

After the Fire

The Economics of Reforestation



Owen Burney

New Mexico State University

John T Harrington Forestry Research Center

After the Fire

Impacts from High Severity Forest Fires:

Soil

↓ Nutrients / Organic Material

↑ Erosion

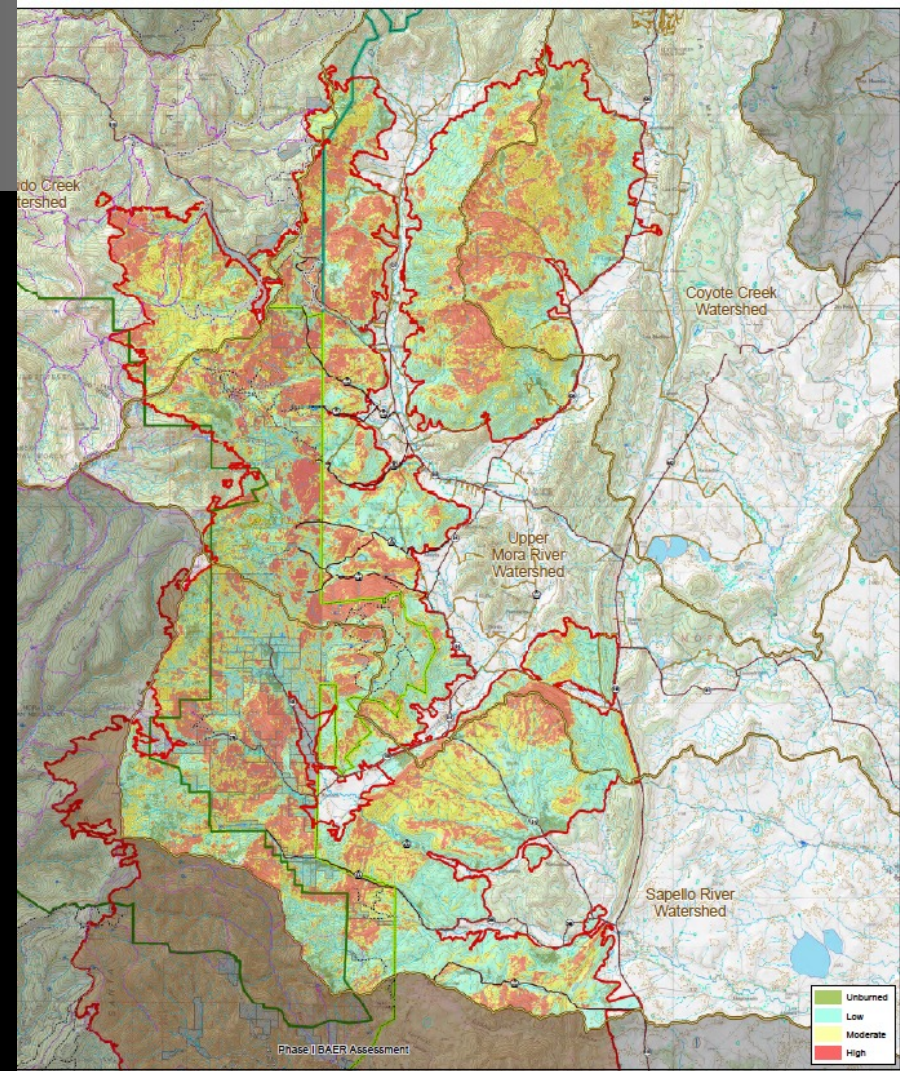
Wildlife

↓ Habitat and Food Sources

Plants

↓ Established Plants (seed source)

↓ Seed Bank



Hermits Peak / Calf Canyon
Burn Severity Map - North

Reforestation Needs for NM

Fire footprint of
Hermits Peak-Calf Canyon Fire:
~341,700 acres

High severity acres:
~ 83,500 acres

Planting requirements for HPCC Fire ONLY:
~ 12.5 million to 20.9 million seedlings *(150 to 250 TPA)*

USDA FS planting requirements for NM and AZ:
~ 100 million to 375 million seedlings *(150 to 250 TPA)*

At current nursery capacity,
150 to 600 years to reforest current needs in NM and AZ



Economic Benefits for Reforestation

- **Wildlife habitat**
(fish included)
- **Soils**
(physical and chemical)
- **Commercial products**
(timber)
- **Seed banks/sources**
(soil and plants)
- **Recreation**
(fishing, skiing, etc.)

