USDA icon **Natural Resources Conservation Service**

Major Land Resource Area 041X
Madrean Archipelago

Accessed: 06/20/2026

Ecological site group keys

16-20” PZ within Land Resource Unit 41.AZ1, Mexican Oak-Pine Forest and Oak Savannah

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I. Flooded (bottom position, flooded from the valley-side or over-bank)

- **A. Soils with a perennial high water-table (3-15 ft.)**
  - **1 Soils sandy and gravelly with redox features**
  - **2 Soils loamy to clayey with redox features**
- **B. Soils with seasonal (summer) water table (3-15 ft.)**
  - **1 Soils sandy loam to clay loam**
- **C. Soils without a high water table (3-15 ft)**
  - **1 Soils sandy**
  - **2 Soils sandy loam to clay loam**
  - **3 Soils clayey (vertic)**

II. Not Flooded (upland position, receives only precipitation)

- **A. Slopes less than 15%**
  - **1 Soils calcareous throughout**
    - **a. Soils shallow (less than 20 inches deep)**
      - **1 Soils with a lime cemented hardpan**
    - **b. Soils moderately deep to deep (30 to 60 inches)**
      - **1 Soils with an argillic horizon**
  - **2 Soils non calcareous in upper 10 inches**
    - **a. Soils shallow (less than 20 inches deep)**
      - **1 Soils underlain by granite, schist, rhyolite bedrock**
    - **b. Soils moderately deep to deep (30 to 60 inches)**
      - **1 Soils without an argillic horizon**
        - **a. Soils loamy fine sand to sandy loam**
      - **2 Soils with an argillic horizon**
        - **a. Soils with sandy loam surface 4 in. or thicker**
        - **b. Soils with sandy loam surface less than 4 in.**
        - **c. Soils with clay loam surface (not vertic)**
        - **d. Soils with a clayey surface (vertic)**
- **B. Slopes greater than 15%**
  - **1 Soils shallow (less than 20 inches deep)**
    - **a. Soils calcareous throughout**
      - **1 Soils over limestone parent materials**

b. Soils non calcareous

1 Soils over granite, schist, gneiss, rhyolite (acid igneous)

2 Soils over basalt, andesite, welded tuff (basic igneous)

2 Soils moderately deep and deep (30 to 60 inches)

a. Soils calcareous throughout

1 Soils dark colored in the surface 5 inches (10YR, 4/2)

b. Soils non calcareous in the upper 10 inches

1 Soils sandy loam to clay loam

2 Soils clayey

3 Add criteria

Talbot-Nauman Key

I. Additional water

A. Perennial water ... 041XESG09 – Riparian

B. Ephemeral water

1 Subsurface EC>4 ... 041XESG10 – Saline Bottoms

2 Subsurface EC <4

i. Sand >50% & Clay <25% for surface and subsurface ... 041XESG13 – Sandy Bottoms

ii. Sand <50% & Clay >25% for surface and subsurface ... 041XESG01 – Bottoms

II. Uplands

A. >75% bedrock outcrop ... 041XESG08 – Outcrops

B. <75% bedrock outcrop

1 Surface SAR >8, or Subsurface EC >8, or Surface EC >4 ... 041XESG11 – Saline Hills

2 Surface SAR <8, or Subsurface EC <8, or Surface EC <4

i. Gypsum >5% surface or >10% subsurface ... 041XESG06 – Gypsum

ii. Gypsum <5% surface and <10% subsurface

a. EC >1.5 surface or >2 subsurface ... 041XESG12 – Saline Uplands

b. EC <1.5 surface or <2 subsurface

1) slope >35% & >40% surface rock ... 041XESG02 – Breaks

2) slope <35% or <40% surface rock

a) Depth <30cm ... 041XESG16 – Very Shallow

b) depth: 30-55cm ... 041XESG15 – Shallow

c) depth >55cm

(1) Rock >30% surface or >30% subsurface ... 041XESG04 – Deep Rocky

(2) Rock <30% surface and <30% subsurface

(a) Clay >30% surface or >35% subsurface ... 041XESG03 – Clay Uplands

(b) Clay <30% surface and <35% subsurface

(1) sand >75% or texture is Loamy Sand or sandier in surface & subsurface ... 041XESG14 – Sandy Uplands

(2) sand <75% or texture is Loamy Fine Sand or finer in surface & subsurface

(a) Clay <20% or texture is Sandy Loam or sandier in surface ... 041XESG07 – Loamy Uplands

(b) Clay >20% or texture is Fine Sandy Loam or finer in surface ... 041XESG05 – Finer Uplands

