

## **Conservation Measures to Avoid and Minimize Potential Effects on Threatened and Endangered Species**

Proposed conservation measures to avoid and minimize potential effects to federally listed species and Preble's critical habitat from the covered actions include:

1. Projects shall be designed to avoid and/or minimize all permanent and temporary impacts to riparian and adjacent upland habitats to sustain the ability of a Preble's critical habit unit to support the recovery of the Preble's.
2. To the maximum extent practicable, Contractor will avoid or minimize disturbing, crushing, trampling, removing, cutting, or clearing live or dormant vegetation, such as willows, trees, shrubs, or grasses within riparian and adjacent upland habitats to protect forage and cover for the Preble's and avoid crushing the Preble's, the orchid and Colorado butterfly plant.
  - a. During preconstruction briefings, worksite managers will explain these conservation measures, the importance of protecting live or dormant vegetation, and the importance of remaining within the limits of work.
  - b. Contractor will restrict the disturbance of vegetation to the footprint of the worksite.
  - c. Contractor will install temporary limits of work fencing, signage, flagging, or other visual markers to delineate the worksite from habitats and to enforce no entry zones.
  - d. Contractor will minimize the use of heavy machinery and use smaller equipment whenever possible.
3. Contractor will locate, store, stage, operate, and refuel equipment within previously disturbed areas outside of riparian and adjacent upland habitats and away from streams to minimize disruptions to Preble's, Mexican spotted owls, and greenback cutthroat trout that may be present within or adjacent to a worksite.
  - a. Contractor will operate equipment from previously disturbed or modified roadbeds or shoulders above riparian habitats.
  - b. Contractor will limit the number and size of access routes and staging areas, with one entry and exit route leading into the worksite whenever possible.
  - c. Contractor will stockpile topsoil and debris outside of riparian areas and protect from stream flows.
4. Contractor will use best management practices to limit dust, soil compaction, erosion, and sedimentation, and to prevent the spread of invasive weeds; this will protect water quality for the greenback cutthroat trout and enable growth and pollination of the orchid and Colorado butterfly plant.
  - a. Contractor will temporarily line access routes with geotextiles, especially in wet, unstable soils.
  - b. Workers will clean equipment and clothing before entering new worksites to prevent the spread of invasive weeds.
5. During the Preble's active season (May 1 through November 1), crews will work only during daylight hours to avoid disrupting the Preble's nocturnal activities.
6. Where possible, work crews will replant areas disturbed by construction with native, weed-free seeds and plants to improve forage and cover for the Preble's and enhance growth and pollination of the orchid and Colorado butterfly plant.
7. Contractor will cease work and contact Boulder County Home Access Coordinators immediately if a Preble's is found alive, dead, injured, or hibernating within a worksite. Contractor will also contact the Service if the orchid, the Colorado butterfly plant, the Mexican spotted owl, the greenback cutthroat trout, or any other listed species are found within a worksite.