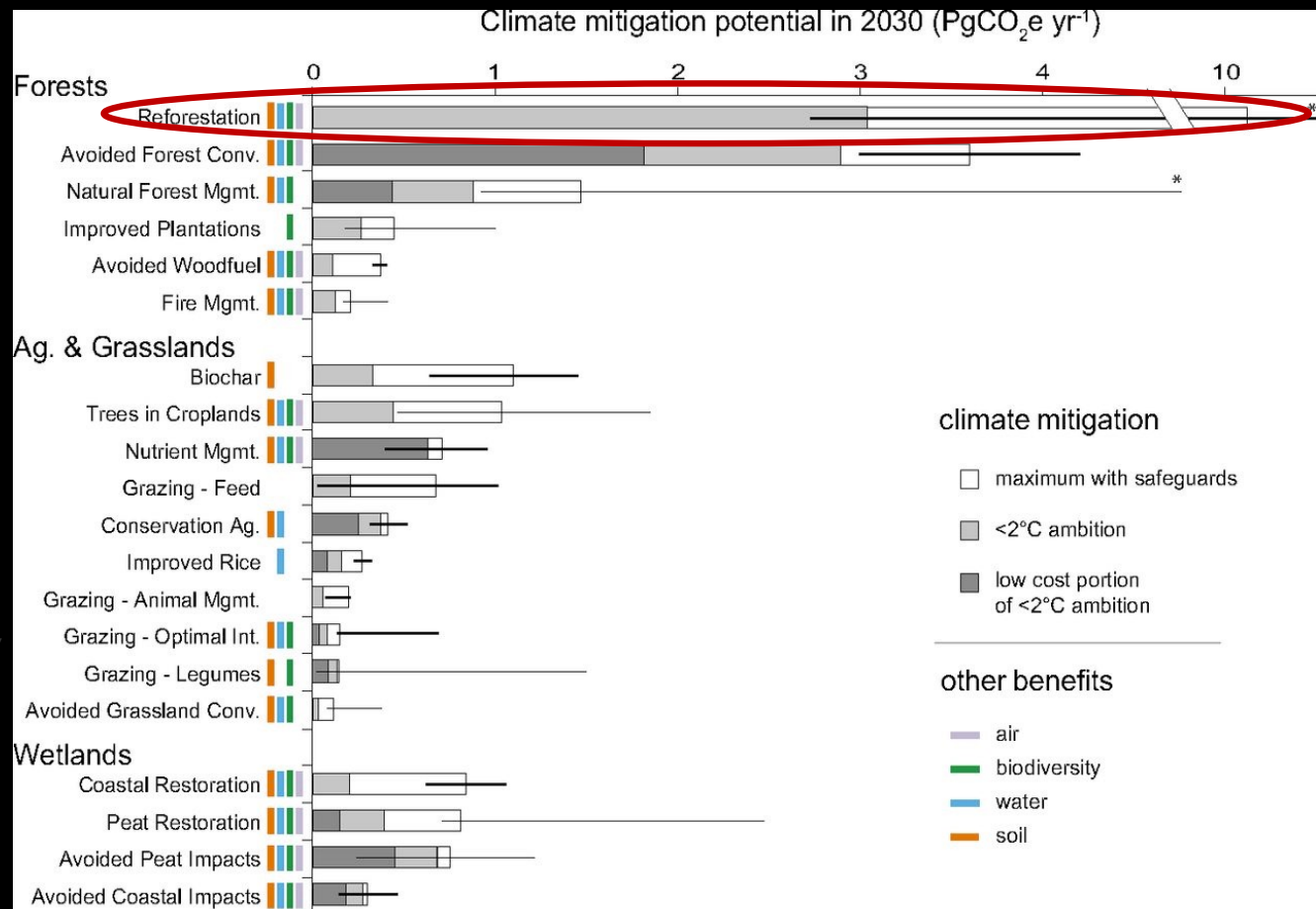


Economic Benefits for Reforestation (cont'd)

CARBON

Reforestation is the largest natural pathway to capture carbon and mitigate climate change¹.

Reforestation,
at least 3x greater than
other land activities



¹ Griscom, B. W., Adams, J., Ellis, P. W., Houghton, R. A., Lomax, G., Miteva, D. A., et al. (2017). Natural climate solutions. *Proc. Natl. Acad. Sci. U.S.A.* 114, 11645–11650. doi: 10.1073/pnas.1710465114

Economic Benefits for Reforestation (cont'd)

WATER

Forests supply 50% to 75% of all water used by municipalities and agriculture in the state.



In post-fire landscapes, planting trees:

- increase rainfall interception
 - reduce runoff and erosion
- Increase snow retention via gradual snow melt
 - improved water quantity downstream

New Mexico Reforestation Center

Mission: to meet current and future reforestation needs in New Mexico through its comprehensive **seed bank, nursery, and planting operations** combined with research, education, and outreach activities.

The Center is a partnership between:

- NM Forestry Division, EMNRD
- Department of Forestry, NM Highlands University
- JTH Forestry Research Center, NM State University
- Department of Biology, University of New Mexico

Supports the entire reforestation pipeline in NM for Fed, State, Private, and Tribal lands



New Mexico Reforestation Center

Economic Benefits to New Mexico

Preliminary Economic Analysis*

Over a 30 year period,

- 474 jobs created per year
- \$1.25 billion Economic Benefits for Reforestation
 - \$884 million Market (jobs, services, materials)
 - \$366 million Non-market (Ecosystem Services)
- \$482 million Economic Costs for Reforestation
- 2.6 Benefit-Cost Ratio of Reforestation Economy



*Source - Berry M (2022) New Mexico reforestation: Program investment and economic analysis. NMHU Report