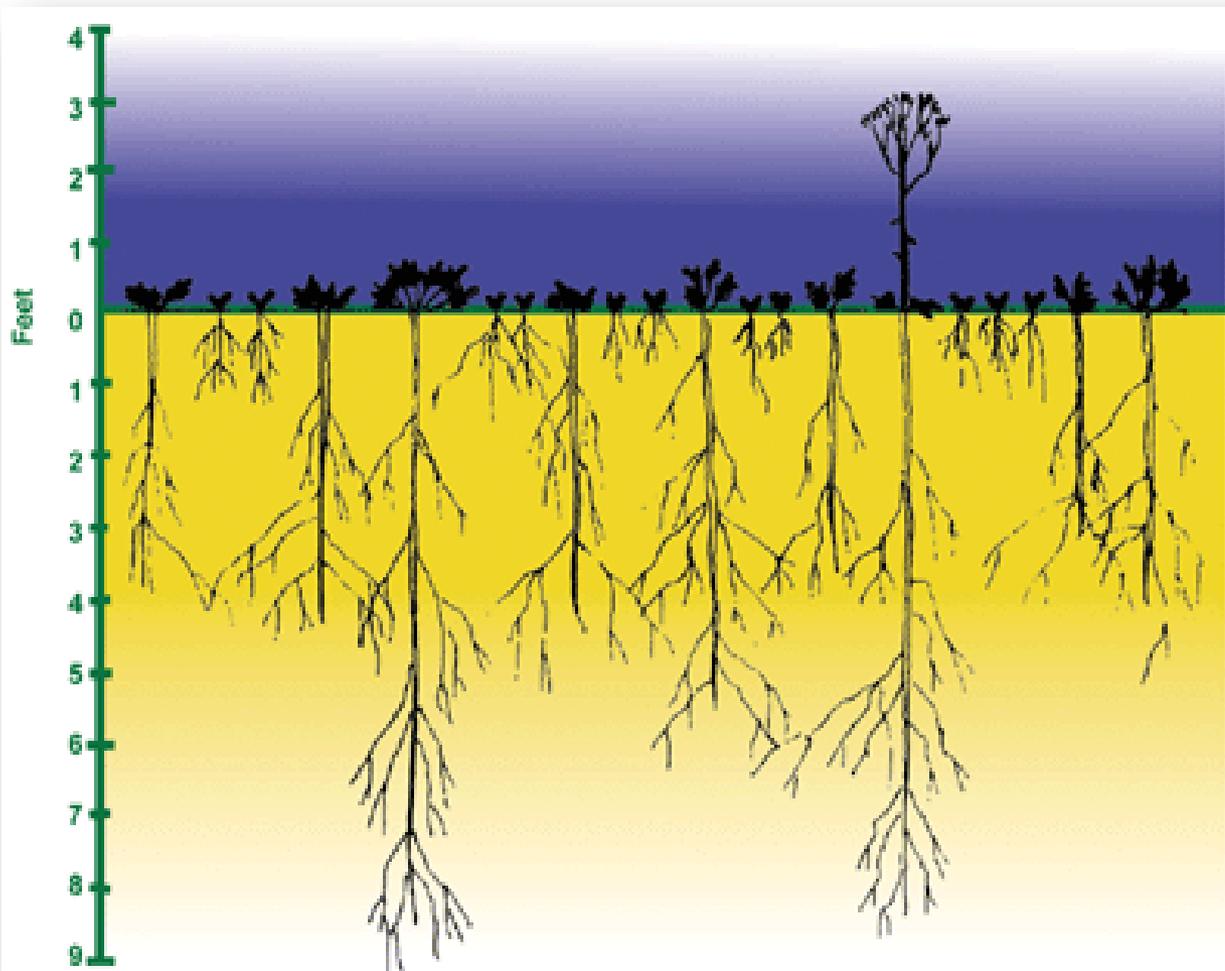


- Tough, woody roots.
- Can reach depths of 15-20 feet deep.
- Horizontal roots spread up to 35 feet.
- Roots contain pink or reddish buds that will produce new shoots.
- Allelopathic
- It is said, plants can reach densities of up to 1800 stems per sq. yard.

