

LOCATION ALCOVA

WY

Established Series
Rev. PSD/MCS/JAL
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ALCOVA SERIES

The Alcova series consists of very deep, well drained soils formed in old, calcareous alluvium derived from mixed sources. Alcova soils are on relict terraces, pediments, and dissected fan aprons. Slopes are simple and complex ranging from 0 to 15 percent. The mean annual precipitation is about 12 inches, and the mean annual temperature is about 44 degrees F.

TAXONOMIC CLASS: Fine-loamy, mixed, superactive, frigid Ustic Haplargids

TYPICAL PEDON: Alcova sandy loam-rangeland. (Colors are for dry soil unless otherwise stated.)

A--0 to 4 inches; grayish brown (10YR 5/2) sandy loam, dark grayish brown (10YR 4/2) moist; moderate and strong very fine granular structure; soft, very friable, nonsticky and nonplastic; slightly alkaline (pH 7.6); clear smooth boundary. (3 to 6 inches thick)

BA--4 to 7 inches; brown (10YR 5/3) sandy loam, brown (10YR 4/3) moist; weak and moderate medium subangular blocky structure parting to moderate fine granular; slightly hard, very friable, slightly sticky and nonplastic; 5 percent rounded pebbles; slightly alkaline (pH 7.6); clear smooth boundary. (0 to 4 inches thick)

Bt--7 to 18 inches; brown (10YR 5/3) sandy clay loam, brown (10YR 4/3) moist; moderate medium and coarse prismatic structure parting to moderate medium subangular blocky; slightly hard, friable, moderately sticky and moderately plastic; individual peds are hard and firm; many faint and few distinct clay films on faces of peds; 10 percent rounded pebbles; slightly alkaline (pH 7.6); clear wavy boundary. (7 to 23 inches thick)

Btk--18 to 25 inches; light brownish gray (10YR 6/2) gravelly sandy clay loam, grayish brown (10YR 5/2) moist; moderate medium subangular blocky structure; slightly hard, friable, moderately sticky and slightly plastic; individual aggregates are hard; few faint clay films on vertical faces of peds; strongly effervescent, lime as common soft masses and as filaments in seams; 25 percent rounded pebbles; moderately alkaline (pH 8.2); gradual wavy boundary. (5 to 10 inches thick)

2Bk--25 to 60 inches; light brownish gray (10YR 6/2) very gravelly loam, grayish brown (10YR 5/2) moist; massive; hard, very friable, slightly sticky and nonplastic; strongly effervescent in part and slightly effervescent; lime occurs as common soft masses and as thin crusts on some rock fragments. Carbonates are erratic and discontinuous; 55 percent rounded pebbles and 3 percent small cobbles; moderately alkaline (pH 8.2).

TYPE LOCATION: Carbon County, Wyoming; approximately 300 feet west and 550 feet south of the NE corner of sec. 35, T. 19 N., R. 83 W.

RANGE IN CHARACTERISTICS: Depth to the loamy-skeletal substratum ranges from 16 to 40 inches. Depth to the base of the argillic horizon is typically 15 to 25 inches but is as shallow as 12 inches in some pedons. These soils are free of carbonates in the upper 8 to 20 inches. The mean annual soil temperature is 43 to 47 degrees F., and the mean summer temperature is 59 to 63 degrees F. Rock fragments range from 0 to 35 percent in the upper part and are 0 to 35 percent pebbles and 0 to 5 percent cobbles. The skeletal substratum contains from 35 to 60 percent pebbles and from 5 to 25 percent cobble.

The A horizon has hue of 2.5Y through 7.5YR, value of 5 or 6 dry, 3 through 5 moist, and chroma of 2 through 4. It is neutral through moderately alkaline.

The BA or AB horizon has hue of 2.5Y through 7.5YR, value of 5 or 6 dry, 3 through 5 moist, and chroma of 2 through 4. It is sandy loam or sandy clay loam with 16 to 25 percent clay. In some pedons the BA is part of the argillic horizon. It is neutral through moderately alkaline.

