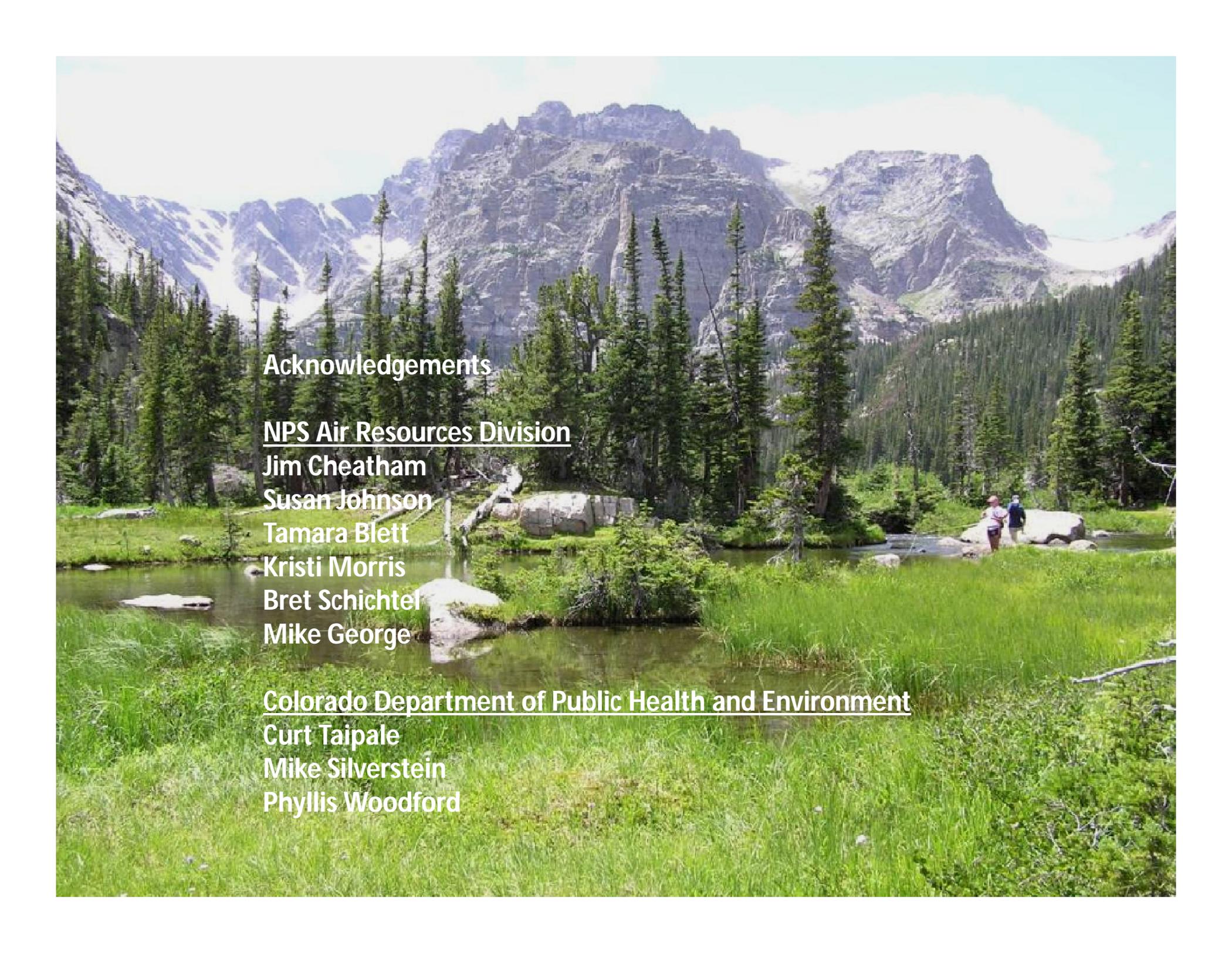


Rocky Mountain National Park Initiative: Partnership to Reduce Nitrogen Impacts



