Development of Native Plant Materials For National Parks

A cooperative program between the National Park Service and the Natural Resources Conservation Service

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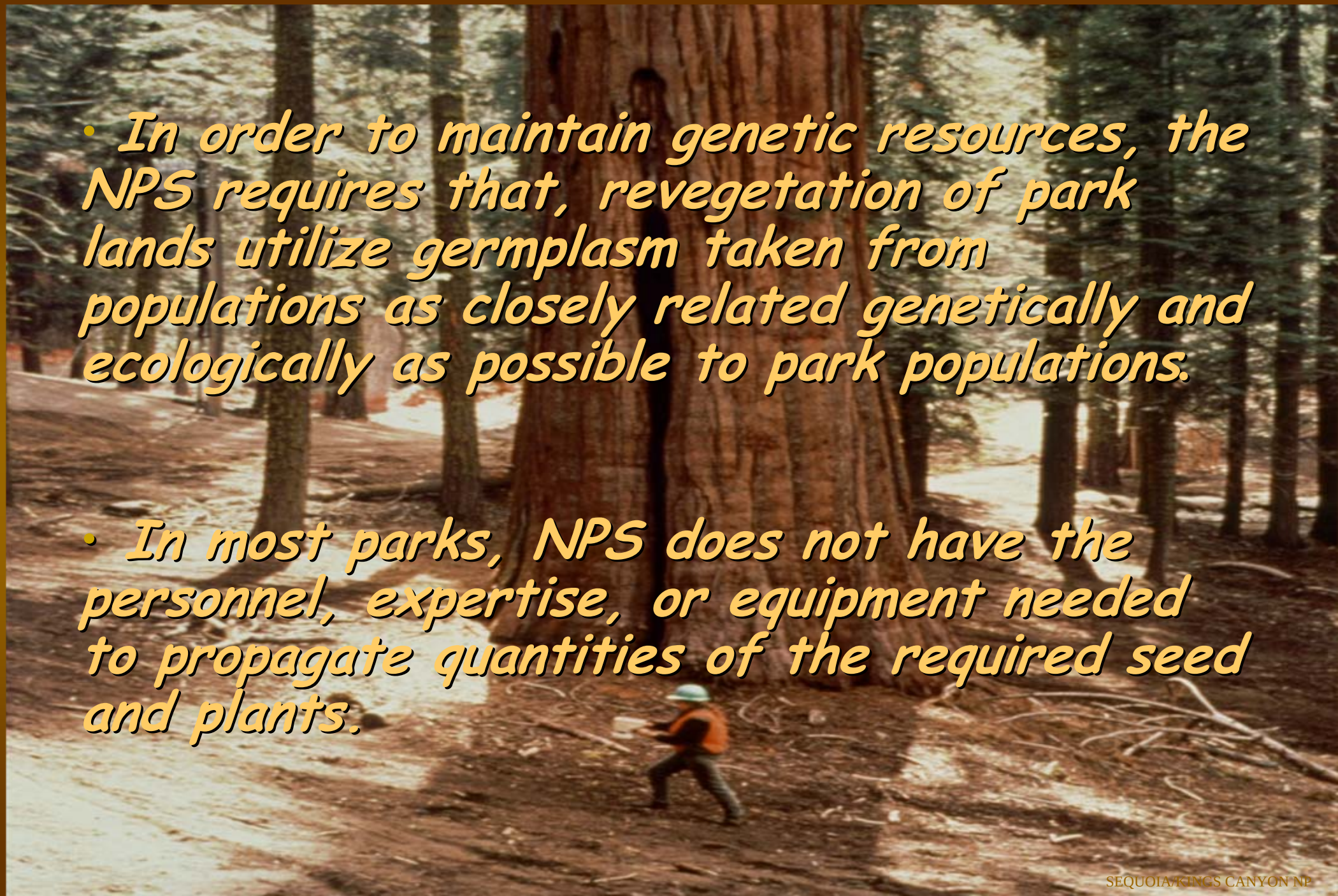
National Park Service