Spurge Roots



Noxious Weed Monoculture



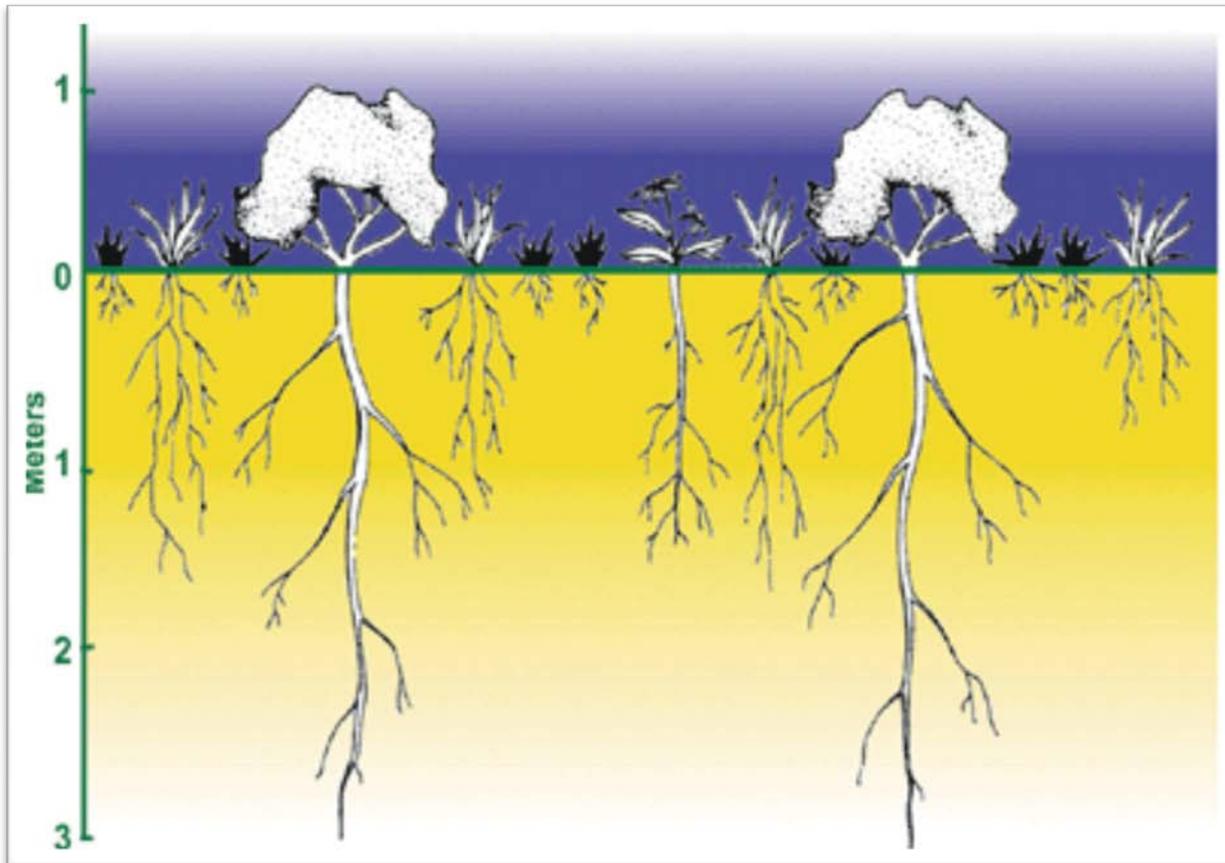
-All niches filled

-Very limited nutrients available.

-Will continue to out-compete natives.

How do we keep this?...

A Healthy Plant Community:



(Hoopes, Sheley, Olson 2005)

-Diverse.

-Occupying all niches.

-Nutrients, Water, Sunlight, are well cycled.

