WILDLIFE MANAGEMENT GUIDELINES FOR OIL & GAS DEVELOPMENT
June 2006[1]

The undersigned organizations urge that the U.S. Bureau of Land Management (BLM), the U.S. Forest Service (USFS), and the Colorado Oil and Gas Conservation Commission (COGCC) apply the following guidelines for minimizing impacts to air and water quality and fish and wildlife resources before and during oil and gas development.

Colorado is renowned for its awe-inspiring natural landscapes, its abundant fish and wildlife resources, and the diverse cultural and traditional heritage associated with these natural resources. In addition to many non-commodity benefits, these resources generate billions of dollars in recreation revenue and positive spillover effects for Colorado's economy. While oil and gas development offers benefits and helps address our nation's energy needs, such development can negatively affect Colorado's fish and wildlife habitats and its sensitive lands and natural landscapes, potentially resulting in extensive and enduring damage to those highly valued natural resources.

Accordingly, the first step of mitigation sequencing as prescribed by the Council of Environmental Quality and several other Federal agencies is to take every reasonable step to avoid impacts to important resources. In addition, decision makers in the aforementioned agencies should recognize that some fish and wildlife habitats are so important, sensitive, and/or irreplaceable that they should not be leased for development or at least not subject to surface disturbance.

When a determination is made after public input that certain lands are appropriate for energy development sites, we request incorporation of these guidelines into all phases of future land and resource management planning and decision-making, including selling of leases, approval of applications for a permit to drill (APDs), preparation of plans, and analysis of environmental impacts.

1. Maximize the distance between pads used for downhole drilling, and maximize the use of directional drilling, based upon the best available technology. The Colorado Oil and Gas Conservation Commission (COGCC) should determine the appropriate spacing of the downhole drilling in a particular area, not the companies applying for drilling permits. Whatever the pad spacing selected, minimize the length and environmental impact of new roads constructed to service well locations, and utilize existing roads to the maximum degree possible. The total area of each pad should be restricted to the least amount of acreage required to drill the wells planned for that pad. The overall goal is to minimize habitat destruction and fragmentation and to avoid development in sensitive places through siting pads, roads, pipelines, and structures where they will do the least damage.

[1] This version of these guidelines was finalized and released by the Colorado Mule Deer Association and the Colorado Wildlife Federation in July 2005 and was based on a set of 17 guidelines originally prepared by the CMDA in response to the Draft EIS/RMP for oil and gas development on the Roan Plateau.

For example, if technology will enable a given unit of land (e.g., 640 acres) to be directionally drilled from one well pad in a manner that will result in effective recovery of most of the hydrocarbons, then 640 acre surface spacing should be required. By using the largest possible surface spacing, the surface impacts would be greatly reduced. If an operator uses 10 acre down hole spacing and vertical wells without directional drilling, 64 well pads are required per section. With 640-acre surface spacing, only one pad would be required. The number of access roads and pipelines also would be reduced accordingly. If only one pad is developed per section, that pad will need to be larger than normal in order to accommodate the number of wells, but the net impacts on people, the land, and on wildlife also will be greatly reduced. The net acres disturbed will be less than half what would normally be disturbed. It would even be feasible to have two rigs drilling at one time on each pad, thus reducing the total length of time needed to drill out each section. We also recognize that there might be instances where a longer length of roads may actually provide better protection for the natural resources, but in those instances the comparative benefits must be documented.

There will be situations where topography, geology, or ownership boundaries preclude using the widest possible surface spacing. The leasing agencies have the capability to determine what should be the widest practicable pad spacing that will minimize surface disturbance. However, in order to meet their environmental mandates, the leasing agencies should select the surface spacing that will be the maximum that can be fitted to the onsite situation. Computer technology presently exists that that can overlay numerous templates and then pick the location that meets the various environmental and geological restrictions for siting a well pad. If industry wants to go to a smaller surface spacing, their reasons must be submitted in writing to the leasing agency involved for its review and approval, and the agency's decision should be made in public with an opportunity for public input. Consideration of industry's reasons should be carefully balanced against the potential adverse impacts associated with additional disturbance of habitat and wildlife.