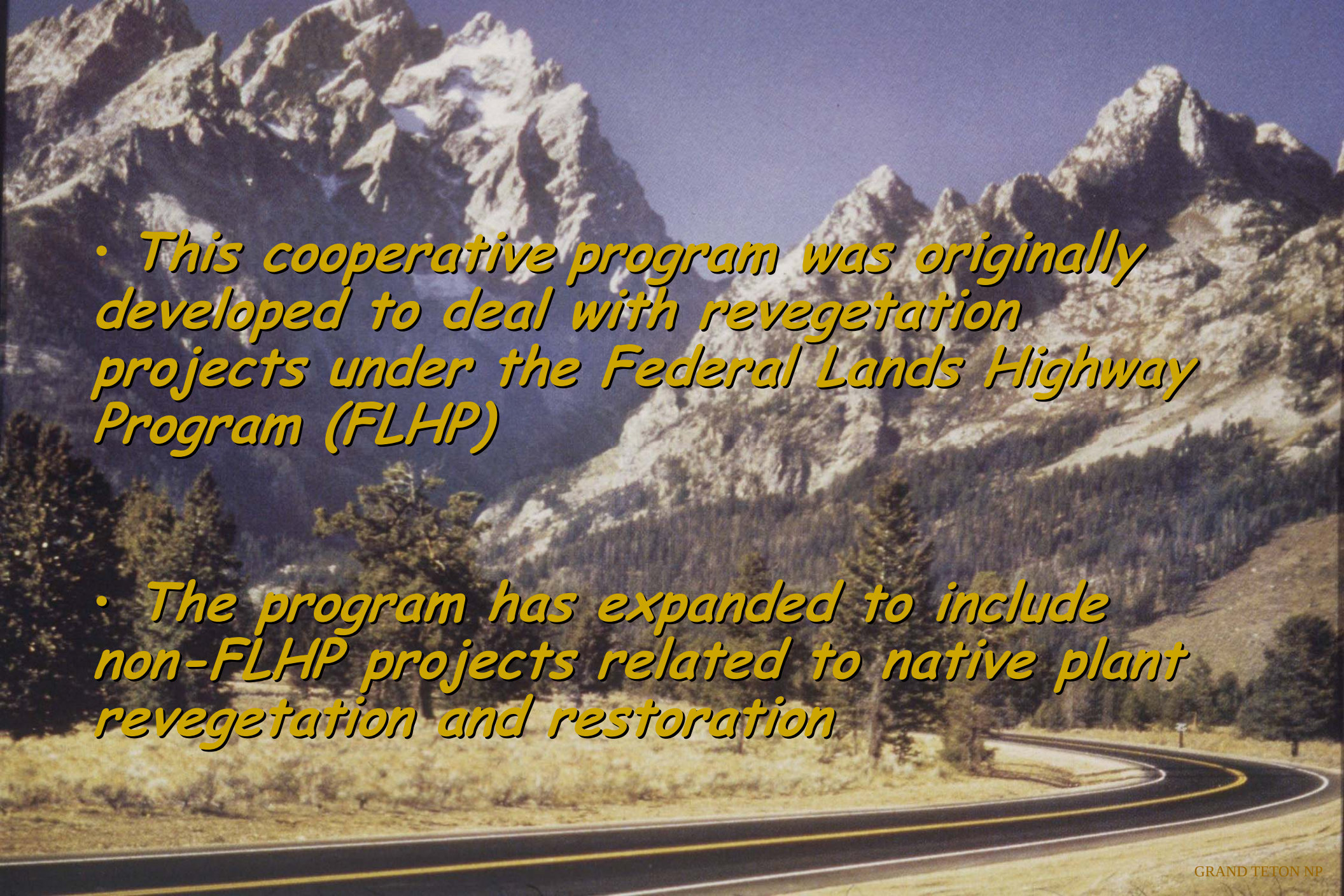


- In order to maintain genetic resources, the NPS requires that, revegetation of park lands utilize germplasm taken from populations as closely related genetically and ecologically as possible to park populations.

- In most parks, NPS does not have the personnel, expertise, or equipment needed to propagate quantities of the required seed and plants.

SEQUOIA/KINGS CANYON NP

In 1989 the National Park Service and the Natural Resources Conservation Service (NRCS) developed and signed a five year cooperative agreement to share technical expertise and develop indigenous native plant materials for use in park revegetation programs.
YELLOWSTONE NP



- This cooperative program was originally developed to deal with revegetation projects under the Federal Lands Highway Program (FLHP)

