

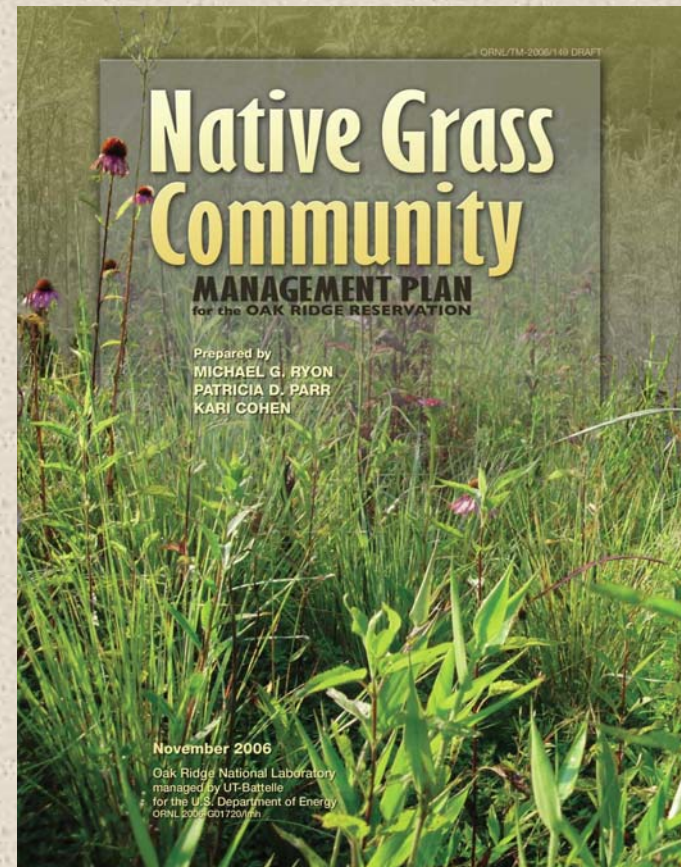
Establishment of Native Warm Season Grass (NWSG) Communities on the Oak Ridge Reservation (ORR)

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ORNL

January 18, 2007

**(Photos by M. Ryon unless indicated
otherwise.)**

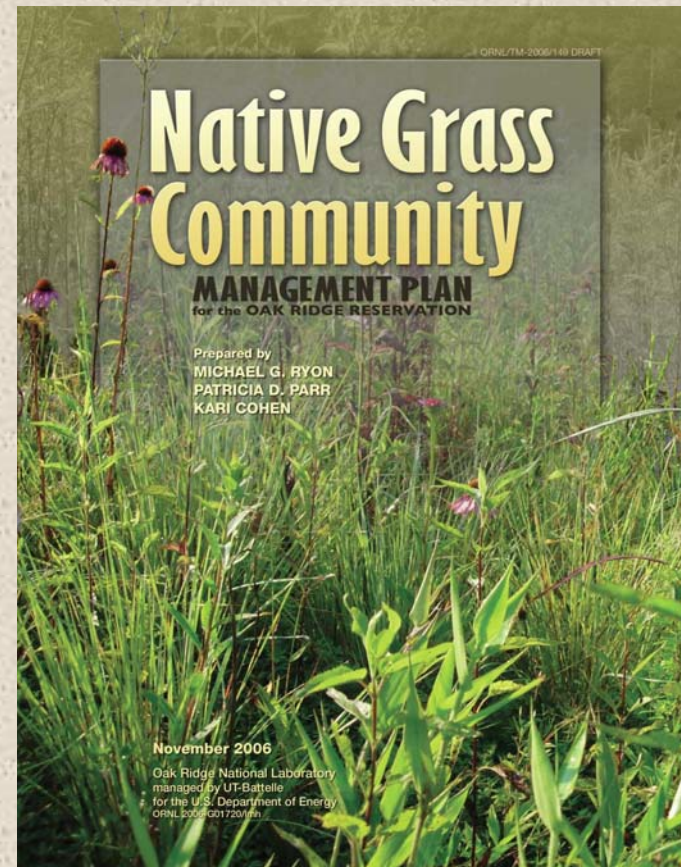


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Establishment of Native Warm Season Grass (NWSG) Communities on the Oak Ridge Reservation (ORR)

- **What:** Convert areas on ORR to NWSG
- **Why:** To improve habitat and meet requirements
- **How:** Spray, disk, and no-till drill
- **Where:** Abandoned fields, ROW, and other open habitats



Establishment of NWSG Communities on the ORR – What are NWSG:

