

# Major Land Resource Area 030X

## Mojave Basin and Range

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### Ecological site keys

#### Alluvial Fans-including ballenas, fan remnants, inset fans, fan aprons, and fan skirts

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##### I. Inset fan and fan drainageways

###### B. Site is generally greater than 3600 ft. in elevation

- 1 There are very high amounts (greater than 60 percent surface cover) of boulders, stones or cobbles at the surface. ... R030XB052NV – RUBBLY OUTWASH
- 2 This ecological site is located in drainageways and on stream terraces. These landforms are occasionally to frequently flooded. California broomsage is the dominant species and is generally found in sandy or gravelly washes ... R030XA042CA – Sandy Wash
- 3 Site drains limestone parent material, is over 6000 ft and supports a fourwing saltbush-mountain big sagebrush community. ... R030XC033NV – SANDY LOAM 9-11 P.Z.
- 4 The soils associated with this site are deep to very deep, well drained, and formed in alluvium derived from limestone. Elevations range from 5900 to 6600 feet. ... R030XC035NV – LOAMY 9-11 P.Z.

###### C. Site is generally lower than 3600 feet in elevation

- 1 Soils have a calcic horizon ... R030XB050NV – Calcic Dry Wash
- 2 Interfan drainageway with stream order 1-2.
  - i. Wash mainly drains alluvial fans where channel migration can occur ... R030XB187CA – Rarely Flooded Warm Thermic Ephemeral System
  - ii. Wash mainly drains hills and mountains where channel migration cannot occur ... R030XB028NV – VALLEY WASH
  - iii. . Stream order 1-2 and wash mainly drains soils with diagnostic subsurface horizons and is adjacent to hills or mountains; roughly plant hardiness zone 9b or higher ... R030XB103NV – Warm Dry Wash
  - iv. This site occurs on inset fans, drainageways and stream terraces (rarely on fan aprons) that drain stable fan remnants covered with desert pavement. ... R030XD021CA – Occasionally Flooded, Hyperthermic, Desert Pavement Ephemeral Stream
- 3 Inset Fan
  - i. These low elevations have a Plant Hardiness Zone 9b or warmer so that smoketree, typically found in the Sonoran Desert, is often present in these fluves. ... R030XB098NV – GRAVELLY OUTWASH

##### II. The upper Piedmont Slope consisting of the mountain valley fans, alluvial fans, and ballenas.

A. Generally on erosional fan remnants or ballenas in the upper fan piedmont where deeply incised washes dissect the landscape so that ephemeral streams can not migrate; well-developed diagnostic subsurface horizon are likely to be present within the top 25 cm of soil surface such as heavy clay or calcium carbonate accumulation OR shallow soils due to a duripan or densic horizon.

- 3 Moderately deep or shallower soils [< 40 inches (100 cm)] OR if soils are deeper than 20 inches (50cm), there is a diagnostic subsurface horizon acting as an aquatard within the top 20 inches of the soil profile
  - i. Alluvium from mixed sources with little to no alluvium from limestone sources, if a calcic or petrocalcic horizon is present, it is below 10 inches (25 cm) ... R030XB188CA – Cool Shallow to Moderately Deep Fans
  - ii. Alluvium from limestone OR a calcic or petrocalcic horizon within the top 25 cm of the soil surface ...

R030XB230CA – Very Rarely Flooded Deep Fan Remnants

iii. a diagnostic subsurface horizon within the top 25 cm of soil surface such as heavy clay or calcium carbonate accumulation ... R030XB029NV – SHALLOW GRAVELLY LOAM 5-7 P.Z.

iv. Calcic or petrocalcic horizon is present ... R030XA001CA – Cool Loamy Fan Remnants 5-7

vi. Only a duripan is present (Sonoran Desert watershed) ... R030XB220CA – Very Shallow Duripan Fan Remnants

vii. . Alluvium contains gypsum ... R030XB104NV – COARSE SILTY 5-7 P.Z.

viii. Strong argillic horizon (clay increases greatly between horizons and is greater than 15% clay) is within top 25 cm of the soil surface AND no desert pavement present ... R030XB221CA – Loamy Fan Remnants And Pediments

ix. These soils have typically formed in alluvium from ignimbritic and basalt parent material. ... R030XB031NV – SHALLOW LIMY 5-7 P.Z.

x. Alluvium from limestone, dolomite, or conglomerate. Less than 15% slope. ... R030XC034NV – SHALLOW GRAVELLY LOAM 9-11 P.Z.

xi. Alluvium from limestone, dolomite, or conglomerate. Greater than 15% slope. ... R030XC043NV – SHALLOW CALCAREOUS SLOPE 9-11 P.Z.

xi. This site occurs on gently sloping alluvial fan remnants at elevations of approximately 3300 to 3900 feet. Soils have loamy to coarse loamy textures, and are shallow to moderately deep to a petrocalcic horizon. ... R030XB231CA – Shallow To Moderately Deep Petrocalcic Fan Remnants (Provisional)

xii. The soils of this site are derived from granite, schist or gneiss parent materials. These soils are shallow to moderately deep to an argillic horizon, a duripan, or a petrocalcic horizon. ... R030XB058NV – GRANITIC FAN 5-7 P.Z.

