Platte Overappropriated Area Basin-Wide Plan Committee
Meeting Notes
Twin Platte NRD Offices - North Platte, NE
December 2, 2013

Call to Order and Attendance – With a quorum present, Chairman Rod Horn called the meeting to order at 11:55 a.m. Central Time. Sponsors and Partners in attendance were: Ann Dimmitt and Kent Miller (Twin Platte NRD), Mark Czaplewski, Lyndon Vogt, Jesse Mintkin, and Duane Woodward (Central Platte NRD), Rod Horn, Travis Glanz, and Ryan Reisdorff (South Platte NRD), John Thorburn (Tri-Basin NRD), John Berge and Tina Kurtz (North Platte NRD), Jesse Bradley, Heather Stream, Melissa Mosier, and Amy Wright (Nebraska Department of Natural Resources). Guests present were: Tyler Thulin (CNPPID), Dustin Wilcox (NARD), and Jeff Schafer (NPPD)

No changes were made to the meeting agenda.

1. **Meeting Minutes – August 6, 2013, meeting minutes**: There were no corrections or comments on the August 6, 2013, meeting minutes. Miller motioned and Berge seconded. Roll call: all ayes.

2. **Approve Annual Basin-Wide meeting minutes from June 20, 2013:** There were no corrections or comments on the June 20, 2013, meeting minutes. Miller motioned and Vogt seconded. Roll call: all ayes.

3. **Annual/Robust Review-Update and Discussion**

    a. **POAC Technical Committee update on work plan development**

        i. **Difference between the current and fully appropriated levels of development study:** At the August POAC meeting, Jesse Bradley stated that there would be three components to the work plan. A draft work plan has been developed for the committee's review and there will be further discussion. At this point, Bradley hopes to see completion of the three projects by 2016.

        ii. **Study to identify the impact of soil and water conservation measures on streamflow:** John Thorburn had nothing to add on this item from the previous discussion at the Platte Basin Coalition meeting.

        iii. **Next steps in determining the difference between overappropriated and fully appropriated and 46-715(d) (iii) technical analysis:** Jesse Bradley discussed the decision of the DNR to postpone the new rules for determining fully appropriated status. The work that has been completed based on the proposed methods will be available through INSIGHT. Miller asked if HDR was on hold and Woodward responded that HDR has made their final analysis. DNR will be working to address the comments

on the proposed methodology that it received throughout the last few months.

4. **PRRIP Reports**

    a. **Annual:** Jesse Bradley stated that the Annual Report on permitted activities will be sent to the PRRIP Governance Committee before the first of the year.

    b. **Update:** DNR will be working to update the numbers for the 2006 to current activities. Jennifer Schellpeper will be following-up with sponsors on this task for additional comments.

    c. **Small Water Bodies Presentation by Amy Wright, DNR:** Amy Wright provided a presentation on her analysis of man-made water bodies in the Platte Basin. Wright and her staff used GIS processes to identify sandpits and reservoirs that were newly developed or expanded between 2005 and 2010. Analyses were then completed to determine the change in consumptive use due to the identified water bodies. In total, 747 acres of new reservoirs or new/expanded sandpits were identified in the basin. Overall, an annual decrease of 678 acre-feet in consumptive use was calculated. Bradley reiterated that most of the sandpits were fairly deep, and therefore were associated with relatively less ET. The report is being finalized and will be sent to the Governance Committee in the beginning of 2014.

5. **Adjourned** – Meeting adjourned at 12:43 p.m.

Agenda

Platte Overappropriated Area Committee
11:30 AM
December 2, 2013
Twin Platte NRD Office, North Platte, NE

1. **Meeting Minutes-August 6, 2013 meeting minutes**

2. **Approve Annual Basin-Wide Meeting Minutes from June, 2013**

3. **Annual/Robust Reviews-Update and Discussion**

    a. **POAC Technical Committee update on work plan development**

        i. **Difference between the current and fully appropriated levels of development study (Jesse)**
        ii. **Study to identify the impact of soil and water conservation measures on streamflows – (John Thorburn)**
        iii. **Next steps in determining the difference between overappropriated and fully appropriated and 46-715(5) (d)(iii) technical analysis (Jesse)**

5. **PRRIP Reports**

    a. **Annual**
    b. **Update**
    c. **Small Water Bodies**

6. **Next Meeting**

Platte Overappropriated Area Basin-Wide Plan Committee
Meeting Notes

August 6, 2013
Twin Platte NRD Offices North Platte, NE

Call to Order and Attendance – Chair Rod Horn called the meeting to order at 11:11 a.m. Sponsors and Partners in attendance were: Ann Dimmitt and Kent Miller (Twin Platte NRD), Mark Czaplewski, Lyndon Vogt, Duane Woodward, and Jesse Minten (Central Platte NRD), Rod Horn, Travis Glanz, and Ryan Reisdorff (South Platte NRD), John Thorburn (Tri-Basin NRD), Ron Cacek, John Berge and Tina Kurtz (North Platte NRD), Jesse Bradley and Heather Stream (Nebraska Department of Natural Resources). Guests present were: Jerry Kenny (PRRIP), Don Kraus (CNPPID), Dustin Wilcox (NARD), Jeff Schafer.

Chair Horn called the meeting to order at 11:11 am.
No changes were made to the agenda.

1. Meeting Minutes:

A. **June 3, 2013 notes**: Horn saw changes he made in the minutes. Roll call: All ayes.

2. Annual Basin-Wide Meeting Summary: Jesse Bradley stated that the minutes were being finalized and would be distributed to the group for comment.

3. **Response to letter from CNPPID/Don Kraus from Annual Basin-Wide Meeting-** There was a letter from CNPPID that needed to be addressed by the group and asked for any comments. Rod Horn stated that the CNPPID letter will have a separate response from the state with a few amendments. The North Platte NRD suggested edits to the letter in the form of a redline copy. The group agreed with the modifications proposed by the NPNRD. Bradley added a simple letter from the Department Director would also be sent to CNPPID informing them that the Department concurred with the POAC response.

Motion: **To accept the letter with modifications suggested by the NPNRD and to send the letter to CNPPID**. **All ayes**.

4. Annual Robust Reviews-Update and Discussion Bradley stated the POAC Technical Group will meet on August 21st to discuss the three main elements of the analysis needed to assess the first increments goals and objectives: the conservation study, the robust review and the overappropriated-fully appropriated difference. This meeting will be the initial meeting to start discussing a framework that can hopefully be completed by the end of the year. The goal would be that all three analyses would be finalized by 2016. Bradley told the group that since James Gilbert has left the Department, he and Jennifer Schellpeper will be the Department's contacts on the POAC group. Horn suggested that an agenda be set for the meeting. Bradley agreed to develop and distribute an agenda. Bradley also stated that Jeff Schafer from NPPD had expressed interest in participating with the POAC. The group can to consensus that this would not be appropriate but that the technical committee should consider how it will engage the public when developing its framework.

5. **Future Processes:**

A. Studies

Difference between the current and fully appropriated levels of development study (recent release of rules): Bradley began by stating that there was an update on the rules process and that the final draft rules would be released soon. There would be letters sent out when and where hearing will take place. A new red lined draft would be presented and a formal hearing process done. Cacek asked about how many hearings and Bradley stated DNR legal counsel wished to have one central location.

ii. Study to identify the impact of soil and water conservation measures on streamflows-update:
Thorburn suggested there be a sub-study to look at some of the issues that were brought up at the conservation study meeting, to help narrow down which impacts they need to study. Kurtz observed that some of these practices were not applicable to the North Platte NRD. Thorburn asked if there need to be further discussion to check the study topic list and list the most important ones for meeting. Kurtz asked if the studies come from the eastern part of the basin and Thorburn answered that he was not sure and that it was the judgment of Flatwater. Kurtz added that the Platte NRDs need to quantify items to review for Phase 2 of the Conservation Study. Thorburn said that the Conservation Study Technical Committee will pick out a date to meet with Flatwater in regards to the Phase I study.

iii. Next steps in determining the difference between overappropriated and fully appropriated and 46-715(5)(d)(iii) technical analysis: None noted**.**

6. **Next Meeting:** Chair Horn stated the next meeting for POAC will be held on October 1, 2013 at 10:00 am in North Platte.

7. **Adjourn** – Meeting adjourned at 11:56 am.