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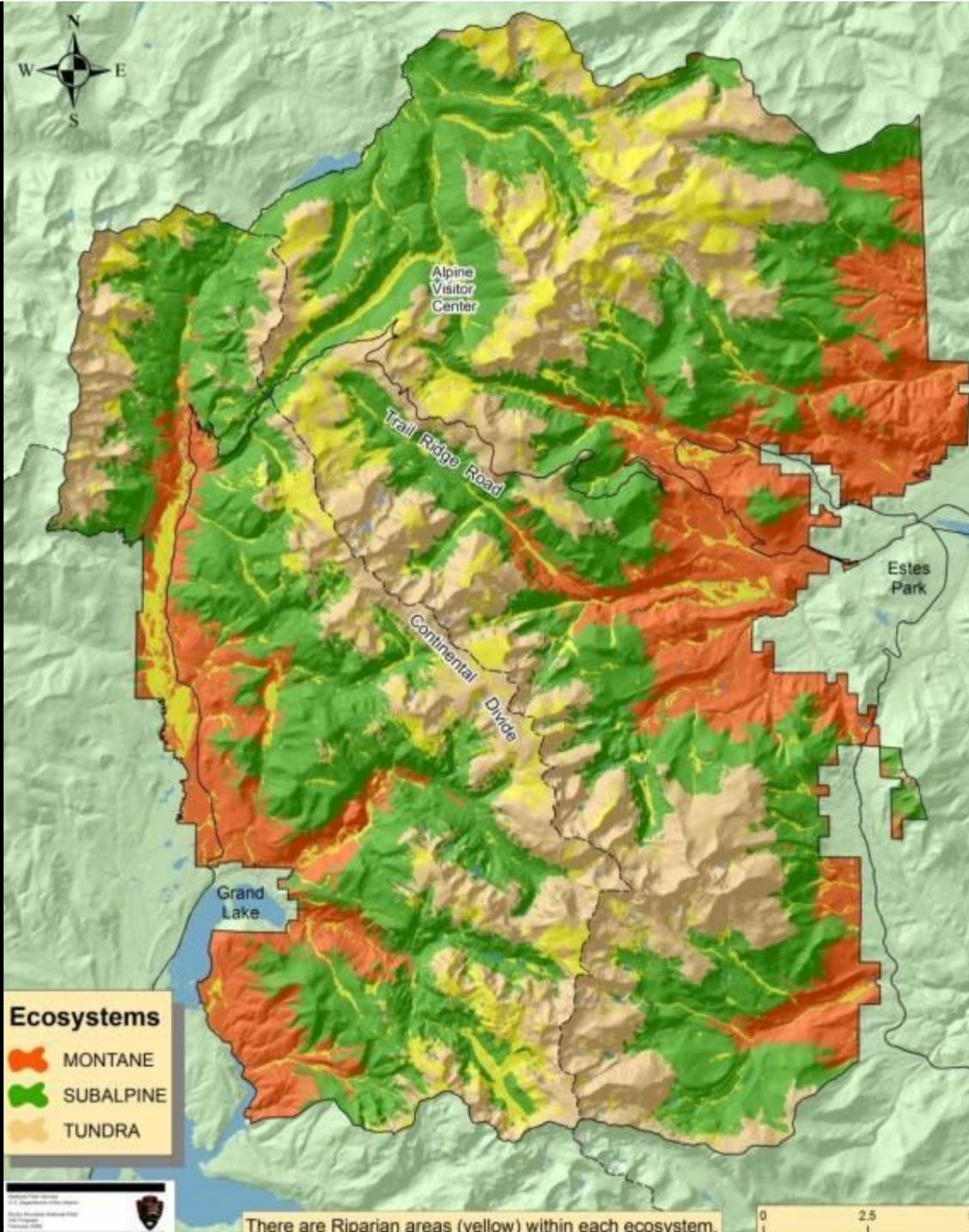
Curt Taipale

