

to occur in Northern Mudflow vernal pools (criterion 2). Northern Mudflow vernal pools are generally small and tend to be inundated for relatively short periods of time (Keeler-Wolf *et al.* 1998). This unit contains some of the largest remaining vernal pool complexes supporting vernal pool tadpole shrimp in the northern portion of the species' range, including the Dales Plains. These areas provide relatively undisturbed, hydrologically intact vernal pool habitats that will likely continue to support natural vernal pool ecosystem processes and maintain suitable habitat conditions for vernal pool tadpole shrimp (criterion 4). The unit also provides habitat for migratory waterfowl that aid in the dispersal of vernal pool tadpole shrimp and other vernal pool crustacean cysts (criterion 3).

The Dales Unit is located in northern Tehama County. A portion of the unit overlaps into Shasta County. The vernal pool habitats west of Inskip Hill are included in this unit, as well as the area west of the Sacramento River known as Table Mountain and Table Mountain Lake. Land ownership within this unit includes BLM (14,826 ac (6,000 ha)) and State lands 709 ac (287 ha). CDFG administers approximately 42 ac (17 ha) and TNC has conservation easements on 15,575 ac (6,230 ha) within this unit. The remaining lands are privately owned.

*Unit 3, Vina Plains Unit, Tehama and Butte Counties (31,195 ac (12,916 ha))*

This unit is ecologically important (criterion 2) because it is one of the few areas where vernal pool tadpole shrimp are known to occur in Northern Basalt Flow vernal pools. Northern Basalt Flow vernal pools are limited to ancient terraces and hilltops that comprise some of the oldest geologic formations in California. This unit also provides habitat for migratory waterfowl that aid in the dispersal of vernal pool tadpole shrimp and other vernal pool crustacean cysts (criterion 3).

This unit is located in the northeastern portion of the Sacramento Valley, from south of Deer Creek in Tehama County to Big Chico Creek north of Chico in Butte County. The unit is geographically important (criterion 1) because it is one of only two vernal pool tadpole shrimp units within the Northeastern Sacramento Valley vernal pool region identified by CDFG (Keeler-Wolf *et al.* 1998). The unit extends south and east of the Sacramento River, paralleling the low-elevation foothill region of the Sierra Nevada. A majority of the lands included within this unit are privately owned. This unit may be more likely to support the species over

time (criterion 4) because it includes protected areas such as TNC's Vina Plains preserve as well as other TNC lands 5,660 (2,264 ha) and conservation easements 10,870 ac (4,348 ha). The unit also includes 142 ac (57 ha) of private lands protected by WRP easements or agreements.

*Unit 6, Dolan Unit, Colusa County (980 ac (397 ha))*

This unit, like Unit 5, is noteworthy for its Northern Claypan vernal pools, as defined by Sawyer and Keeler-Wolf (1995). These vernal pools occur on alkaline soils and typically form alkali playas which are larger and contain a more diverse species composition than the hardpan pools further south (criterion 2) (Keeler-Wolf *et al.* 1998). They may display white salt deposits following pool drying.

This unit occurs east of Interstate 5, south of the City of Colusa, and west of the Colusa National Wildlife Refuge. All the lands within this unit are privately owned. This unit is primarily located on the Dolan Ranch Conservation bank.

*Unit 7, Beale Unit, Yuba County (1,324 ac (536 ha))*

The Beale Unit is ecologically important (criterion 2) because it contains vernal pool grasslands occurring on four major geologic formations: the Modesto Formation; the Riverbank Formation; the Laguna Formation; and the Mehrten Formation. Different geologic formations provide a diversity of habitats for vernal pool tadpole shrimp primarily through their effects on pool size and depth (Helm 1998; Platenkamp 1998). King (1996) found that vernal pool tadpole shrimp within this unit were genetically different from occurrences in other portions of the species' range, particularly those on the floor of the Central Valley. This unit is also important because it can help maintain an opportunity for long-distance dispersal of vernal pool tadpole shrimp cysts (criterion 3); the nearest unit to the north is over 28 mi (45 km) away, and the nearest unit to the south is over 40 mi (65 km) away.

The Beale Unit is located in southwestern Yuba County, south of the Yuba River and Yuba Goldfields, east of State Route 70, and north of the Bear River adjacent to Beale AFB. All the lands within this unit are privately owned.

*Unit 9, Cosumnes Unit, Sacramento, Amador, and San Joaquin Counties (26,754 ac (10,827 ha))*

This unit is geographically important because it contains over 30 percent of

the remaining vernal pool habitats in the southern Sacramento Valley area (Holland 1998; Sacramento County 1999). It is also ecologically noteworthy (criterion 2) because it includes a diversity of pool types occupied by the species, including Northern Volcanic Mudflow vernal pools on the Mehrten and Valley Springs geologic formation overlain by Pardee and Pentz soils, vernal pools occurring on low terrace landforms associated with San Joaquin soils, and high terrace landforms associated with Redding and Corning soils (USDA 2001). This area has been identified by the Sacramento Valley Open Space Conservancy, the CNPS, and TNC as an excellent example of vernal pool grasslands, supporting a rich and diverse community of vernal pool endemic plants and animals within Sacramento County. King (1996) found that vernal pool tadpole shrimp within this unit were genetically most similar to those in Stanislaus County and nearby in Sacramento County. However, vernal pool tadpole shrimp within this unit were generally different from occurrences at other sites sampled throughout the species' range and were very different from vernal pool tadpole shrimp sampled at sites found further to the west on the floor of the Central Valley for example, at Jepson Prairie or the Kesterson Unit of the San Luis National Wildlife Refuge (King 1996).

This unit contains State and federally owned land, as well as private properties. Portions of the Cosumnes River Preserve occur within this unit. These areas provide habitat for migratory waterfowl and other avian species that aid in the dispersal of vernal pool tadpole shrimp and other vernal pool crustacean cysts (criterion 3). Several large, diverse, vernal pool landscapes are protected within this unit (criterion 4), including the Howard Ranch and Valensin Ranch. The Clay Station Mitigation Bank, Laguna Creek Mitigation Bank, and the Borden Ranch Mitigation site are included in this unit, as well as a number of smaller conservation areas, including the Rancho Seco Preserve.

This unit occupies the area south of Deer Creek and the Cosumnes River to an area just south of the Sacramento and San Joaquin County. The eastern boundary is the low-elevation foothills of western Amador County. The western limit is the Sacramento River. Land ownership and protection within the unit includes TNC (9,970 ac (3,988 ha)) lands and WRP easements (11 ac (4 ha)).