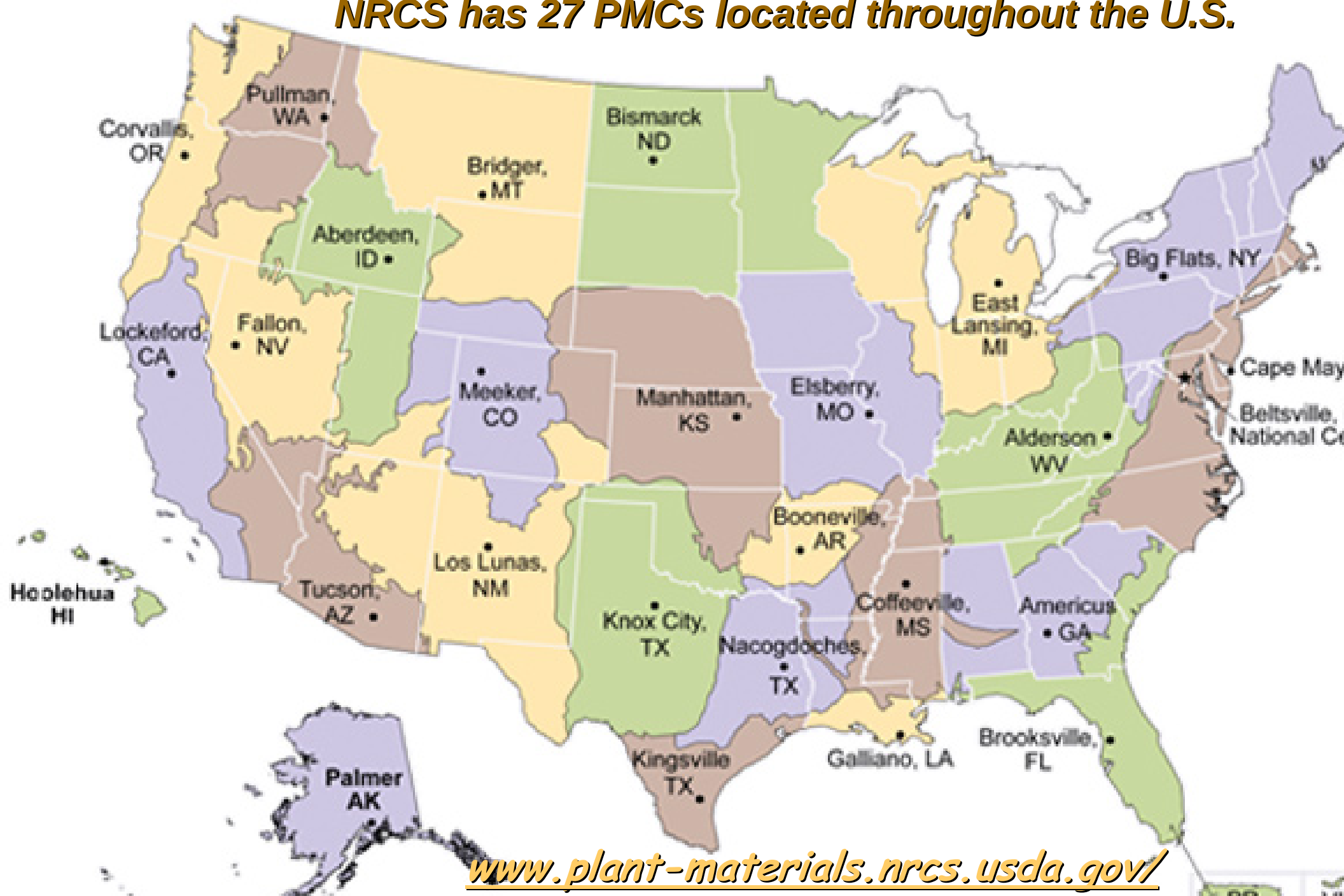
- The program has expanded to include non-FLHP projects related to native plant revegetation and restoration

Program Objectives

- Identify plant species needed
- Collect and process seed
- Provide high quality transplants and field production of grass, legume and forb seed
- Provide field technical assistance on site preparation, plant establishment, weed control, seed collection and processing.

Since the 1930's NRCS PMCs have developed techniques for the establishment, harvest and processing of native grasses, forbs and legumes.

NRCS has 27 PMCs located throughout the U.S.



www.plant-materials.nrcs.usda.gov/

Grass & Forb Seed Harvesting

Grass & Forb Seed Cleaning/Processing

Plant Propagation Facilities

Containerized tree and shrub production

SPECIAL STUDIES

- Riparian and Bioengineering technical assistance
- Wetland Establishment Studies

(Aberdeen Idaho and Beltsville PMCs)

Cumberland Gap NHP

Aberdeen PMC

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www.plant-materials.nrcs.usda.gov/idpmc/streambank.html

Southwestern Riparian Planting Methods that Require Minimal or No Irrigation

USDA-NRCS
Los Lunas
Plant Materials Center

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www.plant-materials.nrcs.usda.gov/

