• The Pawnee Nation is in north-central Oklahoma.
• The reservation boundaries is in two counties, Pawnee and Payne.
• The reservation consists of 302,080 acres of which approximately 28,000 acres are in Trust.
Background

• 1997 established the Department of Environmental Conservation and Safety by passing the Environmental Regulatory Act.
• 1998 received TAS for the 106 program and began water quality monitoring program,
• 2003 submitted our 319 Assessment and Management Plan for review.
• 2004 received comments and re-wrote both the Assessment and Management Plan.
• At the same time EPA was reviewing and approved our Water Quality Standards.
• 2006 submitted revisions of the Assessment and Management Plan they were approved and we submitted a work plan for our first project for 2007.
Nonpoint Source Assessment

- Introduction
- Methodology
- Surface water Summary
- Monitoring Results
- Best Management Practices
- NPS Control Programs
- Conclusion
Nonpoint Source Management Plan

• Determined the NPS Pollution Categories within the Reservation boundaries and Watersheds.
  – Agriculture
  – Silvi-culture/construction
  – Resource Extraction
  – Education
Work Plan

• The overall goal of our project is the implementation of the NPS Program to protect and restore water quality, watershed conditions, wetlands, aquatic and riparian habitat within Pawnee Indian Country.

• The objective is to integrate the NPS Program into the overall environmental program for the protection of the natural resources.
NPS Projects

• Riparian Restoration
  – Replanting native trees in the riparian

• Bacteria Source Tracking
  – Identify source of Fecal Coliform in Black Bear Creek

• Watershed Management Plan
  – Develop management plan for Black Bear Creek

• Ongoing resource extraction management

• Outdoor Classroom – Environmental Education
Riparian Area Restoration

- Identified multiple areas where the riparian area has been diminished due to agriculture activities or natural.
- Planting of the trees will assist in both the erosion and nutrient control.
- Education and outreach to the land users
  - Land users used as cost-share
Challenges

- Locating trees
- Initial large spring rainfall and flooding events during spring and early summer now drought conditions.
- Up-stream flood control lakes slowly releasing in the Creek maintaining high flows for an extended period of time.
- Cooperation of land owners and users.
Bacteria Source Tracking

- Tool used in the identification of the source of fecal coliform presence.
- Method used – Ribotyping: genetic fingerprinting to match in-stream bacteria with the sources in the watershed.
- Coordinated with the Oklahoma State Dept. of Agriculture Water Quality Laboratory.
- Five sites were chosen in the Black Bear Creek Watershed.
Bacteria Source Tracking

• Samples were collected and sent to the Lab for processing.
• Results indicated that 19 isolates or colony forming units (CFU) were selected for Ribotyping with 42% of the samples matching known sources.
• Eleven of the source matches included septage (human) and cattle.
Bacteria Source Tracking

- Sample sites included areas downstream and upstream the City of Pawnee and Pawnee Nation Campus. As well as three rural sites.
Bacteria Source Tracking

• Information gathered from this project was shared with both USEPA and OK Conservation Commission.
• This has led to a planned inventory of rural septic systems.
• City of Pawnee has since upgraded their waste water treatment plant.
• Results used in the Black Bear Watershed Management Plan.
Black Bear Creek Watershed Management Plan

- Black Bear Creek is a primary watershed in the Reservation
- Consists of 424,320 acres in north central Oklahoma
- The Lower portion of the Watershed is within the Reservation
Watershed Management Plan

- Began development in 2010 under the base grant
- Partnered with the University of Arkansas for data collection and GIS
- Developed a 9 element plan identifying:
  - Causes and sources,
  - Load reduction estimates,
  - Management measures
  - Technical and financial assistance identification,
  - Education,
  - Implementation schedule,
  - Interim measurable milestones,
  - Criteria for loading reductions,
  - Monitoring
Watershed Management Plan

• The plan was submitted to Region 6 and returned and not accepted due to insufficient modeling.

• The NRCS utilized the plan knowing its status with USEPA in identifying Oklahoma watersheds for the National Water Quality Initiative.
  – Panther Creek and Oak Creek
Current and Future Progress

• Continue riparian restoration project.
• Resource extraction – working with and inspecting oil and gas activities.
• Providing public education on NPS issues.
• Further develop Septic System database.
• Revise and update the Watershed Management Plan.
Thank You

• Contact information:
  • Kelton Kersey
    – P.O. Box 470, Pawnee, OK 74058
    – 918-762-3655
    – www.pawneenation.org