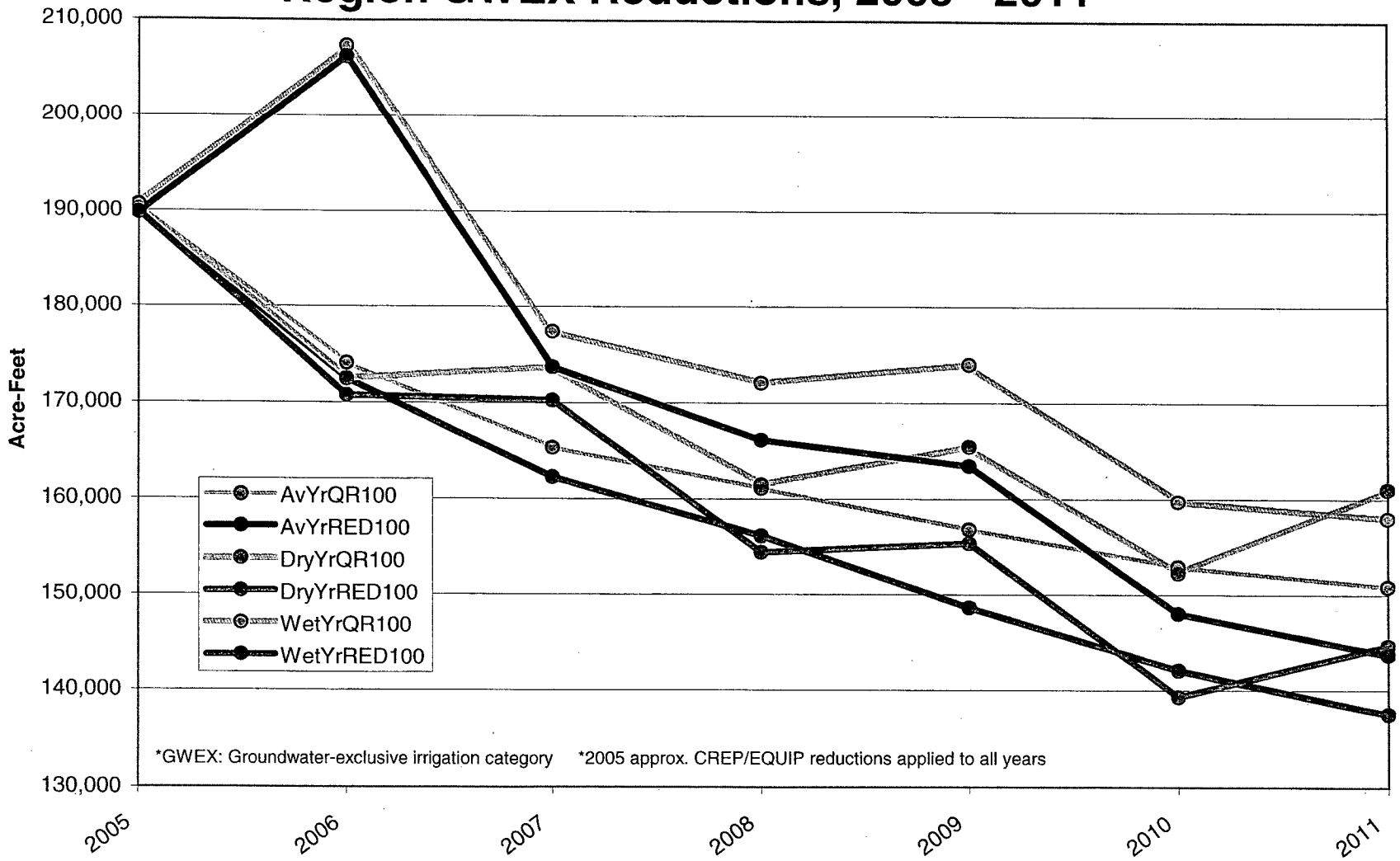