#### 4 Moderately deep or deeper soils [> 40 inches (100 cm)]

i. Soils derived from limestone parent material.

a. Less than 15% slopes. Diagnostic subsurface horizon is present. ... R030XB038NV – GRAVELLY PEDIMENT 3-5 P.Z.

b. Less than 15% slope. Diagnostic subsurface horizon is not present. ... R030XB139NV – COBBLY FAN 5-7 P.Z.

c. Less than 15% slope. The soil profile is characterized by 50 to 75 percent rock fragments, mainly gravel with some cobbles and stones. ... R030XC041NV – GRAVELLY FAN APRON 9-11 P.Z.

d. < 15% slope and a pinyon-juniper site. ... F030XC288NV – Pinus monophylla-Juniperus osteosperma/Quercus gambelii-Cercocarpus ledifolius var. intermontanus/Poa fendleriana-Bouteloua gracilis

ii. Parent material is not derived from limestone

a. Vesicular pores in soil surface with greater than 80% gravel cover on the soil surface

1) Broken up patches of desert pavement OR weak desert pavement formation with vesicular horizons present OR greater than 80% large surface fragments (> 20 mm or ¾ inch) usually with a vesicular horizon

a) Less than 15% slope ... R030XB019NV – Eroded Fan Remnant Pavette 4-6 P.Z.

b) Greater than 15% slope ... R030XB099NV – GRAVELLY RIDGE 5-7 P.Z.

c) Slope <15%; The soil temperature regime is hyperthermic. ... R030XB078NV – BARREN HILL 3-5 P.Z.

2) Non-fragmented desert pavement, true desert pavement; virtually devoid of vegetation ... R030XB092NV – DESERT PATINA

b. No vesicular pores in soil surface and/or less than 80% gravel cover on the soil surface

1) Sodic horizon present ... R030XB138CA – Granitic Slope 3-5

2) No sodic horizon present ... R030XB083NV – BASALTIC FAN 3-5 P.Z.

3) A diagnostic subsurface horizon is present or an underlying horizon has a coarser texture than above horizons which prevents moisture from deep infiltration ... R030XC238CA – Bi-Modal

## Semi-Desert Deep Fans 8-10 inches

4) This ecological site occurs on channeled fan aprons and fan remnants, typically on the upper portion of the fan piedmont, at elevations of 950 to 2390 feet. ... R030XD041CA – Channeled Warm Alluvial Fans

B. Buried fan remnants, non-buried fan remnants, fan aprons, or other landforms which are not an erosional fan remnant and where washes do not deeply dissect the landscape so that ephemeral streams do migrate.

1 Moderately deep or shallower soils [ $< 40$  inches (100 cm)] OR if soils are deeper than 20 inches (50cm), there is a moderately deep or shallower diagnostic subsurface horizon acting as an aquatard

i. Alluvium from mixed sources with little to no alluvium from limestone sources

a. A natric subsurface horizon is present ... R030XA038CA – Sandy Fan

b. No natric subsurface horizon is present ... R030XA048CA – Shallow Fans 5-7

2 Moderately deep or deeper soils [ $> 40$  inches (100 cm)], no diagnostic subsurface horizon is present

i. Soils are moderately deep or deeper and form in mixed alluvium from limestone, dolomite and shale. ... R030XA002CA – Calcareous Fan 5-7

3 Site does not receive sheet flow from higher elevations

i. Desert Pavement ... R030XD002CA – Desert Pavement

ii. This ecological site tends to occupy distal fan positions, far from sources of run-on, and this site typically has no sheet-flow from flash-flooding events but yet is not a desert pavement. ... R030XD006CA – Abandoned Fan

4 Site does receive sheet flow

i.  $< 15\%$  cobbles on the surface ... R030XD015CA – Hyper-Arid Fans

ii.  $> 15\%$  cobbles and stones on surface ... R030XD039CA – Coarse Gravelly Fans

III. The lower Piedmont slope consisting of the fan Piedmont and fan skirt.

A. Fan Piedmont

1 landforms which are not an erosional fan remnant and where washes do not deeply dissect the landscape so that ephemeral streams do migrate

i. Lacustrine terrace AND/OR soil surface likely originated from lake or marine deposits, including alluvium from lake or marine deposits ... R030XA012CA – Calcareous Loam 5-7

ii. The site is not a lacustrine terrace and an argillic subsurface horizon is present. ... R030XA020CA – Arid Fans 5-7

2 Site occurs on fan apron, a sheet-like mantle of relatively young alluvium and soils covering part of an older fan piedmont surface.

i. Argillic diagnostic horizon is present. ... R030XB174CA – Sandy Fan Aprons

ii. Diagnostic subsurface horizon not present, below 4000 ft. in elevation ... R030XB192CA – Very Rarely Flooded, Warm Thermic Fan Piedmonts

iii. 8' Diagnostic subsurface horizon not present, elevation above 4000 ft. ... R030XB013CA – Loamy

3 Site occurs on erosional active fan remnants

i. Site often has a root restricting layer such as a petrocalcic layer that can range in depth from shallow to deep. ... R030XB005NV – Arid Active Alluvial Fans

B. Fan Skirt

1 Dominant soils associated with this ecological site are very deep, and formed in alluvium derived from granitic sources. ... R030XB137CA – Granitic Loam

2 A root-restricting layer has formed due to pedogenesis.

i. Parent material is of sedimentary origin. ... R030XB241CA – Calcareous Loam

3 Soils are deep without a root-restricting layer.

i. The soils associated with this site are very deep alluvium derived from mixed igneous sources. Soil reaction is moderately to strongly alkaline. ... R030XD046CA – Fan Skirt