2005 – 2010 Consumptive Use of Small Man-made Water Bodies in the Platte Surface Water Basin above Columbus

Amy Wright, MS
Integrated Water Management Analyst
Nebraska Department of Natural Resources

Nebraska
Department of Natural Resources

Background

- Nebraska New Depletion Plan
  - NDNR will not permit any new surface water uses (Jan. 1, 2006 and later) unless adverse effects are prevented or offset
  - NDNR requires permits for reservoirs over 15 acre-feet (af)
  - NDNR does not require permits for smaller reservoirs and sandpits
  - For new or expanded sandpits, or new reservoirs (no permits), the cumulative impact will be estimated
  - Any adverse effects on state protected and target flows will be offset
- Impacts from new reservoirs, and new/ expanded sandpits will be evaluated every five years, using 2005 as a baseline

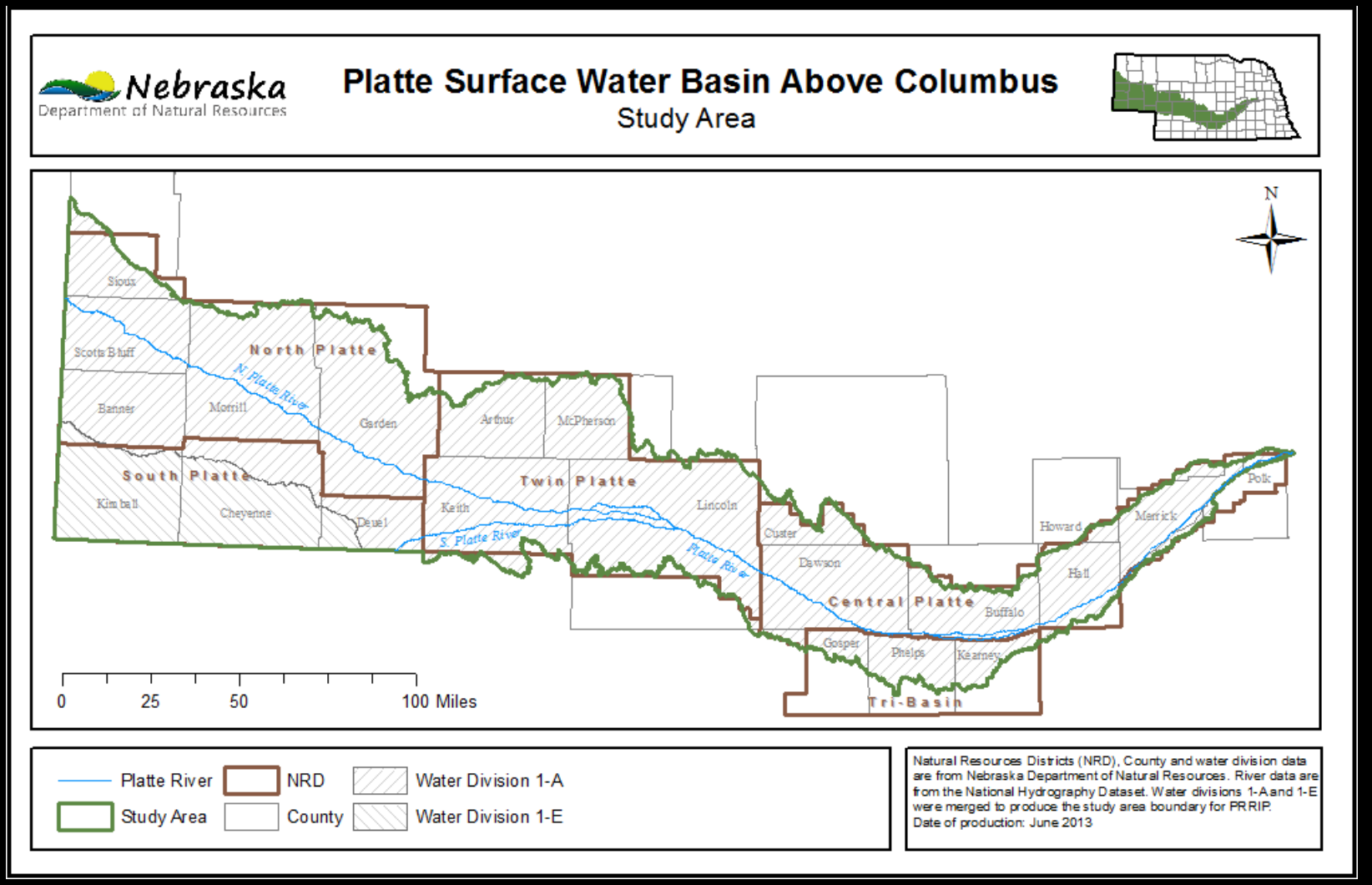
Background

- NDNR put forth a significant effort in 2005 to digitize water bodies
- Farm Service Agency (FSA) aerial imagery was scanned for entire area, all water was outlined
- Features were then categorized according to water body type
  - Sandpits, reservoirs, and “other”
- 1200 working hours

Objectives

- Create a new spatial inventory of water bodies for 2010
- Compare the 2005 and 2010 inventories to identify new reservoirs, and new or expanded sandpits
- Determine whether permits/offsets existed for new/expanded features
- Use an ET calculator to estimate impacts of non-permitted features
  - “Prior land cover” to “open water” ET differences

Study Area: Platte SW Basin above Columbus



Comparison of 2005 and 2010 Aerial Imagery

- 2010 much more wet compared to 2005
- Semi -automated procedure was developed to identify 2010 water bodies

