



ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Plant Abstract

Element Code: PMAGA010S2

Data Sensitivity: YES

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Agave utahensis* var. *kaibabensis* (McKelvey) Breitung
COMMON NAME: Kaibab Agave, Kaibab Century Plant, Utah Century Plant
SYNONYMS: *A. kaibabensis* McKelvey, *A. utahensis* ssp. *kaibabensis* (McKelvey)
Gentry
FAMILY: Agavaceae

AUTHOR, PLACE OF PUBLICATION: *Agave utahensis* Engelm. var. *kaibabensis* (McKelvey) Breitung, Cactus and Succulent Journal [U.S.] 32(1): 21. 1960. *Agave kaibabensis* McKelvey, Journal of the Arnold Arboretum 30(3): 227-230, pl. 1. 1949.

TYPE LOCALITY: USA: Arizona: Coconino County: North side of Grand Canyon (near the rim), Kaibab Plateau (A).

TYPE SPECIMEN: HT: A-40605. S.D. McKelvey 4381, 15 May 1934 (HUH accessed 2005).

TAXONOMIC UNIQUENESS: The species *utahensis* is 1 of 35 in the genus *Agave*, while the variety *kaibabensis* is 1 of 2 in the species *Agave utahensis*. The other variety *A. u.* var. *utahensis* (Utah agave) also occurs in Arizona. USDA PLANTS database (accessed 2005), reports 4 varieties in *A. utahensis*, which also includes var. *eborispina* (ivory spined agave) and var. *nevadensis* (Clark Mountain agave).

DESCRIPTION: Succulent perennial shrub that generally are in solitary rosettes, 3-6 dm (1-2 ft) high and 4-10 dm (1.3-3.3 ft) broad; plants sucker occasionally. Large, straight (not curved), narrow, robust leaves are 27-50 cm (11-20 in) long, 3-5.5 cm (1.2-2.2 in) wide, lanceolate and dark green to glaucous blue-gray, without bud-prints. Margins of leaf with thick, blunt, light color teeth 2-5 mm long and spaced 2-4 cm (0.8-1.6 in) apart; apical spine stout, subulate, 2-4 cm. The inflorescence is narrowly paniculate, 3-5.5 m (10-18 ft) tall, and 4.5-7 cm (2-3 in) in diameter with several to many lateral branchlets; longer lateral branchlets 4-10 cm (1.6-4 in). Brian (2000) reports unbranched inflorescence 4.5-7.5 m (14.75-24.6 ft) long. Deep yellow, funnellform flowers are 3-4.3 cm (1-1.7 in) long, in clusters of 4 to 12, the tepals spreading; stamens slightly exerted; white filaments inserted at or 1-3 mm above base of perianth tube, erect, 1.3-2.4 cm; style white; anthers yellow (orange in late anthesis), 5-12 mm; ovary 1.2-2.9 cm, neck constricted, 3.5-8.5 mm. Seed capsules pedicellate, ovoid to oblong, 1-2.5 cm long and 1-1.5 cm broad, apex beaked. Seeds are thick, 2-4 mm long and 3-4 mm wide. (Cronquist et al. 1977; Welsh et al. 1993; FNA 1993+)

AIDS TO IDENTIFICATION: *Agave utahensis* var. *kaibabensis* is similar to *A. u.* var. *utahensis*, however it differs in having taller scapes 3-7.5 m, larger leaves 30-50 cm long, and general tendency to not having offsets. Populations of both varieties, however, overlap and shared genes give plants shared characteristics. (Brian 2000).

ILLUSTRATIONS: Line drawing (Brian 2000).

Color photos of plant and habitat (Brain 2000).

Color photo (DBG 1999)

Color photo (Jane Vill-Lobos *in*

http://plants.usda.gov/cgi_bin/plant_profile.cgi?earl=plant_profile.cgi&symbol=AGUTK)

Color photo (Accessed 2003 from

http://www.kaktus.dk/cactusbed/Agave_utahensis_kaibabensis.html).

Color photo (Benny Molleroensen *in*

http://64.177.11.31/images/Agave/Agave_utahensis_var_kaibabensis_8_03.jpg)

Line drawing of plant and parts (Cronquist et al. 1977: p. 537).

