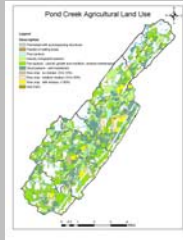
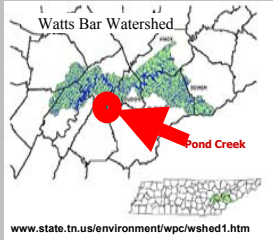


Experiences of Watershed Management Plan Development in Tennessee

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Background: Pond Creek Watershed



Pond Creek is an agricultural watershed in Upper East Tennessee. It is part of Watts Bar watershed (HUC 6010201). Land use is typical of the ridge-and-valley region, dominated by pasture based beef and dairy operations: 55% pastures (12,880 acres), 7% row crops (1,558 acres) row crops, 26% forest (6,135 acres). Total 23,579 acres.

Water Quality: segments listed on 2004 and 2006 303(d) lists (7.2 miles of Mud Creek, 7.3 miles Greasy Branch, 21.1 miles Pond Creek). Impaired for nitrates, *E. coli*, habitat alterations due to pasture grazing, livestock in stream and animal feeding operations (Tennessee Department of Environment and Conservation, 2006).

In 2005 the state developed a total maximum daily load (TMDL) budget for pathogens for Watts Bar watershed. To meet water quality goals, the TMDL calls for a 99.1% reduction in pathogens in Pond Creek.

With funding from the Tennessee Valley Authority (TVA), the University of Tennessee Extension developed a watershed restoration plan in 2006. The plan was approved in September 2006.

Pond Creek Watershed Plan Development

1. Conduct land-use inventory

Aerial photos and photo interpretation by TVA 2001 to 2003 - "Integrated Pollution Source Inventory" (IPSI)

2. Model soil erosion losses by parcel using land-use inventory, RUSLE 2

Fair, poor and over-grazed pasture:
 40% all land use and 52% of soil loss
Plowed fields:
 1.6% all land use and 11% of soil loss
Eroding stream banks:
 22% or 27 miles



3. Develop restoration goals

Reduce the amount of bacteria (sediments and nutrients) entering the creek

Infrastructure improvements

- Manage livestock access to creek
- Improve septic and manure systems
- Improve stream bank protection

Modify Practices

- Reduce erosion
- Intercept or reduce losses through runoff
- Improve septic and manure management

4. Stakeholder involvement / feedback

- Meetings and one-on-one discussions: UT Extension, agencies, farmers
- Newsletters; 2007 BMP Calendar
- Demonstrations: visible locations
- Development of website – plan available



Summary of Recommendations

- Relocate 50% livestock away from stream
- Install 25ft buffer on 50 % of stream banks
- Repair 9% of septic systems
- Install waste storage facilities for 50% of local livestock

Expected Result: 71 % reduction in bacteria entering the water – not 99% in TMDL!

Future Challenges

Implementing BMPs – do they make economic or practical sense? Will they work?

Working through multiple agencies

Funding: for personnel, materials, monitoring



Selection of BMPs – fences and buffers do not work underwater!



Designing and paying for animal waste systems – is this system working?

Visit us at <http://pondcreek.ag.utk.edu/>

