

# USGS NSF GRIP Opportunity

<p><b>USGS Center:</b></p>	<p>Patuxent Wildlife Research Center</p>
<p><b>Project Title:</b></p>	<p>Terrestrial wildlife and unconventional oil and gas development: high volume horizontal drilling</p>
<p><b>Project Hypothesis or Objectives:</b></p>	<p>The goal of this research project is to determine whether recent developments in unconventional energy extraction may be putting resident terrestrial wildlife at risk of decline.</p> <p>Objectives:</p> <p>Assess impacts of habitat changes related to the location of unconventional gas extraction, and the physical infrastructures associated with active and no longer used or plugged high volume fracking combined with horizontal or directional drilling (HVHD) facilities.</p> <p>We propose to identify potential direct effects on resident wildlife, primarily amphibians, from the construction and new and extensive road traffic associated with HVHF of methane extracted from shale.</p>
<p><b>Duration:</b></p>	<p>12 months</p>
<p><b>Internship Location:</b></p>	<p>Beltsville/Laurel Maryland</p>
<p><b>Area of Discipline:</b></p>	<p>Life Sciences (herpetology, ecology), Ecotoxicology</p>
<p><b>Expected Outcome:</b></p>	<p>The benefits to the intern is that he/she will be learning the methods for preparation and conducting a field survey, collecting the data to address an unknown set of questions related to amphibian conservation, and participate in the analyses and write up for a peer reviewed publication. Given the worldwide economic interest on alternative energy development, studies are ongoing on the potential effects from air, water, and soil pollution on human health but to date there have been few studies on effects directly related to the “fracking” process for extracting oil or gas on wildlife. Recent models have called attention to the lack of field data and real potential harm to wildlife, particularly terrestrial species of concern. This survey will assist in defining a range and source for potential effects, if any, of unconventional energy development processes, to resident terrestrial wildlife.</p>

- **Special skills/training Required:** Larvae/tadpole trapping methods will be dependent on source and depth of water way, but may incorporate one or more methods (e.g., dip netting, pipe sampling, and leaf litterbags). Intern should have some knowledge and interest in herpetology and the ability to conduct field work, hiking to remote locations, and collecting data over long periods of time. Some work may involve overnight travel to the sites. Intern should be comfortable working independently as well as within a group as some of the field work will include volunteers, when possible.
- **Duties/Responsibilities:** Assist in selecting sites based on mapping of drill pads and proximity to amphibian habitats; assist in conducting surveys on roadways extending out from the operation center, during which data on wildlife crossings and road kills (if any) incidences, identification, and relative distribution of species present within a set distance and within set hours are collected. To address the critical early development life stages, surveys will be conducted within streams, ponds and/or wetlands closest to and further from each operation. If natural substrates or logs are present within 4 m of the road, these will be overturned to check for amphibians. If no natural substrate is available, intern will be responsible for distributing a series of boards and checking for amphibians. Following the field season, intern will assist with metadata and data management, statistical analyses, and manuscript preparation.
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