

PLANTS OF CONCERN IN EASTERN COLORADO

Background and Identification of Interaction with Wind Development

Eastern Colorado plants of concern are plant species that are imperiled or at risk of extinction. Generally, plant species of concern are those species tracked as state critically imperiled (S1) or state imperiled (S2) species by the Colorado Natural Heritage Program (CNHP). CNHP tracks rare species using a standardized ranking system to target the most at risk species for inventory, protection, research, and management. The tracked species are ranked on the global (G), national (N) and state (S) level on a scale of 1 to 5. As well as the S1 and S2 species, plants of concern for wind development include species ranked as SU (state unknown) that also have a global ranking of G3 (globally vulnerable to extirpation).¹ The CNHP has the most comprehensive list of species of concern in the state; although, other species of local concern may occur in the project area.

Many of these plants of concern are restricted to specialized habitats; for example, Colorado butterfly plant is found along active prairie floodplains, and Bell's twinpod is mostly found on shale outcrops along the edge of the Front Range.² Other plants of concern, such as Nuttall's desert parsley may be found in a wider range of habitat types. Increased housing, energy development, recreation, agriculture, ranching, and transportation have resulted in unprecedented impacts on these plants and their habitat.³

Construction of wind turbines, transmission lines, and associated structures may result in the loss of or impacts to the plants of concern and their habitats found in the construction zone. The loss of even small populations of these plants of concern may result in the reduction of genetic diversity which plays an important role in the survival of a species. Species viability may be significantly reduced if large populations or if one of only a few small populations are impacted by construction.

Wind development and associated infrastructure may change the habitat conditions and threaten plants of concern. Plants of concern are vulnerable to changes in habitat conditions potentially caused by wind development. How the particular change affects the plant of concern and its habitat depends on the species, where exactly the disturbance occurs, and the nature of the disturbance. Potential threats include, but are not restricted to, changes in surface flows, erosion, and invasion of their habitat by noxious weeds.

Regulations

On Federal lands or projects with a Federal nexus, species listed as threatened or endangered are protected under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.). Plants on private land without a Federal nexus (such as requiring a Clean Water Act permit) are not protected under the ESA.

If the plant species is protected under the ESA, significant adverse effects to the plant or its habitat require consultation with the U.S. Fish and Wildlife Service (FWS) under Section 7 of the ESA. Section 7 applies to management of Federal lands as well as other Federal actions that may affect listed plant species, such as issuance of Federal permits, licenses, or other actions.⁴

Two plants listed by the FWS as threatened⁵ potentially occur on the eastern plains of Colorado: Ute ladies'-tresses orchid and Colorado butterfly plant. In the future, other plants may be listed under the ESA if the FWS determines that the species survival is threatened or endangered.⁴

State of the Science

Lack of awareness about the distribution and status of rare plants in eastern Colorado, as well as accurate information regarding their ecology and life history, is one of the greatest barriers to protecting the plants of concern. Locations of many of these species are not well documented, particularly because of the large percentage of privately owned lands and a lack of basic botanical inventories in eastern Colorado. Although many scientific studies have been conducted to address the impacts of human disturbance on specific ecosystems, such as riparian areas,⁶ the human impacts on specific plants of concern may not be well documented or researched and should be analyzed on a case-by-case basis.

Best Management Practices

The CNHP database is the most complete and accurate compilation of known locations of plants of concern. A search of the CNHP database⁷ should be requested to help determine which plants of concern are known or likely to occur in the project boundary and potential suitable habitats. Surveys within 656 ft (200 m) of project facilities that intersect potentially suitable habitat should be conducted by a qualified botanist and at a time when the plant species of concern can be detected and accurately identified. These surveys should be conducted based on the results of the CNHP database search and in consultation with other sources that describe suitable habitat.⁸ Surveyors should be aware that rare plants, although not previously recorded, may occur in the project area.

If a species found during a survey is federally listed as threatened or endangered (or a candidate) by the FWS, the developer should consult with FWS under applicable rules and regulations. When practicable, locations of all plants of concern found (including federally listed species) should be submitted to the CNHP for inclusion in their database, using their field form-element occurrence field form. <http://www.cnhp.colostate.edu/exchange/submit.asp>

Communicate with construction supervisors and other personnel the importance of plants of concern habitat protection.

Avoid

Wind turbines and associated infrastructure should not be placed in or near areas (e.g. within 656 feet (200 m)) where plants of concern are located, in accordance with the conducted surveys (see above), to avoid impact or destruction of a plant population of concern.⁹ This recommendation was made for oil and gas development to help reduce dust transport, weed invasion, unauthorized vehicular activities, runoff, and other impacts that would threaten plants of concern⁹ and to reduce potential impacts to pollinator populations.