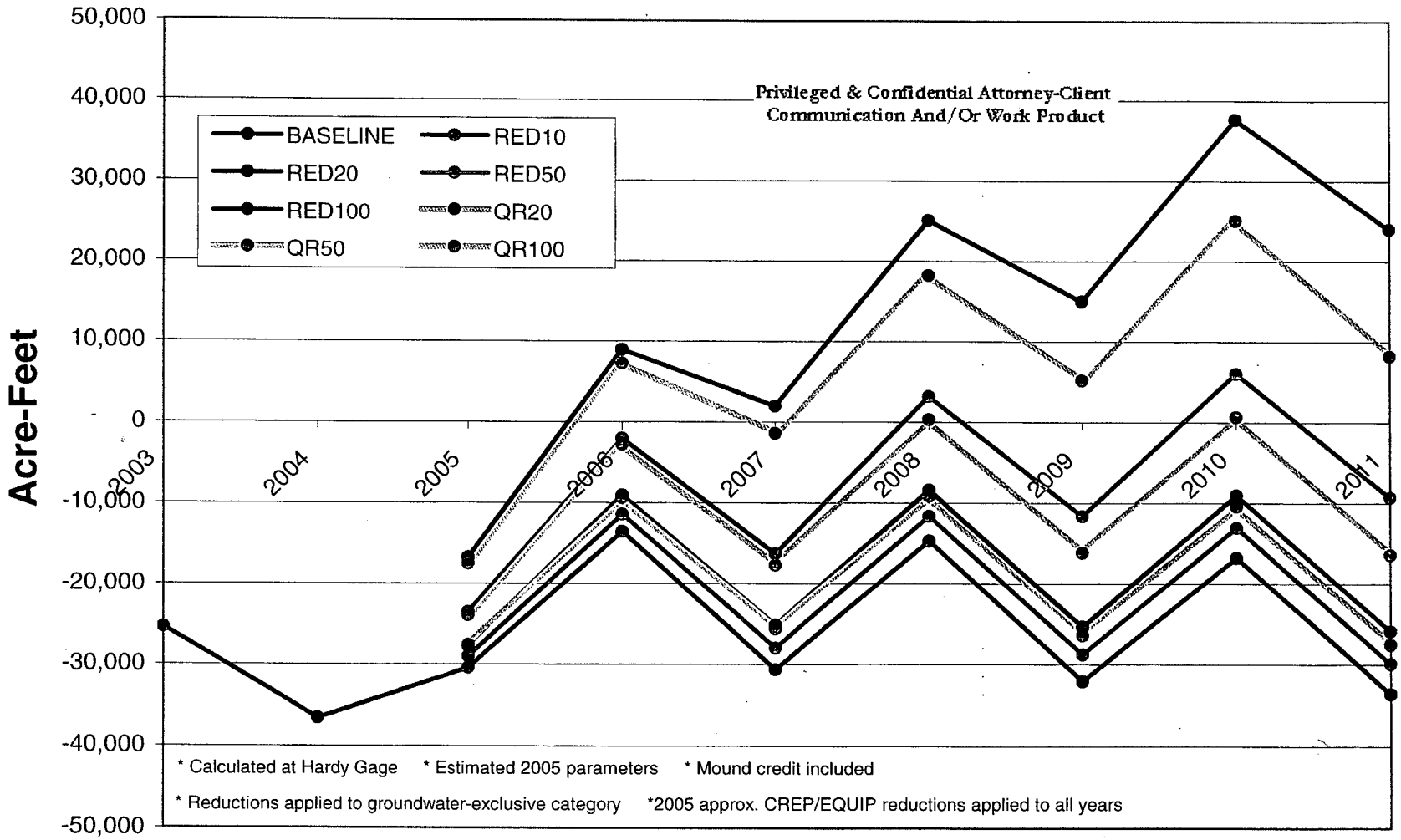
100% Reduction