While directional drilling may initially be more costly than vertical drilling, directional drilling provides many opportunities to reduce other costs. Following are a few examples:

- Busing or van transportation of crews will be facilitated, and truck traffic will be greatly reduced along with required dust suppression.
- There is no administrative down time for the rig while on the location.
- As soon as the well pressure falls below pipeline pressure, a compressor station is required to move the gas. Thus, the number of required compressor stations is reduced.
- The miles of electrical transmission lines are reduced.
- Costs for pad and access road construction are reduced.
- It becomes feasible to pipe drilling water to the pad, and water re-use systems can be installed.
- Computer operations can be more efficiently installed, reducing the number of operators and onsite visits that are required.

Where existing leases have intermingled ownership of small acreages, the COGCC would have to administratively work out arrangements where one company could drill out all the leases from one surface pad.

2. The BLM and Forest Service (USFS) should set the number and location of active drill pads within a Geographical Area Plan (GAP) boundary after formal consultation with the Colorado Division of Wildlife (CDOW). On private land, after obtaining biological input from the CDOW, the COGCC should work with the affected landowners in siting the drilling locations and in managing the number of active drilling locations.

The formal consultation between the CDOW and the BLM and USFS should result in selecting the number of active pad locations allowed at any given time within a GAP. The number should be based upon identified important fish and wildlife habitats such as breeding areas, migration routes, streams with native fisheries, and big game wintering areas.

Timing restrictions are perceived by the industry as a major problem when they are trying to figure out where and when to schedule drill rigs. Reducing the number of active surface drilling locations and requiring completion of all wells on each active pad before activating a new pad can reduce the surface disturbance, traffic and habitat fragmentation, thereby eliminating the need for timing restrictions, provided the spacing and other requirements of these Guidelines are met. If drilling is concentrated on limited locations, wildlife can more readily habituate to its presence and the drilling can continue until all wells planned for the stated downhole spacing have been completed.

However, timing restrictions can only be waived after implementation of this Guideline and Guidelines #1 and # 4. Furthermore, the state wildlife agency must concur in writing that timing limitations are not warranted for protection of seasonal wildlife habitat needs (e.g., deer wintering habitat) on public land. If travel corridors and other important habitat for federally listed threatened or endangered species are involved (e.g., Canada lynx), assurances of no adverse effects must be obtained from the U.S. Fish and Wildlife Service as well. Use of these habitats by species that are candidates for listing under the Endangered Species Act and species designated by the state as being of special concern also should be taken into account when making such decisions.

3. Where large blocks of public land will be leased, sell the new leases in blocks that coincide with the objectives of maximum practicable surface spacing and minimization of surface disturbance and habitat fragmentation. This will facilitate drilling without violating lease boundaries.

Each leasing area may be composed of several drilling blocks. For example, if the drilling block is 640 acres, then only one surface drill pad should be allowed on that block, but there could be several drilling blocks grouped into a contiguous lease. While one block is being drilled out, the next pre-selected drill pad could have all of the

necessary clearances done in advance of development. Since the pad sites could be pre selected before leasing, all necessary environmental impact analyses could be completed and reported in an applicable NEPA document. This would allow moving the rig onto a new location with minimum down time due to moving.

4. To shorten the time of on-going disturbance, once drilling has started on a surface pad, drilling should continue on that pad until all wells needed to recover the hydrocarbons from that pad have been drilled. The practice of industry drilling a few wells now and then later returning to drill more wells on that pad should not be permitted.

Currently companies step out and drill a new well some distance from the nearest producing well in order to gain a better picture of potential production over a large area. Infill drilling often follows later. This approach greatly prolongs the disturbance and inconveniences (e.g., traffic and noise) of wildlife on public land and homeowners on private land before reclamation is completed. The prolonged harassment of wildlife can affect population behavior and ultimately their numbers.

On public lands, the GAP should state what downhole spacing is allowed for that unit. Downhole spacing should to be determined according to the requirements of federal and state laws and regulations.

When seasonal stipulations restrict drilling activities on a lease, waivers should be subject to approval by the CDOW and public review as provided for in BLM regulations. As noted in Guideline #2, such waivers should be denied where CDOW or USFWS object.

5. Require the implementation of all applicable Best Management Practices (BMP) utilizing best available technologies to minimize and mitigate surface habitat and groundwater impacts in the area being drilled. Operators should be required to significantly improve their application of such BMPs as technologies advance. This should include preplanning of pipeline system that will serve all well pads during both well development and production.

