



The Wildlife Society Pennsylvania Chapter

Position Statement on Marcellus Shale Gas Development In the Appalachians and High Allegheny Plateau

New technological advancements in recent years have allowed natural gas extraction companies to efficiently and economically access the vast reserves of natural gas found in the Marcellus Shale region of the Appalachian Basin. Since 2003, when the first experimental Marcellus well was drilled, Pennsylvania has begun to see an exponential growth in the number of wells emerging across the state. In 2009, drilling was occurring on 630 wells and by January 2010, the number of active drilling permits had increased to over 2,500. The extent of drilling is not only affecting thousands of private forestland parcels, but over 692,000 acres of more contiguous public state forestland have also been leased.

This rising rate of gas development is of concern to wildlife managers and biologists. This is because of the potential for: 1) direct loss of terrestrial and aquatic habitats (esp. core interior habitats), 2) increased fragmentation of terrestrial and aquatic habitats, preventing gene flow and reproduction of wildlife populations, 3) introduction of barriers to dispersal for organisms such as amphibians, 4) increased risk of sedimentation and chemical contamination of streams and wetlands, 5) increased risk of chemical contamination of groundwater, 6) increased noise, light and other pollution, 7) a spread of invasive plants, pests, and pathogens into native habitats, 8) increased densities of habitat generalists such as opossums, raccoons, skunks, great horned owls and white-tail deer, and 9) increased human access & disturbance, potentially leading to increased conflict and wildlife road mortality.

If the 1990's gas development scenarios of the Rocky Mountain states are an indicator of what Pennsylvania could expect, significant landscape level changes may occur throughout the areas being developed, including several priority core and interior forests. In the first decade of the gas boom of the Rocky Mountain states, experience and scientific studies in Canada and the U.S. have shown that the management approach using stipulations to reduce impacts may not fully protect wildlife and habitats and is inadequate for the sustained conservation of wildlife resources. In addition, the intensity of development has transformed not only biological systems, but the communities and lives of the residents and people who travel there for recreation. Reductions and alterations in quality and availability of wildlife habitats affect not only wildlife, but also outdoor recreation opportunities in the area (e.g. hunting, wildlife-watching, etc.). This is significant because the Marcellus development will disturb some of Pennsylvania's most valuable core interior forests and affect the recreation in the region's most prized outdoor tourist and hunting destinations, such as the "Pennsylvania Wilds." By impacting Pennsylvania's most prized outdoor recreation locations, Marcellus development could negatively impact an economic engine that can sustainably support Pennsylvania communities for generations. And while one gas development project may not completely extirpate a species or habitat, the cumulative impacts across the vast geographic extent of the Marcellus region could be devastating to a variety of communities.

The shallow gas development in northwestern Pennsylvania (in and around the Allegheny National Forest) may also indicate some issues that could be anticipated. With an increase in oil prices, the Allegheny National Forest experienced an exponential increase in shallow gas development. This rapid development, with minimal planning and foresight, allowed for ineffective transportation planning and subsequently high rates of traffic accidents which led to oil spills and water contamination. In addition, the rate of development with minimal planning led to extreme habitat fragmentation, noise/light pollution and air quality concerns.

Current management of these energy projects is not achieving the intent of state land management policy and legislation. Furthermore, science related to energy management has not been applied in an effective manner. It is reasonable and socially responsible to manage energy projects on public lands in a manner that sustains fish and wildlife habitat and public recreation, and protects environmental and ecological values, including air and water quality, and provides for aesthetic considerations.

A variety of “best management practices” (BMP’s), such as minimizing road development and keeping well pads as small as possible, are used by some companies to limit impacts on wildlife. However, BMP’s are predominantly voluntary and do not currently provide adequate protection for wildlife habitat. In addition, none have been subjected to research to determine their effectiveness. Offsite, landscape scale habitat enhancement projects do not directly mitigate specific resource losses from energy projects and cannot take the place of stronger requirements for avoidance of resource damage before and during development. Complicating the management challenges facing wildlife professionals is the reality that pressures from outside sources impact the ability of these professionals to be effective and make decisions based on sound science. The scope of this modern gas and oil development surge is unprecedented and threatens to reduce 1) wildlife habitats and populations, 2) traditional uses of wildlife and their habitats, and 3) sustainable economic benefits upon which local communities depend (such as tourism, hunting, and fishing).

Energy development is clearly poised to have a powerful impact on terrestrial and aquatic wildlife in the Appalachians and Alleghenies. This is because Pennsylvania's current struggling economic situation is likely to lead to increased leasing of public lands. In addition, current policies pressuring agencies to expedite oil and gas leasing have greatly diminished the effective planning to minimize wildlife impacts at the field development stage. For this reason, the Pennsylvania Chapter of The Wildlife Society supports a 3-year moratorium on leasing additional public forestland for drilling. During this period, Best Management Practices should become State Law with enforcement and regulation delegated to DEP. BMP effectiveness monitoring should be studied and regularly conducted through funding provided by the state, gas extraction industries, or through monies derived from an extraction tax and administered from a vehicle such as “Growing Greener.”