NRCS Natural Resources Conservation Service

Plant Materials Program

On the Rio Santa Fe at Cochiti Pueblo, NM

Before treatment winter of 1993

Same location summer of 2000

Research pole planting for riparian restoration

Modified tall pot research for riparian restoration in desert environments

Tucson Arizona
Plant Materials Center

- Seed production of grass species

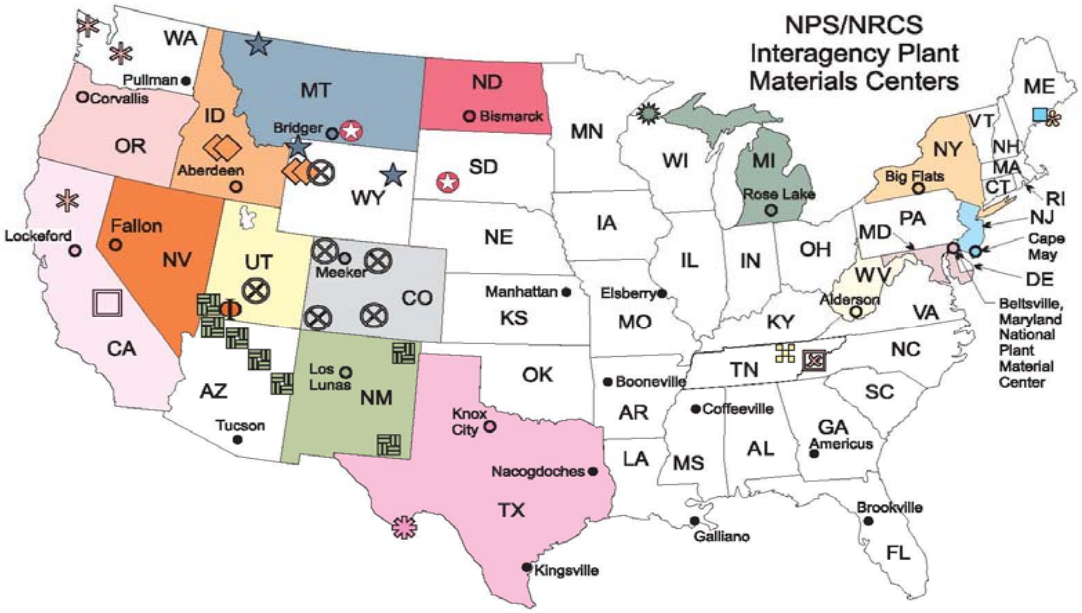
- Revegetation after removal of R.olive and salt cedar

Cooperative study with the park and CSU

- Approximately 2.5 million acres of park service land is impacted by invasive species

Current Program

- 46 active projects
- 30 National Parks
- 12 PMCs



Plant Materials Center		In cooperation with these National Parks	
Aberdeen, ID			Craters of the Moon NM, Grand Teton NP
Alderson, WV			Stones River NB
Beltsville, MD			Great Smoky Mountains NP
Big Flats, NY			Acadia NP
Bismarck, ND			Little Bighorn Battlefield NM, Wind Cave NP
Bridger, MT			Devils Tower NM, Glacier NP, Yellowstone NP
Cape May, NJ			Acadia NP
Corvallis, OR			Mt. Rainier NP, Olympic NP, Lassen Volcanic NP
Knox City, TX			Big Bend NP
Lockeford, CA			Sequoia and Kings Canyon National Park
Los Lunas, NM			Carlsbad Caverns NP, Capulin Volcano NP, Grand Canyon NP, Hubbell Trading Post NHS, Pipe Spring NM, Wupatki NM, Zion NP
Meeker, CO			Bryce Canyon NP, Dinosaur NM, Grand Teton NP, Great Sand Dunes NM, Mesa Verde NP, Rocky Mountain NP
Rose Lake, MI			Apostle Islands NL
Fallon, NV			Zion NP

Major Program Accomplishments

- Native Plant Development
- Genetic Integrity
- Cost Effective Reclamation
- Technology Development and Transfer

YOSEMITE NP

Native Plant Development

- Approximately 1,000 native species or ecotypes have been tested.
- Propagation techniques have been developed for over 700 native species that were not commercially available.
- Approximately 30,000 PLS pounds of native grass/forb seed and 750,000 native transplants have been produced.

GREAT SMOKY MOUNTAINS NP

Genetic Integrity

- High level of management at all stages ensures genetic integrity of NPS germplasm.
- Fields are registered with state seed certification agency. Inspected annually and must meet strict foundation standards/limits for isolation, noxious weeds and other crops.
- Seed is sampled during cleaning process. Must meet foundation standards for purity/ germination and limits for contaminates.
- Program reviews held periodically by NRCS/NPS NTAs

Cost Effective Reclamation

- Increased the success rate and reduced the need to revegetate a second time.
- Revegetation monitoring protocols

Technology Transfer

www.nativeplantnetwork.org

Propagation Protocols

- NPS, NRCS, NFS
- Total entries- 2115
- Approximately 1500 species
- NPS- 611 (5 parks)
- NRCS- 473 (12 PMCs)

Native Plants and Revegetation

- Contracting for Revegetation Services
- Interagency PM Program
- Park Roads Revegetation Requirements
- Specifications
- Tools

