



# Annotated Checklist of Vascular Flora

## *Zion National Park*

Natural Resource Technical Report NPS/NCPN/NRTR-2009/157



**ON THE COVER**

Claret cup cactus (*Echinocereus triglochidiatus* var. *melanacanthus*) along Petrified Forest Trail, Zion National Park, Utah. Photograph by Walter Fertig.

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# Abstract

In 2005–2006, the National Park Service’s Northern Colorado Plateau Network received funding to develop a revised checklist of the vascular plant flora of Zion National Park. This entailed a thorough review of existing literature, re-examination of specimens from the Zion National Park herbarium and other state and national museum collections, and additional field work to corroborate unverified species reports or locate new species. Based on this study, 991 vascular plant taxa have been confirmed or reliably reported as occurring in the park (943 are known from validated herbarium specimens and 48 from unvouchered literature reports). Another 112 species formerly considered part of the park flora have now been shown to be falsely reported. The current flora of Zion National Park represents 27.6% of the known flora of Utah, and 58.5% of the flora of the Colorado Plateau ecoregion within Utah. At least 9 of these species are federally listed as threatened, endangered, or sensitive, and 184 are considered species of concern by the state’s natural heritage program. Introduced plants make up 14.1% of the park flora (140 species), of which 10 species are considered noxious weeds by the State of Utah. Further surveys in Zion National Park are likely to find additional new species (203 are known from similar habitats outside the park boundary), especially among late season flowering, weedy, or wetland taxa.



# Acknowledgements

We would like to thank the following individuals for their assistance with this project. Botanist Dr. Angela Evenden, former leader of the Northern Colorado Plateau Network in Moab, Utah, was an active proponent of this project and helped secure funding for field work and herbarium studies in 2006. Leslie Courtright, curator of museum collections for Zion National Park, provided access to herbarium specimens and park literature and assisted with research permits. Heather Karnes helped with field work and data entry in NPSpecies in 2004, and An Glorieux helped in these capacities in 2005. Cheryl Decker, Becca Leiberg, Rebecca Mann, and Laura Fertig assisted with field work in Parunuweap Canyon in 2007. Libby Nance, former database specialist with the NCPN, assisted with development and quality control of the park's NPSpecies database. Libby Nance, Janet Coles, and Helen Thomas also provided data from recent vegetation mapping and wetland inventories on the park. Drs. Stanley Welsh and Duane Atwood provided access to herbarium collections at Brigham Young University (BRY). Dr. Michael Piep provided access to collections at the Utah State University (Intermountain) herbarium. Dr. Ron Hartman and Ernie Nelson provided access and specimen loans from the Rocky Mountain Herbarium at the University of Wyoming. Thanks to the technical reviewers (Dr. Angela Evenden, Dr. Dusty Perkins, and Libby Nance) for their comments and suggestions. To any others whom we may have inadvertently forgotten, please accept our apologies (and thanks).

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# 1 Introduction

In 2006, the National Park Service (NPS) established a cooperative agreement with the University of Wyoming, through the Rocky Mountains Cooperative Ecosystem Studies Unit, to produce a series of technical reports summarizing the vascular plant flora of each of the 16 national park units of the Northern Colorado Plateau Network (NCPN). These reports are based on existing information in the park service's NPSpecies database system and augmented by further data mining, reviews of state and regional herbaria, and new field surveys to resolve the status of many reported and unconfirmed species. The objective of these reports is to summarize the current state of knowledge of the flora of each park for the benefit of NPS biologists and interpretive staff, outside researchers, and the general public. The following report addresses the vascular flora of Zion National Park (NP), in southwestern Utah. Other NCPN park units are addressed in separate reports.

## 1.1 Background and justification

One of the primary missions of the NPS is “to conserve unimpaired the natural and cultural resources and values of the national park system for the enjoyment of this and future generations” (NPS 2000). Due to their high degree of protection and distribution across a wide variety of habitat types, the nation's national park units make a significant contribution to the protection of biological diversity (Noss and Cooperrider 1994). Unfortunately, the full contribution of the NPS system is not known, as many park units have traditionally lacked comprehensive biological inventories or monitoring programs to identify the composition and condition of their biota. Knowing the status of park flora and fauna is critical for effective park management and for systematically identifying and filling gaps in the nation's protected area network (Margules and Pressey 2000).

To rectify this shortcoming, Congress passed the National Parks Omnibus Management Act in 1998 to provide guidance and funding for an inventory and monitoring program across the entire national park system. Since 2000, the NCPN Inventory and Monitoring Program has been developing and verifying species lists of vertebrates and vascular plants for each park unit in the network

(Evenden et al. 2002). This effort has entailed reviewing existing species checklists, corroborating the identification of specimens in park museum and herbarium collections, locating additional specimen records from other museums, mining relevant literature and datasets, and conducting field surveys to locate new taxa or confirm unsubstantiated reports.<sup>†</sup> All of these data have been synthesized in NPSpecies, the park service's standardized database for documenting park status (present, probably present, unconfirmed, falsely reported), abundance, residency, nativity, and rarity. With the production of a technical series of reports on the flora of each park, the NPSpecies data will now be available to a broader audience.

## 1.2 Objectives

The objectives of this project were to:

1. Document the current status (present, reported, potential, or falsely reported) of all vascular plant species that have been cited as occurring in Zion National Park based on a review of herbarium collections and past literature.
2. Develop an annotated checklist of the flora of Zion National Park with supplemental information on taxonomic synonyms, distribution, within-park abundance, flowering period, growth form, nativity, habitat, and sources for each record.

## 1.3 Study area

### 1.3.1 History and setting

Evidence of human habitation of the Zion National Park area (particularly along the East Fork of the Virgin River in Parunuweap Canyon) dates back nearly 8,000 years. Prior to A.D. 500, Native American groups subsisted primarily by hunting and gathering or cultivating small fields of maize and squash along perennial watercourses. More-permanent habitations and farming occurred in the period from 500 to 1300 A.D., when the Zion area was inhabited by the Virgin Anasazi and Parowan Fremont cultures. These cultures disappeared following extended periods of drought in the 11<sup>th</sup> and 12<sup>th</sup> centuries, and were ultimately replaced by more transient hunter-gatherers (Allison 1996). European exploration of southwestern Utah began in the late 1700s, and was followed

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<sup>†</sup>Taxa refer to all named species, subspecies, and varieties.

by establishment of small Mormon agricultural communities at Springdale, Grafton, Rockville, and Shunesburg in the late 1850s. These communities struggled for many years due to periodic catastrophic flooding, isolation from major markets, and a paucity of arable land.

Nephi Johnson, a young Mormon missionary and interpreter, was probably the first Anglo to explore Zion Canyon (with the help of Paiute guides), in 1858 (Clark 1954). John Wesley Powell explored Zion Canyon in 1872, and extolled the 2,000-foot, sheer cliffs of Navajo Sandstone and other scenic wonders of the area. Over time, interest developed in preserving the canyon as a destination for the nascent tourism industry in the West. President William Howard Taft designated Mukuntuweap National Monument by Executive Order in July 1909 to preserve the area around Zion Canyon. The monument was later renamed Zion National Monument and, in November 1919, became Zion National Park. Construction of the east entrance highway and Zion–Mt. Carmel Tunnel in 1927–1930 allowed for better access and greatly increased visitation to the park. In January 1937, President Franklin Roosevelt established a second Zion National Monument, to preserve Kolob Arch (the largest stone arch in the Western Hemisphere) and the Kolob area on the park’s northwest boundary. The two park units were merged in 1956 (Evenden et al. 2002).

Zion National Park is located at the southern end of the Markagunt Plateau and the western edge of the Colorado Plateau in southeastern Iron, northeastern Washington, and western Kane counties, Utah (Figure 1.3.1). It is located about 45 road miles northeast of St. George, and 325 miles south of Salt Lake City. Following the most recent boundary change in 1996, the park covers 148,016 acres (59,900 hectares). Elevation within Zion NP ranges from 3,700 feet (1,128 m) in the Coalpits Wash area in the park’s southwest corner to 8,726 feet (2,660 m) on the summit of Horse Ranch Mountain. Summer temperatures can vary from 45°F at night to over 100°F in mid-afternoon. Mean annual precipitation is 15 inches (381 mm), with 75% coming from October to May (Evenden et al. 2002).

### **1.3.2 Geology**

Zion National Park is noted for its colorful cliffs and mesas, carved from nearly 7,000 feet of sedimentary strata and representing 275 million years of geologic time (Biek et al. 2003). The oldest rock

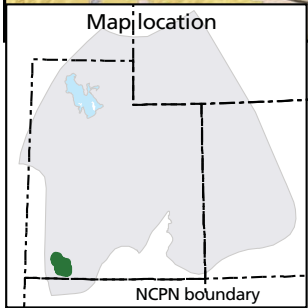
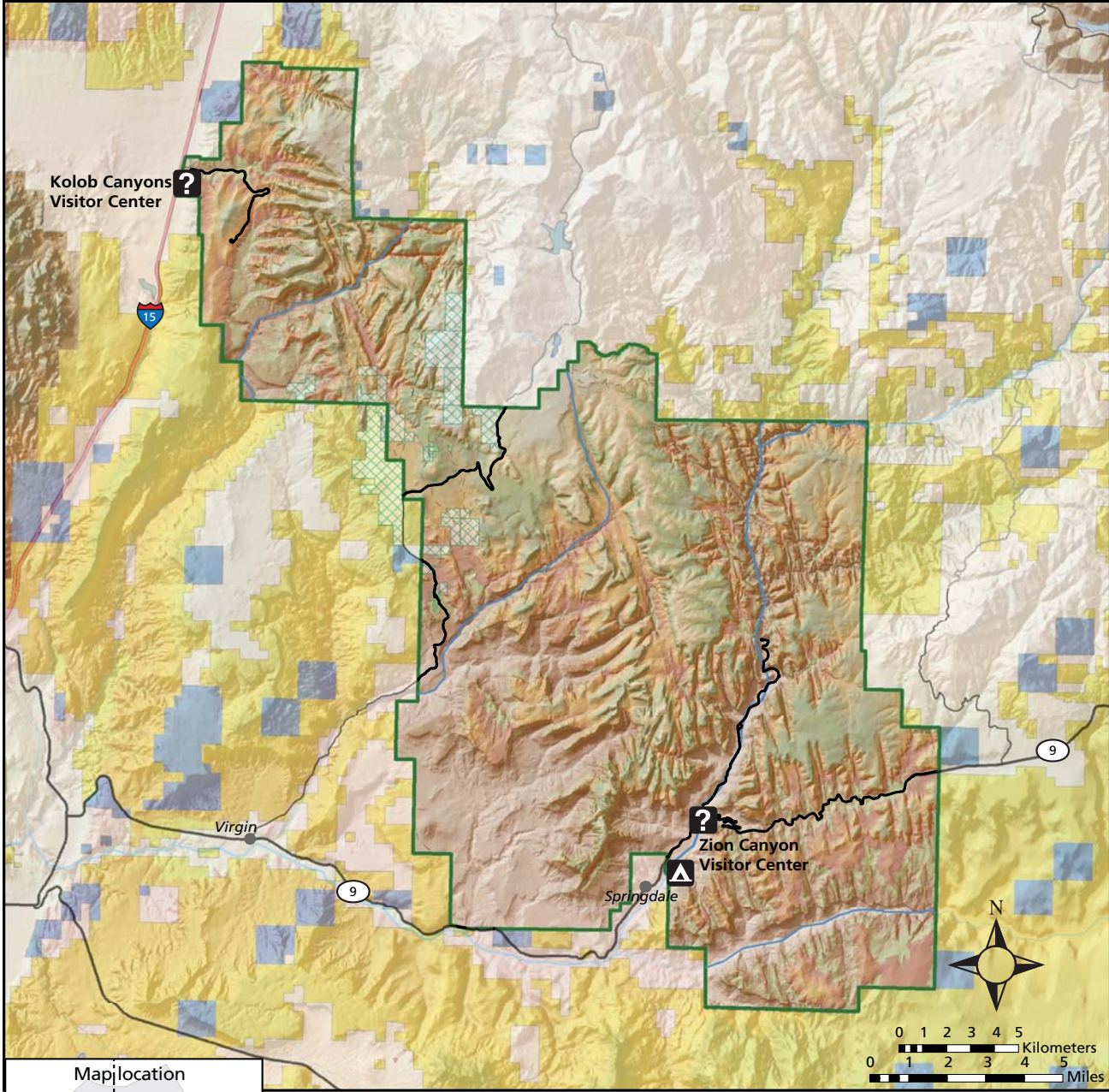
layers in the park are the Permian Toroweap and Kaibab formations, which are exposed along the western flank of the Kolob district. These limestone strata were deposited on the shallow continental shelf of the supercontinent, Pangaea, approximately 160 million years ago. During the early Triassic, marine waters periodically receded to expose a coastal floodplain with river-borne deposits of silt and mud, only to return and lay down limestone and gypsum beds. These alternating bands of marine and fluvial deposits comprise the Moenkopi Formation, which is best exposed in the Kolob area and the southwestern corner of the park. By the late Triassic, the ocean regressed westward for the last time, and the Zion area was covered by coarse debris eroding off the highlands of northern Arizona (Shinarump Conglomerate) and by the purplish to gray-green volcanic ash and mudflows of the Petrified Forest member of the Chinle Formation (named for the Petrified Forest area of southwestern Zion NP) (Biek et al. 2003; Chronic 1988).

During the early Jurassic, Zion NP was buried by the river, lake, and floodplain deposits that now comprise the Moenave and Kayenta formations. Later, in the mid-Jurassic, the Zion area was covered by a massive, Sahara-like sand-dune system that stretched from Nevada to southern Wyoming. The resulting Navajo Sandstone forms most of the cliffs and mesas of the park. Topping the Navajo Sandstone is a thin layer of siltstone of the Temple Cap Formation, and cross-bedded sandstones of the Carmel Formation, which were laid down during a brief return of marine waters (this time, coming from the interior North American seaway to the east). After a period in which southern Utah was above sea level (and eroding away its mantle of sediment), the seaway returned briefly in the late Cretaceous to leave beach and strand deposits of the Dakota and Cedar Mesa formations on Horse Ranch Mountain (Biek et al. 2003). No other Cretaceous sediments are present in Zion NP.

During the late Cretaceous and early Tertiary, the Colorado Plateau began its uplift by complex tectonic activity. Much of the area was inundated by a large lake during the Paleocene, but none of the resulting Claron Formation is still present in Zion NP (as it is in nearby Cedar Breaks National Monument and Bryce Canyon National Park). Lava flows and cinder cones occur along the west side of the park and cap the Kolob Terrace. These were derived from Oligocene or Miocene volcanic activity associated with the Pine Valley

# Zion National Park

Utah



Established July 31, 1909  
 1,128–2,660 m elevation  
 (3,700–8,726 ft elevation)  
 59,900 ha (148,016 ac)



Legend	
	Perennial streams
	Rivers
	Interstate
	Paved roads
	Unpaved roads
	Unimproved/4WD roads
	Park boundary (NPS)
	U.S. Bureau of Land Management
	Private
	State
	Park inholdings
	Water

MAP CREATED BY ANETH WIGHT, NCPN (DERIVED FROM EVENDEN ET AL. 2002)

Figure 1.3.1. Location of Zion National Park, Washington, Kane, and Iron counties, Utah.

laccolith to the west.

Formation of Zion Canyon occurred during the past 2 million years, primarily through downcutting of the Virgin River. Although erosion was probably greater during the Pleistocene, when the area was wetter than today, downcutting has averaged 1 inch (2 cm) per century, or about 600 feet per million years (Chronic 1988). The canyon has also been widened as erosion of the softer Kayenta beds undermines their cap of Navajo Sandstone. Rock slides resulting from such erosion have periodically dammed the Virgin River to form short-lived lakes (Biek et al. 2003).

### 1.3.3 Vegetation

Since the first ecological study by Woodbury (1933), the vegetation of Zion National Park has been studied in detail by numerous researchers, including Cogan et al. (2004), Fowler et al. (2007), Harper et al. (1994, 2003), Madany and West (1983), and Springer et al. (2006). Recently, Cogan et al. (2004) described 96 plant associations within the park based on the National Vegetation Classification developed by The Nature Conservancy and NatureServe. For the sake of simplicity, Zion's vegetation can be aggregated into four general types following trends in elevation, temperature, and proximity to permanent water (Nelson 1976; Welsh 1990).

The vegetation of low-elevation desert areas below 4,200 feet (1,130 m) in the southwestern corner of the park is dominated by warm desert shrublands of blackbrush (*Coleogyne ramosissima*), fourwing saltbush (*Atriplex canescens*), honey mesquite (*Prosopis glandulosa*), and a mixture of grasses and forbs more typical of the Mohave Desert and Great Basin than the Colorado Plateau (Cogan et al. 2004). This vegetation type is also present on Chinle and Moenkopi badlands that may be locally dominated by crisp-leaf buckwheat (*Eriogonum corymbosum* var. *corymbosum*), fourwing saltbush, and Nevada ephedra (*Ephedra nevadensis*).

At elevations between 4,000 and 6,800 feet (1,220–2,080 m), Zion NP's vegetation consists primarily of woodlands of two-needle pinyon (*Pinus edulis*), singleleaf pinyon (*P. monophylla*), and Utah juniper (*Juniperus osteosperma*), intermixed with Gambel oak (*Quercus gambelii*) and basin big sagebrush (*Artemisia tridentata* var. *tridentata*). Single-leaf pinyon is predominant at lower elevations, but is replaced by two-needle pinyon (with

surprisingly little overlap) above 5,900 feet (1,800 m) (Harper et al. 2003). Barren Navajo Sandstone outcrops within this elevational zone may be locally dominated by dwarf mountain mahogany (*Cercocarpus intricatus*), ponderosa pine (*Pinus ponderosa*), or greenleaf manzanita (*Arctostaphylos patula*) (Cogan et al. 2004). Areas of deep sand at the base of sandstone cliffs often support sand sagebrush (*Artemisia filifolia*) stands.

At higher elevations or in shady canyons, the vegetation is typically characterized by montane forests consisting of ponderosa pine, Douglas-fir (*Pseudotsuga menziesii*), white fir (*Abies concolor*), or quaking aspen (*Populus tremuloides*). Shrublands may also develop within the montane zone and are frequently dominated by Utah serviceberry (*Amelanchier utahensis*), alder-leaf mountain mahogany (*Cercocarpus montanus*), Gambel oak, and greenleaf manzanita.

Wetland vegetation occurs across elevational zones but is associated with perennial streams, springs, or seeps. Lowland riparian forests of Fremont cottonwood (*Populus fremontii*), velvet ash (*Fraxinus velutina*), and box elder (*Acer negundo*) occur along the Virgin River and its main tributaries in the park. Open areas within these forests may be locally dominated by coyote willow (*Salix exigua*), Baltic rush (*Juncus arcticus*), or Rio Grande seepwillow (*Baccharis salicina*). Riparian floodplains were frequently converted to agricultural uses following pioneer settlement, and today often have a high cover of introduced species, including Russian olive (*Elaeagnus angustifolia*), five-stamen tamarisk (*Tamarix chinensis*), Kentucky bluegrass (*Poa pratensis*), smooth brome (*Bromus inermis*), and ripgut brome (*B. diandrus*). Seeps and hanging gardens occur along the contact between the Navajo Sandstone and the less-permeable Kayenta Formation, and support unusual riparian communities of southern maidenhair fern (*Adiantum capillus-veneris*), columbines (*Aquilegia* spp.), cardinal monkeyflower (*Mimulus cardinalis*), and Zion shooting-star (*Dodecatheon pulchellum* var. *zionense*) (Welsh 1990).

### 1.3.4 Previous botanical studies

The earliest scientist to collect specimens within what is today Zion National Park was probably Marcus E. Jones (Alexander 2004). Jones collected at least 13 type specimens from "Springdale" in the spring and fall of 1894 (Table 1.3.4, Figure 1.3.4), 10 of which are still recognized as valid taxa (Welsh 1982). These include



**Table 1.3.4. Chronology of plant-collecting efforts in Zion National Park.**

Year	Collector(s)	# of new taxa	Comments
1894	M. E. Jones	13	Marcus E. Jones collected the holotypes of 13 species from “Springdale” during two visits in 1894. Based on the vagueness of 19 <sup>th</sup> -century labels and the habitat preferences of the species collected, Jones most likely took the specimens from the area of the future Zion National Park.
1922–1923	A. Nelson, M. E. Jones, & V. M. Tanner	5	Aven Nelson collected the types of <i>Chrysothamnus oliganthus</i> (now considered a synonym of <i>C. nauseosus</i> var. <i>leiospermus</i> ) and <i>Senecio incurvus</i> (now a synonym of <i>S. spartioides</i> var. <i>spartioides</i> ) from Zion NP in 1922. Marcus E. Jones collected the types of <i>Draba asprella</i> var. <i>zionensis</i> and <i>Phlox austromontana</i> var. <i>jonesii</i> from Zion Canyon in 1923. Vasco Tanner collected <i>Philadelphus microphyllus</i> in 1923.
1925–1929	A. Woodbury, H. A. Pilsbry, & T. Craig	287	Over a six-year period, Angus Woodbury collected more than 500 specimens for the ZION herbarium, including first records for 286 taxa. Woodbury (1933) published one of the earliest ecological studies of Zion Canyon. H. A. Pilsbry is credited with the type collection of <i>Erigeron sionis</i> in 1925. T. Craig collected types of <i>Eriastrum eremicum</i> var. <i>zionis</i> and <i>Philadelphus microphyllus</i> ssp. <i>stramineus</i> f. <i>zionensis</i> (neither recognized today) in 1928.
1930–1934	W. P. Cottam, A. Eastwood, J. T. Howell, P. M. Patraw, C. C. Presnall, L. F. Keller, Mrs. F. M. Stone, M. C. Ferguson, & A. M. Ottley	16	Walter Cottam collected at least 2 new species for Zion NP in 1930–1931. Alice Eastwood and John T. Howell secured the type of <i>Dodecatheon pulchellum</i> var. <i>zionense</i> in 1933 (although Woodbury collected the species first in 1927). P. M. Patraw, C. C. Presnall, L. F. Keller, Mrs. F. M. Stone, M. C. Ferguson, and A. M. Ottley collected 13 new species in 1933–1934.
1935	K. E. Weight, G. Y. Croft, & L. F. Keller	114 + 5 reported	Kenneth Weight made nearly 300 collections for the ZION herbarium and documented 114 new species for the park. Weight (1937) published the first checklist of the park flora, which includes 5 additional unvouchered reports.
1936	M. Baker	1	Milo Baker collected the holotype of <i>Viola clauseniana</i> from Zion Canyon.
1938	W. S. Boyle, A. Eastwood, & J. T. Howell	19	W. S. Boyle made 119 collections for the ZION herbarium and documented 18 new species for the park flora. Eastwood and Howell first discovered <i>Erigeron religiosus</i> (making the type collection in Zion NP) and also collected the holotype of <i>Eriogonum racemosum</i> var. <i>zionis</i> (previously discovered by Woodbury in 1925).
1942	B. Maguire, O. Degener, & L. Peiler	3	Bassett Maguire, Otto Degener, and Leroy Peiler collected at least 3 new species for Zion NP (specimens are deposited at the New York Botanical Garden).
1946–1948	Booth, A. Black	2	Two new species were documented during this time period: <i>Bouteloua hirsuta</i> (collected by Booth in 1946, cited by Welsh et al. 2003), and <i>Hesperochiron pumilus</i> (Alden Black, specimen at BRY).
1951	S. Flowers	1	Seville Flowers made the first verified collection of <i>Selaginella utahensis</i> for Zion NP (the holotype collected by Walter Cottam in 1931 was once thought to have come from the park, but is now believed to be from St. George).
1954–1957	B. F. Harrison & L. Anderson	2	B. F. Harrison and Loran Anderson made the first collections of <i>Festuca myuros</i> and <i>Bromus japonicus</i> .
1962–1963	J. Bradbury & D. L. Carter	12	John Bradbury and D. L. Carter collected two dozen specimens for the ZION herbarium and added 12 new taxa to the park flora, including two rare ferns ( <i>Asplenium adiantum-nigrum</i> and <i>Pityrogramma triangularis</i> ).

**Table 1.3.4. Chronology of plant collecting efforts in Zion National Park, cont.**

Year	Collector(s)	# of new taxa	Comments
1964–1966	N. H. Holmgren, J. L. Reveal, C. LaFrance, B. Palmer, A. H. Barnum, & R. Wauer	47 + 2 reported	Noel Holmgren, James Reveal, and Charles LaFrance collected 10 new species for the Zion NP flora in 1964–1965. Brent Palmer and colleagues conducted a floristic survey of the Horse Ranch Mountain area (Palmer 1966) and vouchered or reported 33 new taxa. A. H. Barnum collected in the Kolob area and added 5 new species. Roland Wauer discovered one other species.
1967	C. Trapp & G. Trapp, J. Harrison, P. White, & R. Nelson	13 + 2 reported	Carolyn Trapp collected 9 new cacti species (and reported two others) for Zion NP (Trapp 1969). Ruth Nelson, Tom Blaue, J. Harrison, and P. White added 4 other new species.
1969	B. Lund & W. Rigby	10	Barbara Lund and W. Rigby documented the presence of 10 introduced and cultivated species from Zion NP.
1970	R. Nelson, S. E. Meyer, K. Moor, R. Stuart	48	Susan Meyer and Ken Moor collected several hundred specimens from Zion NP (mostly deposited at the University of Nevada–Las Vegas herbarium, but with duplicates at Zion NP and BRY), including first records for 32 species (Meyer 1979). Among their more noteworthy collections was the type specimen of <i>Erigeron ursinus</i> var. <i>meyerae</i> . Ruth Nelson collected about 100 specimens for the ZION herbarium, of which 14 represented new taxa. R. Stuart added two additional new species for the flora.
1971–1974	R. Nelson, W. R. Leverich, J. Reveal & C. Reveal, N. Holmgren, L. Shultz, and T. K. Lowrey	120	Ruth Nelson (with Tom Blaue) collected 850 specimens for the ZION herbarium from 1971 to 1973 and discovered 119 new taxa for the park (Nelson 1976). W. R. Leverich collected the holotype of <i>Haplopappus leverichii</i> in Zion NP in 1971. This species has not been relocated anywhere else in its narrow range (Washington County, UT) since. James Reveal collected the holotype of <i>Eriogonum jamesii</i> var. <i>rupicola</i> from Checkerboard Mesa in 1972 (this species was first vouchered in Zion NP by Woodbury in 1925). Noel Holmgren, Leila Shultz, and Tim Lowrey collected the type of <i>Sphaeromeria ruthiae</i> in Refrigerator Canyon in 1974 (this species was first collected by Weight in 1935).
1975–1980	K. Kertell, A. Lindahl, R. Scott, J. Haefner, R. Foster, D. Foster, M. H. Madany, L. M. Granskog, G. C. Williams, B. Ertter, J. Strachan, M. J. Williams, E. Neese, & V. Jackson	34	Eleven different teams of collectors documented 35 new species for the Zion NP flora. Among the more noteworthy collections were first reports of two troublesome exotics ( <i>Elaeagnus angustifolia</i> and <i>Solanum elaeagnifolium</i> ) by G. C. Williams and L. M. Granskog in 1979, and the first report of <i>Aralia racemosa</i> in 1980. Foster and Foster collected the type specimen of <i>Aquilegia fosteri</i> in 1977 (a species first collected by Woodbury in 1928).
1981–1984	S. Welsh, S. L. Clark, L. Hays, N. Holmgren, & P. Holmgren, M. Malm	6	Stan Welsh collected 5 new species for the Zion NP flora from 1981 to 1984, including the holotype of <i>Carex haysii</i> with S. L. Clark and Larry Hays in 1984. Noel and Pat Holmgren discovered <i>Physaria chambersii</i> var. <i>membranacea</i> in the park in 1984. Margaret Malm began 25 years of collecting specimens for the ZION herbarium in 1981.
1986–1989	B. Franklin, G. Baird, L. Higgins, S. Welsh, K. Thorne, S. L. Clark, L. Hays, M. Malm, F. Smith, K. Harper, S. Sanderson, C. Stewart, R. Nelson, R. Kass, D. McArthur, N. Charlesworth, J. Tuhy, S. Briggs, & J. Chandler	135	An unprecedented team of Utah’s leading field botanists descended on Zion NP from 1986 to 1989 to document 135 new species (and contribute nearly 400 collections to the Zion herbarium). Among the new taxa were 38 species of concern tracked by the Utah Conservation Data Center. Larry Higgins collected the holotype of <i>Lomatium graveolens</i> var. <i>clarkii</i> in the park in 1989 (the species was first located in Zion NP by Weight in 1935). Stan Welsh and Larry Hays collected the type of <i>Aster welshii</i> in 1989 (this species was originally collected by Woodbury in 1927).
1991–1992	J. Fowler, C. L. May, & J. Hak	4 + 1 reported	Jim Fowler and colleagues surveyed hanging-garden vegetation in Zion NP and other national parks in the Colorado Plateau and vouchered or reported 5 new species for the park (Fowler et al. 2007).

**Table 1.3.4. Chronology of plant collecting efforts in Zion National Park, cont.**

Year	Collector(s)	# of new taxa	Comments
1994–1995	S. Welsh & A. M. Phillips III	2	Stan Welsh conducted a rare plant survey for Zion NP and added one new species to the flora (Welsh 1995). A. M. Phillips III made 31 collections for the ZION herbarium and discovered one new species ( <i>Stipa speciosa</i> ).
1996	K. Mason & L. Kurth	7	Karen Mason, Lori Kurth, and colleagues discovered 7 new weedy species in Zion NP, including three listed as noxious by the State of Utah.
1997–2002	V. Meretsky, S. Welsh, L. Kurth, M. Malm, J. Alexander, D. Louie, C. Paulsen, C. Decker, D. Atwood, L. Higgins, J. Welch	17 + 1 reported	Vicky Meretsky discovered 4 new species in a survey of seeps and springs in Zion NP. Jason Alexander, Margaret Malm, Lori Kurth, C. Paulsen, and Cheryl Decker added 11 species to the park flora. Stan Welsh reported <i>Prunus domestica</i> for the park during a survey of the park's bus facility. Duane Atwood and colleagues added two species, including the type of <i>Cirsium joannae</i> (named for co-discoverer Joanna Welch).
2003–2004	J. Alexander, H. Karnes, A. Glorieux, C. Crow, M. Malm, C. Decker, A. Rhoads, S. Dewey and K. Andersen, NPS/NatureServe vegetation mapping team	16 + 11 reported	Jason Alexander and colleagues vouchered or observed 19 new species, including the first record of <i>Astragalus ampullarius</i> during floristic and rare plant surveys for the park. Vegetation mappers from the National Park Service, Bureau of Reclamation, and NatureServe reported 7 new species for the park flora (Cogan et al. 2004). Dewey and Andersen (2005) added one new species report during their weed survey of Zion NP.
2005–2008	R. Harms, W. Fertig, L. Fertig, C. Decker, B. Leiberg, R. Mann, M. Miller, & W. Yates	9	Rebecca Harms discovered one new species during a survey of seeps and springs funded by the NCPN (Springer et al. 2006). Walter Fertig and colleagues discovered or relocated 8 new species in 2006–2008, including two rare species.

escarpment milkvetch (*Astragalus striatiflorus*), Zion milkvetch (*A. zionis*), Jones' reedgrass (*Calamagrostis scopulorum*), spindly goldenbush (*Haplopappus scopulorum*), shrubby gilia (*Ipomopsis congesta* var. *frutescens*), Zion penstemon (*Penstemon humilis* var. *obtusifolius*), smooth penstemon (*P. laevis*), fuschia penstemon (*P. x jonesii*), and Dixie rock-daisy (*Perityle tenella*). Label data from the late 19<sup>th</sup> and early 20<sup>th</sup> centuries are notoriously vague, but it is likely that Jones took the location, "Springdale" to encompass the Zion Canyon area. Additional collections by Jones from "Toquerville" in 1880 and "Rockville" and "Canaan Ranch" in 1894 are from the vicinity of modern Zion National Park, but are not included here (Welsh 1982).

Little additional botanical work occurred in Zion NP over the next three decades. Wyoming botanist Aven Nelson collected at least two types: smoothseed rabbitbrush (*Chrysothamnus oliganthus*, now a synonym of *C. nauseosus* var. *leiospermus*) and broom groundsel (*Senecio incurvus*, now synonymous with *S. spartioides* var. *spartioides*) from the park in 1922. Marcus E. Jones

returned to Zion NP in 1923, and discovered the types of Zion draba (*Draba asprella* var. *zionensis*) and Jones' phlox (*Phlox austromontana* var. *jonesii*).

The first major effort to document the Zion NP flora occurred from 1925 to 1938. Angus Woodbury studied vegetation succession in Zion Canyon (Woodbury 1933) and collected more than 500 specimens for the Zion National Park herbarium (ZION) from 1925 to 1930. Woodbury's collections resulted in the documentation of at least 286 new species for the Zion NP flora. Kenneth Weight built on Woodbury's foundation, adding 114 new species in the mid-1930s, depositing nearly 300 additional collections to the ZION herbarium, and producing the first checklist of the park flora (Weight 1937). Unfortunately, several additional species reported by Weight have not been relocated in the Zion NP collection and may have been de-accessioned and discarded in the past (Alexander 2004). Other collectors of note during this period included H. A. Pilsbry, who secured the holotype of Zion daisy (*Erigeron zionis*) from the park in 1925, Milo Baker (collector

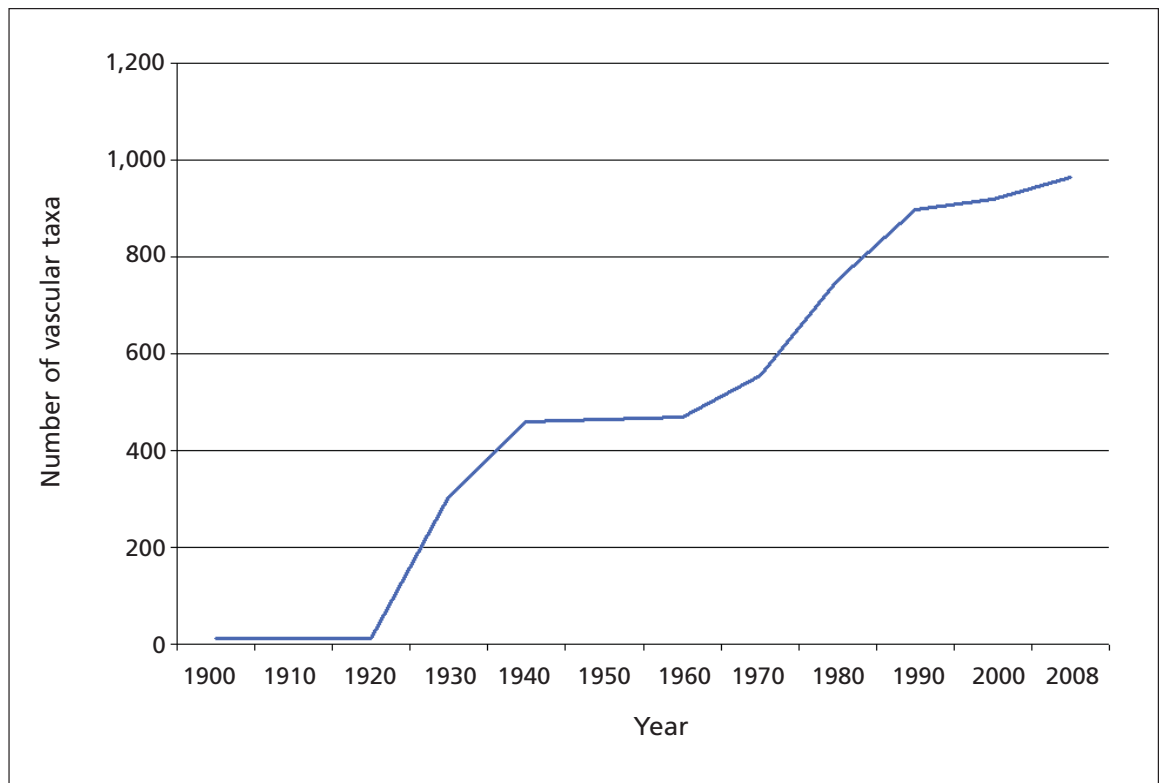


Figure 1.3.4. Increase in the number of plant taxa confirmed as present in Zion National Park by decade, 1900–2008.

of the holotype of Clausen’s violet [*Viola clause-niana*] from Zion Canyon in 1936), Alice Eastwood and John T. Howell (who collected types of Zion shooting-star, Zion wild buckwheat [*Eriogonum racemosum* var. *zionis*], and religious daisy [*Erigeron religiosus*] from 1933 to 1938), Aven and Ruth Nelson, and Francis Pennell (Welsh 1982). W. Sidney Boyle closed out the 1930s by adding 18 new species and collecting 119 additional specimens for the ZION herbarium.

After a lull during the the 1940s and 1950s, Zion NP experienced a second pulse of botanical study beginning in the early 1960s. John Bradley and D. L. Carter discovered 12 new species (including two rare ferns) for the park in 1962–1963. Noel Holmgren, James Reveal, and Charles LaFrance collected extensively in southern Utah for the New York Botanical Garden’s *Intermountain Flora* project and added 10 new species to the park flora. A. H. Barnum and Brent Palmer collected in the Kolob and Horse Ranch Mountain areas in the mid-1960s and located 38 new species (Palmer 1966). Carolyn Trapp discovered 11 new cacti species in 1967, while researching her book on the cacti of Zion National Park (Trapp 1969). Susan Meyer and Ken Moor, of the University

of Nevada–Las Vegas, collected several hundred specimens in Zion NP in 1970 (including 32 first records and the holotype of an unusual *Erigeron* later named after Meyer by Stan Welsh in 2003) while studying the vascular plant flora of Washington County, Utah (Meyer 1979). Ruth Nelson, widow of Aven Nelson, collected more than 950 specimens for the ZION herbarium from 1970 to 1973, while researching *Plants of Zion National Park* (Nelson 1976).

The last period of exhaustive botanical work in the park began in the early 1980s. Kimball Harper, Durant McArthur, Stewart Sanderson, Joel Tuhy, and colleagues discovered 18 new species while conducting research on park vegetation (Harper et al. 1992, 1994, 2003). Stan Welsh, of Brigham Young University, with a team of notable field botanists that included M. E. “Ben” Franklin, Gary Baird, Larry Higgins, Kaye Thorne, Steve Clark, Larry Hays, Frank Smith, N. Charlesworth, and Ron Kass, added nearly 120 new species to the park flora, including three taxa new to science and more than three dozen rare species (Welsh 1995). Jim Fowler and colleagues documented several new riparian species during a survey of hanging gardens in 1991–1992 (Fowler et al. 2007). Natu-

ralist Margaret Malm began her long association with the ZION herbarium in 1981, and collected several first records, including tarweed fiddleneck (*Amsinckia intermedia*) and mistaken penstemon (*Penstemon confusus*).

Despite more than a century of collecting work, new discoveries continue to be found in Zion NP. Karen Mason, Lori Kurth, Steve Dewey, and Kim Andersen initiated weed monitoring and mapping studies in 1996 and, in the process, discovered at least nine new invasive species (Dewey and Andersen 2005). Vicky Meretsky and Rebecca Harms continued research on the flora of seeps and springs and have added five new species (Springer et al. 2006). A vegetation mapping crew

from NPS and NatureServe reported 11 new taxa during their research (Cogan et al. 2004). Duane Atwood and colleagues discovered a new thistle species endemic to Zion NP in 2000, and named it Joanna's thistle (*Cirsium joannae*) in honor of co-discoverer Joanna Welch. Jason Alexander conducted several rare plant studies for the park beginning in 1998, and discovered 14 new species for the park (including the rare local endemic, gumbo milkvetch [*Astragalus ampullarius*]). In 2007, six new taxa were discovered in Parunuweap Canyon, suggesting that more discoveries remain to be made.

Additional details on plant-collecting efforts at Zion NP can be found in Table 1.3.4.



## 2 Methods

In 2004–2005, Jason Alexander reviewed all of the mounted specimens in the Zion National Park herbarium to determine whether each was correctly identified to species, subspecies, or variety following the nomenclature of Welsh et al. (2003). As necessary, he made corrections and annotations to each specimen and to the voucher records in the park's Automated National Cataloging System (ANCS+) and NPSpecies database. Based on this herbarium work and our review of park references (Atwood et al. 1991; Cogan et al. 2004; Fowler et al. 2007; Nelson 1976; Palmer 1966; Springer et al. 2006; Trapp 1969; Weight 1937; Welsh 1995), we developed four lists:

1. A revised checklist of species that were present in the park (confirmed by an authenticated voucher; included in Appendices A and D);
2. A list of species that were reported in the literature but not corroborated with a voucher (equivalent to “probably present” in NPSpecies terminology; included in Appendices A and D);
3. A list of potential species (“unconfirmed” in NPSpecies) A list of potential species (“unconfirmed” in NPSpecies) known from the vicinity of Zion National Park, using an unpublished list generated by Dr. N. Duane Atwood of Brigham Young University and Albee et al. (1988) (Appendix B); and
4. A list of species that are now known to be misidentified or highly questionable (Appendix C).

Each list was annotated with supplemental information on life form, geographic range (within

the context of Utah), population size in the park (derived from Alexander's NPSpecies database, Cogan et al. 2004 and field observations), flowering period, distribution across general vegetation types, nativity, data source (collector and collection number from a sample specimen or literature citation), year of earliest collection (from herbarium records), and relevant synonymy and taxonomic problems (based on review of Barkworth et al. 2003, 2007; Barneby 1989; Cronquist 1994; Cronquist et al. 1972, 1977, 1984, 1997; Dorn 2001; Flora of North America Editorial Committee 1993, 1997, 2000, 2002a, 2002b, 2003, 2005, 2006a, 2006b, 2006c; Holmgren et al. 2005; Weber and Wittmann 2001). The annotations to these lists and label data from the ZION herbarium review were then incorporated into the NPSpecies database for the park.

Work in 2006–2007 focused on confirmation of reported and potential species for the park flora through field surveys and review of collections from state and regional herbaria. We made three collecting trips to Zion NP in May 2006 and April and June 2007 to target missing species, emphasizing under-sampled wetland and weedy taxa. Herbarium studies were undertaken at Brigham Young University (BRY), Utah State University (USU), the University of Nevada Las Vegas (UNLV), and the University of Wyoming (RM) in summer 2005, March, June, and October 2006 and February and March 2007. We also documented park specimens from the Virtual Herbarium website of the New York Botanical Garden (<http://sciweb.nybg.org/science2/hcol/intf/index.asp>). Finally, we found additional new-species reports by reviewing specimens and plot data from recent vegetation mapping and wetland inventories (Cogan et al. 2004; Fowler et al. 2007; Springer et al. 2006).





# 3 Results

## 3.1 Summary of the flora of Zion National Park

From 2004 to 2005, Jason Alexander completed a thorough review of the 3,192 vascular plant specimens in the ZION herbarium. He found that 416 specimens were misidentified (13%), 277 were revised to a more-current name (8.7%), 430 had variety or subspecies names added (13.5%), and 2,069 were correctly determined (64.8%). Based solely on these collections, the confirmed flora of Zion National Park stood at 773 taxa. From 2005 to 2007, we located an additional 161 taxa from collections at Brigham Young University (mostly species reported in Welsh 1995, but without a duplicate voucher deposited in the ZION herbarium), the New York Botanical Garden Virtual

Herbarium, the University of Nevada–Las Vegas herbarium, and the University of Wyoming’s Rocky Mountain Herbarium. Field surveys in 2005–2008 netted another 9 new species (see Table 1.3.4). Overall, the documented flora of Zion NP has increased by 170 species (18.0%), bringing the total number of taxa to 943 (Table 3.1, Appendices A, D).

Currently, 48 additional taxa have been reported for Zion NP but have yet to be corroborated with a voucher specimen (Table 3.1, Appendix A). Most of these reports come from the literature (Atwood et al. 1991; Cogan et al. 2004; Fowler et al. 2007; Nelson 1976; Palmer 1966; Trapp 1969; Weight 1937; Welsh 1995) or unvouchered observations by Jason Alexander in 2003–2004. Taken together, the number of confirmed and reported vascular plant taxa in Zion National Park stands at 991 taxa (Table 3.1, Appendix A).

**Table 3.1. Statistical summary of the flora of Zion National Park.**

Category	Number confirmed in park	Number additionally reported for park	Total
<b>Taxonomic diversity</b>			
Total taxa (including varieties and subspecies)	943	48	991
Full species (excluding varieties and subspecies)	889	43	932
Families	98	0	98
<b>Life form diversity</b>			
Tree taxa	36	3	39
Shrub taxa	118	10	128
Perennial forb taxa	436	19	455
Annual forb taxa	179	9	188
Perennial graminoid taxa	117	6	123
Annual graminoid taxa	31	1	32
Fern taxa	26	0	26
<b>Biogeographic diversity</b>			
Introduced taxa	128	12	140
Native taxa			
Locally endemic taxa	42	2	44
Regionally endemic taxa	85	4	89
Disjunct taxa	4	1	5
Peripheral taxa	90	7	97
Sparse taxa	16	1	17
Widespread taxa	578	21	599
<i>Total native taxa</i>	<i>815</i>	<i>36</i>	<i>851</i>

The number of taxa and families is based on taxonomic concepts of Welsh et al. (2003). See Appendices, “Codes and Definitions”, for an explanation of the various categories.

At present, 38 species from Zion NP have not been relocated since 1970, and are considered historical (Appendix A). This group includes two species (common fig [*Ficus carica*] and beargrass [*Nolina microcarpa*]) that are thought to be extirpated.

At the start of the 2006 field season, we recognized 212 taxa as potentially occurring in Zion NP based on the proximity of the park to known populations (Albee et al. 1988). At least nine of these species were found to occur in the park based on field collections or relocated herbarium specimens in 2006–2007. The current number of potential species recognized for Zion NP is 203 (Appendix B).

Of the original pool of species documented or reported for Zion NP, we found that 98 taxa were falsely reported based on misidentified voucher specimens in the ZION and BRY herbaria. We consider an additional 14 species cited (but not vouchered) by Cogan et al. (2004), Fowler et al. (2007), Weight (1937) and Welsh (1995) to be questionable based on the absence of suitable habitat or the distance of Zion NP to the known or expected range of each species (Appendix C).

The confirmed and reported flora of Zion NP represents 27.6% of the 3,594 native and naturalized taxa documented for the state of Utah by Welsh et al. (2003) and 64.9% of the state's 151 plant families (Table 3.1). Within Washington, Kane, and Iron counties, the park flora captures 45.5% of the 2,178 taxa reported by Welsh et al. (2003). At the ecoregional scale, Zion NP contains 58.5% of the 1,694 species reported for the Utah portion of the Colorado Plateau (Shultz et al. 2006).

### 3.2 Life form and biogeographic diversity

Although ecologically dominant, tree and shrub species make up only 17% of the confirmed and reported plant taxa of Zion NP (see Table 3.1). Perennial forbs are the most species-rich life form in the park's flora, with 455 known and reported taxa (45.9% of the total flora). Annual forbs and grass-like plants comprise less than 23% of the flora. Like trees and shrubs, perennial graminoids are ecologically important but relatively species-poor, representing less than 12.4% of the total flora. The diversity of ferns and fern-allies in Zion NP is particularly low (2.6%) (see Table 3.1).

Of the park's 851 native taxa, 599 (70.4%) are

widespread across Utah and western North America. Of these, 44 species (5.2% of the park's flora) have extremely limited global distributions (local endemics found within an area of less than 1° of latitude × 2° of longitude; see Appendix A for complete definitions of biogeographic categories). Regional endemics (largely restricted to the Colorado Plateau) compose an additional 10.5% of the park flora. Species at the periphery of their range, that occur sparsely across the state, or that are widely isolated from the core of their global range (disjuncts) account for 14% of the native flora of Zion NP (Table 3.1).

### 3.3 Plants of special concern

Shivwits milkvetch (*Astragalus ampullarioides*) is the only plant species from Zion NP listed as threatened or endangered under the U.S. Endangered Species Act. At least 34 other park taxa were formerly candidates for potential listing (Category 2 or 3C) under the act (Table 3.3) (UDWR 1998). Eight species are presently listed as sensitive on adjacent national forest or Utah Bureau of Land Management lands. The Utah Division of Wildlife Resources Conservation Data Center (UTCDC) lists 184 species from Zion NP as species of concern (UDWR 1998) based on state or range-wide rarity or lack of sufficient data. Five other Zion NP endemics or near-endemics (all described as new taxa within the past decade by Welsh et al. 2003), currently are not tracked by UTCDC nor have federal protection, but may warrant extra management attention because of their apparent rarity: hairy-pod milkvetch (*Astragalus concordi*), Higgins' milkvetch (*A. flavus* var. *higginsii*), Joanna's thistle, Salina thistle (*C. wheeleri* var. *salinensis*), and Meyer's daisy (*Erigeron ursinus* var. *meyerae*).

A large number of rare plant surveys have been undertaken within Zion NP, including those by Alexander and Hughes (2002), Alexander et al. (1998), and Welsh (1988, 1989, 1995). Ongoing research on the life history, habitat, and management needs of Shivwits milkvetch is also occurring in the park (Miller et al. 2007; Tepedino 2005; Van Buren and Harper 2003).

### 3.4 Non-native and noxious weeds

Introduced plant species (not historically native to Utah or North America) make up 14.1% of the confirmed and reported flora of Zion National Park (Table 3.4). This figure is higher than the statewide average of 13.5% non-native species

(Fertig 2007; Welsh et al. 2003). Of the 140 introduced plant species confirmed or reported for Zion NP (Table 3.1), 10 are listed as noxious by the State of Utah (Table 3.4) (State of Utah Department of Agriculture and Food 2007). Recent weed monitoring and mapping studies have identified nine invasive species of especially high management priority for eradication: five-stamen tamarisk (*Tamarix*

*chinensis*), Russian olive (*Elaeagnus angustifolia*), Scotch thistle (*Onopordum acanthium*), bull thistle (*Cirsium vulgare*), whitetop (*Cardaria draba*), diffuse knapweed (*Centaurea diffusa*), spotted knapweed (*C. maculosa*), yellow star-thistle (*C. solstitialis*), and squarrose knapweed (*C. virgata* var. *squarrosa*) (Dewey and Andersen 2005; Evenden et al. 2002).