Mike Silverstein

Phyllis Woodford



Rocky Mountain National Park



RMNP Initiative - Basis

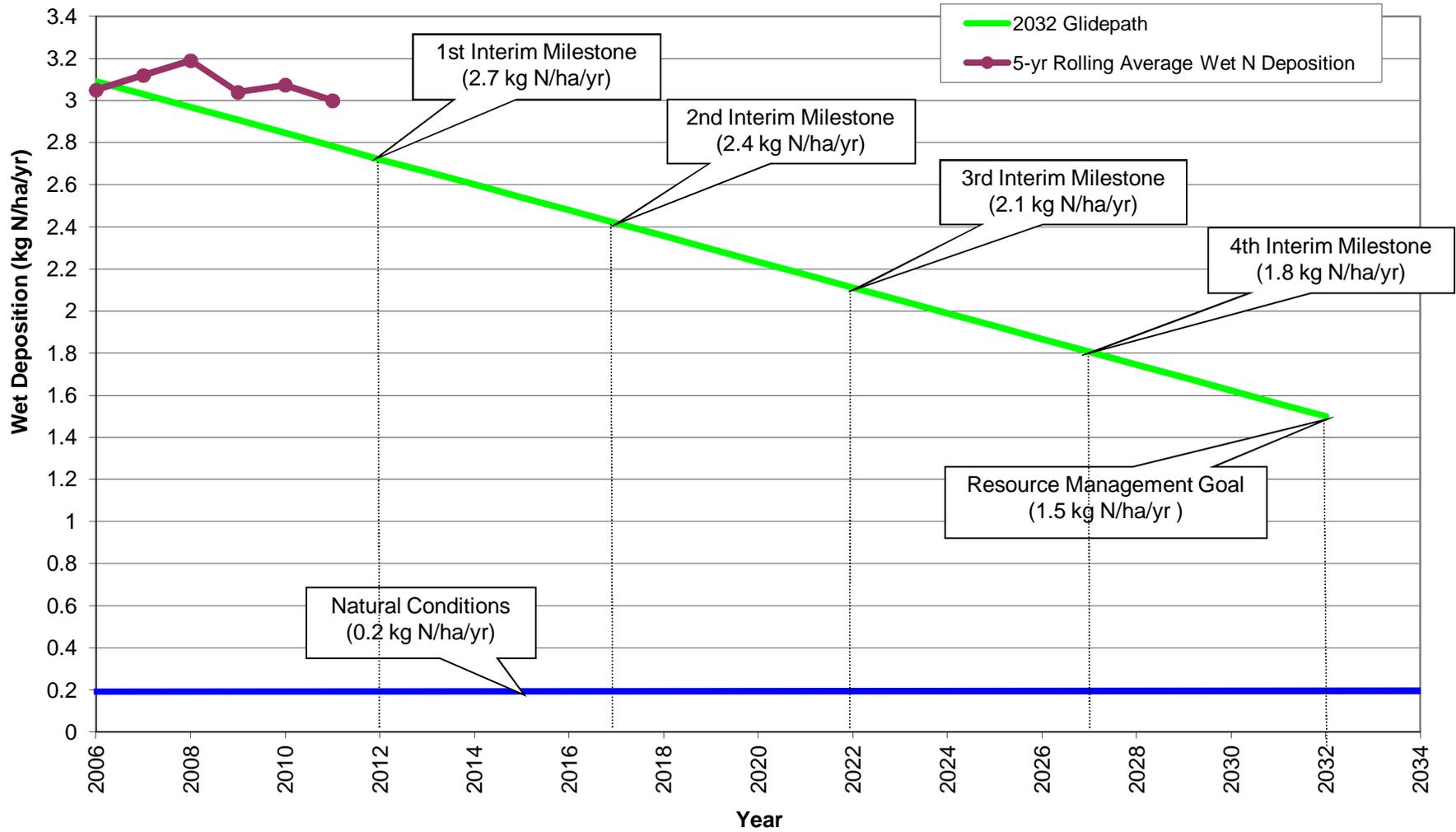
- Petition from Environmental Defense and Colorado Trout Unlimited - Sept 2004
 - ID's adverse impacts from air pollution
- CDPHE, NPS and EPA began a process for addressing these concerns
 - The "RMNP Initiative" began
 - Nitrogen deposition is the focus of the Initiative
- Developed nitrogen deposition reduction plan (NDRP)
 - August 2007
 - Contingency plan developed and approved in June 2010

Critical Load at RMNP

- **Large body of evidence indicates nitrogen deposition has affected and continues to affect ecosystems within the park.**
- **Current wet deposition monitored at ~2.7 lbs N/acre (rolling 5-year average)**
- **Total—wet and dry—estimated at 3.6 lbs/acre/yr**
- **Natural background estimated at 0.2 lbs/acre/yr**
- **Specific, published (peer-reviewed) research has shown that wet deposition levels at the time the biological changes started to occur was ~1.34 lbs/acre/yr.**