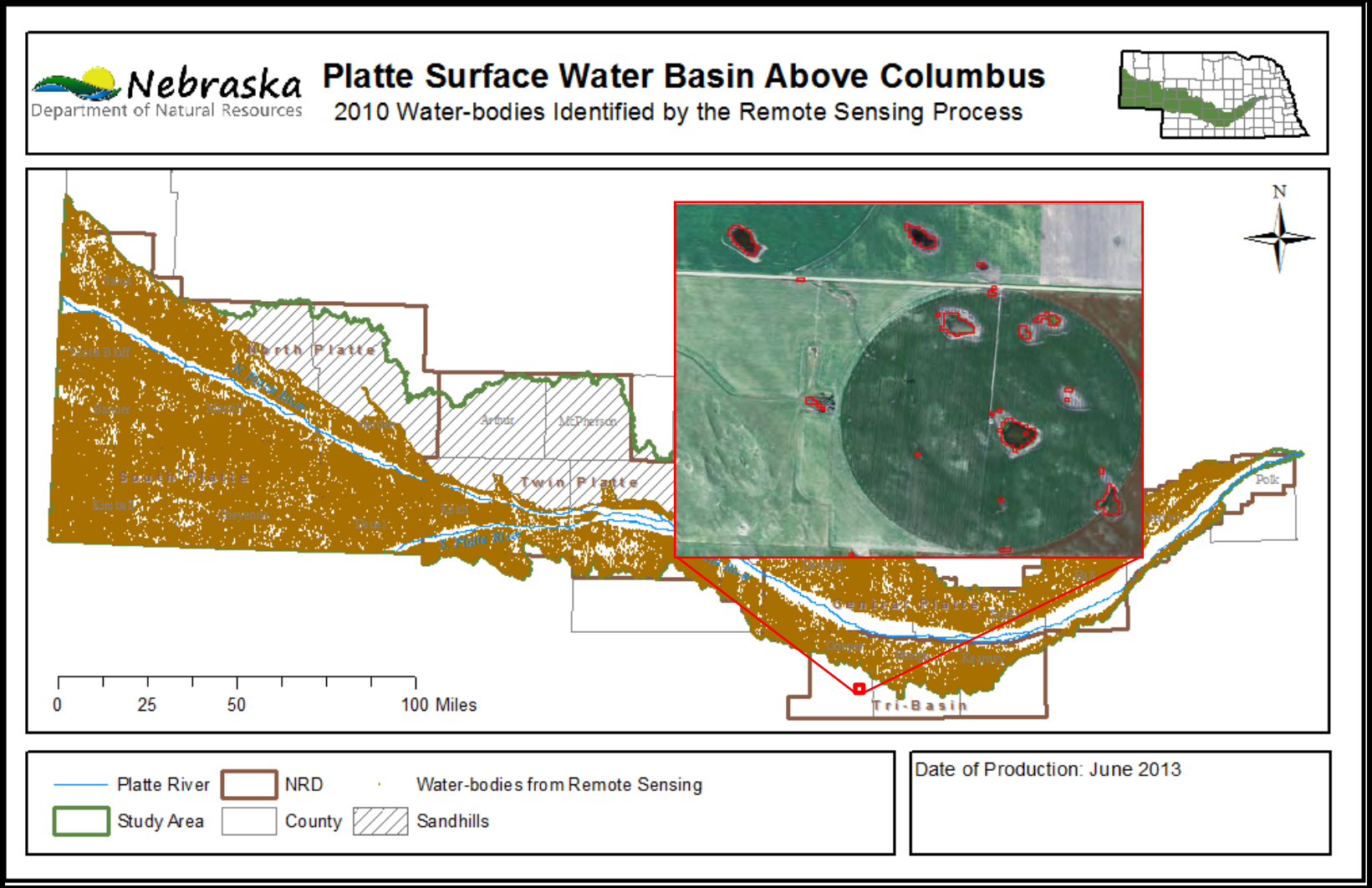
2005

2010

2010 Semi-automated Procedure to Identify Water Bodies

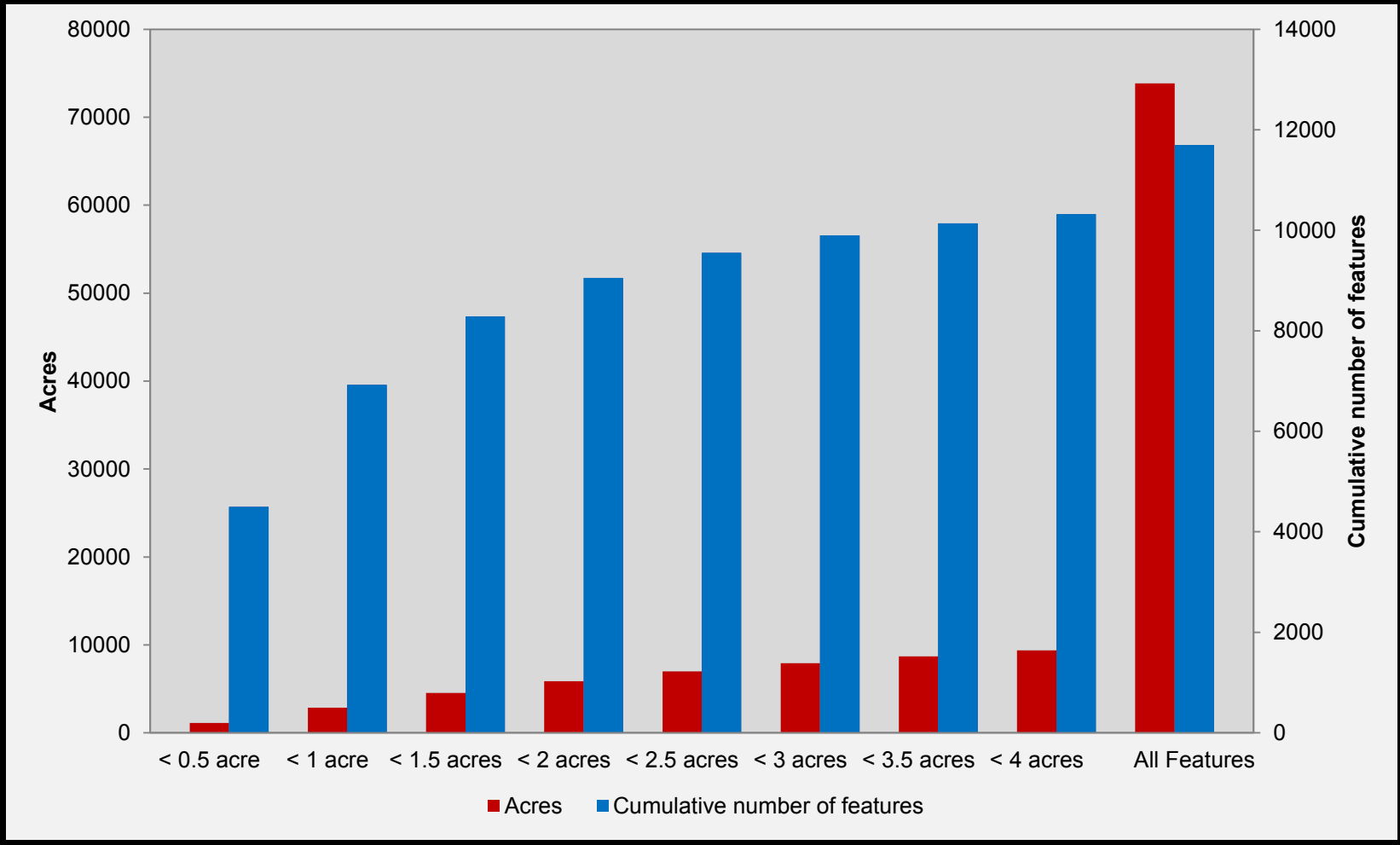
- FSA imagery infrared (IR) band was manipulated to get “first cut” water bodies
  - Water has strong absorption in IR
  - Pixels with low IR values were extracted and converted to features
  - Features less than 1 acre were removed
- Manual clean up and categorization of water bodies
  - Pixelated edges removed
  - Undetected features added
  - Categorization of 2010, re-categorization of 2005

Semi-Automated Water Procedure – "first cut" water bodies from FSA IR band



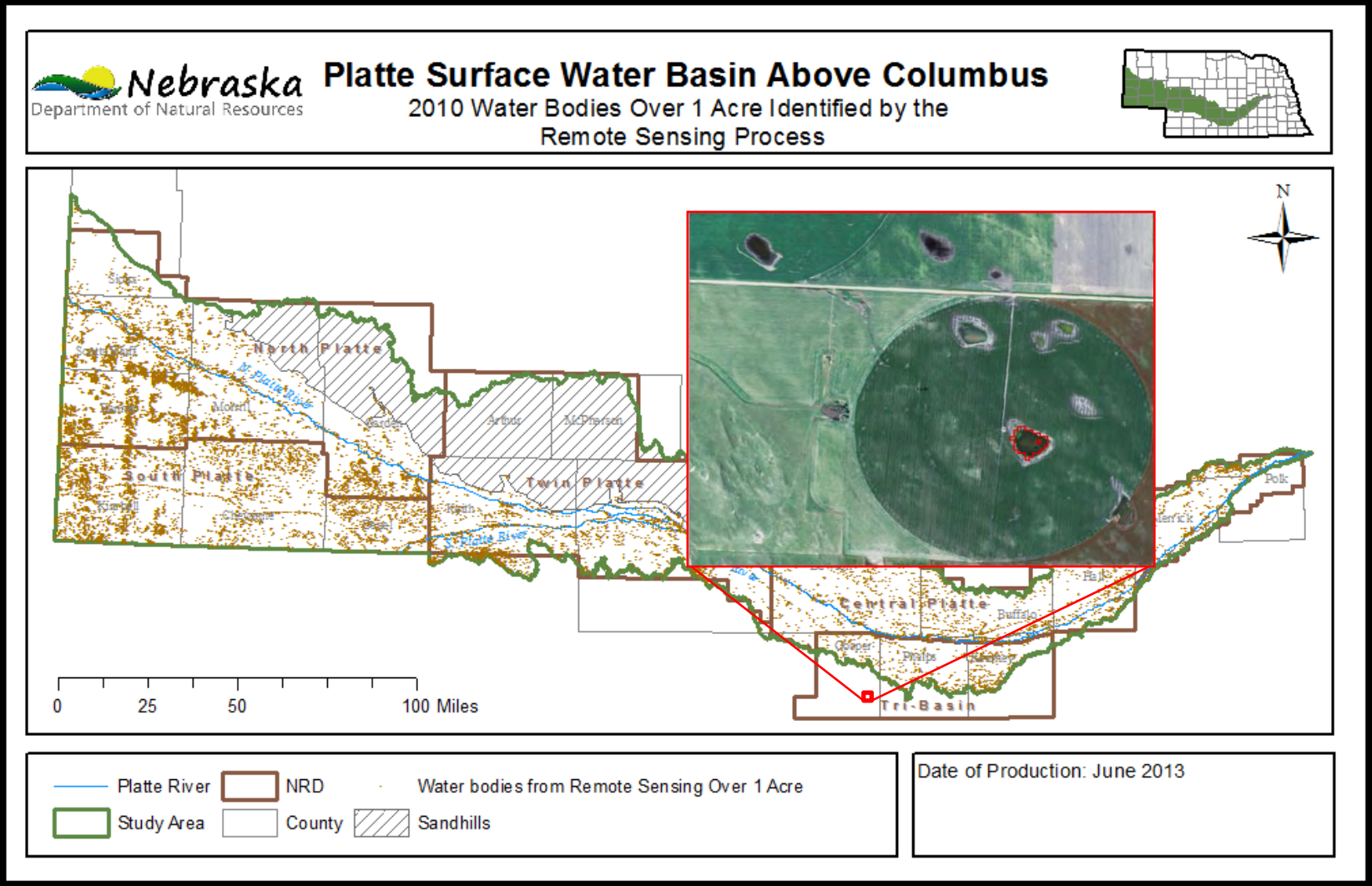
1,205,301 features (194,002 acres)