**Table 3.3. Plant species of conservation concern from Zion National Park.**

Family	Species	Common name	TNC global rank	Federal legal status	UTCDC status
Agavaceae	<sup>H</sup> <i>Nolina microcarpa</i>	beargrass	G4		Peripheral, S1
Agavaceae	<i>Yucca kanabensis</i>	Kanab yucca	G5T3?		Watch, S2?
Agavaceae	<i>Yucca utahensis</i>	Utah yucca	G5T3?		Watch, S2?
Agavaceae	<i>Yucca vespertina</i>	Mohave datil	G4G5T?Q		Tax. Prob., S2?
Araliaceae	<i>Aralia racemosa</i> ssp. <i>bicrenata</i>	spikenard	G4G5 T3T5Q		Add. Data, S1
Asclepiadaceae	<i>Asclepias hallii</i>	Hall's milkweed	G3		Watch, S1
Boraginaceae	<i>Cryptantha ambigua</i>	obscure cryptanth	G4		Peripheral, S2?
Boraginaceae	<i>Cryptantha cinerea</i> var. <i>arenicola</i>	sand cryptanth	G5T3?	USFWS: former C2	Watch, S3?
Boraginaceae	<i>Cryptantha decipiens</i>	beguiling cryptanth	G4?		Peripheral, S2
Boraginaceae	<i>Cryptantha pterocarya</i> var. <i>cycloptera</i>	wing-nut cryptanth	G5T5		Peripheral, S2
Boraginaceae	<i>Hackelia patens</i> var. <i>harrisonii</i>	Harrison's stickseed	G5T2T3		Watch, S2S3
Boraginaceae	<i>Pectocarya setosa</i>	saucer combseed	G5		Peripheral, S2S3
Boraginaceae	<i>Plagiobothrys tenellus</i>	slender popcorn-flower	G4G5		Peripheral, S1
Cactaceae	<sup>R</sup> <i>Echinocereus triglochidiatus</i> var. <i>mojavensis</i>	Mohave claretcup	G5T4		Peripheral, S1
Cactaceae	<i>Opuntia acanthocarpa</i> var. <i>acanthocarpa</i>	buckhorn cholla	G4T4		Add. Data, S1
Cactaceae	<i>Opuntia chlorotica</i>	pancake pricklypear	G4		Add. Data, S1
Cactaceae	<sup>R</sup> <i>Opuntia echinocarpa</i>	pale cholla	G3?		Peripheral, S1
Cactaceae	<i>Opuntia erinacea</i> var. <i>aurea</i>	Pipe Spring pricklypear	G3		Watch, S1
Cactaceae	<i>Opuntia erinacea</i> var. <i>ursina</i>	grizzlybear pricklypear	G4 T2T3Q		Tax. Prob., S1
Cactaceae	<i>Opuntia phaeacantha</i> var. <i>discata</i>	frying pan pricklypear	G5TU		Tax. Prob., S2
Cactaceae	<i>Opuntia phaeacantha</i> var. <i>major</i>	large pricklypear	G5T5		Peripheral, S2S3
Campanulaceae	<i>Lobelia cardinalis</i> ssp. <i>graminea</i>	cardinal-flower	G5		Peripheral, S2
Campanulaceae	<i>Nemacladus glanduliferus</i> var. <i>orientalis</i>	slender nemacladus	G5T4?		Peripheral, S3
Caprifoliaceae	<i>Symphoricarpos oreophilus</i> var. <i>parishii</i>	mountain snowberry	G5T?		Peripheral, S?
Caryophyllaceae (Alsiniaceae)	<i>Arenaria pusilla</i>	dwarf sandwort	G5		Peripheral, S1

**Table 3.3. Plant species of conservation concern from Zion National Park.**

Family	Species	Common name	TNC global rank	Federal legal status	UTCDC status
Caryophyllaceae (Alsiniaceae)	<i>Cerastium nutans</i>	nodding chickweed	G5		Add. Data, S2S3
Caryophyllaceae	<i>Silene verecunda</i> ssp. <i>andersonii</i>	shy campion	G5		Peripheral, S1
Compositae (Asteraceae)	<i>Agoseris retrorsa</i>	retorse agoseris	G5		Peripheral, SR
Compositae (Asteraceae)	<i>Ambrosia salsola</i>	burrobush	G5		Peripheral, S3
Compositae (Asteraceae)	<i>Aster falcatus</i>	falcate aster	G5T4T5		Peripheral, S3
Compositae (Asteraceae)	<i>Aster wasatchensis</i> var. <i>pulcher</i>	modest aster	G3?TNR		Watch, S1
Compositae (Asteraceae)	<i>Aster welshii</i>	Welsh's aster	G2		Watch, S3?
Compositae (Asteraceae)	<i>Baccharis viminea</i> var. <i>viminea</i>	mule-fat	G5? TNR		Tax Prob., S2S3
Compositae (Asteraceae)	<i>Chrysopsis jonesii</i>	Jones' golden-aster	G2	USFS Region 4: Sensitive; USFWS: former 3C	Rare, S2
Compositae (Asteraceae)	<i>Chrysopsis villosa</i> var. <i>villosa</i>	hairy golden-aster	G5		Tax Prob., S?
Compositae (Asteraceae)	<i>Chrysopsis zionensis</i>	Zion golden-aster	G2G3Q		Add. Data, S1S2
Compositae (Asteraceae)	<i>Chrysothamnus nauseosus</i> var. <i>speciosus</i>	whitestem rabbitbrush	G5TNR		Watch, S3?
Compositae (Asteraceae)	<sup>R</sup> <i>Cirsium calcareum</i> var. <i>calcareum</i>	Caineville thistle	G4T?		Tax. Prob., S1
Compositae (Asteraceae)	<i>Cirsium joannae</i>	Joanna's thistle	G?		
Compositae (Asteraceae)	<i>Cirsium neomexicanum</i> var. <i>utahense</i>	Utah thistle	G5T?Q		Add. Data, S3?
Compositae (Asteraceae)	<i>Cirsium wheeleri</i> var. <i>salinensis</i>	Salina thistle	G5TQ		
Compositae (Asteraceae)	<i>Erigeron canaani</i>	Canaan daisy	G2G3	USFWS: former C2	Watch, S2S3
Compositae (Asteraceae)	<i>Erigeron religiosus</i>	religious daisy	G3?	USFWS: former 3C	Watch, S3?
Compositae (Asteraceae)	<i>Erigeron sionis</i>	Zion daisy	G2G3	USFWS: former C2	Watch, S2S3
Compositae (Asteraceae)	<i>Erigeron ursinus</i> var. <i>meyerae</i>	Meyer's daisy	G5TNR		
Compositae (Asteraceae)	<sup>H</sup> <i>Gaillardia parryi</i>	Parry's blanketflower	G3?		Watch, S3?
Compositae (Asteraceae)	<sup>H</sup> <i>Glyptopleura setulosa</i>	setose crustweed	G4		Peripheral, S2
Compositae (Asteraceae)	<i>Gnaphalium wrightii</i>	Wright's cudweed	G5		Peripheral, S2?
Compositae (Asteraceae)	<i>Haplopappus gracilis</i>	slender goldenweed	G5		Peripheral, S3?

**Table 3.3. Plant species of conservation concern from Zion National Park.**

Family	Species	Common name	TNC global rank	Federal legal status	UTCDC status
Compositae (Asteraceae)	<i>Haplopappus leverichii</i>	canyon goldenweed	GH	USFWS: former C2	Historic, SH
Compositae (Asteraceae)	<i>Haplopappus scopulorum</i> var. <i>scopulorum</i>	spindly goldenbush	G4TNR	USFWS: former 3C	Watch, S2S3
Compositae (Asteraceae)	<sup>R</sup> <i>Haplopappus zionis</i>	Cedar Breaks goldenbush	G2	BLM (UT): Sensitive; USFWS: former C2	Rare, S2
Compositae (Asteraceae)	<i>Malacothrix clelandii</i> var. <i>stebbinsii</i>	Cleveland's desert-dandelion	G5T3?		Peripheral, S1
Compositae (Asteraceae)	<i>Microseris lindleyi</i>	Lindley's microseris	G5		Peripheral, S1
Compositae (Asteraceae)	<i>Pectis papposa</i>	cinch-weed	G5		Peripheral, S2S3
Compositae (Asteraceae)	<i>Perityle tenella</i>	Dixie rock-daisy	G2G3		Watch, S2?
Compositae (Asteraceae)	<i>Pluchea sericea</i>	arrowweed	G4G5		Peripheral, S3
Compositae (Asteraceae)	<sup>H</sup> <i>Rafinesquia neomexicana</i>	desert chicory	G5?		Peripheral, S2S3
Compositae (Asteraceae)	<i>Rudbeckia montana</i>	montane coneflower	G5T?		Add. Data, S1?
Compositae (Asteraceae)	<i>Sphaeromeria ruthiae</i>	Ruth's sphaeromeria	G2	USFWS: former C2	Rare, S2
Compositae (Asteraceae)	<i>Tetradymia axillaris</i>	longspine horsebrush	G4		Peripheral, S3
Compositae (Asteraceae)	<i>Thelesperma megapotamicum</i>	Hopi-tea	G5		Peripheral, S1
Compositae (Asteraceae)	<i>Viguiera longifolia</i> var. <i>annua</i>	southern goldeneye	G4G5 TNR		Peripheral, S2?
Crossosomataceae (Celastraceae)	<i>Glossopetalon spinescens</i> var. <i>aridum</i>	Nevada greasebush	G5T5?		Peripheral, SR
Cruciferae (Brassicaceae)	<sup>H</sup> <i>Arabis demissa</i>	nodding rock cress	G5T4	USFWS: former 3C	Watch, S2?
Cruciferae (Brassicaceae)	<i>Descurainia pinnata</i> var. <i>glabra</i>	western tansy-mustard	G5 T3T5		Peripheral, S?
Cruciferae (Brassicaceae)	<i>Draba asprella</i> var. <i>zionensis</i>	Zion draba	G4T3?	USFWS: former 3C	Watch, S3?
Cruciferae (Brassicaceae)	<i>Lepidium fremontii</i>	Fremont's pepperwort	G5		Peripheral, S3
Cruciferae (Brassicaceae)	<i>Physaria chambersii</i> var. <i>membranacea</i>	lepidote twinpod	G3T2?		Rare, S2?
Cruciferae (Brassicaceae)	<i>Thelypodium laxiflorum</i>	slate thelypody	G4	USFWS: former 3C	Watch, S2S3
Cruciferae (Brassicaceae)	<i>Thysanocarpus curvipes</i> var. <i>eradiatus</i>	fringepod	G4G5		Peripheral, S3
Cucurbitaceae	<i>Cucurbita foetidissima</i>	buffalo gourd	G5		Peripheral, S3?
Cyperaceae	<i>Carex alma</i>	Alma sedge	G5		Peripheral, S1

**Table 3.3. Plant species of conservation concern from Zion National Park.**

Family	Species	Common name	TNC global rank	Federal legal status	UTCDC status
Cyperaceae	<i>Carex haysii</i>	Hays' sedge	G1	USFWS: former C2	Rare, S1
Cyperaceae	<i>Carex scoparia</i>	broom sedge	G5		Peripheral, S1
Cyperaceae	<i>Carex subfusca</i>	rusty sedge	G5		Peripheral, S1
Equisetaceae	<i>Equisetum variegatum</i>	northern scouring-rush	G5		Peripheral, S1
Euphorbiaceae	<sup>H</sup> <i>Croton californicus</i>	Mohave croton	G4		Peripheral, S2
Euphorbiaceae	<i>Tragia ramosa</i>	noseburn	G5		Peripheral, S1
Garryaceae	<i>Garrya flavescens</i>	silktassel	G3G4		Peripheral, S1
Gentianaceae	<i>Centaurium calycosum</i>	Buckley's centaury	G5?		Peripheral, S3?
Gramineae (Poaceae)	<i>Bothriochloa laguroides</i> ssp. <i>torreyana</i>	silver bluestem	G5TNR		Peripheral, S1
Gramineae (Poaceae)	<sup>H</sup> <i>Bouteloua hirsuta</i>	hairy grama	G5		Peripheral, S1
Gramineae (Poaceae)	<sup>R</sup> <i>Bouteloua uniflora</i>	one-flower grama	G4		Add. Data, S1
Gramineae (Poaceae)	<i>Hilaria rigida</i>	big galleta	G5		Peripheral, S3
Gramineae (Poaceae)	<i>Panicum oligosanthes</i> var. <i>scribnerianum</i>	Scribner panicgrass	G5T5		Infreq, S2?
Gramineae (Poaceae)	<i>Paspalum distichum</i>	knotgrass	G5		Peripheral, S2S3
Hydrophyllaceae	<i>Phacelia cephalotes</i>	Chinle phacelia	G4	USFWS: former 3C	Watch, S2
Hydrophyllaceae	<i>Phacelia cryptantha</i>	cryptanth phacelia	G5		Peripheral, S1
Hydrophyllaceae	<i>Phacelia curvipes</i>	Washoe phacelia	G5		Peripheral, S1
Hydrophyllaceae	<i>Phacelia palmeri</i>	Palmer's phacelia	G3G4		Watch, S2S3
Hydrophyllaceae	<i>Phacelia pulchella</i> var. <i>pulchella</i>	pretty phacelia	G5T?		Add. Data, SR
Hydrophyllaceae	<i>Phacelia vallis-mortae</i>	Death Valley phacelia	G5		Peripheral, S3
Hydrophyllaceae	<sup>R</sup> <i>Tricardia watsonii</i>	three hearts	G4		Peripheral, S1?
Juncaceae	<i>Juncus bryoides</i>	minute rush	G4		Peripheral, S1
Labiatae (Lamiaceae)	<i>Hedeoma nanum</i>	dwarf pennyroyal	G5		Peripheral, S1
Labiatae (Lamiaceae)	<i>Salvia columbariae</i> var. <i>argillaceae</i>	Chinle chia	G5TNR	BLM (UT): Sensitive	
Labiatae (Lamiaceae)	<i>Salvia columbariae</i> var. <i>columbariae</i>	chia	G5		Peripheral, S2S3
Leguminosae (Fabaceae)	<i>Astragalus ampullarioides</i>	Shivwits milkvetch	G1Q	USFWS: Endangered	Rare, S1
Leguminosae (Fabaceae)	<i>Astragalus ampullarius</i>	gumbo milkvetch	G2	BLM (UT): Sensitive; USFWS: former C2	Watch, S2
Leguminosae (Fabaceae)	<i>Astragalus concordius</i>	hairy-pod milkvetch	G?		
Leguminosae (Fabaceae)	<i>Astragalus ensiformis</i>	Pagumpa milkvetch	G3	USFWS: former 3C	Watch, S1S3

**Table 3.3. Plant species of conservation concern from Zion National Park.**

Family	Species	Common name	TNC global rank	Federal legal status	UTCDC status
Leguminosae (Fabaceae)	<i>Astragalus flavus</i> var. <i>higginsii</i>	Higgins' milkvetch	G5T?		
Leguminosae (Fabaceae)	<i>Astragalus lancearius</i>	lancer milkvetch	G3G4 T2T3	USFWS: former 3C	Watch, S2S3
Leguminosae (Fabaceae)	<i>Astragalus newberryi</i> var. <i>newberryi</i>	Newberry's milkvetch	G5T5?		Peripheral, S3?
Leguminosae (Fabaceae)	<sup>H</sup> <i>Astragalus striatiflorus</i>	escarpment milkvetch	G3	USFWS: former 3C	Rare, S2
Leguminosae (Fabaceae)	<i>Lotus humistratus</i>	low trefoil	G5		Peripheral, S3
Leguminosae (Fabaceae)	<sup>R</sup> <i>Lotus rigidus</i>	bush trefoil	G5		Peripheral, S3?
Leguminosae (Fabaceae)	<i>Lupinus concinnus</i> var. <i>orcuttii</i>	elegant lupine	G5T5		Peripheral, S2?
Leguminosae (Fabaceae)	<i>Lupinus latifolius</i> var. <i>columbianus</i>	broad-leaved lupine	G5 T1T2		Rare, S1
Leguminosae (Fabaceae)	<i>Lupinus sericeus</i> var. <i>jonesii</i>	Jones' lupine	G2Q		Tax. Prob., S2
Leguminosae (Fabaceae)	<i>Pediomelum mephiticum</i>	skunk breadroot	G3?		Watch, S1
Leguminosae (Fabaceae)	<i>Pediomelum pariense</i>	Paria breadroot	G2G3	USFS Region 4: Sensitive; USFWS: former C2	Watch, S2S3
Leguminosae (Fabaceae)	<i>Prosopis glandulosa</i> var. <i>torreyana</i>	honey mesquite	G5?T5?		Peripheral, S2?
Leguminosae (Fabaceae)	<i>Robinia neomexicana</i>	New Mexico locust	G4		Peripheral, S1
Liliaceae (Calochortaceae)	<i>Calochortus ambiguus</i>	Jones' mariposa	G4?		Peripheral, S1
Liliaceae (Melanthiaceae)	<i>Zigadenus vaginatus</i>	alcove death camas	G2	USFWS: former 3C	Rare, S2
Lythraceae	<i>Lythrum californicum</i>	California loosestrife	G4		Peripheral, S2
Malvaceae	<i>Sphaeralcea ambigua</i> var. <i>ambigua</i>	Mohave globemallow	G4G5		Peripheral, S2?
Malvaceae	<i>Sphaeralcea rusbyi</i>	Rusby's globemallow	G4T?		Add. Data, S1
Martyniaceae (Pedaliaceae)	<i>Proboscidea parviflora</i>	devil's claw	G4G5		Peripheral, S2?
Nyctaginaceae	<i>Boerhavia spicata</i>	spiderling	G5		Peripheral, S1
Oleaceae	<i>Fraxinus velutina</i>	velvet ash	G5		Peripheral, S3
Onagraceae	<i>Camissonia bairdii</i>	Baird's camissonia	G1	BLM (UT): Sensitive; USFWS: former C2	Add. Data, S1
Onagraceae	<i>Camissonia parryi</i>	Parry's camissonia	G3?	USFWS: former 3C	Watch, S2
Onagraceae	<i>Epilobium glaberrimum</i> var. <i>fastigiatum</i>	glaucous willow-herb	G5 T4T5		Peripheral, S1

**Table 3.3. Plant species of conservation concern from Zion National Park.**

Family	Species	Common name	TNC global rank	Federal legal status	UTCDC status
Onagraceae	<i>Epilobium nevadense</i>	Nevada willow-herb	G2	USFS Region 4: Sensitive; BLM (UT): Sensitive; USFWS: former C2	Rare, S1
Onagraceae	<sup>R</sup> <i>Oenothera primiveris</i> var. <i>bufonus</i>	early evening-primrose	G5T?		Peripheral, S2S3
Papaveraceae	<sup>H</sup> <i>Eschscholzia glyptosperma</i>	desert golden-poppy	G4G5		Peripheral, S2S3
Papaveraceae	<sup>H</sup> <i>Eschscholzia minutiflora</i>	pygmy golden-poppy	G5		Peripheral, S3
Polemoniaceae	<i>Eriastrum eremicum</i>	Mohave eriastrum	G5		Peripheral, S3
Polemoniaceae	<i>Ipomopsis aggregata</i> var. <i>arizonica</i>	scarlet gilia	G3G4		Peripheral, S?
Polemoniaceae	<i>Langloisia setosissima</i>	Mohave langloisia	G4G5		Peripheral, S2S3
Polemoniaceae	<i>Linanthus bigelovii</i>	Bigelow's linanthus	G5?		Peripheral, S2
Polemoniaceae	<i>Linanthus dichotomus</i>	evening-snow	G4?		Peripheral, S1
Polemoniaceae	<i>Phlox austromontana</i> var. <i>jonesii</i>	Jones' phlox	G2G3Q		Watch, S2S3
Polemoniaceae	<i>Phlox austromontana</i> var. <i>prostrata</i>	silver reef phlox	G5TNR		Add. Data, S2?
Polygonaceae	<i>Centrostegia thurberi</i>	Thurber's spineflower	G5		Peripheral, S3?
Polygonaceae	<i>Eriogonum corymbosum</i> var. <i>albiflorum</i>	Virgin wild buckwheat	G4 T2T3	USFWS: former 3C	Watch, S2S3
Polygonaceae	<i>Eriogonum corymbosum</i> var. <i>matthewsiae</i>	Springdale wild buckwheat	G4T1?	USFWS: former 3C	Rare, S1?
Polygonaceae	<i>Eriogonum corymbosum</i> var. <i>thompsoniae</i>	Thompson's wild buckwheat	G4T4	USFWS: former 3C	Watch, S3
Polygonaceae	<i>Eriogonum davidsonii</i>	Davidson's wild buckwheat	G5		Peripheral, S2?
Polygonaceae	<i>Eriogonum fasciculatum</i> var. <i>polifolium</i>	Mojave wild buckwheat	G5T5		Peripheral, S3
Polygonaceae	<i>Eriogonum jamesii</i> var. <i>rupicola</i>	slickrock wild buckwheat	G5T2T3	USFWS: former 3C	Watch, S2S3
Polygonaceae	<sup>R</sup> <i>Eriogonum polycladon</i>	leafy wild buckwheat	G4		Peripheral, S1
Polygonaceae	<i>Eriogonum racemosum</i> var. <i>zionis</i>	Zion wild buckwheat	G4QT2Q	USFWS: former 3C	Watch, S2
Polygonaceae	<i>Eriogonum subreniforme</i>	kidney-shaped wild buckwheat	G3G4		Watch, S3?
Polygonaceae	<i>Polygonum douglasii</i> var. <i>utahense</i>	Utah knotweed	G5TNR		Tax. Prob., S?
Polypodiaceae (Adiantaceae)	<i>Adiantum pedatum</i> var. <i>aleuticum</i>	northern maiden-hair fern	G5?		Peripheral, S2
Polypodiaceae (Aspleniaceae)	<i>Asplenium adiantum-nigrum</i>	black spleenwort	G5		Peripheral, S1
Polypodiaceae (Aspleniaceae)	<i>Asplenium resiliens</i>	ebony spleenwort	G5		Peripheral, S1
Polypodiaceae (Adiantaceae)	<i>Cheilanthes covillei</i>	Coville's lip-fern	G4?		Peripheral, S2?



**Table 3.3. Plant species of conservation concern from Zion National Park.**

Family	Species	Common name	TNC global rank	Federal legal status	UTCDC status
Polypodiaceae (Adiantaceae)	<i>Cheilanthes wootonii</i>	Wooton's lip-fern	G5		Peripheral, S1
Polypodiaceae (Aspleniaceae)	<i>Cystopteris bulbifera</i>	bulblet bladder fern	G5		Peripheral, S1
Polypodiaceae (Adiantaceae)	<i>Pellaea atropurpurea</i>	purple cliff-brake	G5		Peripheral, S1
Polypodiaceae (Adiantaceae)	<i>Pellaea glabella</i> var. <i>occidentalis</i>	western cliff-brake	G5T4		Peripheral, S2
Polypodiaceae (Adiantaceae)	<i>Pellaea wrightiana</i>	Wright's cliff-brake	G5		Peripheral, S1
Polypodiaceae (Pteridaceae)	<i>Pityrogramma triangularis</i>	goldback fern	G5		Peripheral, S1
Polypodiaceae	<i>Polypodium hesperium</i>	western polypody	G5		Infreq., S2
Portulacaceae	<i>Lewisia brachycalyx</i>	showy lewisia	G4G5		Add. Data, S1
Portulacaceae	<sup>H</sup> <i>Montia perfoliata</i> var. <i>utahensis</i>	Mojave miner's lettuce	G5TNR		Tax. Prob., S2?
Primulaceae	<i>Dodecatheon pulchellum</i> var. <i>zionense</i>	Zion shooting-star	G5 T2T3Q		Watch, S2S3
Primulaceae	<i>Samolus floribundus</i>	water pimpernel	G5		Infreq., S2
Pyrolaceae (Ericaceae)	<i>Chimaphila menziesii</i>	Menzies' wintergreen	G5		Peripheral, S1
Ranunculaceae (Helleboraceae)	<i>Aquilegia chrysantha</i>	golden columbine	G4		Peripheral, S1
Ranunculaceae (Helleboraceae)	<i>Aquilegia fosteri</i>	Foster's columbine	G5 T1T2		Rare, S1S2
Rhamnaceae	<sup>R</sup> <i>Ceanothus greggii</i> var. <i>vestitus</i>	Mohave desert-lilac	G5T?		Peripheral, S2
Rosaceae	<sup>R</sup> <i>Purshia glandulosa</i>	desert bitterbrush	G5		Peripheral, S2?
Rubiaceae	<i>Galium wrightii</i>	Wright's bedstraw	G3G4		Peripheral, S1
Salicaceae	<i>Salix laevigata</i>	red willow	G5		Peripheral, S2S3
Saxifragaceae (Hydrangeaceae)	<i>Jamesia americana</i> var. <i>zionis</i>	Zion jamesia	G5T2	USFS Region 4: Sensitive; BLM (UT): Sensitive; USFWS: former C2	Rare, S2
Scrophulariaceae	<i>Mimetanthe pilosa</i>	hairy mimetanthe	G5		Peripheral, S3
Scrophulariaceae	<i>Mimulus cardinalis</i>	cardinal monkeyflower	G5		Peripheral, S1
Scrophulariaceae	<i>Mimulus parryi</i>	Parry's monkeyflower	G3G4		Watch, S2
Scrophulariaceae	<i>Penstemon higginsii</i>	Higgins' penstemon	G4G5 T3?		Watch, S3?
Scrophulariaceae	<i>Penstemon humilis</i> var. <i>obtusifolius</i>	Zion penstemon	G5 T2T3	USFWS: former 3C	Watch, S2S3
Scrophulariaceae	<i>Penstemon laevis</i>	smooth penstemon	G3		Watch, S2S3
Scrophulariaceae	<i>Penstemon linarioides</i> var. <i>sileri</i>	Siler's penstemon	G4T3?		Tax. Prob., S3?
Scrophulariaceae	<sup>H</sup> <i>Penstemon sepalulus</i>	littlecup penstemon	G2G3		Watch, S2S3

**Table 3.3. Plant species of conservation concern from Zion National Park.**

Family	Species	Common name	TNC global rank	Federal legal status	UTCDC status
Selaginellaceae	<i>Selaginella underwoodii</i>	Underwood's spike-moss	G5?		Peripheral, S1
Selaginellaceae	<i>Selaginella utahensis</i>	Utah spike-moss	G2G3	USFWS: former 3C	Watch, S2S3
Solanaceae	<i>Chamaesaracha coronopus</i>	false nightshade	G5		Peripheral, S1
Umbelliferae (Apiaceae)	<i>Cymopterus multinervatus</i>	purple-nerved spring-parsley	G5?		Peripheral, S2
Umbelliferae (Apiaceae)	<i>Cymopterus purpureus</i> var. <i>rosei</i>	Rose's spring-parsley	G3Q	USFWS: former 3C	Watch, S3
Umbelliferae (Apiaceae)	<i>Lomatium graveolens</i> var. <i>clarkii</i>	Clark's lomatium	G5? TNR	BLM (UT): Sensitive; USFWS: former C2	Rare, S1
Valerianaceae	<i>Valeriana arizonica</i>	Arizona valerian	G5?		Peripheral, S1
Violaceae	<i>Viola clauseniana</i>	Clausen's violet	G1		Rare, S1
Violaceae	<i>Viola purpurea</i> var. <i>charlestonensis</i>	Charleston Mountain violet	G3Q	USFWS: former 3C	Watch, S2
Vitaceae	<i>Vitis arizonica</i>	canyon grape	G5?		Peripheral, S1

List derived from Utah Division of Wildlife Resources (1998) and Welsh (1995). All species are confirmed as present and extant unless indicated "R" (reported) or "H" (historical or extirpated).

Codes: **TNC global rank** assesses abundance and conservation priority on a scale of 1–5 (1 being extremely vulnerable and 5 being secure) for full species (G) and varieties or subspecies (T) across their entire range. A "?" indicates uncertainty in the rank, Q = taxonomic questions, U = unknown, and NR = not ranked. A comparable scoring system is used to measure state abundance (S) in Utah under the column UTCDC status.

Under **legal status**, USFWS = US Fish and Wildlife Service. C2 = category 2 candidate (a former category used for taxa that might warrant being proposed for Threatened or Endangered status following additional research). 3C = category 3 candidates (species dropped from consideration for listing). USFS = U.S. Forest Service. BLM = U.S. Bureau of Land Management.

**UTCDC status** includes conservation categories adopted by the state natural heritage program to prioritize endemic and rare plant taxa (UDWR 1998). These categories include: Historical (presumed extinct or only known historically through their range), Rare (plants with rangewide viability concerns), Watch (regional endemics without rangewide viability concerns), Peripheral (rare or uncommon in Utah, but more common rangewide), Infrequent (plants occur infrequently over western US), Taxonomic Problems (validity of species, subspecies, or variety has been questioned), Additional Data (species appear rare, but more information needed before being assigned to a different category).

**Table 3.4. Noxious weed species of Zion National Park.**

Family	Species	Common name	Park status
Compositae (Asteraceae)	<i>Carduus nutans</i>	musk thistle	Reported
Compositae (Asteraceae)	<i>Centaurea diffusa</i>	diffuse knapweed	Present
Compositae (Asteraceae)	<i>Centaurea maculosa</i>	spotted knapweed	Present
Compositae (Asteraceae)	<i>Centaurea solstitialis</i>	yellow star-thistle	Present
Compositae (Asteraceae)	<i>Centaurea virgata</i> var. <i>squarrosa</i>	squarrose knapweed	Present
Compositae (Asteraceae)	<i>Onopordum acanthium</i>	Scotch thistle	Present
Convolvulaceae	<i>Convolvulus arvensis</i>	field bindweed	Present
Gramineae (Poaceae)	<i>Cynodon dactylon</i>	Bermuda grass	Present
Gramineae (Poaceae)	<i>Elymus repens</i>	quackgrass	Reported
Gramineae (Poaceae)	<i>Sorghum halepense</i>	Johnson-grass	Present

This list is derived from the State of Utah Department of Agriculture and Food (2007) and Dewey and Andersen (2005).

## 4 Discussion

The flora of Zion National Park is noteworthy for having the highest species richness of any NPS unit in Utah's Colorado Plateau region, and in having the greatest number of endemic and rare species. Much of this diversity can be attributed to the park's location at the confluence of three major floristic regions: the Colorado Plateau, Great Basin, and Mojave Desert. Microhabitats, such as shady cliff faces, hanging gardens, and Chinle barrens, have also contributed to the park's high degree of local endemism (the holotypes of more than two dozen vascular plant species have been collected in Zion—the highest number of any NPS unit in the state). Zion National Park's flora has been well documented, thanks to the efforts of Woodbury (1933), Weight (1937), Nelson (1976), Meyer (1979), Welsh (1990, 1995), and nearly 110 other collectors, starting with the pioneering work of Marcus E. Jones in 1894. Despite this long history, new discoveries continue to be made, with at least 25 species being documented

for the first time since 2003. Currently, the vascular plant flora of Zion NP consists of 991 vouchered or reported taxa (Table 1.3.4, Appendix A), with another 203 species known from similar habitats in proximity to the park (Appendix B). Should all of these potential species be found, the flora of the park would increase by nearly 17%. Many of the “missing” potential or reported taxa consist of cryptic species that flower late in the growing season or occur in undersampled, weedy habitats. Confirmation of reported species should remain a high priority, as some of these taxa may ultimately prove to be erroneous. Further herbarium reviews, especially of collections held at the University of Wyoming and New York Botanical Garden, would help resolve the status of many reported taxa. Additional field studies would also be useful to better refine the abundance and distribution of species of high management interest (especially rare plants and invasive non-natives) and to verify the status of the 38 species thought to be extirpated or known only from historical records.



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# Appendices

The following appendices contain annotated checklists of the vascular flora of Zion National Park. Appendix A lists all species that have been confirmed for the flora with an authenticated voucher specimen (including extant and historical records) or that have been reliably reported for the park in the literature (Cogan et al. 2004; Dewey and Andersen 2005; Nelson 1976; Weight 1937; Welsh 1995). Vouchers were examined from the Zion National Park herbarium (ZION) and collections from Brigham Young University (BRY), Utah State University (USU), the University of Nevada–Las Vegas (UNLV), the University of Wyoming (RM), and the digital museum database of the New York Botanical Garden (NY). Species entries in Appendix A are organized alphabetically by family and genus.

Appendix B includes species that may potentially occur within Zion National Park based on the proximity of the park to other populations or the presence of suitable habitat.

Appendix C lists species that have been previously reported for Zion National Park but are now considered erroneous because they were based on misidentified specimens or questionable literature records.

Appendix D contains the same confirmed, historical, and reported taxa as in Appendix A, but organized by life form rather than by family in order to better meet the needs of NPS interpretive specialists.

The codes and references for each field in the appropriate appendices are summarized below.

## Family (Appendices A, B, C, and D)

Family concepts and nomenclature follow *A Utah Flora*, third edition (Welsh et al. 2003). Alternative family names and treatments from other regional floras (Dorn 2001, Flora of North America Editorial Committee 1993, 2002b, Holmgren et al. 2005, Weber and Wittman 2001) are listed in parentheses.

## Species name (Appendices A, B, C, and D)

Nomenclature for scientific names and taxonomic concepts are derived from Welsh et al. (2003). Scientific names are listed in alphabetical rather than phylogenetic order.

## Synonyms/Taxonomic notes (Appendices A, B, and C)

Pertinent synonyms are included for species with alternative scientific names in other recent state and regional floras (Barkworth et al. 2003, 2007; Barneby 1989; Cronquist 1994; Cronquist et al. 1972, 1977, 1984, 1997; Dorn 2001; Flora of North America Editorial Committee 1993, 1997, 2000, 2002a, 2002b, 2003, 2005, 2006a, 2006b, 2006c; Holmgren et al. 2005; Weber and Wittmann 2001). No effort has been made to identify additional synonyms from monographs and floras preceding the early 1970s.

## Common name (Appendices A, B, C, and D)

Common names are derived primarily from Welsh et al. (2003) and the *Intermountain Flora* (Barneby 1989; Cronquist 1994; Cronquist et al. 1972, 1977, 1984, 1997; Holmgren et al. 2005).

## Life form (Appendices A, B, C, and D)

Life form is based on the stature and growth habit of typical members of a species at reproductive maturity. **Trees** are woody perennials with a single stem or trunk and are typically over 3.5 m tall. **Shrubs** are woody perennials with one to many trunks arising from near the base of the plant and are usually less than 3.5 m tall. **Perennial Forbs (PerF)** are broad-leaved dicots or monocots with non-woody stems (at least above ground level) that live for multiple years. **Annual Forbs (AnnF)** are broad-leaved dicots or monocots with non-woody stems that complete their life cycle (mature, flower, and die) in one year. **Perennial Graminoids (PerG)** are linear-leaved, grass-like monocots that live for multiple years. **Annual Graminoids (AnnG)** are linear-leaved, grass-like monocots that complete their life cycle (mature, flower, and die) in one year. **Ferns and fern-allies (Fern)** are non-flowering vascular plants that reproduce by spores.

## Range (Appendices A, B, and C)

Range represents the distribution of a species within Utah and the state's contribution to the plant's overall global range. **Disjunct (Disj)** taxa have their Utah distribution separated from the main, contiguous portion of their range by a gap of more than 800 km (ca 500 miles). **Introduced (Intro)** taxa are those that are not native to Utah or North America but have become naturalized (breeding on their own without human assistance). **Local Endemics (LocEn)** are taxa whose entire global range is restricted to an area of less than 16,500 km<sup>2</sup> (ca 6,370 mi<sup>2</sup>, or 1° of latitude ×

2° of longitude). Peripheral (**Periph**) taxa have a widespread global distribution but occur at the margin of their contiguous range in Utah and occupy less than 5% of the state's area (usually only within a few miles of the state border). Regional Endemics (**RegEn**) are taxa with a global range of 16,500–250,000 km<sup>2</sup> (an area about the size of the state of Wyoming). **Sparse** taxa occur widely across Utah or North America but their range within Utah is small and patchy, with populations restricted to specialized or uncommon habitats. Widespread (**Wide**) taxa have global ranges exceeding 250,000 km<sup>2</sup> and occur over at least 10% of the state.

#### **Park status (Appendices A, C, and D)**

Park status identifies whether a species is Present (**Pres**), Historical (**Hist**), or Reported (**Rep**) for Zion National Park. Species are considered Present if a confirmed voucher or documented observation has been made within park boundaries since 1970. Historical species have been confirmed with a voucher from the park but have not been relocated since before 1970. Reported species are listed for the park in the literature (Cogan et al. 2004; Dewey and Andersen 2005; Nelson 1976; Weight 1937; Welsh 1995), but have not been corroborated with a voucher specimen. Species that may potentially occur in Zion NP are listed in Appendix B. Rejected taxa (listed in Appendix C) have either been falsely reported (**FalsRep**) in the literature based on misidentified herbarium specimens or are considered Questionable (**Ques?**) because park reports are from well outside their known or expected range.

#### **Pop. size (Appendix A)**

Population size refers to the abundance and frequency with which a species occurs within Zion National Park. Abundance data are derived from Cogan et al. (2004), the Zion National Park NPSpecies database, and personal observations. Abundant (**Abun**) taxa have large populations, have a broad ecological amplitude (often being dominant in one to several vegetation types), or occur extensively across the park. Common (**Com**) taxa have large local populations but may be restricted to a single vegetation type or do not occur across the entire park. Uncommon (**Unc**) taxa have low-to-medium-sized populations, typically have a narrow ecological amplitude (or at least contribute relatively little to total vegetative cover), or have a small range across the park. **Rare** taxa usually have low population numbers and are restricted to a single location within the

park. A “?” indicates that population size is unknown.

#### **Source (Appendix A)**

Sources are the evidence for the assigned park status. In the case of Present and Historical taxa, sources are herbarium records (with collector, collection number, and repository) that were corroborated during this study. For reported taxa, the source is a published or unpublished reference citing the species within the park. Specimen repositories include the Zion National Park herbarium (**ZION**), Brigham Young University (**BRY**), Utah State University (**USU**), New York Botanical Garden (**NY**), and the University of Wyoming's Rocky Mountain Herbarium (**RM**).

#### **Year doc. (Appendix A)**

Year documented indicates the first year in which a species was confirmed or reported to occur in Zion National Park. This year does not necessarily correspond with the date of the voucher specimen cited under Source. “NA” indicates that the first year is not known (used mostly for “reported” taxa).

#### **Comments (Appendices A, B, C, and D)**

This column includes additional comments on the status of a particular species in the park, the place of origin for introduced species, legal status, and other data.

#### **Nativity (Appendix D)**

Nativity indicates whether a species is native to Utah or Introduced (Intro) based on Fertig (2007).

#### **Flower time (Appendix D)**

Flower time refers to the months in which a species is most likely to be in flower. NA indicates a species that is a non-flowering fern or gymnosperm.

#### **Habitat (Appendix D)**

The distribution of species across generalized habitats in Zion National Park is indicated by an “x” in the columns Warm Des through Wet and is derived from the Zion NP vegetation classification (Cogan et al. 2004), and Welsh et al. (2003). **Warm Des**=Warm Desert shrublands dominated by blackbrush (*Coleogyne ramosissima*), four-wing saltbush (*Atriplex canescens*) and a variety of grasses and forbs more typical of the Mohave Desert ecoregion. **PJ/Oak/Sage**=Woodlands and openings dominated by two-needle pinyon (*Pinus*

*edulis*), singleleaf pinyon (*P. monophylla*), Utah juniper (*Juniperus osteosperma*), Gambel oak (*Quercus gambelii*), and big sagebrush (*Artemisia tridentata*). **Mtn Conif**=Montane conifer forests of Douglas-fir (*Pseudotsuga menziesii*), ponderosa pine (*Pinus ponderosa*), white fir (*Abies con-*

*color*), and Rocky Mountain juniper (*Juniperus scopulorum*). **Wet**=Wetlands (including hanging gardens). Additional comments are included for species that are restricted to a particular soil/geologic type or are found mostly in disturbed sites.

**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Aceraceae	<i>Acer glabrum</i> var. <i>glabrum</i>	Includes vars. <i>neomexicanum</i> , <i>douglasii</i> , & <i>tripartitum</i>	Rocky Mountain maple	Shrub	Wide	Pres	Unc	Erdman 524 (BRY)	1926	
Aceraceae	<i>Acer grandidentatum</i>		bigtooth maple	Tree	Wide	Pres	Com	Nelson 9255 (ZION)	1925	
Aceraceae	<i>Acer negundo</i>	<i>A. negundo</i> var. <i>interius</i> , <i>Negundo</i> <i>aceroides</i> ssp. <i>interius</i>	box elder	Tree	Wide	Pres	Com	Nelson 10031 (ZION)	1925	ZION material is mostly var. <i>negundo</i> .
Agavaceae	<i>Nolina microcarpa</i>		beargrass	Shrub	Periph	Ext	?	Cronquist et al. (1977)	1928	
Agavaceae	<i>Yucca angustissima</i>	<i>Y. angustissima</i> var. <i>angustissima</i>	narrowleaved yucca	Shrub	RegEn	Rep	?	Palmer (1966)	1965	
Agavaceae	<i>Yucca baccata</i>	<i>Y. baccata</i> var. <i>baccata</i>	datil yucca	Shrub	Wide	Pres	Unc	Franklin & Thorne 5127 (ZION)	1987	
Agavaceae	<i>Yucca kanabensis</i>	<i>Y. angustissima</i> var. <i>kanabensis</i>	Kanab yucca	Shrub	LocEn	Pres	Unc	Welsh 20691 (BRY)	1925	Type locality is divide between Mt. Carmel & Kanab, Kane Co, UT (McKelvey 4347a A)
Agavaceae	<i>Yucca utahensis</i>	<i>Y. elata</i> var. <i>utahensis</i>	Utah yucca	Shrub	LocEn	Pres	Com	Welsh 23839 (ZION)	1987	Type locality is Santa Clara Valley, Washington Co, UT (McKelvey 4167 A)
Agavaceae	<i>Yucca vespertina</i>	<i>Y. baccata</i> var. <i>vespertina</i> . Not recognized in <i>Flora of</i> <i>North America</i> (2002)	Mohave datil	Shrub	Periph	Pres	Unc	Thorne & Franklin 6026a (BRY)	1988	
Aizoaceae (Molluginaceae)	<i>Mollugo cerviana</i>		slender carpetweed	AnnF	Intro	Pres	Unc	Welsh, Clark, & Thorne 24098 (ZION)	1989	Native to the tropics.
Alismataceae	<i>Alisma plantago-</i> <i>aquatica</i>	<i>A. plantago-aquatica</i> var. <i>americanum</i> , <i>A.</i> <i>triviale</i>	water- plantain	PerF	Wide	Pres	Unc	Meretsky 38 (ZION)	1970	
Amaranthaceae	<i>Amaranthus albus</i>		tumble pigweed	AnnF	Intro	Pres	Unc	Nelson 10127 (ZION)	1972	Native to tropical America

**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Amaranthaceae	<i>Amaranthus blitoides</i>	<i>A. graecizans</i>	prostrate pigweed	AnnF	Wide	Pres	Unc	Harper ZNP-062 (ZION)	1935	
Anacardiaceae	<i>Rhus aromatica</i> var. <i>simplicifolia</i>	<i>R. trilobata</i> var. <i>simplicifolia</i>	squawbush	Shrub	Wide	Pres	Com	Nelson 9301 (ZION)	1925	
Anacardiaceae	<i>Rhus aromatica</i> var. <i>trilobata</i>	<i>R. trilobata</i> var. <i>trilobata</i>	squawbush	Shrub	Wide	Pres	Com	Erdman 51 (BRY)	1925	
Anacardiaceae	<i>Rhus glabra</i>		smooth sumac	Shrub	Wide	Pres	Unc	Franklin, Thorne, & Nelson 5546 (BRY)	1925	
Anacardiaceae	<i>Toxicodendron rydbergii</i>	<i>Rhus radicans</i> , <i>T. radicans</i>	western poison ivy	Shrub	Wide	Pres	Unc	Woodbury s.n. (ZION)	1927	
Apocynaceae	<i>Apocynum androsaemifolium</i> var. <i>androsaemifolium</i>		spreading dogbane	PerF	Wide	Pres	Unc	Meretsky s.n. (ZION)	1997	
Apocynaceae	<i>Apocynum cannabinum</i>	Includes vars. <i>cannabinum</i> , <i>glaberrimum</i> , & <i>angustifolium</i>	common dogbane	PerF	Wide	Pres	Unc	Boyle Z-236 (ZION)	1927	
Araliaceae	<i>Aralia racemosa</i> ssp. <i>bicrenata</i>	<i>A. racemosa</i>	spikenard	PerF	Periph	Pres	Rare	Fowler, Hak, & May 357 (ZION)	1980	
Asclepiadaceae	<i>Asclepias asperula</i> var. <i>asperula</i>		spider milkweed	PerF	Wide	Pres	Unc	Welsh & Clark 24243 (BRY)	1926	
Asclepiadaceae	<i>Asclepias hallii</i>		Hall's milkweed	PerF	Sparse	Pres	Unc	Fowler, May, & Hak 14 (RM)	1991	
Asclepiadaceae	<i>Asclepias speciosa</i>		showy milkweed	PerF	Wide	Pres	Unc	Fowler, May, & Hak 660 (RM)	1925	
Asclepiadaceae	<i>Asclepias subverticillata</i>	<i>A. galloides</i>	whorled milkweed	PerF	Wide	Pres	Unc	Davis s.n. (ZION)	1935	
Asclepiadaceae	<i>Asclepias tuberosa</i> var. <i>interior</i>	<i>A. tuberosa</i> ssp. <i>terminalis</i>	orange milkweed	PerF	Wide	Pres	Unc	Neese & Welsh 15745 (BRY)	1925	
Asclepiadaceae	<i>Periploca graeca</i>		silkvine	PerF	Intro	Pres	Rare	Nelson s.n. (RM)	1973	Native to Europe

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Berberidaceae	<i>Mahonia fremontii</i>	<i>Berberis fremontii</i>	Fremont's mahonia	Shrub	Wide	Rep	?	Welsh (1995)	NA	Report from ZION herbarium is based on a specimen collected just outside of the park.
Berberidaceae	<i>Mahonia repens</i>	<i>Berberis repens</i>	Oregon-grape	Shrub	Wide	Pres	Unc	Welsh 23327 (NY)	1925	
Betulaceae	<i>Betula occidentalis</i>	<i>B. fontinalis</i>	water birch	Tree	Wide	Pres	Unc	Nelson 9065 (ZION)	1925	
Bignoniaceae	<i>Catalpa speciosa</i>		showy catalpa	Tree	Intro	Pres	Unc	Welsh 25311 (BRY)	1994	Native to E North America.
Boraginaceae	<i>Amsinckia intermedia</i>	<i>A. menziesii</i> var. <i>intermedia</i>	tarweed fiddleneck	AnnF	Wide	Pres	Unc	Malm s.n. (ZION)	1997	
Boraginaceae	<i>Amsinckia tessellata</i>		rough fiddleneck	AnnF	Wide	Pres	Rare	Franklin, Smith, & Thorne 6027 (ZION)	1988	
Boraginaceae	<i>Cryptantha ambigua</i>		obscure cryptanth	AnnF	Sparse	Pres	Unc	Thorne 5341 (ZION)	1987	
Boraginaceae	<i>Cryptantha barbigera</i>		bearded cryptanth	AnnF	Periph	Pres	Unc	Higgins 18451 (BRY)	1935	Type locality is St. George, Washington Co, UT (Parry 171 GH)
Boraginaceae	<i>Cryptantha cinerea var. arenicola</i>		sand cryptanth	PerF	LocEn	Pres	Unc	Clark, Thorne, & Tuhy 5395 (ZION)	1935	Type locality is Lone Pine Point, Johnson Canyon, Kane Co, UT (Higgins, Welsh, & Thorne 14297 BRY). USFWS: former C2 candidate
Boraginaceae	<i>Cryptantha confertiflora</i>		basin yellow cryptanth	PerF	Wide	Pres	Com	Franklin & Baird 466 (ZION)	1971	

*Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.*

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Boraginaceae	<i>Cryptantha decipiens</i>		beguiling cryptanth	AnnF	Periph	Pres	Unc	Nelson 10016 (ZION)	1972	
Boraginaceae	<i>Cryptantha fendleri</i>		sand dune cryptanth	AnnF	Wide	Pres	Unc	Charlesworth, Clark, & Welsh 23861 (ZION)	1987	
Boraginaceae	<i>Cryptantha flavoculata</i>	<i>Oreocarya flavoculata</i>	yellow-eye cryptanth	PerF	Wide	Pres	Unc	Nelson 9725 (ZION)	1971	
Boraginaceae	<i>Cryptantha gracilis</i>		slender cryptanth	AnnF	Wide	Pres	Unc	Nelson 10183 (ZION)	1929	
Boraginaceae	<i>Cryptantha humilis</i>	<i>Oreocarya humilis</i> ssp. <i>nana</i>	dwarf cryptanth	PerF	Wide	Rep	?	Cogan et al. (2004)	2003	Previous reports of <i>C. humilis</i> were based on misidentified specimens of <i>C. virginensis</i> .
Boraginaceae	<i>Cryptantha micrantha</i>		redroot cryptanth	AnnF	Wide	Pres	Unc	Sanderson ZNP036 (ZION)	1987	Type locality is "southern Utah" (Parry 164)
Boraginaceae	<i>Cryptantha pterocarya</i> var. <i>cycloptera</i>		wing-nut cryptanth	AnnF	Periph	Pres	Unc	Higgins & Thorne 17770 (BRY)	1988	
Boraginaceae	<i>Cryptantha pterocarya</i> var. <i>pterocarya</i>		wing-nut cryptanth	AnnF	Wide	Pres	Unc	Nelson 9943 (ZION)	1972	
Boraginaceae	<i>Cryptantha virginensis</i>		Virgin River cryptanth	PerF	RegEn	Pres	Rare	Clark 5018 (BRY)	1935	Type locality is LaVerkin, Washington Co, UT (Jones 5195a POM)
Boraginaceae	<i>Hackelia floribunda</i>		showy stickseed	PerF	Wide	Pres	Unc	Nelson 9746 (ZION)	1929	
Boraginaceae	<i>Hackelia micrantha</i>	<i>H. jessicae</i>	smallflower stickseed	PerF	Wide	Pres	Unc	Madany s.n. (ZION)	1979	
Boraginaceae	<i>Hackelia patens</i> var. <i>harrisonii</i>		Harrison's stickseed	PerF	RegEn	Pres	Unc	Nelson 9700 (ZION)	1971	

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Boraginaceae	<i>Heliotropium convolvulaceum</i>	<i>Euploca convolvulacea</i> ssp. <i>californica</i>	bindweed heliotrope	AnnF	Wide	Pres	Rare	Franklin, Thorne, & Nelson 5566 (ZION, BRY)	1987	
Boraginaceae	<i>Lappula occidentalis</i> var. <i>cupulata</i>	<i>L. texana</i> , <i>L. redowskii</i> var. <i>cupulata</i> , <i>L. marginata</i>	cupseed stickseed	AnnF	Wide	Pres	Unc	Nelson 9293 (ZION)	1927	
Boraginaceae	<i>Lithospermum incisum</i>		showy stoneseed	PerF	Wide	Pres	Unc	Holmgren, LaFrance, & Reveal 1985 (ZION)	1927	
Boraginaceae	<i>Lithospermum multiflorum</i>		southwestern stoneseed	PerF	Wide	Pres	Unc	Nelson 9323 (ZION)	1971	
Boraginaceae	<i>Lithospermum ruderale</i>		western stoneseed	PerF	Wide	Pres	Rare	Madany s.n. (ZION)	1979	
Boraginaceae	<i>Mertensia arizonica</i>	<i>M. arizonica</i> var. <i>grahamii</i>	aspen bluebell	PerF	Wide	Pres	Unc	Nelson 9740 (ZION)	1929	
Boraginaceae	<i>Mertensia franciscana</i>		Franciscan bluebell	PerF	Wide	Pres	Unc	Clark, Higgins, Kass, Thorne, & Welsh 17760 (ZION)	1971	
Boraginaceae	<i>Mertensia fusiformis</i>	Included in <i>M. oblongifolia</i> by some authors	spindle-rooted bluebell	PerF	RegEn	Pres	Rare	Welsh & Clark 24205 (BRY)	1989	
Boraginaceae	<i>Pectocarya setosa</i>		saucer combseed	AnnF	Periph	Pres	Unc	Nelson 9940 (ZION)	1972	
Boraginaceae	<i>Plagiobothrys tenellus</i>		slender popcorn- flower	AnnF	Periph	Pres	Rare	Nelson 9319 (ZION)	1971	
Cactaceae	<i>Coryphantha vivipara</i> var. <i>arizonica</i>	<i>Escobaria vivipara</i> var. <i>arizonica</i> . Vars. not recognized in <i>Flora of North America</i> (2003)	Arizona pincushion	PerF	Wide	Rep	?	Weight (1937)	1935	Report may be from outside park along cliffs overlooking the Virgin River S of Springdale



Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Cactaceae	<i>Echinocereus engelmannii</i> var. <i>chrysocentrus</i>	Includes var. <i>purpureus</i> . Vars. not recognized in <i>Flora of North America</i> (2003).	Engelmann's hedgehog cactus	PerF	Wide	Pres	Unc	Trapp & Trapp 67-9 (ZION)	1967	
Cactaceae	<i>Echinocereus triglochidiatus</i> var. <i>melanacanthus</i>	Includes var. <i>inermis</i> . Vars. not recognized in <i>Flora of North America</i> (2003).	claretcup	PerF	Wide	Pres	Com	Clark & Welsh 24010 (ZION)	1967	
Cactaceae	<i>Echinocereus triglochidiatus</i> var. <i>mojavensis</i>	Vars. not recognized in <i>Flora of North America</i> (2003)	Mohave claretcup	PerF	Periph	Rep	?	Trapp (1969)	1967	Report from ZION herbarium based on a misidentified specimen of <i>E. engelmannii</i> . Benson 13703 (POM) is part of a hybrid population with var. <i>melanacanthus</i> (Benson 1982 p. 940).
Cactaceae	<i>Opuntia acanthocarpa</i> var. <i>acanthocarpa</i>	<i>Cylindropuntia acanthocarpa</i> var. <i>acanthocarpa</i>	buckhorn cholla	Shrub	RegEn	Pres	Unc	Trapp & Trapp CT-67-86 (BRY)	1967	Reported by Weight (1937) but without a voucher
Cactaceae	<i>Opuntia chlorotica</i>		pancake pricklypear	PerF	Periph	Pres	Com	Trapp & Trapp 67-78 (ZION, BRY)	1967	
Cactaceae	<i>Opuntia echinocarpa</i>	<i>Cylindropuntia echinocarpa</i>	pale cholla	Shrub	Periph	Rep	?	Trapp (1969)	1967	
Cactaceae	<i>Opuntia erinacea</i> var. <i>aurea</i>	<i>O. aurea</i> , <i>O. basilaris</i> var. <i>aurea</i>	Pipe Spring pricklypear	PerF	LocEn	Pres	Unc	Foster & Foster 3953 (BRY)	1938	Type locality is 1/2 mile N of Pipe Spring, Mohave Co, AZ (McCabe & McCabe s.n.)
Cactaceae	<i>Opuntia erinacea</i> var. <i>erinacea</i>	<i>O. polyacantha</i> var. <i>erinacea</i>	common pricklypear	PerF	Wide	Pres	Com	Welsh 24040 (ZION)	1967	

**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Cactaceae	<i>Opuntia erinacea</i> var. <i>ursina</i>	Included in <i>O. polyacantha</i> var. <i>erinacea</i> in <i>Flora of North America</i> (2003)	grizzlybear pricklypear	PerF	RegEn	Pres	Unc	Trapp & Trapp 67-73 (ZION)	1967	
Cactaceae	<i>Opuntia erinacea</i> var. <i>utahensis</i>	Var. not recognized in <i>Flora of North America</i> (2003), included in <i>O. polyacantha</i> .	Utah pricklypear	PerF	Wide	Pres	Com	Trapp & Trapp 67-67 (ZION)	1926	
Cactaceae	<i>Opuntia macrorhiza</i> var. <i>macrorhiza</i>	<i>O. macrorhiza</i>	twist-spine pricklypear	PerF	Wide	Pres	Com	Welsh, Higgins, & Thorne 22902 (NY)	1967	
Cactaceae	<i>Opuntia phaeacantha</i> var. <i>discata</i>	<i>O. engelmannii</i> var. <i>engelmannii</i>	frying pan pricklypear	PerF	Periph	Pres	Unc	Welsh 24046 (ZION, BRY)	1967	
Cactaceae	<i>Opuntia phaeacantha</i> var. <i>major</i>	Vars. not recognized in <i>Flora of North America</i> (2003)	large pricklypear	PerF	Wide	Pres	Com	Trapp & Trapp 67-39 (ZION)	1967	
Cactaceae	<i>Opuntia whipplei</i>	<i>Cylindropuntia whipplei</i> , <i>O. multigeniculata</i>	Whipple's cholla	Shrub	RegEn	Pres	Unc	Trapp & Trapp 67-70 (ZION)	1967	
Campanulaceae	<i>Lobelia cardinalis</i> ssp. <i>graminea</i>		cardinal-flower	PerF	Periph	Pres	Unc	Franklin & Thorne 5083 (ZION)	1927	
Campanulaceae	<i>Nemacladus glanduliferus</i> var. <i>orientalis</i>		slender nemacladus	AnnF	Periph	Pres	Rare	Franklin & Thorne 5921 (ZION)	1988	
Campanulaceae	<i>Triodanis perfoliata</i>		Venus'-looking-glass	AnnF	Intro	Pres	Unc	Franklin & Baird 3604 (ZION)	1986	Native to Europe
Cannabaceae	<i>Humulus lupulus</i> var. <i>neomexicanus</i>	<i>H. lupulus</i> ssp. <i>americanus</i>	common hops	PerF	Wide	Pres	Unc	Fowler, Hak, & May 391 (ZION)	1927	
Capparaceae (Cleomaceae)	<i>Cleome lutea</i>		yellow beeplant	AnnF	Wide	Pres	Unc	Boyle Z-238 (ZION)	1925	

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Capparaceae (Cleomaceae)	<i>Cleome serrulata</i>		Rocky Mountain beeplant	AnnF	Wide	Rep	?	Welsh (1995)	NA	Report from ZION herbarium is based on a specimen that is probably from outside the park.
Caprifoliaceae (Adoxaceae)	<i>Sambucus caerulea</i>	<i>S. nigra</i> ssp. <i>caerulea</i> , <i>S. caerulea</i>	blue elderberry	Shrub	Wide	Pres	Unc	Palmer s.n. (ZION)	1965	
Caprifoliaceae (Adoxaceae)	<i>Sambucus racemosa</i> var. <i>microbotrys</i>	<i>S. microbotrys</i> . Included in <i>S.</i> <i>racemosa</i> var. <i>racemosa</i> by some authors	red elderberry	Shrub	Wide	Rep	?	Welsh (1995)	NA	
Caprifoliaceae	<i>Symphoricarpos longiflorus</i>		long-flower snowberry	Shrub	Wide	Pres	Unc	Nelson 9321 (ZION)	1971	
Caprifoliaceae	<i>Symphoricarpos oreophilus</i> var. <i>parishii</i>		mountain snowberry	Shrub	Periph	Pres	Unc	Nelson 9785 (ZION)	1926	
Caprifoliaceae	<i>Symphoricarpos oreophilus</i> var. <i>utahensis</i>		mountain snowberry	Shrub	Wide	Pres	Com	Nelson 9704 (ZION)	1926	Type locality is Logan, Cache Co, UT (Rydberg s.n. US).
Caryophyllaceae (Alsinaeeae)	<i>Arenaria congesta var. subcongesta</i>	<i>Eremogone congesta var. subcongesta</i>	looseflower sandwort	PerF	Periph	Pres	Rare	Moor Z1566 (NY)	1970	
Caryophyllaceae (Alsinaeeae)	<i>Arenaria fendleri var. eastwoodiae</i>	<i>Eremogone eastwoodiae</i> var. <i>eastwoodiae</i> , <i>A.</i> <i>eastwoodiae</i>	Eastwood's sandwort	PerF	Wide	Pres	Unc	Boyle Z214 (ZION)	1927	
Caryophyllaceae (Alsinaeeae)	<i>Arenaria fendleri var. glabrescens</i>	<i>A. kingii</i> ssp. <i>uintahensis</i> , <i>A.</i> <i>kingii</i> ssp. <i>compacta</i> , <i>Eremogone kingii</i> var. <i>glabrescens</i> , <i>E.</i> <i>kingii</i> var. <i>uintahensis</i> , <i>A. kingii</i> ssp. <i>plateauensis</i>	basin sandwort	PerF	Wide	Pres	Unc	Welsh 23833 (ZION)	1929	Type locality of var. <i>plateauensis</i> is from Cedar Breaks Rim, Cedar Breaks NM, Iron Co, UT (Maguire 19024 NY).

**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Caryophyllaceae (Alsinaeeae)	<i>Arenaria lanuginosa</i>	<i>Spergulastrum lanuginosum</i> ssp. <i>saxosum</i> , <i>A. saxosa</i> , <i>A. lanuginosa</i> var. <i>saxosa</i>	sprawling sandwort	PerF	Wide	Pres	Unc	Nelson 9811 (ZION)	1928	
Caryophyllaceae (Alsinaeeae)	<i>Arenaria macradenia</i>	<i>Eremogone macradenia</i> var. <i>macradenia</i>	shrubby sandwort	PerF	Wide	Pres	Unc	Nelson 9696 (ZION)	1925	
Caryophyllaceae (Alsinaeeae)	<i>Arenaria pusilla</i>	<i>Minuartia pusilla</i>	dwarf sandwort	AnnF	Periph	Pres	Unc	Harper & Sanderson ZNP029 (ZION)	1972	
Caryophyllaceae (Alsinaeeae)	<i>Cerastium nutans</i>		nodding chickweed	AnnF	Sparse	Pres	Unc	Franklin & Thorne 6097 (ZION)	1988	
Caryophyllaceae	<i>Lychnis drummondii</i>	<i>Silene drummondii</i> ssp. <i>drummondii</i> & ssp. <i>striata</i> , includes vars. <i>striata</i> , <i>kruckebergii</i> , & <i>drummondii</i> , <i>Gastrolychnis drummondii</i>	Drummond's catchfly	PerF	Wide	Pres	Unc	Thorne & Chandler 5567 (NY)	1987	
Caryophyllaceae	<i>Silene antirrhina</i>		sleepy catchfly	AnnF	Wide	Pres	Unc	Nelson 10298 (ZION)	1973	
Caryophyllaceae	<i>Silene scouleri</i> ssp. <i>pringlei</i>	Included in <i>S. scouleri</i> ssp. <i>hallii</i> by some authors	Scouler's campion	PerF	Periph	Pres	Unc	Chandler & Thorne 5567 (ZION)	1978	
Caryophyllaceae	<i>Silene verecunda</i> ssp. <i>andersonii</i>	<i>S. verecunda</i> . Vars. not recognized in <i>Flora of North America</i> (2005)	shy campion	PerF	Periph	Pres	Unc	Degener & Peiler 16542 (NY)	1927	
Caryophyllaceae (Alsinaeeae)	<i>Stellaria jamesiana</i>	<i>Pseudostellaria jamesiana</i>	James' chickweed	PerF	Wide	Pres	Unc	Nelson 9710 (ZION)	1927	
Caryophyllaceae (Alsinaeeae)	<i>Stellaria media</i>	<i>Alsine media</i>	common chickweed	AnnF	Intro	Pres	Unc	Harper & Sanderson ZNP010 (ZION)	1987	Native to Eurasia
Celastraceae	<i>Pachystima myrsinites</i>	<i>Paxistima myrsinites</i> , <i>Pachistima myrsinites</i>	mountain-lover	Shrub	Wide	Pres	Com	Nelson 10310 (ZION)	1925	

**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Chenopodiaceae	<i>Atriplex canescens</i> var. <i>canescens</i>	<i>A. canescens</i> var. <i>occidentalis</i>	fourwing saltbush	Shrub	Wide	Pres	Com	Nelson 9796 (ZION)	1934	
Chenopodiaceae	<i>Atriplex</i> <i>confertifolia</i>		shadscale	Shrub	Wide	Pres	Unc	Nelson 9291 (ZION)	1971	
Chenopodiaceae	<i>Atriplex saccaria</i> var. <i>saccaria</i>	<i>A. saccaria</i> var. <i>caput- medusae</i>	stalked orach	AnnF	RegEn	Pres	Unc	Smith 2905 (ZION)	1987	
Chenopodiaceae	<i>Chenopodium</i> <i>album</i> var. <i>album</i>	<i>C. album</i>	lambquarter	AnnF	Intro	Rep	Unc	Weight (1937) and Welsh (1995)	1935	Native to Eurasia
Chenopodiaceae	<i>Chenopodium</i> <i>botrys</i>	<i>Teloxys botrys</i> , <i>Dysphania botrys</i>	Jerusalem-oak	AnnF	Intro	Pres	Unc	Haefner s.n. (ZION)	1976	Native to Eurasia
Chenopodiaceae	<i>Chenopodium</i> <i>desiccatum</i>	<i>C. pratericola</i>	desert goosefoot	AnnF	Sparse	Pres	Unc	Higgins 18447 (ZION)	1935	
Chenopodiaceae	<i>Chenopodium</i> <i>fremontii</i> var. <i>fremontii</i>	<i>C. fremontii</i>	Fremont's goosefoot	AnnF	Wide	Pres	Unc	Nelson 10104 (ZION)	1972	
Chenopodiaceae	<i>Chenopodium</i> <i>fremontii</i> var. <i>incanum</i>	<i>C. incanum</i> var. <i>incanum</i> , <i>C. incanum</i> var. <i>occidentale</i>	silvery goosefoot	AnnF	Wide	Hist	Unc	Weight s.n. (ZION)	1935	
Chenopodiaceae	<i>Krascheninnikovia</i> <i>lanata</i> var. <i>lanata</i>	<i>Ceratoides lanata</i> , <i>Eurotia lanata</i> . Vars. not recognized in <i>Flora of North</i> <i>America</i> (2003)	winterfat	Shrub	Wide	Pres	Unc	Foster 5672 (NY)	1977	
Chenopodiaceae	<i>Monolepis</i> <i>nuttalliana</i>		Nuttall's poverty-weed	AnnF	Wide	Pres	Unc	Nelson 10224 (ZION)	1973	
Chenopodiaceae	<i>Salsola tragus</i>	<i>S. kali</i> , <i>S. iberica</i> , <i>S.</i> <i>pestifer</i> , <i>S. australis</i>	Russian thistle	AnnF	Intro	Pres	Com	Woodbury s.n. (ZION)	1926	Native to Asia
Chenopodiaceae	<i>Suaeda occidentalis</i>	Included in <i>S.</i> <i>calceoliformis</i> by some authors	western seepweed	AnnF	Wide	Pres	Unc	Charlesworth, Clark, & Welsh 23852 (ZION)	1987	
Commelinaceae	<i>Tradescantia</i> <i>occidentalis</i>	<i>T. occidentalis</i> var. <i>occidentalis</i> , includes var. <i>scopulorum</i>	western spiderwort	PerF	Wide	Pres	Com	Philipps 95- 145 (ZION)	1926	
Compositae (Asteraceae)	<i>Acamptopappus</i> <i>sphaerocephalus</i>	<i>A. sphaerocephalus</i> var. <i>sphaerocephalus</i>	goldenhead	Shrub	Wide	Pres	Unc	Higgins 17738 (ZION)	1935	

**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Compositae (Asteraceae)	<i>Achillea millefolium</i> ssp. <i>lanulosa</i>	<i>A. lanulosa</i> , <i>A. millefolium</i> var. <i>occidentalis</i> . Vars. not recognized in <i>Flora of North America</i> (2006)	common yarrow	PerF	Wide	Pres	Unc	Palmer & Goldwater s.n. (ZION)	1925	
Compositae (Asteraceae)	<i>Agoseris aurantiaca</i> var. <i>purpurea</i>		purplish agoseris	PerF	Wide	Pres	Unc	Nelson 9728 (ZION)	1971	
Compositae (Asteraceae)	<i>Agoseris glauca</i> var. <i>laciniata</i>	<i>A. parviflora</i>	cutleaf agoseris	PerF	Wide	Pres	Unc	Nelson 9739 (ZION)	1971	
Compositae (Asteraceae)	<i>Agoseris retrorsa</i>		retorse agoseris	PerF	Wide	Pres	Unc	Nelson 10288 (ZION)	1972	
Compositae (Asteraceae)	<i>Ambrosia acanthicarpa</i>	<i>Franseria acanthicarpa</i>	bur ragweed	AnnF	Wide	Pres	Com	Nelson 10085 (ZION)	1972	
Compositae (Asteraceae)	<i>Ambrosia salsola</i>	<i>Hymenoclea salsola</i>	burrobush	Shrub	Periph	Pres	Unc	Franklin & Thorne 5951 (ZION)	1935	
Compositae (Asteraceae)	<i>Anaphalis margaritacea</i>		pearly-everlasting	PerF	Wide	Pres	Unc	Nelson 9066 (ZION)	1970	
Compositae (Asteraceae)	<i>Antennaria dimorpha</i>		low pussytoes	PerF	Wide	Pres	Unc	Nelson 9953 (ZION)	1933	
Compositae (Asteraceae)	<i>Antennaria marginata</i>	Includes previous records of <i>A. neglecta</i> from UT	sandstone pussytoes	PerF	Wide	Pres	Rare	Cottam 4758 (BRY)	1930	
Compositae (Asteraceae)	<i>Antennaria microphylla</i>	Includes <i>A. rosea</i>	small-leaf pussytoes	PerF	Wide	Pres	Unc	Nelson 9767 (ZION)	1971	
Compositae (Asteraceae)	<i>Antennaria parvifolia</i>		common pussytoes	PerF	Wide	Pres	Unc	Sanderson ZNP039 (ZION)	1929	
Compositae (Asteraceae)	<i>Arctium minus</i>		burdock	PerF	Intro	Pres	Rare	Fertig, Fertig, Mann, & Leiberg 23278 (ZION)	2007	Native to Eurasia
Compositae (Asteraceae)	<i>Arnica chamissonis</i> var. <i>foliosa</i>	<i>A. chamissonis</i> var. <i>andina</i>	Chamisso's arnica	PerF	Wide	Pres	Unc	Moor Z561 (UNLV)	1970	

**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Compositae (Asteraceae)	<i>Arnica cordifolia</i> var. <i>cordifolia</i>	Vars. not recognized in <i>Flora of North America</i> (2006). Spelled as var. <i>cordata</i> in Welsh et al. (2003).	heartleaf arnica	PerF	Wide	Pres	Unc	Nelson 9787 (ZION)	1971	
Compositae (Asteraceae)	<i>Artemisia campestris</i> var. <i>scouleriana</i>	<i>Oligosporus campestris</i> ssp. <i>pacificus</i> , <i>O. pacificus</i> , <i>A. campestris</i> ssp. <i>pacifica</i>	sand wormwood	PerF	Wide	Pres	Unc	Nelson 10075 (ZION)	1972	
Compositae (Asteraceae)	<i>Artemisia dracunculus</i> var. <i>glauca</i>	<i>Oligosporus dracunculus</i> , Var. not recognized in Cronquist (1994) and <i>Flora of North America</i> (2006)	tarragon	PerF	Wide	Pres	Unc	Nelson 9094 (ZION)	1927	
Compositae (Asteraceae)	<i>Artemisia filifolia</i>	<i>Oligosporus filifolius</i>	sand sagebrush	Shrub	Wide	Pres	Unc	Phillips 95-129 (ZION)	1925	
Compositae (Asteraceae)	<i>Artemisia ludoviciana</i> var. <i>albula</i>		Louisiana wormwood	PerF	Wide	Pres	Unc	Franklin, Nelson, & Thorne 5698 (ZION)	1927	
Compositae (Asteraceae)	<i>Artemisia ludoviciana</i> var. <i>ludoviciana</i>		Louisiana wormwood	PerF	Wide	Pres	Unc	Scott s.n. (ZION)	1972	
Compositae (Asteraceae)	<i>Artemisia ludoviciana</i> var. <i>mexicana</i>		Louisiana wormwood	PerF	Wide	Pres	Unc	Nelson 9119 (ZION)	1927	
Compositae (Asteraceae)	<i>Artemisia nova</i> var. <i>nova</i>	<i>A. arbuscula</i> var. <i>nova</i> , <i>Seriphidium novum</i> . Vars. not recognized in <i>Flora of North America</i> (2006)	black sagebrush	Shrub	Wide	Pres	Unc	Palmer s.n. (ZION)	1966	
Compositae (Asteraceae)	<i>Artemisia tridentata</i> var. <i>tridentata</i>	<i>Seriphidium tridentatum</i> ssp. <i>tridentatum</i>	basin big sagebrush	Shrub	Wide	Pres	Com	Weight s.n. (ZION)	1935	

**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Compositae (Asteraceae)	<i>Artemisia tridentata</i> var. <i>vaseyana</i>	<i>Seriphidium vaseyanum</i> . Includes <i>A. tridentata</i> var. <i>pauciflora</i>	mountain big sagebrush	Shrub	Wide	Rep	Unc	Cogan et al. (2004)	2003	
Compositae (Asteraceae)	<i>Aster ascendens</i>	<i>A. chilensis</i> sp. <i>adscendens</i> , <i>A. adscendens</i> , <i>Symphotrichum ascendens</i> , <i>Virgulastrum ascendens</i>	Pacific aster	PerF	Wide	Pres	Unc	Palmer & Goldwater s.n. (ZION)	1925	
Compositae (Asteraceae)	<i>Aster falcatus</i>	<i>A. falcatus</i> var. <i>falcatus</i> , <i>A. ericoides</i> var. <i>commutatus</i> , <i>Symphotrichum falcatum</i> var. <i>falcatum</i> , <i>Virgulus falcatus</i>	falcate aster	PerF	Sparse	Pres	Unc	Malm s.n. (ZION)	2000	
Compositae (Asteraceae)	<i>Aster glaucodes</i>	<i>Herrickia glauca</i> var. <i>glauca</i> , <i>Eurybia glauca</i> , <i>Eucephalus glaucus</i>	blueleaf aster	PerF	Wide	Pres	Unc	Fowler, May, & Hak 80 (RM)	1991	
Compositae (Asteraceae)	<i>Aster wasatchensis</i> var. <i>pulcher</i>	<i>A. glaucodes</i> var. <i>pulcher</i> , <i>Herrickia glauca</i> var. <i>pulchra</i> , <i>Eurybia pulchra</i> . Not recognized in Cronquist (1994)	modest aster	PerF	RegEn	Pres	Com	Charlesworth, Clark, & Welsh 23851 (ZION)	1927	Type locality is Elk Ranch, Kane Co, UT (Jones 6037 US)
Compositae (Asteraceae)	<i>Aster welshii</i>	<i>Symphotrichum welshii</i>	Welsh's aster	PerF	LocEn	Pres	Com	Welsh & Hays 24379 (BRY)	1927	Type locality is Zion Canyon, Zion NP, Washington Co., UT (Welsh & Hays 24379 BRY).
Compositae (Asteraceae)	<i>Baccharis glutinosa</i>	Included in <i>B. salicina</i> or <i>B. salicifolia</i> by some authors	sticky seepwillow	Shrub	Wide	Pres	Unc	Welsh 22686 (BRY)	1935	
Compositae (Asteraceae)	<i>Baccharis salicina</i>	Includes <i>B. emoryi</i>	Rio Grande seepwillow	Shrub	Wide	Pres	Com	Nelson 9861 (ZION)	1935	



**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Compositae (Asteraceae)	<i>Baccharis viminea</i> var. <i>viminea</i>	Included in <i>B. salicina</i> by some authors	mule-fat	Shrub	Periph	Pres	Rare	Alexander & Glorieux 1829 (ZION)	2004	
Compositae (Asteraceae)	<i>Baileya</i> <i>multiradiata</i>		desert- marigold	PerF	Wide	Pres	Unc	Nelson 10332 (ZION)	1926	
Compositae (Asteraceae)	<i>Balsamorhiza</i> <i>sagittata</i>		arrowleaf balsamroot	PerF	Wide	Pres	Unc	Nelson 9769 (ZION)	1965	
Compositae (Asteraceae)	<i>Brickellia</i> <i>atractyloides</i>	<i>B. atractyloides</i> var. <i>atractyloides</i>	spiny brickellbush	Shrub	Wide	Pres	Unc	Nelson 9798 (ZION)	1971	
Compositae (Asteraceae)	<i>Brickellia</i> <i>californica</i>		California brickellbush	Shrub	Wide	Pres	Unc	Nelson 10120 (ZION)	1925	Hybrids of <i>B. californica</i> x <i>B. longifolia</i> are known from ZION.
Compositae (Asteraceae)	<i>Brickellia</i> <i>grandiflora</i>		tassel-flower brickellbush	PerF	Wide	Pres	Unc	Nelson 9147 (ZION)	1925	
Compositae (Asteraceae)	<i>Brickellia longifolia</i>	<i>B. longifolia</i> var. <i>longifolia</i>	longleaf brickellbush	Shrub	Wide	Pres	Unc	Kertell s.n. (ZION)	1926	
Compositae (Asteraceae)	<i>Brickellia</i> <i>microphylla</i> var. <i>scabra</i>		rough brickellbush	Shrub	Wide	Pres	Unc	Franklin, Nelson, & Thorne 5701 (ZION)	1976	
Compositae (Asteraceae)	<i>Carduus nutans</i>	Includes ssp. <i>leiophyllus</i> & <i>macrolepis</i>	musk thistle	PerF	Intro	Rep	Unc	Welsh (1995) and Dewey & Andersen (2005)	2003	Utah state noxious weed. Native to Eurasia
Compositae (Asteraceae)	<i>Centaurea diffusa</i>	<i>Acosta diffusa</i>	diffuse knapweed	PerF	Intro	Pres	Unc	Paulsen s.n. (ZION)	2000	Utah state noxious weed. Native to Mediterranean
Compositae (Asteraceae)	<i>Centaurea</i> <i>maculosa</i>	<i>C. stoebe</i> ssp. <i>micranthos</i> , <i>C.</i> <i>biebersteinii</i> , <i>Acosta</i> <i>maculosa</i>	spotted knapweed	PerF	Intro	Pres	Unc	Kurth s.n. (ZION)	1997	Utah state noxious weed. Native to Europe
Compositae (Asteraceae)	<i>Centaurea</i> <i>solstitialis</i>	<i>Leucantha solstitialis</i>	yellow star- thistle	PerF	Intro	Pres	Rare	Kurth and Mason s.n. (ZION)	1996	Utah state noxious weed. Native to Europe

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Compositae (Asteraceae)	<i>Centaurea virgata</i> var. <i>squarrosa</i>	<i>C. triumfettii</i>	squarrose knapweed	PerF	Intro	Pres	Unc	Mason s.n. (ZION)	1996	Utah state noxious weed. Native to Eurasia
Compositae (Asteraceae)	<i>Chaenactis</i> <i>douglasii</i>	Includes vars. <i>douglasii</i> & var. <i>montana</i>	hoary dusty- maiden	PerF	Wide	Pres	Com	Nelson 9647 (ZION)	1894	Type of <i>C.</i> <i>brachiata</i> from Springdale, Washington Co., UT (Jones 5261q)
Compositae (Asteraceae)	<i>Chaenactis</i> <i>macrantha</i>		showy dusty- maiden	AnnF	Wide	Pres	Unc	Alexander & Karnes 1458 (ZION)	1935	
Compositae (Asteraceae)	<i>Chaenactis</i> <i>stevioioides</i>		stevia dusty- maiden	AnnF	Wide	Pres	Unc	Franklin, Smith, & Thorne 6031 (ZION)	1988	
Compositae (Asteraceae)	<i>Chaetopappa</i> <i>ericoides</i>	<i>Leucelene ericoides</i> , <i>Aster arenosus</i>	rose-heath	PerF	Wide	Pres	Unc	Weight s.n. (ZION)	1935	
Compositae (Asteraceae)	<i>Chrysanthemum</i> <i>leucanthemum</i>	<i>Leucanthemum</i> <i>vulgare</i>	ox-eye daisy	PerF	Intro	Pres	Rare	Mason s.n. (ZION)	1996	Native to Eurasia
Compositae (Asteraceae)	<i>Chrysopsis jonesii</i>	<i>Heterotheca jonesii</i>	Jones' golden- aster	PerF	LocEn	Pres	Unc	Clark & Thorne 5355 (ZION)	1894	Type from Springdale, Washington Co., UT (Jones 5249 US). USFS Region 4 Sensitive, USFWS: 3C
Compositae (Asteraceae)	<i>Chrysopsis villosa</i> var. <i>minor</i>	<i>C. villosa</i> var. <i>hispid</i> , <i>Heterotheca villosa</i> var. <i>hispid</i> , <i>H. villosa</i> var. <i>minor</i>	hispid golden- aster	PerF	Wide	Pres	Com	Nelson 9138 (ZION)	1925	
Compositae (Asteraceae)	<i>Chrysopsis villosa</i> var. <i>villosa</i>	<i>Heterotheca villosa</i> var. <i>villosa</i>	hairy golden- aster	PerF	Sparse	Pres	Unc	Granskog s.n. (ZION)	1979	

**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.**

Family	Species name	Synonymy/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Compositae (Asteraceae)	<i>Chrysopsis zionensis</i>	<i>Heterotheca zionensis</i> , <i>H. villosa</i> var. <i>foliosa</i> aster	Zion golden-aster	PerF	RegEn	Pres	Rare	Charlesworth, Clark, & Welsh 23858 (ZION)	1987	Type locality is W of Leeds along road to Silver Reef Campgrounds, Washington Co, UT (Semple & Heard 7859 NY)
Compositae (Asteraceae)	<i>Chrysothamnus depressus</i>		dwarf rabbitbrush	Shrub	Wide	Pres	Unc	Madany s.n. (ZION)	1979	
Compositae (Asteraceae)	<i>Chrysothamnus nauseosus</i> var. <i>arenarius</i>	<i>Ericameria nauseosa</i> var. <i>arenaria</i>	sand rabbitbrush	Shrub	RegEn	Pres	Unc	Charlesworth, Clark, & Welsh 23859 (ZION)	1925	
Compositae (Asteraceae)	<i>Chrysothamnus nauseosus</i> var. <i>consimilis</i>	<i>Ericameria nauseosa</i> var. <i>consimilis</i> , <i>E. nauseosa</i> var. <i>oreophila</i> , <i>C. nauseosus</i> var. <i>oreophilus</i>	greenish rabbitbrush	Shrub	Wide	Pres	Com	Franklin, Nelson, & Thorne 5696 (ZION)	1971	
Compositae (Asteraceae)	<i>Chrysothamnus nauseosus</i> var. <i>gnaphalodes</i>	<i>C. nauseosus</i> var. <i>hololeucus</i> , <i>Ericameria nauseosa</i> var. <i>hololeuca</i>	graystem rabbitbrush	Shrub	Wide	Pres	Com	Franklin, Nelson, & Thorne 5715 (ZION)	1987	
Compositae (Asteraceae)	<i>Chrysothamnus nauseosus</i> var. <i>graveolens</i>	<i>Ericameria nauseosa</i> var. <i>graveolens</i> , <i>E. nauseosa</i> var. <i>glabrata</i>	glabrate rabbitbrush	Shrub	Wide	Pres	Unc	Nelson 10094 (ZION)	1972	
Compositae (Asteraceae)	<i>Chrysothamnus nauseosus</i> var. <i>juncea</i>	<i>Ericameria nauseosa</i> var. <i>juncea</i>	rush rabbitbrush	Shrub	RegEn	Pres	Unc	Franklin & Thorne 5587 (BRY)	1987	
Compositae (Asteraceae)	<i>Chrysothamnus nauseosus</i> var. <i>leiospermus</i>	<i>Ericameria nauseosa</i> var. <i>leiosperma</i>	smoothseed rabbitbrush	Shrub	RegEn	Pres	Unc	Franklin, Nelson, & Thorne 5711 (ZION)	1922	Type locality is St. George, Washington Co, UT (Palmer s.n. NY). Nelson collected type of <i>C. oliganthus</i> (a synonym) from Zion NP in 1922.

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Compositae (Asteraceae)	<i>Chrysothamnus nauseosus</i> var. <i>speciosus</i>	<i>C. nauseosus</i> var. <i>albicaulis</i> , <i>Ericameria nauseosa</i> var. <i>speciosa</i>	whitestem rabbitbrush	Shrub	Wide	Pres	Unc	Fertig s.n. (ZION)	2006	
Compositae (Asteraceae)	<i>Chrysothamnus nauseosus</i> var. <i>turbinatus</i>	<i>Ericameria nauseosa</i> var. <i>turbinata</i>	dune rabbitbrush	Shrub	RegEn	Rep	?	Welsh (1995)	NA	Specimen at ZION (Madany s.n. 1979) is too immature to determine variety. Type locality is Canaan Ranch, Kane Co, UT (Jones 6066c POM).
Compositae (Asteraceae)	<i>Chrysothamnus parryi</i> var. <i>howardii</i>	<i>Ericameria parryi</i> var. <i>howardii</i>	longbract rabbitbrush	Shrub	Wide	Pres	Unc	Chandler & Thorne 5535 (ZION)	1925	
Compositae (Asteraceae)	<i>Chrysothamnus parryi</i> var. <i>nevadensis</i>	<i>Ericameria parryi</i> var. <i>nevadensis</i>	Nevada rabbitbrush	Shrub	Wide	Pres	Unc	Thorne & Chandler 5535 (BRY)	1987	
Compositae (Asteraceae)	<i>Chrysothamnus viscidiflorus</i> var. <i>puberulus</i>		puberulent rabbitbrush	Shrub	Wide	Pres	Unc	Franklin & Thorne 5109 (BRY)	1987	
Compositae (Asteraceae)	<i>Chrysothamnus viscidiflorus</i> var. <i>stenophyllus</i>	Included in var. <i>viscidiflorus</i> in Cronquist (1994). Var. not recognized in <i>Flora of North America</i> (2006).	slenderleaf rabbitbrush	Shrub	Wide	Pres	Unc	Nelson 10090 (ZION)	1972	
Compositae (Asteraceae)	<i>Chrysothamnus viscidiflorus</i> var. <i>viscidiflorus</i>		green rabbitbrush	Shrub	Wide	Pres	Com	Palmer s.n. (ZION)	1966	
Compositae (Asteraceae)	<i>Cichorium intybus</i>		chicory	PerF	Intro	Rep	?	Welsh (1995)	NA	Native to Eurasia
Compositae (Asteraceae)	<i>Cirsium arizonicum</i>	Includes vars. <i>arizonicum</i> & <i>nidulum</i>	Arizona thistle	PerF	Wide	Pres	Com	Fowler, Hak, & May 558 (ZION)	1928	Type locality of var. <i>nidulum</i> is Paria, Kane Co, UT (Jones 5290a POM).

**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Compositae (Asteraceae)	<i>Cirsium calcareum</i> var. <i>calcareum</i>	Included in <i>C. arizonicum</i> var. <i>bipinnatum</i> in <i>Flora of North America</i> (2006)	Caineville thistle	PerF	LocEn	Rep	Unc	Welsh (1995), Cogan et al. (2004)	NA	Type locality is Bromide Pass, Henry Mtns, Garfield Co, UT (Jones 5695bh US)
Compositae (Asteraceae)	<i>Cirsium calcareum</i> var. <i>pulchellum</i>	Var. not recognized in Cronquist (1994). Included in <i>C. arizonicum</i> var. <i>bipinnatum</i> in <i>Flora of North America</i> (2006)	pretty thistle	PerF	Wide	Rep	?	Palmer (1966)	1965	
Compositae (Asteraceae)	<i>Cirsium joannae</i>		Joanna's thistle	PerF	LocEn	Pres	Rare	Atwood, Higgins, Louie, & Welch 28867 (BRY)	2000	Type locality is NE of Kolob Arch, Zion NP, Washington Co, UT (Welch s.n. BRY)
Compositae (Asteraceae)	<i>Cirsium neomexicanum</i> var. <i>neomexicanum</i>	Vars. not recognized in <i>Flora of North America</i> (2006)	New Mexico thistle	PerF	Wide	Pres	Unc	Franklin & Thorne 5942 (BRY)	1988	
Compositae (Asteraceae)	<i>Cirsium neomexicanum</i> var. <i>utahense</i>	<i>C. utahense</i> . Not recognized in <i>Flora of North America</i> (2006) with elements split between <i>C. neomexicanum</i> & <i>C. inamoenum</i> var. <i>inamoenum</i> .	Utah thistle	PerF	RegEn	Pres	Unc	Alexander & Shorrock 1468 (ZION)	1971	Type locality is Silver Reef, Washington Co, UT (Jones 5163q GH)
Compositae (Asteraceae)	<i>Cirsium vulgare</i>		bull thistle	PerF	Intro	Pres	Unc	Mason s.n. (ZION)	1996	Native to Europe
Compositae (Asteraceae)	<i>Cirsium wheeleri</i> var. <i>salinensis</i>	Vars. not recognized in <i>Flora of North America</i> (2006)	Salina thistle	PerF	LocEn	Pres	Rare	Clark & Charlesworth 4836 (BRY)	1987	Type locality is Salina Canyon, Sevier Co., UT (Higgins 1149 BRY).
Compositae (Asteraceae)	<i>Cirsium wheeleri</i> var. <i>wheeleri</i>	Vars. not recognized in <i>Flora of North America</i> (2006)	Wheeler's thistle	PerF	Wide	Pres	Unc	Nelson 9062 (ZION)	1926	

**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Compositae (Asteraceae)	<i>Conyza canadensis</i> var. <i>glabrata</i>	Vars. not recognized in <i>Flora of North America</i> (2006)	Canadian horseweed	AnnF	Wide	Pres	Unc	Harper ZNP- 070 (ZION)	1925	
Compositae (Asteraceae)	<i>Crepis intermedia</i>	<i>Psilochenia intermedia</i>	gray hawksbeard	PerF	Wide	Pres	Unc	Higgins 18170 (BRY)	1935	
Compositae (Asteraceae)	<i>Crepis occidentalis</i> var. <i>occidentalis</i>	<i>Psilochenia occidentalis</i>	western hawksbeard	PerF	Wide	Rep	Unc	Jason Alexander observation	2004	
Compositae (Asteraceae)	<i>Encelia frutescens</i> var. <i>virginensis</i>	<i>E. virginensis</i> var. <i>virginensis</i>	Virgin encelia	Shrub	RegEn	Pres	Unc	Nelson 9637 (ZION)	1935	
Compositae (Asteraceae)	<i>Erigeron canaani</i>	Included in <i>E. eatonii</i> by some authors. Includes <i>E. higginsii</i> in <i>Flora of North America</i> (2006)	Canaan daisy	PerF	LocEn	Pres	Unc	Franklin & Thorne 5518 (ZION)	1929	Type locality is Canaan Mountain, Washington Co, UT (Anderson s.n. BRY). USFWS: former C2 candidate
Compositae (Asteraceae)	<i>Erigeron divergens</i> var. <i>divergens</i>	<i>E. divergens</i>	spreading daisy	PerF	Wide	Pres	Com	Boyle Z-162 (ZION)	1925	
Compositae (Asteraceae)	<i>Erigeron eatonii</i>	<i>E. eatonii</i> var. <i>eatonii</i>	Eaton's daisy	PerF	Wide	Pres	Unc	Nelson 9695 (ZION)	1971	
Compositae (Asteraceae)	<i>Erigeron flagellaris</i>		trailing daisy	PerF	Wide	Pres	Unc	Nelson 9729 (ZION)	1929	
Compositae (Asteraceae)	<i>Erigeron jonesii</i>	<i>E. wahwahensis</i>	Jones' daisy	PerF	RegEn	Pres	Rare	Higgins 18527 (ZION)	1989	Type locality of <i>E. wahwahensis</i> is Pine Grove Pass, Beaver Co, UT (Welsh 21229 BRY)
Compositae (Asteraceae)	<i>Erigeron pumilus</i> var. <i>concinus</i>	<i>E. concinnus</i> var. <i>concinus</i> , includes var. <i>subglaber</i>	Navajo fleabane	PerF	Wide	Pres	Unc	Alexander & Karnes 1454 (ZION)	1935	

**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Compositae (Asteraceae)	<i>Erigeron religiosus</i>		religious daisy	PerF	LocEn	Pres	Unc	Franklin & Thorne 4941 (ZION)	1938	Type locality is Clear Creek Canyon, Zion NP, Washington Co, UT (Eastwood & Howell 6339 CAS). USFWS: 3C
Compositae (Asteraceae)	<i>Erigeron sionis</i>	Includes <i>E. proserlyticus</i> , <i>E. flagellaris</i> var. <i>trilobatus</i> & <i>E. sionis</i> var. <i>trilobatus</i>	Zion daisy	PerF	LocEn	Pres	Unc	Welsh 23804 (ZION)	1925	Type locality is Zion NP, Washington Co, UT (Pilsbry s.n. PH). USFWS: former C2 candidate
Compositae (Asteraceae)	<i>Erigeron speciosus</i> var. <i>macranthus</i>	<i>E. speciosus</i>	aspen daisy	PerF	Wide	Pres	Unc	Franklin & Thorne 5481 (ZION)	1926	
Compositae (Asteraceae)	<i>Erigeron ursinus</i> var. <i>meyerae</i>	Vars. not recognized in <i>Flora of North America</i> (2006).	Meyer's daisy	PerF	LocEn	Pres	Rare	Meyer 1453 (BRY)	1970	Type locality is Lava Point Lookout, Zion NP, Washington Co, UT (Meyer 1453 BRY)
Compositae (Asteraceae)	<i>Erigeron utahensis</i> var. <i>utahensis</i>	<i>E. utahensis</i>	Utah daisy	PerF	RegEn	Pres	Unc	Boyle Z-232 (ZION)	1925	Type locality is Kanab, Kane Co, UT (Thompson s.n. GH)
Compositae (Asteraceae)	<i>Eriophyllum wallacei</i>	<i>Antheropeas wallacei</i>	Wallace's woollyleaf	AnnF	Periph	Pres	Unc	Franklin & Thorne 5924 (ZION)	1935	
Compositae (Asteraceae)	<i>Eupatorium herbaceum</i>	<i>Ageratina herbacea</i>	white thoroughwort	PerF	Wide	Pres	Unc	Nelson 9146 (ZION)	1970	
Compositae (Asteraceae)	<i>Euthamia occidentalis</i>	<i>Solidago occidentalis</i>	western goldenrod	PerF	Wide	Pres	Unc	Nelson 10121 (ZION)	1972	
Compositae (Asteraceae)	<i>Gaillardia parryi</i>		Parry's blanketflower	PerF	RegEn	Hist	?	Weight s.n. (ZION)	1935	Type locality is "Southern Utah" (Parry 120 G)
Compositae (Asteraceae)	<i>Gaillardia pinnatifida</i>		Hopi blanketflower	PerF	Wide	Pres	Unc	Nelson 9452 (ZION)	1935	

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Compositae (Asteraceae)	<i>Glyptopleura setulosa</i>		setose crustweed	AnnF	Periph	Hist	?	Weight s.n. (ZION)	1935	Type locality is near St. George, Washington Co, UT (Palmer 6 G)
Compositae (Asteraceae)	<i>Gnaphalium palustre</i>		lowland cudweed	AnnF	Wide	Pres	Rate	Palmer s.n. (ZION)	1966	
Compositae (Asteraceae)	<i>Gnaphalium wrightii</i>	<i>G. canescens</i> , <i>Pseudognaphalium canescens</i>	Wright's cudweed	PerF	Sparse	Pres	Unc	Nelson 9857 (ZION)	1935	
Compositae (Asteraceae)	<i>Grindelia squarrosa var. serrulata</i>	Vars. not recognized in <i>Flora of North America</i> (2006)	curly-cup gumweed	PerF	Wide	Pres	Unc	Chandler & Thorne 5611 (ZION)	1965	
Compositae (Asteraceae)	<i>Gutierrezia microcephala</i>		thread snakeweed	Shrub	Wide	Pres	Unc	Nelson 10089 (ZION)	1925	
Compositae (Asteraceae)	<i>Gutierrezia sarthrae</i>		broom snakeweed	Shrub	Wide	Pres	Abun	Nelson 9041 (ZION)	1925	
Compositae (Asteraceae)	<i>Haplopappus gracilis</i>	<i>Machaeranthera gracilis</i> , <i>Xanthisma gracile</i>	slender goldenweed	AnnF	Periph	Pres	Unc	Alexander & Karnes 1465 (ZION)	1927	
Compositae (Asteraceae)	<i>Haplopappus leverichii</i>	<i>Isocoma leverichii</i> , <i>I. humilis</i>	canyon goldenweed	PerF	LocEn	Pres	Ext?	Leverich 1045a (TEX)	1971	Type locality is Zion NP (Leverich 1045a TEX). USFWS: former C2 candidate
Compositae (Asteraceae)	<i>Haplopappus linearifolius</i> var. <i>interior</i>	<i>Stenotus linearifolius</i> , <i>Ericameria linearifolia</i>	Mohave goldenbush	Shrub	Periph	Pres	Unc	Nelson 9328 (ZION)	1935	
Compositae (Asteraceae)	<i>Haplopappus scopulorum</i> var. <i>scopulorum</i>	<i>Chrysothamnus scopulorum</i> , <i>Hesperodoria scopulorum</i>	spindly goldenbush	Shrub	RegEn	Pres	Com	Fedorchak, Fowler, & Sidles 1090 (ZION)	1894	Type locality is canyon of Upper Virgin above Springdale, Zion NP, Washington Co, UT (Jones 6074 US). USFWS: 3C



Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Compositae (Asteraceae)	<i>Haplopappus zionis</i>	<i>Ericameria zionis</i>	Cedar Breaks goldenbush	Shrub	LocEn	Rep	?	Atwood et al. (1991)	NA	Type locality is Cedar Canyon, Iron Co., UT (Anderson, Welsh, & Chatterley 5094 BRY). UT BLM: Sensitive, US FWS: former C2 candidate
Compositae (Asteraceae)	<i>Helianthella microcephala</i>		purpledisk sunflower	PerF	RegEn	Pres	Rare	Chandler & Thorne 5577 (ZION)	1987	Type locality is Abajo Mountains, San Juan Co, UT (Newberry s.n. GH)
Compositae (Asteraceae)	<i>Helianthella quinquenervis</i>		fivenerve sunflower	PerF	Wide	Pres	Unc	Nelson 9777 (ZION)	1967	
Compositae (Asteraceae)	<i>Helianthella uniflora</i>		little sunflower	PerF	Wide	Pres	Unc	Franklin & Thorne 4922 (ZION)	1926	
Compositae (Asteraceae)	<i>Helianthus annuus ssp. lenticularis</i>	Ssp. not recognized in <i>Flora of North America</i> (2006).	common sunflower	AnnF	Wide	Pres	Unc	Granskog s.n. (ZION)	1979	
Compositae (Asteraceae)	<i>Helianthus ciliaris</i>		blue-weed sunflower	PerF	Periph	Pres	Rare	Chandler & Thorne 5539 (ZION)	1987	
Compositae (Asteraceae)	<i>Helianthus petiolaris ssp. fallax</i>	Includes var. <i>petiolaris</i>	prairie sunflower	AnnF	Wide	Pres	Unc	Charlesworth, Clark, & Welsh 23857 (ZION)	1925	
Compositae (Asteraceae)	<i>Hymenopappus filifolius var. cinereus</i>	<i>H. filifolius</i> var. <i>lugens</i> , <i>H. filifolius</i> var. <i>pauciflorus</i> , <i>H. filifolius</i> var. <i>megacephalus</i> , <i>H. filifolius</i> var. <i>tomentosus</i>	common hyalineherb	PerF	Wide	Pres	Com	Nelson 10141 (ZION)	1894	Type locality of var. <i>tomentosus</i> is Springdale, Washington Co., UT (Jones 5261 US)

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Compositae (Asteraceae)	<i>Hymenopappus filifolius</i> var. <i>nudipes</i>		alpine hyalineherb	PerF	RegEn	Pres	Unc	Holmgren, LaFrance, & Reveal 1983 (ZION)	1965	Type locality is 15 miles N of Orderville, Kane Co, UT (Maguire 18740 NY)
Compositae (Asteraceae)	<i>Hymenoxys acaulis</i> var. <i>arizonica</i>	<i>Tetranuris acaulis</i> var. <i>arizonica</i>	Arizona hymenoxys	PerF	Wide	Pres	Unc	Madany s.n. (ZION)	1979	
Compositae (Asteraceae)	<i>Hymenoxys cooperi</i>	<i>Actinella cooperi</i>	Cooper's hymenoxys	PerF	Wide	Pres	Unc	Nelson 9925 (ZION)	1965	
Compositae (Asteraceae)	<i>Iva axillaris</i>	<i>I. axillaris</i> var. <i>axillaris</i> . Vars. not recognized in Flora of North America (2006).	poverty-weed	PerF	Wide	Pres	Unc	Decker s.n. (ZION)	2004	
Compositae (Asteraceae)	<i>Lactuca serriola</i>		prickly lettuce	AnnF	Intro	Pres	Unc	Nelson 9808 (ZION)	1971	Native to Europe
Compositae (Asteraceae)	<i>Lactuca tatarica</i> var. <i>pulchella</i>	<i>L. pulchella</i> , <i>L.</i> <i>oblongifolia</i> , <i>Mulgedium</i> <i>oblongifolium</i>	blue lettuce	PerF	Wide	Pres	Unc	Chandler & Thorne 5560 (ZION)	1927	
Compositae (Asteraceae)	<i>Layia glandulosa</i>		tidytips	AnnF	Wide	Pres	Unc	Nelson 9313 (ZION)	1938	
Compositae (Asteraceae)	<i>Lygodesmia grandiflora</i> var. <i>dianthopsis</i>	<i>L. dianthopsis</i>	western rush- pink	PerF	RegEn	Pres	Unc	Welsh 23824 (ZION)	1929	
Compositae (Asteraceae)	<i>Machaeranthera canescens</i> var. <i>aristata</i>	<i>M. linearis</i> , <i>M. rigida</i> , <i>M. canescens</i> var. <i>vacans</i> , <i>Dieteria</i> <i>canescens</i> var. <i>aristata</i>	aristate aster	PerF	RegEn	Pres	Unc	Nelson 10066 (ZION)	1927	Type locality is Willow Creek, San Juan Co., UT (Eastwood 45 CAS)
Compositae (Asteraceae)	<i>Machaeranthera canescens</i> var. <i>leucanthemifolia</i>	<i>M. leucanthemifolia</i> , <i>Dieteria canescens</i> var. <i>leucanthemifolia</i>	thickleaf aster	PerF	RegEn	Pres	Unc	Charlesworth, Clark, & Welsh 23860 (ZION)	1966	
Compositae (Asteraceae)	<i>Machaeranthera tanacetifolia</i>		tansyleaf aster	AnnF	Wide	Pres	Unc	Nelson 10115 (ZION)	1925	
Compositae (Asteraceae)	<i>Madia glomerata</i>		mountain tarweed	AnnF	Wide	Pres	Unc	Franklin & Thorne 5479 (ZION)	1925	

