ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Plant Abstract **Element Code:** PMLIL1A0J0
Data Sensitivity: YES

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Lilium parryi* Wats.
COMMON NAME: Lemon Lily
SYNONYMS:
FAMILY: Liliaceae

AUTHOR, PLACE OF PUBLICATION: Watson, Sereno. 1978. Proc. Davenport Acad. Nat. Sci. 2: 189, pl. 5-6.

TYPE LOCALITY: California: Marsh in San Gorgonio Pass.

TYPE SPECIMEN: HUH 29964. Charles C. Parry and John G. Lemmon 387. ** See Additional Information for possible types in the NYBG**

TAXONOMIC UNIQUENESS: Only true lily (*Lilium*) in Arizona.

DESCRIPTION: One to several erect stems arising from rhizomatous bulb 2.5-3.0 cm (1.0-1.2 in.) long, scales jointed. Stems to 1.5 m (5.0 ft) tall. Leaves linear-oblanceolate or lanceolate; in whorls or alternately spaced along stem; 8.0-15.0 cm (3.2-6.0 in.) long, 6.0-15.0 mm (0.24-0.6 in.) wide. Flowers, very fragrant, one to six in number, borne at top of stem, held horizontally, bright lemon-yellow with maroon spots inside flower, trumpet-shaped, 6.0-10.0 cm (2.4-4.0 in.) long. Perianth funnel form, six segments. Six stamens. Fruit, an oblong capsule, 3.5-5.0 cm (1.4-2.0 in.) long (Toolin 1982).

AIDS TO IDENTIFICATION: No other species in Arizona is similar in appearance to *Lilium parryi*. It is the only yellow flowering lily in the state.

ILLUSTRATIONS:
Line drawing (USFWS).
Color photo (http://www.laspilitas.com/plants/390.htm)
Color photo (http://www.calflora.net/bloomingplants/lemonlily.html)
Color photos (http://www.bulbsociety.org/gallery_of_the_worlds_bulbs/g.../liliumparryi.jp)
Color photos (http://www.cnps.org/gallery/dittmer/bb4.jpg)

TOTAL RANGE: Southeastern Arizona and Southern California; extreme northern Sonora, Mexico (Sierra los Ajos).

RANGE WITHIN ARIZONA: Cochise County: Huachuca and Chiricahua Mountains; Santa Cruz County: Santa Rita Mountains.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Herbaceous perennial.

PHENOLOGY: Flowering May-June; fruits July-August.

BIOLOGY: Boring insects damage flowering stalks, which frequently destroy flowers and fruits of attacked plants; mammalian herbivores may also consume flowers or stalks. Pollinated by hawk moths (*Hyles lineata* and *Sphinx perelegans*) in California, however, pollinators in Arizona are undetermined (Newman 1992). Underground rhizomatous bulbs remain in ground after scouring.

HABITAT: Mesic, shady canyon bottoms along perennial streams or adjacent hillside springs. Sandy soil is high in organic material and remains saturated, or nearly so, year-round.

ELEVATION: 5,500-7,800 ft. (1678 - 2379 m (Arizona, Falk 1994)); 4,000-9,000 ft. (1220 - 2745 m (California)).

EXPOSURE: Various, but usually well shaded.

SUBSTRATE: Granite, quartzite, sandy loam with high organic content.

PLANT COMMUNITY: Petran Montane Conifer Forest. Dominant associated species are: *Pinus ponderosa, Pseudosuga menziesii, Abies concolor, Acer grandidentatum, Quercus hypoleucoides*.

POPULATION TRENDS: Plant populations monitored for five years with large fluctuations observed. Ninety eight stems, as compared with 138 in 1990, in Carr Canyon (1994). New population in Chiricahuas washed out in 1994 after the Rattlesnake Fire. Species has been found in canyons in Arizona and Sonora, Mexico; in the Santa Rita Mountains, in the Huachuca Mountains, in the Chiricahuas, and in the Sierra los Ajos, Sonora. Of these populations, one in the Santa Ritas has been extirpated (apparently by mining activity) and three others have experienced catastrophic declines due to flooding. The biggest populations are in the Huachuca Mountains in Miller, Huachuca, Carr and Bear canyons (Warren and Reichenbacher 1991).

Forest fire and subsequent erosion severely reduced populations in Carr Canyon in 1977 and Ramsey Canyon in 1983, and flooding alone seriously reduced the Madera Canyon population in 1983, although all of these populations are gradually increasing again. In 1991, the Ramsey Canyon population had declined to a single flowering plant with single fruit, but several pre-reproductive plants (Malusa et al 1992). Habitat there was damaged by a 1983 flood. See

Falk and Warren (1994) for results of population monitoring of all populations (except Ramsey Canyon) for 1988-1993.