Semi-Automated Procedure – The one acre threshold



* Based on 2005 inventory

Semi-Automated Procedure – The one acre threshold

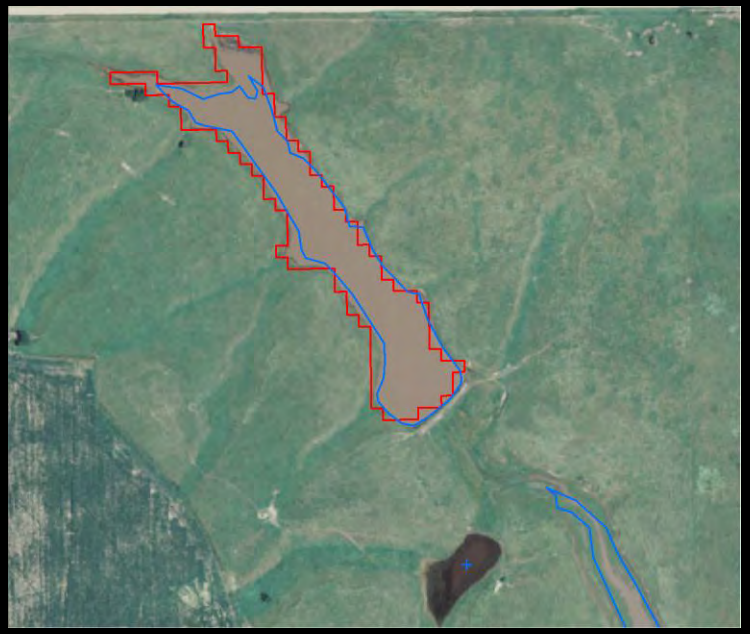


19,043 features (122,431 acres)

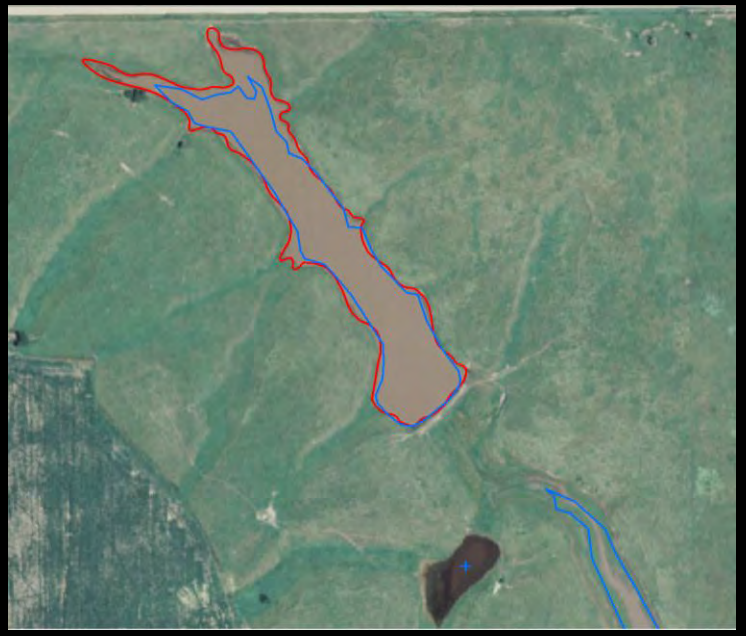
Manual clean up and categorization of water bodies

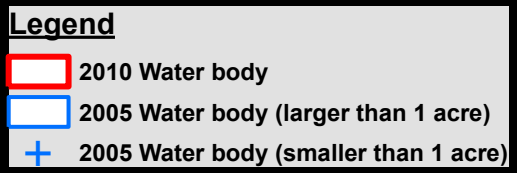
Pixelated edges smoothed

Before



After

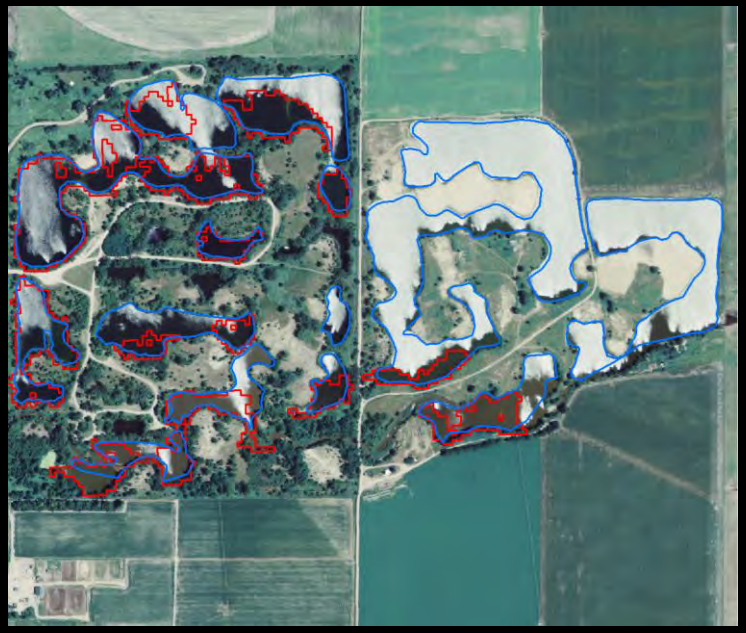




Manual clean up and categorization of water bodies

Undetected features digitized

Before



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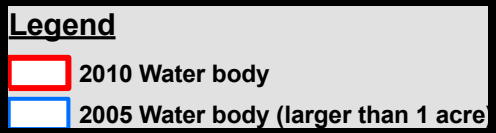
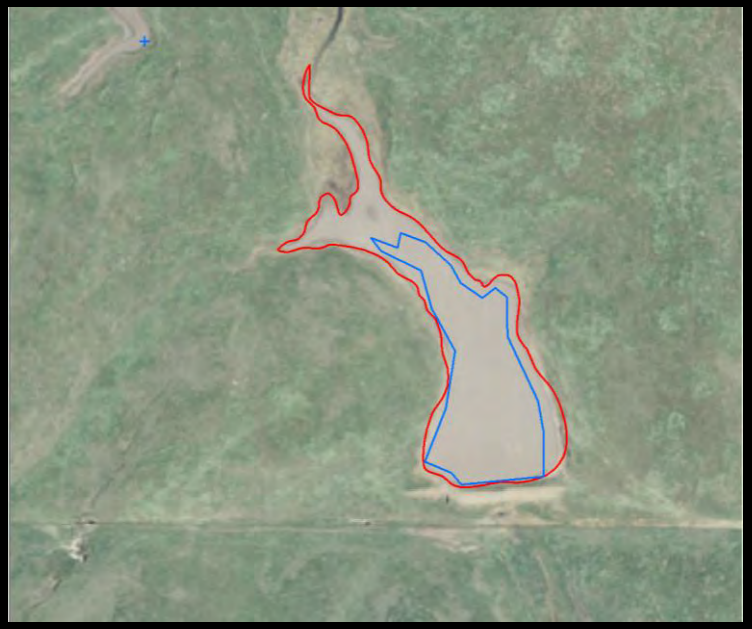


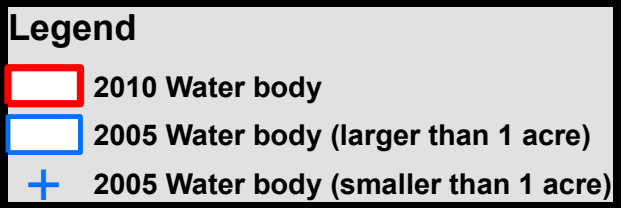
Manual clean up and categorization of water bodies

Undetected features digitized

Before

After





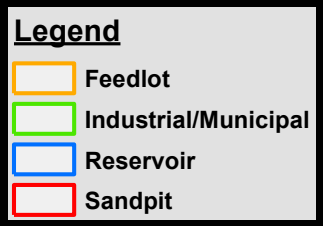
Manual clean up and categorization of water bodies