**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Compositae (Asteraceae)	<i>Malacothrix clevelandii</i> var. <i>stebbinsii</i>	<i>M. stebbinsii</i>	Cleveland's desert- dandelion	AnnF	Periph	Pres	Unc	Nelson 10300 (ZION)	1973	
Compositae (Asteraceae)	<i>Microseris lindleyi</i>	<i>Uropappus lindleyi</i>	Lindley's microseris	AnnF	Periph	Pres	Unc	Malm s.n. (ZION)	1927	
Compositae (Asteraceae)	<i>Onopordum acanthium</i>	<i>O. acanthium</i> var. <i>acanthium</i>	Scotch thistle	PerF	Intro	Pres	Unc	Kurth s.n. (ZION)	1996	Utah state noxious weed. Native to Eurasia
Compositae (Asteraceae)	<i>Pectis papposa</i>	<i>P. papposa</i> var. <i>papposa</i>	cinch-weed	AnnF	Periph	Pres	Rare	Franklin & Thorne 5121 (ZION)	1987	
Compositae (Asteraceae)	<i>Perityle tenella</i>	<i>Laphamia palmeri</i> var. <i>tenella</i>	Dixie rock- daisy	PerF	RegEn	Pres	Com	Nelson 10099 (ZION)	1894	Type locality is Springdale, Washington Co., UT (Jones 5249a US).
Compositae (Asteraceae)	<i>Petradoria pumila</i> var. <i>pumila</i>	<i>Solidago petradoria</i>	rock goldenrod	PerF	Wide	Pres	Unc	Franklin & Thorne 5509 (ZION)	1935	
Compositae (Asteraceae)	<i>Pluchea sericea</i>	<i>Tessaria sericea</i>	arrowweed	Shrub	Wide	Pres	Unc	Phillips 95-142 (ZION)	1935	
Compositae (Asteraceae)	<i>Psathyrotes pilifera</i>		pilliferous turtleback	AnnF	RegEn	Pres	Unc	Franklin, Nelson, & Thorne 5517 (ZION)	1987	Type locality is near Kanab, Kane Co, UT (Thompson s.n. GH)
Compositae (Asteraceae)	<i>Rafinesquia neomexicana</i>		desert chicory	AnnF	Periph	Hist	?	Weight s.n. (ZION)	1935	
Compositae (Asteraceae)	<i>Ratibida columnifera</i>		prairie coneflower	PerF	Sparse	Pres	Rare	Madany s.n. (ZION)	1970	
Compositae (Asteraceae)	<i>Rudbeckia montana</i>	<i>R. occidentalis</i> var. <i>montana</i>	montane coneflower	PerF	RegEn	Pres	Unc	Meyer 1462 (BRY)	1970	
Compositae (Asteraceae)	<i>Rudbeckia occidentalis</i>	<i>R. occidentalis</i> var. <i>occidentalis</i>	western coneflower	PerF	Wide	Pres	Rare	Moor Z1379 (UNLV)	1970	
Compositae (Asteraceae)	<i>Senecio douglasii</i> var. <i>longilobus</i>	<i>S. longilobus</i> , <i>S. flaccidus</i> var. <i>douglasii</i> , <i>S. flaccidus</i> var. <i>flaccidus</i>	Douglas' groundsel	PerF	Wide	Pres	Unc	Scott s.n. (ZION)	1976	

**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Compositae (Asteraceae)	<i>Senecio eremophilus</i> var. <i>kingii</i>		cut-leaved groundsel	PerF	Wide	Pres	Unc	Goldwater, Palmer, & Tamsky s.n. (ZION)	1925	Hybrids with <i>S. spartioides</i> have been reported from Zion NP.
Compositae (Asteraceae)	<i>Senecio integerrimus</i> var. <i>exaltatus</i>		western groundsel	PerF	Wide	Pres	Unc	Nelson 9733 (ZION)	1971	
Compositae (Asteraceae)	<i>Senecio multilobatus</i>	<i>Packera multilobata</i>	basin groundsel	PerF	Wide	Pres	Com	Nelson 10291 (ZION)	1926	
Compositae (Asteraceae)	<i>Senecio spartioides</i> var. <i>spartioides</i>	<i>S. spartioides</i> . Vars. not recognized in <i>Flora of North America</i> (2006)	broom groundsel	PerF	Wide	Pres	Unc	Palmer s.n. (ZION)	1926	Type of <i>S. incurvus</i> from Zion NP (Nelson 9988 RM)
Compositae (Asteraceae)	<i>Senecio streptanthifolius</i> var. <i>streptanthifolius</i>	<i>Packera streptanthifolia</i> var. <i>streptanthifolia</i> . Vars. not recognized in <i>Flora of North America</i> (2006)	Rocky Mountain groundsel	PerF	Wide	Pres	Unc	Nelson 9640 (ZION)	1935	
Compositae (Asteraceae)	<i>Senecio vulgaris</i>		common groundsel	AnnF	Intro	Pres	Unc	Harper & Sanderson ZNP009 (ZION)	1987	Native to Europe
Compositae (Asteraceae)	<i>Solidago canadensis</i> var. <i>salebrosa</i>	<i>S. lepida</i> var. <i>salebrosa</i>	Canadian goldenrod	PerF	Wide	Pres	Unc	Louie s.n. (ZION)	1970	
Compositae (Asteraceae)	<i>Solidago nana</i>		baby goldenrod	PerF	Wide	Pres	Rare	Meyer 1434 (UNLV)	1970	
Compositae (Asteraceae)	<i>Solidago velutina</i>	<i>S. sparsiflora</i> , <i>S. velutina</i> var. <i>sparsiflora</i>	three-nerve goldenrod	PerF	Wide	Pres	Com	Nelson 10096 (ZION)	1926	
Compositae (Asteraceae)	<i>Sonchus arvensis</i>	<i>S. arvensis</i> ssp. <i>arvensis</i>	field sow- thistle	PerF	Intro	Rep	Rare	Fowler et al. (2007)	1992	Native to Europe
Compositae (Asteraceae)	<i>Sonchus asper</i>		spiny-leaf sow-thistle	AnnF	Intro	Pres	Com	Fowler, Hak, & May 588 (ZION)	1925	Native to Europe

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Compositae (Asteraceae)	<i>Sphaeromeria ruthiae</i>		Ruth's sphaeromeria	Shrub	LocEn	Pres	Unc	Holmgren, Shultz, & Lowrey 16003 (UTC)	1935	Type locality is Refrigerator Canyon, Zion NP, Washington Co., UT (Holmgren, Shultz, & Lowrey 16003 UTC). USFWS: former C2 candidate
Compositae (Asteraceae)	<i>Stephanomeria exigua</i>	<i>S. exigua</i> ssp. <i>exigua</i>	white-plume wire-lettuce	AnnF	Wide	Pres	Unc	Briggs & Sanderson ZNP-045 (ZION)	1926	
Compositae (Asteraceae)	<i>Stephanomeria pauciflora</i>		brown-plume wire-lettuce	PerF	Wide	Pres	Unc	Nelson 9126 (ZION)	1970	
Compositae (Asteraceae)	<i>Stephanomeria tenuifolia</i> var. <i>tenuifolia</i>	<i>S. minor</i> var. <i>minor</i> . Vars. not recognized in <i>Flora of North America</i> (2006)	slender wirelettuce	PerF	Wide	Pres	Com	Lindah! s.n. (ZION)	1926	
Compositae (Asteraceae)	<i>Taraxacum officinale</i>		common dandelion	PerF	Intro	Pres	Unc	Malm s.n. (ZION)	1929	Native to Eurasia
Compositae (Asteraceae)	<i>Tetradymia axillaris</i>	<i>T. spinosa</i> var. <i>axillaris</i>	longspine horsebrush	Shrub	RegEn	Pres	Unc	Nelson 9439 (ZION)	1935	
Compositae (Asteraceae)	<i>Tetradymia canescens</i>		spineless horsebrush	Shrub	Wide	Pres	Unc	Boyle Z-340 (ZION)	1938	
Compositae (Asteraceae)	<i>Thelesperma megapotamicum</i>		Hopi-tea	PerF	Periph	Pres	Rare	Chandler & Thorne 5533 (ZION)	1970	
Compositae (Asteraceae)	<i>Thymophylla pentachaeta</i> var. <i>belenidium</i>	<i>Dyssodia pentachaeta</i> var. <i>belenidium</i>	scale glandweed	PerF	Wide	Pres	Rare	Moor Z194 (UNLV)	1970	
Compositae (Asteraceae)	<i>Townsendia incana</i>		hoary townsendia	PerF	Wide	Pres	Unc	Franklin & Thorne 6093 (ZION)	1938	
Compositae (Asteraceae)	<i>Tragopogon dubius</i>	<i>T. dubius</i> var. <i>major</i>	yellow salsify	PerF	Intro	Pres	Unc	Nelson 9105 (ZION)	1970	Native to Europe

**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Compositae (Asteraceae)	<i>Tragopogon porrifolius</i>		salsify	PerF	Intro	Pres	Rare	Moor Z231 (UNLV)	1970	Native to Europe
Compositae (Asteraceae)	<i>Viguiera longifolia var. annua</i>	<i>Heliomeris longifolia var. annua</i> , <i>V. annua</i>	southern goldeneye	AnnF	Wide	Pres	Unc	Charlesworth, Clark, & Welsh 23850 (ZION)	1987	
Compositae (Asteraceae)	<i>Viguiera multiflora var. multiflora</i>	<i>Heliomeris multiflora var. multiflora</i>	showy goldeneye	PerF	Wide	Pres	Com	Decker s.n. (ZION)	1926	
Compositae (Asteraceae)	<i>Viguiera multiflora var. nevadensis</i>	<i>Heliomeris multiflora var. nevadensis</i>	showy goldeneye	PerF	Wide	Pres	Com	Goldwater, Palmer, & Tamsky s.n. (ZION)	1925	
Compositae (Asteraceae)	<i>Wyethia arizonica</i>		Arizona mulesears	PerF	RegEn	Pres	Unc	Nelson 9770 (ZION)	1935	
Compositae (Asteraceae)	<i>Xanthium strumarium</i> var. <i>canadense</i>	<i>X. pennsylvanicum</i> , <i>X. saccharatum</i> , Vars. not recognized in <i>Flora of North America</i> (2006).	rough cocklebur	AnnF	Wide	Pres	Unc	Harper ZNP063 (ZION)	1987	
Convolvulaceae	<i>Convolvulus arvensis</i>		field bindweed	PerF	Intro	Pres	Unc	Nelson 10251 (BRY)	1970	Utah state noxious weed. Native to Eurasia
Convolvulaceae	<i>Cuscuta pentagona</i>		field dodder	AnnF	Wide	Hist	?	Woodbury s.n. (ZION)	1925	
Convolvulaceae	<i>Ipomoea purpurea</i>		morning glory	AnnF	Intro	Pres	Unc	Franklin, Nelson, & Thorne 5739 (ZION)	1987	Native to tropical America
Cornaceae	<i>Cornus sericea</i> var. <i>sericea</i>	<i>C. stolonifera</i> , <i>Swida sericea</i>	red-osier dogwood	Shrub	Wide	Hist	?	Woodbury s.n. (ZION)	1926	
Crassulaceae	<i>Sedum debile</i>		weak- stemmed stonecrop	PerF	Wide	Pres	Unc	Thorne & Franklin 5522 (NY)	1928	
Crassulaceae	<i>Sedum lanceolatum</i>	<i>Amerosedum lanceolatum</i> . Includes <i>ssp. lanceolatum</i> & <i>subalpinum</i>	lance-leaved stonecrop	PerF	Wide	Pres	Unc	Nelson 9786 (ZION)	1935	

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Crossosomataceae (Celastraceae)	<i>Glossopetalon spinescens</i> var. <i>aridum</i>	<i>Forsellesia nevadensis</i>	Nevada greasebush	Shrub	Periph	Pres	Unc	Franklin & Thorne 5931 (ZION)	1988	
Cruciferae (Brassicaceae)	<i>Arabis demissa</i>	<i>Boecheira demissa</i> var. <i>languida</i> , <i>B. demissa</i> var. <i>demissa</i> , <i>B.</i> <i>oxylobula</i>	nodding rock cress	PerF	Wide	Hist	Rare	Holmgren, LaFrance, & Reveal 1986 (ZION, NY)	1965	USFWS: 3C
Cruciferae (Brassicaceae)	<i>Arabis drummondii</i>	<i>Boecheira angustifolia</i> , <i>B. drummondii</i> , <i>B.</i> <i>stricta</i>	Drummond's rockcress	PerF	Wide	Pres	Unc	Meyer 1466 (BRY)	1970	
Cruciferae (Brassicaceae)	<i>Arabis holboellii</i> var. <i>fendleri</i>	<i>A. holboellii</i> var. <i>fendleri</i> , <i>A. fendleri</i> , <i>Boecheira fendleri</i> var. <i>spatifolia</i> . Vars. not recognized in Holmgren et al. (2005)	Fendler's rockcress	PerF	Wide	Pres	Unc	Welsh 20705 (BRY)	1981	
Cruciferae (Brassicaceae)	<i>Arabis holboellii</i> var. <i>pinetorum</i>	<i>Boecheira holboellii</i> var. <i>pinetorum</i> . Name may be misapplied, according to Holmgren et al. (2005)	Holboell's rockcress	PerF	Wide	Pres	Unc	Nelson 9409 (ZION)	1934	
Cruciferae (Brassicaceae)	<i>Arabis holboellii</i> var. <i>secunda</i>	<i>A. holboellii</i> var. <i>retrofracta</i> , <i>Boecheira</i> <i>holboellii</i> var. <i>secunda</i> , <i>B. retrofracta</i>	Holboell's rockcress	PerF	Wide	Pres	Unc	Nelson 9766 (ZION)	1971	
Cruciferae (Brassicaceae)	<i>Arabis perennans</i> var. <i>perennans</i>	<i>Boecheira perennans</i>	perennial rockcress	PerF	Wide	Pres	Unc	Nelson 9253 (ZION)	1971	
Cruciferae (Brassicaceae)	<i>Arabis pulchra</i> var. <i>munciensis</i>	<i>Boecheira pulchra</i> var. <i>munciensis</i> , <i>B. pulchra</i> var. <i>gracilis</i>	Muncie rockcress	PerF	Wide	Pres	Rare	Nelson 10187 (ZION)	1973	Type locality is near Ibabah, Juab Co, UT (Jones )
Cruciferae (Brassicaceae)	<i>Brassica campestris</i>	<i>B. rapa</i> , <i>B. napus</i>	field mustard	AnnF	Intro	Hist	?	Woodbury s.n. (ZION)	1927	Native to Europe
Cruciferae (Brassicaceae)	<i>Brassica juncea</i>		Indian mustard	AnnF	Intro	Hist	?	Woodbury s.n. (ZION)	1927	Native to Asia
Cruciferae (Brassicaceae)	<i>Brassica nigra</i>	<i>Sinapis nigra</i>	black mustard	AnnF	Intro	Hist	?	Boyle Z331 (ZION)	1938	Native to Europe

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Cruciferae (Brassicaceae)	<i>Capsella bursa-pastoris</i>		shepherd's-purse	AnnF	Intro	Pres	Unc	Nelson 9091 (ZION)	1970	Native to Europe
Cruciferae (Brassicaceae)	<i>Cardaria draba</i>	<i>Lepidium draba</i> , <i>C. draba</i> var. <i>draba</i>	whitetop	PerF	Intro	Pres	Unc	Mason s.n. (ZION)	1996	Native to Europe
Cruciferae (Brassicaceae)	<i>Caulanthus crassicaulis</i> var. <i>glaber</i>		smooth spindlestem	PerF	RegEn	Pres	Unc	Nelson 10210 (ZION)	1973	Type locality is Sink Valley (near Alton), Kane Co, UT (Jones s.n. POM)
Cruciferae (Brassicaceae)	<i>Chorisporea tenella</i>		blue mustard	AnnF	Intro	Pres	Unc	Nelson 10165 (ZION)	1973	Native to Asia
Cruciferae (Brassicaceae)	<i>Conringia orientalis</i>		hare's-ear mustard	AnnF	Intro	Pres	Unc	Fertig et al. 23102 (ZION)	2007	Native to Europe
Cruciferae (Brassicaceae)	<i>Descurainia californica</i>		California tansy-mustard	PerF	Wide	Pres	Unc	Welsh 20700 (BRY)	1981	
Cruciferae (Brassicaceae)	<i>Descurainia incana</i> var. <i>brevipes</i>	<i>D. richardsonii</i> var. <i>macrosperma</i> , <i>D. incana</i> ssp. <i>procera</i> , <i>D. incana</i> var. <i>macrosperma</i> , <i>D. incana</i> (without variety) in Holmgren et al. (2005).	gray tansy- mustard	PerF	Wide	Pres	Unc	Boyle Z-330 (ZION)	1938	
Cruciferae (Brassicaceae)	<i>Descurainia incana</i> var. <i>sonnei</i>	<i>D. richardsonii</i> var. <i>sonnei</i> , <i>D. incana</i> var. <i>incisa</i> , <i>D. incana</i> ssp. <i>incisa</i> , <i>D. incana</i> var. <i>incana</i>	mountain tansy-mustard	AnnF	Wide	Pres	Unc	Barnum 1413 (BRY)	1965	
Cruciferae (Brassicaceae)	<i>Descurainia pinnata</i> var. <i>glabra</i>		western tansy- mustard	AnnF	Periph	Pres	Unc	Nelson 9952 (ZION)	1935	
Cruciferae (Brassicaceae)	<i>Descurainia pinnata</i> var. <i>osmiarium</i>	<i>D. pinnata</i> sp. <i>halictorum</i>	western tansy- mustard	AnnF	Wide	Pres	Unc	Nelson 10070 (ZION)	1925	
Cruciferae (Brassicaceae)	<i>Descurainia sophia</i>		flixweed	AnnF	Intro	Pres	Unc	Clark 5004 (BRY)	1988	Native to Europe
Cruciferae (Brassicaceae)	<i>Dithyrea wislizenii</i>	<i>Dimorphocarpa wislizenii</i>	spectacle-pod	AnnF	Wide	Pres	Rare	Nelson 9454 (ZION)	1971	



**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Cruciferae (Brassicaceae)	<i>Draba asprella</i> var. <i>zionensis</i>	<i>D. zionensis</i>	Zion draba	PerF	LocEn	Pres	Unc	Welsh 22691 (NY)	1923	Type locality is Zion Canyon, Zion NP, Washington Co, UT (Jones s.n. POM). USFWS: 3C
Cruciferae (Brassicaceae)	<i>Draba cuneifolia</i> var. <i>cuneifolia</i>	<i>D. cuneifolia</i>	wedgeleaf draba	AnnF	Wide	Pres	Unc	Malm s.n. (ZION)	1935	
Cruciferae (Brassicaceae)	<i>Draba reptans</i>		dwarf draba	AnnF	Wide	Pres	Unc	Maguire 21486 (NY)	1942	
Cruciferae (Brassicaceae)	<i>Erysimum asperum</i> var. <i>purshii</i>	<i>Erysimum asperum</i> var. <i>arkansanum</i> , included in var. <i>capitatum</i> by some authors	sand dune wallflower	PerF	Wide	Pres	Unc	Nelson 9262 (ZION)	1929	
Cruciferae (Brassicaceae)	<i>Erysimum repandum</i>		spreading wallflower	AnnF	Intro	Pres	Rare	Alexander & Karnes 1455 (ZION)	2003	Native to Europe
Cruciferae (Brassicaceae)	<i>Lepidium densiflorum</i> var. <i>densiflorum</i>	Welsh et al. (2003) include var. <i>macrocarpum</i>	prairie pepperwort	AnnF	Wide	Pres	Unc	Nelson 9298 (ZION)	1971	
Cruciferae (Brassicaceae)	<i>Lepidium densiflorum</i> var. <i>ramosum</i>		prairie pepperwort	AnnF	Wide	Pres	Unc	Nelson 10206 (ZION)	1973	
Cruciferae (Brassicaceae)	<i>Lepidium fremontii</i>		Fremont's pepperwort	PerF	Periph	Pres	Unc	Welsh & Franklin 23949 (BRY)	1988	
Cruciferae (Brassicaceae)	<i>Lepidium lasiocarpum</i> var. <i>georginum</i>		hairy-pod pepperwort	AnnF	Wide	Rep	?	Weight (1937)	1935	Type locality is valley of the Virgin near St. George, Washington Co, UT (Parry 19 NY)
Cruciferae (Brassicaceae)	<i>Lepidium lasiocarpum</i> var. <i>lasiocarpum</i>	<i>L. lasiocarpum</i>	hairy-pod pepperwort	AnnF	Wide	Hist	?	Weight s.n. (ZION)	1935	

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Cruciferae (Brassicaceae)	<i>Lepidium montanum</i> var. <i>jonesii</i>		Jones' pepperwort	PerF	Wide	Pres	Com	Nelson 9300 (ZION)	1934	Type locality is St. George, Washington Co, UT (Jones 1636 NY)
Cruciferae (Brassicaceae)	<i>Lepidium montanum</i> var. <i>montanum</i>		mountain pepperwort	PerF	Wide	Hist	?	Weight s.n. (ZION)	1935	
Cruciferae (Brassicaceae)	<i>Lepidium perfoliatum</i>		clasping pepperwort	AnnF	Intro	Pres	Unc	Clark 5017 (BRY)	1988	Native to Europe
Cruciferae (Brassicaceae)	<i>Lepidium virginicum</i> var. <i>pubescens</i>		poor-man's pepperwort	AnnF	Wide	Pres	Unc	Meyer 1842 (BRY)	1927	
Cruciferae (Brassicaceae)	<i>Malcolmia africana</i>		African mustard	AnnF	Intro	Pres	Unc	Nelson 10003 (ZION)	1927	Native to Africa
Cruciferae (Brassicaceae)	<i>Nasturtium officinale</i>	<i>Rorippa nasturtium-aquaticum</i>	watercress	PerF	Intro	Pres	Unc	Fowler, Hak, & May 234c (ZION)	1928	Native to Europe
Cruciferae (Brassicaceae)	<i>Physaria chambersii</i> var. <i>chambersii</i>		Chambers' twinpod	PerF	Wide	Pres	Unc	Nelson 9775 (ZION)	1927	
Cruciferae (Brassicaceae)	<i>Physaria chambersii</i> var. <i>membranacea</i>	<i>P. lepidota</i> var. <i>membranacea</i> , <i>P. lepidota</i> var. <i>lepidota</i>	lepidote twinpod	PerF	LocEn	Pres	Unc	Holmgren & Holmgren 10434 (BRY, NY)	1984	Zion NP material is var. <i>lepidota</i> . Type locality of var. <i>membranacea</i> is Red Canyon, Garfield Co, UT (Rollins & Chambers 2448 GH). Type locality of var. <i>lepidota</i> is 1/4 mile W of junction of UT hwy 15 and US hwy 89 20 miles E of Zion NP, Kane Co, UT (Rollins & Rollins 79198 GH)

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Cruciferae (Brassicaceae)	<i>Physaria intermedia</i>	<i>Lesquerella intermedia</i> , <i>L. alpina</i> var. <i>intermedia</i>	Watson's bladderpod	PerF	Wide	Pres	Unc	Thorne, Clark, & Tuhy 5393 (BRY)	1987	
Cruciferae (Brassicaceae)	<i>Physaria kingii</i> var. <i>parvifolia</i>	<i>Lesquerella kingii</i> . Includes <i>P. wardii</i> in Holmgren et al. (2005)	King's bladderpod	PerF	Wide	Pres	Unc	Holmgren, Reveal, & LaFrance 1979 (NY)	1965	
Cruciferae (Brassicaceae)	<i>Physaria ludoviciana</i>	<i>Lesquerella ludoviciana</i>	silver bladderpod	PerF	Wide	Pres	Unc	Franklin & Thorne 4944 (ZION)	1938	
Cruciferae (Brassicaceae)	<i>Physaria newberryi</i>	<i>P. newberryi</i> var. <i>racemosa</i>	Newberry's twinpod	PerF	RegEn	Pres	Unc	Ertter & Strachan 2873 (NY)	1979	Type locality of var. <i>racemosa</i> is Mokiah Pass Rd S of St. George, Washington Co, UT (Holmgren, Holmgren, & Barneby GH).
Cruciferae (Brassicaceae)	<i>Physaria rectipes</i>	<i>Lesquerella rectipes</i>	Colorado Plateau bladderpod	PerF	RegEn	Pres	Unc	Nelson 9655 (ZION)	1971	
Cruciferae (Brassicaceae)	<i>Physaria wardii</i>	<i>Lesquerella wardii</i> . Included in <i>P. kingii</i> var. <i>parvifolia</i> by Holmgren et al. (2005)	Ward's bladderpod	PerF	RegEn	Pres	Unc	Holmgren, Reveal, & LaFrance 1979 (ZION, NY)	1965	Report may be <i>P. kingii</i> . Type locality is Aquarius Plateau, Garfield Co, UT (Ward 589 GH)
Cruciferae (Brassicaceae)	<i>Rorippa curvipes</i> var. <i>curvipes</i>	<i>R. curvipes</i>	blunt-leaf yellowcress	PerF	Wide	Pres	Unc	Goldwater, Palmer, & Tamsky s.n. (ZION)	1935	
Cruciferae (Brassicaceae)	<i>Sisymbrium altissimum</i>		tumble mustard	AnnF	Intro	Pres	Unc	Boyle Z-201 (ZION)	1938	Native to Europe
Cruciferae (Brassicaceae)	<i>Stanleya pinnata</i>	<i>S. pinnata</i> var. <i>pinnata</i>	prince's-plume	PerF	Wide	Pres	Unc	Welsh 24241 (NY)	1925	
Cruciferae (Brassicaceae)	<i>Streptanthella longirostris</i>		long-beak fiddle-mustard	AnnF	Wide	Pres	Unc	Nelson 9995 (ZION)	1935	

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Cruciferae (Brassicaceae)	<i>Streptanthus cordatus</i>	<i>S. cordatus</i> var. <i>cordatus</i>	heart-leaf jewelflower	PerF	Wide	Pres	Unc	Nelson 9254 (ZION)	1927	
Cruciferae (Brassicaceae)	<i>Thlypodium integrifolium</i> var. <i>affine</i>	<i>T. rhomboideum</i>	cousin thelypody	PerF	Wide	Pres	Unc	Welsh 23822 (ZION)	1925	
Cruciferae (Brassicaceae)	<i>Thlypodium laxiflorum</i>	<i>T. wrightii</i> var. <i>tenellum</i>	slate thelypody	PerF	Wide	Pres	Unc	Nelson 9074 (ZION)	1928	USFWS: 3C
Cruciferae (Brassicaceae)	<i>Thlaspi montanum</i> var. <i>montanum</i>	<i>Noccaea montana</i>	alpine pennycress	PerF	Wide	Pres	Unc	Nelson 9274 (ZION)	1971	
Cruciferae (Brassicaceae)	<i>Thysanocarpus curvipes</i> var. <i>eradiatus</i>	Vars. not recognized by Holmgren et al. (2005)	fringe pod	AnnF	Periph	Pres	Unc	Nelson 9261 (ZION)	1971	
Cucurbitaceae	<i>Cucurbita foetidissima</i>		buffalo gourd	PerF	Wide	Pres	Unc	Welsh & Clark 24250 (BRY)	1926	
Cupressaceae	<i>Cupressus arizonica</i>		Arizona cypress	Tree	Intro	Pres	Rare	Welsh 23254 (BRY)	1969	Native to SW USA and Mexico
Cupressaceae	<i>Juniperus communis</i> var. <i>depressa</i>	<i>J. communis</i> ssp. <i>alpina</i>	common juniper	Shrub	Wide	Pres	Unc	Scott s.n. (ZION)	1976	
Cupressaceae	<i>Juniperus osteosperma</i>	<i>Sabina osteosperma</i>	Utah juniper	Shrub	Wide	Pres	Abun	Nelson 9207 (ZION)	1935	
Cupressaceae	<i>Juniperus scopulorum</i>	<i>Sabina scopulorum</i>	Rocky Mountain juniper	Tree	Wide	Pres	Unc	Boyle Z-306 (ZION)	1925	
Cyperaceae	<i>Carex alma</i>		alma sedge	PerG	Periph	Pres	Rare	Moor Z577 (UNLV)	1970	
Cyperaceae	<i>Carex athrostachya</i>		slender- beaked sedge	PerG	Wide	Pres	Unc	Meretsky s.n. (ZION)	1999	
Cyperaceae	<i>Carex aurea</i>	<i>C. garberi</i>	golden sedge	PerG	Wide	Pres	Unc	Holmgren, LaFrance, & Reveal 1993 (ZION)	1965	
Cyperaceae	<i>Carex douglasii</i>		Douglas' sedge	PerG	Wide	Pres	Unc	Higgins 18333 (BRY)	1989	

*Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.*

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Cyperaceae	<i>Carex haysii</i>	Included in <i>C. curatorium</i> by some authors	Hays' sedge	PerG	LocEn	Pres	Unc	Welsh, Clark, & Hays 24335 (BRY)	1984	Type locality is Zion Canyon, Zion NP, Washington Co, UT (Welsh, Clark, & Hays 24335 BRY). USFWS: former C2 candidate
Cyperaceae	<i>Carex hystericina</i>	<i>C. hystericina</i>	bottlebrush sedge	PerG	Wide	Pres	Unc	Nelson 10043 (ZION)	1928	
Cyperaceae	<i>Carex microptera</i>	<i>C. microptera</i> var. <i>microptera</i> , <i>C. festivella</i> , <i>C. macloviana</i> var. <i>microptera</i> , includes <i>C. liminophila</i>	small-wing sedge	PerG	Wide	Pres	Unc	Blaue s.n. (ZION)	1929	
Cyperaceae	<i>Carex nebrascensis</i>		Nebraska sedge	PerG	Wide	Pres	Unc	Welsh 23808 (ZION)	1966	
Cyperaceae	<i>Carex occidentalis</i>		western sedge	PerG	Wide	Pres	Unc	Kass, Clark, & Welsh 2724 (BRY)	1929	
Cyperaceae	<i>Carex pellita</i>	<i>C. lanuginosa</i>	woolly sedge	PerG	Wide	Pres	Unc	Harper & Tuhy s.n. (BRY)	1970	
Cyperaceae	<i>Carex praegracilis</i>		blackcreeper sedge	PerG	Wide	Pres	Unc	Welp s.n. (ZION)	1925	
Cyperaceae	<i>Carex rossii</i>	<i>C. deflexa</i> var. <i>boottii</i> , <i>C. brevipes</i> , <i>C. pityophila</i>	Ross' sedge	PerG	Wide	Pres	Unc	Franklin & Thorne 4912 (ZION)	1987	
Cyperaceae	<i>Carex scoparia</i>		broom sedge	PerG	Periph	Pres	Rare	Meretsky s.n. (BRY)	1998	
Cyperaceae	<i>Carex subfusca</i>		rusty sedge	PerG	Sparse	Pres	Unc	Franklin & Thorne 5491 (ZION)	1987	
Cyperaceae	<i>Carex taahoensis</i>	<i>C. xerantica</i>	dryland sedge	PerG	Wide	Pres	Unc	Meretsky s.n. (ZION)	1970	

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Cyperaceae	<i>Carex vallicola</i>		valley sedge	PerG	Wide	Pres	Unc	Holmgren, LaFrance, & Reveal 1981 (ZION)	1965	
Cyperaceae	<i>Eleocharis bolanderi</i>	<i>E. montevidensis</i>	Bolander's spikerush	PerG	Wide	Pres	Unc	Nelson 10334 (ZION)	1972	
Cyperaceae	<i>Eleocharis palustris</i>	Includes <i>E. macrostachya</i> , <i>E. erythropoda</i> , & <i>E. uniglumis</i>	common spikerush	PerG	Wide	Pres	Unc	Weight s.n. (ZION)	1935	
Cyperaceae	<i>Eleocharis parishii</i>		Parish's spikerush	PerG	Wide	Pres	Unc	Franklin & Thorne 5115 (ZION)	1987	
Cyperaceae	<i>Scirpus acutus</i>	<i>Schoenoplectus acutus</i> var. <i>occidentalis</i> , <i>Schoenoplectus lacustris</i> ssp. <i>acutus</i> , <i>Schoenoplectus acutus</i> var. <i>acutus</i>	hardstem bulrush	PerG	Wide	Pres	Unc	Meretsky 136 (BRY)	1925	
Cyperaceae	<i>Scirpus maritimus</i>	<i>Scirpus maritimus</i> var. <i>paludosus</i> , <i>Schoenoplectus maritimus</i> , <i>Bolboschoenus maritimus</i> var. <i>paludosus</i>	alkali bulrush	PerG	Wide	Hist	?	Boyle Z-317 (ZION)	1925	
Cyperaceae	<i>Scirpus microcarpus</i>		panicked bulrush	PerG	Wide	Pres	Unc	Nelson 10042 (ZION)	1928	
Cyperaceae	<i>Scirpus pungens</i> var. <i>longispicatus</i>	<i>Scirpus pungens</i> var. <i>polyphyllus</i> , <i>Schoenoplectus pungens</i> vars. <i>longispicatus</i> , <i>polyphyllus</i> , & <i>pungens</i>	three-square bulrush	PerG	Wide	Pres	Unc	Charlesworth, Clark, & Welsh 23897a (ZION)	1987	

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Cyperaceae	<i>Scirpus validus</i>	<i>Schoenoplectus tabernaemontani</i> , <i>Schoenoplectus lacustris</i> ssp. <i>validus</i>	soft-stem bulrush	PerG	Wide	Pres	Unc	Nelson 10028 (ZION)	1929	
Elaeagnaceae	<i>Elaeagnus angustifolia</i>		Russian olive	Tree	Intro	Pres	Unc	Franklin, Nelson, & Thorne 5704 (ZION)	1979	Native to Europe
Elaeagnaceae	<i>Shepherdia rotundifolia</i>		roundleaf buffaloberry	Shrub	RegEn	Pres	Unc	Nelson 9225 (ZION)	1926	Type locality is upper valley of the Virgin, Kane Co, UT (Siler s.n. ISC)
Ephedraceae	<i>Ephedra nevadensis</i>		Nevada ephedra	Shrub	Wide	Pres	Unc	Nelson 9295 (ZION)	1935	
Ephedraceae	<i>Ephedra torreyana</i>		Torrey's ephedra	Shrub	Wide	Pres	Unc	Nelson 10005 (ZION)	1972	
Ephedraceae	<i>Ephedra viridis</i> var. <i>viridis</i>	<i>E. viridis</i>	green ephedra	Shrub	Wide	Pres	Com	Nelson 9322 (ZION)	1925	
Equisetaceae	<i>Equisetum arvense</i>		field horsetail	Fern	Wide	Pres	Unc	Franklin, Nelson, & Thorne 5561 (ZION)	1987	
Equisetaceae	<i>Equisetum hyemale</i> var. <i>affine</i>	<i>Hippochaete hyemalis</i> ssp. <i>affinis</i> , <i>E. praealtum</i>	tall scouring- rush	Fern	Wide	Pres	Unc	Nelson 9609 (ZION)	1926	
Equisetaceae	<i>Equisetum laevigatum</i>	<i>Hippochaete laevigata</i> , <i>E. kansanum</i>	smooth scouring-rush	Fern	Wide	Pres	Unc	Nelson 9912 (ZION)	1927	
Equisetaceae	<i>Equisetum variegatum</i>	<i>E. variegatum</i> var. <i>variegatum</i> , <i>Hippochaete variegata</i>	northern scouring-rush	Fern	Disj	Pres	Rare	Clark & Thorne 4780 (ZION)	1972	
Equisetaceae	<i>Equisetum x ferrisii</i>	Hybrid of <i>E. hyemale</i> x <i>E. laevigatum</i>	Ferris' scouring-rush	Fern	Sparse	Pres	Rare	Moor s.n. (BRY)	1970	
Ericaceae	<i>Arctostaphylos patula</i>	<i>Arctostaphylos patula</i> ssp. <i>platyphylla</i>	greenleaf manzanita	Shrub	Wide	Pres	Com	Nelson 9085 (ZION)	1925	

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Ericaceae	<i>Arctostaphylos pungens</i>		Mexican manzanita	Shrub	Wide	Pres	Com	Nelson 9243 (ZION)	1926	
Euphorbiaceae	<i>Chamaesyce albomarginata</i>	<i>Euphorbia albomarginata</i>	rattlesnake- weed	PerF	Wide	Pres	Unc	Nelson 9449 (ZION)	1927	
Euphorbiaceae	<i>Chamaesyce fendleri</i>	<i>Euphorbia fendleri</i>	Fendler's spurge	PerF	Wide	Pres	Unc	Nelson 9443 (ZION)	1927	
Euphorbiaceae	<i>Chamaesyce glyptosperma</i>	<i>Euphorbia glyptosperma</i>	ridge-seeded spurge	AnnF	Wide	Pres	Unc	Alexander 1814 (ZION)	1987	
Euphorbiaceae	<i>Chamaesyce maculata</i>	<i>Euphorbia maculata</i> , <i>C. nutans</i>	spotted spurge	AnnF	Intro	Pres	Unc	Alexander 1828 (ZION)	2004	Native to E North America
Euphorbiaceae	<i>Chamaesyce parryi</i>	<i>Euphorbia parryi</i>	Parry's spurge	AnnF	Wide	Pres	Unc	Franklin & Thorne 5120 (BRY)	1926	Type locality is St. George, Washington Co, UT (Parry 247 MO)
Euphorbiaceae	<i>Croton californicus</i>		Mohave croton	PerF	Periph	Hist	?	Woodbury s.n. (ZION)	1927	
Euphorbiaceae	<i>Euphorbia brachycera</i>	<i>E. robusta</i> , <i>E. brachycera</i> var. <i>robusta</i> , <i>Tithymalus brachyceras</i>	shorthorn spurge	PerF	Wide	Pres	Unc	Alexander 1427 (ZION)	1965	
Euphorbiaceae	<i>Euphorbia spatulata</i>	<i>Tithymalus spatulatus</i>	prairie spurge	AnnF	Wide	Pres	Unc	Nelson 10273 (ZION)	1973	
Euphorbiaceae	<i>Tragia ramosa</i>	<i>T. stylaris</i>	noseburn	PerF	Sparse	Pres	Rare	Franklin & Thorne 5123 (ZION)	1987	
Fagaceae	<i>Quercus gambelii</i> var. <i>gambelii</i>	<i>Q. gambelii</i>	Gambel oak	Tree	Wide	Pres	Abun	Phillips 95-131 (ZION)	1925	
Fagaceae	<i>Quercus turbinella</i>		turbinella live- oak	Shrub	Wide	Pres	Unc	Lewis s.n. (ZION)	1925	
Fagaceae	<i>Quercus x pauciloba</i>	<i>Q. undulata</i> . Hybrid of <i>Q. turbinella</i> x <i>Q. gambelii</i>	few-lobed oak	Shrub	Wide	Pres	Unc	Rigby s.n. (ZION)	1925	
Fumariaceae	<i>Corydalis aurea</i> var. <i>occidentalis</i>	<i>C. curvisiliqua</i> ssp. <i>occidentalis</i>	golden corydalis	PerF	Wide	Pres	Unc	Malm s.n. (ZION)	1929	
Garryaceae	<i>Garrya flavescens</i>		silk-tassel-bush	Shrub	Periph	Pres	Unc	Nelson 9244 (ZION)	1925	



Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Gentianaceae	<i>Centaureum calycosum</i>	<i>C. arizonicum</i>	Buckley's centaury	AnnF	Periph	Pres	Unc	Franklin & Thorne 5114 (ZION)	1975	
Gentianaceae	<i>Centaureum exaltatum</i>		Great Basin centaury	PerF	Wide	Pres	Unc	Madany s.n. (ZION)	1979	
Gentianaceae	<i>Gentiana affinis</i> var. <i>affinis</i>	<i>Pneumonanthe affinis</i>	Rocky Mountain gentian	PerF	Wide	Pres	Unc	Madany s.n. (ZION)	1925	
Gentianaceae	<i>Gentiana amarella</i>	<i>Gentiana amarella</i> ssp. <i>acuta</i> , <i>Gentiana amarella</i> var. <i>amarella</i> , <i>Gentiana acuta</i> , <i>Gentiana amarella</i>	northern gentian	PerF	Wide	Rep	?	Nelson (1976) and Welsh (1995)	NA	
Gentianaceae	<i>Gentiana heterosepala</i>	<i>G. amarella</i> var. <i>heterosepala</i>	Engelmann's gentian	PerF	Wide	Rep	?	Welsh (1995)	NA	Report from ZION herbarium is based on a specimen collected from outside the park.
Gentianaceae	<i>Swertia albomarginata</i>	<i>Frasera albomarginata</i>	white-margined swertia	PerF	Wide	Pres	Unc	Nelson 9931 (ZION)	1935	Type locality is near St. George, Washington Co, UT (Palmer s.n. US)
Gentianaceae	<i>Swertia radiata</i>	<i>Frasera speciosa</i>	elkweed	PerF	Wide	Pres	Unc	Nelson 9771 (ZION)	1925	
Geraniaceae	<i>Erodium cicutarium</i>		stork's-bill	AnnF	Intro	Pres	Unc	Nelson 9611 (ZION)	1927	Native to Europe
Geraniaceae	<i>Geranium caespitosum</i> var. <i>marginale</i>	<i>G. atropurpureum</i> var. <i>cowenii</i> , <i>G. atropurpureum</i> , <i>G. caespitosum</i> ssp. <i>atropurpureum</i>	small-leaf geranium	PerF	Wide	Pres	Unc	Nelson 9923 (ZION)	1926	Type locality of var. <i>marginale</i> is Aquarius Plateau, head of Poison Creek, Garfield Co, UT (Rydberg & Carlton 7401 NY)

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Gramineae (Poaceae)	<i>Agropyron cristatum</i>	<i>A. cristatum</i> var. <i>A. cristatum</i> <i>ssp. pectinatum</i> , <i>A. pectinatum</i> , <i>A. sibiricum</i> , <i>A. desertorum</i> , <i>A. fragile</i> , <i>A. mongolicum</i>	crested wheatgrass	PerG	Intro	Pres	Unc	Palmer s.n. (ZION)	1966	Native to Eurasia
Gramineae (Poaceae)	<i>Agrostis exarata</i>		spike bentgrass	PerG	Wide	Pres	Unc	Madany s.n. (ZION)	1979	
Gramineae (Poaceae)	<i>Agrostis scabra</i>	<i>A. hiemalis</i> , <i>A. geminata</i>	ticklegrass	PerG	Wide	Pres	Unc	Franklin & Thorne 4948 (ZION)	1966	
Gramineae (Poaceae)	<i>Agrostis stolonifera</i>	<i>A. alba</i> , <i>A. gigantea</i>	redtop	PerG	Intro	Pres	Com	Welp s.n. (ZION)	1935	Native to Eurasia and Africa
Gramineae (Poaceae)	<i>Alopecurus aequalis</i>	<i>A. aequalis</i> var. <i>aequalis</i>	shortawn foxtail	PerG	Wide	Pres	Rare	Meyer 1471 (UNLV)	1970	
Gramineae (Poaceae)	<i>Andropogon gerardii</i> var. <i>chrysocomus</i>	<i>A. hallii</i>	Hall's bluestem	PerG	Wide	Pres	Unc	Franklin & Thorne 5638 (ZION)	1987	
Gramineae (Poaceae)	<i>Andropogon gerardii</i> var. <i>gerardii</i>	<i>A. gerardii</i>	big bluestem	PerG	Wide	Pres	Unc	Alexander 1820 (ZION)	1970	
Gramineae (Poaceae)	<i>Aristida purpurea</i>	<i>A. glauca</i> , <i>A. purpurea</i> var. <i>fendleriana</i> , <i>A. purpurea</i> var. <i>longiseta</i> , <i>A. fendleriana</i>	purple three-awn	PerG	Wide	Pres	Unc	Harper ZNP061 (ZION)	1935	
Gramineae (Poaceae)	<i>Avena fatua</i> var. <i>sativa</i>	<i>A. sativa</i>	oats	AnnG	Intro	Pres	Rare	Fertig & Fertig 23974 (ZION)	2008	Native to Eurasia
Gramineae (Poaceae)	<i>Blepharoneuron tricholepis</i>		pine dropseed	PerG	Wide	Pres	Unc	Kass & Thorne 6388 (ZION)	1979	
Gramineae (Poaceae)	<i>Bothriochloa barbinodis</i>		cane bluestem	PerG	Wide	Pres	Unc	Harper ZNP059 (ZION)	1935	
Gramineae (Poaceae)	<i>Bothriochloa laguroides</i> ssp. <i>torreyana</i>		silver bluestem	PerG	Periph	Pres	Unc	Smith 2910 (BRY)	1987	

**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Gramineae (Poaceae)	<i>Bouteloua barbata</i>	<i>Chondrosium barbatum</i>	sixweeks grama	AnnG	Wide	Pres	Unc	Nelson 9109 (ZION)	1970	
Gramineae (Poaceae)	<i>Bouteloua curtipendula</i>	Includes vars. <i>curtipendula</i> & <i>caespitosa</i>	sideoats grama	PerG	Wide	Pres	Unc	Nelson 9854 (ZION)	1935	
Gramineae (Poaceae)	<i>Bouteloua eriopoda</i>	<i>Chondrosium eriopodum</i>	black grama	PerG	Wide	Pres	Rare	Franklin, Nelson, & Thorne 5526 (ZION)	1987	
Gramineae (Poaceae)	<i>Bouteloua gracilis</i>	<i>Chondrosium gracile</i>	blue grama	PerG	Wide	Pres	Unc	Malm s.n. (ZION)	1972	
Gramineae (Poaceae)	<i>Bouteloua hirsuta</i>	<i>Chondrosium hirsutum</i> , <i>B. hirsuta</i> <i>ssp. hirsuta</i>	hairy grama	PerG	Periph	Hist	?	Booth s.n. (UTC)	1946	
Gramineae (Poaceae)	<i>Bouteloua uniflora</i>		one-flower grama	PerG	Disj	Rep	?	Silveus 339 (cited by Cronquist et al., 1977)	NA	Reported for Zion NP in Cronquist et al. (1977) and <i>Flora of North America</i> (2003), disjunct from Texas
Gramineae (Poaceae)	<i>Bromus anomalus</i>	<i>Bromus frondosus</i> , <i>Bromopsis porteri</i> . Material ascribed to <i>B. anomalus</i> in regional floras is mostly <i>B. porteri</i> or <i>B. lanatipes</i> .	nodding brome	PerG	Wide	Pres	Unc	Alexander & Crow 1832 (ZION)	2004	
Gramineae (Poaceae)	<i>Bromus carinatus</i>	<i>B. marginatus</i> , <i>B. polyanthus</i> , <i>Ceratochloa carinata</i>	mountain brome	PerG	Wide	Pres	Unc	Fowler, Hak, & May 607 (ZION)	1935	
Gramineae (Poaceae)	<i>Bromus catharticus</i>	<i>B. willdenowii</i> , <i>B. catharticus</i> var. <i>catharticus</i>	rescue grass	AnnG	Intro	Pres	Unc	Clark 5005 (BRY)	1988	Native to South America
Gramineae (Poaceae)	<i>Bromus ciliatus</i>	Includes var. <i>ciliatus</i> & <i>richardsonii</i> , <i>Bromopsis canadensis</i>	fringed brome	PerG	Wide	Pres	Unc	Franklin & Thorne 5674 (ZION)	1935	
Gramineae (Poaceae)	<i>Bromus diandrus</i>	<i>Anisantha diandra</i> , <i>B. rigidus</i>	ripput brome	AnnG	Intro	Pres	Com	Weight s.n. (ZION)	1935	Native to Eurasia

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Gramineae (Poaceae)	<i>Bromus inermis</i> var. <i>inermis</i>	<i>Bromopsis inermis</i>	smooth brome	PerG	Intro	Pres	Com	Alexander 1811 (ZION)	1971	Native to Eurasia
Gramineae (Poaceae)	<i>Bromus japonicus</i>	<i>B. arvensis</i> . Includes <i>B. commutatus</i> .	Japanese brome	AnnG	Intro	Pres	Unc	Anderson 749 (UTC)	1957	Native to Eurasia
Gramineae (Poaceae)	<i>Bromus rubens</i>		red brome	AnnG	Intro	Pres	Unc	Nelson 9445 (ZION)	1971	Native to Eurasia
Gramineae (Poaceae)	<i>Bromus tectorum</i>	<i>Anisantha tectorum</i>	cheatgrass	AnnG	Intro	Pres	Abun	Nelson 9633 (ZION)	1929	Native to Eurasia
Gramineae (Poaceae)	<i>Calamagrostis scopulorum</i>		Jones' reedgrass	PerG	Wide	Pres	Unc	Weight s.n. (ZION)	1894	Type locality is Springdale, Washington Co, UT (Jones 6075 POM)
Gramineae (Poaceae)	<i>Catabrosa aquatica</i>		brookgrass	PerG	Wide	Pres	Unc	Franklin & Thorne 5488 (ZION)	1987	
Gramineae (Poaceae)	<i>Cenchrus longispinus</i>		field sandbur	AnnG	Wide	Pres	Unc	Bradbury s.n. (ZION)	1962	
Gramineae (Poaceae)	<i>Chloris virgata</i>		feather finger grass	AnnG	Wide	Pres	Unc	Bradbury s.n. (ZION)	1962	
Gramineae (Poaceae)	<i>Cynodon dactylon</i>		Bermuda grass	PerG	Intro	Pres	Unc	Bradbury s.n. (ZION)	1962	Utah state noxious weed. Native to Africa
Gramineae (Poaceae)	<i>Dactylis glomerata</i>		orchard grass	PerG	Intro	Pres	Unc	Decker s.n. (ZION)	1935	Native to Eurasia and Africa
Gramineae (Poaceae)	<i>Danthonia intermedia</i>		timber oatgrass	PerG	Wide	Pres	Unc	Meretsky s.n. (ZION)	1998	
Gramineae (Poaceae)	<i>Digitaria sanguinalis</i>		hairy crabgrass	AnnG	Intro	Pres	Unc	Harper ZNP051 (ZION)	1987	Native to Eurasia
Gramineae (Poaceae)	<i>Distichlis spicata</i>	<i>D. spicata</i> var. <i>stricta</i> , <i>D. stricta</i>	desert saltgrass	PerG	Wide	Hist	?	Woodbury s.n. (ZION)	1929	
Gramineae (Poaceae)	<i>Echinochloa crus-galli</i>	Welsh et al. (2003) include <i>E. microstachya</i> ( <i>E. muricata</i> var. <i>microstachya</i> )	barnyard-grass	AnnG	Intro	Pres	Unc	Mason s.n. (ZION)	1962	Native to Eurasia