The Bt horizon has hue of 2.5Y through 7.5YR, value of 4 through 6 dry, 3 through 5 moist, and chroma of 2 through 4. It is gravelly sandy clay loam, clay loam or sandy clay loam with 20 to 35 percent clay and more than 35 percent fine or coarser sand. It is neutral through moderately alkaline.

The Btk horizon has hue of 2.5Y through 7.5YR, value of 5 through 7 dry, 4 through 6 moist, and chroma of 2 through 4. It is gravelly sandy clay loam, clay loam, or sandy clay loam with 20 to 30 percent noncarbonate clay. Carbonates seem to be accumulating in this horizon and range from 5 to 10 percent. It is moderately alkaline or strongly alkaline.

The 2Bk horizon has hue of 2.5Y through 7.5YR, value of 5 through 8 dry, 4 through 7 moist, and chroma of 2 through 6. Matrix texture is sandy loam, sandy clay loam, or loam, with 35 to 70 percent pebbles, and 0 to 25 percent cobbles. A nonskeletal Bk horizon may occur in some pedons above this horizon. Carbonates range from 8 to 25 percent when averaged. About half the carbonates appear pedogenic and form large clusters or balls as much as a foot in diameter. It is moderately alkaline or strongly alkaline.

A 3Bk or 3C horizon is in some pedons below a depth of 30 inches. Colors and carbonates appear much the same as in the overlying horizon. It is loamy sand or sand modified with 35 to 65 percent pebbles and 5 to 25 percent cobbles. It is moderately alkaline or strongly alkaline.

COMPETING SERIES: These are the [Almy](#), [Anchutz](#), [Bateson](#), [Bluerim](#), [Forelle](#), [Maysprings](#), [Satanka](#), and [Taffom](#) series. Almy and Forelle soils have less than 35 percent fine or coarser sand in the particle size control section. Anchutz, [Hickey](#), and [Stunner](#) soils have diagnostic calcic horizons. Bateson soils have a 2Bk horizon of tuffaceous material. Bluerim and Satanka soils have a paralithic contact at 20 to 40 inches. Maysprings and Taffom soils are noncalcareous above 40 inches.

GEOGRAPHIC SETTING: Alcova soils are on relict terraces, pediments, and fan aprons. Dissection of these surfaces is common. These soils formed in medium textured, calcareous alluvium over skeletal, poorly sorted strata. Slopes are 0 to 15 percent. Elevations are 5,100 to 7,800 feet. The climate is cool with cold winters; cool, moist springs; and dry summers. The mean annual precipitation is about 12 inches but ranges from 8 to 14 inches with about half falling as rain or snow in March, April, May and Early June. The mean annual temperature ranges from about 40 to 45 degrees F. The frost-free season is estimated to range from 80 to 110 days depending upon elevation, aspect, and air drainage.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the [Bosler](#) and [Ryan Park](#) soils and the competing [Forelle](#) and [Rock River](#) Soils. Bosler soils have a contrasting particle-size control section. Ryan Park soils are coarse-loamy.

DRAINAGE AND PERMEABILITY: Well drained; runoff is slow or medium depending upon slope; permeability is moderate.

USE AND VEGETATION: Rangeland, wildlife habitat, and limited irrigated pasture. Native vegetation is bluebunch wheatgrass, needleandthread, prairie junegrass, big sagebrush, and perennial forbs.

DISTRIBUTION AND EXTENT: Mountain and hill footslopes and cold basins in central and south central Wyoming. The series is of moderate extent.

MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Bozeman, Montana

SERIES ESTABLISHED: Natrona County, Wyoming; 1985.

REMARKS: Diagnostic horizons and properties recognized in this pedon are:

Ochric epipedon--0 to 4 inches (A)

Argillic horizon--7 to 25 inches (Bt,Btk)

National Cooperative Soil Survey
U.S.A.