Water bodies categorized

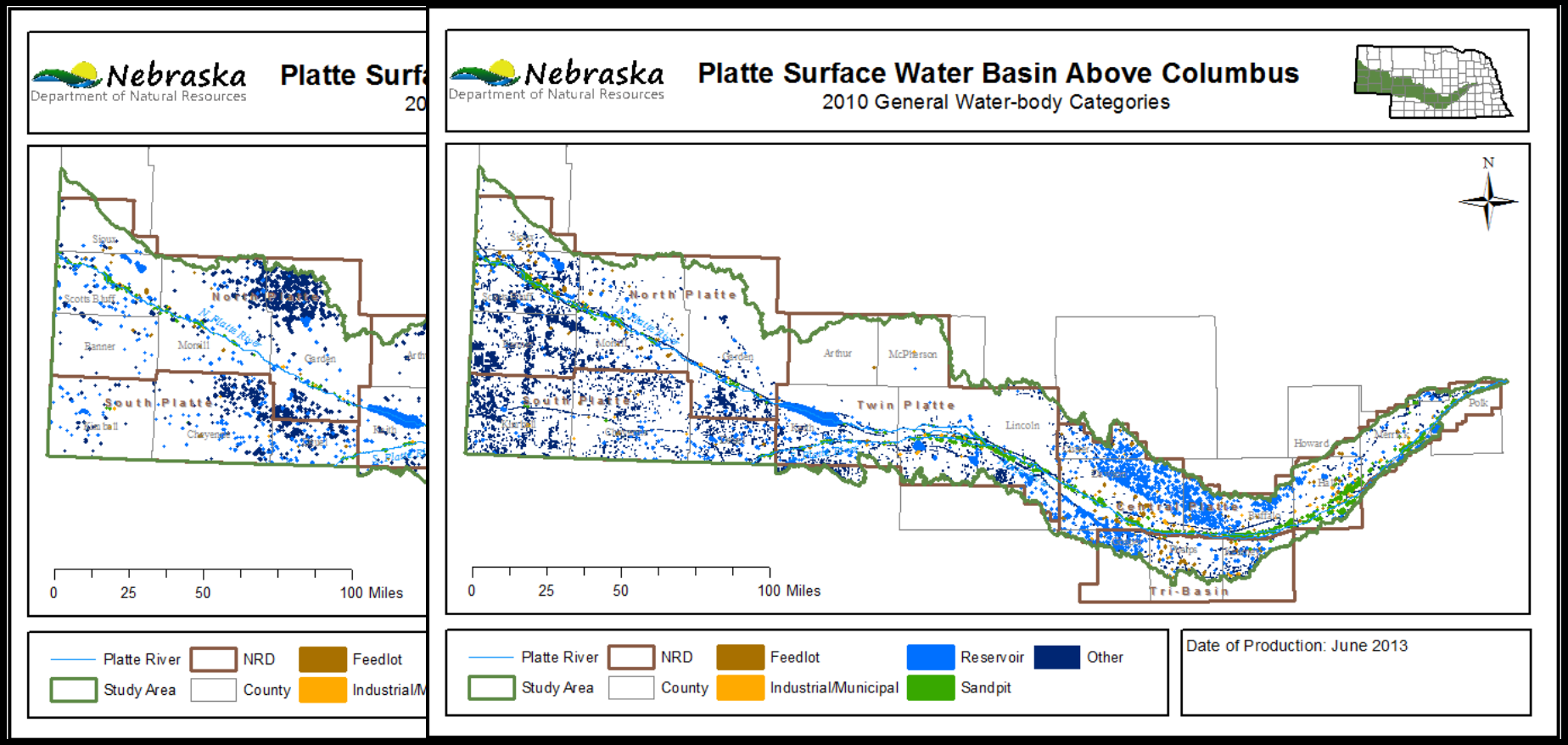
(sandpits, reservoirs, feedlots, golf courses, reuse pits, watering hole)

Sandpits (and others)

Reservoirs



Classification of Water Bodies

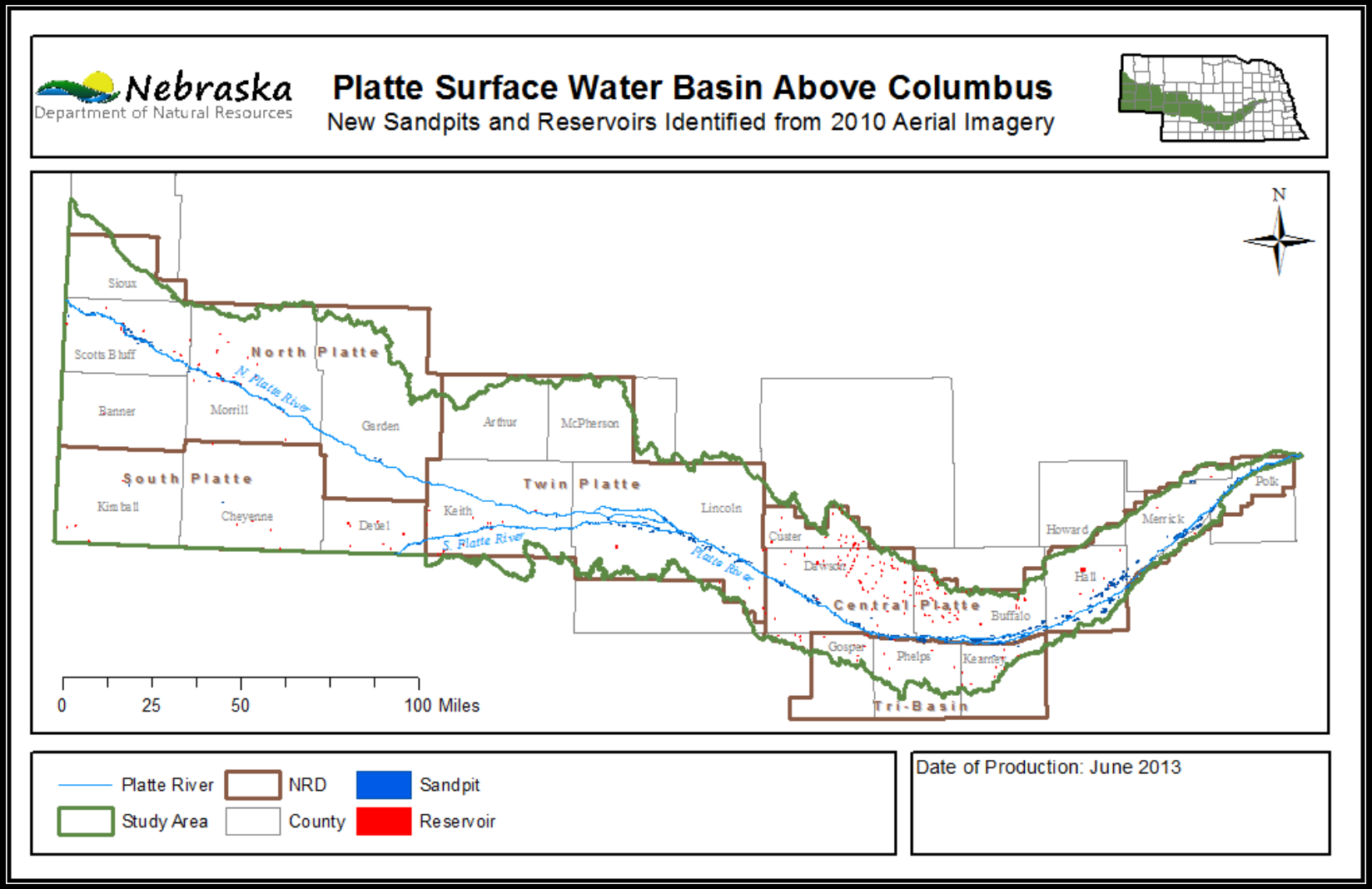


3,166 water body features in categories of interest (56,011 acres)

Overlay of 2005 and 2010 features

- NNDP calls for only new or expanded sandpits and new unpermitted reservoirs
- Identified reservoirs which are not present in 2005
- Identified new sandpits or sandpits that had significantly changed since 2005
- More detailed analyses were conducted on features meeting these criteria

Potential Sandpits and Reservoirs for Change Analysis



758 sandpits and reservoirs in 2010 inventory but not in 2005 inventory (3,723 acres)

Criteria for Inclusion in Change Analysis

Reservoirs

- New embankment
- No permits
  - Surface water right or dam safety plan
  - If a right or plan exists, check for depletions and offsets
- NRD Review

Sandpits

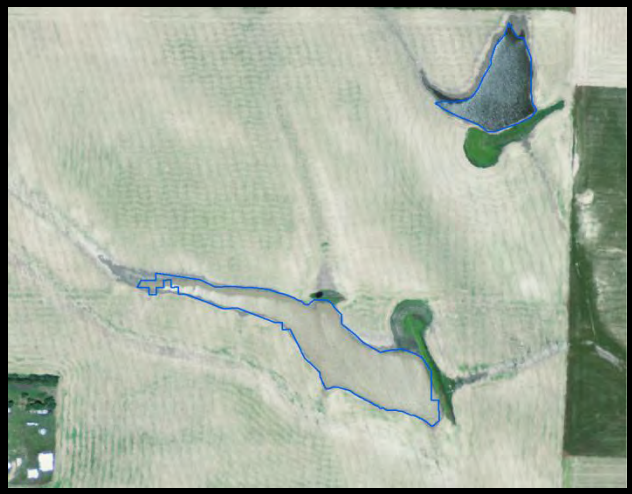
- Active gravel pit
- No estimated depletions or offsets
- NRD review
- Account for land reclamation