How to get there:
http://inside.nps.gov/waso/waso.cfm?prg=440&lv=4

Tools

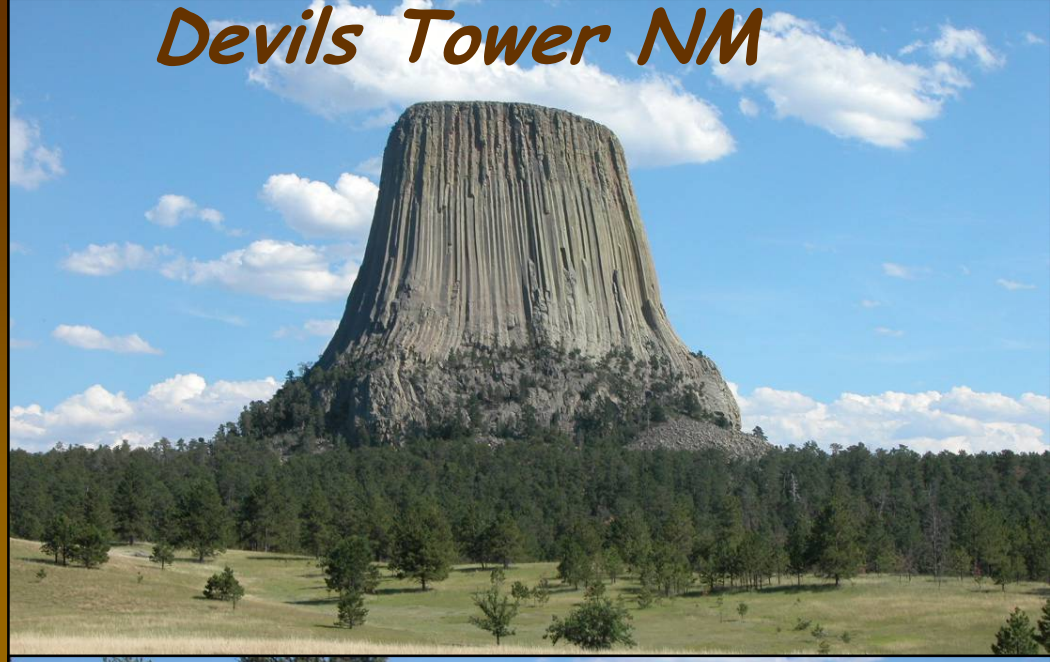
- Native Seed Collection/handling
- Plant Salvage
- Seed Storage
- Revegetation Cost Estimating Worksheet
- Park Revegetation Contacts
- Soil Importation Guidelines
- Gravel & Fill Inspection Report
- Seed and Soil Testing Labs
- Website Links
- Monitoring protocols
- Seed Calculating Worksheet

Native Plants for National Parks

A Few Revegetation Projects

Bridger Montana
Plant Materials Center

- Container production of two shrub species
- Plant installation
- FLHP road and drainage repair



Aberdeen Idaho Plant Materials Center

Seed production

- slender wheatgrass
- blue wildrye
- Sandberg bluegrass
- mountain brome

FLHP revegetation and restoration of hay fields to native

Alderson West Virginia Plant Materials Center

- Seed Collection of 19 grass/forb species
- Seed and transplant production
- Technical Assistance

Stones River NB

Cape May New Jersey Plant Materials Center

Acadia NP

- Container plant

Production of 14 shrub and 4 tree species

- Revegetation of Blackwoods Campground

Beltsville Maryland Plant Materials Center

- On site technical assistance
- Seed collection and plant production
- Plant installation
- FLHP highway projects
- Restoration of historic gap
- Wetland restoration

Beltsville Maryland Plant Materials Center

- On site grass seed production technical assistance.
- Seed production /processing of 4 grass species
- Container production of 5 tree and shrub, 9 grass and forb sp.
- Plant installation
- FLHP highway and bridge construction
- Warm-season restoration

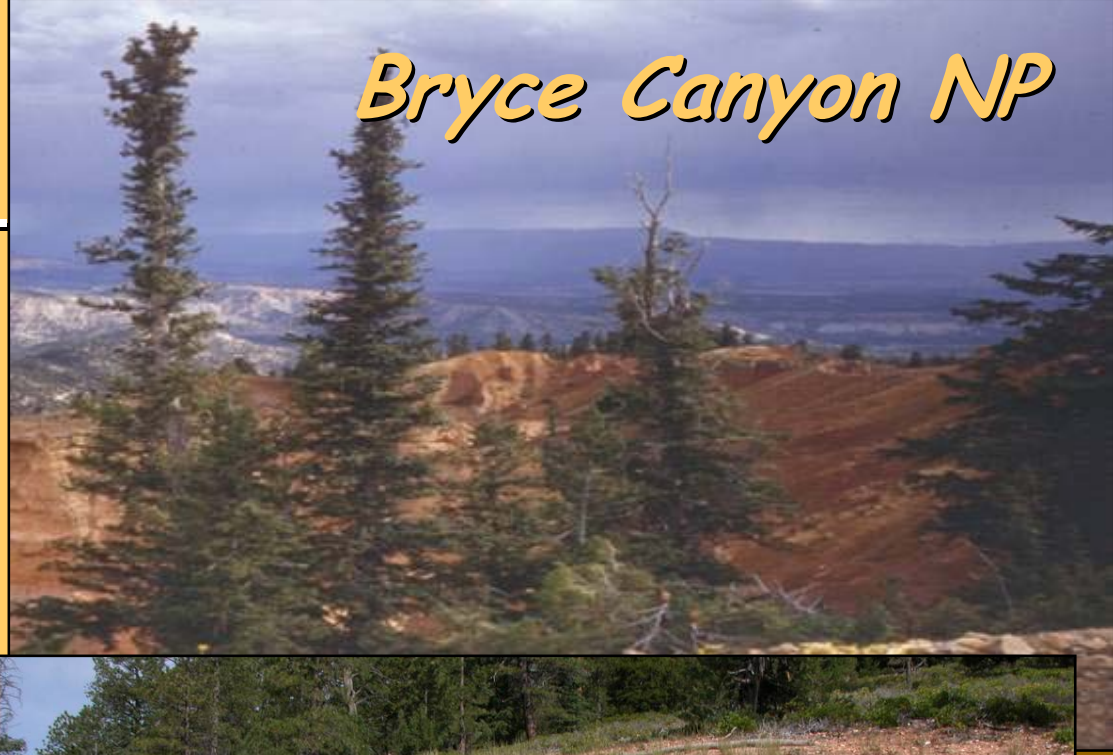
Roselake Michigan Plant Materials Center