Currently most BMPs are voluntary, but they are very important. For example, pipelines should be constructed in access roads to minimize disturbance. During the preplanning phase for a given GAP area, a pipeline system should be designed that will service all wells planned for construction within this GAP. Furthermore, the pipeline system should be designated and used for the conveyance of drilling water and all produced liquids. The pipelining of water will greatly reduce the cost of drilling fluids and reduce the volume of truck traffic. If leasing and drilling were required to be accomplished in a systematic order across the planning unit, the water distribution system could be designed to maximize its use. After completion of its use for water, the same pipeline could be used as a production line, providing further cost savings and resulting in more efficient use of the land. Alternatively, the water line could be laid in the same trench as the product lines and buried. If they wish to deviate from this requirement, a company must

demonstrate in writing to the applicable leasing management agency that it is cheaper and better for the environment to haul the water.

Erosion and polluted runoff from oil and gas operations must be controlled. All Storm Water Discharge Permitting Regulations and BMP's currently required by the State of Colorado must be strictly complied with, particularly when streams may be affected. Adequate buffers of at least 500 feet must be maintained for all stream riparian areas. If these areas are currently degraded, cooperative efforts should be undertaken to restore them to healthy and functional riparian systems. Sediment input levels must not be increased above baseline conditions, especially if sensitive fish populations are involved. State of the art measures must be employed to control noise, lighting, and traffic to levels that are acceptable to the nearby homeowners and that minimize impacts to wildlife (e.g., sage grouse booming grounds).

To minimize disturbance to wildlife, roads should be closed and reclaimed as soon as they are no longer needed. Company roads should be gated and property fenced to preclude unauthorized use by cars, trucks, and all terrain vehicles.

6. The Director of the Department of Natural Resources, with the cooperation of the federal leasing agencies, should immediately assemble an interagency technical review team. This team will be responsible for reviewing plans proposed by the industry to gather baseline data, conduct field research, and monitor the effects of their development. The team will review plans for applicability and technical adequacy, and provide recommendations to industry concerning how to improve their data collection. The oil and gas industry should be responsible for funding the efforts to gather baseline data and to monitor the effects of concentrated drilling and development on surface and ground water, air quality, vegetation (including noxious weeds) and selected fish and wildlife species and their habitats.

With regard to air and water quality, the use, disposal, and movement of all listed hazardous chemicals should be tracked, recorded, and reported to the Department of Natural Resources for private land and to the BLM for public land.

The interagency team should review the parameters of the proposed research and monitoring plans to ensure that they are scientifically sound. At a minimum, the interagency team should have representatives from the Colorado Air Quality Control Commission, Colorado Water Quality Control Commission, Colorado Oil and Gas Conservation Commission, Colorado Geological Survey, Colorado Division of Wildlife, a representative of the affected county or counties, a liaison to the Governor's office, U.S. Forest Service, and the Bureau of Land Management. At a minimum, the team should provide biannual reports to the public on their activities and findings.

This peer review should ensure that the stated level of sampling is statistically valid and that the monitoring plan utilizes a standard experimental design. The baseline data and monitoring are needed to determine the levels of drilling impacts to existing resources and to determine any mitigation or remedial action that is needed. By implementing the

aforementioned state-of-the-art drilling technology, an ecologically sound leasing plan, and a scientifically valid monitoring plan, mitigation can be planned far enough in advance to offset many impacts before or concurrent with the drilling. This approach is preferable to off-site mitigation that is implemented after initiation of development because such mitigation often does not effectively replace the onsite habitat functions and values that are degraded or destroyed.

BLM has several legal and policy mandates requiring them to implement an effective monitoring plan (e.g., 43 CFR and BLM Handbook H-1601). Furthermore, such a plan is necessary to determine whether enforcement of the provisions of the resource management plan (RMP), Clean Water Act (CWA) and the Clean Air Act (CAA) is adequate. RMPs should establish the steps that BLM will take to complete a region wide analysis of air quality impacts. Section 401 of the CWA requires BLM to secure certification from the state that they have complied with state water quality standards prior to the authorization of major federal activities on public land.
While the oil and gas industry is exempted from all or parts of the CWA, CAA and the hazardous materials act, the BLM, USFS, and COGCC currently are not. There are numerous additional provisions that require the BLM to control and monitor the use of chemicals as well as spills, cleanup and mitigation plans. See, e.g. 43 U.S.C. 1732(B); 43 C.F.R. 3162.4-1(A), 3162.5-1(C)-(D); Onshore Oil and Gas Order No.1, III.G.4.b. (7). See also Executive Order No. 13016 and BLM Manual MS-1703. Since these public agencies permit the activities of this industry, they are still bound by these laws and must be held accountable.