Reservoir Change Analysis Criteria: New Embankment

- New embankment physically present after 2005

2005

2006



2010

Reservoir Change Analysis Criteria: No Permits

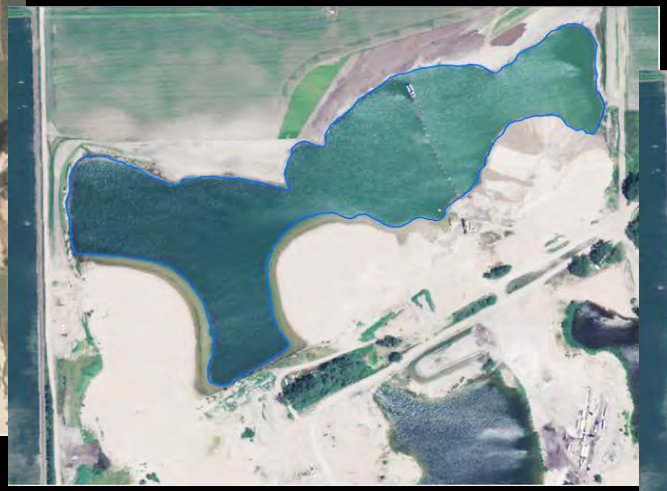
- Checked for storage permits
  - Dam Safety (inventory and non-inventory)
  - Surface Water Rights
- If permitted, checked for any associated depletions and offsets

Change Analysis Reservoir Identification Process		
Procedure	**Number of Features**	**Area (acres)**
Reservoirs classified from 2010 imagery	1,578	45,507
Reservoirs not included in 2005 inventory	573	1,521
Reservoirs with new embankments between 2005 and 2010	11	405
New reservoirs with permits between 2005 and 2010	2	386
New unpermitted reservoirs between 2005 and 2010	9	19

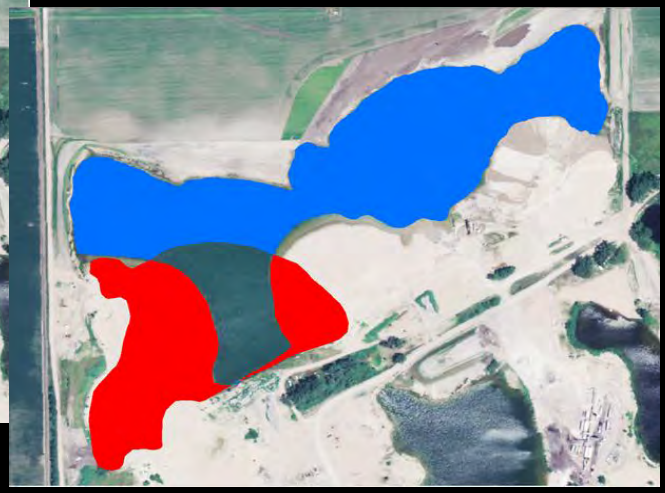
Sandpit Change Analysis Criteria: Activity

- Sandpit criteria
  - Sand around new/expanded sandpits
  - Looked at expanded portions, accounted for reclaimed portions

2005



2010



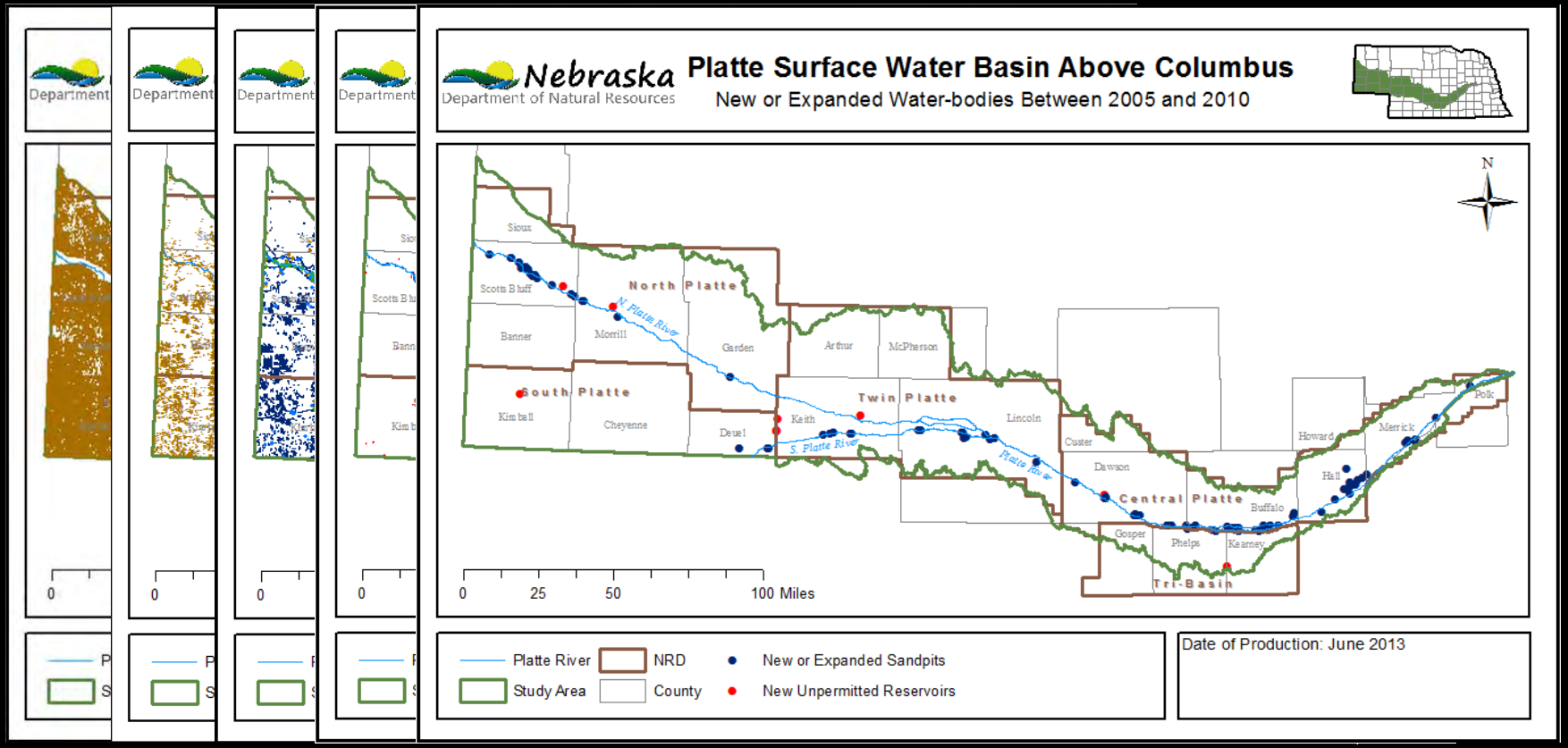
Reduced Areas
Expanded Areas

Sandpit Change Analysis Criteria: No Offsets

- Checked for sandpits with depletions estimates
  - If offsets are in place, exclude from analysis

Change Analysis Sandpit Identification Process		
Procedure	**Number of Features**	**Area (acres)**
Sandpits classified from 2010 imagery	1,005	8,050
Sandpits with area change from 2005	185	2,202
New/expanded sandpits identified from visual analysis	98	736
New sandpits with offsets	4	8
New/expanded sandpits between 2005 and 2010	94	728

Water Bodies for Change Analysis



Reservoirs: 9 (19 acres); Sandpits: 94 (728 acres)

Evapotranspiration (ET) estimation using NRCS ET calculator

METHODS

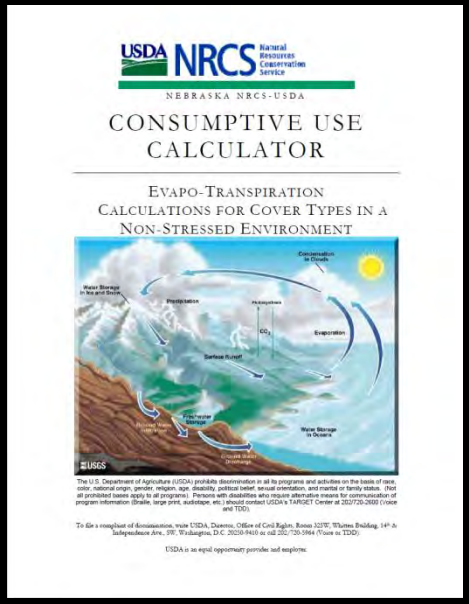
NRCS ET Calculator

- Created by Natural Resources Conservation Service (NRCS)
- Consumptive use change assessment in Platte basin
- Average monthly ET of 46 land covers
  - Grasslands

    grass cool mid; grass cool short; grass cool tall; grass warm mid; grass warm short; grass warm tall; grass pasture good; grass pasture bad
  - Wetlands

    wet tall grasses; wet cattail/bulrush moist; wet cattail/bulrush standing water; wet linear; wet short veg moist; wet short veg standing water
  - Water

