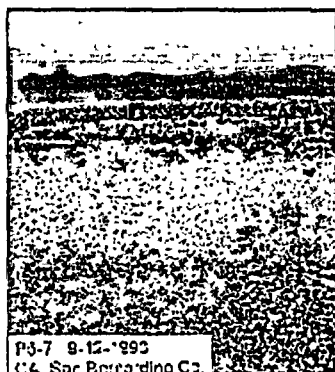


[\[ Pattern Indicators | Image File | Spectral Data \]](#)

## Summary: Desert Pavement

[\[ Description | Significance | Foreign Names | References \]](#)

### • *Description*

Desert pavements are surfaces of closely packed angular or rounded rock fragments, commonly only one or two fragments thick, that form a mosaic in a matrix of fine sediment, i.e., sand, silt, and/or clay (definition modified from Cooke and Warren[1]). Coarse fragments are alluvial pebbles, gravel, and cobbles, or debris weathered from bedrock (talus). Desert pavements cover areas ranging from a few square meters to hundreds of square kilometers. They occur mostly in sand-poor regions, such as desert plains near bedrock outcrops, on plateaus, in dry wadis and terraces, and on alluvial fans. The mechanics of the evolution of the surface are controversial; current theories include accretion and deflation due to wind action (McFadden, et al. [2]), water sorting, and upward migration of coarse particles by freezing/thawing or by wetting/drying cycles.

Some older pavement areas are remarkably smooth and flat with no large fragments protruding above the surface. Such areas are commonly found on smaller fans; low, arched fans; the outer reaches of large fans and outwash flats; and terraces and flood plains along drainage courses. In other, younger pavement areas, many of the larger fragments are cobbles and boulders about 15 to 30 cm across and even larger, which protrude significantly above the surrounding terrain. This irregular surface occurs most commonly on highly arched fans and the upper reaches of large fans and outwash flats. Exposed surfaces of the coarse fragments are commonly coated with a black or brown patina called **desert varnish**; their buried undersides may be stained orange brown. Little vegetation is present except where soils have developed beneath the pavement.

### • *Significance*

In general, desert pavements are ideal for cross country movement and aircraft use because they are usually dry, fairly smooth, and hard. However, aircraft operations or the passage of fast-moving vehicles can raise clouds of dust. Also, thin pavements can be broken by heavy vehicles or multiple passes of light vehicles, exposing fine sediment that may be soft or produce dust. In areas of cobbles and boulders, vehicular traffic must follow a zig zag path in accordance with the vehicle's ground clearance. See Summaries for Alluvial Deposits - Fans and Gravel Plains.

### • *Foreign Names and Synonyms*

(Common names are in bold) Hammada, serir, reg, gobi, gibber, **stone pavement**

[http://www.tec.army.mil/research/products/desert\\_guide/lsm-sheet/lspave.htm](http://www.tec.army.mil/research/products/desert_guide/lsm-sheet/lspave.htm), 12/10/04

◆ *References*

1. Cooke, R.U., and A. Warren. 1973. *Geomorphology in deserts*. London: B.T. Batsford Ltd., p. 120.
  2. McFadden, L.D., S.G. Wells, and M.J. Jercinovich. 1987. Influences of eolian and pedogenic processes on the origin and evolution of desert pavements. *Geology*, v. 15, pp. 504-508.
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