- **Native grasses found in East Tennessee**
- **Bunch grasses, that grow 3-7 ft in height**
- **Extensive root systems that may extend 20 ft**
- **Growing season May to late Fall**
- **Adapted to our area, requiring less fertilizer and maintenance**





Big bluestem

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Little bluestem





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Indian grass





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Switch grass



Establishment of NWSG Communities on the ORR – What are NWSG:

Includes flowers and forbs as well as grasses



Butterflyweed



Blackeyed Susan
purple coneflower

Lanceleaf
coreopsis



Blazing star

Establishment of NWSG Communities on the ORR – Why:

- **NWSG provides superior grassland habitats for wildlife and helps maintain biodiversity**
- **The use of NWSG meets Executive Orders 13148 and 13112**
- **The use of NWSG results in lower maintenance costs and increases land value**
- **The use of NWSG provides better erosion controls and reduced sedimentation**



Establishment of NWSG Communities on the ORR – How:

Spray herbicides
to eliminate
unwanted
vegetation



Disk soils for
planting

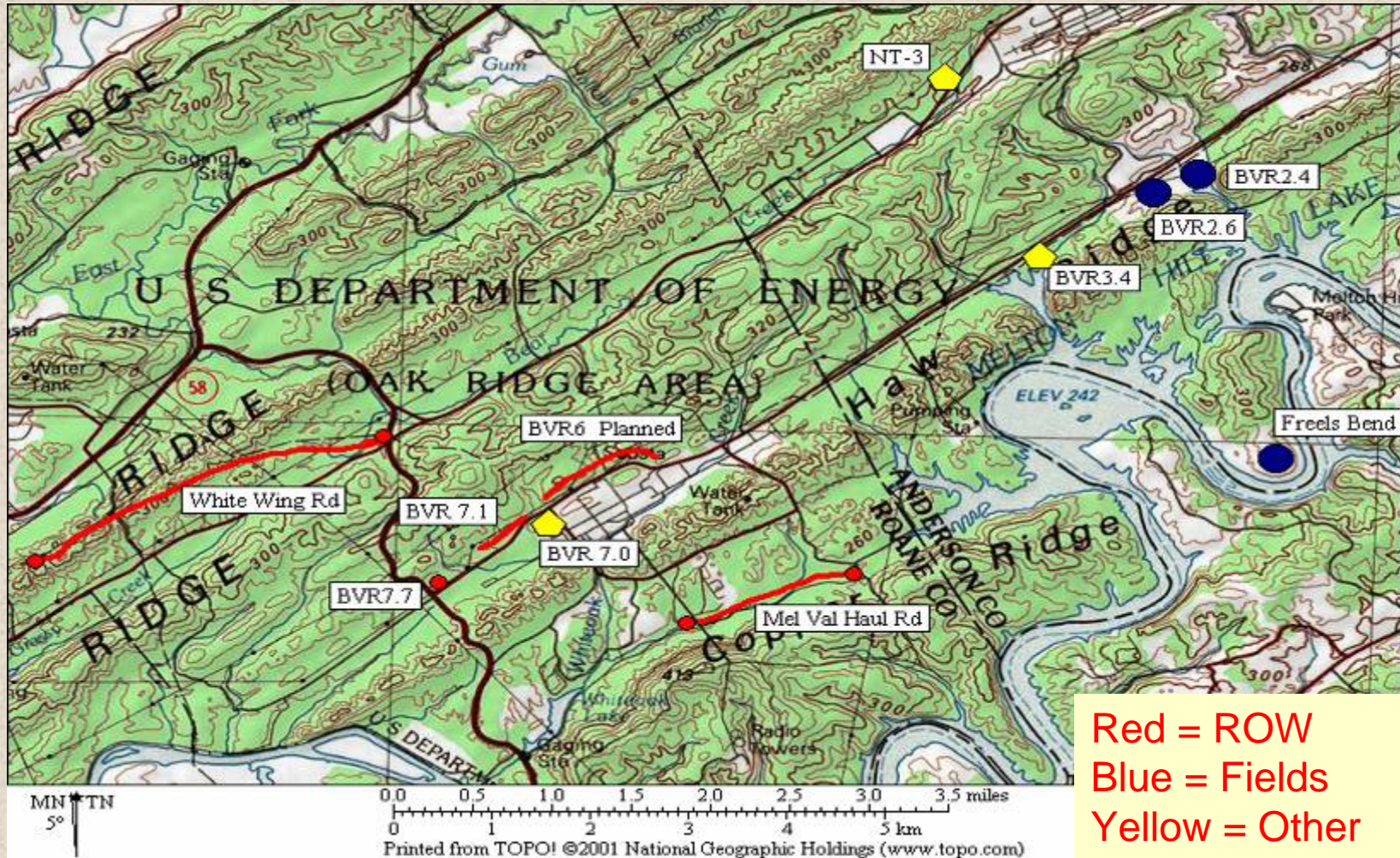


Plant seed with no-till drill

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Establishment of NWSG Communities on the ORR - Where:



