

recovery criteria outlined above, focused first on considering all areas of suitable habitat within the geographic distribution of this species and the known locations of the extant and historic populations. We evaluated field data collected from documented occurrences, various GIS layers, soil surveys, and United States Geological Survey (USGS) quadrangle maps. These data include *Arabis perstellata* locations, soils, elevation, topography, geologic formations, streams, and current land uses. Originally, there were eight total populations in Tennessee and 47 in Kentucky. Four of the populations in Tennessee and ten in Kentucky are historic and no longer contain one or more of the primary constituent elements present (Jones 1991; TDEC 2000; Deborah White, KSNPC, pers. comm. 2003). By lacking the primary constituent elements, they are not essential to the conservation of *Arabis perstellata*.

Of the known remaining plant sites in Kentucky (37) and Tennessee (4), we identified an additional 21 sites as having fewer than 50 plants and the habitat is degraded. These sites lack the primary constituent elements and, therefore, are not essential to the conservation of *Arabis perstellata*.

The 20 units in this proposed designation include a significant portion, but not all, of the species' historic range. They all contain the primary constituent elements essential for the conservation of *Arabis perstellata* (see "Primary Constituent Elements" section). The omission of historically occupied sites and the rest of the currently occupied sites from this proposed critical habitat designation does not diminish their individual or cumulative importance to the species. Rather, it is our determination that the habitat contained within the 20 units included in this proposed rule constitutes our best determination of areas essential for the conservation, and eventual recovery, of *Arabis perstellata*. The 20 units we are proposing as critical

habitat encompass approximately 408 ha (1,008 ac) in Kentucky and Tennessee.

To the extent feasible, we will continue, with the assistance of other State, Federal, and private researchers, to conduct surveys, research, and conservation actions on the species and its habitat in areas designated and not designated as critical habitat. If additional information becomes available on the species' biology, distribution, and threats, we will evaluate the need to designate additional critical habitat, delete or reduce critical habitat, or refine the boundaries of critical habitat. Sites that are occupied by this plant that are not being proposed for critical habitat will continue to receive protection under the Act's section 7 jeopardy standard where a Federal nexus may occur (see "Critical Habitat" section).

Since the drafting of this proposed critical habitat rule, we have received new information from the TDEC (D. Lincicome, pers. comm. 2003) regarding two new populations of *Arabis perstellata*. One population is located on Townsel Hill, west of the City of Murfreesboro between Newman and Coleman Hill Roads in Rutherford County, Tennessee. This site is adjacent to the proposed Sophie Hill critical habitat site (see "Proposed Critical Habitat Designation" section, unit 19) and belongs to the same private landowner. The other population is located on Grandfather Knob between Cainsville and Spain Hill Roads in Wilson County, Tennessee. This site is privately owned by two separate landowners. Both sites contain over 100 *Arabis perstellata* plants and in general, it appears that these two populations might meet the recovery criteria and contain the primary constituent elements. However, these new populations were located following the drafting of the proposed critical habitat rule. Because of time and budget constraints, we are unable to adequately and formally analyze them for inclusion

as proposed critical habitat in this document. We will conduct the analysis on these two sites prior to making a final determination on this proposed rule. If we determine these areas to be essential, it would be our intent to include them in the final designation.

E. Mapping

Once we determined that 20 populations are essential to the conservation of *Arabis perstellata*, we used site-specific information to determine the extent of these populations. The proposed critical habitat units were then delineated by screen-digitizing polygons (map units) using ArcView, a computer GIS program. Based on the known plant distribution and allowing for downslope germination, we placed boundaries around the populations that included the plants, as well as their primary constituent elements. In defining these critical habitat boundaries, we made an effort to exclude all developed areas, such as housing developments, open areas, and other lands unlikely to contain the primary constituent elements essential for the conservation of *Arabis perstellata*. We used Kentucky State Plane North/North American Datum 1983 (NAD83) coordinates to designate the boundaries of the proposed critical habitat in Kentucky, and Tennessee State Plane/NAD83 coordinates to designate the boundaries of the proposed critical habitat in Tennessee.

Proposed Critical Habitat Designation

The areas proposed for designation as critical habitat for *Arabis perstellata* provide the primary constituent elements described above. Table 1 summarizes the location and extent of proposed critical habitat. All of the proposed areas require special management considerations to ensure their contribution to the conservation of *Arabis perstellata*. We provide general descriptions of the boundaries of proposed critical habitat units below.

TABLE 1.—APPROXIMATE AREA (HECTARES AND ACRES) OF PROPOSED CRITICAL HABITAT BY UNIT FOR *Arabis perstellata*

Critical habitat unit	County/State	Land ownership	Hectares	Acres
1. Sky View Drive	Franklin/Kentucky	Private	22	54
2. Benson Valley Woods	Franklin/Kentucky	Private	37	91
3. Red Bridge Ridge	Franklin/Kentucky	Private	6	15
4. Tributary to South Benson Creek	Franklin/Kentucky	Private	10	25
5. Davis Branch	Franklin/Kentucky	Private	3	7
6. Onans Bend	Franklin/Kentucky	Private	12	30
7. Shadrock Ferry Road	Franklin/Kentucky	Private	15	37
8. Hoover Site	Franklin/Kentucky	Private	83	205
9. Longs Ravine Site	Franklin/Kentucky	Private	30	74
10. Strohmeiers Hill	Franklin/Kentucky	Private	20	49