



# THE WILDLIFE SOCIETY

## FACT SHEET

## Oil and Gas Development in the Rocky Mountain Region



Pronghorn at the Pinedale Anticline natural gas field in Wyoming. Human development and infrastructure can displace wildlife and render habitat unsuitable for pronghorn and other species. (Credit: Theo Stein, USFWS).

The Rocky Mountain region plays a substantial role in meeting the growing energy needs of North America. The region also supports a variety of wildlife species. The five U.S. states - Colorado, Montana, New Mexico, Utah, Wyoming - and the two Canadian provinces - Alberta and British Columbia - in the region are experiencing ongoing oil and gas development which impacts wildlife in the Rocky Mountains and associated sagebrush habitats.<sup>1</sup>

Oil and gas development boomed in Colorado, Wyoming, and Alberta in the late-1970s through the mid-1980s. Direct loss of habitat, displacement of wildlife due to intensive human activity, and fragmentation from infrastructure raised awareness among wildlife professionals of the potential impacts energy development could have on wildlife. A second boom in the Rocky Mountain region began in the mid-1990s with more intense, larger developments.

Increasing development can cause reductions and alterations in quality and availability of wildlife habitats, affecting both wildlife and outdoor recreation opportunities.

**“As densities of well pads, roads, and facilities increase, habitats within and near well fields become progressively less attractive until most animals no longer use them.”**

- *Impacts of Crude Oil and Natural Gas Developments on Wildlife and Wildlife Habitat in the Rocky Mountain Region*. The Wildlife Society Technical Review, 2012.

### Impacts on Wildlife

Oil and gas development impacts wildlife by displacing them and increasing their exposure to human activities. Well pads, pipelines, and roads lead to habitat fragmentation, while heightened human activity increases noise pollution.

#### *Displacement*

Infrastructure for oil and gas development lead to habitat fragmentation and avoidance of the area by wildlife.<sup>2</sup> Species such as mule deer spend additional energy to avoid developed sites.<sup>1</sup> Research has shown changes in habitat selection of mule deer in Wyoming appeared to immediately follow development, and there was no evidence of the mule deer returning to sites.<sup>3</sup>

#### *Reduced Recruitment*

Avoidance of infrastructure from oil and gas development can lead to reduced recruitment for some wildlife. Sage-grouse have been documented abandoning reproductive habitats — lek sites — due to infrastructure from energy development. Research has shown that lek abandonment can lead to a decline in sage-grouse populations.<sup>5</sup> Of leks active in 1997 in the Powder River Basin of Wyoming and Montana, only 38% inside gas fields remained active as of 2004-2005, compared with 84% outside energy development areas.<sup>4</sup> The avoidance of developed areas by wildlife is a concern as more areas become developed in the Rocky Mountain region.

The energy development process can 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.



Greater sage-grouse habitat is threatened by oil and gas development in the Rocky Mountain region (Credit: USFWS).

### Mortality

Birds are also impacted by oil and gas development because they cannot distinguish natural wetlands from oil-covered pits from the air. These oil-covered pits kill an estimated 500,000 to 1 million birds per year in the U.S.<sup>1</sup>



A bird carcass found in an oil-covered pit. Uncovered waste pits can be harmful to wildlife that mistake them for wetlands habitat (Credit: Pedro Ramirez Jr./USFWS).

### Reducing Impacts

Standard management practices often do not adequately protect fish and wildlife resources when oil and gas is developed intensively. Management decisions based on current science and resource information is needed to reduce impacts to wildlife and habitats.

Best Management Practices (BMPs) are voluntary guidelines companies can follow to reduce impacts from energy development. BMPs, such as reducing roads and minimizing the size

of well pads, can limit habitat fragmentation, loss of habitat, and displacement of wildlife. Energy developers can also utilize closed containment systems for produced water or netting to exclude wildlife from oil-covered pits.<sup>6</sup>

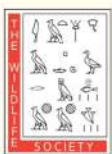
Reducing human presence on the production field is another way to reduce impacts to wildlife. A study in Wyoming showed that liquid gathering systems (LGS) can reduce indirect habitat impacts by humans and directly benefit wildlife such as mule deer. LGS involves piping the fuel rather than trucking it off site, thus reducing human-wildlife contact.<sup>7</sup>

Mitigation on developed sites is being attempted through restoration of native vegetation. However, unique Rocky Mountain habitats, such as native shrub ecosystems, winter ranges for big game, and sage-grouse leks are difficult to replace when impacted by intensive oil and gas developments.<sup>1</sup>

Strategic planning is a method to reduce impacts to wildlife where land is leased in a structured, organized manner over time. A landscape approach examines larger areas to identify natural resource conditions and trends, human influences, and opportunities for resource conservation, restoration, and development that may not be evident when managing smaller, local land areas.<sup>8</sup> When land is leased in a random manner rather than strategically, greater impacts to wildlife are likely to occur.<sup>1</sup>

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6 Ramirez, P. Jr. 2002. Oil field produced water discharges into wetlands in Wyoming, U.S. Fish and Wildlife Service, Ecological Services, Wyoming Field Office, Cheyenne, USA. <<http://www.fws.gov/mountain-prairie/contaminants/papers/r6718c02.pdf>> Accessed 4 Nov 2014.  
7 Sawyer, H., M. J. Kauffman, and R. M. Nielson. 2009. Influence of well pad activity on winter habitat selection patterns of mule deer. Journal of Wildlife Management 73:1052-1061.  
8 Bureau of Land Management. 2014. The BLM's Landscape Approach for Managing Public Lands. <[http://www.blm.gov/wo/st/en/prog/more/Landscape\\_Approach.html](http://www.blm.gov/wo/st/en/prog/more/Landscape_Approach.html)> Accessed 14 Nov 2014.



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