Impacts of Russian olive

Erin K Espeland, PhD
Pest Management Research Unit
USDA-ARS, Sidney MT
erin.espeeland @ars.usda.gov
Outline: Impacts of RO on three scales

1 Trees

2 Populations (three types)
   • Windbreak
   • Savannah**
   • Problem (or, closed canopy)

3 In landscapes
Impact of individual trees

- Structural
  - Perches
  - Shade
  - Windbreak
- Biological
  - Adds N to system
  - FOOD

Impact depends on if N is limiting in the landscape
FOOD

• Eat fruit on tree
  – Non-disperser
  – Rodents

• Eat entire fruit, seed passes through
  – Disperser
  – Coyote, starling, pheasant, raccoon

• Eat seeds, destroying them
  – Predator
  – Larval flies
Impact of individual trees

• Structural
• RO often grows where there are no native trees of its stature
  – Perches
  – Shade
  – Windbreak
Outline: Impacts of RO on three scales

1. Trees

2. Populations (three types)
   - Windbreak
   - Savannah**
   - Problem (or, closed canopy)

3. In landscapes
windrow
Impacts of windbreak populations

• Soil stabilization
• Reduce plant dessication
• Humans:
  – Reduced noise
  – Increased comfort
• Seed donor to problem populations?
savannah
Impact of Savannah populations

• Seed donor to problem populations?
• Incipient problems themselves?
• Increased perennial weeds
• Otherwise, function as individual trees
  – Structural
  – Biological
problem
Problem populations

- Closed canopy
- Excludes Cottonwood and willow
- Almost no understory forage for livestock
Problem populations and birds

• No place for cavity nesters:
  – tree swallows, chickadees, woodpeckers, bluebirds

• Provides magpie nesting sites

• Poor habitat for
  – wood ducks
  – turkeys
RO may contribute to biotic resistance to Tamarisk in Savanna and problem populations

- Woody plant diversity excludes Tamarisk
- More than 2 woody plant species, no Tamarisk
- Only 2 and Tamarisk will invade
- RO functions as a native species

Schantz et al. Plant Ecology 2017
RO is a structural element

Before

After
Removal + flooding = cottonwood