Minimize

1. Where surface impacts may occur near a population of plants of concern (within 656 ft (200 m)), indicate sensitive areas with signage and/or temporary, construction barrier fencing as appropriate for the site conditions.
2. Minimizing disturbance to soil and native vegetation will reduce impacts to plant species of concern.
3. To the extent practicable, keep motorized travel to designated roads and trails.
4. Stockpile topsoil separately for use in final reclamation. Do not use if heavily contaminated with noxious weeds.
5. In areas with plants of concern, controlling erosion and polluted runoff will reduce impacts to those species. These erosion control practices should be included in the Storm Water Management Plans (SWMP) and other required construction plans and documents.
6. When using straw and hay for erosion control, it is recommended that it is certified weed free. This will reduce potential introduction of noxious weeds.
7. Re-vegetating all bare areas, as soon as possible after construction, with carefully selected native species known to occur in the local area will reduce establishment by undesirable species. The seed mix and planting species should be designed by a botanist/plant ecologist familiar with the habitat criteria for the targeted plant(s) of concern and should be certified free of noxious weeds.
8. "Reduce the introduction and spread of invasive species by following applicable local policies for noxious weed control, cleaning vehicles and equipment arriving from areas with known invasive species issues, using locally sourced topsoil, and monitoring for and rapidly removing noxious weeds at least annually." (Chapter 3, page 46; Draft Recommendations 3/2010).⁹
 - Controlling noxious weeds (as identified in the Colorado Noxious Weed Act list¹⁰) which have been introduced or spread by the development will reduce impacts to plant species of concern.
 - Before determining the specific integrated noxious weed techniques to be used on a project, the local County Weed Manager¹⁰ should be consulted. Additionally, specific

integrated weed management techniques for each species can be found on the Colorado Noxious Weed Management Program website¹⁰ or the pertinent county's website. Disclose information on rare plant occurrence to the county weed manager.

- Great care should be taken to avoid herbicide drifting into populations of plants of concern e.g., mechanical methods may be preferable if conducting weed control within 656 ft (200 m) of a rare plant population identified in pre-construction surveys.

Conservation Offsets (Mitigation)

Attempting to transplant plants of concern is not recommended because of the generally low rate of success. There are some exceptions; any attempts to transplant species of concern should only be conducted under the guidance of a botanist/plant ecologist familiar with transplantation techniques and the habitat requirements of the targeted plant of concern. Species federally listed as threatened or endangered must only be transplanted in consultation with the FWS; permission to transplant may not be granted.

In cases where avoidance is not possible, developers are encouraged to select offsite mitigation sites where concentrations of rare plants are found, based on the best scientific information available, and work with the conservation community to establish conservation easements, preserves, or other protections in these areas.

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Additional Information and Sources Consulted:

1. CNHP 2010 –Colorado Natural Heritage Program – Connecting Heritage and Science. About the Heritage Network Ranking System. <http://www.cnhp.colostate.edu/about/heritage.asp>
2. CNHP 2007. 4th Annual Colorado Rare Plant Symposium G2-G3 Plants in Northeast Colorado. <http://www.cnhp.colostate.edu/teams/botany.asp#symposia> Accessed 2/7/10.
3. Neely, B., S. Panjabi, E. Lane, Pl Lewis, C. Dawson, A. Kratz, B. Kurzel, T. Hogan, J. Handwerk, S. Krishnan, J. Neale, and N. Ripley. 2009 *Colorado Rare Plant Conservation Strategy*. Developed by the Colorado Rare Plant Conservation Initiative. The Nature Conservancy. Boulder, Colorado.
4. U.S. Fish & Wildlife Service. 2010. Endangered Species Program. <http://www.fws.gov/endangered/consultations/index.html>. Accessed 2/8/2010
5. Threatened and Endangered Species in the Mountain Prairie Region – Colorado County-by-County List. <http://www.fws.gov/mountain-prairie/endspp/countylists/colorado.pdf>. Last updated – January 12, 2009.
6. Odell, E., D. M. Theobald, and R. L. Knight. 2003. Incorporating Ecology into Land Use Planning. *Journal of American Planning Association* 69:72-82.
7. CNHP – Colorado Natural Heritage Program – About Requesting CNHP data. <http://www.cnhp.colostate.edu/exchange/request.asp>. Accessed 2/8/2010
8. Sources of additional information on rare plant habitats may include consultants, university or museum-based botanists, conservation organizations, ecological literature, and other similar sources
9. U.S. Fish and Wildlife Service Wind Turbine Recommendations Advisory Committee. March 4, 2010.
10. Colorado Noxious Weed Act. 2003. Title 35: Agriculture, Article 5.5: Colorado Noxious Weed Act, and 8 CRR 1203-19 Rules pertaining to the administration and enforcement of the Colorado Noxious Weed Act. Noxious Weeds are listed in the Colorado Department of Agriculture -

Noxious Weed Management Web site:

<http://www.colorado.gov/cs/Satellite?c=Page&childpagename=Agriculture-Main%2FCDAGLayout&cid=1174084048733&p=1174084048733&pagename=CDAGWrapper>.