Therefore, it is the position of the Pennsylvania Chapter of The Wildlife Society in developing the gas resources of the Marcellus Shale that:

1. Experience with development impacts on wildlife during previous oil and gas booms presents opportunities for improved management of the energy development process (from exploration to abandonment); these past experiences should be used as an educational

opportunity by responsible companies and agencies to minimize negative impacts to terrestrial and aquatic wildlife.

2. Adequate procedures to avoid and minimize impacts must be established as lease stipulations. These should include programmatic requirements that need to be met during well field planning and development (e.g. exclusion of activity during important amphibian migration; exclusion of roads and pads around sensitive habitats; protection of all aquatic habitats; determining best methods to mitigate soil compaction prior to any replanting, replanting of native vegetation (incl. tree species) upon reclamation using most effective technologies)
3. Early and continuing cooperation between state and federal agencies in land use planning and NEPA analysis is essential.
4. Pre-lease planning should include state-wide mapping efforts to identify areas of high importance to terrestrial and aquatic wildlife. These include: habitat required for populations of sensitive species to remain viable; crucial summer/winter ranges and migration corridors for fish, birds, bats, amphibians and reptiles; areas sustaining a high density of interior species; and those intact portions of the terrestrial and aquatic landscape without substantial habitat fragmentation. The mapping effort should also identify suitable areas to potentially serve as refugia for sensitive species, where drilling activities would be prohibited, and to maintain functionally contiguous habitats.
5. Pre-lease planning should also include a determination of proximity to "core interior forest." If the site occurs in core forest patches (Priority 1), every available effort should be made to eliminate all impacts to this landscape. If the site occurs in a priority landscape block (Priority 2), efforts should be taken to substantially reduce landscape impacts.
6. Federal and state agencies have the authority and mandate to require reasonable planning and mitigation measures that will minimize and avoid impacts to wildlife and sensitive habitats. However, the appropriate management practices (e.g. road placement, wetland buffers, stream protection, timing of activity, etc.) and planning considerations are not always being consistently or effectively applied. Protective measures (best management practices) should be required and specific to oil and gas development and mandated by State Law as needed to protect and sustain wildlife resources and mitigate unavoidable impacts. Oversight and enforcement of such measures is key to ensuring their effectiveness.
7. State wildlife agencies are encouraged to issue a formal, science-based finding (statement of record) at the conclusion of each resource management planning process, well field planning process, or permitting process that authorizes drilling. These statements should objectively describe whether each plan or the provisions of a drilling permit would adequately protect important wildlife resources affected by the proposed action and describe the impacts, particularly including cumulative impacts, anticipated as a result of the action.
8. Prior to developing a well site, a complete inventory of resources should be completed, including soils, geology, vegetation, aquatic resources, wildlife, and other environmental and ecological considerations, to provide a complete baseline for monitoring and to formulate mitigation.
9. The development process (from leasing to drilling, production, and abandonment) should be actively managed to achieve multiple uses of public lands and resources through a transparent adaptive process that includes a) scientific monitoring, b) evaluating monitoring results, and c) using monitoring and evaluation information to adjust well field operations to reduce impacts to wildlife.
10. Protecting wildlife values during development should follow Council on Environmental Quality (CEQ) Guidelines to a) *avoid* the impact altogether by not taking a certain action or parts of an action, b) *minimize* impacts by limiting the degree or magnitude of the

action and its implementation, c) *rectify* the impact by repairing, rehabilitating, or restoring the affected environment, d) *reduce or eliminate* the impact over time by preservation and maintenance operations during the life of the action, or e) *compensate for the impact* by replacing or providing substitute resources or environments.

11. Some unique Appalachian and Allegheny habitats, such as old growth pine-hemlock forests, pitch pine-scrub oak barrens, vernal pools, native brook trout habitats and crucial core habitats for interior species are difficult or impossible to replace when impacted by intensive oil and gas developments. The most effective way to mitigate Marcellus gas impacts is to avoid the impacts altogether, or to minimize them through planning considerations and operational management practices.
12. Additional long-term studies are critically important to improve our understanding of the impacts oil and gas exploration and development have on wildlife populations, and to understand whether specific mitigation measures are effective. In the future, agencies should base development decisions on the science that is the product of these studies.
13. In some areas, standard management practices have been or will be inadequate to protect important fish and wildlife resources from intensive Marcellus gas development, especially where multiple important habitats overlap. In these areas, special designations should be used, to assure surface management decisions are based on the most current sound science and resource information.
14. Because no current Best Management Practices (BMPs) address issues related directly with impacts of oil and gas extraction, a set of BMPs should be immediately written and enforced by the state protection and enforcement agencies, such as DEP, DCNR and the Pennsylvania State Police. These BMPs could be based, in part, on this position statement. Alternatively, an Inter-Agency Joint Task Force composed of PA's natural resource agencies (DCNR, DEP, PGC, PFBC) as well as representatives from independent entities (e.g. TNC, Audubon, sporting groups, etc.) could be established with oversight of Marcellus BMP development and implementation.