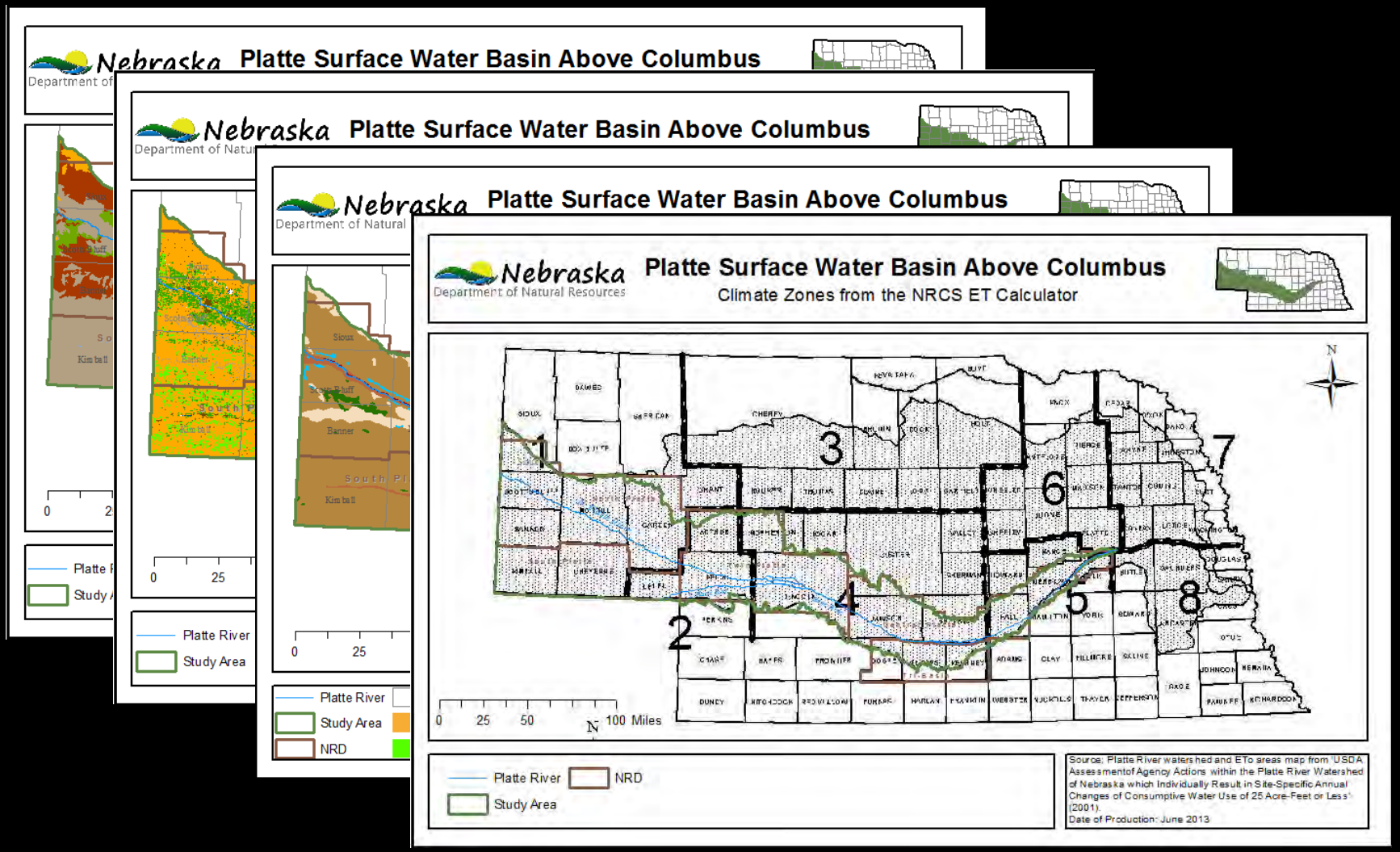
    water shallow; water deep
- March to November ET



Methods: ET Calculation

- Inputs for ET Calculator
  - Location and acres
    - GIS process
  - Soil type
    - STATSGO
  - Land cover
    - CALMIT 2005 land cover dataset
    - UNL CSD native vegetation
  - Location in ET climate areas
    - NRCS consumptive use calculator guide

Methods: ET Calculation

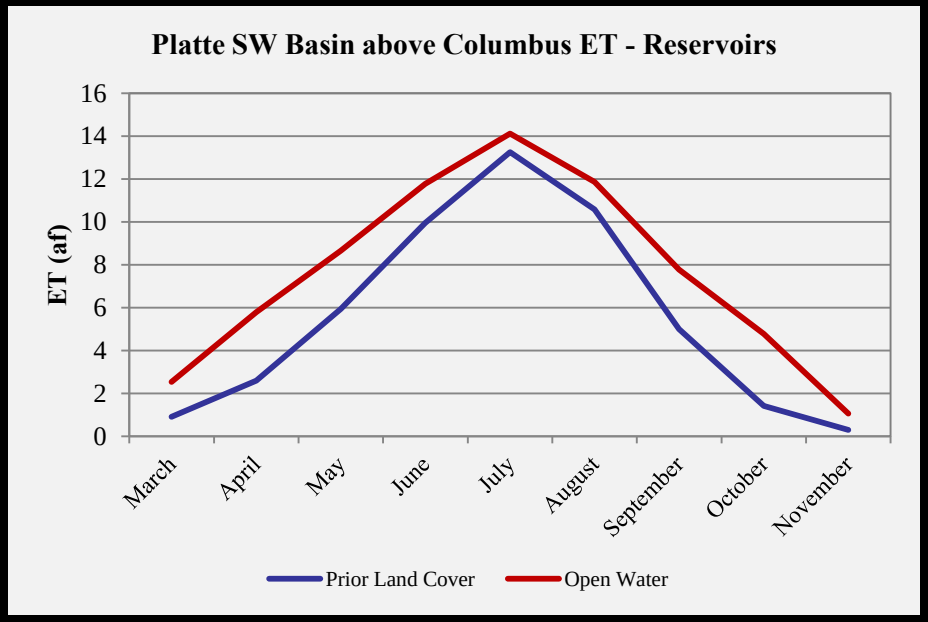


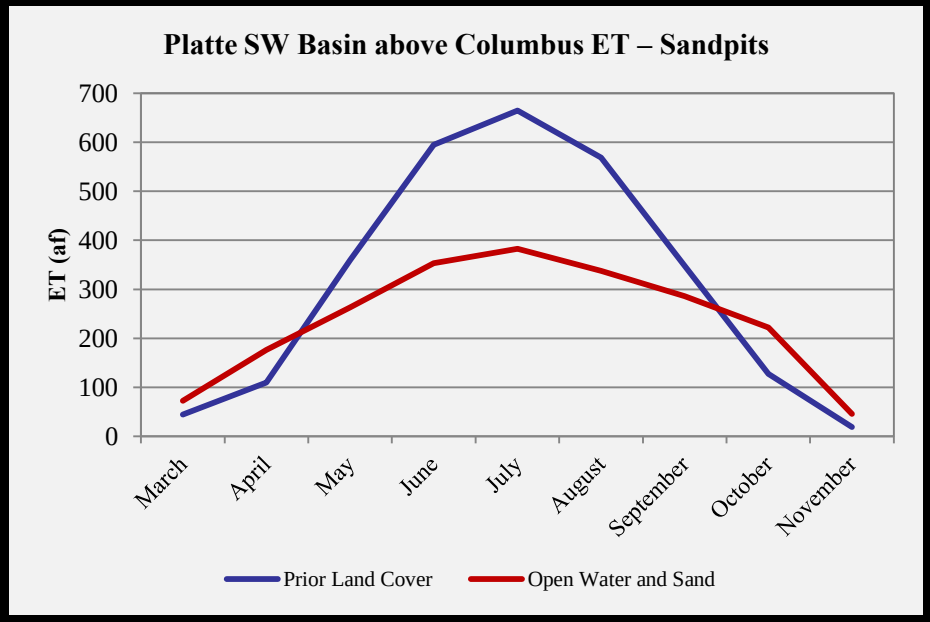
Methods: ET Calculator Assumptions/Decisions