- Island shoreline and slope stabilization
- Bioengineering Technical assistance
- Seed production and container plant production of 2 forb and 4 shrub species
- Plant installation

Apostle Island NL

Meeker Colorado Environmental Plant Ctr.

- Seed production of one grass species
- FLHP highway project revegetation



Meeker Colorado Environmental Plant Ctr.

- Seed production of 3 Grass species

- FLHP ,visitors center expansion and invasive species control

Great Sand Dunes NM

Meeker Colorado Environmental Plant Ctr.

- Seed production of 5 grass and 2 forb species
- FLHP road construction revegetation

Meeker Colorado Environmental Plant Ctr.

Rocky Mountain NP

- FLHP and park revegetation projects
- 5 grass, 4 forb, 1 legume

Tucson Arizona
Plant Materials Center

Canyon De Chelly NM

Five warm season grasses for Canyon de Chelly FLHP and revegetation after invasive removal

Los Lunas N. Mexico Plant Materials Center

- Seed production of 2 grass species

- FLHP Revegetation

Wupatki NM

Los Lunas N. Mexico Plant Materials Center

- Seed production of 3 grass species
- Container production of 4 tree and 11 shrub species
- FLHP and revegetation of obliterated parking lots

Los Lunas N. Mexico Plant Materials Center

- Seed production of 7 grass species
  - Exotic species control
  - Revegetation of impacted Back country
  - Riparian Revegetation