B&W photo of plant in inflorescence (Geirsh, *in* Gentry 1982: fig. 11.11)

Color photo (Julia Etter and Martin Kristen, *in*

<http://www.agavaceae.com/botanik/pflanzen/>)

Color photo (*in*

http://www.desert-tropicals.com/Plants/Agavaceae/Agave_kaibabensis.html)

TOTAL RANGE: Endemic to Coconino and Mohave counties, Arizona. Kaibab Plateau, of northern Arizona, south onto the South Rim and along the cliffs above the Little Colorado River. In the Grand Canyon National Park, it is known from eastern Grand Canyon to the Kanab Plateau. Small populations occur in Virgin Canyon above the Virgin Narrows, and in Lime Kiln Canyon, Mohave County. Further surveys might demonstrate its existence in Kane County, Utah.

RANGE WITHIN ARIZONA: See "Total Range."

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Succulent perennial shrub.

PHENOLOGY: Flowers May to July (mid spring to early summer).

BIOLOGY: Reproduction occurs by suckers and seed.

HABITAT: This is a mostly north-oriented species, that occurs in cooler highlands with a lot of wind, and more often water type precipitation, and occasionally a little snow. It occurs on open ledges, rims, and level to moderately sloping ledges of limestone and sandstone derived soils in Mohave and Great Basin desertscrub and Great Basin Conifer

Woodland. Collected on Esplanade formation in 1994, and in 1992 on Coconino sandstone intermixed and just above Supai formation (in SEINet, accessed 2005).

ELEVATION: 2,295-8,197 ft (700-2500 m) (DBG 1999, FNA 1993+). According to Brian (2000), elevation ranges from 1,200 to 7,200 ft (366-2196 m).

EXPOSURE: Sun to part shade. Collected on N-facing cliff slope, NE-facing slope, and south-facing shale slope (in SEINet, accessed 2005).

SUBSTRATE: Rocky limestone, granite and sandstone derived soils. Collected on Supai shale with Coconino sandstone.

PLANT COMMUNITY: Outcrops in Mohave and Great Basin desertscrub, pinyon-juniper, or Great Basin conifer woodland. Associated species include: *Acacia constricta* (Mescat acacia), *Amelanchier utahensis* (Utah serviceberry), *Arctostaphylos pungens* (Mexican manzanita), *Aristida* (three-awn grass), *Artemisia ludoviciana* (white sagebrush), *Berberis* (= *Mahonia*) *repens* (creeping Oregon-grape), *Buddleja* (butterfly-bush), *Chrysothamnus* (= *Ericameria*) *parryi* var. *nevadensis* (Parry's rabbitbrush), *Cirsium arizonicum* (Arizona thistle), *Coleogyne ramosissima* (blackbush), *Echinocereus fendleri* (Fendler hedgehog-cactus), *Encelia frutescens* (bush brittlebush), *Ephedra* (Mormon-tea), *Erigeron* (fleabane), *Eriogonum* (buckwheat), *Fallugia paradoxa* (Apache-plume), *Ferocactus acanthodes* (= *cylindraceus*) *lecontei* (Leconte's barrel cactus), *Galium* (bedstraw), *Gutierrezia sarothrae* (broom snakeweed), *Haplopappus*, *Juniperus* sp., *Juniperus scopulorum* (Rocky Mountain juniper), *Nolina microcarpa* (Sacahuista bear-grass), *Opuntia acanthocarpa* (stag-horn cholla), *O. chlorotica* (dollar-joint prickly-pear), *O. engelmannii* (Engelmann prickly-pear), *O. macrorhiza* (twisted-spine prickly-pear), *O. polyacantha* (plains prickly-pear), *Penstemon*, *Pinus edulis* (two-needle pinyon pine), *P. monophylla* (single-leaf pine), *Psilostrophe* (paper-flower), *Purshia mexicana* (Mexican cliffrose), *Quercus turbinella* (shrub live oak), *Salazaria mexicana* (Mexican bladder-sage), *Salvia* (sage), *Shepherdia rotundifolia* (roundleaf buffaloberry), *Sphaeralcea* (globemallow), *Stipa* (needlegrass), *Thymophylla pentachaeta* (common dogweed), and *Yucca baccata* (fleshy-fruit yucca). (In SEINet, accessed 2005).