Groundwater Impacts, Republican Basin Three-NRD Region GWEX Reductions, 2005 - 2011



AvDryWetYr0511SummaryCharts.xls10/17/2005

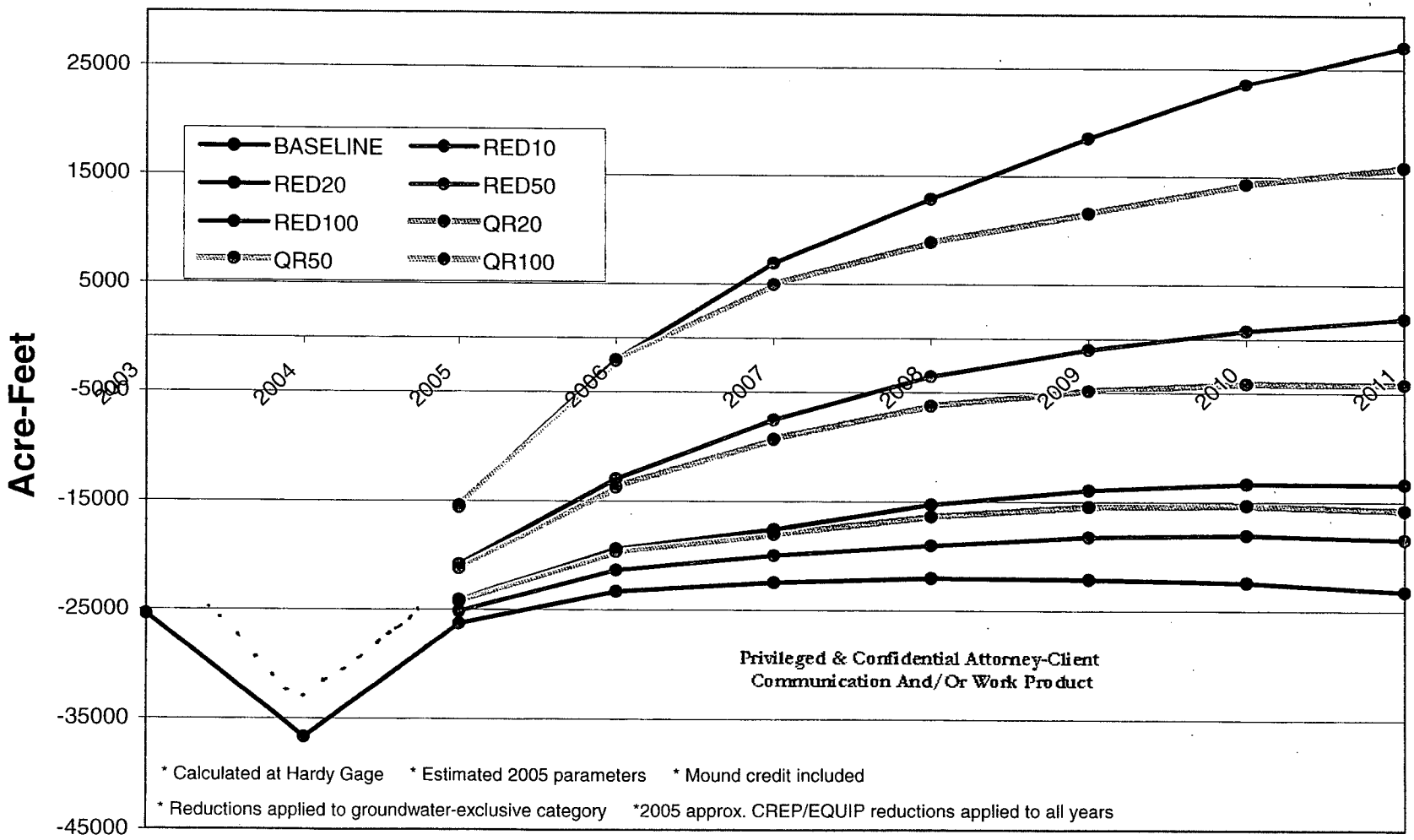
NE Allocation Minus Consumptive Use, Dry-Year Climate Conditions; Reductions for Lower, Middle and Upper Republican NRDs