Fallon Nevada

Plant Materials Center

- Seed production of bottle brush squirreltail for Zion fire rehab

Zion NP

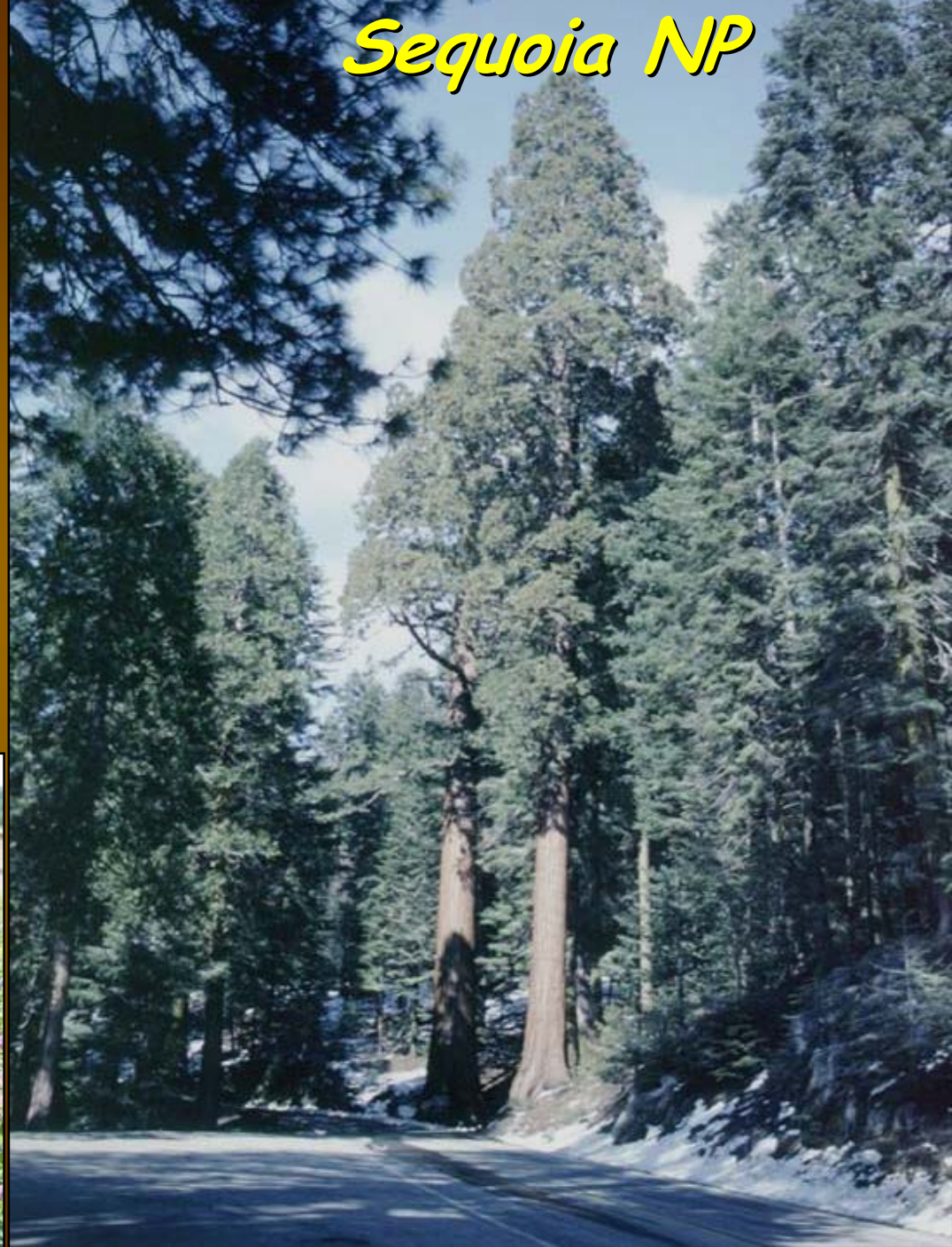
Tucson Arizona

Plant Materials Center

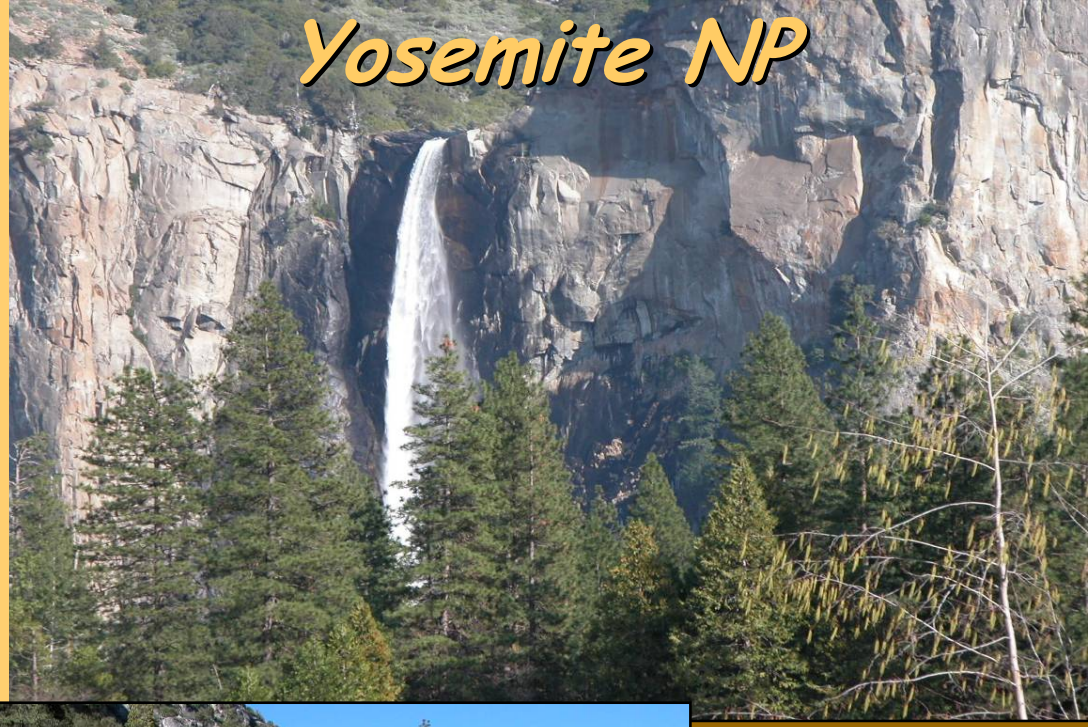
Seed production of sand dropseed for Zion fire rehab