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None (USDI, FWS 1996).
[Category 2 USDI, FWS 1980].

STATE STATUS: Salvage Restricted (ARS 1993, 1999).

OTHER STATUS: Forest Service Sensitive (USDA, FS Region 3 1990, 1999, 2013).

MANAGEMENT FACTORS: Present threat is that of increased mineral exploration, wildfires, hiking impacts (including those from collecting), and collecting of plants. Potential threats include mining development, seed collection, wildlife (bear) browsing, site de-watering, and erosion from forest fires. Seeds are eaten, perhaps by bears, which may act as dispersal mechanism. Could lose up to 50% of seeds. Water supply is critical. Anything that dewaters perennial streams is a threat. Hand pollination by The Nature Conservancy in Ramsey Canyon was very successful (Gori 1994).

PROTECTIVE MEASURES: Part of Ramsey Canyon population is on The Nature Conservancy preserve. In 1989 and 1990, the two flowering plants were hand pollinated and the resulting seed was dispersed in specific areas in the drainage.

In 1990, the Coronado National Forest removed plants from Miller Canyon and placed them at Clark Spring in the Huachuca Mountains.

SUGGESTED PROJECTS: Human-assisted pollination and seed dispersal in Ramsey Canyon; move trails away from populations; obtain water rights, pollination biology studies.

LAND MANAGEMENT/OWNERSHIP: DOD - Fort Huachuca Military Reservation; USFS - Coronado National Forest. TNC - Ramsey Canyon Preserve.

SOURCES OF FURTHER INFORMATION

LITERATURE CITATIONS:

Arizona Revised Statutes, Chapter 7. 1993. Arizona Native Plant Law. Appendix A.

Arizona Revised Statutes, Chapter 7. 1999. Arizona Native Plant Law. Appendix A.

Davidson, A. 1924. *Lilium parryi* var. *kessleri*, n.var. Bull. Southern California Academy of Sciences. Los Angeles. p.53.

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Gori, D. 1999. *Lilium parryi* S. Watson (Lemon Lily), Liliaceae. Draft abstract from Arizona Rare Plant Book, in prep.

Kearney, T.H., R.H. Peebles with collaborators. 1960. Arizona flora. Second edition with supplement by J.T. Howell, E. McClintock and collaborators. University of California Press. Berkeley. P.183.

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Malusa, J., P. Warren, D. Gori and E.S. Monarque (TNC). 1992. Population studies of sensitive plants of the Coronado National Forest. Prepared for the Coronado National Forest, Tucson, Arizona.

Munz, P.A. 1974. *F. parryi*. A flora of southern California. University of California Press. Berkeley. p.928.

Newman, D. (TNC). 1992. Element stewardship abstract for *Lilium parryi* lemon lily. Arlington, Virginia.

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USDA, Forest Service Region 3. 1990. Regional Forester's Sensitive Species List.

USDA, Forest Service Region 3. 1999. Regional Forester's Sensitive Species List.

USDA, Forest Service Region 3. 2013. Regional Forester's Sensitive Species List: Plants.

USDI, Fish and Wildlife Service. 1980. Endangered and Threatened Wildlife and Plants; Review of Plant Taxa for Listing as Endangered or Threatened Species. Federal Register 45(242):82518.

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Warren, P.L.. S. Anderson and P.B. Shafroth. 1989. Population studies of sensitive plants of the Huachuca and Patagonia mountains, Arizona. Prepared for Coronado National Forest, Tucson, Arizona.

Warren, P.L. and F.W. Reichenbacher. 1991. Sensitive plant survey of Fort Huachuca, Arizona. U.S. Army, Fort Huachuca, Arizona.

Wiggins, I.L. 1980. Flora of Baja California. Stanford University Press. Stanford. 1025 pp.

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ADDITIONAL INFORMATION:

Possible Type Specimens in The New York Botanical Garden, are published in Proc. Davenport Acad. Nat. Sci. 2: 188. tt. 5-6. They include:

NY 319768, 319770, and 319771, C.C. Parry 387 with J.G. Lemmon, 1876. California, United States.

NY 319769, J.G. Lemmon, Jun 1876. Around Grayback and near San Gorgonio Pass (a limited locality), San Bernardino Co., California, United States.

Revised: 1989-12-18 (SST)
1991-11-14 (SR)
1994-09-08 (PLW)
1994-12-12 (DBI)
1994-12-29 (MF)
1998-01-08 (SSS)
2000-02-14 (JCP)
2001-12-26 (SMS)