

recolonized disturbed plots within two growing seasons from seed naturally dispersed from adjacent habitat (Hinshaw *et al.* 1998).

In summary, research efforts, as part of the recovery process, have shown that *Eriastrum hooveri* is more resilient and less vulnerable than previously thought.

Observations

The Recovery Plan was developed for arid-land species in a part of California that receives 10 in (25 cm) or less of annual precipitation. Both below-average (drought) and above-average precipitation can cause severe population variations for *Eriastrum hooveri*, and other species covered in the Recovery Plan, if such extreme conditions extend for more than 1 year (USFWS 1998). The status survey that preceded listing of *E. hooveri* followed a 2-year drought, and during the early 1990s the southern San Joaquin valley experienced above-average rainfalls (E. Cypher pers. comm. 2003b). This above-average rainfall period coincided with initial research into disturbance responses, and it was observed by Holmstead and Anderson (1998) that *E. hooveri* responded extremely well to the increased rainfall levels. Timing of precipitation may have also played a significant role in the response of *E. hooveri* to above-average rainfall, since heavy rainfall in the study area occurred during January and March, later than during normal precipitation years (Holmstead and Anderson 1998).

Eriastrum hooveri's adaptability to disturbance was evident based on observations of the reestablishment of *E. hooveri* following two disturbances on NPR-1 during 1990, and on NPR-1 fire breaks that had been tilled the previous year (Holmstead and Anderson 1998). *Eriastrum hooveri* is more resilient and less vulnerable to certain activities than previously thought.

Recovery Plan Criteria

Section 4(f) of the Act directs us to develop recovery plans for listed species. Recovery plans are written to guide recovery efforts and establish criteria for measuring recovery progress. The criteria are not intended to be absolute prerequisites for delisting and should not preclude a delisting action if such action is otherwise warranted. This section discusses the four delisting criteria identified for *Eriastrum hooveri* in the Recovery Plan (USFWS 1998).

(1) 75% of Occupied Habitat (as of 1998) on Public Lands in Each of the Four Metapopulations Should Be Secured and Protected From Incompatible Uses

Although difficult to quantify due to annual variability in size of populations, we believe that the intent of this criterion has been met because a substantial amount of land, approximately 114,400 ha (286,000 ac), containing substantial portions of the four metapopulations or potential habitat is in a "protected status" (as defined in the Recovery Plan) (G. Warrick, Center for Natural Lands Management, pers. comm., 2002; Mary Ann McCrary, California Department of Fish and Game (CDFG), *in litt.* 2002; USFWS 1998, Ann Knox, BLM, *in litt.* 1997). Two BLM Areas of Critical Environmental Concern (ACEC), a National Monument, four CDFG Ecological Reserves, four privately owned mitigation sites, and NPR-2 (soon to be managed by BLM) are the protected areas that contain portions of the four metapopulations; these areas, listed by metapopulation are:

(a.) The Kettleman Hills area in Fresno and Kings Counties (includes the BLM ownership with ACEC designation of 2,692 ha (6,730 ac));

(b.) The Carrizo Plain-Elkhorn Plain-Temblor Range-Caliente Mountains-Cuyama Valley-Sierra Madre Mountains area in San Luis Obispo, Santa Barbara, and extreme western Kern Counties (includes the BLM Carrizo Plain National Monument and the CDFG Elkhorn Ecological Reserve, 101,170 ha (250,000 ac));

(c.) The Lokern-Elk Hills-Buena Vista Hills-Coles Levee-Maricopa-Taft area in Kern County (includes the BLM's Lokern ACEC, 1,244 ha (3,110 ac); the CDFG's Lokern Ecological Reserve, 330 ha (825 ac), and Buttonwillow Ecological Reserve, 540 ha (1,350 ac); and private conservation areas such as the Center for Natural Lands Management's Lokern Preserve, 1,200 ha (3,000 ac), the Elk Hills Conservation Area, 2,830 ha (7,075 ac), and the Coles Levee Ecosystem Preserve, 2,424 ha (6,060 ac)); and

(d.) The Antelope Plain-Lost Hills-Semitropic area in Kern County (includes the CDFG's Semitropic Ecological Reserve, 1,912 ha (4,780 ac); and private conservation areas, such as the Center for Natural Lands Management's Semitropic Ridge Preserve, 1,200 ha (3,000 ac)).

(2) 260 Hectares (640 Acres) or More of Occupied Habitat on the San Joaquin Valley Floor Is Secured and Protected (This Need Not Be in Addition to the Above, But May Be Within the Above)

The second delisting criterion has been met. Because patches of *Eriastrum hooveri* may vary in size annually due to rainfall, we considered all *E. hooveri* habitat in protected areas where the species is known to occur as occupied habitat. There are protected occurrences of *E. hooveri* found within the southern San Joaquin Valley floor, in BLM's Lokern ACEC, 1,244 ha (3,110 ac), and the Elk Hills Conservation Area, 1,408 ha (3,520 ac). Other protected areas on the San Joaquin Valley floor containing *E. hooveri* occurrences are the CDFG's Alkali Sink Ecological Reserve, 372 ha (930 ac), Lokern Ecological Reserve, 330 ha (825 ac) (USFWS 1998), and the private conservation area of Coles Levee Ecosystem Reserve, 2,424 ha (6,060 ac). The total acreage for these five protected valley floor areas that contain *E. hooveri* is approximately 5,778 ha (14,445 ac).

(3) Management Plans Approved and Implemented for Recovery Areas That Include Survival of Species as an Objective. Range-wide Population Monitoring Should Be Provided for in All Management Plans

The third recovery criterion, approve and implement management plans for the recovery areas that include survival of *Eriastrum hooveri* as an objective, has also been met. A significant number of new sites (1,128) are found on BLM land, and BLM has holdings in all 4 metapopulations of this species, including the San Joaquin Valley floor metapopulation. The wider range in combination with the commitment of BLM to designate *E. hooveri* as a sensitive species is sufficient to meet the recovery criterion (E. Cypher, pers. comm. 2003a and 2003c). The BLM will ensure that actions they authorize, fund, or carry out do not contribute to the need to re-list the species. As a sensitive species, *E. hooveri* will be addressed in the National Environmental Policy Act (NEPA) documents for BLM actions requiring NEPA review. In addition, BLM will conduct on-the-ground monitoring of *E. hooveri* for a minimum of 5 years from the date of the publication of this final rule to delist the species. This monitoring will be conducted in all four metapopulations (Burke, *in litt.* 2002), including the San Joaquin Valley floor. We believe that BLM's Resource Management Plan (RMP) meets the criteria for specific commitments to protect *E. hooveri* from incompatible uses and that the BLM