

hilly and agriculturally less desirable geographic areas. Limited water availability for additional agricultural and urban development is a severely limiting factor in the southern San Joaquin Valley. Although sites that occur within the San Joaquin Valley are experiencing threats from development, particularly urban or industrial development along the Interstate 5 corridor (R. Lewis, pers. comm. March 7, 1995), the majority of the plants are found along the hilly margins of the San Joaquin Valley, usually between 90 and 910 m (300 to 3,000 ft) in elevation (BLM 1994).

One of the largest populations of *Eriastrum hooveri* occurs along the western edge of the Interstate 5 corridor near Kettleman City. This population is within the ACEC managed by BLM, where urban or industrial development is unlikely to occur (BLM 1996a; R. Lewis, pers. comm. 2003). In addition, conservation efforts for other listed species found along the Interstate 5 corridor are likely to provide continued collateral benefits for *E. hooveri*.

Other potential threats identified for *Eriastrum hooveri* at the time it was listed as a threatened species were impacts from groundwater recharge basins, a proposed reservoir (the Arroyo Pasajero Project), and disposal of nutrient-laden agricultural effluent (55 FR 29361). The only groundwater recharge basin developed in the range of *E. hooveri* is the Kern Water Bank, which helps to conserve *E. hooveri* through HCP measures that protect habitat in perpetuity. We are not aware of impacts to *E. hooveri* from disposal of nutrient-laden agricultural effluent. Land application of manure or dairy waste seepage is typically not conducted on natural habitat and is not likely to impact *E. hooveri* (Gary Burton, Service, pers. comm. 2002). The Arroyo Pasajero Project remains a potential location for water storage for the environmental water account. However, it is anticipated that the Arroyo Pasajero Project, if it goes forward, will have an insignificant effect on *E. hooveri*.

Off-Highway Vehicles

Off-highway vehicles were identified as a threat for *Eriastrum hooveri* at the time it was listed. In 1994 the *Eriastrum hooveri* Field Inventory Report (BLM 1994) considered 15 percent of sites evaluated to have potential threats from off-highway vehicles. However, observations of the plants subsequent to listing suggest that the species appears to persist in the absence of renewed disturbance. The low number of documented impacts and the recolonizing ability of *E. hooveri*

indicate that off-highway vehicles are no longer considered a threat to the long-term survival of the species (BLM 1994).

Off-highway vehicle impacts are rare occurrences and typically consist of tire tracks across occupied habitat, in many cases as a one-time occurrence by a single vehicle. On some roads located in the Caliente Mountains and Cuyama Valley, the species was found growing in tire tracks. The species has been found growing on several inactive motorcycle paths located in the Kettleman Hills, some of which were approximately 46 cm (18 in) deep. Plants also grow on the margins of dirt roads and in the strip of vegetation between tire tracks on unimproved roads in the Lokern, Elk Hills, and Lost Hills areas (E. Cypher, *in litt.* 2001).

The majority of the six *Eriastrum hooveri* populations in Los Padres National Forest are located on lightly used or abandoned roads that receive an estimated one to ten vehicle passes per year. This light road use appears to help maintain the presence of the species, although the plants do not grow in the actual tire tracks. The populations do not extend into areas, which apparently have suitable habitat, that surround the roads (Mike Foster, Forest Service, pers. comm. 1998).

Habitat disturbance will still occur in areas of potential *Eriastrum hooveri* habitat, and may occasionally occur on occupied habitat. However, the Service has determined that the level of disturbance will be such that pressures from present or threatened destruction, modification, or curtailment of *E. hooveri* habitat or range, even when taken collectively with other residual threats, are sufficiently reduced and contained that the species is no longer threatened or endangered. The Service will monitor, as part of the required post-delisting monitoring, the management commitments by BLM to limit habitat disturbance.

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

Overutilization is not a factor known to affect *Eriastrum hooveri*.

C. Disease or Predation

Eriastrum hooveri tends to occupy soil surface that does not support a large amount of vegetation. Grazing by wild herbivores is not known to occur. Although cattle may trail through areas occupied by *E. hooveri* en route to areas of desirable forage, they do not appear to be grazing within the sparsely vegetated *E. hooveri* occupied habitat (BLM 1994). Furthermore, observations

subsequent to the listing have shown that the wiry and low-growing *E. hooveri* plants are not desirable forage for livestock, and that monitored areas in both grazed and ungrazed areas showed no significant differences in survival, size, or reproduction (BLM 1994). Survival was higher in grazed areas possibly due to the reduced vegetation cover, and *E. hooveri* plants were taller in ungrazed areas. Therefore, predation through grazing, including trespass grazing, is no longer considered a serious threat to *E. hooveri* (with regards to management of grazing refer to Factor E "Other natural or manmade factors affecting its continued existence").

No known diseases affect *Eriastrum hooveri*.

D. The Inadequacy of Existing Regulatory Mechanisms

Eriastrum hooveri will continue to benefit from the many recovery and conservation activities that are being undertaken for the 33 other species in the Recovery Plan (collateral species benefits). Nine of the core areas identified for recovery of these collateral species support *E. hooveri* populations, and portions of these core areas are already protected (*E. Cypher*, *in litt.* 2001). Efforts to maintain linkages around the San Joaquin Valley edge (from the Ciervo/Panoche area in Fresno County, south to Maricopa in Kern County) focus on protection of both valley floor and hilly topography areas for San Joaquin kit fox, an endangered species present in *E. hooveri* areas, and include grassland and chenopod scrub habitat types (USFWS 1998). Protection is also afforded through habitat conservation plans for the collateral, federally listed species, including the wide-ranging San Joaquin kit fox, blunt-nosed leopard lizard, the California jewelflower, and kern mallow. All these species are protected under the Act and share the same habitat types and climatic requirements with *E. hooveri* (Taylor and Davilla 1986).

The principal mechanism that will continue to afford *Eriastrum hooveri* protection will be designation by BLM of *E. hooveri* as a sensitive species after the species is delisted (*E. Hastey*, BLM, *in litt.* 1995, T. Burke, BLM, *in litt.* 2002). BLM policy will minimize impacts to the species at all known sites that are under their jurisdiction. Coordination and annual reviews by the Service will ensure that appropriate minimization actions will occur. To aid in this review, *E. hooveri* population locations have been, and will continue to be, placed onto BLM's geographic information system (GIS) to help in the