National Park Service

I. Additional water

A. Perennial water ... 041XESG09 – Riparian

B. Ephemeral water

1 Subsurface EC >4 - 040XESG10 Saline Bottoms

2 Subsurface EC <4

i. Sand >50% & clay <25% for surface and subsurface - 040XESG13 Sandy Bottoms

ii. Sand <50% or clay >25% for surface and subsurface - 040XESG01 Bottoms

II. Uplands

A. Surface SAR >8

1 Elevation - 2500-3700 ft ... 041XESG62 – Thornscrub Saline Hills

2 Elevation - 3700-4500 ft - 042BESG63 Semi-Desert Grassland Saline Hills

3 Elevation - 4500-6000 ft - 042BESG38 Madrean Woodland Saline Hills

4 Elevation - >6000 ft - 070BESG64 Temperate Forest Saline Hills

B. Surface SAR <8

1 Gypsum >5% surface or >10% subsurface

i. Elevation - 2500-3700 ft - 042AESG33 Gypsum Thornscrub

ii. Elevation - 3700-4500 ft - 042BESG55 Gypsum Semi-Desert Grassland

2 Gypsum <5% surface or <10% subsurface

i. Subsurface EC >8 or surface EC >4

a. Elevation - 2500-3700 ft ... 041XESG62 – Thornscrub Saline Hills

b. Elevation - 3700-4500 ft - 042BESG63 Semi-Desert Grassland Saline Hills

c. Elevation - 4500-6000 ft - 042BESG38 Madrean Woodland Saline Hills

d. Elevation - >6000 ft - 070BESG64 Temperate Forest Saline Hills

ii. Subsurface EC <8 and surface EC <4

a. EC >1.5 surface or >2 subsurface

1) Elevation - 2500-3700 ft ... 041XESG39 – Thornscrub Saline Uplands

2) **Elevation - 3700-4500 ft ...** 041XESG65 – Semi-Desert Grassland Saline Uplands

3) **Elevation - 4500-6000 ft - 042BESG66 Madrean Woodland Saline Uplands**

4) **Elevation - >6000 ft - 070BESG67 Temperate Forest Saline Uplands**

b. EC <1.5 surface and <2 subsurface

1) **Slope >35% & >40% surface rock - 038XESG19 Marean Woodland Breaks**

2) **Slope <35% or <40% surface rock**

a) **Depth <30cm**

(1) **Elevation - 2500-3700 ft - 040XESG46 Very Shallow Thornscrub**

(2) **Elevation - 3700-4500 ft - 042AESG47 Very Shallow Semi-Desert Grassland**

(3) **Elevation - 4500-6000 ft - 042AESG48 Very Shallow Madrean Woodland**

(4) **Elevation - >6000 ft - 070BESG49 Very Shallow Temperate Forest**

b) **Depth: 30-55cm**

(1) **Elevation - 2500-3700 ft - 040XESG42 Shallow Thornscrub**

(2) **Elevation - 3700-4500 ft - 042AESG43 Shallow Semi-Desert Grassland**

(3) **Elevation - 4500-6000 ft - 038XESG44 Shallow Madrean Woodland**

(4) **Elevation - >6000 ft - 070BESG45 Shallow Temperate Forest**

c) **Depth >55cm**

(1) **Rock >30% surface or >30% subsurface**

(a) **Elevation - 3700-4500 ft - 042AESG26 Deep Rocky Semi-Desert Grassland**

(b) **Elevation - 4500-6000 ft - 042BESG27 Deep Rocky Madrean Woodland**

(2) **Rock <30% surface and <30% subsurface**

(a) **Clay >30% surface or >35% subsurface**

(1) **Elevation - 2500-3700 ft - 040XESG21 Thornscrub Clay Uplands**

(2) **Elevation - 3700-4500 ft ...** 041XESG22 – Semi-Desert Grassland Clay Uplands

(3) **Elevation - 4500-6000 ft - 038XESG23 Madrean Woodland Clay Uplands**

(4) **Elevation - >6000 ft - 038XESG24 Temperate Forest Clay Uplands**

(b) **Clay <30% surface and <35% subsurface**

(1) **Sand >75% or texture is loamy sand or sandier in surface & subsurface**

(a) **Elevation - 2500-3700 ft - 042CESG40 Thornscrub Sandy Uplands**

(b) **Elevation - 3700-4500 ft - 042BESG41 Semi-Desert Grassland Sandy Uplands**

(c) **Elevation - 4500-6000 ft - 042BESG68 Madrean Woodland Sandy Uplands**

(2) **Sand <75% or texture is sandy loam or finer in surface & subsurface**

(a) **Clay <20% or texture is sandy loam or sandier in surface**

(1) **Elevation - 2500-3700 ft - 040XESG34 Thornscrub Loamy Uplands**

(2) **Elevation - 3700-4500 ft ...** 041XESG35 – Semi-Desert Grassland Loamy Uplands

(3) **Elevation - 4500-6000 ft - 042BESG36 Madrean Woodland Loamy Uplands**

(4) **Elevation - >6000 ft - 070BESG37 Temperate Forest Loamy Uplands**

(b) **Clay >20% or texture is finer than sandy loam in surface**

(1) **Elevation - 2500-3700 ft - 042AESG29 Thornscrub Finer Uplands**

(2) Elevation - 3700-4500 ft ... 041XESG30 – Semi-Desert Grassland Finer Uplands

(3) Elevation - 4500-6000 ft - 070BESG31 Madrean Woodland Finer Uplands

(4) Elevation - >6000 ft - 070BESG32 Temperate Forest Finer Uplands