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Gramineae (Poaceae)	<i>Elyusine indica</i>		goosegrass	AnnG	Intro	Pres	Unc	Alexander 1829 (ZION)	2004	Native to tropical Asia
Gramineae (Poaceae)	<i>Elymus canadensis</i>	<i>E. canadensis</i> var. <i>canadensis</i>	Canada wildrye	PerG	Wide	Pres	Unc	Fowler, Hak, & May 214 (ZION)	1925	
Gramineae (Poaceae)	<i>Elymus cinereus</i>	<i>Leymus cinereus</i>	Great Basin wildrye	PerG	Wide	Rep	?	Welsh (1995)	NA	
Gramineae (Poaceae)	<i>Elymus elongatus</i>	<i>E. elongatus</i> var. <i>ponticus</i> , <i>Agropyron</i> <i>elongatum</i> , <i>Thinopyrum ponticum</i>	tall wheatgrass	PerG	Intro	Pres	Unc	Chandler & Thorne 5593 (ZION)	1987	Native to Eurasia
Gramineae (Poaceae)	<i>Elymus elymoides</i>	<i>E. elymoides</i> var. <i>elymoides</i> , <i>Sitanion</i> <i>hystrix</i>	squirreltail	PerG	Wide	Pres	Com	Decker s.n. (ZION)	1935	
Gramineae (Poaceae)	<i>Elymus glaucus</i>	<i>E. glaucus</i> var. <i>glaucus</i>	blue wildrye	PerG	Wide	Pres	Unc	Harper, Sanderson, & McArthur s.n. (BRY)	1988	
Gramineae (Poaceae)	<i>Elymus hispidus</i>	<i>E. hispidus</i> var. <i>hispidus</i> , <i>Agropyron</i> <i>intermedium</i> , <i>Elytrigia intermedia</i> , <i>Thinopyrum</i> <i>intermedium</i>	intermediate wheatgrass	PerG	Intro	Pres	Unc	Alexander 1817 (ZION)	2001	Native to Eurasia
Gramineae (Poaceae)	<i>Elymus lanceolatus</i>	<i>E. lanceolatus</i> var. <i>lanceolatus</i> , <i>Agropyron</i> <i>dasytachyum</i> var. <i>dasytachyum</i> , includes var. <i>riparium</i> , <i>A. albicans</i> var. <i>albicans</i> , <i>A. albicans</i> var. <i>griffithsii</i>	thickspike wheatgrass	PerG	Wide	Pres	Com	Welsh 23794 (ZION)	1938	
Gramineae (Poaceae)	<i>Elymus repens</i>	<i>Agropyron repens</i> , <i>Elytrigia repens</i>	quackgrass	PerG	Intro	Rep	?	Cogan et al. (2004)	2003	Utah state noxious weed. Native to Eurasia

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Gramineae (Poaceae)	<i>Elymus spicatus</i>	<i>Agropyron spicatum</i> , <i>Pseudoroegneria spicata</i> , includes ssp. <i>inermis</i> & <i>spicata</i>	bluebunch wheatgrass	PerG	Wide	Pres	Unc	Goldwater & Palmer s.n. (ZION)	1935	
Gramineae (Poaceae)	<i>Elymus trachycaulus</i>	<i>E. trachycaulus</i> var. <i>trachycaulus</i> , <i>E. alaskanus</i> ssp. <i>latiglumis</i> , <i>Agropyron caninum</i> , <i>A. subsecundum</i> , <i>A. trachycaulum</i> , <i>A. latiglume</i>	slender wheatgrass	PerG	Wide	Pres	Com	Palmer s.n. (ZION)	1966	
Gramineae (Poaceae)	<i>Elymus x macounii</i>	<i>Agrohordeum macounii</i> , x <i>Elyhordeum macounii</i> . Hybrid of <i>E. trachycaulus</i> x <i>Hordeum jubatum</i>	Macoun wildrye	PerG	Sparse	Pres	Unc	Decker s.n. (ZION)	2004	
Gramineae (Poaceae)	<i>Eragrostis cilianensis</i>		stinkgrass	AnnG	Intro	Pres	Unc	Harper ZNP053 (ZION)	1987	Native to Eurasia
Gramineae (Poaceae)	<i>Eragrostis lehmanniana</i>		Lehmann's lovegrass	PerG	Intro	Pres	Rare	Paulsen & Decker s.n. (ZION)	2001	Native to Africa
Gramineae (Poaceae)	<i>Eragrostis pectinacea</i>		tufted lovegrass	AnnG	Wide	Pres	Unc	Bradbury s.n. (ZION)	1962	
Gramineae (Poaceae)	<i>Erioneuron pulchellum</i>	<i>Dasyochloa pulchella</i>	fluffgrass	PerG	Wide	Pres	Unc	Clark 4960 (ZION)	1987	
Gramineae (Poaceae)	<i>Festuca arundinacea</i>	<i>Lolium arundinaceum</i> , <i>Schedonorus phoenix</i> , <i>S. arundinaceus</i>	tall fescue	PerG	Intro	Pres	Rare	Harms s.n. (ZION)	2005	Native to Europe
Gramineae (Poaceae)	<i>Festuca bromoides</i>	<i>Vulpia bromoides</i>	brome six- weeks grass	AnnG	Intro	Pres	Unc	Harper & Sanderson ZNP008 (ZION)	1987	Native to Eurasia
Gramineae (Poaceae)	<i>Festuca microstachys</i>	<i>Vulpia microstachys</i>	small fescue	AnnG	Periph	Pres	Unc	Thorne & Franklin 6013 (BRY)	1935	

**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Gramineae (Poaceae)	<i>Festuca myuros</i>	<i>Vulpia myuros</i>	foxtail fescue	AnnG	Intro	Pres	Unc	Kass, Welsh, Clark, Higgins, & Thorne 2713 (BRY)	1954	Native to Eurasia
Gramineae (Poaceae)	<i>Festuca octoflora</i>	Includes vars. <i>glauca</i> , <i>hirtella</i> , & <i>octoflora</i> , <i>Vulpia octoflora</i>	six-weeks fescue	AnnG	Wide	Pres	Unc	Nelson 9985 (ZION)	1972	
Gramineae (Poaceae)	<i>Festuca ovina</i> var. <i>saximontana</i>	<i>F. ovina</i> var. <i>rydbergii</i> , <i>F. saximontana</i> var. <i>saximontana</i>	Rocky Mountain fescue	PerG	Wide	Pres	Unc	Harper, Sanderson, & Stewart ZNP003 (ZION)	1987	
Gramineae (Poaceae)	<i>Festuca pratensis</i>	<i>Lolium pratense</i> , <i>Schedonorus pratensis</i>	meadow fescue	PerG	Intro	Pres	Com	Welsh 23807 (ZION)	1987	Native to Eurasia
Gramineae (Poaceae)	<i>Glyceria striata</i>	Includes <i>G. elata</i>	fowl mannagrass	PerG	Wide	Pres	Unc	Harper ZNP058 (ZION)	1925	
Gramineae (Poaceae)	<i>Hilaria jamesii</i>	<i>Pleuraphis jamesii</i>	galleta	PerG	Wide	Pres	Unc	Nelson 10011 (ZION)	1935	
Gramineae (Poaceae)	<i>Hilaria rigida</i>	<i>Pleuraphis rigida</i>	big galleta	PerG	Periph	Pres	Unc	Clark 4959 (BRY)	1987	
Gramineae (Poaceae)	<i>Hordeum brachyantherum</i>	<i>Critiesion brachyantherum</i>	meadow barley	PerG	Wide	Pres	Unc	Decker s.n. (ZION)	1935	
Gramineae (Poaceae)	<i>Hordeum jubatum</i>	<i>Critiesion jubatum</i>	foxtail barley	PerG	Wide	Pres	Unc	Weight s.n. (ZION)	1929	
Gramineae (Poaceae)	<i>Hordeum murinum</i>	<i>H. murinum</i> ssp. <i>leporinum</i> , <i>H. leporinum</i> , <i>Critiesion glaucum</i>	rabbit barley	AnnG	Intro	Pres	Unc	Alexander 1428 (ZION)	1935	Native to Europe
Gramineae (Poaceae)	<i>Hordeum pusillum</i>	<i>Critiesion pusillum</i>	little barley	AnnG	Wide	Pres	Unc	Alexander 1429 (ZION)	2003	
Gramineae (Poaceae)	<i>Koeleria macrantha</i>	<i>K. cristata</i> , <i>K. pyramidata</i> , <i>K. nitida</i>	junegrass	PerG	Wide	Pres	Unc	Madany s.n. (ZION)	1978	
Gramineae (Poaceae)	<i>Lycurus phleoides</i>	<i>L. setosus</i>	wolftail	PerG	Wide	Pres	Unc	Moor s.n. (BRY)	1970	
Gramineae (Poaceae)	<i>Melica bulbosa</i>	<i>Bromelica bulbosa</i>	oniongrass	PerG	Wide	Pres	Unc	Alexander & Crow 1830 (ZION)	2004	

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Gramineae (Poaceae)	<i>Muhlenbergia andina</i>		foxtail muhly	PerG	Wide	Pres	Unc	Welsh 23825 (ZION)	1979	
Gramineae (Poaceae)	<i>Muhlenbergia asperifolia</i>		scratchgrass	PerG	Wide	Pres	Unc	Harper ZNP057 (ZION)	1987	
Gramineae (Poaceae)	<i>Muhlenbergia montana</i>	Includes <i>M. filiculmis</i>	mountain muhly	PerG	Wide	Pres	Rare	Chandler & Thorne 5583 (ZION)	1978	
Gramineae (Poaceae)	<i>Muhlenbergia pauciflora</i>	Includes reports of <i>M. arsenei</i>	New Mexican muhly	PerG	Wide	Pres	Unc	Franklin & Thorne 5135 (ZION)	1987	
Gramineae (Poaceae)	<i>Muhlenbergia porteri</i>		bush muhly	PerG	Wide	Pres	Unc	Nelson 9448 (ZION)	1971	
Gramineae (Poaceae)	<i>Muhlenbergia pungens</i>		sandhill muhly	PerG	Wide	Pres	Unc	Franklin & Thorne 4946 (ZION)	1987	
Gramineae (Poaceae)	<i>Muhlenbergia racemosa</i>		green muhly	PerG	Wide	Pres	Unc	Alexander 1819 (ZION)	1935	
Gramineae (Poaceae)	<i>Muhlenbergia richardsonis</i>		mat muhly	PerG	Wide	Rep	?	Welsh (1995)	NA	
Gramineae (Poaceae)	<i>Muhlenbergia thurberi</i>	Includes <i>M. curtifolia</i> in Welsh et al. 2003	Thurber's muhly	PerG	Wide	Pres	Unc	Fowler, Hak, & May 583 (ZION)	1935	Type locality of <i>M. curtifolia</i> is between Kanab & Carmel, Kane Co, UT (Jones 6077j US)
Gramineae (Poaceae)	<i>Munroa squarrosa</i>	<i>Monroa squarrosa</i>	false buffalograss	AnnG	Wide	Pres	Unc	Franklin, Nelson, & Thorne 5732 (ZION)	1987	
Gramineae (Poaceae)	<i>Oryzopsis micrantha</i>	<i>Piptatherum micranthum</i>	littelseed ricegrass	PerG	Wide	Pres	Rare	Franklin & Thorne 5502 (ZION)	1987	



Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonymic/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Gramineae (Poaceae)	<i>Panicum acuminatum</i>	<i>P. occidentale</i> , <i>P. tennesseense</i> , <i>P. huachucae</i> , <i>Dichanthelium acuminatum</i> ssp. <i>fasciculatum</i> , <i>D. lanuginosum</i> var. <i>fasciculatum</i>	bundle panicgrass	PerG	Wide	Pres	Unc	Fowler, Hak, & May 192 (ZION)	1987	
Gramineae (Poaceae)	<i>Panicum capillare</i>	<i>P. capillare</i> var. <i>occidentale</i>	witchgrass	AnnG	Wide	Pres	Unc	Paulsen & Decker s.n. (ZION)	1962	
Gramineae (Poaceae)	<i>Panicum oligoanthos</i> var. <i>scribnerianum</i>	<i>Dichanthelium oligoanthos</i> var. <i>scribnerianum</i>	Scribner panicgrass	PerG	Sparse	Pres	Unc	Clark & Thorne 4783 (ZION)	1987	
Gramineae (Poaceae)	<i>Paspalum distichum</i>		knotgrass	PerG	Periph	Pres	Rare	Fertig, Fertig, Mann, Decker, & Leiberg 23272 (ZION)	2007	
Gramineae (Poaceae)	<i>Phalaris arundinacea</i>	<i>Phalaroides arundinacea</i>	reed canary grass	PerG	Wide	Pres	Unc	Welsh & Clark 24325 (BRY)	1989	
Gramineae (Poaceae)	<i>Phleum pratense</i>		timothy	PerG	Intro	Pres	Unc	Decker s.n. (ZION)	1935	Native to Eurasia
Gramineae (Poaceae)	<i>Phragmites australis</i>	<i>P. communis</i>	common reed	PerG	Wide	Pres	Unc	Nelson 10125 (ZION)	1928	
Gramineae (Poaceae)	<i>Piptochaetium lasianthum</i>		speargrass	PerG	Intro	Pres	Rare	Welsh 23836 (BRY)	1987	Native to South America. Cited for Zion NP in Welsh et al. (2003), p. 779.
Gramineae (Poaceae)	<i>Poa bigelovii</i>		Bigelow's bluegrass	AnnG	Wide	Pres	Unc	Alexander 1414 (ZION)	2003	
Gramineae (Poaceae)	<i>Poa bulbosa</i>		bulbous bluegrass	PerG	Intro	Pres	Unc	Nelson 10253 (ZION)	1973	Native to Eurasia and Africa
Gramineae (Poaceae)	<i>Poa compressa</i>		Canada bluegrass	PerG	Intro	Pres	Rare	Moor, K. Z863 (BRY)	1970	Native to Eurasia

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Gramineae (Poaceae)	<i>Poa fendleriana</i>	<i>P. longiligula</i> , <i>P. fendleriana</i> ssp. <i>longiligula</i> , includes reports of <i>P. cusickii</i> & <i>P. epilis</i>	muttongrass	PerG	Wide	Pres	Abun	Nelson 9877 (ZION)	1929	
Gramineae (Poaceae)	<i>Poa pratensis</i>	<i>P. agassizensis</i>	Kentucky bluegrass	PerG	Intro	Pres	Com	Fowler, May, & Hak 663 (ZION)	1966	Native to Europe
Gramineae (Poaceae)	<i>Poa secunda</i>	Includes <i>P. gracillima</i> , <i>P. junifolia</i> , <i>P. sandbergii</i> , <i>P. canbyi</i> , <i>P. scabrella</i> , <i>P. nevadensis</i> , <i>P. ampla</i> & all vars. of <i>P. secunda</i>	Sandberg's bluegrass	PerG	Wide	Pres	Unc	Alexander & Glorieux 1824 (ZION)	1972	
Gramineae (Poaceae)	<i>Polypogon interruptus</i>	Hybrid between <i>P. monspeliensis</i> and <i>Agrostis stolonifera</i>	ditch polypogon	PerG	Intro	Pres	Rare	Fowler, May, & Hak 629 (ZION)	1992	
Gramineae (Poaceae)	<i>Polypogon monspeliensis</i>		rabbitfoot-grass	AnnG	Intro	Pres	Unc	Palmer s.n. (ZION)	1929	Native to Eurasia and Africa
Gramineae (Poaceae)	<i>Polypogon semiverticillatus</i>	<i>Agrostis semiverticillata</i> , <i>P. viridis</i>	water polypogon	PerG	Intro	Pres	Unc	Fowler, Hak, & May 574 (ZION)	1929	Native to Eurasia and Africa
Gramineae (Poaceae)	<i>Puccinellia distans</i>		weeping alkaligrass	PerG	Intro	Rep	?	Cogan et al. (2004)	2003	Native to Eurasia
Gramineae (Poaceae)	<i>Schizachyrium scoparium</i>	<i>Andropogon scoparius</i> , <i>S. scoparium</i> var. <i>neomexicanum</i>	little bluestem	PerG	Wide	Pres	Unc	Welsh 21378 (BRY)	1982	
Gramineae (Poaceae)	<i>Sclerochloa dura</i>		hardgrass	AnnG	Intro	Pres	Rare	Harper & Sanderson ZNP007 (ZION)	1987	Native to Eurasia
Gramineae (Poaceae)	<i>Secale cereale</i>		cultivated rye	AnnG	Intro	Pres	Unc	Harper & Tuhy 74 (ZION)	1988	Native to Eurasia
Gramineae (Poaceae)	<i>Setaria glauca</i>	<i>S. pumila</i> ssp. <i>pumila</i> , <i>Pennisetum glaucum</i>	yellow bristlegrass	AnnG	Intro	Pres	Unc	Paulsen & Decker s.n. (ZION)	2001	Native to Eurasia

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Gramineae (Poaceae)	<i>Setaria verticillata</i>		bur bristlegrass	AnnG	Intro	Pres	Unc	Harper ZNP054 (ZION)	1987	Native to Eurasia
Gramineae (Poaceae)	<i>Setaria viridis</i>		green bristlegrass	AnnG	Intro	Pres	Unc	Thorne & Chandler 5614 (ZION)	1962	Native to Eurasia
Gramineae (Poaceae)	<i>Sorghastrum nutans</i>	<i>Sorghastrum avenaceum</i>	Indiangrass	PerG	Wide	Pres	Rare	Thorne & Franklin 5637 (ZION)	1987	
Gramineae (Poaceae)	<i>Sorghum halepense</i>		Johnson-grass	PerG	Intro	Pres	Unc	Keller s.n. (ZION)	1934	Utah state noxious weed. Native to Eurasia. Also cited (as extant) by Dewey & Andersen (2005)
Gramineae (Poaceae)	<i>Sphenopholis obtusata</i>	<i>Sphenopholis obtusata</i> var. <i>obtusata</i>	prairie wedgrass	PerG	Wide	Pres	Unc	Meyer 3799 (BRY)	1935	
Gramineae (Poaceae)	<i>Sporobolus airoides</i> var. <i>airoides</i>	<i>S. airoides</i>	alkali sacaton	PerG	Wide	Pres	Unc	Alexander & Karnes 1466 (ZION)	2003	
Gramineae (Poaceae)	<i>Sporobolus contractus</i>		spike dropseed	PerG	Wide	Pres	Unc	Harper ZNP067 (ZION)	1987	
Gramineae (Poaceae)	<i>Sporobolus cryptandrus</i>		sand dropseed	PerG	Wide	Pres	Com	Franklin & Thorne 5146 (BRY)	1966	
Gramineae (Poaceae)	<i>Sporobolus flexuosus</i>		mesa dropseed	PerG	Wide	Pres	Unc	Nelson 9110 (ZION)	1970	
Gramineae (Poaceae)	<i>Sporobolus giganteus</i>		giant dropseed	PerG	Wide	Rep	?	Nelson (1976)	NA	
Gramineae (Poaceae)	<i>Stipa comata</i> var. <i>comata</i>	<i>Hesperostipa comata</i> var. <i>comata</i>	needle-and- thread	PerG	Wide	Pres	Com	Nelson 9672 (ZION)	1929	
Gramineae (Poaceae)	<i>Stipa hymenoides</i>	<i>Oryzopsis hymenoides</i> , <i>Achnatherum hymenoides</i>	Indian ricegrass	PerG	Wide	Pres	Com	Boyle Z-172 (ZION)	1935	
Gramineae (Poaceae)	<i>Stipa lettermanii</i>	<i>Achnatherum lettermanii</i>	Letterman's needlegrass	PerG	Wide	Pres	Com	Madany s.n. (ZION)	1966	

**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Gramineae (Poaceae)	<i>Stipa nelsonii</i> var. <i>nelsonii</i>	<i>Achnatherum nelsonii</i> var. <i>nelsonii</i> , <i>S. columbiana</i> var. <i>nelsonii</i>	Nelson's needlegrass	PerG	Wide	Pres	Unc	Alexander & Crow 1831 (ZION)	2004	
Gramineae (Poaceae)	<i>Stipa speciosa</i>	<i>Achnatherum speciosum</i> , <i>Jarava speciosa</i>	desert needlegrass	PerG	Wide	Pres	Unc	Phillips 95-148 (ZION)	1995	
Gramineae (Poaceae)	<i>Stipa x bloomeri</i>	<i>Stiporyzopsis x bloomeri</i> , <i>Achnatherum x bloomeri</i> . Hybrids between <i>S. hymenoides</i> and other <i>Stipa</i> species except <i>S. comata</i>	Bloomer's ricegrass	PerG	Wide	Pres	Rare	Madany s.n. (ZION)	1979	
Gramineae (Poaceae)	<i>Triticum aestivum</i>		wheat	AnnG	Intro	Rep	?	Cogan et al. (2004)	2003	Native to Eurasia
Guttiferae (Hypericaceae, Clusiaceae)	<i>Hypericum formosum</i>	<i>H. scouleri</i> , <i>H. formosum</i> var. <i>scouleri</i>	western St. John's-wort	PerF	Wide	Pres	Unc	Moor Z1021 (NY)	1926	
Hydrophyllaceae	<i>Eriodictyon angustifolium</i>		yerba santa	Shrub	Periph	Pres	Unc	Welp s.n. (ZION)	1927	
Hydrophyllaceae	<i>Hesperochiron pumilus</i>		dwarf hesperochiron	PerF	Wide	Pres	Unc	Welsh & Clark 24179 (BRY)	1948	
Hydrophyllaceae	<i>Hydrophyllum occidentale</i> var. <i>watsonii</i>	<i>H. occidentale</i>	western waterleaf	PerF	Wide	Pres	Unc	Nelson 9612 (ZION)	1929	Type locality is Wasatch Mtns., UT (Watson 866)
Hydrophyllaceae	<i>Phacelia ambigua</i>	<i>P. crenulata</i> var. <i>ambigua</i>	Jones' phacelia	AnnF	Periph	Pres	Unc	Nelson 10015 (ZION)	1935	
Hydrophyllaceae	<i>Phacelia cephalotes</i>		Chinle phacelia	AnnF	RegEn	Pres	Unc	Clark & Welsh 23987 (ZION)	1988	Type locality is near St. George, Washington Co, UT (Parry 179 GH). USFWS: 3C
Hydrophyllaceae	<i>Phacelia cryptantha</i>		cryptanth phacelia	AnnF	Periph	Pres	Unc	Thorne & Franklin 5996 (ZION, BRY)	1987	

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Hydrophyllaceae	<i>Phacelia curvipes</i>		Washoe phacelia	AnnF	Periph	Pres	Rare	Nelson 10169 (ZION)	1973	
Hydrophyllaceae	<i>Phacelia fremontii</i>		Fremont's phacelia	AnnF	Periph	Pres	Unc	Welsh & Clark 24001 (BRY)	1935	
Hydrophyllaceae	<i>Phacelia heterophylla</i>	Includes ssp. <i>heterophylla</i> & var. <i>virgata</i>	wand phacelia	PerF	Wide	Pres	Com	Boyle Z-161 (ZION)	1928	
Hydrophyllaceae	<i>Phacelia ivesiana</i>		ives' phacelia	AnnF	Wide	Pres	Unc	Nelson 9651 (ZION)	1971	
Hydrophyllaceae	<i>Phacelia palmeri</i>		Palmer's phacelia	PerF	RegEn	Pres	Unc	Moor Z167 (BRY)	1970	Type locality is St. George, Washington Co, UT (Palmer 4)
Hydrophyllaceae	<i>Phacelia pulchella</i> var. <i>pulchella</i>		pretty phacelia	AnnF	RegEn	Pres	Unc	Malm s.n. (ZION)	1935	Type locality is near St. George, Washington Co, UT (Parry 182 GH)
Hydrophyllaceae	<i>Phacelia rafaelsis</i>	Included in <i>P.</i> <i>constancei</i> by some authors	San Rafael phacelia	PerF	RegEn	Pres	Unc	Franklin & Thorne 5941 (BRY)	1988	Type locality is Fruita, Capitol Reef NP, Wayne Co, UT (Atwood & Higgins 1834 BRY)
Hydrophyllaceae	<i>Phacelia vallis- mortae</i>		Death Valley phacelia	AnnF	Periph	Pres	Rare	Thorne & Franklin 5995 (BRY)	1988	
Hydrophyllaceae	<i>Tricardia watsonii</i>		three hearts	PerF	Periph	Rep	?	Nelson (1976)	NA	
Iridaceae	<i>Sisyrinchium demissum</i>		blue-eyed grass	PerF	Wide	Pres	Unc	Franklin & Thorne 5483 (ZION)	1970	
Juglandaceae	<i>Carya illinoensis</i>		pecan	Tree	Intro	Pres	Rare	Rigby s.n. (ZION)	1969	Native to E North America
Juncaceae	<i>Juncus arcticus</i>	<i>J. arcticus</i> var. <i>balticus</i> , <i>J. balticus</i> var. <i>montanus</i> , <i>J. arcticus</i> ssp. <i>ater</i> , includes var. <i>mexicanus</i>	Baltic rush	PerG	Wide	Pres	Unc	Palmer s.n. (ZION)	1929	

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Juncaceae	<i>Juncus bryoides</i>	<i>J. kelloggii</i>	minute rush	AnnG	Sparse	Pres	Unc	Baird & Franklin 2445 (BRY)	1986	
Juncaceae	<i>Juncus bufonius</i>	Includes vars. <i>bufonius</i> , <i>occidentalis</i> , <i>halophilus</i> , & <i>ambiguus</i>	toad rush	AnnG	Wide	Pres	Unc	Woodbury s.n. (ZION)	1966	
Juncaceae	<i>Juncus ensifolius</i> var. <i>brunnescens</i>	Included in <i>J. ensifolius</i> var. <i>montanus</i> by some authors, <i>J. saximontanus</i> forma <i>brunnescens</i>	Tracy's rush	PerG	Wide	Pres	Com	Palmer & Goldwater s.n. (ZION)	1928	
Juncaceae	<i>Juncus ensifolius</i> var. <i>montanus</i>	<i>J. saximontanus</i> . Includes <i>J. tracyi</i> , <i>J. xiphoides</i>	mountain rush	PerG	Wide	Pres	Rare	Woodbury s.n. (ZION)	1928	Relocated by Fowler et al. (2007)
Juncaceae	<i>Juncus longistylus</i>		longstyle rush	PerG	Wide	Pres	Unc	Clark & Thorne 4781 (ZION)	1987	
Juncaceae	<i>Juncus nevadensis</i>	Includes vars. <i>badius</i> & <i>nevadensis</i>	Nevada rush	PerG	Wide	Pres	Unc	Barnum 1396 (BRY)	1965	
Juncaceae	<i>Juncus tenuis</i>	Includes vars. <i>dudleyi</i> , <i>congestus</i> , & <i>tenuis</i> . <i>J. dudleyi</i>	poverty rush	PerG	Wide	Pres	Unc	Decker s.n. (ZION)	1935	
Juncaceae	<i>Juncus torreyi</i>		Torrey's rush	PerG	Wide	Pres	Unc	Madany s.n. (ZION)	1935	
Labiatae (Lamiaceae)	<i>Agastache urticifolia</i>		nettle-leaf horsemint	PerF	Wide	Pres	Unc	Decker s.n. (ZION)	1966	
Labiatae (Lamiaceae)	<i>Dracocephalum parviflorum</i>	<i>Moldavica parviflora</i>	smallflower dragonhead	PerF	Wide	Pres	Unc	Louie, Shorrock, & Bench s.n. (ZION)	1925	
Labiatae (Lamiaceae)	<i>Hedeoma nanum</i>	<i>H. nana</i> , includes ssp. <i>californicum</i>	dwarf pennyroyal	PerF	Periph	Pres	Rare	Thorne & Chandler 5587 (BRY)	1935	
Labiatae (Lamiaceae)	<i>Leonurus cardiaca</i>		motherwort	PerF	Intro	Pres	Unc	Nelson 10044 (ZION)	1966	Native to Asia

*Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.*

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Labiatae (Lamiaceae)	<i>Marrubium vulgare</i>		common horehound	PerF	Intro	Pres	Unc	Nelson 10152 (ZION)	1928	Native to Eurasia
Labiatae (Lamiaceae)	<i>Mentha arvensis</i> var. <i>glabrata</i>	<i>M. arvensis</i> var. <i>canadensis</i>	field mint	PerF	Wide	Pres	Unc	Thorne, Franklin, & Nelson 5702 (ZION)	1925	
Labiatae (Lamiaceae)	<i>Mentha piperita</i>	<i>M. x piperita</i> . Hybrid of <i>M. aquatica</i> x <i>M.</i> <i>spicata</i> .	peppermint	PerF	Intro	Pres	Rare	Malm s.n. (ZION)	2001	Native to Europe
Labiatae (Lamiaceae)	<i>Mentha spicata</i>		spearmint	PerF	Intro	Rep	?	Welsh (1995)	NA	No voucher in ZION herbarium. Native to Europe
Labiatae (Lamiaceae)	<i>Molucella laevis</i>		shellflower	AnnF	Intro	Pres	Unc	Alexander & Karnes 1456 (ZION)	1935	Native to Asia
Labiatae (Lamiaceae)	<i>Monardella</i> <i>odoratissima</i>	<i>M. odoratissima</i> var. <i>glauca</i> , <i>M. glauca</i>	stinking horsemint	PerF	Wide	Pres	Unc	Palmer, Goldwater, & Tamsky s.n. (ZION)	1928	
Labiatae (Lamiaceae)	<i>Nepeta cataria</i>		catnip	PerF	Intro	Hist	?	Boyle Z-356 (ZION)	1938	Native to Europe
Labiatae (Lamiaceae)	<i>Prunella vulgaris</i> var. <i>lanceolata</i>		self-heal	PerF	Wide	Pres	Unc	Barnum 1390 (BRY)	1965	
Labiatae (Lamiaceae)	<i>Salvia columbariae</i> var. <i>argillacea</i>		Chinle chia	AnnF	LocEn	Pres	Rare	Welsh 24045 (BRY)	1988	Type locality is Kitchen Corral Canyon, Kane Co, UT (Welsh 25642 BRY). UT BLM: Sensitive
Labiatae (Lamiaceae)	<i>Salvia columbariae</i> var. <i>columbariae</i>		chia	AnnF	Periph	Pres	Unc	Franklin, Smith, & Thorne 6036 (ZION)	1988	
Labiatae (Lamiaceae)	<i>Salvia dorrii</i> ssp. <i>dorrii</i>	<i>S. carnos</i>	Dorr's sage	Shrub	Wide	Pres	Unc	Nelson 10234 (ZION)	1926	

*Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.*

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Leguminosae (Fabaceae)	<i>Astragalus amphioxys</i> var. <i>amphioxys</i>		crested milkvetch	PerF	Wide	Pres	Unc	Nelson 10010 (ZION)	1971	
Leguminosae (Fabaceae)	<i>Astragalus ampullarioides</i>	<i>A. eremiticus</i> var. <i>ampullarioides</i>	Shivwits milkvetch	PerF	LocEn	Pres	Rare	Welsh & Franklin 23951 (BRY)	1988	Type locality is Shivwits, Washington Co, UT (Welsh & Atwood 21049 BRY). USFWS: Endangered
Leguminosae (Fabaceae)	<i>Astragalus ampullarius</i>		gumbo milkvetch	PerF	LocEn	Pres	Rare	Alexander (ZION)	2003	Type locality is near Kanab, Kane Co, UT (Thompson s.n. GH). UT BLM: Sensitive, USFWS: former C2 candidate
Leguminosae (Fabaceae)	<i>Astragalus argophyllus</i> var. <i>panguicensis</i>		Panguitch milkvetch	PerF	RegEn	Pres	Unc	Nelson 9735 (ZION)	1929	Type locality is Panguitch Lake, Garfield Co, UT (Jones 6023f POM)
Leguminosae (Fabaceae)	<i>Astragalus bisulcatus</i> var. <i>major</i>	Included in var. <i>bisulcatus</i> by some authors	Johnson milkvetch	PerF	Wide	Pres	Rare	Higgins 17710 (ZION)	1988	Type locality is Johnson, Kane Co, UT (Jones s.n. POM)
Leguminosae (Fabaceae)	<i>Astragalus ceramicus</i> var. <i>ceramicus</i>		painted milkvetch	PerF	Wide	Pres	Unc	Clark & Thorne 5358 (ZION)	1971	
Leguminosae (Fabaceae)	<i>Astragalus cibaricus</i>		browse milkvetch	PerF	Wide	Pres	Unc	Welsh 23986 (BRY)	1988	Type locality is Utah Valley, Utah Co, UT (Jones 1679 MINN)
Leguminosae (Fabaceae)	<i>Astragalus cicer</i>		chickpea milkvetch	PerF	Intro	Pres	Unc	Higgins 17800 (NY)	1988	Native to Europe



Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Leguminosae (Fabaceae)	<i>Astragalus concordius</i>	Included in past under <i>A. piutensis</i>	hairy-pod milkvetch	PerF	LocEn	Pres	Unc	Thorne & Clark 5368 (BRY)	1971	Type locality is Flat Top Mountain, Iron Co., UT (Welsh, Taylor, & Peabody 13160a BRY)
Leguminosae (Fabaceae)	<i>Astragalus ensiformis</i>	Includes vars. <i>ensiformis</i> & <i>gracilior</i>	Pagumpa milkvetch	PerF	RegEn	Pres	Unc	Nelson 9285 (ZION)	1971	If recognized, Zion NP material is var. <i>gracilior</i> . Type locality of var. <i>gracilior</i> is S of Veyo, Washington Co, UT (Ripley & Barneby 4951 CAS). USFWS: 3C
Leguminosae (Fabaceae)	<i>Astragalus flavus</i> var. <i>higginsii</i>		Higgins' milkvetch	PerF	LocEn	Pres	Unc	Nelson 9296 (ZION)	1934	Type locality is Ivins Reservoir, Washington Co, UT (Higgins 16239 BRY)
Leguminosae (Fabaceae)	<i>Astragalus lancearius</i>	<i>A. episcopus</i> var. <i>lancearius</i>	lancer milkvetch	PerF	RegEn	Pres	Unc	Alexander & Karnes 1457 (ZION)	1972	USFWS: 3C
Leguminosae (Fabaceae)	<i>Astragalus lentiginosus</i> var. <i>palans</i>		straggling milkvetch	PerF	RegEn	Pres	Unc	Nelson 9930 (ZION)	1972	Type locality is Montezuma Canyon, San Juan Co, UT (Eastwood s.n. POM)
Leguminosae (Fabaceae)	<i>Astragalus mollissimus</i> var. <i>thompsoniae</i>		woolly milkvetch	PerF	Wide	Pres	Unc	Nelson 10230 (ZION)	1971	Type locality is Kanab, Kane Co, UT (Thompson s.n. GH)
Leguminosae (Fabaceae)	<i>Astragalus newberryi</i> var. <i>newberryi</i>	Includes var. <i>escalantinus</i>	Newberry's milkvetch	PerF	RegEn	Pres	Unc	Nelson 10277 (ZION)	1972	Type locality of var. <i>escalantinus</i> is 36 miles S of Escalante, Kane Co, UT (Cronquist 10028 NY)

*Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.*

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Leguminosae (Fabaceae)	<i>Astragalus nuttallianus</i> var. <i>imperfectus</i>		Coliche milkvetch	AnnF	Periph	Pres	Unc	Nelson 10222 (ZION)	1973	
Leguminosae (Fabaceae)	<i>Astragalus oophorus</i> var. <i>caulescens</i>		egg milkvetch	PerF	Wide	Pres	Unc	Thorne 5350 (ZION)	1927	Type locality is Loa Pass, Wayne Co, UT (Jones 5339f POM)
Leguminosae (Fabaceae)	<i>Astragalus piutensis</i>	<i>A. marianus</i>	Sevier milkvetch	PerF	RegEn	Rep	?	Welsh (1995)	NA	Type locality is Marysville, Piute Co, UT (Jones 5355 NY)
Leguminosae (Fabaceae)	<i>Astragalus praelongus</i> var. <i>praelongus</i>		stinking milkvetch	PerF	Wide	Pres	Unc	Louie & Paulsen s.n. (ZION)	1925	
Leguminosae (Fabaceae)	<i>Astragalus striatiflorus</i>		escarpment milkvetch	PerF	LocEn	Hist	?	Jones 6080k (POM)	1894	Type locality is above Springdale, Washington Co, UT (Jones 6080k POM). USFWS: 3C
Leguminosae (Fabaceae)	<i>Astragalus subcinereus</i> var. <i>silerianus</i>	Vars. not recognized in Barneby (1989)	Siler's milkvetch	PerF	RegEn	Pres	Unc	Woodbury s.n. (ZION)	1930	Type locality is Sink Valley (near Alton), Kane Co, UT (Jones s.n. POM)
Leguminosae (Fabaceae)	<i>Astragalus zionis</i> var. <i>zionis</i>		Zion milkvetch	PerF	RegEn	Pres	Com	Nelson 9239 (ZION)	1894	Type locality is Springdale, Washington Co, UT (Jones 5259 POM)
Leguminosae (Fabaceae)	<i>Colutea arborescens</i>		bladder-senna	Shrub	Intro	Pres	Unc	Jackson s.n. (ZION)	1980	Native to Europe and Africa
Leguminosae (Fabaceae)	<i>Dalea searlsiae</i>		Searls' prairie-clover	PerF	Wide	Pres	Unc	Boyle Z-328 (ZION)	1927	
Leguminosae (Fabaceae)	<i>Gleditsia triacanthos</i>		honey locust	Tree	Intro	Pres	Rare	Thorne 5774 (ZION)	1987	Native to E North America
Leguminosae (Fabaceae)	<i>Glycyrrhiza lepidota</i>	<i>G. lepidota</i> var. <i>lepidota</i>	Nuttall's licorice	PerF	Wide	Pres	Unc	Woodbury s.n. (ZION)	1925	

**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Leguminosae (Fabaceae)	<i>Lathyrus brachycalyx</i> var. <i>zionis</i>		Zion sweetpea	PerF	RegEn	Pres	Unc	Nelson 10246 (ZION)	1935	Type locality is 10 miles E of Zion NP, Kane Co, UT (Hitchcock 19013 isotype NY)
Leguminosae (Fabaceae)	<i>Lathyrus lanszwertii</i> var. <i>laetivirens</i>	<i>L. laetivirens</i>	largeflower sweetpea	PerF	RegEn	Pres	Unc	Jorgensen & Sanderson ZNP033 (ZION)	1971	
Leguminosae (Fabaceae)	<i>Lathyrus latifolius</i>		perennial sweetpea	PerF	Intro	Pres	Unc	Malm s.n. (ZION)	2001	Native to Europe
Leguminosae (Fabaceae)	<i>Lotus denticulatus</i>		river-bar trefoil	AnnF	Wide	Pres	Unc	Higgins 17723 (ZION)	1987	
Leguminosae (Fabaceae)	<i>Lotus humistratus</i>		low trefoil	AnnF	Periph	Pres	Rare	Higgins 18201 (BRY)	1989	
Leguminosae (Fabaceae)	<i>Lotus plebeius</i>	<i>L. longibracteatus</i>	longbracted trefoil	PerF	Wide	Pres	Com	Nelson 10247 (ZION)	1925	
Leguminosae (Fabaceae)	<i>Lotus rigidus</i>		bush trefoil	PerF	Periph	Rep	?	Welsh (1995), Cogan et al. (2004)	NA	
Leguminosae (Fabaceae)	<i>Lotus utahensis</i>		Utah trefoil	PerF	RegEn	Pres	Com	Nelson 9713 (ZION)	1925	Type locality is W of Carmel, Kane Co, UT (Ferguson & Ottley 5613 NY)
Leguminosae (Fabaceae)	<i>Lupinus argenteus</i> var. <i>argenteus</i>		silvery lupine	PerF	Wide	Pres	Unc	Welsh 20701 (BRY)	1981	
Leguminosae (Fabaceae)	<i>Lupinus brevicaulis</i>		shortstem lupine	AnnF	Wide	Pres	Unc	Alexander & Karnes 1464 (ZION)	1935	
Leguminosae (Fabaceae)	<i>Lupinus caudatus</i> var. <i>utahensis</i>	<i>L. caudatus</i> ssp. <i>caudatus</i> , <i>L. argenteus</i> var. <i>utahensis</i>	Utah lupine	PerF	Wide	Pres	Unc	Welsh 23830 (ZION)	1966	
Leguminosae (Fabaceae)	<i>Lupinus concinnus</i> var. <i>orcuttii</i>		elegant lupine	AnnF	Periph	Pres	Com	Nelson 10188 (ZION)	1935	
Leguminosae (Fabaceae)	<i>Lupinus kingii</i> var. <i>kingii</i>	<i>L. kingii</i>	King's lupine	AnnF	Wide	Pres	Unc	Alexander 1413 (ZION)	1935	

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Leguminosae (Fabaceae)	<i>Lupinus latifolius</i> var. <i>columbianus</i>	<i>L. latifolius</i> ssp. <i>leucanthus</i> , <i>L.</i> <i>latifolius</i> ssp. <i>latifolius</i>	broad-leaved lupine	PerF	Disj	Pres	Rare	Welsh 24011 (ZION)	1894	Type locality of ssp. <i>leucanthus</i> is Springdale, Washington Co, UT (Jones 5249e)
Leguminosae (Fabaceae)	<i>Lupinus pusillus</i> var. <i>rubens</i>	<i>L. rubens</i> , included in var. <i>pusillus</i> by some authors	blackbrush lupine	AnnF	Wide	Pres	Unc	Nelson 9451 (ZION)	1935	Type locality is near St. George, Washington Co, UT (Parry 41 NY)
Leguminosae (Fabaceae)	<i>Lupinus sericeus</i> var. <i>barbiger</i>	<i>L. barbiger</i> . Vars. not recognized in Barneby (1989)	sink lupine	PerF	RegEn	Pres	Unc	Nelson 10338 (ZION)	1926	Type locality is Kane Co, UT (Siler s.n. GH)
Leguminosae (Fabaceae)	<i>Lupinus sericeus</i> var. <i>jonesii</i>	<i>L. jonesii</i> . Included in <i>L. sericeus</i> var. <i>sericeus</i> by some authors	Jones' lupine	PerF	LocEn	Pres	Unc	Moor Z46 (BRY)	1925	Type locality is Silver Reef, Washington Co, UT (Jones 5143 NY).
Leguminosae (Fabaceae)	<i>Medicago lupulina</i>		black medick	AnnF	Intro	Pres	Unc	Palmer & Tamsky s.n. (ZION)	1966	Native to Europe
Leguminosae (Fabaceae)	<i>Medicago sativa</i>	<i>M. sativa</i> var. <i>sativa</i>	alfalfa	PerF	Intro	Pres	Unc	Moor Z173 (BRY)	1970	Native to Europe
Leguminosae (Fabaceae)	<i>Melilotus alba</i>	<i>M. albus</i> . Included in <i>M. officinalis</i> by some authors	white sweet- clover	AnnF	Intro	Pres	Unc	Erdman 458 (BRY)	1928	Native to Europe
Leguminosae (Fabaceae)	<i>Melilotus officinalis</i>		yellow sweet- clover	PerF	Intro	Pres	Unc	Welsh 23799 (ZION)	1987	Native to Europe
Leguminosae (Fabaceae)	<i>Pediomelum mephiticum</i>	<i>Psoralea mephitica</i> var. <i>mephitica</i>	skunk breadroot	PerF	RegEn	Pres	Unc	Clark & Welsh 24000 (ZION)	1972	Type locality is "near St. George", Washington Co, UT (Palmer 97 US)
Leguminosae (Fabaceae)	<i>Pediomelum pariense</i>	<i>Psoralea pariensis</i>	Paria breadroot	PerF	LocEn	Pres	Rare	Clark & Thorne 4787 (UTC)	1987	Type locality is Bryce Canyon NP, Garfield Co, UT (Welsh & Murdock 12859 BRY). USFS: Region 4 Sensitive, USFWS: former C2 candidate

**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Leguminosae (Fabaceae)	<i>Peteria thompsoniae</i>		Thompson's peteria	PerF	RegEn	Pres	Unc	Nelson 9045 (ZION)	1925	Type locality is Kanab, Kane Co, UT (Thompson s.n. GH)
Leguminosae (Fabaceae, Mimosaceae)	<i>Prosopis glandulosa</i> var. <i>torreyana</i>		honey mesquite	Tree	Periph	Pres	Unc	Phillips 95-143 (ZION)	1935	
Leguminosae (Fabaceae)	<i>Psoralidium lanceolatum</i> var. <i>lanceolatum</i>	<i>Psoralea lanceolata</i> . Vars. not recognized in Barneby (1989)	lemon scurf- pea	PerF	Wide	Pres	Unc	Nelson 9677 (ZION)	1935	
Leguminosae (Fabaceae)	<i>Psoralidium tenuiflorum</i>	<i>Psoralea tenuiflora</i>	slender- flowered scurf-pea	PerF	Wide	Pres	Unc	Nelson 9799 (ZION)	1971	
Leguminosae (Fabaceae)	<i>Psoralea fremontii</i>		Fremont's indigo-bush	Shrub	Wide	Pres	Unc	Nelson 9440 (ZION)	1925	
Leguminosae (Fabaceae)	<i>Robinia neomexicana</i>		New Mexico locust	Tree	Periph	Pres	Unc	Welsh 24296 (NY)	1926	
Leguminosae (Fabaceae)	<i>Robinia pseudoacacia</i>		black locust	Tree	Intro	Pres	Rare	Malm s.n. (ZION)	1989	Native to E North America
Leguminosae (Fabaceae)	<i>Thermopsis montana</i>	<i>T. pinetorum</i> , <i>T. rhombifolia</i> var. <i>montana</i> , includes <i>T. rhombifolia</i> var. <i>ovata</i>	montane golden pea	PerF	Wide	Pres	Unc	Palmer, Goldwater, & Tamsky s.n. (ZION)	1926	
Leguminosae (Fabaceae)	<i>Trifolium gymnocarpon</i>	<i>T. gymnocarpon</i> var. <i>gymnocarpon</i>	dwarf clover	PerF	Wide	Pres	Unc	Harper & Sanderson ZNP018 (ZION)	1987	
Leguminosae (Fabaceae)	<i>Trifolium longipes</i> var. <i>rusbyi</i>	<i>T. longipes</i> var. <i>brachypus</i>	Rusby's clover	PerF	Wide	Pres	Unc	Nelson 9954 (ZION)	1972	
Leguminosae (Fabaceae)	<i>Trifolium macilentum</i>	<i>T. kingii</i> var. <i>macilentum</i> , <i>T. macilentum</i> var. <i>macilentum</i>	lean clover	PerF	RegEn	Pres	Com	Kass 1250 (NY)	1925	Type locality is S Utah, Washington Co, UT (Palmer s.n. US)
Leguminosae (Fabaceae)	<i>Trifolium repens</i>		white clover	PerF	Intro	Pres	Unc	Higgins 18382 (BRY)	1935	Native to Europe
Leguminosae (Fabaceae)	<i>Vicia americana</i> var. <i>americana</i>		American vetch	PerF	Wide	Pres	Com	Wauer s.n. (ZION)	1926	

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Leguminosae (Fabaceae)	<i>Vicia ludoviciana</i>	<i>V. exigua</i>	Louisiana vetch	AnnF	Wide	Pres	Rare	Nelson 10207 (ZION)	1973	
Lemnaceae	<i>Lemna minor</i>	<i>L. turionifera</i>	lesser duckweed	PerF	Wide	Hist	?	Woodbury s.n. (ZION)	1925	
Lemnaceae	<i>Lemna minuta</i>	<i>L. minuscula</i>	tiny duckweed	PerF	Wide	Hist	?	Woodbury s.n. (ZION)	1925	
Liliaceae (Alliaceae)	<i>Allium acuminatum</i>		taper-tip onion	PerF	Wide	Pres	Unc	Holmgren, LaFrance, & Reveal 1975 (ZION)	1927	
Liliaceae (Alliaceae)	<i>Allium bisceptrum</i>	Includes vars. <i>bisceptrum</i> & <i>palmeri</i>	twincrest onion	PerF	Wide	Pres	Unc	Nelson 9750 (ZION)	1965	
Liliaceae (Alliaceae)	<i>Allium nevadense</i>	Some authors include <i>A. atrorubens</i> var. <i>cristatum</i>	Nevada onion	PerF	Wide	Pres	Unc	Welsh & Clark 23998 (BRY)	1973	
Liliaceae (Themidaceae)	<i>Androstephium breviflorum</i>	<i>Brodiaea paysonii</i>	pink funnel- lily	PerF	Wide	Pres	Unc	Welsh & Clark 23930 (BRY)	1973	Type locality is near Kanab, Kane Co, UT (Thompson s.n.)
Liliaceae (Asparagaceae)	<i>Asparagus officinalis</i>		asparagus	PerF	Intro	Pres	Unc	Higgins 6326 (ZION)	1976	Native to Eurasia
Liliaceae (Calochortaceae)	<i>Calochortus ambiguus</i>		Jones' mariposa	PerF	RegEn	Pres	Unc	Franklin & Thorne 5498 (ZION)	1987	
Liliaceae (Calochortaceae)	<i>Calochortus aureus</i>		golden mariposa	PerF	RegEn	Pres	Rare	Weight s.n. (ZION)	1935	Type locality is near Kanab, Kane Co, UT (Thompson s.n. US)
Liliaceae (Calochortaceae)	<i>Calochortus flexuosus</i>		sinuous mariposa	PerF	Wide	Pres	Unc	Nelson 9433 (ZION)	1935	Type locality is near Kanab, Kane Co, UT (Thompson s.n. GH)
Liliaceae (Calochortaceae)	<i>Calochortus nuttallii</i>		sego-lily	PerF	Wide	Pres	Unc	Boyle Z-159 (ZION)	1925	State flower of Utah
Liliaceae (Themidaceae)	<i>Dichelostemma pulchellum</i>	<i>D. capitatum</i> ssp. <i>pauciflorum</i>	bluedicks	PerF	Periph	Pres	Unc	Thorne & Franklin 6001 (BRY)	1927	

**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Liliaceae (Calochortaceae)	<i>Disporum trachycarpum</i>	<i>Prosartes trachycarpa</i>	rough-fruited fairy-bells	PerF	Wide	Pres	Rare	Clark & Thorne 484 (BRY)	1927	
Liliaceae	<i>Fritillaria atropurpurea</i>		leopard-lily	PerF	Wide	Pres	Unc	Nelson 9624 (ZION)	1927	
Liliaceae (Convallariaceae)	<i>Smilacina racemosa</i>	<i>Maianthemum racemosum</i> var. <i>amplexicaule</i> , <i>M. amplexicaule</i>	false Solomon's-seal	PerF	Wide	Pres	Unc	Nelson 9404 (ZION)	1925	
Liliaceae (Convallariaceae)	<i>Smilacina stellata</i>	<i>Maianthemum stellatum</i>	starry false Solomon's-seal	PerF	Wide	Pres	Unc	Fowler, Hak, & May 65 (ZION)	1926	
Liliaceae (Melanthiaceae)	<i>Zigadenus elegans</i>	<i>Anticlea elegans</i>	mountain death camas	PerF	Wide	Pres	Rare	Atwood & Welch 28880a (BRY)	2002	
Liliaceae (Melanthiaceae)	<i>Zigadenus paniculatus</i>	<i>Toxicoscordion paniculatum</i>	foothills death camas	PerF	Wide	Pres	Unc	Louie, Shorrock, & Bench s.n. (ZION)	1971	
Liliaceae (Melanthiaceae)	<i>Zigadenus vaginatus</i>	<i>Anticlea vaginatus</i> , included in <i>Z. elegans</i> by some authors.	alcove death camas	PerF	LocEn	Pres	Unc	Palmer s.n. (ZION)	1927	Type locality is Natural Bridges NM, San Juan Co, UT (Rydberg & Garrett 9407 NY). USFWS: 3C
Linaceae	<i>Linum aristatum</i>	<i>Mesynium aristatum</i>	broom-flax	AnnF	Wide	Pres	Unc	Franklin & Thorne 5144 (BRY)	1970	
Linaceae	<i>Linum perenne</i> ssp. <i>lewisiai</i>	<i>L. lewisii</i> var. <i>lewisiai</i> , <i>Adenolinum lewisii</i>	blue flax	PerF	Wide	Pres	Unc	Higgins 18254 (BRY)	1929	
Linaceae	<i>Linum subteres</i>		Utah yellow- flax	PerF	RegEn	Pres	Unc	Carter s.n. (ZION)	1963	Type locality is Willow Creek, San Juan Co, UT (Eastwood s.n.)
Loasaceae	<i>Mentzelia albicaulis</i>	<i>M. obscura</i> , <i>Acrolasia albicaulis</i> , <i>A. gracilis</i>	white-stem blazingstar	AnnF	Wide	Pres	Unc	Nelson 9663 (ZION)	1929	

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Loasaceae	<i>Mentzelia integra</i>	<i>M. multiflora</i> var. <i>integra</i>	Virgin stickleaf	PerF	Wide	Pres	Unc	Nelson 10014 (ZION)	1935	Type locality is Rockville, Washington Co, UT (Jones 6082c)
Loasaceae	<i>Mentzelia pterosperma</i>	<i>Nuttallia pterosperma</i>	wing-seed stickleaf	PerF	Wide	Pres	Rare	Higgins 17731 (ZION)	1970	Type locality is Willow Creek, San Juan Co, UT (Eastwood 31 CAS)
Lythraceae	<i>Lythrum californicum</i>		California loosestrife	PerF	Periph	Pres	Rare	Smith 2912 (ZION)	1987	
Malvaceae	<i>Iliaema rivularis</i>	Includes vars. <i>diversa</i> & <i>rivularis</i>	wild hollyhock	PerF	Wide	Pres	Unc	Moor Z1478 (NY)	1970	
Malvaceae	<i>Malva neglecta</i>		common mallow	AnnF	Intro	Pres	Unc	Harper ZNP-064 (ZION)	1973	Native to Eurasia
Malvaceae	<i>Sphaeralcea ambigua</i> var. <i>ambigua</i>		Mohave globemallow	PerF	Wide	Pres	Unc	Nelson 10068 (ZION)	1926	
Malvaceae	<i>Sphaeralcea grossularifolia</i>	<i>S. grossularifolia</i> var. <i>grossularifolia</i>	gooseberry-leaf globemallow	PerF	Wide	Pres	Com	Boyle Z-153 (ZION)	1926	
Malvaceae	<i>Sphaeralcea parvifolia</i>		small-leaf globemallow	PerF	Wide	Pres	Unc	Moor Z589 (NY)	1938	
Malvaceae	<i>Sphaeralcea rusbyi</i>		Rusby's globemallow	PerF	RegEn	Pres	Rare	Thorne, Franklin, & Nelson 5691 (BRY)	1934	
Martyniaceae (Pedaliaceae)	<i>Proboscidea parviflora</i>		devil's claw	AnnF	Periph	Pres	Rare	Fertig, Fertig, Mann, & Leiberg 23291 (ZION)	2007	
Meliaceae	<i>Melia azedarach</i>		chinaberry	Tree	Intro	Pres	Rare	Rigby s.n. (ZION)	1969	Native to Asia
Monotropaceae (Ericaceae)	<i>Pterospora andromedea</i>		woodland pinedrops	PerF	Wide	Pres	Rare	Thorne & Chandler 5546 (ZION)	1987	



Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Moraceae	<i>Ficus carica</i>		common fig	Tree	Intro	Ext	Ext	Weight (1937)	1935	Reported by Weight (1937). Native to the Mediterranean.
Moraceae	<i>Morus alba</i>		white mulberry	Tree	Intro	Pres	Unc	Rigby s.n. (ZION)	1934	Native to China
Nyctaginaceae	<i>Abronia fragrans</i>	<i>A. elliptica</i> , <i>A. fragrans</i> var. <i>elliptica</i> , <i>A. nana</i> var. <i>harrisi</i>	fragrant sand-verbena	PerF	Wide	Pres	Com	Nelson 9250 (ZION)	1925	
Nyctaginaceae	<i>Allionia incarnata</i>	<i>A. incarnata</i> var. <i>incarnata</i>	trailing four-o'clock	PerF	Wide	Hist	?	Weight s.n. (ZION)	1935	Also cited by Cogan et al. (2004) without a voucher.
Nyctaginaceae	<i>Boerhavia spicata</i>	<i>B. torreyana</i> , <i>B. spicata</i> var. <i>torreyana</i>	spiderling	AnnF	Periph	Pres	Unc	Franklin, Nelson, & Thorne 5560 (ZION)	1987	
Nyctaginaceae	<i>Mirabilis linearis</i> var. <i>linearis</i>	<i>Oxybaphus linearis</i> , <i>O. decumbens</i>	narrow-leaf four-o'clock	PerF	Wide	Pres	Unc	Welsh, Clark, & Charlesworth 23900 (ZION)	1987	
Nyctaginaceae	<i>Mirabilis multiflora</i>	Includes vars. <i>multiflora</i> , <i>pubescens</i> , & <i>glandulosa</i>	showy four-o'clock	PerF	Wide	Pres	Unc	Nelson 10136 (ZION)	1925	
Oleaceae	<i>Fraxinus anomala</i>		singleleaf ash	Shrub	Wide	Pres	Com	Nelson 9246 (ZION)	1925	Type locality is Labyrinth Canyon, San Juan Co, UT (Newberry s.n. NY)
Oleaceae	<i>Fraxinus velutina</i>		velvet ash	Tree	Periph	Pres	Unc	Phillips 95-134 (ZION)	1925	
Oleaceae	<i>Ligustrum vulgare</i>		common privet	Shrub	Intro	Pres	Rare	Nelson 10194 (RM)	1973	Native to Europe. Specimen is immature & confirmation needed.