7. Immediately initiate a study to determine the effectiveness and longevity of cementing in abandoned well bores.

The BLM, USFS, and COGCC should cooperatively develop and conduct a study that will evaluate previously abandoned wells in order to develop a model that will predict the long-term effectiveness of current abandonment techniques, including the effects on underground aquifers and the potable groundwater supply over time. The estimated life of cementing a well is 25-50 years when air is present. The current assumption is that, if the well bore is adequately cemented and capped, the lack of air in the well will stop all deterioration and greatly extend this time frame. If this is true, then there is no problem. If this is not the case, after time the cement will break down into sand, leaving an open bore if it has not collapsed. It is important to establish if this scenario could result in the pollution of any ground water aquifers. This is a very important question for areas where water supply is critical for the human residents and for wildlife.

The above agencies should consider requesting the National Academy of Sciences, the Interstate Oil & Gas Conservation Commission, or the National Research Council to conduct this study. This is an important question because of the very significant potential consequences on our region's ground water supply.

8. Implement a reclamation guarantee system that follows a well regardless of its ownership. This will ensure that sufficient funding is available to plug and abandon the well, to re-contour and reclaim the disturbed surface to as near its original condition as possible according to state law, and to establish viable populations of native plants. In cases where industry pays a mill levy to the state based upon production, provisions must be made to ensure that these funds remain available for the entire productive life of the wells for reclamation of drilling pad and road impact areas, and abandoned wells.

This guarantee must include any changes of ownership of the well during its active life. There are several Federal regulations that require this type of resource protection. See, 30 U.S.C. 226(f) and 43 C.F.R. 3104.1(a), 3104.5, 3106.6-2.

One reason such a guarantee is so important is that it is common practice when well production declines to a marginal economic level to sell the well to small companies and individuals who try to make a living off of the very low production output. The problem is that the cost of plugging and reclamation of these wells could very likely be beyond the means of a small company or individual, especially when several wells are involved. The cost of reclamation can become very expensive or impossible in broken terrain with steep slopes. Cut material is commonly side cast and it becomes almost impossible to bring this material back up to the cut area. On steep slopes with large cut slopes, the cost of stabilizing and re-vegetating this material can quickly exceed the salvage value of any equipment from the well. Experience with oil and gas development in this and other states has demonstrated that it is not uncommon for old gas wells to be abandoned by the owner and left for the State to reclaim.

Due to the huge number of wells planned for the tight gas formations across the Rocky Mountains, the potential for costs to overwhelm several small companies or individuals is very real. Some states have an environmental protection fund, funded by a mill levy on production for use in reclaiming abandoned wells. While currently those states may have sufficient funds to cover wells that have defaulted to the states for reclamation, there is no guarantee that adequate funding will remain in 20 years. Therefore, the State of Colorado must take the necessary steps to retain all monies collected in these funds in order to protect taxpayers from being confronted with a large unexpected bill in the future. In addition, the BLM and USFS should carefully review abandonment costs and ensure that sufficient bonding is present to cover the abandonment of the wells on federal and private mineral leases currently owned by companies and individuals.

A bond should be posted by a lessee, owner of operating rights (sublessee), or operator in an amount of not less than $20,000 for each well conditioned upon compliance with all of the terms of the lease.

A detailed estimate of the cost of reclamation of the proposed operations should be included if the operator chooses to post a site-specific performance bond in lieu of the standard bond. The detailed estimate of cost must include supporting calculations for the estimates. The bond amounts should be not less than the minimum amounts described to

ensure compliance, including complete and timely plugging of the well(s), reclamation of the lease area(s), and the restoration of any lands or surface waters adversely affected by lease operations after the abandonment or cessation of oil and gas operations on the lease(s).

The authorized officer should not give consent to termination of the period of liability of any bond unless an acceptable replacement bond has been filed or until final abandonment and reclamation is completed and approved and all the terms and conditions of the lease have been met.

