

Overview

The UT Institute of Agriculture intends to launch a research initiative on its Forest Resources AgResearch and Education Center in Morgan and Scott counties to investigate the impacts of natural gas and oil extraction. The fact-based, scientific investigation will seek to answer critical research questions about groundwater, wildlife, soil disturbance, shale, and flora and fauna. Data gathered from these studies and conclusions drawn would allow the development of gas extraction best management practices that could be applied to other operations in the state and region and would add to the body of knowledge in this area. The project will provide science-based facts for the scientific community, regulatory agencies, environmental groups and citizens, and the industry.

Areas of investigation will include:

- **Water Quality:** Can extracting oil and natural gas through the process called fracking contaminate groundwater? What are the biological and physical properties of soils that make them more resilient or sensitive to disturbance caused by drilling operations?
- **Geological:** What is known about geology of the petroleum systems in the region? Is there potential for microseismic activity associated with drilling and extraction activities?
- **Air Quality:** What are the impacts of gas and oil development on ambient air quality?
- **Terrestrial Ecosystems:** What are the ecological impacts of constructing above-ground infrastructure related to oil and gas extraction in the region? What are the impacts of activity associated with extracting gas resources (i.e., trucks traffic, noise, pollution)? Are remediation and restoration activities necessary after extraction is complete?
- **Best Management Practices and Community Education:** What sedimentation and erosion control practices are most effective in limiting impacts from service/access roads? What are appropriate drill head seal and casing grouting practices? How can information about shale gas operations be best shared with the community?

This initiative is directly related to the university's mission of teaching, research and outreach:

- Graduate and undergraduate students will be involved in research studies in this outdoor, real-life laboratory
- Data gathered will lead to comprehensive research in an area of knowledge where little is known
- Findings will be shared through scientific publications and Extension outreach with landowners, citizens, governmental officials and industry

The initiative also is aligned with the Forest Resources AgResearch and Education Center's mission to:

- Provide the land and supporting resources necessary for conducting modern and effective forestry, wildlife, and associated social, biological and ecological research programs
- Demonstrate the application of optimal forest and wildlife management technologies
- Assist with transfer of new technology to forest landowners and industries

Use of the Cumberland Forest as a research, teaching and demonstration resource falls within the scope of managing natural resources in the real world of competing needs and opportunities. The UTIA's AgResearch system will lead the investigation, and the research will be conducted on the Forest Resources and AgResearch and Education Center site; however, this initiative will involve disciplines from across the University, with financial support and subject matter expertise from the successful industry collaborator.

If you have questions about the proposed research plan you may email gas&oil@tennessee.edu