POPULATION TRENDS: Unknown.

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None
STATE STATUS: Salvage Restricted (ARS, ANPL 1999)
 [Salvage Restricted (ARS, ANPL 1993)]
OTHER STATUS:

MANAGEMENT FACTORS: Where available, deer and cattle may browse young flower stalks. Along with variety *utahensis*, var. *kaibabensis* is horticulturally propagated for its use in commercial and private landscapes.

PROTECTIVE MEASURES:

SUGGESTED PROJECTS: Surveys to look at possible occurrence in Utah.

LAND MANAGEMENT/OWNERSHIP: BIA – Navajo Nation; BLM – Arizona Strip Field Office; NPS – Grand Canyon National Park.

SOURCES OF FURTHER INFORMATION

REFERENCES:

- Arizona Revised Statutes. 1999. Arizona Native Plant Law, Appendix 5.
- Breitung, A.J. 1960. Cultivated and native agaves of the southwest U.S., Part 6, Cact. Succ. J. 32:20-23.
- Breitung, A.J. 1960. J. Cact. Succ. Soc. Amer. 32:21.
- Brian, N.J. 2000. A field guide to the special status plants of Grand Canyon National Park. Science Center, Grand Canyon National Park, Grand Canyon, Arizona.
- Cronquist, A., A.H. Holmgren, N.H. Holmgren, J.L. Reveal, and P.K. Holmgren. DATE****. Intermountain Flora, vascular plants of the Intermountain West, U.S.A. Volume Six, The Monocotyledons. Columbia University Press, New York, for The New York Botanical Garden. Pp. 536-538.
- Desert Botanical Garden (DBG). 1999. Web abstract, *Agave utahensis*, with description of *Agave utahensis* ssp. *kaibabensis*. http://www.dbg.org/Collections/agave_utahensis.html. Accessed: 5/7/2003.
- Flora of North America Editorial Committee, eds. 1993+. Flora of North America North of Mexico. 7+ vols. New York and Oxford.
- Gentry, H.S. 1982. Agaves of Continental North America. The University of Arizona, Tucson, Arizona. p. 259.
- Harvard University Herbaria. 2001. Index of Botanical Specimens. <http://cms.huh.harvard.edu/cms-wb/specimens.jsp>. Accessed: 8/31/2005.
- Integrated Taxonomic Information System (ITIS). Retrieved 5/7/2003 from ITIS, <http://www.itis.usda.gov>.
- Missouri Botanical Garden – TROPICOS, Nomenclatural Data Base. *Agave utahensis* var. *kaibabensis* (McKelvey) Breitung. <http://mobot.mobot.org>. Accessed: 7 May 2003.
- NatureServe Explorer: An online encyclopedia of life [web application]. 2002. Version 1.6. Arlington, Virginia, USA: NatureServe. Available: <http://www.natureserve.org/explorer>. (Accessed: May 7, 2003).
- SEINet. Collections Search Result. Accessed 8/31/2005 at <http://seinet.asu.edu/collections/list.jsp>.

USDA, NRCS. 2002. The PLANTS Database, Version 3.5 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

USDA, NRCS. 2004. The PLANTS Database, Version 3.5 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

Welsh, S.L., N.D. Atwood, S. Goodrich, and L.C. Higgins, Eds. 1993. A Utah Flora. Second Edition, revised. Print Services, Brigham Young University, Provo, Utah. P. 736.

MAJOR KNOWLEDGEABLE INDIVIDUALS:

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ADDITIONAL INFORMATION:

Agave is from the Greek word meaning noble, from the imposing nature, *utahensis* means of or from Utah, and *kaibabensis* means of or from the Kaibab Plateau.

Plants of this species were used by Native Americans as a source of fiber and food.

Revised: 1989-11-09 (ANHP)
1991-10-20 (BKP)
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