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Onagraceae	<i>Camissonia bairdii</i>	<i>C. scapoidea</i> var. <i>macrocarpa</i>	Baird's camissonia	AnnF	LocEn	Pres	Rare	Malm s.n. (ZION)	2004	Type from ca 3 km E of Gunlock, Washington Co, UT (Baird & Franklin 2657 BRY). UT BLM: Sensitive, USFWS: former C2 candidate
Onagraceae	<i>Camissonia boothii</i> var. <i>villosa</i>	<i>C. boothii</i> spp. <i>alyssoides</i>	hairy camissonia	AnnF	Wide	Rep	?	Welsh (1995)	NA	
Onagraceae	<i>Camissonia multijuga</i>		manylobe camissonia	AnnF	RegEn	Pres	Unc	Nelson 9964 (ZION)	1963	Type locality is "northern Arizona near Kanab", Coconino Co, AZ or Kane Co, UT (Thompson s.n. GH)
Onagraceae	<i>Camissonia parryi</i>		Parry's camissonia	AnnF	RegEn	Pres	Rare	Franklin & Thorne 5947 (BRY)	1935	Type locality is near St. George, Washington Co, UT (Parry 72 GH). USFWS: 3C
Onagraceae	<i>Camissonia parvula</i>	<i>Oenothera contorta</i> var. <i>flexuosa</i>	tiny camissonia	AnnF	Wide	Pres	Unc	Franklin, Smith, & Thorne 6052 (ZION)	1973	
Onagraceae	<i>Camissonia walkeri</i>		Walker's camissonia	AnnF	Wide	Hist	?	Weight s.n. (ZION)	1935	Type locality is Paradox Valley, Montrose Co, CO
Onagraceae	<i>Epilobium angustifolium</i> var. <i>canescens</i>	<i>Chamerion angustifolium</i> var. <i>canescens</i> , <i>C. angustifolium</i> spp. <i>circumvagum</i> , <i>C. danielsii</i>	fireweed	PerF	Wide	Pres	Unc	Harper, McArthur, & Sanderson 83 (ZION)	1988	
Onagraceae	<i>Epilobium brachycarpum</i>	<i>E. paniculatum</i> var. <i>paniculatum</i>	autumn willow-herb	AnnF	Wide	Pres	Unc	Nelson 9099 (ZION)	1925	

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Onagraceae	<i>Epilobium ciliatum</i>	<i>E. ciliatum</i> var. <i>E. watsonii</i> , <i>E. adenocaulon</i>	northern willow-herb	PerF	Wide	Pres	Unc	Alexander 1809 (ZION)	1925	
Onagraceae	<i>Epilobium glaberrimum</i> var. <i>fastigiatum</i>		glaucous willow-herb	PerF	Periph	Pres	Rare	Thorne & Franklin 5682 (BRY)	1929	
Onagraceae	<i>Epilobium nevadense</i>		Nevada willow-herb	PerF	RegEn	Pres	Rare	Franklin, Nelson, & Thorne 5689 (ZION)	1987	USFS Region 4 Sensitive, UT BLM Sensitive, USFWS: former C2 candidate
Onagraceae	<i>Gaura coccinea</i>		scarlet gaura	PerF	Wide	Pres	Unc	Nelson 10255 (ZION)	1935	
Onagraceae	<i>Gaura parviflora</i>	<i>G. mollis</i>	small- flowered gaura	AnnF	Wide	Pres	Unc	Mason s.n. (ZION)	1996	
Onagraceae	<i>Gayophytum decipiens</i>		deceptive groundsmoke	AnnF	Wide	Pres	Unc	Holmgren, LaFrance, & Reveal 1980 (ZION)	1965	
Onagraceae	<i>Gayophytum diffusum</i> var. <i>strictipes</i>	<i>G. diffusum</i> ssp. <i>parviflorum</i> , <i>G. lasiospermum</i>	diffuse groundsmoke	AnnF	Wide	Pres	Unc	Franklin & Thorne 5499 (ZION)	1971	
Onagraceae	<i>Gayophytum ramosissimum</i>		branching groundsmoke	AnnF	Wide	Pres	Unc	Alexander 1802 (ZION)	1997	
Onagraceae	<i>Oenothera albicaulis</i>		white-stem evening- primrose	AnnF	Wide	Hist	?	Weight s.n. (ZION)	1935	
Onagraceae	<i>Oenothera caespitosa</i> var. <i>crinita</i>		Jones' evening- primrose	PerF	Wide	Pres	Unc	Nelson 9743x (ZION)	1971	Type locality is Rabbit Valley, Wayne Co, UT (Ward 526 US)
Onagraceae	<i>Oenothera caespitosa</i> var. <i>marginata</i>	<i>O. caespitosa</i> var. <i>marginata</i>	long-tube evening- primrose	PerF	Wide	Pres	Unc	Welsh & Clark 24291 (BRY)	1926	

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Onagraceae	<i>Oenothera californica</i>		California evening-primrose	PerF	Wide	Hist	?	Woodbury s.n. (ZION)	1925	
Onagraceae	<i>Oenothera flava</i> var. <i>flava</i>	<i>O. flava</i>	yellow evening-primrose	PerF	Wide	Pres	Unc	Clark, Higgins, Kass, Thorne, & Welsh 17756 (ZION)	1971	
Onagraceae	<i>Oenothera howardii</i>	<i>O. brachycarpa</i>	bronze evening-primrose	PerF	Wide	Pres	Rare	Clark & Thorne 4786 (ZION)	1987	Type locality is Dugway, Tooele Co, UT (Jones s.n. RM)
Onagraceae	<i>Oenothera longissima</i>		Bridges evening-primrose	PerF	RegEn	Pres	Unc	Nelson 9856 (ZION)	1925	Type locality is Armstrong & White canyons [Natural Bridges NM], San Juan Co, UT (Rydberg & Garrett 9410 NY)
Onagraceae	<i>Oenothera pallida</i> var. <i>pallida</i>	Includes var. <i>runcinata</i> in Welsh et al. 2003	pale evening-primrose	PerF	Wide	Pres	Unc	Nelson 9051 (ZION)	1925	
Onagraceae	<i>Oenothera primiveris</i> var. <i>bufonus</i>		early evening-primrose	AnnF	RegEn	Rep	?	Welsh (1995)	NA	
Onagraceae	<i>Zauschneria latifolia</i> var. <i>garrettii</i>	<i>Z. garrettii</i> , <i>Epilobium canum</i> var. <i>garrettii</i>	hummingbird-flower	PerF	Wide	Pres	Unc	Nelson s.n. (ZION)	1925	
Orchidaceae	<i>Corallorhiza maculata</i>	<i>C. maculata</i> var. <i>maculata</i>	spotted coral-root	PerF	Wide	Pres	Rare	Madany s.n. (ZION)	1979	
Orchidaceae	<i>Epipactis gigantea</i>		giant helleborine	PerF	Wide	Pres	Unc	Fowler, May, & Hak 690 (ZION)	1926	
Orchidaceae	<i>Goodyera oblongifolia</i>		giant rattlesnake-plantain	PerF	Wide	Pres	Unc	Neese, Welsh, & Thorne 15731 (BRY)	1926	
Orchidaceae	<i>Habenaria dilatata</i> var. <i>leucostachys</i>	<i>Platanthera dilatata</i> var. <i>leucostachys</i> , <i>P. leucostachys</i>	Lindley's white bog-orchid	PerF	Wide	Hist	?	Weight s.n. (ZION)	1935	

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonymy/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Orchidaceae	<i>Habenaria sparsiflora</i> var. <i>sparsiflora</i>	<i>Platanthera sparsiflora</i> . Vars. not recognized in <i>Flora of North America</i> (2002)	slender bog orchid	PerF	Wide	Pres	Rare	Thorne & Franklin 5665 (ZION)	1971	
Orobanchaceae	<i>Orobanche fasciculata</i>	<i>Aphyllon fasciculatum</i>	clustered broomrape	PerF	Wide	Pres	Rare	Palmer s.n. (ZION)	1964	
Orobanchaceae	<i>Orobanche ludoviciana</i>	<i>O. ludoviciana</i> var. <i>ludoviciana</i> , <i>O. cooperi</i> . Includes vars. <i>cooperi</i> & <i>araneosa</i>	Cooper's broomrape	PerF	Wide	Pres	Unc	Nelson 9920 (ZION)	1938	
Papaveraceae	<i>Argemone munita</i> var. <i>rotundata</i>		armed prickly-poppy	PerF	Wide	Pres	Unc	Woodbury s.n. (ZION)	1925	
Papaveraceae	<i>Eschscholzia glyptosperma</i>		desert golden-poppy	AnnF	RegEn	Hist	?	Weight s.n. (ZION)	1935	
Papaveraceae	<i>Eschscholzia minutiflora</i>		pygmy golden-poppy	AnnF	Periph	Hist	?	Weight s.n. (ZION)	1935	
Pinaceae	<i>Abies concolor</i>		white fir	Tree	Wide	Pres	Unc	Welsh & Clark 24323 (BRY)	1928	
Pinaceae	<i>Abies lasiocarpa</i>	<i>A. bifolia</i>	subalpine fir	Tree	Wide	Pres	Rare	Rigby s.n. (ZION)	1969	
Pinaceae	<i>Pinus edulis</i>		two-needle pinyon	Tree	Wide	Pres	Com	Rigby s.n. (ZION)	1925	
Pinaceae	<i>Pinus monophylla</i>		singleleaf pinyon	Tree	Wide	Pres	Com	Phillips 95-127 (ZION)	1926	
Pinaceae	<i>Pinus ponderosa</i> var. <i>scopulorum</i>		ponderosa pine	Tree	Wide	Pres	Com	Harrison & White s.n. (ZION)	1967	
Pinaceae	<i>Pseudotsuga menziesii</i> var. <i>glauca</i>		Douglas-fir	Tree	Wide	Pres	Unc	Palmer, Tamsky, & Goldwater s.n. (ZION)	1966	
Plantaginaceae	<i>Plantago lanceolata</i>		English plantain	PerF	Intro	Pres	Unc	Higgins & Thorne 6327 (ZION)	1988	Native to Eurasia

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Plantaginaceae	<i>Plantago major</i>	Includes native var. <i>pachyphylla</i>	common plantain	PerF	Intro	Pres	Unc	Meyer 1475 (BRY)	1935	Mostly native to Europe, though a native form "var. <i>pachyphylla</i> " has a type from Salt Lake County.
Plantaginaceae	<i>Plantago patagonica</i>	Includes vars. <i>patagonica</i> , <i>gnaphaloides</i> , <i>spinulosa</i> , & <i>breviscapa</i>	wooly plantain	AnnF	Wide	Pres	Unc	Holmgren, LaFrance, & Reveal 2003 (ZION)	1935	
Platanaceae	<i>Platanus occidentalis</i>		American sycamore	Tree	Intro	Pres	Unc	Welsh, Clark, & Charlesworth 24067 (BRY)	1973	Native to E North America.
Polemoniaceae	<i>Collomia grandiflora</i>		large collomia	AnnF	Wide	Pres	Unc	Briggs & Sanderson ZNP041 (ZION)	1925	
Polemoniaceae	<i>Eriastrum diffusum</i>		spreading eriastrum	AnnF	Wide	Pres	Unc	Higgins 18448 (ZION)	1935	
Polemoniaceae	<i>Eriastrum eremicum</i>	Includes var. <i>zionis</i>	Mohave eriastrum	AnnF	Periph	Pres	Unc	Nelson 10033 (ZION)	1925	Type of <i>E. eremicum</i> var. <i>zionis</i> is Zion NP, Washington Co, UT (Craig 1400 POM)
Polemoniaceae	<i>Eriastrum sparsiflorum</i>	<i>E. sparsiflorum</i> var. <i>wilcoxii</i> , <i>E. wilcoxii</i>	few-flower eriastrum	AnnF	Wide	Pres	Rare	Thorne, Franklin, & Smith 6028 (BRY)	1988	
Polemoniaceae	<i>Gilia inconspicua</i>	Includes vars. <i>inconspicua</i> & <i>sinuata</i> , <i>G. ophthalmooides</i> , <i>G. sinuata</i> , <i>G. clokeyi</i> , <i>G. transmontana</i>	shy gilia	AnnF	Wide	Pres	Unc	Nelson 9945 (ZION)	1971	ZION contains both var. <i>inconspicua</i> and var. <i>sinuata</i> .
Polemoniaceae	<i>Gilia leptomeria</i> var. <i>leptomeria</i>	<i>Aliciella leptomeria</i>	common gilia	AnnF	Wide	Pres	Unc	Higgins 18438 (ZION)	1989	

**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Polemoniaceae	<i>Ipomopsis aggregata</i> var. <i>aggregata</i>	<i>Gilia aggregata</i> var. <i>aggregata</i>	scarlet gilia	PerF	Wide	Pres	Unc	Malm 230 (ZION)	1925	
Polemoniaceae	<i>Ipomopsis aggregata</i> var. <i>arizonica</i>	<i>Gilia aggregata</i> var. <i>arizonica</i> , <i>G. arizonica</i> , <i>I. arizonica</i>	scarlet gilia	PerF	Wide	Pres	Unc	Nelson 9289 (ZION)	1935	
Polemoniaceae	<i>Ipomopsis congesta</i> var. <i>congesta</i>	<i>Gilia congesta</i> var. <i>congesta</i>	ball-head gilia	PerF	Wide	Rep	?	Cogan et al. (2004)	2003	
Polemoniaceae	<i>Ipomopsis congesta</i> var. <i>frutescens</i>	<i>Gilia congesta</i> var. <i>frutescens</i>	shrubby gilia	PerF	RegEn	Pres	Unc	Nelson 9058 (ZION)	1894	Type locality is Springdale, Washington Co, UT (Jones 5247 NY)
Polemoniaceae	<i>Ipomopsis longiflora</i>	<i>Gilia longiflora</i>	long-flower gilia	PerF	Wide	Pres	Unc	Fertig et al. 23271 (ZION)	2007	
Polemoniaceae	<i>Ipomopsis polycladon</i>	<i>Gilia polycladon</i>	spreading gilia	AnnF	Wide	Pres	Rare	Nelson 9999 (ZION)	1972	
Polemoniaceae	<i>Langloisia setosissima</i>		Mohave langloisia	AnnF	Periph	Pres	Unc	Nelson 10000 (ZION)	1935	Type locality is St. George, Washington Co, UT (Parry 190 US)
Polemoniaceae	<i>Leptodactylon pungens</i>	<i>L. pungens</i> var. <i>pungens</i> , <i>Linanthus pungens</i>	prickly-phlox	Shrub	Wide	Pres	Unc	Malm s.n. (ZION)	1971	
Polemoniaceae	<i>Leptodactylon watsonii</i>	<i>Linanthus watsonii</i>	Watson's prickly-phlox	PerF	Wide	Hist	?	Boyle Z-205 (ZION)	1938	
Polemoniaceae	<i>Linanthus nuttallii</i>	<i>Linanthus nuttallii</i> var. <i>nuttallii</i> , <i>Leptosiphon nuttallii</i> , <i>Linanthus nuttallii</i> ssp. <i>nuttallii</i>	Nuttall's linanthus	PerF	Wide	Pres	Unc	Nelson 9681 (ZION)	1925	
Polemoniaceae	<i>Linanthus bigelovii</i>		Bigelow's linanthus	AnnF	Periph	Pres	Unc	Nelson 10204 (ZION)	1973	
Polemoniaceae	<i>Linanthus dichotomus</i>		evening-snow	AnnF	Periph	Pres	Unc	Harper & Sanderson ZNP027 (ZION)	1971	
Polemoniaceae	<i>Microsteris gracilis</i> var. <i>humilior</i>	<i>Phlox gracilis</i> ssp. <i>humilis</i>	slender phlox	AnnF	Wide	Pres	Com	Nelson 9272 (ZION)	1971	

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Polemoniaceae	<i>Navarretia breweri</i>		yellow navarretia	AnnF	Wide	Pres	Unc	Nelson 9745 (ZION)	1971	
Polemoniaceae	<i>Navarretia intertexta</i>	<i>N. intertexta</i> var. <i>propinqua</i>	Great Basin navarretia	AnnF	Sparse	Rep	?	Weight (1937)	1935	
Polemoniaceae	<i>Phlox austromontana</i> var. <i>austromontana</i>	Var. not recognized by Cronquist et al. (1984)	desert phlox	PerF	Wide	Pres	Unc	Nelson 9287 (ZION)	1971	Type locality is Beaver Dam Mtns, Washington Co, UT (Fremont 447 US)
Polemoniaceae	<i>Phlox austromontana</i> var. <i>jonesii</i>	<i>P. jonesii</i>	Jones' phlox	PerF	LocEn	Pres	Com	Nelson 9040 (ZION)	1923	Type locality is Zion Canyon, Zion NP, Washington Co, UT (Jones s.n. US)
Polemoniaceae	<i>Phlox austromontana</i> var. <i>prostrata</i>	Var. not recognized by Cronquist et al. (1984)	Silver Reef phlox	PerF	LocEn	Pres	Com	Clark & Thorne 5365 (ZION)	1934	Type locality is Silver Reef, Washington Co, UT (Jones 5163 y-z RM)
Polemoniaceae	<i>Phlox longifolia</i>	Includes vars. <i>longifolia</i> & <i>stansburyi</i>	long-leaf phlox	PerF	Wide	Pres	Com	Nelson 9781 (ZION)	1927	
Polygonaceae	<i>Centrostegia thurberi</i>	<i>Chorizanthe thurberi</i>	Thurber's spineflower	AnnF	Wide	Pres	Unc	Nelson 9649 (ZION)	1971	
Polygonaceae	<i>Eriogonum alatum</i>	<i>E. alatum</i> var. <i>alatum</i> , <i>Pterogonum alatum</i>	winged wild buckwheat	PerF	Wide	Pres	Unc	Franklin & Thorne (BRY)	1935	
Polygonaceae	<i>Eriogonum cernuum</i> var. <i>cernuum</i>	Vars. not recognized in <i>Flora of North America</i> (2005)	nodding wild buckwheat	AnnF	Wide	Pres	Unc	Nelson 10074 (ZION)	1970	
Polygonaceae	<i>Eriogonum corymbosum</i> var. <i>albiflorum</i>	<i>E. thompsoniae</i> var. <i>albiflorum</i>	Virgin wild buckwheat	Shrub	LocEn	Pres	Unc	Welsh 21409 (NY)	1970	Type locality is 3 miles W of Virgin, Washington Co, UT (Holmgren & Reveal 2991 UTC). USFWS: 3C



Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Polygonaceae	<i>Eriogonum corymbosum</i> var. <i>aureum</i>	Includes var. <i>glutinosum</i>	golden wild buckwheat	Shrub	RegEn	Pres	Unc	Welsh, Shaw, Matthews, & Moore s.n. (NY)	1929	Type locality is St. George, Washington Co, UT (Jones 6091 POM). Considered a local endemic restricted to the Shivwits area of Washington Co in <i>Flora of North America</i> (2005).
Polygonaceae	<i>Eriogonum corymbosum</i> var. <i>corymbosum</i>	Includes vars. <i>velutinum</i> , <i>divaricatum</i> , <i>erectum</i> , & <i>davidse</i> and <i>E. lancifolium</i>	crisp-leaf wild buckwheat	Shrub	Wide	Pres	Unc	Foster & Foster 5369 (BRY)	1977	
Polygonaceae	<i>Eriogonum corymbosum</i> var. <i>matthewsiae</i>	<i>E. thompsoniae</i> var. <i>matthewsiae</i> . Included in <i>E. thompsonii</i> var. <i>albiflorum</i> in <i>Flora of North America</i> 2005	Springdale wild buckwheat	Shrub	LocEn	Pres	Unc	Welsh, Clark, & Charlesworth 23847 (BRY)	1987	Type locality is Springdale, Washington Co, UT (Welsh et al. 9509 MARY). USFWS: 3C
Polygonaceae	<i>Eriogonum corymbosum</i> var. <i>thompsoniae</i>	<i>E. thompsoniae</i> var. <i>thompsoniae</i>	Thompson's wild buckwheat	Shrub	RegEn	Pres	Unc	Franklin, Thorne, & Nelson 5519 (NY)	1970	Type locality is near Kanab, Kane Co, UT (Thompson s.n. GH). USFWS: 3C
Polygonaceae	<i>Eriogonum davidsonii</i>		Davidson's wild buckwheat	AnnF	Periph	Pres	Unc	Nelson 9629 (ZION)	1971	
Polygonaceae	<i>Eriogonum deflexum</i>	<i>E. deflexum</i> var. <i>deflexum</i>	skeletonweed wild buckwheat	AnnF	Wide	Pres	Unc	Franklin, Thorne, & Nelson 5520 (BRY)	1927	
Polygonaceae	<i>Eriogonum fasciculatum</i> var. <i>polifolium</i>		Mojave wild buckwheat	Shrub	Periph	Pres	Unc	Nelson 9804 (ZION)	1971	

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Polygonaceae	<i>Eriogonum inflatum</i> var. <i>inflatum</i>	<i>E. inflatum</i>	desert trumpet	PerF	Wide	Pres	Unc	Nelson 10018 (ZION)	1972	
Polygonaceae	<i>Eriogonum jamesii</i> var. <i>rupicola</i>	<i>E. arcuatum</i> var. <i>rupicola</i>	slickrock wild buckwheat	PerF	LocEn	Pres	Unc	Reveal & Reveal 2874 (NY, US)	1925	Type locality is Checkerboard Mesa, Zion NP, Washington Co, UT (Reveal & Reveal 2874 US). USFWS: 3C
Polygonaceae	<i>Eriogonum microthecum</i> var. <i>simpsonii</i>	<i>E. microthecum</i> var. <i>foliosum</i>	slender wild buckwheat	PerF	Wide	Pres	Unc	Nelson 9059 (ZION)	1970	
Polygonaceae	<i>Eriogonum ovalifolium</i>	<i>E. ovalifolium</i> var. <i>ovalifolium</i>	cushion wild buckwheat	PerF	Wide	Pres	Unc	Franklin, Smith, & Thorne 6048 (ZION)	1935	
Polygonaceae	<i>Eriogonum palmerianum</i>		Palmer's wild buckwheat	AnnF	Wide	Pres	Unc	Pennell & Schaeffer 21672 (NY)	1934	
Polygonaceae	<i>Eriogonum panguicense</i>	<i>E. panguicense</i> var. <i>panguicense</i> . Welsh et al. (2003) include var. <i>alpestre</i>	Panguitch wild buckwheat	PerF	RegEn	Pres	Unc	Holmgren, LaFrance, & Reveal 1997 (NY)	1964	Type locality of var. <i>panguicense</i> is near Panguitch, Garfield Co, UT (Jones s.n. POM).
Polygonaceae	<i>Eriogonum polycladon</i>		leafy wild buckwheat	AnnF	Periph	Rep	?	Welsh (1995)	NA	
Polygonaceae	<i>Eriogonum racemosum</i> var. <i>racemosum</i>	<i>E. racemosum</i>	redroot wild buckwheat	PerF	Wide	Pres	Unc	Welsh, Clark, & Charlesworth 23883 (ZION)	1979	
Polygonaceae	<i>Eriogonum racemosum</i> var. <i>zionis</i>	<i>E. zionis</i> var. <i>zionis</i>	Zion wild buckwheat	PerF	RegEn	Pres	Com	Nelson 9867 (ZION)	1925	Type locality is Zion NP (Eastwood & Howell 6344 CAS). USFWS: 3C

**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Polygonaceae	<i>Eriogonum subreniforme</i>		kidney-shaped wild buckwheat	AnnF	RegEn	Pres	Unc	Kass, Thorne, & Higgins 2697 (BRY)	1988	Type locality is Virgin River Valley, Washington Co, UT (Parry 237 ISC)
Polygonaceae	<i>Eriogonum umbellatum</i> var. <i>subaridum</i>		arid wild buckwheat	PerF	Wide	Pres	Unc	Nelson 10079 (ZION)	1925	
Polygonaceae	<i>Polygonum aviculare</i>	<i>P. arenastrum</i> , <i>P. aviculare</i> ssp. <i>aviculare</i>	yard knotweed	AnnF	Intro	Pres	Unc	Harper ZNP068 (ZION)	1925	Native to Eurasia
Polygonaceae	<i>Polygonum convolvulus</i>	<i>Fallopia convolvulus</i>	black-bindweed	AnnF	Intro	Hist	?	Woodbury s.n. (ZION)	1925	Native to Europe
Polygonaceae	<i>Polygonum douglasii</i> var. <i>douglasii</i>	<i>P. douglasii</i>	Douglas' knotweed	AnnF	Wide	Pres	Unc	Thorne & Chandler 5565 (BRY)	1987	
Polygonaceae	<i>Polygonum douglasii</i> var. <i>johnstonii</i>	<i>P. sawatchense</i> var. <i>sawatchense</i>	Sawatch knotweed	AnnF	Wide	Pres	Com	Boyle Z-192 (ZION)	1935	
Polygonaceae	<i>Polygonum douglasii</i> var. <i>utahense</i>	<i>P. utahense</i>	Utah knotweed	AnnF	LocEn	Pres	Unc	Franklin & Thorne 5126 (BRY)	1988	Type from 6 mi N of Escalante, Garfield Co, UT (Cottam 6507 UT)
Polygonaceae	<i>Polygonum kelloggii</i>	<i>P. polygaloides</i> ssp. <i>kelloggii</i> , <i>P. kelloggii</i> var. <i>kelloggii</i>	Kellogg's knotweed	AnnF	Wide	Pres	Rare	Alexander & Glorieux 1821 (ZION)	2004	
Polygonaceae	<i>Polygonum persicaria</i>	<i>Persicaria maculosa</i>	lady's-thumb	AnnF	Intro	Pres	Unc	Lindahl s.n. (ZION)	1977	Native to Eurasia
Polygonaceae	<i>Rumex acetosella</i>	<i>Acetosella vulgaris</i>	sheep sorrel	PerF	Intro	Pres	Unc	Kass, Clark, & Welsh 2717 (NY)	1987	Native to Eurasia
Polygonaceae	<i>Rumex crispus</i>		curly dock	PerF	Intro	Hist	?	Woodbury s.n. (ZION)	1928	Native to Eurasia
Polygonaceae	<i>Rumex hymenosepalus</i>		canaigre dock	PerF	Wide	Pres	Unc	Phillips 95-125 (ZION)	1973	

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Polygonaceae	<i>Rumex salicifolius</i> ssp. <i>triangulivalvis</i>	<i>R. mexicanus</i> , <i>R. salicifolius</i> var. <i>mexicanus</i> , <i>R. utahensis</i> , <i>R.</i> <i>triangulivalvis</i> var. <i>mexicanus</i> , <i>Rumex</i> <i>triangulivalvis</i> var. <i>montigenitus</i>	willow dock	PerF	Wide	Hist	?	Woodbury s.n. (ZION)	1925	
Polypodiaceae (Adiantaceae)	<i>Adiantum capillus- veneris</i>		southern maidenhair fern	Fern	Wide	Pres	Com	Boyle Z-309 (ZION)	1926	
Polypodiaceae (Adiantaceae)	<i>Adiantum pedatum</i> var. <i>aleuticum</i>	<i>A. pedatum</i> , <i>A.</i> <i>aleuticum</i>	northern maidenhair fern	Fern	Sparse	Pres	Unc	Welsh 23815 (ZION)	1925	
Polypodiaceae (Aspleniaceae)	<i>Asplenium adiantum-nigrum</i>		black spleenwort	Fern	Disj	Pres	Rare	Bradbury s.n. (ZION)	1962	
Polypodiaceae (Aspleniaceae)	<i>Asplenium resiliens</i>		ebony spleenwort	Fern	Periph	Pres	Unc	Nelson 10150 (ZION)	1972	
Polypodiaceae (Adiantaceae)	<i>Cheilanthes covillei</i>		Coville's lip- fern	Fern	Periph	Pres	Unc	Nelson 9879 (ZION)	1927	
Polypodiaceae (Adiantaceae)	<i>Cheilanthes feei</i>		slender lip- fern	Fern	Wide	Pres	Unc	Nelson 9970 (ZION)	1972	
Polypodiaceae (Adiantaceae)	<i>Cheilanthes wootonii</i>		Wooton's lip- fern	Fern	Periph	Pres	Rare	Thorne & Franklin 5765 (BRY)	1987	
Polypodiaceae (Aspleniaceae)	<i>Cystopteris bulbifera</i>		bulblet bladder fern	Fern	Periph	Pres	Unc	Thorne & Chandler 5605 (BRY)	1987	
Polypodiaceae (Aspleniaceae)	<i>Cystopteris fragilis</i>	Includes <i>C. utahensis</i> , <i>C. reevesiana</i> , & <i>C.</i> <i>tenuis</i>	brittle bladder fern	Fern	Wide	Pres	Unc	Thorne & Kass 6376 (BRY)	1925	Includes reports of <i>C. utahensis</i> (Welsh, Clark, & Jensen 24080 BRY) from Zion NP
Polypodiaceae (Aspleniaceae)	<i>Dryopteris filix-mas</i>		male fern	Fern	Wide	Pres	Unc	Nelson 10154 (ZION)	1926	

**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Polypodiaceae (Adiantaceae)	<i>Pellaea atropurpurea</i>		purple cliff- brake	Fern	Periph	Pres	Rare	Franklin & Thorne 5772 (ZION)	1987	UT material may be <i>P. gastonyi</i>
Polypodiaceae (Adiantaceae)	<i>Pellaea glabella</i> var. <i>occidentalis</i>	<i>P. occidentalis</i>	western cliffbrake	Fern	Periph	Pres	Unc	Chandler & Thorne 5596 (ZION)	1926	
Polypodiaceae (Adiantaceae)	<i>Pellaea truncata</i>		spiny cliff- brake	Fern	Wide	Pres	Unc	Nelson 9236 (ZION)	1935	
Polypodiaceae (Adiantaceae)	<i>Pellaea wrightiana</i>		Wright's cliff- brake	Fern	Periph	Pres	Rare	Franklin & Thorne 5746 (ZION)	1970	
Polypodiaceae (Pteridaceae)	<i>Pityrogramma triangularis</i>	<i>Pentagramma triangularis</i> ssp. <i>triangularis</i>	goldback fern	Fern	Periph	Pres	Rare	Franklin & Thorne 5765 (ZION)	1962	
Polypodiaceae	<i>Polypodium hesperium</i>	<i>P. vulgare</i> var. <i>columbianum</i>	western polypody	Fern	Periph	Pres	Unc	Nelson 10149 (ZION)	1926	
Polypodiaceae (Aspleniaceae)	<i>Polystichum scopulinum</i>		rock holly-fern	Fern	Wide	Hist	?	Cottam 5658 (UTC)	1931	
Polypodiaceae (Densstaedtiaceae)	<i>Pteridium aquilinum</i> var. <i>pubescens</i>	<i>P. aquilinum</i> var. <i>lanuginosum</i>	bracken fern	Fern	Wide	Pres	Unc	Nelson & Blauie s.n. (ZION)	1926	
Polypodiaceae (Aspleniaceae)	<i>Woodsia oregana</i>	<i>W. oregana</i> ssp. <i>oregana</i>	Oregon woodsia	Fern	Periph	Pres	Rare	Moor Z1020 (UNLV)	1970	ZION material may be the more widespread ssp. <i>cathartiana</i>
Portulacaceae	<i>Claytonia lanceolata</i>	<i>C. lanceolata</i> var. <i>lanceolata</i>	lanceleaf springbeauty	PerF	Wide	Pres	Unc	Wauer s.n. (ZION)	1929	
Portulacaceae	<i>Lewisia brachycalyx</i>		showy lewisia	PerF	Periph	Pres	Unc	Holmgren, Reveal, & LaFrance 2005 (ZION, NY)	1965	
Portulacaceae	<i>Lewisia pygmaea</i>	<i>Oreobroma pygmaea</i>	alpine bitter- root	PerF	Wide	Pres	Unc	Clark, Hays, & Welsh 24177 (ZION)	1989	

**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Portulacaceae	<i>Montia perfoliata</i> var. <i>perfoliata</i>	<i>Claytonia perfoliata</i> ssp. <i>intermontana</i> , <i>C. perfoliata</i> ssp. <i>perfoliata</i>	miner's lettuce	AnnF	Wide	Pres	Com	Welsh 23225 (NY)	1927	Type locality is St. George, Washington Co, UT (Palmer 56 NY)
Portulacaceae	<i>Montia perfoliata</i> var. <i>utahensis</i>	<i>Claytonia perfoliata</i> ssp. <i>utahensis</i> , <i>C. parviflora</i> ssp. <i>utahensis</i>	Mojave miner's lettuce	AnnF	Periph	Hist	?	Woodbury s.n. (ZION)	1929	Type locality is St. George, Washington Co, UT (Palmer 56 NY)
Portulacaceae	<i>Portulaca oleracea</i>		common purslane	AnnF	Intro	Pres	Unc	Franklin & Thorne 5652 (ZION)	1972	Native to E North America
Portulacaceae	<i>Talinum parviflorum</i>	<i>Phemeranthus parviflorum</i> , <i>P. confertiflorus</i>	small- flowered fame-flower	PerF	Wide	Pres	Unc	Thorne, Kass, & Tuhy 6404 (NY)	1973	
Potamogetonaceae	<i>Potamogeton filiformis</i> var. <i>occidentalis</i>	<i>Stuckenia filiformis</i> var. <i>occidentalis</i>	slenderleaf waterweed	PerF	Wide	Pres	Rare	Thorne & Franklin 5486 (BRY)	1987	
Primulaceae	<i>Androsace septentrionalis</i>	Includes ssp. <i>puberulenta</i> , <i>subumbellata</i> , & var. <i>subulifera</i>	pygmy-flower rock-jasmine	AnnF	Wide	Pres	Unc	Madany s.n. (ZION)	1978	
Primulaceae	<i>Dodecatheon pulchellum</i> var. <i>zionense</i>	Includes "subvar." <i>huberi</i> according to Holmgren et al. (2005)	Zion shooting- star	PerF	RegEn	Pres	Unc	Maguire 13574 (NY)	1927	Type locality is Zion Canyon, Zion NP, Washington Co, UT (Eastwood & Howell 1144 CAS)
Primulaceae	<i>Samolus floribundus</i>	<i>S. parviflorus</i> , <i>S. valerandi</i>	water- pimpernel	PerF	Sparse	Pres	Unc	Harper, Sanderson, & McArthur 86 (BRY)	1928	
Pyrolaceae (Ericaceae)	<i>Chimaphila menziesii</i>		Menzies' wintergreen	PerF	Disj	Pres	Unc	Franklin & Thorne 5664 (ZION)	1987	
Ranunculaceae (Helleboraceae)	<i>Aconitum columbianum</i> var. <i>columbianum</i>	Includes var. <i>ochroleucum</i>	Columbian monkshood	PerF	Wide	Pres	Rare	Barnum 1393 (BRY)	1965	

*Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.*

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Ranunculaceae (Helleboraceae)	<i>Actaea rubra</i>	<i>A. rubra</i> ssp. <i>arguta</i>	red baneberry	PerF	Wide	Pres	Unc	Nelson 9691 (ZION)	1927	
Ranunculaceae	<i>Anemone multifida</i>	<i>A. tetonensis</i> . Includes <i>var. multifida</i> , <i>var.</i> <i>tetonensis</i> , <i>var.</i> <i>saxicola</i> , & <i>var. stylosa</i>	cutleaf anemone	PerF	Wide	Rep	?	Welsh (1995)	NA	
Ranunculaceae	<i>Anemone tuberosa</i>		desert anemone	PerF	Wide	Pres	Unc	Thorne & Franklin 6009 (BRY)	1935	
Ranunculaceae (Helleboraceae)	<i>Aquilegia chrysantha</i>		golden columbine	PerF	Periph	Pres	Unc	Nelson 9604 (ZION)	1925	Hybrids with <i>A.</i> <i>fosteri</i> occur in Zion NP.
Ranunculaceae (Helleboraceae)	<i>Aquilegia coerulea</i>	<i>A. caerulea</i> , includes <i>vars. ochroleuca</i> & <i>pinetorum</i>	Colorado columbine	PerF	Wide	Pres	Unc	Presnall s.n. (ZION)	1934	
Ranunculaceae (Helleboraceae)	<i>Aquilegia formosa</i>	<i>A. formosa</i> var. <i>formosa</i>	western columbine	PerF	Wide	Pres	Rare	Boyle Z-247 (ZION)	1938	
Ranunculaceae (Helleboraceae)	<i>Aquilegia fosteri</i>	<i>A. formosa</i> var. <i>fosteri</i>	Foster's columbine	PerF	LocEn	Pres	Unc	Welsh 23812 (ZION)	1928	Hybrids with <i>A.</i> <i>chrysantha</i> occur in Zion NP. Type locality is W of tunnel (Zion Canyon), Zion NP, Washington Co, UT (Foster & Foster 3939 BRY).
Ranunculaceae	<i>Clematis columbiana</i>	<i>C. columbiana</i> <i>var. columbiana</i> , <i>C. pseudoalpina</i> , <i>Atragene columbiana</i>	Columbian virgin's-bower	PerF	Wide	Pres	Unc	Nelson 9758 (ZION)	1929	
Ranunculaceae	<i>Clematis ligusticifolia</i>		white virgin's- bower	PerF	Wide	Pres	Unc	Moor Z1099 (NY)	1925	
Ranunculaceae (Helleboraceae)	<i>Delphinium andersonii</i> var. <i>scaposum</i>	<i>D. scaposum</i>	pale larkspur	PerF	Wide	Pres	Unc	Nelson 9669 (ZION)	1935	

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Ranunculaceae (Helleboraceae)	<i>Delphinium barbeyi</i>	<i>D. occidentale</i> var. <i>barbeyi</i>	subalpine larkspur	PerF	RegEn	Pres	Rare	Thorne & Franklin 5482 (BRY)	1987	
Ranunculaceae (Helleboraceae)	<i>Delphinium nuttallianum</i>	<i>D. nelsonii</i>	Nuttall's larkspur	PerF	Wide	Pres	Unc	Presnall s.n. (ZION)	1927	
Ranunculaceae	<i>Myosurus cupulatus</i>		horseshoe mousetail	AnnF	Wide	Rep	?	Welsh (1995)	NA	
Ranunculaceae	<i>Ranunculus andersonii</i> var. <i>juniperinus</i>	<i>R. andersonii</i> var. <i>tenellus</i> . Vars. not recognized in <i>Flora of North America</i> (1997)	juniper buttercup	PerF	RegEn	Pres	Unc	Maguire 21475 (NY)	1942	Type locality is 18 miles W of St. George, Washington Co, UT (Jones 5011 US)
Ranunculaceae	<i>Ranunculus aquatilis</i> var. <i>diffusus</i>	<i>R. circinatus</i> , <i>R. longirostris</i> , <i>R. trichophyllus</i> var. <i>eradicatus</i> , <i>R. trichophyllus</i> var. <i>trichophyllus</i> , <i>Batrachium</i> <i>longirostre</i> , <i>B. circinatum</i> ssp. <i>subrigidum</i> , <i>B. trichophyllum</i> . Includes var. <i>capillaceus</i> .	thread water- buttercup	PerF	Wide	Pres	Unc	Welsh 23835 (ZION)	1970	
Ranunculaceae	<i>Ranunculus cymbalaria</i>	<i>Halerpestes cymbalaria</i> ssp. <i>saximontana</i> , <i>R. cymbalaria</i> var. <i>cymbalaria</i> . Vars. not recognized in <i>Flora of North America</i> (1997)	marsh buttercup	PerF	Wide	Pres	Unc	Degener & Peiler 16481 (NY)	1938	
Ranunculaceae	<i>Ranunculus glaberrimus</i> var. <i>ellipticus</i>	Includes <i>R. oreogenes</i>	sagebrush buttercup	PerF	Wide	Pres	Unc	Nelson 9956 (ZION)	1972	
Ranunculaceae	<i>Ranunculus inamoenus</i>	<i>R. inamoenus</i> var. <i>inamoenus</i> . Includes var. <i>alpeophilus</i>	drab buttercup	PerF	Wide	Pres	Rare	Nelson 9748 (ZION)	1971	



*Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.*

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Ranunculaceae	<i>Ranunculus testiculatus</i>	<i>Ceratocephala orthoceras</i> , <i>C. testiculata</i>	bur buttercup	AnnF	Intro	Pres	Unc	Welsh 22707 (NY)	1971	Native to Eurasia
Ranunculaceae (Thalictraceae)	<i>Thalictrum fendleri</i>		Fendler's meadow-rue	PerF	Wide	Pres	Unc	Welsh 23813 (NY)	1928	
Rhamnaceae	<i>Ceanothus fendleri</i>		Fendler's mountain-lilac	Shrub	Wide	Pres	Unc	Nelson 9762 (ZION)	1925	
Rhamnaceae	<i>Ceanothus greggii</i> var. <i>vestitus</i>		Mohave desert-lilac	Shrub	Periph	Rep	?	Welsh (1995)	NA	Report from ZION herbarium is based on a specimen collected outside of the park.
Rhamnaceae	<i>Ceanothus martinii</i>		Utah mountain-lilac	Shrub	Wide	Pres	Rare	Thorne & Franklin 5504 (BRY)	1987	Type locality is Manti Canyon, Sanpete Co, UT (Jones s.n. POM)
Rosaceae	<i>Amelanchier alnifolia</i>		Saskatoon serviceberry	Shrub	Wide	Pres	Unc	Nelson 9266 (ZION)	1935	
Rosaceae	<i>Amelanchier utahensis</i>		Utah serviceberry	Shrub	Wide	Pres	Com	Nelson 10046 (ZION)	1928	Type locality is Toquerville, Washington Co, UT (Jones 1716 GH)
Rosaceae	<i>Cercocarpus intricatus</i>	<i>C. ledifolius</i> var. <i>intricatus</i>	dwarf mountain mahogany	Shrub	Wide	Pres	Com	Lindahl s.n. (ZION)	1925	Type locality is American Fork Canyon, Utah Co, UT (Watson 314 US)
Rosaceae	<i>Cercocarpus ledifolius</i> var. <i>intermontanus</i>	<i>C. ledifolius</i> var. <i>intercedens</i>	curl-leaf mountain mahogany	Shrub	Wide	Pres	Unc	Palmer s.n. (ZION)	1966	ZION collections are hybrids with <i>C. montanus</i> . Type locality is ca 10 km E of Oak City, Millard Co, UT (Holmgren & Holmgren 11298 NY).