- 2005 land cover
  - CALMIT land cover
    - UNL CSD native grasses
  - Wet tall grasses for wetlands
  - Average ET of cottonwoods and willows for riparian trees
- 2010 land cover
  - Shallow water (<1m) for reservoirs
  - Deep water (>1m) for sandpits
- Reclaimed sandpit land
  - 2010 land cover: Sand
- Irrigation application timeframe: May to September

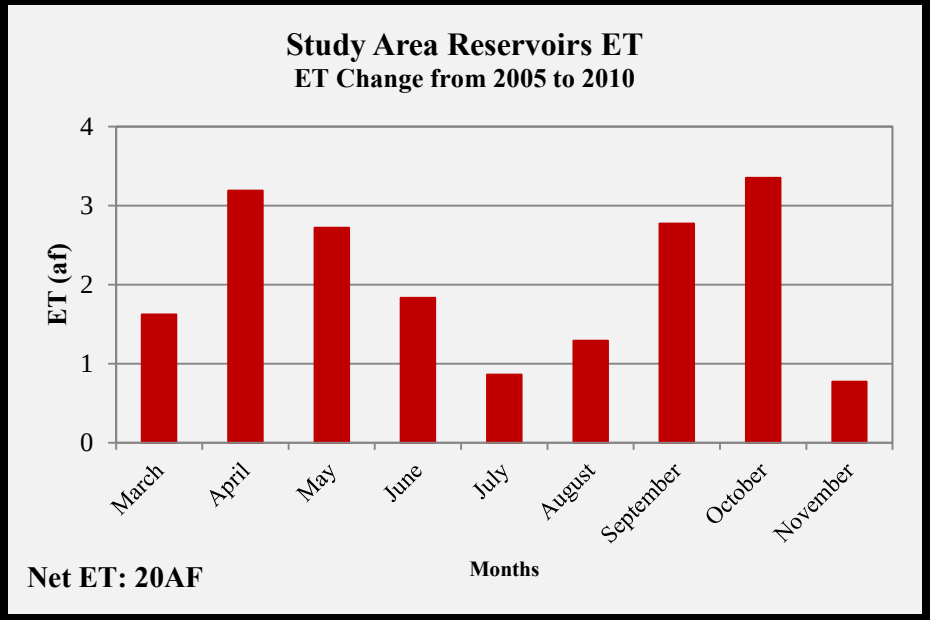
RESULTS

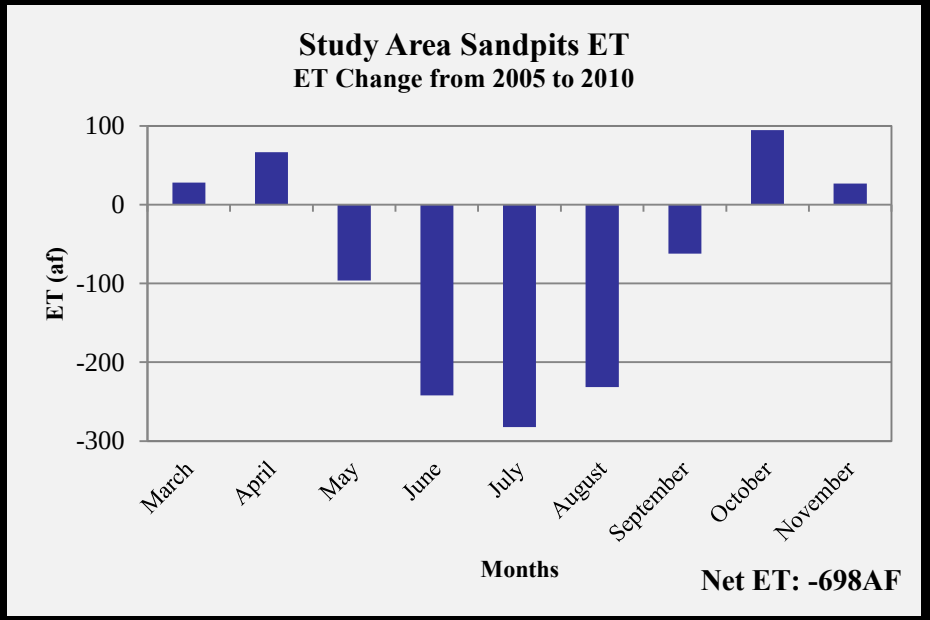
Results: ET Change 2005 to 2010





Results: ET Change 2005 to 2010

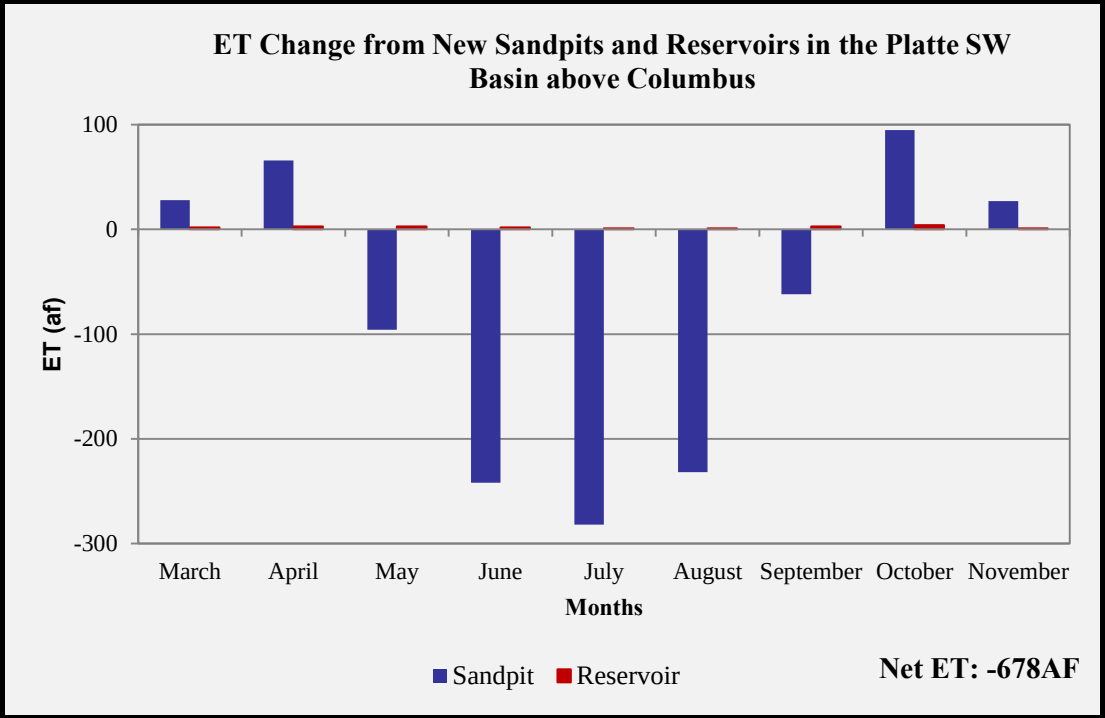




20af ET increase from new unpermitted reservoirs

698af ET decrease from new or expanded sandpits

Results: ET Change 2005 to 2010



Overall ET decrease of 678af per year from sandpits and reservoirs

Summary

- Used geospatial technologies and FSA imagery to identify small, man-made water bodies
- Developed procedure to identify new/expanded reservoirs and sandpits without offsets
- 747 acres of new reservoirs and new/expanded sandpits were identified
- Increase in ET during all months for reservoirs
- ET increase in non-irrigation months and decrease in irrigation months for sandpits
- Overall annual decrease of 678af in consumptive use via ET
- Nearly 2000 hours invested

Data Sources

- Digital Aerial Imagery: http://dnr.ne.gov/databank/DigitalImagery.html
- CALMIT 2005 Statewide Land Use Data: http://calmit.unl.edu/2005landuse/statewide.php
- UNL CSD Native Vegetation Data: http://snr.unl.edu/data/geographygis/NebrGISland.asp
- National Hydrography Dataset: http://dnr.ne.gov/databank/nhd.html
- STATSGO Soil Data: http://www.dnr.ne.gov/databank/statsgo1.html
- NRCS ET Areas: NRCS Consumptive Use Calculator – Evapotranspiration Calculations for Cover Types in a Non-Stressed Environment

Thank you

Nebraska
Department of Natural Resources

Amy Wright, MS
Integrated Water Management Analyst
Nebraska Department of Natural Resources