9. Require that noxious weeds, which are an increasing problem, be rigorously controlled. Failure to do so will result in expansions of these weed populations as a result of current and future disturbance of our lands.

The USFS, BLM, and the COGCC do not aggressively pursue the control of noxious weeds on disturbances caused by oil and gas exploration. The state has a clause addressing noxious weed control in its applications for permits to drill (APDs). The BLM also has the same clause in its permit applications. The problem is lack of compliance enforcement. When weeds are found, a company may be told to control them, but it is our understanding that operations are *never* reduced or stopped until the required compliance is accomplished, and the company is never fined for non-compliance. As a result, there is very little incentive for aggressive weed control by the industry.

BLM and USFS environmental documents for oil and gas exploration frequently state that listed noxious weeds will be a constantly increasing problem, but they do not go the next step and list specific measures that will be required to control them. State law requires a landowner to control listed noxious weeds, but we believe that it is never enforced. While BLM and USFS may not be legally subject to the state law, they are directed by their own internal rules and regulations to control listed noxious weeds. This mandate is spelled out in Executive Order 13112, the Carson- Foley Act of 1968, and the Federal Noxious Weed Act of 1974, (as amended by the Management of Undesirable Plants of Federal Lands Act, Section 15, 1990). BLM and the USFS also are important players in the State of Colorado Strategic Plan for Noxious Weed Management. The bottom line is that weed control is considered a voluntary compliance issue and is rarely aggressively pursued by the administering agencies. If that laisser-faire approach continues, those agencies will never accomplish the needed control levels for protection and recovery of the native vegetative communities.

Pipelines, pads, and road construction are conduits for weeds to aggressively invade new areas. If weed control is implemented, it is usually done only once a year. Thus, either late germinating weeds or early germinating weeds are usually missed. Noxious weed invasion is the greatest single ecological threat to agriculture production and wildlife habitat that the country currently faces. It is beginning to rival urban sprawl in acres of habitat lost. Therefore, the fact that no fines are ever issued and pipeline and road

construction are never shut down because of failure to control noxious weeds. This is a major problem that needs to be addressed immediately.

10. Make timely inspections and enforcement of all lease terms a high priority. Companies should not be given years in which to come into compliance with lease terms.

All new wells should have an onsite inspection prior to drilling to document baseline conditions. On federal wells, this is usually accomplished. On private mineral wells sites in Colorado, the APD location is simply compared to statewide maps for any sensitive areas or potential problems. No on site inspection is done by state staff prior to approval of the APD to determine if there are potential problems such as high water tables or riparian zones. Thus, it is not unusual for unlined reserve pits to actually be in or very near the water table. In such cases, all chemicals used in drilling may directly drain into the aquifer. It is up to the oil companies to report all potential problems, but if such problems are not reported, the APD is usually routinely processed. The surface owner should be a party to these on-site inspections.

Once drilling is started, there should be routine site visits by the BLM, USFS, or SOGC for permit compliance. Once violations are found, a specific time for fixing the problem should be given with fines for not meeting the requirements. On federal wells, there is usually no hurry to fix problems, and fines are almost never given. On private wells, the state does issue fines, but almost always the fines are only given for violations reported by the company to the state and not the result of compliance checking by COGCC staff.

Timely interim reclamation should be required. Also, final reclamation must be completed before the second growing season, and revegetation efforts should meet specified conditions and standards within an established time period (e.g., % coverage by native plants). If problems are encountered (e.g., surfacing of alkali), it should be the responsibility of the lessee to solve the problem. A simple soil test can alert the company to this potential problem so it can be managed before it occurs. However, such testing is never required. Once alkali surfaces, reclamation is usually written off as too expensive to complete. As soon as a drilling pad is constructed, all parts of the pad not needed for the actual drilling should be immediately reseeded before the disturbed ground has a chance to crust or seal.

The COGCC, USFS, and BLM inspectors also should ensure compliance with the Storm Water Regulations, as was mandated recently by the courts. To save money, interagency coordination could preclude the need to have separate inspectors from each agency visiting the same location.