AllocSummary_05-11DryYrScenarioOFFICIAL_WithCREP_Red.xls10/16/2005

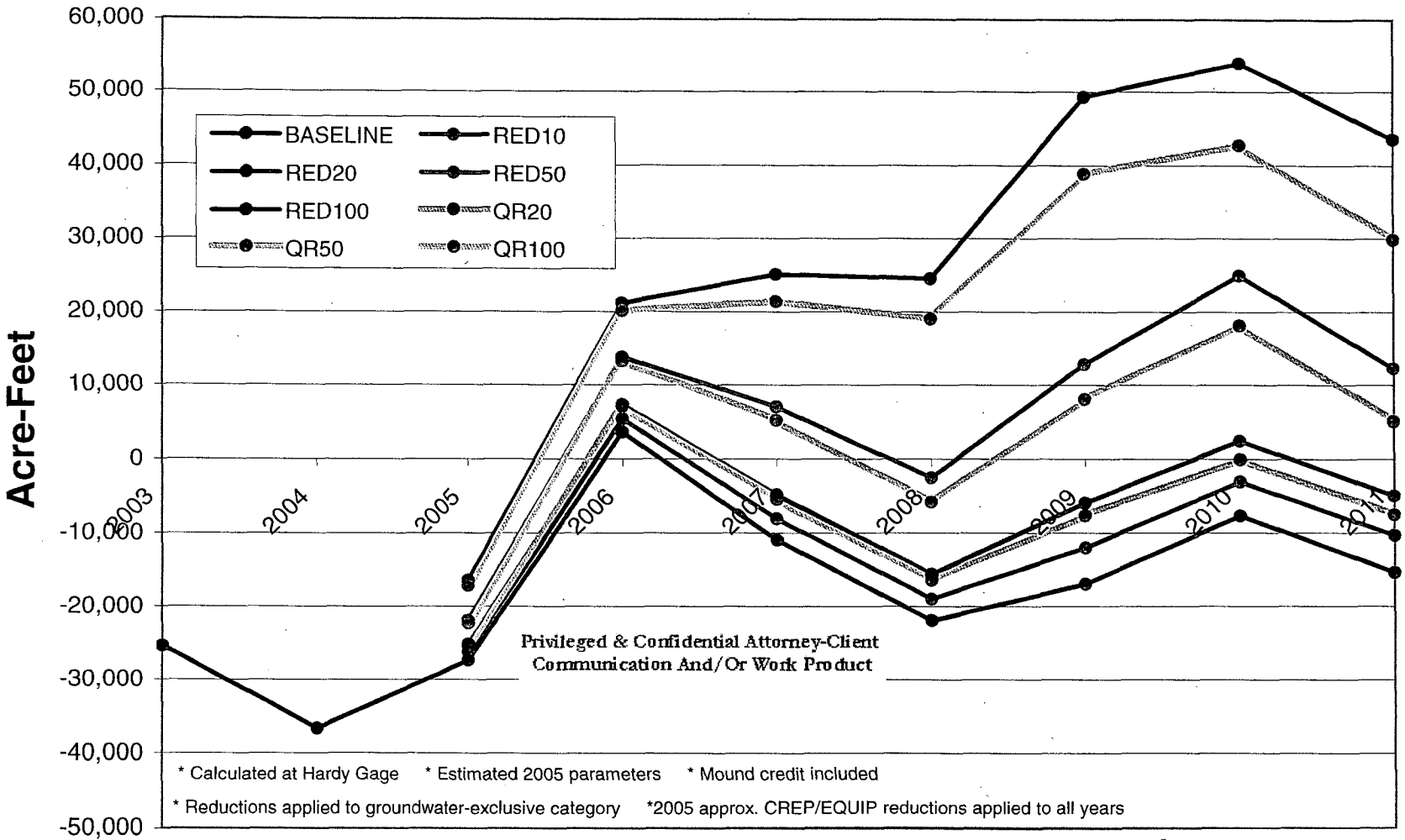
Average

NE Allocation Minus Consumptive Use, Average-Year Climate Conditions; Reductions for Lower, Middle and Upper Republican NRDs



AllocSummaryOFFICIAL_05-10AvYr_Base2004WithCREP_Red.xls 10-16-2005

NE Allocation Minus Consumptive Use, 'Wet-Year' Climate Conditions; Reductions for Lower, Middle and Upper Republican NRDs

