

Restoration Journal

Restoring native vegetation along Hermit Road in Grand Canyon National Park

By Allyson Mathis, Kassy Theobald, Janice Busco, and Lori Makarick

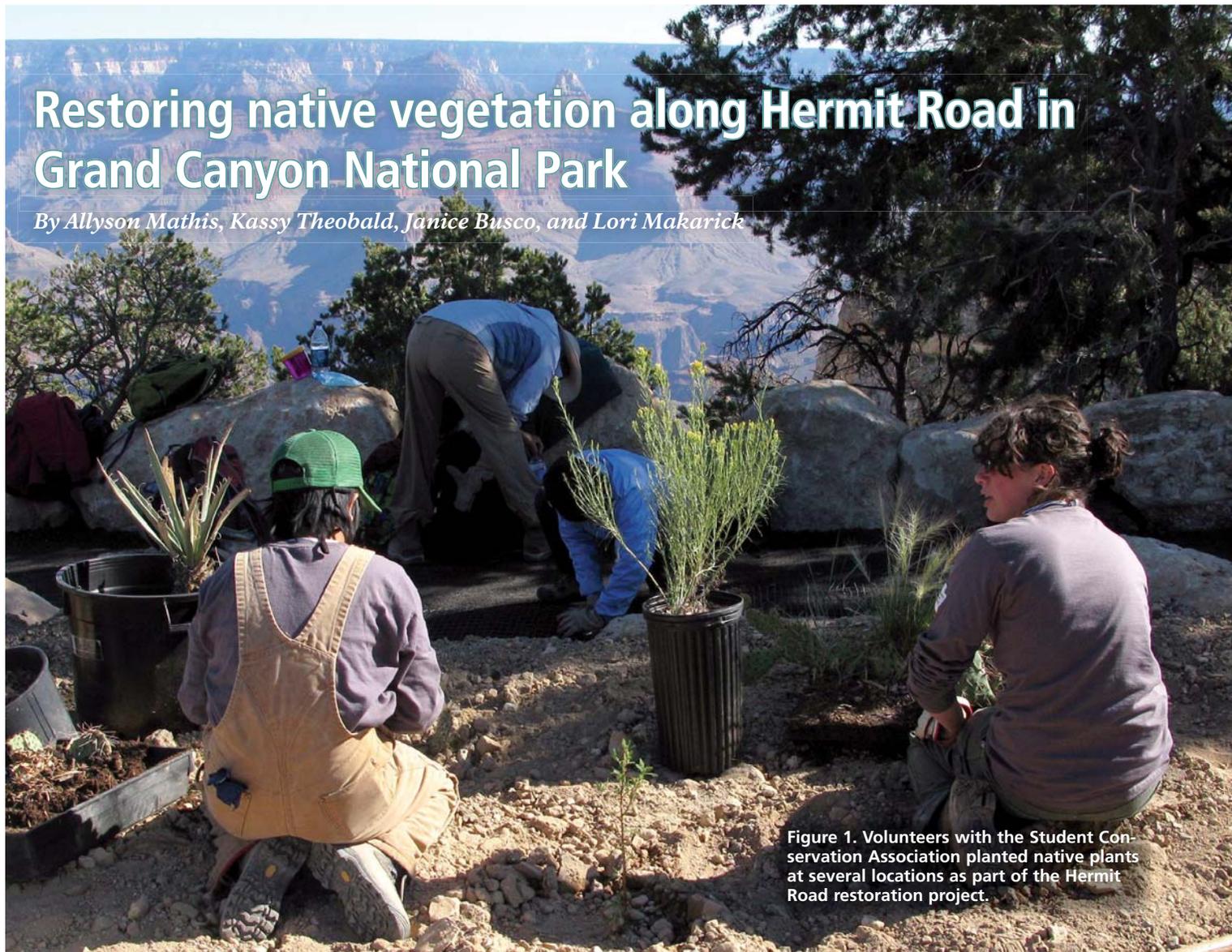


Figure 1. Volunteers with the Student Conservation Association planted native plants at several locations as part of the Hermit Road restoration project.

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HERMIT ROAD IN GRAND CANYON

National Park (Arizona) reopened in November 2008 after a nine-month rehabilitation. The widened road and improvements to shuttle bus stops and the rim trail will enhance the public's enjoyment of this spectacular section of the South Rim. However, visitors may not realize that the Hermit Road project included one of the largest vegetation restoration and rehabilitation efforts ever undertaken at Grand Canyon National Park (figs. 1 and 2).