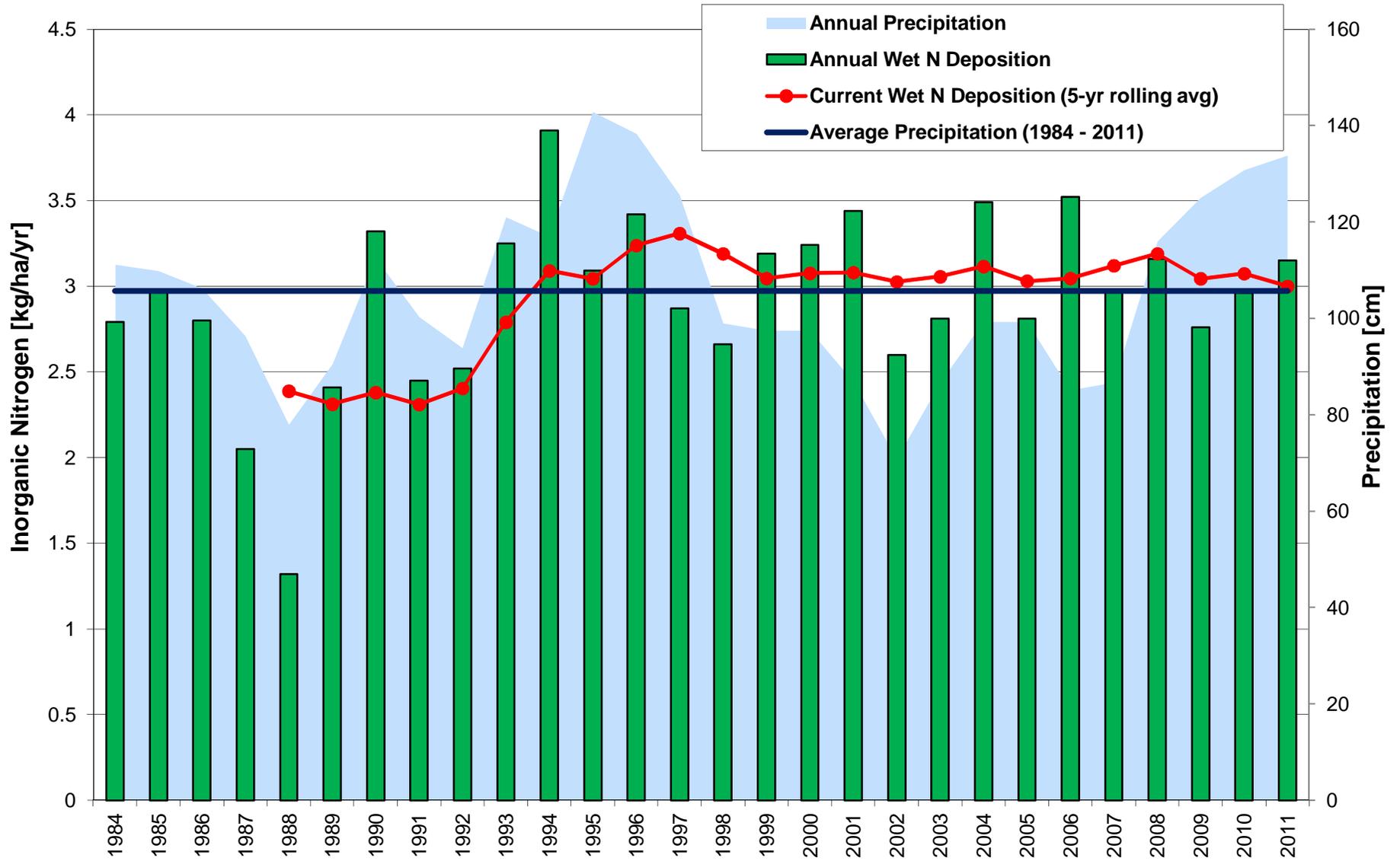


Glidepath and Current Wet Nitrogen Deposition Rocky Mountain National Park



Rocky Mountain National Park

Wet Nitrogen Deposition at Loch Vale Monitor



Future Steps & Reductions

- Future steps (near term):
 - Existing and planned NO_x reduction measures are being implemented (i.e. Regional Haze, engine regulations)
 - NO_x strategies developed
 - Agricultural BMPs accepted by the industry starting to be broadly implemented in Colorado
 - Ammonia emissions in the process of better characterization
 - Modeling and assessment activities proceeding



Rocky Mountain National Park Partnership to Reduce the Ecological Effects of N Deposition

Future Nitrogen Reductions

The State of Colorado is implementing a combination of nitrogen reduction strategies, including engine regulations, vehicle standards, and power plant controls (or conversion from coal to natural gas) to achieve a 41% reduction in statewide nitrogen oxides emissions by 2018.

A promising best management practice being developed by Colorado State University is an “early warning system” that would advise agriculture producers to avoid high nitrogen-emitting activities (e.g. manure handling) during specific periods of time when weather conditions could readily transport nitrogen into the park.



Colorado Department
of Public Health
and Environment





**Rocky Mountain National Park
Nitrogen Deposition Reduction Plan
Partnership to Reduce Nitrogen Impacts**

Questions?

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RMNP Website: <http://www.colorado.gov/cs/Satellite/CDPHE-AP/CBON/1251594862555>