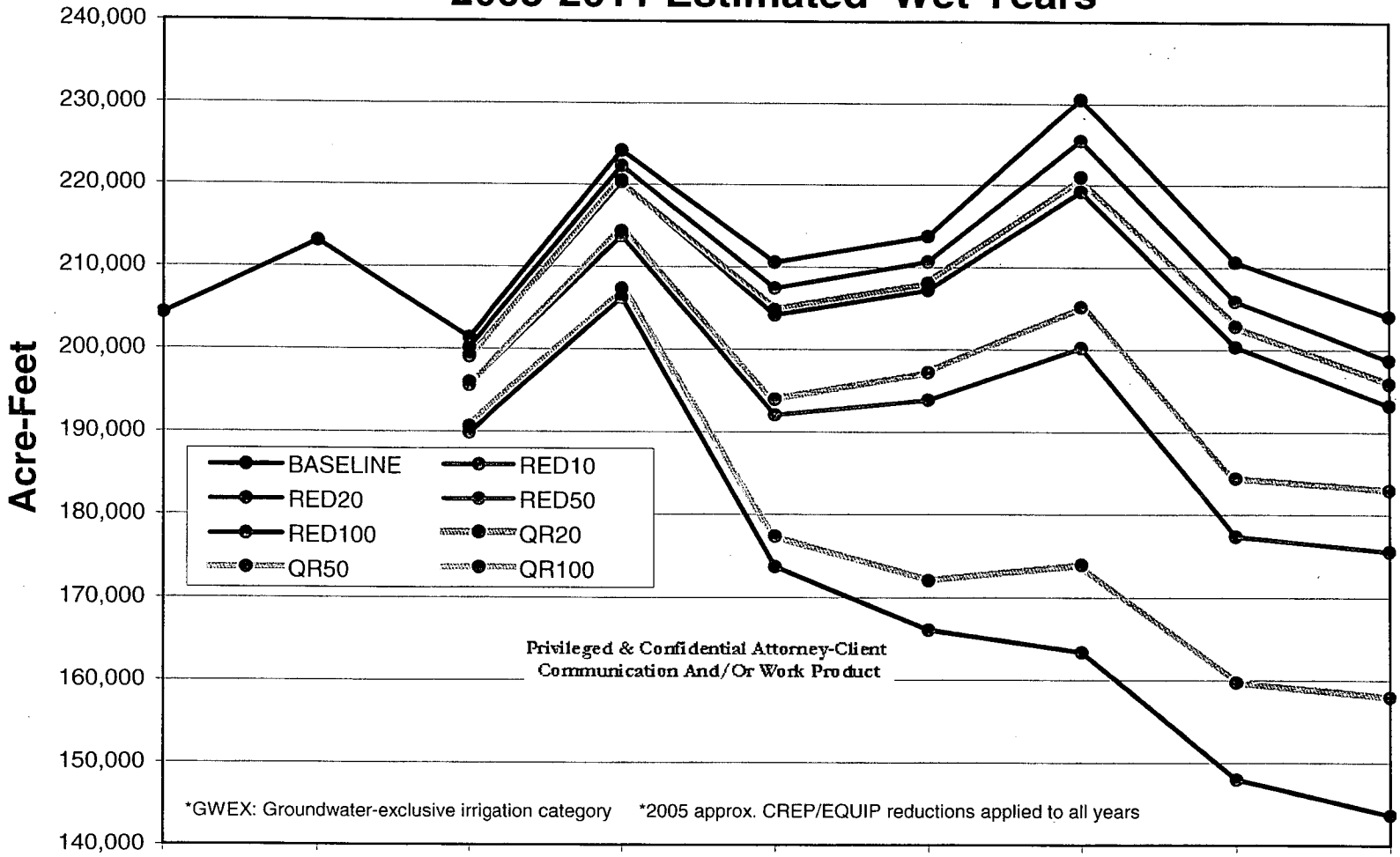


2004 acre x .91 = 2001 acres 9%

Baseline includes 5% reduction + 50,000 CREP + 29,000 EQIP acres 2004

AllocSummaryOFFICIAL_05-11WetYrs_WithCREP_Red.xls10/16/2005

GW Impacts, LR, MR, and UR Region GWEX Reductions, 2005-2011 Estimated 'Wet Years'



