Galisteo Basin Oil and Gas Development

Wildlife and Habitat Fact Sheet

Galisteo Basin Species of Concern

Much of the Galisteo Basin (Basin) is part of the Southern Shortgrass Prairie Ecoregion. Key habitats identified in the Comprehensive Wildlife Conservation Strategy for New Mexico include significant areas of Western Great Plains Shortgrass Prairie and Riparian habitats. Important perennial stream systems that occur within the Basin include the Galisteo River and San Cristobal Creek.

Pronghorn require large expanses of unbroken grasslands.

The Biota Information System of New Mexico (BISON-M) database identified 285 species of vertebrates that are known or expected to occur within the Galisteo Basin of Santa Fe County. These include 24 species with a federal or state status of Endangered, Threatened, Candidate (or under investigation for listing), or Species of Concern/ Sensitive.

Following is a list of selected Species of Greatest Conservation Need identified in the *Comprehensive Wildlife Conservation Strategy for New Mexico* that could potentially be adversely affected by oil and gas field development in the Basin. Species with an asterisk (*) indicate species of particular concern: *ferruginous hawk, golden eagle, *burrowing owl, scaled quail, *mountain plover, *long-billed curlew, pinyon jay, juniper titmouse, loggerhead shrike, Baird's sparrow, *Gunnison's prairie dog, *pronghorn antelope, *mule deer, black bear, and spotted bat.

Examples of how these species could be adversely affected include:

- Raptors may temporarily or permanently abandon their roosting area or nests in response to disturbance. Ferruginous hawks and golden eagles are especially sensitive to human activity.
- A study of mule deer on the Pinedale, Wyoming gas field, located in critical winter range, has documented a 46% population decline after 4 years of development, compared to no significant change on the control area.
- Depending on accessibility to waste pits by wildlife during drinking or foraging activities, oil and gas development may also adversely impact bat species such as the spotted bat (state threatened) and possibly 12 other bat species that could occur in the Basin.

Habitat Loss and Fragmentation

The largest single threat to wildlife globally is direct habitat loss and fragmentation. Fragmentation reduces large blocks of continuous habitat into smaller fragments surrounded by barriers to movement, such as roads, developments, or degraded habitats. Smaller blocks of habitat become fundamentally different environmentally from the large continuous habitats shaped by natural disturbances that species have adapted to over evolutionary time. Increased predation, competition for limited resources, and the loss of genetic diversity can all be associated with habitat fragmentation. Consequently there is increased potential for loss of populations due to catastrophic events such as disease or wildfires, and population declines in species that are sensitive to human disturbances or otherwise dependent on large blocks of habitat.

Oil and gas development typically requires construction of extensive road, pipeline, and powerline networks and other infrastructure, which will reduce and fragment wildlife habitat. Examples include:

- Direct habitat loss: Roads remove two acres of habitat per mile of sixteen-foot-wide road;

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- Loss of useable habitat for mule deer, pronghorn, ferruginous hawks, and other species from noise and visual disturbance from roads and associated traffic. Repeated human disturbance or harassment of big game populations on crucial winter ranges can change activity patterns, increase predation, reduce access to resources, and increase energy expenditures necessary for survival. Nesting neotropical migrant songbirds have been documented to suffer declines in reproductive rates near heavily traveled roads due to increased noise;

Burrowing owls are prone to collision with vehicles at night.

- Increased road kills due to oil and gas related traffic can occur, which along with habitat loss, fragmentation, and disturbance, could be significant enough to directly impact local big game population viability;
- Trenching for pipelines can trap or injure wildlife;
- Powerlines can electrocute perching hawks and eagles;
- Well pads cause direct habitat loss of up to 5 acres per pad;
- Compressors or pump stations can cause persistent noise that interferes with wildlife reproduction and movement;
- Open by-product containment pits, ponds, and lagoons may contain materials toxic to wildlife such as salts and petrochemicals. These substances are hazardous to wildlife due to the potential for ingestion, loss of insulation from oiled fur or feathers, and contamination of embryos through eggshells. Even ponds or tanks containing clean water can trap small animals if lined with plastic and not sufficiently fenced;
- Weedy plant species can spread in disturbed areas along roads and pipelines and cause detrimental effects to native plants and wildlife.

Ferruginous hawks are especially sensitive to human disturbance.

Western Governor's Association

Recently, a regional effort was begun by the Western Governor's Association and western states' wildlife agencies to identify "crucial habitats" and "corridors" for a suite of species. One goal of this initiative is to avoid, reduce or mitigate the consequenses of oil and gas development to wildlife. Within the Basin, crucial habitats were identified for burrowing owl, long-billed curlew, black bear, mule deer, and pronghorn. Wildlife corridors were identified for mule deer and black bears.

References

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