Conclusion: These guidelines were developed by Colorado wildlife groups to address oil and gas development in Colorado. These guidelines are not inclusive because additional site-specific comments may be provided by the signatory and endorsing organizations on leasing decisions and on individual leases. For example, additional measures such as no surface occupancy or other drilling limitations may be recommended

for protection of areas having special fish and wildlife values and for Areas of Critical Environmental Concern. Furthermore, these guidelines may be updated as new relevant information becomes available. Therefore, these guidelines should be considered as a working document.

Adherence to these guidelines will greatly alleviate many habitat concerns. In addition, we believe that implementation of the guidelines will benefit industry, agencies that issue and manage leases, the public, and the sustainability of our fish and wildlife resources.

Colorado Mule Deer Association
www.coloradomuledeerassociation.com

Colorado Wildlife Federation
www.coloradowildlife.org

Endorsing organizations:[2]

1. **Colorado Sportsmen's Wildlife Fund**
2. **Western Colorado Sportsmen's Council**
3. **Colorado Bowhunters Association**
4. **Backcountry Hunters and Anglers (National and Colorado Chapters)**
5. **Rocky Mountain Bighorn Society**
6. **Traditional Bow Hunters of Colorado**
7. **Public Lands Initiative, Trout Unlimited (TU)**
8. **Colorado Outfitters Association**
9. **Colorado Trout Unlimited**
10. **Town Council, Rifle, CO**
11. **Arkansas River Outfitters Association**
12. **Collegiate Peaks Anglers Chapter, TU**
13. **National Wildlife Federation**
14. **Denver Chapter, TU**
15. **Rifle-Glenwood Chapter, Colorado Mule Deer Association**
16. **Ferdinand-Hayden Chapter, Trout Unlimited**
17. **Colorado River Headwaters Chapter, TU**
18. **Rocky Mountain Flycasters Chapter, TU**
19. **Board of Trustees, Silt, CO**
20. **Town of New Castle**
21. **Colorado River Outfitters Association**
22. **Colorado Wilderness Network**
23. **Northwest Colorado Outfitters Association**
24. **Colorado Environmental Coalition**
25. **Colorado Chapter, Wildlife Society**
26. **Colorado Mountain Club**
27. **Western Colorado Congress**
28. **Mountain West Strategies**
29. **San Juan Citizens Alliance**
30. **Sheep Mountain Alliance**

[2] As of March3, 2007

31. Grand Valley Citizens Alliance
32. Ridgeway-Ouray Community Council
33. Community Alliance of the Yampa Valley
34. Western Slope Environmental Resource Council
35. Western Resource Advocates
36. High Country Citizens Alliance
37. Concerned Citizens' Alliance
38. Environment Colorado
39. Sierra Club, Roaring Fork Chapter
40. The Wilderness Society
41. Southern Rockies Ecosystem Project
42. Grand Valley Audubon
43. Audubon Society of Greater Denver
44. Audubon Colorado
45. Wilderness Workshop
46. SINAPU
47. Ecoflight
48. Center for Water Advocacy
49. Pikes Peak River Runners
50. Private Boaters Coalition
51. American Whitewater
52. Western Slope Outfitters Association
53. High Country Rafters
54. Center for Native Ecosystems
55. Pikes Peak Whitewater Club
56. Colorado Whitewater Association
57. Cherry Creek Anglers Chapter, TU
58. Theodore Roosevelt Conservation Project
59. Wildlife Management Institute
60. The Wildlife Society
61. Izaak Walton League of America
62. Quality Deer Management Association
63. Rifle Sportsman's Club
64. Grand Valley Anglers
65. San Luis Valley Chapter, TU

Questions on the above guidelines may be referred to the primary authors of this document, Bob Elderkin and Dennis Buechler, respectively, at www.rimrock@rof.net and www.wetlandsandwater@comcast.net.

Sources of Information*

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WY Game and Fish Dept. 2004. Recommendations for Development of Oil and Gas Resources within Crucial and Important Wildlife Habitats. Unpubl. Rept. Cheyenne, WY. 183 pp.

* Much of the information was provided by the primary authors of this document, Bob Elderkin (Colorado Mule Deer Association) and Dennis Buechler (Colorado Wildlife Federation), who are retired from the Bureau of Land Management and U.S. Fish and Wildlife Service, respectively. They cumulatively have over 80 years of professional experience working on issues related to fish and wildlife management, mitigation of land and water development impacts on habitats and populations (including energy impacts), and public lands management.