2004 Level Development

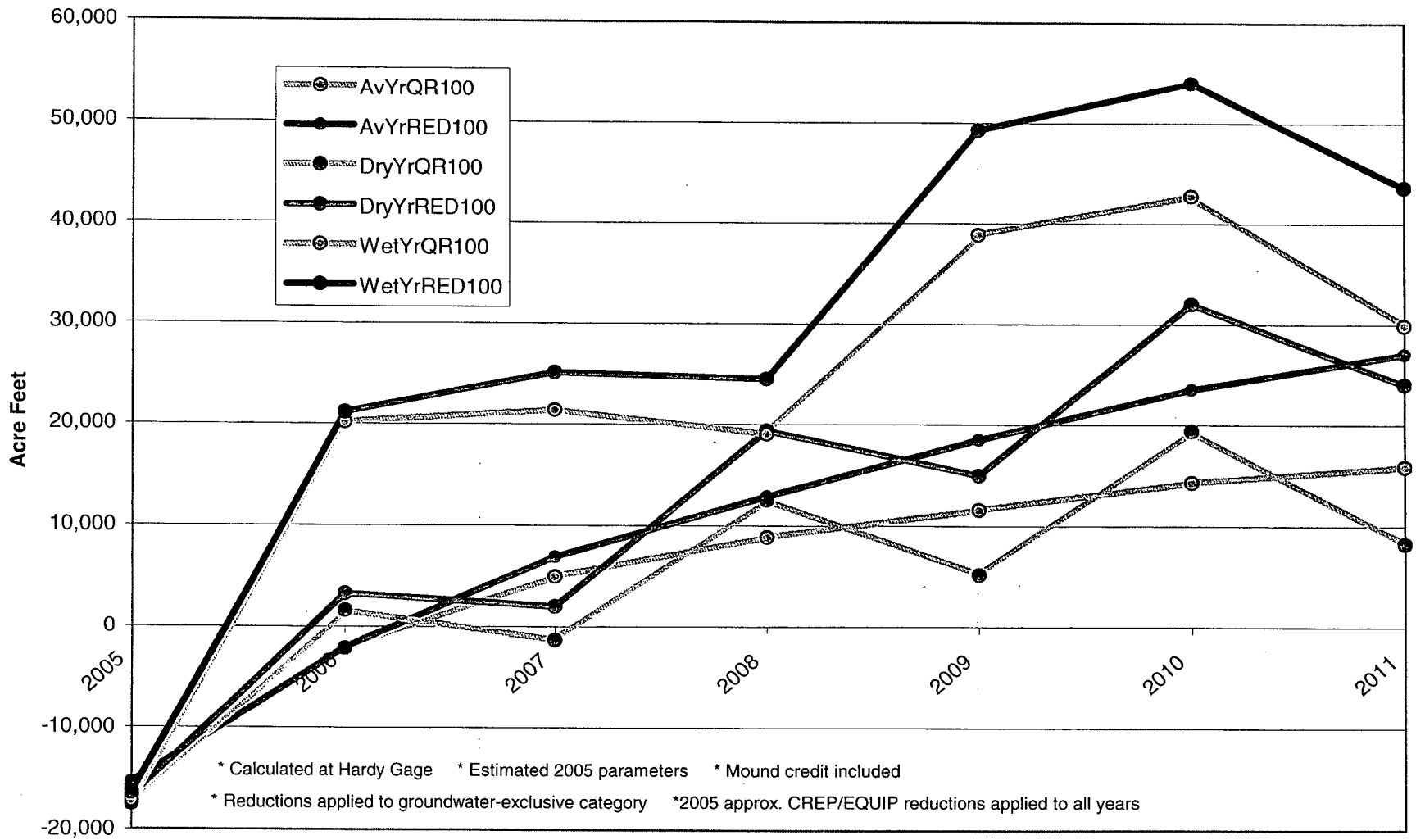
93-96 Precip = 2006-2009 Pumping

2010 + 2011 = average years

ImpactSummaryOFFICIAL_05-11WetYrs_WithCREP_Red.xls10/16/2005

100% Reduction

Allocation Minus Consumptive Use Plus Groundwater Mound Credit, Republican Basin, Three-NRD Region 2005 - 2011



AvDryWetYr0511SummaryCharts.xls10/17/2005

Dry Year

Low water table – seepage ⇒ SW ↓ not as much stream

Lower Stream flow – –

Impact ↑ pumpings lower.

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more release reservoirs

more Diversions = inc CU

inc seepage

gage flow – mixed – go up.

down because drought

~~A~~WS = inc cause release ↑ OS ⇒ past gage.

1000 SK in 800 = 300

500

800 = 500

2004 groundwater-exclusive category acres
GWEX Pumping: The 2004 GWEX file was modified to reflect the corresponding 1993 through 1996 depths of irrigation. County-specific ratios of each corresponding year's (1993=2006, 1994=2007, 1995=2008, 1996=2009) irrigation depth to the 2004 irrigation depths were calculated then multiplied by all records in the 2004 GWEX pumping file to adjust the irrigation volumes for the precipitation quantities for each future year (See 'WetYrsGWEX_Adjust.mdb').

The **2010 and 2011** parameters are for average conditions, and are as follows:
1990 precipitation multiplied by ratio of average year irrigation-season precipitation (13.2") to the 1990 irrigation-season precipitation (13.5")
2004 Kansas and Colorado pumping and surface-water files
2004 canal seepage
2004 surface water files (exclusive and commingled categories)
2004 groundwater-commingled pumping files
2004 evapotranspiration file
2004 reservoir levels
2004 municipal pumping files
2004 groundwater-exclusive category acres
2004 groundwater-exclusive category pumping multiplied by a factor of .871. This factor was determined by multiplying the ratio of the irrigation-season rainfall (May through August) in 2004 to the average (1980 through 2005, excluding 1993) irrigation-season rainfall by the pumping volumes in 2004, then multiplying this ratio by .95 to account for the 5% decrease in pumping agreed to by the NRDs in their Integrated Management Plans:

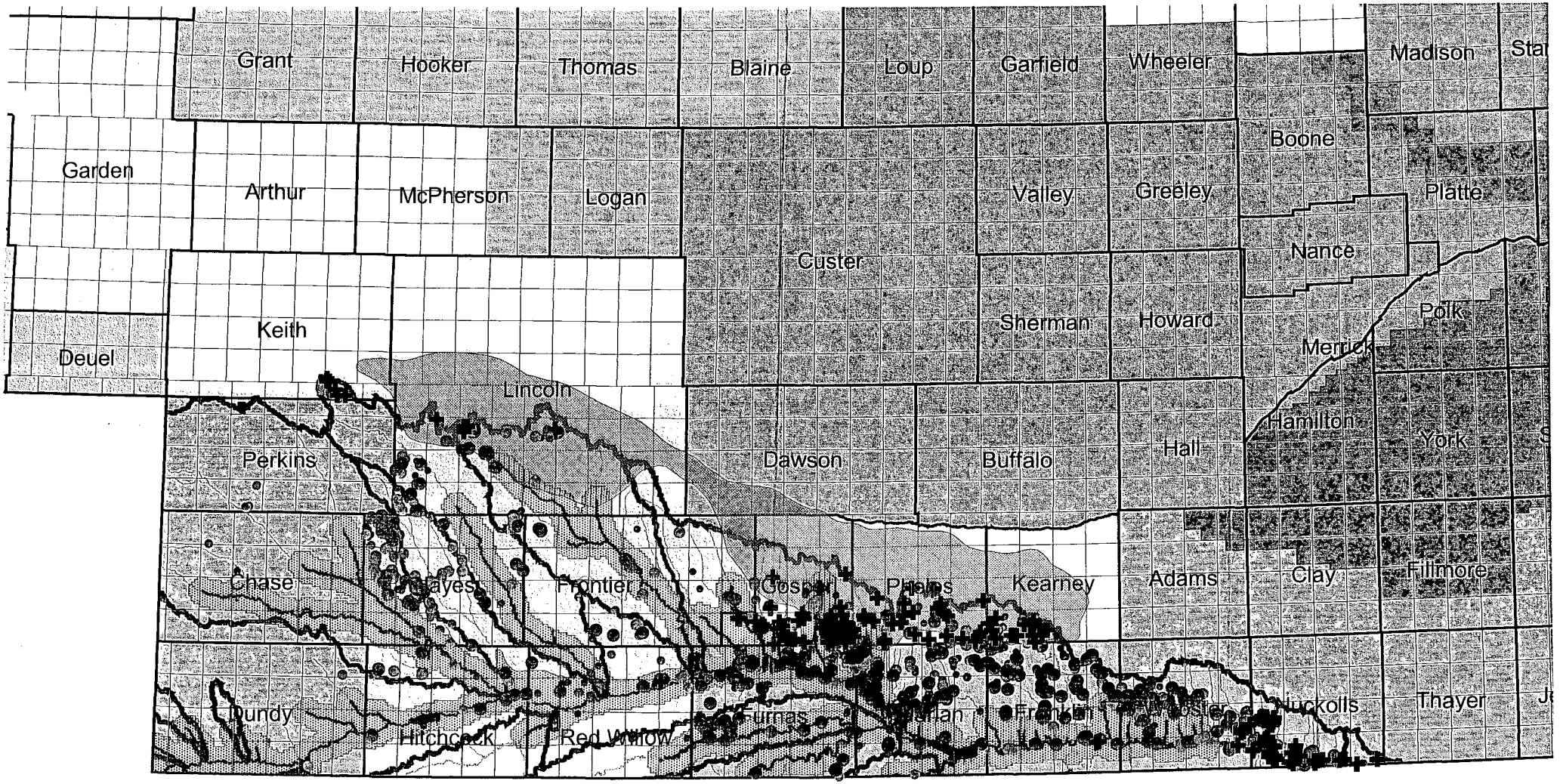
*12.1"(2004) / 13.2"(2005) * .95 = .871*

Chart Definitions

QR20: 20% Quick-Response area reduction.
QR50: 50% Quick-Response area reduction.
QR100: 100% Quick-Response area reduction.
RED10: 10% Reduction across the defined region.
RED20: 20% Reduction across the defined region.

RED50: 50% Reduction across the defined region.
RED100: 100% Reduction across the defined region.
AllRegRed: Reduction across entire model region, including outside the Republican Basin.
LR: Lower Republican NRD.
MR: Middle Republican NRD.
TB: Tri-Basin NRD.
UR: Upper Republican NRD.
3NRD: The LR, MR and UR region.