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Rosaceae	<i>Cercocarpus montanus</i>		alder-leaf mountain mahogany	Shrub	Wide	Pres	Unc	Boyle Z-223 (ZION)	1938	Hybridizes with <i>C. ledifolius</i> in Zion NP (Palmer s.n. ZION)
Rosaceae	<i>Coleogyne ramosissima</i>		blackbrush	Shrub	Wide	Pres	Unc	Nelson 10250 (ZION)	1935	
Rosaceae	<i>Fallugia paradoxa</i>		Apache plume	Shrub	Wide	Pres	Unc	Malm 230 (ZION)	1965	
Rosaceae	<i>Holodiscus dumosus</i>	<i>H. discolor</i>	bush oceanspray	Shrub	Wide	Pres	Unc	Boyle Z369 (ZION)	1926	
Rosaceae	<i>Ivesia sabulosa</i>		Sevier ivesia	PerF	RegEn	Pres	Unc	Degener & Peiler 16552 (NY)	1927	Type locality is head of Sevier River 25 miles S of Panguitch, Garfield Co, UT (Jones 6032 POM)
Rosaceae	<i>Malus pumila</i>	<i>Pyrus malus</i>	common apple	Tree	Intro	Pres	Unc	Rigby s.n. (ZION)	1969	Native to Eurasia
Rosaceae	<i>Peraphyllum ramosissimum</i>		squaw-apple	Shrub	Wide	Pres	Unc	Nelson 9326 (ZION)	1925	
Rosaceae	<i>Petrophyton caespitosum</i>	<i>Spiraea caespitosa</i>	rock spiraea	PerF	Wide	Pres	Unc	Drysdale 269 (NY)	1965	
Rosaceae	<i>Physocarpus alternans</i>		dwarf ninebark	Shrub	Wide	Pres	Unc	Tuhy 3521 (NY)	1988	
Rosaceae	<i>Potentilla glandulosa</i> var. <i>pseudorupestris</i>	<i>Drymocallis glandulosa</i> , includes var. <i>intermedia</i> .	sticky cinquefoil	PerF	Wide	Pres	Unc	Thorne & Kass 6385 (BRY)	1926	
Rosaceae	<i>Potentilla gracilis</i> var. <i>pulcherrima</i>	<i>P. pulcherrima</i>	beautiful cinquefoil	PerF	Wide	Pres	Unc	Moor Z1214 (BRY)	1970	
Rosaceae	<i>Potentilla hippiana</i>	<i>P. hippiana</i> var. <i>hippiana</i>	woolly cinquefoil	PerF	Wide	Pres	Rare	Moor Z548 (BRY)	1970	
Rosaceae	<i>Prunus armeniaca</i>	<i>Armeniaca vulgaris</i>	apricot	Tree	Intro	Pres	Rare	Rigby s.n. (ZION)	1969	Native to China
Rosaceae	<i>Prunus avium</i>		sweet cherry	Tree	Intro	Pres	Unc	Rigby s.n. (ZION)	1969	Native to Eurasia
Rosaceae	<i>Prunus domestica</i>		common plum	Tree	Intro	Rep	Unc	Welsh (1997)	1997	Native to Eurasia

**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Rosaceae	<i>Prunus dulcis</i>		almond	Tree	Intro	Pres	Rare	Rigby s.n. (ZION)	1969	Native to Old World
Rosaceae	<i>Prunus fasciculata</i>	<i>P. fasciculata</i> var. <i>fasciculata</i>	desert peach	Shrub	Wide	Rep	?	Welsh (1995)	NA	
Rosaceae	<i>Prunus persica</i>		peach	Tree	Intro	Pres	Rare	Rigby s.n. (ZION)	1969	Native to China
Rosaceae	<i>Prunus virginiana</i> var. <i>melanocarpa</i>	<i>Padus virginiana</i> ssp. <i>melanocarpa</i>	western chokecherry	Shrub	Wide	Pres	Unc	Welp s.n. (ZION)	1929	
Rosaceae	<i>Purshia glandulosa</i>		desert bitterbrush	Shrub	Periph	Rep	?	Jason Alexander observation	2003	
Rosaceae	<i>Purshia mexicana</i> var. <i>stansburyana</i>	<i>P. stansburiana</i> , <i>Cowania mexicana</i>	cliff-rose	Shrub	Wide	Pres	Unc	Nelson 9061 (ZION)	1926	
Rosaceae	<i>Purshia tridentata</i>		antelope bitterbrush	Shrub	Wide	Pres	Com	Nelson 9666 (ZION)	1926	
Rosaceae	<i>Pyrus communis</i>		common pear	Tree	Intro	Pres	Rare	Charlesworth, Clark, & Welsh 24074 (ZION)	1988	Native to Eurasia
Rosaceae	<i>Rosa woodsii</i>	<i>R. woodsii</i> var. <i>ultramontana</i> , includes <i>R. manca</i>	Woods' rose	Shrub	Wide	Pres	Unc	Nelson 9436 (ZION)	1926	
Rosaceae	<i>Rubus leucodermis</i>	<i>R. occidentalis</i>	western black raspberry	Shrub	Wide	Pres	Unc	Phillips 95-146 (ZION)	1926	
Rosaceae	<i>Sanguisorba minor</i>	<i>S. minor</i> ssp. <i>muricata</i>	garden burnet	PerF	Intro	Pres	Rare	Neese 9599 (NY)	1980	Native to Europe
Rubiaceae	<i>Galium aparine</i> var. <i>echinospermon</i>	<i>G. spurium</i>	cleavers	AnnF	Wide	Pres	Unc	Nelson 10035 (ZION)	1928	
Rubiaceae	<i>Galium bifolium</i>		twin-leaf bedstraw	AnnF	Wide	Pres	Rare	Nelson 10056 (ZION)	1972	
Rubiaceae	<i>Galium multiflorum</i> var. <i>multiflorum</i>	<i>G. multiflorum</i>	shrubby bedstraw	PerF	Wide	Pres	Unc	Nelson 9606 (ZION)	1935	
Rubiaceae	<i>Galium trifidum</i>	Includes ssp. <i>columbianum</i> , <i>trifidum</i> & <i>subbiflorum</i>	small bedstraw	PerF	Wide	Pres	Unc	Fowler, May, & Hak 169 (RM)	1991	

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Rubiaceae	<i>Galium triflorum</i>		sweet-scented bedstraw	PerF	Wide	Pres	Unc	Welsh 23798 (ZION)	1925	
Rubiaceae	<i>Galium wrightii</i>		Wright's bedstraw	PerF	Periph	Pres	Unc	Nelson 10103 (ZION)	1972	
Rubiaceae	<i>Kelloggia galioides</i>		milky kelloggia	PerF	Wide	Pres	Unc	Chandler & Thorne 5534 (ZION)	1987	
Rubiaceae	<i>Rubia tinctorum</i>		madder	PerF	Intro	Pres	Unc	Nelson 9118 (ZION)	1970	Native to Europe
Salicaceae	<i>Populus alba</i>		white poplar	Tree	Intro	Rep	?	Jason Alexander observation	2003	Native to Eurasia
Salicaceae	<i>Populus angustifolia</i>		narrow-leaved cottonwood	Tree	Wide	Rep	Rare	Weight (1937), Cogan et al. (2004)	1935	
Salicaceae	<i>Populus fremontii</i> var. <i>fremontii</i>	<i>P. deltoides</i> var. <i>fremontii</i>	Fremont cottonwood	Tree	Wide	Pres	Unc	Fowler, May, & Hak 415 (ZION)	1935	
Salicaceae	<i>Populus tremulooides</i>		quaking aspen	Tree	Wide	Pres	Unc	Woodbury s.n. (ZION)	1926	Cited as present in Welsh (1990)
Salicaceae	<i>Salix boothii</i>		Booth's willow	Shrub	Wide	Pres	Rare	Palmer s.n. (ZION)	1966	
Salicaceae	<i>Salix eriocephala</i> var. <i>watsonii</i>	<i>S. lutea</i> , <i>S. rigida</i> var. <i>watsonii</i>	yellow willow	Shrub	Wide	Pres	Unc	Woodbury s.n. (ZION)	1929	Includes report of <i>S. ligulifolia</i> from Cogan et al. (2004)
Salicaceae	<i>Salix exigua</i> var. <i>stenophylla</i>	<i>S. exigua</i> var. <i>exigua</i>	coyote willow	Shrub	Wide	Pres	Unc	Nelson 9701 (ZION)	1925	
Salicaceae	<i>Salix geyeriana</i> var. <i>geyeriana</i>	<i>S. geyeriana</i>	Geyer's willow	Shrub	Wide	Pres	Rare	Barnum 1395 (BRY)	1965	

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Salicaceae	<i>Salix gooddingii</i>	<i>S. nigra</i> var. <i>vallicola</i>	Goodding's black willow	Tree	Wide	Pres	Unc	Welsh & Clark 24263 (BRY)	1935	<i>Salix x wrightii</i> , a hybrid between <i>S. gooddingii</i> and <i>S. amygdaloides</i> has been reported from Zion NP based on Ferguson & Ottley 5626 (NY) & collected in 1934.
Salicaceae	<i>Salix laevigata</i>		red willow	Shrub	Wide	Pres	Unc	Nelson 9048 (ZION)	1929	
Salicaceae	<i>Salix lasiolepis</i>		arroyo willow	Shrub	Wide	Pres	Unc	Nelson 9705 (ZION)	1929	
Salicaceae	<i>Salix lucida</i> ssp. <i>caudata</i>	<i>S. lasiandra</i> var. <i>caudata</i>	whiplash willow	Shrub	Wide	Pres	Unc	Nelson 9717 (ZION)	1928	
Salicaceae	<i>Salix scouleriana</i>		Scouler's willow	Shrub	Wide	Pres	Unc	Palmer, Goldwater, & Tamsky s.n. (ZION)	1925	
Santalaceae	<i>Comandra umbellata</i> var. <i>pallida</i>	<i>C. pallida</i>	bastard toadflax	PerF	Wide	Pres	Unc	Nelson 9264 (ZION)	1925	
Saxifragaceae (Hydrangeaceae)	<i>Fendlerella utahensis</i>		Utah fendlerella	Shrub	Wide	Pres	Unc	Degener & Peiler 16549 (NY)	1942	Type locality is Kanab, Kane Co, UT (Thompson s.n. GH), but probably collected farther to the east.
Saxifragaceae	<i>Heuchera parvifolia</i>	Includes vars. <i>major</i> , <i>parvifolia</i> , & <i>utahensis</i>	littleleaf alumroot	PerF	Wide	Pres	Rare	Nelson 10049 (ZION)	1972	
Saxifragaceae	<i>Heuchera rubescens</i> var. <i>versicolor</i>	<i>H. versicolor</i> . Vars. not recognized in Holmgren et al. (1997)	hairy alumroot	PerF	Wide	Pres	Com	Nelson 10021 (ZION)	1925	

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Saxifragaceae (Hydrangeaceae)	<i>Jamesia americana</i> var. <i>zionis</i>		Zion jamesia	Shrub	LocEn	Pres	Unc	Fowler, Hak, & May 721 (ZION)	1929	Type locality is S Fork Indian Canyon, Kane Co, UT (Tuhy 1411 NY). USFS: Region 4 Sensitive, UT BLM: Sensitive, USFWS: former C2 candidate
Saxifragaceae	<i>Lithophragma</i> <i>glabrum</i> var. <i>ramulosum</i>	<i>L. bulbifera</i> , <i>L. glabra</i>	fringe cup woodland star	PerF	Wide	Pres	Unc	Nelson 9981 (ZION)	1972	
Saxifragaceae	<i>Lithophragma</i> <i>tenellum</i>	<i>L. tenella</i>	slender woodland star	PerF	Wide	Pres	Unc	Nelson 10054 (ZION)	1929	
Saxifragaceae (Parnassiaceae)	<i>Parnassia palustris</i> var. <i>montanensis</i>	Includes var. <i>tenuis</i>	marsh grass- of-Parnassus	PerF	Wide	Pres	Unc	Lindahl s.n. (ZION)	1925	
Saxifragaceae (Hydrangeaceae)	<i>Philadelphus</i> <i>microphyllus</i>	<i>P. microphyllus</i> var. <i>occidentalis</i> , <i>P. occidentalis</i> var. <i>occidentalis</i>	little leaf mock-orange	Shrub	Wide	Pres	Unc	Nelson 10102 (ZION)	1923	Type of <i>P.</i> <i>microphyllus</i> ssp. <i>stramineus</i> f. <i>Zionensis</i> is from "near summit of Lady Mt., Zion National Park" (Craig 1439 POM)
Saxifragaceae (Grossulariaceae)	<i>Ribes aureum</i>	<i>R. aureum</i> var. <i>aureum</i>	golden currant	Shrub	Wide	Pres	Unc	Nelson 10197 (ZION)	1973	Nelson (1976) suggested Zion populations may have been planted by early settlers.
Saxifragaceae (Grossulariaceae)	<i>Ribes cereum</i> var. <i>inebrians</i>	<i>R. cereum</i> var. <i>pedicellare</i>	wax currant	Shrub	Wide	Pres	Unc	Nelson 9734 (ZION)	1966	
Saxifragaceae (Grossulariaceae)	<i>Ribes velutinum</i> var. <i>velutinum</i>		desert gooseberry	Shrub	Wide	Pres	Rare	Welsh 23979 (ZION)	1988	
Saxifragaceae	<i>Saxifraga</i> <i>rhomboidea</i>	<i>Micranthes</i> <i>rhomboidea</i>	diamond leaf saxifrage	PerF	Wide	Pres	Unc	Lundgren & Nelson 9902 (ZION)	1972	

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Scrophulariaceae	<i>Castilleja chromosa</i>	<i>C. angustifolia</i> var. <i>dubia</i> , <i>C. applegatei</i> ssp. <i>martinii</i>	desert paintbrush	PerF	Wide	Pres	Unc	Nelson 9297 (ZION)	1934	
Scrophulariaceae	<i>Castilleja exilis</i>	<i>C. minor</i> ssp. <i>minor</i>	annual paintbrush	AnnF	Wide	Pres	Rare	Fertig, Fertig, Decker, Mann, & Leiberg 23276 (ZION)	2007	
Scrophulariaceae	<i>Castilleja linariifolia</i>	<i>C. linariaefolia</i>	Wyoming paintbrush	PerF	Wide	Pres	Unc	Palmer & Goldwater s.n. (ZION)	1925	
Scrophulariaceae	<i>Castilleja miniata</i>		scarlet paintbrush	PerF	Wide	Pres	Unc	Franklin & Thorne 4920 (BRY)	1926	
Scrophulariaceae	<i>Castilleja scabrida</i> var. <i>scabrida</i>	<i>C. scabrida</i>	Eastwood's paintbrush	PerF	RegEn	Pres	Com	Nelson 9659 (ZION)	1938	
Scrophulariaceae	<i>Collinsia parviflora</i>		blue-eyed Mary	AnnF	Wide	Pres	Com	Nelson 9276 (ZION)	1929	
Scrophulariaceae	<i>Cordylanthus kingii</i> var. <i>kingii</i>		King's bird's- beak	AnnF	RegEn	Pres	Unc	Franklin & Thorne 5510 (ZION)	1925	
Scrophulariaceae	<i>Cordylanthus parviflorus</i>		smallflower bird's-beak	AnnF	Wide	Pres	Unc	Stuart s.n. (ZION)	1925	
Scrophulariaceae	<i>Linaria dalmatica</i>	<i>L. genistifolia</i> ssp. <i>dalmatica</i>	dalmatian toadflax	PerF	Intro	Rep	?	Cogan et al. (2004)	2003	Native to Europe
Scrophulariaceae	<i>Mimetanthe pilosa</i>		hairy mimetanthe	AnnF	Periph	Pres	Rare	Baird & Franklin 3603 (ZION)	1986	
Scrophulariaceae	<i>Mimulus cardinalis</i>		cardinal monkey- flower	PerF	Periph	Pres	Unc	Nelson 9618 (ZION)	1925	
Scrophulariaceae	<i>Mimulus floribundus</i>		seep monkeyflower	AnnF	Wide	Pres	Unc	Higgins 17803 (BRY)	1938	
Scrophulariaceae	<i>Mimulus glabratus</i>	Includes vars. <i>utahensis</i> & <i>fremontii</i>	glabrous monkeyflower	PerF	Wide	Pres	Unc	Thorne & Kass 6348 (BRY)	1988	

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Scrophulariaceae	<i>Mimulus guttatus</i>		yellow monkeyflower	PerF	Wide	Pres	Com	Clark & Thorne 5356 (ZION)	1928	
Scrophulariaceae	<i>Mimulus parryi</i>		Parry's monkey- flower	AnnF	RegEn	Pres	Unc	Thorne, Franklin, & Smith 6030 (BRY)	1935	Type locality is valley of the Virgin near St. George, Washington Co, UT (Parry 147 GH)
Scrophulariaceae	<i>Mimulus rubellus</i>		reddish monkeyflower	AnnF	Wide	Pres	Unc	Holmgren, LaFrance, & Reveal 1977 (ZION)	1935	
Scrophulariaceae	<i>Mimulus suksdorfii</i>		Suksdorf's monkeyflower	AnnF	Wide	Pres	Unc	Nelson 9743 (ZION)	1971	
Scrophulariaceae	<i>Orthocarpus luteus</i>		yellow owl- clover	AnnF	Wide	Hist	?	Woodbury s.n. (ZION)	1926	
Scrophulariaceae	<i>Pedicularis centranthera</i>		dwarf lousewort	PerF	Wide	Pres	Unc	Nelson 9761 (ZION)	1926	
Scrophulariaceae	<i>Penstemon barbatus</i> var. <i>barbatus</i>	<i>P. barbatus</i> var. <i>torreyi</i>	beardlip penstemon	PerF	Wide	Pres	Unc	Welsh, Higgins, & Thorne 22968 (NY)	1927	
Scrophulariaceae	<i>Penstemon comarrhenus</i>		dusty penstemon	PerF	RegEn	Pres	Unc	Degener & Peiler 16539 (NY)	1935	Type locality is Aquarius Plateau, Garfield Co, UT (Ward 462 GH)
Scrophulariaceae	<i>Penstemon confusus</i>		mistaken penstemon	PerF	RegEn	Pres	Unc	Malm s.n. (ZION)	1986	Type locality is Detroit, Juab Co, UT (Jones s.n. GH)
Scrophulariaceae	<i>Penstemon eatonii</i> var. <i>eatonii</i>	<i>P. eatonii</i>	Eaton's firecracker	PerF	Wide	Pres	Unc	Higgins 18285 (NY)	1989	Type locality is lower Provo Canyon, Utah Co, UT (Watson 776 GH)



**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Scrophulariaceae	<i>Penstemon eatonii</i> var. <i>undosus</i>		undulate penstemon	PerF	Wide	Pres	Unc	Pennell & Walker 21657 (NY)	1926	Type locality is St. George, Washington Co, UT (Jones 5110h US)
Scrophulariaceae	<i>Penstemon</i> <i>higginsii</i>	<i>P. leonardii</i> var. <i>higginsii</i>	Higgins' penstemon	PerF	LocEn	Pres	Unc	Tuhy 3526 (NY)	1966	Type locality is Pine Valley, Washington Co, UT (Higgins 13578 BRY).
Scrophulariaceae	<i>Penstemon humilis</i> var. <i>obtusifolius</i>		Zion penstemon	PerF	LocEn	Pres	Com	Nelson & Nelson 2706 (NY)	1894	Type locality is Springdale, Washington Co, UT (Jones 5249am US). USFWS: 3C
Scrophulariaceae	<i>Penstemon laevis</i>		smooth penstemon	PerF	RegEn	Pres	Unc	Sanderson ZNP042 (ZION)	1894	Type locality is Springdale, Washington Co, UT (Jones 5250 in part US)
Scrophulariaceae	<i>Penstemon</i> <i>leiophyllus</i> var. <i>leiophyllus</i>		Markagunt penstemon	PerF	LocEn	Pres	Unc	Nelson 9765 (ZION)	1966	Type locality is Mammoth Creek, Markagunt Plateau, Garfield Co, UT (Jones 6026b US)
Scrophulariaceae	<i>Penstemon</i> <i>linarioides</i> var. <i>sileri</i>		Siler's penstemon	PerF	RegEn	Pres	Unc	Holmgren, LaFrance, & Reveal 1974 (ZION, NY)	1927	Type locality is Osmer, Kane Co, UT (Siler s.n. GH)
Scrophulariaceae	<i>Penstemon</i> <i>pachyphyllus</i> var. <i>congestus</i>		Rockville penstemon	PerF	Wide	Pres	Unc	Pennell 21646 (NY)	1935	Type locality is near Canaan Ranch, Rockville, Washington Co, UT (Jones 5262 POM)

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Scrophulariaceae	<i>Penstemon palmeri</i> var. <i>eglandulosus</i>		Palmer's penstemon	PerF	RegEn	Pres	Unc	Pennell 21649 (NY)	1925	Type locality is 2.5 miles N of Kanab, Kane Co, UT (Maguire, Maguire, & Piranian 12279 UTC)
Scrophulariaceae	<i>Penstemon palmeri</i> var. <i>palmeri</i>	<i>P. palmeri</i>	Palmer's penstemon	PerF	Wide	Pres	Unc	Higgins 18244 (BRY)	1980	
Scrophulariaceae	<i>Penstemon</i> <i>rostriflorus</i>	<i>P. bridgesii</i>	beaked penstemon	PerF	Wide	Pres	Unc	Nelson 10069 (ZION)	1925	
Scrophulariaceae	<i>Penstemon</i> <i>rydbergii</i> var. <i>aggregatus</i>		Rydberg's penstemon	PerF	RegEn	Pres	Rare	Moor Z1109 (BRY, NY)	1970	
Scrophulariaceae	<i>Penstemon</i> <i>sepalulus</i>		littlecup penstemon	PerF	LocEn	Hist	?	Woodbury s.n. (BRY)	1925	Type locality is Provo Canyon, Utah Co, UT (Watson 786 GH). Cronquist et al. (1984) suggest that the disjunct report for ZION may be based on a mislabeled specimen.
Scrophulariaceae	<i>Penstemon</i> <i>utahensis</i>		Utah penstemon	PerF	Wide	Pres	Unc	Nelson & Nelson 2902 (NY)	1934	Type locality is between Hatch's Wash & Monticello, San Juan Co, UT (Eastwood s.n. CAS)
Scrophulariaceae	<i>Penstemon</i> x <i>jonesii</i>	Hybrid of <i>P. laevis</i> x <i>P.</i> <i>eatonii</i> var. <i>undulosus</i>	fuchsia penstemon	PerF	LocEn	Pres	Unc	Nelson 9694 (ZION)	1894	Type locality is Springdale, Washington Co, UT (Jones 5250 US)
Scrophulariaceae	<i>Verbascum thapsus</i>		woolly mullein	PerF	Intro	Pres	Com	Mason s.n. (ZION)	1925	Native to Eurasia

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Scrophulariaceae	<i>Veronica americana</i>		American brooklime	PerF	Wide	Pres	Unc	Alexander 1810 (ZION)	1925	
Scrophulariaceae	<i>Veronica anagallis-aquatica</i>		water speedwell	PerF	Intro	Pres	Unc	Lindahl s.n. (ZION)	1976	Native to Europe
Scrophulariaceae	<i>Veronica peregrina</i> var. <i>xalapensis</i>		purslane speedwell	AnnF	Wide	Pres	Unc	Palmer s.n. (ZION)	1966	
Selaginellaceae	<i>Selaginella underwoodii</i>		Underwood's spike-moss	Fern	Periph	Pres	Unc	Nelson 9977 (ZION)	1935	
Selaginellaceae	<i>Selaginella utahensis</i>		Utah spike- moss	Fern	RegEn	Pres	Unc	Flowers 3249 (ZION)	1951	Type locality is S of St. George, Washington Co, UT (Cottam 5644 UT), not "dry face of Lady Mtn, Zion NP" as cited in Cronquist et al. (1972). USFWS: 3C
Simaroubaceae	<i>Ailanthus altissima</i>		tree-of- heaven	Tree	Intro	Pres	Unc	Malm s.n. (ZION)	1969	Native to China
Solanaceae	<i>Chamaesaracha coronopus</i>		false nightshade	PerF	Periph	Pres	Rare	Higgins 18212 (BRY)	1989	
Solanaceae	<i>Datura wrightii</i>	<i>D. meteloides</i>	angel's trumpet	AnnF	Wide	Pres	Unc	Thorne 5773 (ZION)	1925	
Solanaceae	<i>Lycium andersonii</i>		Anderson's wolfberry	Shrub	Wide	Pres	Unc	Nelson 9793 (ZION)	1971	
Solanaceae	<i>Lycium pallidum</i>		pale wolfberry	Shrub	Wide	Pres	Unc	Nelson 9795 (ZION)	1925	
Solanaceae	<i>Nicotiana attenuata</i>		coyote tobacco	AnnF	Wide	Pres	Unc	Palmer s.n. (ZION)	1926	
Solanaceae	<i>Nicotiana trigonophylla</i>	<i>N. obtusifolia</i> . Includes vars. <i>palmeri</i> & <i>trigonophylla</i>	desert tobacco	AnnF	Wide	Pres	Unc	Nelson 10233 (UTC)	1935	
Solanaceae	<i>Physalis hederifolia</i> var. <i>fendleri</i>	<i>P. fendleri</i> , <i>P. hederifolia</i> var. <i>cordifolia</i> , <i>P. hederifolia</i> var. <i>fendleri</i>	Fendler's ground-cherry	PerF	Wide	Pres	Unc	Alexander 1813 (ZION)	1970	

**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Solanaceae	<i>Physalis hederifolia</i> var. <i>palmeri</i>	<i>P. hederifolia</i> var. <i>palmeri</i>	Palmer's ground-cherry	PerF	RegEn	Pres	Unc	Boyle Z-208 (ZION)	1925	
Solanaceae	<i>Physalis longifolia</i>	<i>P. virginiana</i> var. <i>sonorae</i>	long-leaf ground-cherry	PerF	Wide	Pres	Rare	Welsh, Clark, & Charlesworth 24069 (BRY)	1988	
Solanaceae	<i>Solanum</i> <i>elaeanifolium</i>		silverleaf nightshade	PerF	Intro	Pres	Unc	Granskog s.n. (ZION)	1979	Native to C North America
Solanaceae	<i>Solanum nigrum</i>	<i>S. ptycanthum</i> , <i>S.</i> <i>americanum</i> , <i>S.</i> <i>interius</i>	black nightshade	AnnF	Intro	Pres	Unc	Chandler & Thorne 5603 (ZION)	1926	Native to Europe
Solanaceae	<i>Solanum</i> <i>sarrachoides</i>	<i>S. villosum</i> , <i>S.</i> <i>physalifolium</i> var. <i>nitidibaccatum</i>	ground-cherry nightshade	AnnF	Intro	Rep	?	Welsh (1995)	NA	Native to South America
Solanaceae	<i>Solanum triflorum</i>		cut-leaf nightshade	AnnF	Wide	Pres	Unc	Higgins 18446 (BRY)	1925	Native to C North America, may be adventive in UT.
Tamaricaceae	<i>Tamarix chinensis</i>	<i>T. pentandra</i> , <i>T.</i> <i>ramosissima</i>	five-stamen tamarisk	Shrub	Intro	Pres	Com	Fowler, Hak, & May 623 (ZION)	1935	Native to Eurasia
Typhaceae	<i>Typha domingensis</i>		southern cattail	PerG	Wide	Pres	Unc	Welsh, Clark, & Charlesworth 23906 (ZION)	1929	
Typhaceae	<i>Typha latifolia</i>		broad-leaved cattail	PerG	Wide	Pres	Unc	Boyle Z 311 (ZION)	1927	Observed in 2007 in Parunuweap Canyon (W. Fertig)
Ulmaceae (Celtidaceae)	<i>Celtis reticulata</i>	<i>C. laevigata</i> var. <i>reticulata</i> , <i>C. douglasii</i>	netleaf hackberry	Tree	Wide	Pres	Unc	Alexander 1812 (ZION)	1925	
Ulmaceae	<i>Ulmus pumila</i>		Siberian elm	Tree	Intro	Pres	Unc	Nelson 10195 (RM)	1973	Native to Asia
Umbelliferae (Apiaceae)	<i>Angelica pinnata</i>		pinnate angelica	PerF	Wide	Pres	Unc	Franklin & Thorne 5632 (ZION)	1987	
Umbelliferae (Apiaceae)	<i>Berula erecta</i> var. <i>incisa</i>		cutleaf water- parsnip	PerF	Wide	Hist	?	Woodbury s.n. (ZION)	1925	

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Umbelliferae (Apiaceae)	<i>Cymopterus multinervatus</i>		purple-nerved spring-parsley	PerF	Periph	Pres	Unc	Alexander 1425 (ZION)	1971	
Umbelliferae (Apiaceae)	<i>Cymopterus newberryi</i>		sticky spring- parsley	PerF	RegEn	Pres	Unc	Nelson 9233 (ZION)	1971	
Umbelliferae (Apiaceae)	<i>Cymopterus purpureus</i> var. <i>purpureus</i>	<i>C. purpureus</i>	Colorado Plateau spring-parsley	PerF	RegEn	Pres	Unc	Nelson 9259 (ZION)	1935	
Umbelliferae (Apiaceae)	<i>Cymopterus purpureus</i> var. <i>rosei</i>	<i>C. rosei</i>	Rose's spring- parsley	PerF	RegEn	Pres	Unc	Clark & Welsh 24207 (ZION)	1935	Type locality is Richfield, Sevier Co, UT (Jones 30 POM). USFWS: 3C
Umbelliferae (Apiaceae)	<i>Ligusticum porteri</i>		southern ligusticum	PerF	Wide	Pres	Rare	Moor, K. Z572 (BRY)	1970	
Umbelliferae (Apiaceae)	<i>Lomatium dissectum</i> var. <i>eatonii</i>	<i>L. dissectum</i> , L. <i>dissectum</i> var. <i>multifidum</i>	giant lomatium	PerF	Wide	Pres	Unc	Nelson 10350 (ZION)	1973	
Umbelliferae (Apiaceae)	<i>Lomatium graveolens</i> var. <i>clarkii</i>	Included in L. <i>graveolens</i> var. <i>alpinum</i> by some authors	Clark's lomatium	PerF	LocEn	Pres	Rare	Holmgren, LaFrance, & Reveal 1984 (ZION)	1935	Type locality is Horse Pasture Plateau Washington Co, UT (Higgins 18293 BRY). UT BLM: Sensitive, USFWS: former C2 candidate
Umbelliferae (Apiaceae)	<i>Lomatium nevadense</i> var. <i>parishii</i>		Nevada lomatium	PerF	Wide	Pres	Unc	Nelson 10061 (ZION)	1972	
Umbelliferae (Apiaceae)	<i>Orogenia linearifolia</i>		Indian-potato	PerF	Wide	Pres	Rare	Lundstrom 9226 (ZION)	1971	Type locality is N of Parley's Park, Summit Co, UT (Watson 440 US)
Umbelliferae (Apiaceae)	<i>Osmorhiza depauperata</i>		blunt sweet- cicely	PerF	Wide	Pres	Unc	Nelson 9722 (ZION)	1928	
Umbelliferae (Apiaceae)	<i>Osmorhiza occidentalis</i>		western sweet-cicely	PerF	Wide	Pres	Unc	Nelson 10324 (ZION)	1928	

**Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Umbelliferae (Apiaceae)	<i>Torilis arvensis</i>		field hedge- parsley	AnnF	Intro	Pres	Unc	Charlesworth, Clark, & Welsh 24072 (ZION)	1988	Native to Europe
Urticaceae	<i>Parietaria pennsylvanica</i>		Pennsylvania pellitory	AnnF	Wide	Pres	Unc	Franklin & Thorne 5999 (ZION)	1935	
Valerianaceae	<i>Plectritis macrocera</i>		plectritis	AnnF	Wide	Pres	Unc	Franklin & Thorne 5957 (ZION)	1988	
Valerianaceae	<i>Valeriana arizonica</i>		Arizona valerian	PerF	Periph	Pres	Unc	Higgins 18267 (ZION)	1929	
Verbenaceae	<i>Verbena bracteata</i>		prostrate vervain	PerF	Wide	Pres	Unc	Nelson 10241 (ZION)	1963	
Violaceae	<i>Viola canadensis</i>	<i>V. canadensis</i> var. <i>rugulosa</i> , <i>V.</i> <i>scopulorum</i> , <i>V.</i> <i>rydbergii</i>	Canadian white violet	PerF	Wide	Pres	Unc	Woodbury s.n. (ZION)	1928	
Violaceae	<i>Viola clauseniana</i>		Clausen's violet	PerF	LocEn	Pres	Rare	Baker 8434 (UC)	1936	Type from Zion Canyon, Zion NP, Washington Co., UT (Baker 8434 UC)
Violaceae	<i>Viola nephrophylla</i>	<i>Viola sororia</i> var. <i>affinis</i>	northern bog violet	PerF	Wide	Pres	Unc	Welsh & Clark 24235 (NY)	1989	
Violaceae	<i>Viola purpurea</i> var. <i>charlestonensis</i>	<i>V. charlestonensis</i> , includes <i>V. utahensis</i>	Charleston mountain violet	PerF	RegEn	Pres	Unc	Clark, Thorne, & Tuhy 5390 (ZION)	1927	USFWS: 3C
Viscaceae	<i>Arceuthobium divaricatum</i>		pineon dwarf- mistletoe	PerF	Wide	Pres	Unc	Rhoads s.n. (UTC), Reported by Weight (1937)	2004	Typically parasitic on <i>Pinus edulis</i> and <i>P. monophylla</i>
Viscaceae	<i>Arceuthobium douglasii</i>		Douglas- fir dwarf- mistletoe	PerF	Wide	Rep	?	Nelson (1976)	NA	Typically parasitic on <i>Pseudotsuga menziesii</i> (rarely on <i>Abies</i> or <i>Picea</i> species)

Appendix A. Confirmed, historical, and reported vascular plant taxa of Zion National Park, organized by family and scientific name with taxonomic and biogeographic notes, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Pop. size	Source	Year doc.	Comments
Viscaceae	<i>Arceuthobium vaginatum</i> var. <i>cryptopodium</i>		southwestern dwarf- mistletoe	PerF	Wide	Pres	Unc	Palmer s.n. (ZION)	1965	Typically parasitic on <i>Pinus</i> <i>ponderosa</i>
Viscaceae	<i>Phoradendron juniperinum</i>		juniper mistletoe	PerF	Wide	Pres	Unc	Lewis s.n. (ZION)	1971	ZION material is ssp. <i>juniperinum</i> . Typically parasitic on <i>Juniperus</i> <i>osteosperma</i>
Vitaceae	<i>Vitis arizonica</i>		canyon grape	Shrub	Periph	Pres	Unc	Nelson 9043 (ZION)	1928	
Vitaceae	<i>Vitis vinifera</i>		wine grape	Shrub	Intro	Pres	Unc	Welsh, Clark, & Charlesworth 24068 (BRY)	1988	Native to Eurasia
Zannichelliaceae	<i>Zannichellia palustris</i>		horned pondweed	PerF	Wide	Pres	Rare	Thorne 5485 (ZION)	1987	
Zygophyllaceae	<i>Larrea tridentata</i>		creosote bush	Shrub	Periph	Pres	Rare	Nelson & Blau s.n. (ZION)	1967	
Zygophyllaceae	<i>Tribulus terrestris</i>		puncture vine	AnnF	Intro	Pres	Unc	Malm s.n. (ZION)	2001	Native to Eurasia

Appendix B. Potential (unconfirmed) taxa of Zion National Park.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Comments
Amaranthaceae	<i>Amaranthus fimbriatus</i>		fringed amaranth	AnnF	Periph	
Amaranthaceae	<i>Amaranthus retroflexus</i>		redroot pigweed	AnnF	Intro	Native to Central America
Amaranthaceae	<i>Tidestromia lanuginosa</i> var. <i>eliassoniana</i>	<i>Cladotrix lanuginosa</i>	woolly tidesstromia	AnnF	Periph	
Apocynaceae	<i>Amsonia jonesii</i>		Jones' amsonia	PerF	RegEn	
Asclepiadaceae	<i>Asclepias labriformis</i>		Circle Cliffs milkweed	PerF	RegEn	Type locality is Capitol Wash, Wayne Co, UT (Jones 5650 POM)
Asclepiadaceae	<i>Asclepias rusbyi</i>	<i>A. engelmanniana</i> var. <i>rusbyi</i>	Rusby's milkweed	PerF	RegEn	
Asclepiadaceae	<i>Sarcostemma cynanchoides</i> var. <i>hartwegii</i>	<i>Funastrum cynanchoides</i> ssp. <i>heterophyllum</i>	climbing milkweed	PerF	Periph	
Boraginaceae	<i>Cryptantha cinerea</i> var. <i>abortiva</i>		abortive cryptanth	PerF	Periph	
Boraginaceae	<i>Cryptantha circumscissa</i>		cushion cryptanth	AnnF	Wide	
Boraginaceae	<i>Cryptantha crassipala</i> var. <i>elachantha</i>		thick-sepaled cryptanth	AnnF	Wide	
Boraginaceae	<i>Cryptantha inaequata</i>	<i>C. holoptera</i> . Included in <i>C. angustifolia</i> by some authors	unequal cryptanth	AnnF	Periph	
Boraginaceae	<i>Cryptantha recurvata</i>		recurved cryptanth	AnnF	Wide	
Boraginaceae	<i>Cryptantha torreyana</i>		Torrey's cryptanth	AnnF	Wide	
Boraginaceae	<i>Cynoglossum officinale</i>		common hound's-tongue	PerF	Intro	Native to Eurasia
Boraginaceae	<i>Heliotropium curassavicum</i> var. <i>oculatum</i>		pretty heliotrope	PerF	Periph	
Cactaceae	<i>Opuntia polyacantha</i> var. <i>polyacantha</i>	<i>Flora of North America</i> (2003) includes vars. <i>rufispina</i> & <i>trichophora</i> .	plains pricklypear	PerF	Wide	
Cactaceae	<i>Pediocactus simpsonii</i>	Includes vars. <i>minor</i> & <i>simpsonii</i>	Simpson's hedgehog cactus	PerF	Wide	
Campanulaceae	<i>Campanula rotundifolia</i>		harebell	PerF	Wide	
Capparidaceae (Cleomaceae)	<i>Polanisia dodecandra</i> var. <i>trachysperma</i>	<i>P. trachysperma</i>	clammy-weed	AnnF	Wide	
Caryophyllaceae (Aisinaceae)	<i>Cerastium fontanum</i>	<i>C. vulgatum</i> , <i>C. fontanum</i> ssp. <i>vulgare</i>	mouse-ear chickweed	PerF	Intro	Native to Eurasia



**Appendix B. Potential (unconfirmed) taxa of Zion National Park, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Comments
Caryophyllaceae	<i>Loeflingia squarrosa</i>	<i>L. squarrosa</i> var. <i>artemisiarum</i> . Vars. not recognized in <i>Flora of North America</i> (2005)	loeflingia	AnnF	Periph	
Caryophyllaceae (Asteraceae)	<i>Sagina saginoides</i>		alpine pearlwort	PerF	Wide	
Caryophyllaceae	<i>Saponaria officinalis</i>		bouncing-bet	PerF	Intro	Native to Europe
Caryophyllaceae (Asteraceae)	<i>Spergularia marina</i>	<i>S. salina</i>	salt sand-spurrey	AnnF	Intro	Native to Europe
Chenopodiaceae	<i>Atriplex heterosperma</i>	<i>A. micrantha</i>	two-seed orach	AnnF	Intro	Native to Eurasia
Chenopodiaceae	<i>Atriplex lentiformis</i>		big saltbush	Shrub	Periph	
Chenopodiaceae	<i>Atriplex prostrata</i>	<i>A. patula</i> var. <i>triangularis</i>	thinleaf orach	AnnF	Wide	
Chenopodiaceae	<i>Atriplex rosea</i>		tumbling orach	AnnF	Intro	Native to Eurasia
Chenopodiaceae	<i>Atriplex semibaccata</i>		Australia saltbush	PerF	Intro	Native to Australia
Chenopodiaceae	<i>Atriplex truncata</i>		wedge orach	AnnF	Wide	
Chenopodiaceae	<i>Chenopodium ambrosioides</i>	<i>Teloxys ambrosioides</i> , <i>Dysphania ambrosioides</i>	Mexican-tea	AnnF	Intro	Native to Mexico
Chenopodiaceae	<i>Chenopodium capitatum</i> var. <i>parvicapitatum</i>	<i>C. overi</i> , <i>C. foliosum</i>	smallhead goosefoot	AnnF	Wide	Type locality is Indian Creek, Tushar Mountains, Beaver Co, UT (Martin & Welsh 17148 BRY)
Chenopodiaceae	<i>Chenopodium murale</i>		nettle-leaf goosefoot	AnnF	Intro	Native to Eurasia
Chenopodiaceae	<i>Corispermum americanum</i>	Includes vars. <i>americanum</i> & <i>rydbergii</i>	American bugseed	AnnF	Wide	
Chenopodiaceae	<i>Salsola paulsenii</i>		barbwire Russian thistle	AnnF	Intro	Native to Eurasia
Chenopodiaceae (Sarcobataceae)	<i>Sarcobatus vermiculatus</i>		greasewood	Shrub	Wide	
Chenopodiaceae	<i>Suaeda calceoliformis</i>	<i>S. depressa</i>	broom seepweed	AnnF	Wide	
Compositae (Asteraceae)	<i>Acourtia wrightii</i>	<i>Perezia wrightii</i>	Wright's perezia	PerF	Periph	
Compositae (Asteraceae)	<i>Agoseris glauca</i> var. <i>dasycephala</i>		short agoseris	PerF	Wide	
Compositae (Asteraceae)	<i>Ambrosia artemisiifolia</i>	<i>A. artemisiifolia</i> var. <i>elatior</i>	common ragweed	AnnF	Wide	

Appendix B. Potential (unconfirmed) taxa of Zion National Park, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Comments
Compositae (Asteraceae)	<i>Amphipappus fremontii</i> var. <i>spinosus</i>		chaff-bush	Shrub	Periph	
Compositae (Asteraceae)	<i>Artemisia bigelovii</i>		Bigelow's sagebrush	Shrub	Wide	
Compositae (Asteraceae)	<i>Artemisia carruthii</i>		Carruth's wormwood	PerF	Wide	
Compositae (Asteraceae)	<i>Artemisia frigida</i>		fringed sagebrush	Shrub	Wide	
Compositae (Asteraceae)	<i>Aster frondosus</i>	<i>Symphotrichum frondosum</i> , <i>Brachyactis frondosa</i>	leafy aster	AnnF	Wide	
Compositae (Asteraceae)	<i>Aster spathulatus</i>	<i>A. occidentalis</i> , <i>Symphotrichum spathulatum</i>	western aster	PerF	Wide	
Compositae (Asteraceae)	<i>Baccharis sergilloides</i>		squaw waterweed	Shrub	Periph	
Compositae (Asteraceae)	<i>Bahia dissecta</i>	<i>Amauriopsis dissecta</i>	cutleaf	PerF	Wide	
Compositae (Asteraceae)	<i>Balsamorhiza hookeri</i> var. <i>hispidula</i>	<i>B. hispidula</i>	hairy balsamroot	PerF	Wide	
Compositae (Asteraceae)	<i>Bidens frondosa</i>		devil's- beggarsticks	PerF	Wide	
Compositae (Asteraceae)	<i>Brickellia oblongifolia</i> var. <i>linifolia</i>		Mohave brickellbush	Shrub	Wide	Type locality of var. <i>linifolia</i> is American Fork, Jordan Valley, Utah Co, UT (Watson 493 YU)
Compositae (Asteraceae)	<i>Chaenactis carphoclinia</i>		Gray's chaenactis	AnnF	Periph	
Compositae (Asteraceae)	<i>Chrysothamnus linifolius</i>	<i>Lorandersonia linifolia</i>	spear-leaf rabbitbrush	Shrub	Wide	
Compositae (Asteraceae)	<i>Chrysothamnus parryi</i> var. <i>parryi</i>	<i>Ericameria parryi</i> var. <i>parryi</i>	Parry's rabbitbrush	Shrub	Sparse	
Compositae (Asteraceae)	<i>Chrysothamnus viscidiflorus</i> var. <i>lanceolatus</i>		lanceleaf rabbitbrush	Shrub	Wide	
Compositae (Asteraceae)	<i>Cirsium arvense</i>	Includes vars. <i>horridum</i> & <i>integrifolium</i> , <i>Breea arvensis</i>	Canada thistle	PerF	Intro	Utah state noxious weed. Native to Eurasia

**Appendix B. Potential (unconfirmed) taxa of Zion National Park, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Comments
Compositae (Asteraceae)	<i>Crepis acuminata</i>		mountain hawksbeard	PerF	Wide	
Compositae (Asteraceae)	<i>Crepis occidentalis</i> var. <i>costata</i>		basin hawksbeard	PerF	Wide	
Compositae (Asteraceae)	<i>Erigeron aphanactis</i> var. <i>aphanactis</i>	<i>E. concinnus</i> var. <i>aphanactis</i>	hairy daisy	PerF	Wide	
Compositae (Asteraceae)	<i>Erigeron bellidiastrum</i>	<i>E. bellidiastrum</i> var. <i>bellidiastrum</i>	pretty daisy	AnnF	Wide	
Compositae (Asteraceae)	<i>Erigeron compositus</i> var. <i>glabratus</i>		cut-leaved daisy	PerF	Wide	
Compositae (Asteraceae)	<i>Erigeron lonchophyllus</i>	<i>Trimorpha lonchophylla</i>	longleaf daisy	PerF	Wide	
Compositae (Asteraceae)	<i>Erigeron peregrinus</i> var. <i>callianthemus</i>	<i>E. peregrinus</i> var. <i>scaposus</i> , <i>E. glacialis</i> var. <i>glacialis</i>	wandering fleabane	PerF	Wide	
Compositae (Asteraceae)	<i>Erigeron ursinus</i> var. <i>ursinus</i>	Vars. not recognized in <i>Flora of North America</i> (2006)	bear daisy	PerF	Wide	
Compositae (Asteraceae)	<i>Gnaphalium exilifolium</i>	<i>G. uliginosum</i>	slender cudweed	AnnF	Wide	
Compositae (Asteraceae)	<i>Gnaphalium luteo-album</i>	<i>Pseudognaphalium luteo-album</i>	yellow-white cudweed	AnnF	Intro	Native to Europe
Compositae (Asteraceae)	<i>Grindelia squarrosa</i> var. <i>squarrosa</i>	Vars. not recognized in <i>Flora of North America</i> (2006)	curly-cup gumweed	PerF	Sparse	May be introduced from C USA
Compositae (Asteraceae)	<i>Haplopappus clementis</i>	<i>Pyrrcoma clementis</i> var. <i>clementis</i>	Clement's goldenweed	PerF	Wide	
Compositae (Asteraceae)	<i>Haplopappus crispus</i>	<i>Ericameria crispata</i>	Pine Valley goldenbush	Shrub	LocEn	Type locality is Pine Valley Mountains, Washington Co, UT (Anderson 5504 BRY). USFS: Region 4 Sensitive, UT BLM: Sensitive, USFWS: former C2 candidate
Compositae (Asteraceae)	<i>Haplopappus nanus</i>	<i>Ericameria nana</i>	low goldenbush	Shrub	Wide	

Appendix B. Potential (unconfirmed) taxa of Zion National Park, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Comments
Compositae (Asteraceae)	<i>Haplopappus spinulosus</i> var. <i>gooddingii</i>	<i>Machaeranthera pinnatifida</i> var. <i>gooddingii</i> , <i>M. spinulosa</i> ssp. <i>gooddingii</i> , <i>Xanthisma spinulosum</i> var. <i>gooddingii</i>	spiny goldenweed	PerF	Periph	
Compositae (Asteraceae)	<i>Helianthus anomalus</i>	Includes <i>H. deserticola</i>	sand sunflower	AnnF	RegEn	Type locality of <i>H. anomalus</i> is desert S of Hanksville, Wayne Co, UT (Stanton 328 US). Type locality of <i>H. deserticola</i> is 3.3 miles W of Hurricane, Washington Co, UT (Stoutamire 2574 US)
Compositae (Asteraceae)	<i>Helianthus nuttallii</i>		Nuttall's sunflower	PerF	Wide	
Compositae (Asteraceae)	<i>Hieracium fendleri</i>	<i>Chlorocrepis fendleri</i>	Fendler's hawkweed	PerF	Periph	
Compositae (Asteraceae)	<i>Hymenopappus filifolius</i> var. <i>nanus</i>		Great Basin hyalineherb	PerF	Wide	
Compositae (Asteraceae)	<i>Machaeranthera canescens</i> var. <i>canescens</i>	<i>Aster canescens</i> , <i>Dieteria canescens</i> var. <i>canescens</i>	hoary aster	PerF	Wide	
Compositae (Asteraceae)	<i>Machaeranthera commixta</i>	<i>M. bigelovii</i> var. <i>commixta</i> , <i>Dieteria bigelovii</i> var. <i>commixta</i>	Bigelow's aster	PerF	RegEn	Type locality is Bromide Pass, Henry Mountains, Garfield Co, UT (Jones 5695y US)
Compositae (Asteraceae)	<i>Malacothrix glabrata</i>	<i>M. californica</i>	filiform desert-dandelion	AnnF	Wide	
Compositae (Asteraceae)	<i>Malacothrix sonchoides</i>		sowthistle desert-dandelion	AnnF	Wide	
Compositae (Asteraceae)	<i>Oxytenia acerosa</i>	<i>Iva acerosa</i>	copperweed	Shrub	Wide	
Compositae (Asteraceae)	<i>Pluchea odorata</i>	<i>P. camphorata</i>	camphor-weed	AnnF	Periph	
Compositae (Asteraceae)	<i>Prenanthes exigua</i>	<i>Lygodesmia exigua</i>	prenanthella	AnnF	Wide	
Compositae (Asteraceae)	<i>Rafinesquia californica</i>		California chicory	AnnF	Periph	

**Appendix B. Potential (unconfirmed) taxa of Zion National Park, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Comments
Compositae (Asteraceae)	<i>Senecio douglasii</i> var. <i>monoensis</i>	<i>S. monoensis</i> , <i>S. flaccidus</i> var. <i>monoensis</i>	Mono groundsel	PerF	Periph	
Compositae (Asteraceae)	<i>Stylocline micropoides</i>		desert nest-straw	AnnF	Periph	
Compositae (Asteraceae)	<i>Thelesperma subnudum</i> var. <i>subnudum</i>	Vars. not recognized in <i>Flora of North America</i> (2006).	scapose greenthread	PerF	Wide	Type locality is "southern Utah" (Parry 109 GH)
Compositae (Asteraceae)	<i>Verbesina encelloides</i> var. <i>exauriculata</i>	<i>Ximensia encelloides</i>	golden crownbeard	AnnF	Wide	
Convolvulaceae	<i>Calystegia longipes</i>		longstalk bindweed	PerF	RegEn	
Convolvulaceae	<i>Cuscuta denticulata</i>	<i>Grammica denticulata</i>	smalltooth dodder	AnnF	Wide	Type locality is St. George, Washington Co, UT (Parry 205 ISC)
Cruciferae (Brassicaceae)	<i>Arabis selbyi</i>	<i>Boechera selbyi</i>	Selby's rockcress	PerF	Wide	
Cruciferae (Brassicaceae)	<i>Barbarea orthoceras</i>		northern wintercress	PerF	Wide	
Cruciferae (Brassicaceae)	<i>Barbarea vulgaris</i>		European wintercress	PerF	Intro	Native to Eurasia
Cruciferae (Brassicaceae)	<i>Camelina microcarpa</i>		little-pod false flax	AnnF	Intro	Native to Asia
Cruciferae (Brassicaceae)	<i>Cardamine cordifolia</i> var. <i>cordifolia</i>		heartleaf bittercress	PerF	Wide	
Cruciferae (Brassicaceae)	<i>Draba stenoloba</i> var. <i>nana</i>	<i>Draba albertina</i>	slender whitlow-grass	PerF	Wide	
Cruciferae (Brassicaceae)	<i>Erysimum inconspicuum</i>		shy wallflower	PerF	Wide	
Cruciferae (Brassicaceae)	<i>Lepidium campestre</i>	<i>Neolepia campestris</i>	field pepperwort	AnnF	Intro	Native to Asia
Cruciferae (Brassicaceae)	<i>Lepidium densiflorum</i> var. <i>pubicarpum</i>	<i>L. densiflorum</i> var. <i>pubecarpum</i>	hairy pepperwort	AnnF	Wide	
Cruciferae (Brassicaceae)	<i>Physaria arizonica</i>	<i>Lesquerella arizonica</i>	Arizona bladderpod	PerF	RegEn	
Cruciferae (Brassicaceae)	<i>Schoenocrambe linifolia</i>	<i>Sisymbrium linifolium</i>	flax-leaved plainsmustard	PerF	Wide	