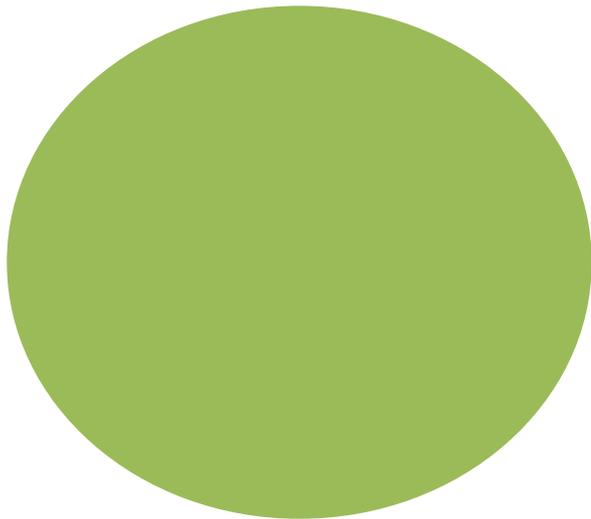
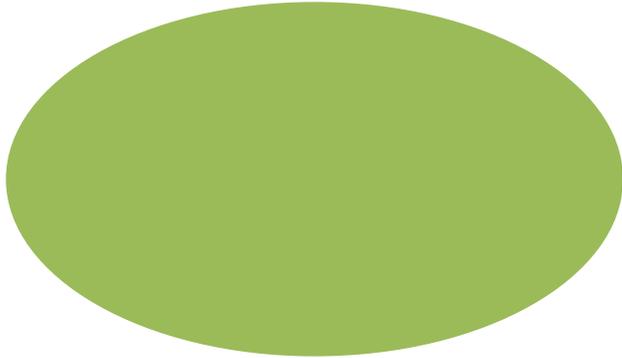
-Has the ability to keep resources away from weeds.

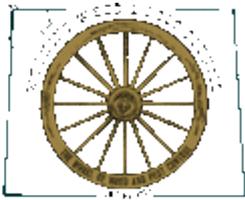
-How do we protect what we got??

EDRR is the Key

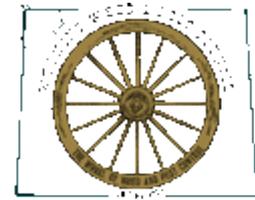
- Early Detection, Rapid Response
- When new invasive species infestations are detected, a prompt and coordinated containment and eradication response can reduce environmental and economic impacts.
- EDRR needs to be a main component in any Invasive species management plan.
- Work from the outside in...

Working from the outside in





www.wyoweed.org



PEST ALERTS

WEED ALERT - [Chondrilla juncea L.](#) - Rush skeletonweed - 11/29/07

WEED ALERT - [Rorippa austriaca](#) - Austrian fieldcress or Austrian yellowcress - 11/01/06

WEED ALERT - [Polygonum cuspidatum](#) - Japanese knotweed - 11/18/2005

INSECT ALERT - [Leucoma salicis](#) - White Satin Moth - 2/7/2005

WEED ALERT - [Centaurea solstitialis](#) - Yellow starthistle - 9/13/2004

WEED ALERT - [Echium vulgare](#) - Viper's bugloss / Blueweed - 8/25/2004

Animal Plant Health Inspection Service (APHIS)

University of Wyoming (UW)

The Wyoming Cooperative Agricultural Pest
Survey (CAPS)

Wyoming Department of Agriculture (WDA).

Questions?



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References

- Robocker, W. C. 1970. Seed characteristics and seedling emergence of Dalmatian toadflax. *Weed Sci.* 18: 720-725.
- Young, J.A., C.D. Clements, and R.R. Blank. 2002. *Herbicide residues and perennial grass on establishment perennial pepperweed sites.* *J. Range Manage.* 55: 194-196.
- Sheley, Roger L., Olsen, Bret E., Hoopes, Carla. “What is so dangerous about the impacts of noxious weeds on Montana’s ecology and economy? Web version revised 2005. www.weedawarness.org/impacts.html