** OFFICIAL_05-11WetYrs_WithCREP_Red_EXP.doc, October 16, 2005*



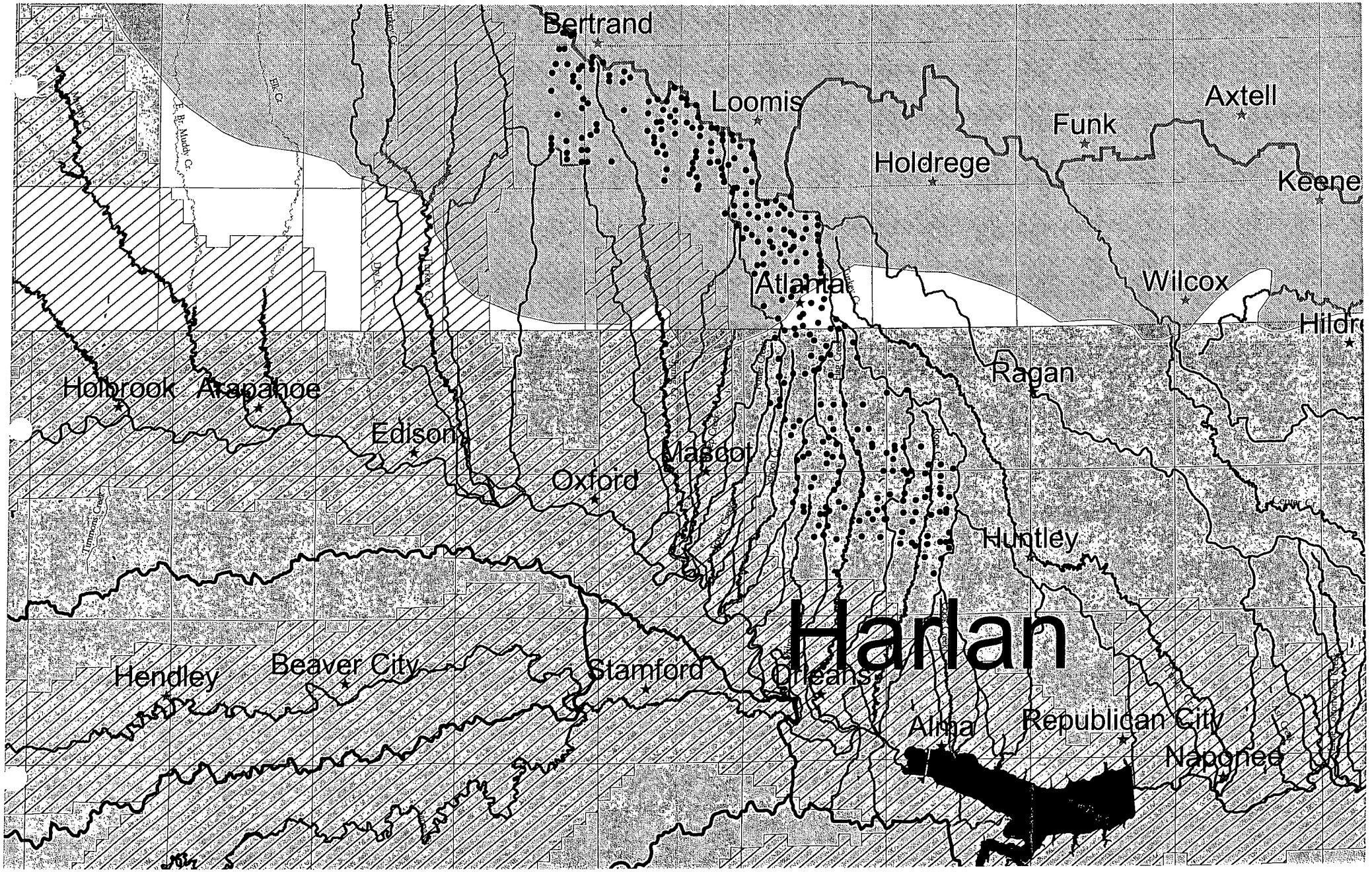
Since 1998

2002

129,000 registered acres

UR	1010
MR	37,120
LR	68,970
TB	22,000

Blue Hill
Rosemont
Bladen
Campbell
Upland
Hildreth
Macon
Franklin
Riverton
Red Cloud
Coolas
Beaver Cr.
Willow Cr.
Elm Cr.
Indian Cr.
Farmers Cr.
Walnut Cr.
E. Br. Thompson Cr.
Middle Br. Thompson Cr.
W. Br. Thompson Cr.
Lovell Creek
Coates Creek
Reams Cr.
Center Cr.
Cabin Cr.
4th Creek


Bertrand
Loomis
Axtell
Funk
Holdrege
Keene
Atlanta
Wilcox
Ragan
Holbrook
Arapahoe
Edison
Oxford
Maskell
Huntley
Harlan
Hendley
Beaver City
Stamford
Orleans
Alma
Republican City
Naponee
E. Br. Muddy Cr.
Elk Cr.
Turkey Cr.
Dry Cr.
Rose Cr.
Cedar Cr.
Timmons Creek