

# RESOURCE NOTES

NO. 16

DATE 05/30/00

## *Restoration of Unauthorized Routes in Sensitive Species Habitats*

by Thomas B. Egan  
Barstow Field Office (CA-680)  
Bureau of Land Management

### Background

A high priority recovery need for the federally-listed desert tortoise and other sensitive species occurring within the California Desert is the restoration of unauthorized routes, or road reclamation (refer to **West Mojave Route Designation, Ord Mountain Pilot Unit, Biological Resource Screening Components; Bureau of Land Management 1997**). Such restoration allows for the protection of large contiguous blocks of habitat that are relatively unencumbered by vehicle use impacts and related activities. Restoring unauthorized routes would significantly reduce identified habitat fragmentation occurring within designated tortoise critical habitat units and yield tremendous positive benefits affecting recovery of this species. Of the 22 major threats to the tortoise identified in recent research, ten would be significantly reduced by restoring unauthorized roads and trails, including the following: fire, off-highway vehicle recreation, animal collection, garbage and litter, handling and manipulation, invasive weeds, noise, vandalism, predation (by ravens and similar subsidized predators), and non off-highway vehicle recreation.

The Barstow Field Office of the Bureau of Land Management is currently seeking support among potential cooperators to use “desert

tortoise habitat compensation” funds for road and trail restoration. Such funds are occasionally generated, pursuant to guidelines in BLM’s Desert Tortoise Rangeland Plan, when habitat-impacting projects are approved within the range of the tortoise that cannot be fully mitigated on-site. In the past, these “habitat compensation” funds have typically been used to acquire private inholdings within designated tortoise critical habitat units. Recently, however, the Barstow Field Office determined that compensation funds generated by several large-scale projects would enable cooperating agencies to protect/enhance a much larger amount of tortoise habitat if these funds were used for route restoration, rather than habitat acquisition. Both methods of offsite habitat compensation are necessary for long-term recovery of the desert tortoise and other sensitive species in certain critical habitat units, and these options should be carefully evaluated on a case-by-case basis.

To accomplish both tortoise habitat restoration and route designation objectives in critical habitat units, BLM staff have developed a reclamation strategy commonly referred to as “vertical mulching”. This technique involves the placement of structure (live vegetation, rocks, dead shrubs and “snags”, bunch-grasses, and various woody material) within the confines of the closed roadway surface, both on the ground surface and in a vertical manner, designed to conform with adjacent vegetation and terrain. Use of this technique is further described below.

### Discussion

Lessons learned by BLM over past decades have shown that route designation cannot be effectively

implemented by simply installing red carsonite “closed to vehicle use” signs on or adjacent to unauthorized routes of travel. Efforts must include encouraging vehicle travel on designated open routes, and making designated closed routes literally disappear into the landscape. To begin this “disappearing act”, decompaction and mulching techniques must be applied to closed routes, extending at least to the visual horizon, especially where the closed routes intersect with other routes.

The Barstow Field Office has demonstrated that unauthorized roads and trails can be economically restored through use of vertical mulching techniques. These techniques involve placement of boulders and organic structure, such as live/dead and down vegetation, within the disturbed soil portion of affected roadbeds. Only vegetation, rock and woody structure native to the immediate closed route vicinities are used. The estimated cost for restoring tortoise habitat using this technique is \$500 per acre, using current technology.

The target restoration areas consist of roads and trails that facilitate a variety of anthropogenic impacts to designated desert tortoise critical habitat. The specified collection and installation of mulching material occurs under the supervision of a qualified natural resource specialist, archeologist, biologist or technician, to ensure a minimization of impacts to biological or cultural resources. Areas adjacent to where route closure/rehabilitation is planned may occasionally be used to gather dead vertical mulching material, in a manner designed to avoid causing local dead and down habitat loss, yet also accomplish restoration objectives.

THREATENED &  
ENDANGERED  
SPECIES



In no circumstances are shrubs that shade animal burrows or that are located adjacent to cultural resources, removed for use as mulching material. However, live and dead vegetation from the immediate region, salvaged from land clearing or road maintenance operations, may occasionally be used as mulching material in such restoration projects. Memorandums of understanding developed between land management agencies and local transportation departments, regarding salvage and storage of native material for this application, can facilitate large-scale projects.

The use of pitting, ripping, or other scarification techniques within the confines of route or roadbed soil disturbance is sometimes necessary for rapid site recovery. Such scarification is done with hand-tools or through the use of heavy equipment and machinery (toothed rake, pitter, or similar device pulled by a tractor). After scarification, the live or dead vegetation is placed in a vertical fashion within the confines of route or roadbed soil disturbance, in a manner designed to conform to adjacent terrain and vegetation.

The Barstow Field Office is able to restore Mojave Desert habitats for about \$500 per acre, due to relationships and agreements it has in

place with the California Conservation Corps and other local young adult labor groups. Under an existing agreement, the California Conservation Corps will match BLM contributed project funds on a dollar for dollar basis. As a consequence, funds generated by large habitat-disturbing projects could also qualify for matching by the State of California, in the form of matching labor funds available via the use of the California Conservation Corps.

### Conclusion

Vertical mulching can be an economical technique for restoring unauthorized roads and trails in desert tortoise and other sensitive species' habitats. In some circumstances it may provide much more "bang for the buck" when compared to traditional forms of offsite compensation. Its application in

selected areas of the California Desert will reduce anthropogenic impacts to the listed desert tortoise, contributing significantly to the recovery of this threatened species.

### References

Bureau of Land Management (BLM). 1997. West Mojave route designation, Ord Mountain pilot unit, biological resource screening components. California Desert District BLM Office, Riverside, California.

### Contact:

Thomas B. Egan  
Barstow Field Office, BLM  
2601 Barstow Road  
Barstow, CA 92311  
phone (760) 252-6032  
fax (760) 252-6099  
email [tegan@ca.blm.gov](mailto:tegan@ca.blm.gov)



RESOURCE NOTES are intended to be early announcements of technical and informational topics for Bureau of Land Management personnel and some of their customers. Information in this RESOURCE NOTE is based on the opinion and experience of the author and has not been peer-reviewed. Conclusions and opinions expressed herein do not necessarily represent those of BLM. Use of trade names does not imply U.S. Government endorsement of commercial products.

If you have received a copy of or found out about RESOURCE NOTES in an indirect way and would like to be included in future mailings, please send the following:

NAME, TITLE, MAILING ADDRESS and a list of the two or three subject areas that you are most interested in or that most directly relate to your job. Send this information to Phil Dittbener, BLM, RS-140, P.O. Box 25047, Denver, CO. 80225-0047 or [phil\\_dittbener@blm.gov](mailto:phil_dittbener@blm.gov) or FAX 303-236-3508.

If you would like to prepare a RESOURCE NOTE for distribution, or you have an idea and author in mind for a good RESOURCE NOTE, please contact Phil Dittbener at 303-236-1833, FAX 303-236-3508 or [phil\\_dittbener@blm.gov](mailto:phil_dittbener@blm.gov) with the topic and the name of writer, including an address, phone number, and e-mail address.

Thank you for your interest in RESOURCE NOTES.