Lockeford California Plant Materials Center

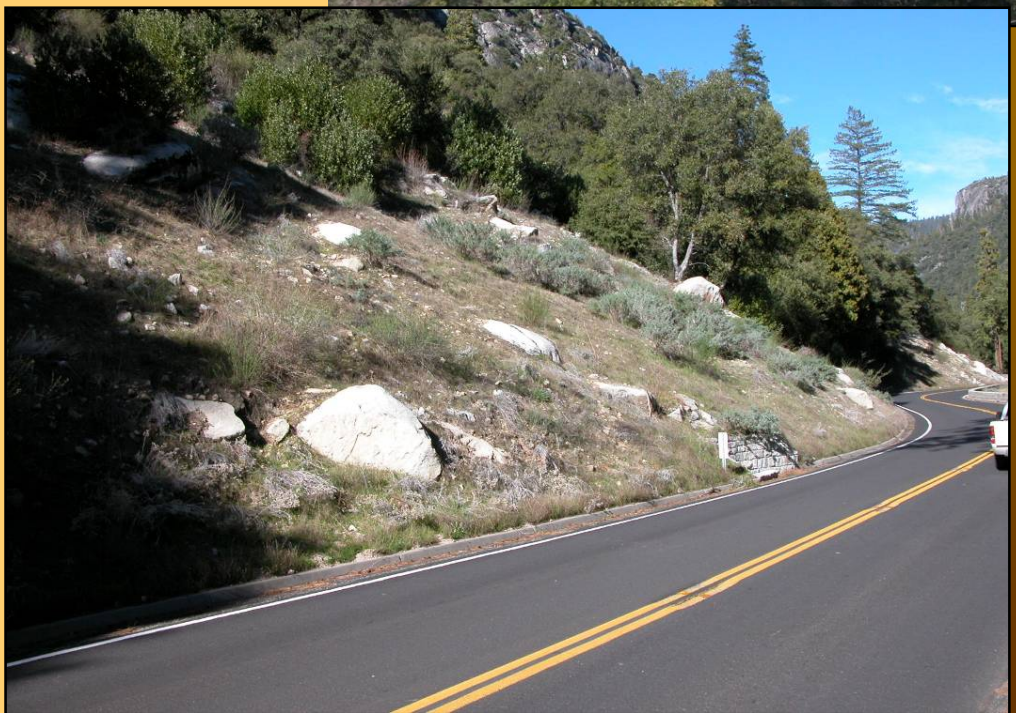
- Seed production of 3 grass and 2 legume species
- FLHP Revegetation
- (Sherman Highway)



Lockeford California Plant Materials Center



- Seed production of 1 Grass species and 1 legume
- FLHP project

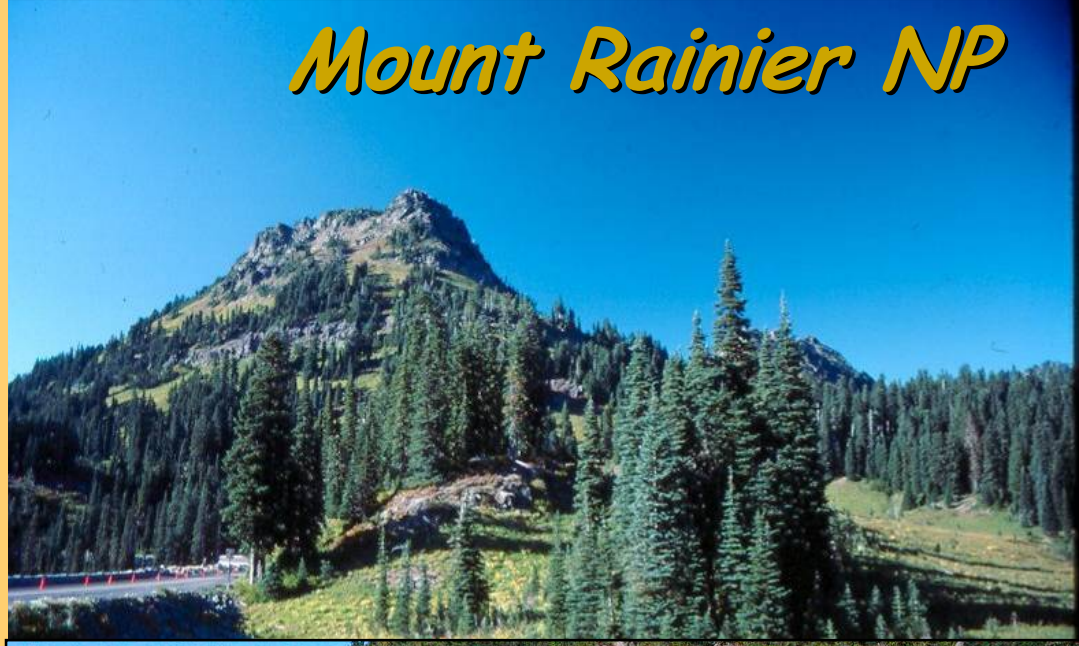


Corvallis Oregon Plant Materials Center

- Seed production /processing of 2 grass species
- Plant Production of 3 grass, 4 sedge & 2 forb species
- FLHP Project

Corvallis Oregon Plant Materials Ctr.

- Technical assistance
- Seed Collection
- Seed Production of 3 native grass species
- FLHP project



Corvallis Oregon Plant Materials Center

- Technical assistance
- Seed Collection
- Seed production of three grass species for FLHP project (Hurricane Ridge)

  and
- Seed and plant production of several grass, forb, legume, sedge, tree and shrub species for restoration after removal of Elwha Dam

Olympic NP

For more information on the NPS/NRCS Interagency Plant Materials Program or to request revegetation assistance contact:

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http://workflow.den.nps.gov/staging/8_Transportation/phase_reveg.htm

"We are loving our National Parks to death"

One foot print can damage many native plants that may never recover!

Please Stay on established trails!

Los Lunas N. Mexico Plant Materials Center

Pipe Spring NM

- Seed production of 3 grass species
- Restore Historic Use, invasive control