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Establishment of NWSG Communities on the ORR – **Where:**

- **Abandoned Fields**
 - **Freels Bend**
 - **Bethel Valley Road (BVR) Hay fields (BVR 2.4/2.6)**
- **Rights of Way (ROW)**
 - **Utility lines (BVR 7.1, White Wing Road)**
 - **Roadsides (Melton Valley Haul Road, BVR 7.7)**
- **Other**
 - **Stream restorations (North Tributary to Bear Creek 3, BVR 7.0)**
 - **Pine Beetle Damage (BVR 3.4)**

Establishment of NWSG Communities on the ORR – Abandoned Fields:

- **Tennessee Wildlife Resources Agency (TWRA) Habitat Enhancement – Freels Bend**
- **Before: mowed fescue/scrub fields**
- **Minimal habitat and food value for wildlife**
- **Non-native invasive plants present**



2002

Abandoned Field: Freels Bend



April
2002



Site Prep: mow; herbicide; prescribed burn

Abandoned Field: Freels Bend

June 2002



Planting: no-till drill with seed mix

Abandoned Field: Freels Bend

August 2002



Mixed Success: growth of NWSG and variety of forbs and other grasses

Abandoned Field: BVR 2.4/2.6



Spring-Summer 2002



Site Prep: bush-hog; herbicide

Abandoned Field: BVR 2.4/2.6



July 2002

No-till drill planting of five different areas:

- Little bluestem
- Big bluestem
- Indian grass
- Switchgrass (2 varieties)
- Wildlife mix of 3 grasses and 4 wildflowers

Abandoned Field: BVR 2.4/2.6



2003-2004



Success: good stands of NWSG and wildflowers, invasives remain problem

Establishment of NWSG Communities on the ORR – Utility ROW: **White Wing**

- **Widening of existing power line**
- **NWSG added as part of remediation**
- **Seed applied by broadcast with a cover crop**



Spring 2003

Establishment of NWSG Communities on the ORR – Utility ROW: **White Wing**

- **Initial NWSG planting was poor**
- **Heavy cover crop of rye may have delayed NWSG**



Establishment of NWSG Communities on the ORR – Utility ROW: **White Wing**

- **Gradual NWSG expanded**
- **Variety of wildflowers and NWSG**



Summer 2005



Establishment of NWSG Communities on the ORR – Roadside ROW: **MVHR**

- **Widening of existing road with extended shoulder**
- **NWSG added as part of remediation**
- **Site cleared of trees, leveled, and disked before seed applied by no-till drill**



Establishment of NWSG Communities on the ORR – Roadside ROW: **MVHR**

- **NWSG planting was very successful; fully established in one season**



Establishment of NWSG Communities on the ORR – Other: Pine Beetle Damage



2002: southern pine beetle damaged

Establishment of NWSG Communities on the ORR – Other: Pine Beetle Damage



Site prep: pile, burn, and bog harrow

Feb 2003



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UT-BATTELLE

Establishment of NWSG Communities on the ORR – Other: Pine Beetle Damage



(Photo by Pat Parr)



May 2003 No-till drill of NWSG; broadcast of wildflowers

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Establishment of NWSG Communities on the ORR – Other: Pine Beetle Damage

Great establishment of NWSG and wildflowers



2003-05

Establishment of NWSG Communities on the ORR – **Post-planting maintenance**



- **Prescribed burns (preferred option)**
- **Annual mowing – late winter**
- **Selective use of herbicides**
- **Allow to transition to shrubs and trees**

ORR NWSG Program: 2002-2006

Accomplishments

- 250+ acres planted in variety of grasses
- Database of naturally occurring grass areas and planted grass areas
- Fescue replaced by NWSG as preferred choice for re-seeding disturbed areas
- Experience with variety of establishment techniques

ORNL Partners

- BJC
- DOE
- ETMC
- TVA
- TWRA
- UT-Battelle

ORR NWSG Program: 2007

Planned projects

- **Plant NWSG and wildflowers**
 - along Bethel Valley Road
 - near Y-12 Complex
- **Use NWSG for restoration of treated invasive plant sites**
- **Conduct prescribed burns for maintenance of NWSG fields**