Hermit Road was originally constructed in 1934 and 1935 by the Bureau of Public

Roads and the National Park Service. The road was designed to have a rural character, providing stunning canyon views and having native vegetation close to the roadway. No major work occurred on the road for more than 70 years, leaving it in poor condition. Over many decades, the lack of a formally defined trail along most of Hermit Road led to social trailing and trampling of native vegetation.

The Hermit Road rehabilitation project increased public safety while maintaining the roadway's historic character and protecting the park's natural and cultural

resources. The vegetation restoration plan for the project had several objectives, including stabilizing road shoulders, maintaining the genetic integrity of plant species along Hermit Road, replanting impacted areas with native species, protecting rare plant species, and ensuring the long-term success of restoration areas through invasive species management and routine maintenance.

Prior to the start of construction in February 2008, Vegetation Program staff and volunteers also salvaged plants, such as Utah agave (*Agave utahensis*), banana



Figure 2. Hermit Road restoration sites, where a total of 11 acres (4.5 ha) were restored.

yucca (*Yucca baccata*), fernbush (*Chamaebatiaria millifolium*), cliffrose (*Purshia mexicana*), blue grama (*Bouteloua gracilis*), mutton-grass (*Poa fendleriana*), and Indian ricegrass (*Achnatherum hymenoides*) from construction zones and collected seeds from these and other native species to use in the restoration project (fig. 3). When road and trail construction by the contractor neared completion in early October, the restoration work stepped into high gear. A five-person Student Conservation Association Native Plant Corps Team planted the majority of the salvaged and propagated native plant species. Restoration crews planted 16,000 plants that were propagated from native seed collected in the park, and approximately 4,000 plants that were salvaged prior to the start of road and trail work. Two hundred pounds of native grass and shrub seed were spread along roadways and in other restoration project areas by the construction contractor and by park crews.

Vegetation crews devoted the majority of their efforts to replanting areas near major viewpoints, such as Powell and Mohave Points, where road or parking lot realign-

ments increased traffic safety or conserved park resources (fig. 4). A total of 11 acres (4.5 ha) were restored. Volunteers, including the SCA Corps Team, contributed a total of 5,200 hours to the project. Monitoring of restoration areas will take place over the next 5 to 10 years to assess the success of the restoration techniques that were utilized and to inform future restoration projects.

Sentry milkvetch habitat restoration

The Hermit Road project provided park managers with an extremely rare opportunity to restore habitat for sentry milkvetch (*Astragalus cremnophylax* var. *cremnophylax*), the only listed endangered plant species in Grand Canyon National Park (fig. 4). Sentry milkvetch grows only in specialized habitat consisting of shallow limestone soils in narrow zones immediately adjacent to the canyon rim. One of the few known sentry milkvetch populations is near Maricopa Point, yet the habitat for the plant there was reduced in size by the construction of a parking lot in 1935.



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Figure 3. Approximately 4,000 plants were salvaged along Hermit Road prior to the beginning of construction in 2007. The salvaged plants were replanted in the fall of 2008, along with approximately 16,000 additional plants.



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Figure 4. Sentry milkvetch, the park's only endangered plant species, lives at Maricopa Point, where crews replanted an obliterated parking lot with native vegetation to increase habitat for the species.



Figure 5. Wire cages protect newly replanted vegetation until it is established on the former parking lot site at Maricopa Point.

As part of the Hermit Road project, the Maricopa Point parking lot was removed in order to provide additional habitat for sentry milkvetch. Much of the former parking lot has already been replanted (fig. 5), but a portion of it is the focus of an additional project specifically targeted to restoring habitat for the sentry milkvetch as part of the species recovery plan. The goal is to increase the available sentry milkvetch habitat at Maricopa Point by approximately 20%. A multifaceted project will seek to reestablish the unique habitat that these rare plants require, including growing plant companion species. Once appropriate habitat is restored, techniques for introducing sentry milkvetch will be tested and developed.

Project funding

The Hermit Road rehabilitation project was funded with park entrance fees, authorized by the Federal Lands Recreation Enhancement Act, the Alternative Transportation in Parks and Public Lands Program, and the Federal Lands Highway Program. Of \$10 million devoted to the project, approximately \$500,000 financed vegetation and topsoil restoration along Hermit Road. The sentry milkvetch projects will be supported by a combination of National Park Service and U.S. Fish and Wildlife Service monies, with a budget of \$330,000 for the species recovery plan, of which Maricopa Point is only one component.

Additional information about the vegetation restoration project on Hermit Road

is in the *Canyon Sketches* eMagazine on Grand Canyon National Park's Web site at <http://www.nps.gov/grca/naturescience/cynsk-vo6.htm>.

About the authors

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