

**ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM**

Plant Abstract

Element Code: PDAPI0U130

Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Cymopterus beckii*

COMMON NAME: Featherleaf spring parsley, Pinnate spring-parsley, Beck spring-parsley, Featherleaf spring-parsley, Featherleaf springparsley

SYNONYMS:

FAMILY: Apiaceae

AUTHOR, PLACE OF PUBLICATION: S.L. Welsh & Goodrich, Brittonia 33(3): 297-299, f. 4. 1981.

TYPE LOCALITY: Fruita, Wayne County, Utah, United States.

TYPE SPECIMEN: HT: BRY-10564 & 19712. D.E. Beck s.n., 10 Jun 1938.

TAXONOMIC UNIQUENESS: *Cymopterus* is a genus of about 45 species in western and central North America (Cronquist et al. 1997). USDA, NRCS (2004) reports 35 species in genus. According to Cronquist et al. (1997), *Cymopterus beckii* "...appears to find its nearest ally in *Pseudocymopterus montanus* (indeed at one time I thought the two might be conspecific), but it lacks the characteristic roughening at the top of the peduncle. Exclusion of *C. beckii* from *Pseudocymopterus* would be unnatural and purely arbitrary, but its inclusion would deprive that genus of all distinction from *Cymopterus*."

DESCRIPTION: Glabrous perennial from a taproot and branching caudex, (0-)1-4 dm (4-16 in) tall, forming large tufts; weakly if at all aromatic. Stems are numerous, slender, lax, simple or with 1 or 2 long branches. Leaves are numerous, mainly basal, slender and relatively elongate, up to 25 cm (10 in) long, with 3-9 well spaced, slender segments (1-)1.5-4 cm long and up to 3 mm wide. The 1-3 cauline leaves resemble the basal ones, but are reduced as they extend up the stem. They are well spaced, the uppermost one sometimes near or above the middle of the stem. Often, the cauline leaves are clothed at the base with marcescent leaf bases. Leaves 1- or 2-pinnate, with 2-3 opposite pairs of lateral leaflets, or the upper ones ternate. The petioles are 2-13 cm (0.8-5 in) long; blades are 2-10cm (0.8-4 in) long; leaflets 3-7, 0.5-4 cm long, or the terminal one to 5.5 cm long; 1-2 (3) mm wide, sessile, linear or linear-elliptic, entire or rarely a few bifid. Peduncles 4-8 (19) cm long; umbels 1-3 per stem; involucre lacking. Inflorescence is 1-2 cm wide at anthesis, with 6-11(13) rays, 0.6-1.4 cm long, elongating to as much as 1.5 cm in fruit. Involucel dimidiate, of several (ca 5) slender green bractlets, 1-5 mm long (2.5-4 mm in Cronquist et a. 1997), to 1 mm wide. Flowers are bright yellow when fresh, fading whitish when dried, the pedicels up to 5 mm

long at maturity; calyx teeth are soft, green, about 0.5 mm long. Styles 1.2-2.2 mm long; carpophore weak, adhering to the mericarps. Fruit 6-8 mm long, oblong, dorsally somewhat compressed, the narrow lateral wings to ca 1 mm wide, the dorsal ones narrower, some often obsolete. (Cronquist et al. 1997; Welsh et al. 1993).

AIDS TO IDENTIFICATION: The Featherleaf spring-parsley is apparently closely allied to *C. lemmonii*, but differs in entire leaflets, glabrous peduncles and rays, and the slightly longer fruit. According to Cronquist et al. (1997), *Cymopterus beckii* "...appears to find its nearest ally in *Pseudocymopterus montanus* (indeed at one time I thought the two might be conspecific), but it lacks the characteristic roughening at the top of the peduncle."

ILLUSTRATIONS:

Color photo of Arizona collection (S. Holiday 325, ASU 228462 in http://seinet.asu.edu/collections/individual.jsp?pkD=54308&src=asu_plants)

Line drawing (In Cronquist et al. 1997: p. 377)

Picture of color painting (Donald Davidson 2002, in <http://www.nps.gov/plants/cw/watercolor/info/cybe2-a.htm>)

TOTAL RANGE: San Juan and Wayne counties in Utah, and Navajo County in Arizona.

RANGE WITHIN ARIZONA: Keet Seel and Tsegi canyons in Navajo County.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Perennial forb/herb.

PHENOLOGY: Flowers April to May (June).

BIOLOGY: This plant is unusual in that each plant produces two kinds of flowers, those that are males, and those that, like most flowering plants, produce male and female parts. It is also a member of an unusual group of plants in the carrot family that mature their female parts before their males parts (protogyny) rather than the reverse (protandry). It has been found that this plant is protogynous, but that the ratios of male to female flowers are much lower than in other species in its group. It is believed that this is a mechanism to increase the chances that flowers are cross-pollinated rather than self-pollinated. As with most members of this group *Cymopterus beckii* is visited by a wide variety of potential insect pollinators. Bees in the family Halictidae may be the most important pollinators but additional studies are required to establish this.

This plant is also unusual because it produces only inflorescences with simple primary umbels; secondary and tertiary umbels are absent. Outer florets of umbels produce significantly higher percentages of hermaphrodite flowers than do inner florets. Overall, about 1.5 staminate florets

are produced for each hermaphrodite floret. Within umbels, dichogamy is complete: female parts of hermaphrodite flowers throughout the umbel mature first, followed by males. The small florets are visited by a variety of flies, beetles, wasps, and bees, few of which appear to carry pollen.

HABITAT: Sand or stony crevices, ledges, and cliffs in canyon bottoms, in pinyon-juniper-mountain brush community. Also found in ponderosa pine-manzanita, conifer-oak, and Douglas fir communities.

ELEVATION: 6400 ft (1952 m) at collection site in Arizona (Holiday 1995, ASU 228462); 5,577-8,645 ft (1700-2635 m) in Utah.

EXPOSURE: Sunny.

SUBSTRATE: Sandy soil or stony places, in Navajo sandstone. Moist sand near seep (Holiday 1995, ASU 228462).

PLANT COMMUNITY: Pinyon-juniper-mountain brush, ponderosa pine-manzanita, conifer-oak, and Douglas-fir communities. Associated species in Arizona include: *Cornus sericea* (redosier dogwood), *Galium aparine* (catchweed bedstraw), and *Toxicodendron rydbergii* (western poison ivy).

POPULATION HISTORY AND TRENDS: Utah Natural Heritage Program (UNHP) tracks this species as a S1 with 15 Element Occurrences (EOs) in two disjunct areas. The total maximum numbers estimated for the EOs from their database is 4300. The newest EOs are on the Dixie and Fishlake National Forests; no population estimates for these newest EOs. No trend data is known for these populations. (Robert Fitts, UNHP 2011).

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None

STATE STATUS: None

OTHER STATUS:

MANAGEMENT FACTORS: Impacts from visitors at one park location. Trampling threats have been reported populations in Capital Reef National Park, Utah (Robert Fitts, UNHP 2011).

PROTECTIVE MEASURES TAKEN: None

SUGGESTED PROJECTS: Perform studies to determine if bees in the family Halictidae are the most important pollinators. Survey potential habitat in Arizona to increase knowledge on state distribution.

LAND MANAGEMENT/OWNERSHIP: BIA – Navajo Nation.

SOURCES OF FURTHER INFORMATION

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MAJOR KNOWLEDGEABLE INDIVIDUALS:

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ADDITIONAL INFORMATION:

Genus name from the Greek *kyma*, wave, and *pteron*, wing, referring to the fruits (Cronquist et al. 1997).

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