Appendix B. Potential (unconfirmed) taxa of Zion National Park, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Comments
Cruciferae (Brassicaceae)	<i>Sisymbrium irio</i>		London mustard	AnnF	Intro	Native to Europe
Cyperaceae	<i>Carex bolanderi</i>	<i>C. deweyana</i> var. <i>bolanderi</i>	Bolander's sedge	PerG	Sparse	
Cyperaceae	<i>Cyperus erythrorhizos</i>		redroot flat-sedge	AnnG	Wide	
Cyperaceae	<i>Cyperus squarrosus</i>	<i>C. aristatus</i>	bearded flat-sedge	AnnG	Wide	
Cyperaceae	<i>Eleocharis parvula</i> var. <i>anachaeta</i>	<i>E. coloradensis</i>	dwarf spikerush	PerG	Wide	
Cyperaceae	<i>Fimbristylis spadicca</i>	<i>F. thermalis</i>	hot springs fimbriatylis	PerG	Sparse	
Elatinaceae	<i>Elatine triandra</i>	<i>E. brachysperma</i> , <i>E. rubella</i>	red-stem waterwort	AnnF	Sparse	
Ephedraceae	<i>Ephedra viridis</i> var. <i>viscida</i>	<i>E. cutleri</i>	Cutler's ephedra	Shrub	RegEn	
Ericaceae	<i>Arctostaphylos pringlei</i>		Pringle's manzanita	Shrub	Periph	
Euphorbiaceae	<i>Chamaesyce micromeria</i>	<i>Euphorbia micromeria</i>	tiny spurge	AnnF	Wide	
Euphorbiaceae	<i>Reverchonia arenaria</i>		sand-ghost	AnnF	Periph	
Geraniaceae	<i>Geranium richardsonii</i>		Richardson's crane's-bill	PerF	Wide	
Geraniaceae	<i>Geranium viscosissimum</i> var. <i>incisum</i>	<i>G. viscosissimum</i> var. <i>nervosum</i>	sticky crane's-bill	PerF	Wide	
Gramineae (Poaceae)	<i>Arundo donax</i>		giant reed	PerG	Intro	Native to Eurasia
Gramineae (Poaceae)	<i>Deschampsia cespitosa</i>	<i>D. caespitosa</i>	tufted hairgrass	PerG	Wide	
Gramineae (Poaceae)	<i>Elymus junceus</i>	<i>Psathyrostachys juncea</i>	Russian wildrye	PerG	Intro	Native to Russia
Gramineae (Poaceae)	<i>Leptochloa fascicularis</i>	<i>Diplachne fascicularis</i> , <i>L. fusca</i> var. <i>fascicularis</i>	bearded sprangletop	AnnG	Wide	
Gramineae (Poaceae)	<i>Panicum obtusum</i>		vine mesquite	PerG	Wide	
Gramineae (Poaceae)	<i>Poa annua</i>		annual bluegrass	AnnG	Intro*	Native to Eurasia and W North America
Gramineae (Poaceae)	<i>Spartina gracilis</i>		alkali cordgrass	PerG	Wide	
Gramineae (Poaceae)	<i>Stipa arnowiae</i>	Included in <i>Stipa x bloomeri</i> by other authors. Hybrid of <i>S. hymenoides</i> x <i>S. comata</i>	Arnow's ricegrass	PerG	RegEn	Type locality is ca 9 miles E of Johnson Canyon, Kane Co, UT (Weish & O'Dell 28062 BR)
Gramineae (Poaceae)	<i>Stipa coronata</i> var. <i>depauperata</i>	<i>Achnatherum coronatum</i> , <i>A. parishii</i> ssp. <i>depauperatum</i>	depauperate needlegrass	PerG	RegEn	Type locality is Detroit, Juab Co, UT (Jones s.n. US)
Gramineae (Poaceae)	<i>Stipa neomexicana</i>	<i>Hesperostipa neomexicana</i>	New Mexico feathergrass	PerG	Wide	
Haloragaceae	<i>Myriophyllum spicatum</i>	<i>M. exalbescens</i> , <i>M. spicatum</i> var. <i>exalbescens</i>	European milfoil	PerF	Intro	Native to Europe

**Appendix B. Potential (unconfirmed) taxa of Zion National Park, cont.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Comments
Hydrophyllaceae	<i>Eucrypta micrantha</i>		desert eucrypta	AnnF	Periph	
Hydrophyllaceae	<i>Nama densum</i> var. <i>parviflorum</i>		leafy fiddleleaf	AnnF	Wide	
Hydrophyllaceae	<i>Phacelia alba</i>	<i>P. neomexicana</i> var. <i>alba</i>	white scorpion-weed	AnnF	Wide	
Hydrophyllaceae	<i>Phacelia linearis</i>		narrow-leaved phacelia	AnnF	Wide	
Isoetaceae	<i>Isoetes howellii</i>		Howell's quillwort	Fern	Disj	
Juncaceae	<i>Juncus confusus</i>		perplexing rush	PerG	Wide	
Labiatae (Lamiaceae)	<i>Hedeoma drummondii</i>		mock pennyroyal	PerF	Wide	
Labiatae (Lamiaceae)	<i>Monarda pectinata</i>		plains beebalm	AnnF	Periph	
Labiatae (Lamiaceae)	<i>Stachys albens</i>		white hedge-nettle	PerF	Periph	
Leguminosae (Fabaceae)	<i>Astragalus amphioxys</i> var. <i>vespertinus</i>		Sheldon's milkvetch	PerF	RegEn	
Leguminosae (Fabaceae)	<i>Astragalus bisulcatus</i> var. <i>bisulcatus</i>		two-grooved milkvetch	PerF	Wide	Reports from vicinity of Zion NP may be based on specimens of var. major.
Leguminosae (Fabaceae)	<i>Astragalus lentiginosus</i> var. <i>salinus</i>		salt milkvetch	PerF	Wide	
Leguminosae (Fabaceae)	<i>Astragalus straturensis</i>		Pine Valley milkvetch	PerF	RegEn	Type locality is Silver Reef, Washington Co, UT (Jones 5175 POM)
Leguminosae (Fabaceae)	<i>Lathyrus lanszwertii</i> var. <i>lanszwertii</i>		Lanszwert's sweetpea	PerF	Wide	
Leguminosae (Fabaceae)	<i>Medicago polymorpha</i>	<i>M. hispida</i>	bur-clover	AnnF	Intro	Native to Europe
Leguminosae (Fabaceae)	<i>Oxytropis oreophila</i> var. <i>oreophila</i>		mountain locoweed	PerF	Wide	Type locality is Aquarius Plateau, Garfield Co, UT (Ward 541 GH)
Leguminosae (Fabaceae)	<i>Sophora stenophylla</i>		silvery sophora	PerF	Wide	
Leguminosae (Fabaceae)	<i>Trifolium fragiferum</i>		strawberry clover	PerF	Intro	Native to Europe
Leguminosae (Fabaceae)	<i>Trifolium pratense</i>		red clover	PerF	Intro	Native to Europe

Appendix B. Potential (unconfirmed) taxa of Zion National Park, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Comments
Leguminosae (Fabaceae)	<i>Trifolium variegatum</i> var. <i>parunuweapensis</i>		Parunuweap clover	AnnF	LocEn	Type locality is The Barracks, Kane Co, UT (Welsh & Thorne 25120 BRY)
Liliaceae (Alliaceae)	<i>Allium lemmonii</i>		Lemmon's onion	PerF	Periph	
Liliaceae (Melanthiaceae)	<i>Zigadenus venenosus</i>	<i>Z. venenosus</i> var. <i>venosus</i> , <i>Toxicoscordion venosum</i>	meadow death camas	PerF	Wide	
Malvaceae	<i>Malvella leprosa</i>		alkali mallow	PerF	Wide	
Malvaceae	<i>Sidalcea candida</i>	Includes vars. <i>candida</i> & <i>glabrata</i>	white checker-mallow	PerF	Wide	
Marsileaceae	<i>Marsilea vestita</i>	<i>M. vestita</i> var. <i>vestita</i>	pepperwort	Fern	Wide	
Nyctaginaceae	<i>Mirabilis bigelovii</i> var. <i>retrorsa</i>	<i>M. laevis</i> var. <i>retrorsa</i>	Bigelow's four-o'clock	PerF	Periph	
Nyctaginaceae	<i>Mirabilis pumila</i>	<i>M. albid</i>	Standley's four-o'clock	PerF	Wide	
Nyctaginaceae	<i>Selinocarpus diffusus</i> ssp. <i>nevadensis</i>	<i>Acleisanthes nevadensis</i>	moonpod	PerF	RegEn	
Nyctaginaceae	<i>Tripterocalyx micranthus</i>	<i>Abronia micrantha</i> , <i>T. pedunculatus</i>	small-flower sandpuffs	AnnF	Wide	
Onagraceae	<i>Camissonia chamaenerioides</i>		slender-pod camissonia	AnnF	Periph	
Onagraceae	<i>Camissonia pterosperma</i>		wingseed camissonia	AnnF	Periph	
Onagraceae	<i>Camissonia pusilla</i>		obscure camissonia	AnnF	Periph	
Onagraceae	<i>Oenothera elata</i>	<i>O. elata</i> ssp. <i>hirsutissima</i>	western evening-primrose	PerF	Wide	
Onagraceae	<i>Oenothera murdockii</i>		Murdock's evening primrose	AnnF	LocEn	Type locality is Kitchen Corral Canyon, Kane Co, UT (Welsh 25643 BRY). UT BLM: Sensitive
Ophioglossaceae	<i>Botrychium simplex</i>	Includes vars. <i>compositum</i> & <i>tenebrosum</i>	little grapefern	Fern	Sparse	
Orchidaceae	<i>Corallorhiza striata</i>	<i>C. striata</i> var. <i>striata</i>	striped coral-root	PerF	Wide	
Orobanchaceae	<i>Orobanche corymbosa</i>		flat-topped broomrape	PerF	Wide	
Orobanchaceae	<i>Orobanche uniflora</i>	<i>O. uniflora</i> var. <i>occidentalis</i> , <i>Aphyllon uniflorum</i>	naked broomrape	PerF	Sparse	
Pinaceae	<i>Picea engelmannii</i>		Engelmann spruce	Tree	Wide	
Pinaceae	<i>Picea pungens</i>		blue spruce	Tree	Wide	State tree of Utah and Colorado



Appendix B. Potential (unconfirmed) taxa of Zion National Park, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Comments
Pinaceae	<i>Pinus flexilis</i>		limber pine	Tree	Wide	
Pinaceae	<i>Pinus longaeva</i>	<i>P. aristata</i>	western bristlecone pine	Tree	Wide	
Polemoniaceae	<i>Collomia linearis</i>		small collomia	AnnF	Wide	
Polemoniaceae	<i>Gilia hutchinsifolia</i>	<i>Aliciella hutchinsifolia</i>	broadlobe gilia	AnnF	Wide	
Polemoniaceae	<i>Phlox griseola</i>		grayleaf phlox	PerF	RegEn	
Polemoniaceae	<i>Phlox pulvinata</i>	<i>P. sibirica</i> ssp. <i>pulvinata</i> , <i>P. caespitosa</i>	cushion phlox	PerF	Wide	
Polemoniaceae	<i>Polemonium pulcherrimum</i> var. <i>delicatum</i>	<i>P. pulcherrimum</i> var. <i>pulcherrimum</i>	pretty Jacob's-ladder	PerF	Wide	
Polygalaceae	<i>Polygala subspinosa</i>	<i>P. subspinosa</i> var. <i>subspinosa</i>	cushion milkwort	PerF	Wide	
Polygonaceae	<i>Eriogonum brachypodum</i>		Parry's wild buckwheat	AnnF	Periph	
Polygonaceae	<i>Eriogonum heermannii</i> var. <i>sulcatum</i>		Heermann's grooved wild buckwheat	Shrub	RegEn	Type locality is near St. George, Washington Co, UT (Palmer 242 ISC)
Polygonaceae	<i>Eriogonum maculatum</i>		spotted wild buckwheat	AnnF	Wide	
Polygonaceae	<i>Eriogonum pusillum</i>		low wild buckwheat	AnnF	Periph	
Polygonaceae	<i>Rumex venosus</i>		veiny dock	PerF	Wide	
Polypodiaceae (Aspleniaceae)	<i>Asplenium septentrionale</i>		forked spleenwort	Fern	Sparse	
Polypodiaceae (Aspleniaceae)	<i>Athyrium filix-femina</i> var. <i>cyclosorum</i>	<i>A. filix-femina</i> var. <i>californicum</i>	lady fern	Fern	Wide	
Polypodiaceae (Adiantaceae)	<i>Cryptogramma crispa</i> var. <i>acrostichoides</i>	<i>C. acrostichoides</i>	parsley-fern	Fern	Wide	
Polypodiaceae (Adiantaceae)	<i>Pellaea jonesii</i>	<i>Argyroschisma jonesii</i> , <i>Notholaena jonesii</i>	Jones' cloak-fern	Fern	Periph	
Polypodiaceae (Aspleniaceae)	<i>Polystichum lonchitis</i>		holly-fern	Fern	Wide	
Portulacaceae	<i>Calyptidium monandrum</i>	<i>Cistanthe monandra</i>	roseate calyptidium	AnnF	Periph	
Portulacaceae	<i>Lewisia rediviva</i>	Includes vars. <i>minor</i> & <i>rediviva</i>	Oregon bitter-root	PerF	Wide	
Potamogetonaceae	<i>Potamogeton pectinatus</i>	<i>Stuckenia pectinata</i> , <i>Coleogeton pectinatus</i>	fennel-leaf pondweed	PerF	Wide	
Ranunculaceae	<i>Ranunculus alismifolius</i> var. <i>montanus</i>		plantain buttercup	PerF	Wide	

Appendix B. Potential (unconfirmed) taxa of Zion National Park, cont.

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Comments
Ranunculaceae	<i>Ranunculus macounii</i>		Macoun's buttercup	PerF	Wide	
Ranunculaceae (Helleboraceae)	<i>Aquilegia elegantula</i>		elegant columbine	PerF	Wide	
Rhamnaceae	<i>Rhamnus betulifolia</i>	<i>Frangula betulifolia</i>	birchleaf buckthorn	Shrub	Wide	
Rosaceae	<i>Fragaria virginiana</i>	Includes ssp. <i>glauca</i> & <i>platypetala</i>	Virginia strawberry	PerF	Wide	
Rosaceae	<i>Geum triflorum</i> var. <i>ciliatum</i>	<i>Erythrocoma triflora</i>	prairie smoke	PerF	Wide	
Rosaceae	<i>Potentilla anserina</i>	<i>Argentina anserina</i>	silverweed	PerF	Wide	
Rosaceae	<i>Potentilla arguta</i> var. <i>convallaria</i>	<i>Drymocallis arguta</i> , includes ssp. <i>arguta</i>	tall cinquefoil	PerF	Wide	
Rosaceae	<i>Potentilla biennis</i>		biennial cinquefoil	AnnF	Wide	
Rosaceae	<i>Purpusia saxosa</i>	<i>Ivesia arizonica</i> var. <i>saxosa</i>	purpusia	PerF	RegEn	Kolob Reservoir, Wash Co
Scrophulariaceae	<i>Penstemon thompsoniae</i>		Thompson's penstemon	PerF	RegEn	Type locality is near Kanab, Kane Co, UT (Thompson s.n. GH)
Scrophulariaceae	<i>Scrophularia lanceolata</i>		lance-leaf figwort	PerF	Wide	
Scrophulariaceae	<i>Veronica biloba</i>	<i>Pocilla biloba</i>	two-lobe speedwell	AnnF	Intro	Native to Asia
Selaginellaceae	<i>Selaginella watsonii</i>		Watson's spike-moss	Fern	Wide	Type locality is Cottonwood Canyon, Salt Lake Co, UT (Watson 2370 US)
Solanaceae	<i>Lycium torreyi</i>		Torrey's wolfberry	Shrub	Wide	
Umbelliferae (Apiaceae)	<i>Lomatium parryi</i>		Parry's lomatium	PerF	Wide	Type locality is "Southern Utah" (Parry 85)
Umbelliferae (Apiaceae)	<i>Oreoxis alpina</i>	<i>Cymopterus alpinus</i>	matted spring-parsley	PerF	Wide	
Violaceae	<i>Viola adunca</i>		hook-spur violet	PerF	Wide	

The vascular plant species listed in this table are known from the vicinity of Zion National Park in Iron, Washington, and Kane counties, Utah, but have not previously been reported or confirmed for the park. Species on this list are derived from a checklist of potential species for NCPN parks prepared by Dr. N. Duane Atwood of Brigham Young University in 2001 and the *Atlas of the Vascular Flora of Utah* (Albee et al. 1988). Some species from Appendix C could be considered as potentially occurring in the park, but are not included here.

**Appendix C. Rejected (falsely reported or questionable) taxa of Zion National Park.**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Comments
Asclepiadaceae	<i>Asclepias incarnata</i>		swamp milkweed	Perf	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>A. asperula</i> .
Boraginaceae	<i>Amsinckia menziesii</i>	Includes <i>A. retrorsa</i>	Menzies' fiddleneck	AnnF	Wide	FalsRep	Report from ZION herbarium is based on a misidentified <i>Cryptantha</i> .
Boraginaceae	<i>Cryptantha cinerea</i> var. <i>jamesii</i>	<i>C. jamesii</i> , <i>Oreocarya suffruticosa</i>	James' cryptanth	Perf	Wide	FalsRep	Reports from ZION herbarium are based on misidentified specimens of <i>C. cinerea</i> var. <i>arenicola</i> .
Boraginaceae	<i>Cryptantha cinerea</i> var. <i>pustulosa</i>	<i>C. pustulosa</i>	San Juan cryptanth	Perf	RegEn	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>C. cinerea</i> var. <i>arenicola</i> . Type locality is Elk Mts, San Juan Co, UT (Rydberg & Garrett 9320 NY).
Boraginaceae	<i>Cryptantha watsonii</i>		Watson's cryptanth	AnnF	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>C. gracilis</i> .
Boraginaceae	<i>Mertensia ciliata</i>		streamside bluebell	PerF	Wide	FalsRep	Report from ZION is probably based on a misidentification of <i>M. arizonica</i> .
Cactaceae	<i>Opuntia basilaris</i> var. <i>basilaris</i>		beavertail cactus	PerF	Periph	FalsRep	Unvouchered report from ZION based on a misidentified specimen of <i>O. erinacea</i> var. <i>aurea</i> .
Caprifoliaceae (Adoxaceae)	<i>Sambucus canadensis</i>	<i>S. nigra</i> var. <i>canadensis</i> .	sweet elderberry	Shrub	Intro	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>S. caerulea</i> . Native to E North America.
Chenopodiaceae	<i>Chenopodium leptophyllum</i>		narrow-leaf goosefoot	AnnF	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>C. desiccatum</i> .
Compositae (Asteraceae)	<i>Ambrosia psilostachya</i>	<i>A. coronopifolia</i> , <i>A. psilostachya</i> var. <i>coronopifolia</i>	western ragweed	PerF	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>A. acanthicarpa</i> .
Compositae (Asteraceae)	<i>Ambrosia tomentosa</i>	<i>Franseria tomentosa</i>	skeleton-leaf bursage	PerF	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>A. acanthicarpa</i> .
Compositae (Asteraceae)	<i>Arnica latifolia</i> var. <i>latifolia</i>		broadleaf arnica	PerF	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>A. cordifolia</i> var. <i>cordifolia</i> .
Compositae (Asteraceae)	<i>Artemisia cana</i> var. <i>viscidula</i>	<i>Seriphidium canum</i> ssp. <i>viscidulum</i>	silver sagebrush	Shrub	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>Chrysothamnus nauseosus</i> .

Appendix C. Rejected (falsely reported or questionable) taxa of Zion National Park, cont..

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Comments
Compositae (Asteraceae)	<i>Aster foliaceus</i> var. <i>parryi</i>	<i>Symphotrichum foliaceum</i> var. <i>parryi</i>	Parry's aster	PerF	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>A. welshii</i> .
Compositae (Asteraceae)	<i>Aster hesperius</i>	<i>A. lanceolatus</i> var. <i>hesperius</i> , <i>Symphotrichum lanceolatum</i> var. <i>hesperium</i>	Siskiyou aster	PerF	Wide	FalsRep	Reports from ZION herbarium are based on misidentified specimens of <i>A. welshii</i> . Also reported by Fowler et al. (2007), but specimen not seen.
Compositae (Asteraceae)	<i>Baileya pleniradiata</i>		woolly desert-marigold	AnnF	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>B. multiradiata</i> .
Compositae (Asteraceae)	<i>Cirsium scariosum</i> var. <i>scariosum</i>	<i>C. scariosum</i>	elk thistle	PerF	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>C. arizonicum</i> .
Compositae (Asteraceae)	<i>Cirsium undulatum</i> var. <i>undulatum</i>	<i>C. undulatum</i>	wavy-leaved thistle	PerF	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>C. arizonicum</i> ..
Compositae (Asteraceae)	<i>Erigeron acris</i>	<i>E. acris</i> var. <i>debilis</i> . Includes ssp. <i>debilis</i> , <i>politus</i> , & <i>kamtschaticus</i> , <i>Trimorpha elongata</i>	bitter fleabane	PerF	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>E. divergens</i> .
Compositae (Asteraceae)	<i>Erigeron elatior</i>		tall daisy	PerF	RegEn	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>E. speciosus</i> .
Compositae (Asteraceae)	<i>Erigeron engelmannii</i>		Engelmann's daisy	PerF	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>E. pumilus</i> .
Compositae (Asteraceae)	<i>Gaillardia spathulata</i>		basin blanketflower	PerF	RegEn	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>G. pinnatifida</i> . Type locality is Rabbit Valley, Wayne Co, UT (Ward 401 GH).
Compositae (Asteraceae)	<i>Geraea canescens</i>		desert sunflower	AnnF	Periph	Ques?	Reported by Cogan et al. (2004), but park is outside the expected range of this species.

Appendix C. Rejected (falsely reported or questionable) taxa of Zion National Park, cont..

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Comments
Compositae (Asteraceae)	<i>Grindelia nana</i>	Included in <i>G. hirsutula</i> in <i>Flora of North America</i> (2006)	low gumweed	PerF	Sparse	FalsRep	Report from ZION herbarium and Welsh (1995) is based on a misidentified specimen of <i>G. squarrosa</i> var. <i>serrulata</i> .
Compositae (Asteraceae)	<i>Hymenoxys richardsonii</i> var. <i>richardsonii</i>	<i>Picradenia richardsonii</i> var. <i>richardsonii</i>	Colorado rubber-plant	PerF	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>H. cooperi</i> .
Compositae (Asteraceae)	<i>Lactuca canadensis</i>		Canada lettuce	PerF	Periph	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>L. serriola</i> .
Compositae (Asteraceae)	<i>Lygodesmia juncea</i>		rush skeleton-plant	PerF	Periph	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>Stephanomeria exigua</i> .
Compositae (Asteraceae)	<i>Petrorhiza pumila</i> var. <i>graminea</i>		grassy rock-goldenrod	PerF	RegEn	FalsRep	Reports from ZION herbarium and Welsh (1995) are based on a misidentified specimen of <i>P. pumila</i> var. <i>pumila</i> .
Compositae (Asteraceae)	<i>Solidago missouriensis</i>	<i>S. missouriensis</i> var. <i>missouriensis</i> . Vars. not recognized in <i>Flora of North America</i> (2006).	Missouri goldenrod	PerF	Wide	FalsRep	Report from ZION herbarium and Welsh (1995) based on a misidentified specimen of <i>S. canadensis</i> . Also reported by Fowler et al. (2007), but Zion NP is well outside the known range of this species.
Compositae (Asteraceae)	<i>Solidago multiradiata</i> var. <i>scopulorum</i>	Vars. not recognized in <i>Flora of North America</i> (2006).	Rocky Mountain goldenrod	PerF	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>S. velutina</i> .
Compositae (Asteraceae)	<i>Solidago simplex</i>	<i>S. spathulata</i> , includes vars. <i>nana</i> & <i>simplex</i>	coast goldenrod	PerF	Wide	FalsRep	No specimens in ZION herbarium, park is outside of reported range by Welsh et al. (2003).
Compositae (Asteraceae)	<i>Townsendia montana</i> var. <i>montana</i>	<i>T. alpigena</i> var. <i>alpigena</i>	Wyoming townsendia	PerF	Periph	FalsRep	Report from ZION herbarium and Welsh (1995) based on a misidentified specimen of <i>T. incana</i> .
Compositae (Asteraceae)	<i>Tragopogon pratensis</i>	<i>T. lamottei</i>	meadow safsify	PerF	Intro	FalsRep	Report from ZION herbarium based on a misidentified specimen of <i>T. dubius</i> . Native to Europe.

Appendix C. Rejected (falsely reported or questionable) taxa of Zion National Park, cont..

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Comments
Compositae (Asteraceae)	<i>Xylorhiza glabriuscula</i> var. <i>glabriuscula</i>	<i>Machaeranthera glabriuscula</i> . Includes vars. <i>glabriuscula</i> & <i>villosa</i>	smooth woody-aster	PerF	Periph	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>Erigeron utahensis</i> .
Cruciferae (Brassicaceae)	<i>Cardamine pensylvanica</i>		Quaker bittercress	PerF	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>Lepidium montanum</i> var. <i>jonesii</i> .
Cruciferae (Brassicaceae)	<i>Caulanthus lasiophyllus</i>	<i>Guillenia lasiophylla</i>	hairyleaf wild cabbage	AnnF	Periph	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>Thelypodium laxiflorum</i> .
Cruciferae (Brassicaceae)	<i>Descurainia obtusa</i>		blunt tansy mustard	AnnF	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>D. incana</i> .
Cruciferae (Brassicaceae)	<i>Descurainia pinnata</i> var. <i>filipes</i>		western tansy-mustard	AnnF	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>D. pinnata</i> var. <i>osmiarum</i> .
Cruciferae (Brassicaceae)	<i>Draba rectifruca</i>		mountain draba	AnnF	RegEn	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>D. cuneifolia</i> var. <i>cuneifolia</i> .
Cruciferae (Brassicaceae)	<i>Draba verna</i>		spring whitlow-grass	AnnF	Intro	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>D. reptans</i> . Native to Asia.
Cruciferae (Brassicaceae)	<i>Physaria acutifolia</i> var. <i>acutifolia</i>	<i>P. australis</i>	sharp-leaf twinpod	PerF	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>P. newberryi</i> .
Cruciferae (Brassicaceae)	<i>Physaria tenella</i>	<i>Lesquerella tenella</i>	slender bladderpod	AnnF	Periph	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>Lesquerella ludoviciana</i> .
Cruciferae (Brassicaceae)	<i>Physaria utahensis</i>	<i>Lesquerella utahensis</i>	Utah bladderpod	PerF	RegEn	FalsRep	Report from ZION herbarium and Welsh (1995) is based on a misidentified specimen of <i>P. wardii</i> . Type locality is American Fork Canyon, Utah Co, UT (Jones 1354 NY).
Cruciferae (Brassicaceae)	<i>Rorippa sinuata</i>		spreading yellowcress	PerF	Sparse	FalsRep	Report from ZION herbarium and Welsh (1995) is based on an unidentifiable immature specimen.

Appendix C. Rejected (falsely reported or questionable) taxa of Zion National Park, cont..

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Comments
Cruciferae (Brassicaceae)	<i>Thelypodium integrifolium</i> var. <i>integrifolium</i>		entire-leaf thelypody	PerF	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>T. laxiflorum</i> .
Cyperaceae	<i>Carex aquatilis</i>	<i>C. aquatilis</i> var. <i>aquatilis</i>	water sedge	PerG	Wide	FalsRep	Report from ZION based on misidentified specimen of <i>C. nebrascensis</i> .
Cyperaceae	<i>Carex curatorum</i>	<i>C. scirpoidea</i> var. <i>curatorum</i>	Canyonlands sedge	PerG	RegEn	Ques?	Reported by Fowler et al. (2007), but ZION is well outside the known range of this species. Report may be based on <i>C. haysii</i> . USFWS: 3C.
Cyperaceae	<i>Carex geyeri</i>		elk sedge	PerG	Wide	Ques?	Reported by Cogan et al. (2004), but park is outside the expected range of this species.
Cyperaceae	<i>Carex phaeocephala</i>		dunhead sedge	PerG	Wide	FalsRep	Report from ZION herbarium based on misidentified specimens of <i>C. scoparia</i> and <i>C. taehoensis</i> .
Cyperaceae	<i>Carex utriculata</i>	<i>C. rostrata</i> (sensu lato)	beaked sedge	PerG	Wide	FalsRep	Report from ZION herbarium based on misidentified specimen of <i>C. hystericina</i> . Also reported by Cogan et al. (2004).
Cyperaceae	<i>Scirpus americanus</i>	<i>Scirpus olneyi</i> , <i>Schoenoplectus americanus</i>	American bulrush	PerG	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>S. microcarpus</i> . Also reported by Cogan et al. (2004).
Euphorbiaceae	<i>Chamaesyce ocellata</i> var. <i>arenicola</i>	<i>Euphorbia ocellata</i>	eyed spurge	AnnF	Sparse	FalsRep	Report from ZION herbarium based on a misidentified specimen of <i>C. fendleri</i> .
Euphorbiaceae	<i>Chamaesyce revoluta</i>	<i>Euphorbia revoluta</i>	revolute spurge	AnnF	Sparse	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>C. parryi</i> .
Gramineae (Poaceae)	<i>Danthonia californica</i>		California oatgrass	PerG	Wide	Ques?	Reported by Fowler et al. (2007), but ZION NP is well outside the known range of this species. Report may be based on <i>D. intermedia</i> .
Gramineae (Poaceae)	<i>Elymus smithii</i>	<i>Agropyron smithii</i> , <i>Pascopyrum smithii</i> , includes vars. <i>smithii</i> & <i>palmeri</i>	western wheatgrass	PerG	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>E. lanceolatus</i> . Also reported by Cogan et al. (2004) but without a voucher.

Appendix C. Rejected (falsely reported or questionable) taxa of Zion National Park, cont..

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Comments
Gramineae (Poaceae)	<i>Hordeum marinum</i>	<i>H. geniculatum</i>	Mediterranean barley	AnnG	Intro	FalsRep	Incorrectly reported for ZION based on a typographic error for <i>H. murinum</i> according to J. Alexander. Native to Eurasia.
Gramineae (Poaceae)	<i>Muhlenbergia wrightii</i>		spike muhly	PerG	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>M. racemosa</i> . Also reported by Cogan et al. (2004) but without a voucher.
Gramineae (Poaceae)	<i>Puccinellia nuttalliana</i>	<i>P. airoides</i>	Nuttall's alkali-grass	PerG	Wide	FalsRep	Reported by Weight (1937), but probably based on a misidentified specimen of <i>P. distans</i> .
Gramineae (Poaceae)	<i>Stipa comata</i> var. <i>intermedia</i>	<i>Hesperostipa comata</i> var. <i>intermedia</i>	needle-and-thread	PerG	Wide	FalsRep	Reports from ZION herbarium are based on misidentified specimens of <i>S. comata</i> var. <i>comata</i> .
Hydrophyllaceae	<i>Phacelia affinis</i>		twin phacelia	AnnF	Periph	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>P. ivesiana</i> .
Hydrophyllaceae	<i>Phacelia crenulata</i> var. <i>crenulata</i>		crenulate phacelia	AnnF	Wide	FalsRep	Report from ZION herbarium and Welsh (1995) is based on a misidentified specimen of <i>P. ambigua</i> .
Juncaceae	<i>Juncus regelii</i>		Regel's rush	PerG	Periph	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>J. ensifolius</i> .
Juncaceae	<i>Luzula parviflora</i>		small-flowered woodrush	PerG	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>Juncus ensifolius</i> . Also reported by Cogan et al. (2004) without a voucher.
Labiatae (Lamiaceae)	<i>Agastache pallidiflora</i>		Bill Williams' mountain giant hyssop	PerF	Wide	FalsRep	Report from ZION herbarium based on a misidentified specimen of <i>A. urticifolia</i>
Labiatae (Lamiaceae)	<i>Satureja vulgaris</i>	<i>Clinopodium vulgare</i>	savory	PerF	Intro*	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>Monardella odoratissima</i> . Native to E North America and Eurasia



Appendix C. Rejected (falsely reported or questionable) taxa of Zion National Park, cont..

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Comments
Leguminosae (Fabaceae)	<i>Astragalus beckwithii</i> var. <i>beckwithii</i>	Includes reports of var. <i>weiserensis</i>	Beckwith's milkvetch	PerF	RegEn	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>A. oophorus</i> . Type locality is Cedar Mountains west of Lone Rock, Tooele Co, UT (Beckwith s.n. GH).
Leguminosae (Fabaceae)	<i>Astragalus convallarius</i> var. <i>finitimus</i>		enterprise milkvetch	PerF	RegEn	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>A. lancearius</i> . Type locality is 3 miles S of Enterprise, Washington Co, UT (Ripley & Barneby 4967 RSA). USFWS: 3C.
Leguminosae (Fabaceae)	<i>Astragalus eremiticus</i>	<i>A. eremiticus</i> var. <i>eremiticus</i> . Includes <i>Astragalus</i> <i>ampullarioides</i> in <i>Intermountain Flora</i> (1989)	hermit milkvetch	PerF	Wide	FalsRep	Reports from ZION are based on <i>A. ampullarioides</i> (formerly considered part of this species) and <i>A. ensiformis</i> . Type locality is Beaver Dam Mountains, Washington Co, UT (Parry 45 MINN).
Leguminosae (Fabaceae)	<i>Astragalus flavus</i> var. <i>flavus</i>	<i>A. flavus</i> var. <i>candicans</i>	yellow milkvetch	PerF	Wide	FalsRep	Reports from ZION all appear to be based on misidentified specimens of <i>A. flavus</i> var. <i>higginsii</i> .
Leguminosae (Fabaceae)	<i>Astragalus miser</i> var. <i>oblongifolius</i>		Rydberg's weedy milkvetch	PerF	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>A. ceramicus</i> .
Leguminosae (Fabaceae)	<i>Astragalus purshii</i> var. <i>glareosus</i>		Pursh's milkvetch	PerF	Periph	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>A. zionis</i> .
Leguminosae (Fabaceae)	<i>Astragalus sabulorum</i>		gravel milkvetch	AnnF	Wide	Ques?	Report by Welsh (1995) is well out of the known range of this species.
Leguminosae (Fabaceae)	<i>Lathyrus eucoismus</i>	<i>L. brachycalyx</i> var. <i>eucoismus</i>	seemly sweetpea	PerF	Sparse	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>L. brachycalyx</i> var. <i>zionis</i> .
Leguminosae (Fabaceae)	<i>Lotus wrightii</i>		Wright's trefoil	PerF	RegEn	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>L. plebeius</i> .
Leguminosae (Fabaceae)	<i>Lupinus flavoculatus</i>		yellow-eye lupine	AnnF	RegEn	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>L. pusillus</i> .

Appendix C. Rejected (falsely reported or questionable) taxa of Zion National Park, cont..

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Comments
Leguminosae (Fabaceae)	<i>Pediomelum epipsilum</i>	<i>Psoralea epipsila</i> , <i>Pediomelum</i> <i>megalanthum</i> var. <i>epipsilum</i>	Kane breadroot	PerF	LocEn	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>P. pariense</i> . Type locality is 17 mi E of Kanab towards Jepson Spring, Kane Co, UT (Ripley & Barneby 4832 CAS). UT BLM Sensitive, USFWS former C2 candidate.
Leguminosae (Fabaceae)	<i>Trifolium parryi</i> var. <i>montanense</i>	Vars. not recognized in Barneby (1989)	Parry's clover	PerF	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>T. macilentum</i> .
Loasaceae	<i>Mentzelia pumila</i> var. <i>pumila</i>	<i>M. pumila</i>	Wyoming stickleaf	PerF	RegEn	FalsRep	Report from ZION herbarium and Welsh (1995) is based on a misidentified specimen of <i>M. integra</i> .
Malvaceae	<i>Sphaeralcea coccinea</i>	Includes ssp. <i>coccinea</i> , <i>elata</i> , & <i>dissecta</i>	scarlet globe-mallow	PerF	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>S. grossularifolia</i> . Also reported by Cogan et al. (2004) without a voucher.
Nyctaginaceae	<i>Abronia nana</i>	<i>A. nana</i> var. <i>nana</i>	low sand-verbena	PerF	RegEn	FalsRep	Specimens from ZION herbarium represent misidentified <i>A. fragrans</i> . Type locality is near Beaver City, Beaver Co, UT (Palmer 404).
Onagraceae	<i>Camissonia brevipes</i>		showy camissonia	AnnF	Periph	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>C. walkeri</i> .
Papaveraceae	<i>Argemone corymbosa</i> var. <i>arenicola</i>		San Rafael prickly- poppy	PerF	RegEn	Ques?	Reported by UT CDC from 1965 collection (Stemitz 4) from UTC – confirmation needed as ZION is well outside the known range of this species (more likely to be <i>A. munita</i> ). Type locality is 37.9 miles SW of Green River, Emery Co, UT (Ownbey & Ownbey 2146).
Polemoniaceae	<i>Gilia scopulorum</i>		rock gilia	AnnF	Periph	FalsRep	Reports from ZION herbarium are based on misidentified specimens of <i>G. inconspicua</i> . Type locality is St. George, Washington Co, UT (Jones 1659 POM).

Appendix C. Rejected (falsely reported or questionable) taxa of Zion National Park, cont..

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Comments
Polemoniaceae	<i>Phlox hoodii</i> var. <i>canescens</i>	Includes spp. <i>glabrata</i> , <i>hoodii</i> , & <i>viscidula</i>	carpet phlox	PerF	Wide	FalsRep	Report from ZION herbarium and Welsh (1995) is based on a misidentified specimen of <i>P. austromontana</i> var. <i>prostrata</i> . Also reported by Cogan et al. (2004) without a voucher.
Polygonaceae	<i>Eriogonum flavum</i>		yellow wild buckwheat	PerF	Wide	Ques?	Reported by Cogan et al. (2004), but park is outside the expected range of this species. Report probably based on <i>E. jamesii</i> var. <i>rupicola</i> .
Polypodiaceae (Adiantaceae)	<i>Pellaea mucronata</i>		bird-foot cliffbrake	Fern	Wide	Ques?	Report from Weight (1937) lacks a corroborating voucher. <i>P. mucronata</i> is not known from Utah.
Polypodiaceae (Aspleniaceae)	<i>Woodsia scopulina</i>	<i>W. scopulina</i> sp. <i>scopulina</i>	Rocky Mountain woodsia	Fern	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>Cystopteris fragilis</i> .
Portulacaceae	<i>Montia chamissoi</i>	<i>Crunocallis chamissoi</i>	Chamisso's candy-flower	PerF	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>M. perfoliata</i> .
Potamogetonaceae	<i>Potamogeton foliosus</i> var. <i>foliosus</i>		leafy pondweed	PerF	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>P. filiformis</i> var. <i>occidentalis</i> .
Rosaceae	<i>Rosa nutkana</i> var. <i>hispidula</i>		Nootka rose	Shrub	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>R. woodsii</i> .
Rubiaceae	<i>Galium mexicanum</i> var. <i>asperulum</i>	<i>G. mexicanum</i> sp. <i>asperillum</i>	rough bedstraw	PerF	Periph	FalsRep	Report from ZION herbarium based on a misidentified specimen of <i>G. aparine</i> .
Rubiaceae	<i>Galium proliferum</i>		slender bedstraw	AnnF	Periph	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>G. wrightii</i> .
Rubiaceae	<i>Galium stellatum</i>	<i>G. stellatum</i> var. <i>eremicum</i>	stellate bedstraw	Shrub	Periph	Ques?	Report from Weight (1937) has not been confirmed and is out of species' known range.
Salicaceae	<i>Salix bebbiana</i>		Bebb's willow	Shrub	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>S. lasiolepis</i> .

Appendix C. Rejected (falsely reported or questionable) taxa of Zion National Park, cont..

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Comments
Salicaceae	<i>Salix drummondiana</i>		Drummond's willow	Shrub	Wide	FalsRep	Report from ZION herbarium and Welsh (1995) is based on a misidentified specimen of <i>S. lasiolepis</i> .
Saxifragaceae (Parnassiaceae)	<i>Parnassia parviflora</i>		marsh grass-of-Parnassus	PerF	Wide	FalsRep	Report from ZION herbarium based on a misidentified specimen of <i>P. palustris</i> var. <i>montanensis</i> . <i>P. parviflora</i> is not known from Utah.
Saxifragaceae (Grossulariaceae)	<i>Ribes montigenum</i>		alpine prickly currant	Shrub	Wide	FalsRep	Report from ZION herbarium is based on a specimen collected from outside the park.
Scrophulariaceae	<i>Castilleja flava</i>	<i>C. flava</i> var. <i>flava</i>	yellow paintbrush	PerF	Wide	Ques?	Report from Weight (1937) has not been confirmed and is well out of species' known range.
Scrophulariaceae	<i>Cordylanthus wrightii</i>		Wright's bird's-beak	AnnF	Wide	FalsRep	Report from ZION based on a misidentified specimen of <i>C. parviflorus</i> .
Scrophulariaceae	<i>Penstemon caespitosus</i> var. <i>suffruticosus</i>	<i>P. tusharensis</i>	Tushar penstemon	PerF	LocEn	FalsRep	Report from ZION herbarium and Welsh (1995) is based on a specimen collected outside the park. Type locality is near Beaver, Tushar Mountains, Beaver Co, UT (Palmer s.n. GH).
Scrophulariaceae	<i>Penstemon lentus</i>		Abajo penstemon	PerF	RegEn	Ques?	Reported by Cogan et al. (2004), but Zion NP is well outside the expected range of this species.
Scrophulariaceae	<i>Penstemon leonardii</i>		Leonard's penstemon	PerF	RegEn	Ques?	Reported by Cogan et al. (2004), but Zion NP is well outside the expected range of this species. Report probably based on <i>P. higginsii</i> .
Scrophulariaceae	<i>Penstemon platyphyllus</i>		broadleaf penstemon	PerF	LocEn	Ques?	Reported by Weight (1937), but without a voucher. Zion NP is well out of the species' known range. Type locality is Cottonwood Canyon, Salt Lake Co, UT (Watson 787 GH).
Solanaceae	<i>Physalis heterophylla</i>		clammy ground-cherry	PerF	Intro	Ques?	Reported by Cogan et al. (2004), but Zion NP is well outside the expected range of this species. Native to E North America.

**Appendix C. Rejected (falsely reported or questionable) taxa of Zion National Park, cont..**

Family	Species name	Synonyms/ Taxonomic notes	Common name	Life form	Range	Park status	Comments
Typhaceae	<i>Typha angustifolia</i>		narrow-leaf cattail	PerG	Wide	FalsRep	Reports from ZION herbarium are based on a misidentified specimen of <i>T. domingensis</i> . <i>T. angustifolia</i> is not known from Utah. Also reported by Cogan et al. (2004).
Umbelliferae (Apiaceae)	<i>Cymopterus acaulis</i> var. <i>fendleri</i>	<i>C. fendleri</i> , <i>C. glomeratus</i>	Fendler's cymopterus	PerF	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>C. newberryi</i> .
Umbelliferae (Apiaceae)	<i>Cymopterus bulbosus</i>		onion spring-parsley	PerF	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>C. purpureus</i> .
Umbelliferae (Apiaceae)	<i>Lomatium nuttallii</i>		Nuttall's desert-parsley	PerF	RegEn	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>L. graveolens</i> var. <i>clarkii</i> . <i>L. nuttallii</i> is not known from Utah.
Umbelliferae (Apiaceae)	<i>Lomatium orientale</i>		Oriental desert-parsley	PerF	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>Cymopterus purpureus</i> . <i>L. orientale</i> is not known from Utah.
Umbelliferae (Apiaceae)	<i>Lomatium triternatum</i> ssp. <i>platycarpum</i>	<i>L. simplex</i>	flat-seed lomatium	PerF	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>L. graveolens</i> var. <i>clarkii</i> .
Umbelliferae (Apiaceae)	<i>Yabea microcarpa</i>		California hedge-parsley	AnnF	Periph	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>Torilis arvensis</i> .
Valerianaceae	<i>Valeriana occidentalis</i>		western valerian	PerF	Wide	FalsRep	Report from ZION herbarium is based on a misidentified specimen of <i>V. arizonica</i> .

The vascular plant species listed in this table have been reported for Zion National Park from published and unpublished literature (Cogan et al. 2004, Fowler et al. 2007, Weight 1937, Welsh 1995) or from herbarium specimens, but are now believed to be erroneous because of misidentifications (false Reports or FalsRep) or because the park is well outside the known or expected range of the species (Questionable or Ques?).

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<b>Trees</b>										
Aceraceae	<i>Acer grandidentatum</i>	bigtooth maple	Native	Pres	Apr–May		x	x		
Aceraceae	<i>Acer negundo</i>	box elder	Native	Pres	Apr–Jun				x	
Betulaceae	<i>Betula occidentalis</i>	water birch	Native	Pres	Apr–May				x	
Bignoniaceae	<i>Catalpa speciosa</i>	showy catalpa	Intro	Pres	May–Jun					Cultivated
Cupressaceae	<i>Cupressus arizonica</i>	Arizona cypress	Intro	Pres	NA					Cultivated
Cupressaceae	<i>Juniperus scopulorum</i>	Rocky Mountain juniper	Native	Pres	NA		x	x	x	
Elaeagnaceae	<i>Elaeagnus angustifolia</i>	Russian olive	Intro	Pres	May–Jul				x	Disturbed areas
Fagaceae	<i>Quercus gambelii</i> var. <i>gambelii</i>	Gambel oak	Native	Pres	Apr–Jun		x	x	x	
Juglandaceae	<i>Carya illinoensis</i>	pecan	Intro	Pres	Apr–May					Cultivated
Leguminosae (Fabaceae)	<i>Gleditsia triacanthos</i>	honey locust	Intro	Pres	Apr–May					Cultivated
Leguminosae (Fabaceae, Mimosaceae)	<i>Prosopis glandulosa</i> var. <i>torreyana</i>	honey mesquite	Native	Pres	May–Sep	x			x	
Leguminosae (Fabaceae)	<i>Robinia neomexicana</i>	New Mexico locust	Native	Pres	May–Jul		x	x	x	
Leguminosae (Fabaceae)	<i>Robinia pseudoacacia</i>	black locust	Intro	Pres	May–Jun				x	Cultivated
Meliaceae	<i>Melia azedarach</i>	chinaberry	Intro	Pres	Apr–May					Cultivated
Moraceae	<i>Ficus carica</i>	common fig	Intro	Ext	May–Jun					Cultivated
Moraceae	<i>Morus alba</i>	white mulberry	Intro	Pres	Apr–Jun					Cultivated
Oleaceae	<i>Fraxinus velutina</i>	velvet ash	Native	Pres	Apr–May				x	
Pinaceae	<i>Abies concolor</i>	white fir	Native	Pres	NA			x		
Pinaceae	<i>Abies lasiocarpa</i>	subalpine fir	Native	Pres	NA			x		
Pinaceae	<i>Pinus edulis</i>	two-needle pinyon	Native	Pres	NA		x	x		
Pinaceae	<i>Pinus monophylla</i>	singleleaf pinyon	Native	Pres	NA		x			
Pinaceae	<i>Pinus ponderosa</i> var. <i>scopulorum</i>	ponderosa pine	Native	Pres	NA		x	x		
Pinaceae	<i>Pseudotsuga menziesii</i> var. <i>glauca</i>	Douglas-fir	Native	Pres	NA		x	x		
Platanaceae	<i>Platanus occidentalis</i>	American sycamore	Intro	Pres	May–Jun					Cultivated

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Trees, cont.</i>										
Rosaceae	<i>Malus pumila</i>	common apple	Intro	Pres	May					Cultivated
Rosaceae	<i>Prunus armeniaca</i>	apricot	Intro	Pres	Mar-Apr					Cultivated
Rosaceae	<i>Prunus avium</i>	sweet cherry	Intro	Pres	Apr-May					Cultivated
Rosaceae	<i>Prunus domestica</i>	common plum	Intro	Rep	May					Cultivated
Rosaceae	<i>Prunus dulcis</i>	almond	Intro	Pres	Apr-May					Cultivated
Rosaceae	<i>Prunus persica</i>	peach	Intro	Pres	Apr-May					Cultivated
Rosaceae	<i>Pyrus communis</i>	common pear	Intro	Pres	Apr-May					Cultivated
Salicaceae	<i>Populus alba</i>	white poplar	Intro	Rep	Mar-Jun					Cultivated
Salicaceae	<i>Populus angustifolia</i>	narrow-leaved cottonwood	Native	Rep	Apr-Jun				x	
Salicaceae	<i>Populus fremontii</i> var. <i>fremontii</i>	Fremont cottonwood	Native	Pres	Mar-Jun				x	
Salicaceae	<i>Populus tremuloides</i>	quaking aspen	Native	Pres	Mar-Jun			x	x	
Salicaceae	<i>Salix goodingii</i>	Gooding's black willow	Native	Pres	Apr-May				x	
Simaroubaceae	<i>Ailanthus altissima</i>	tree-of-heaven	Intro	Pres	Jun-Jul					Disturbed areas
Ulmaceae (Celtidaceae)	<i>Celtis reticulata</i>	netleaf hackberry	Native	Pres	Apr-May	x			x	
Ulmaceae	<i>Ulmus pumila</i>	Siberian elm	Intro	Pres	Mar-Apr		x			
<b>Shrubs</b>										
Aceraceae	<i>Acer glabrum</i> var. <i>glabrum</i>	Rocky Mountain maple	Native	Pres	Apr-Jun		x		x	
Agavaceae	<i>Nolina microcarpa</i>	beargrass	Native	Ext	May-Jul		x			
Agavaceae	<i>Yucca angustissima</i>	narrowleaved yucca	Native	Rep	May-Jul	x	x	x		Sandy soils
Agavaceae	<i>Yucca baccata</i>	datil yucca	Native	Pres	Apr-Jun		x	x		
Agavaceae	<i>Yucca kanabensis</i>	Kanab yucca	Native	Pres	May-Jul		x	x		
Agavaceae	<i>Yucca utahensis</i>	Utah yucca	Native	Pres	Apr-Jun	x	x	x		
Agavaceae	<i>Yucca vespertina</i>	Mohave datil	Native	Pres	Apr-Jun	x	x			
Anacardiaceae	<i>Rhus aromatica</i> var. <i>simplicifolia</i>	squawbush	Native	Pres	May-Jul	x	x			
Anacardiaceae	<i>Rhus aromatica</i> var. <i>trilobata</i>	squawbush	Native	Pres	May-Jul				x	
Anacardiaceae	<i>Rhus glabra</i>	smooth sumac	Native	Pres	Jun-Jul		x		x	

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Shrubs, cont.</i>										
Anacardiaceae	<i>Toxicodendron rydbergii</i>	western poison ivy	Native	Pres	May-Jun				x	
Berberidaceae	<i>Mahonia fremontii</i>	Fremont's mahonia	Native	Rep	Apr-Jul	x	x			
Berberidaceae	<i>Mahonia repens</i>	Oregon-grape	Native	Pres	Apr-Jun		x	x		
Cactaceae	<i>Opuntia acanthocarpa</i> var. <i>acanthocarpa</i>	buckhorn cholla	Native	Pres	May	x				
Cactaceae	<i>Opuntia echinocarpa</i>	pale cholla	Native	Rep	Mar-Jun	x				
Cactaceae	<i>Opuntia whipplei</i>	Whipple's cholla	Native	Pres	May-Jul	x	x			
Caprifoliaceae (Adoxaceae)	<i>Sambucus caerulea</i>	blue elderberry	Native	Pres	May-Jul		x	x	x	
Caprifoliaceae (Adoxaceae)	<i>Sambucus racemosa</i> var. <i>microbotrys</i>	red elderberry	Native	Rep	Jun-Jul			x		
Caprifoliaceae	<i>Symphoricarpos longiflorus</i>	long-flower snowberry	Native	Pres	May-Jul	x	x	x	x	
Caprifoliaceae	<i>Symphoricarpos oreophilus</i> var. <i>parishii</i>	mountain snowberry	Native	Pres	Jun-Aug		x			
Caprifoliaceae	<i>Symphoricarpos oreophilus</i> var. <i>utahensis</i>	mountain snowberry	Native	Pres	Jun-Aug		x	x		
Celastraceae	<i>Pachystima myrsinites</i>	mountain-lover	Native	Pres	May-Aug		x	x		
Chenopodiaceae	<i>Atriplex canescens</i> var. <i>canescens</i>	fourwing saltbush	Native	Pres	May-Sep	x	x			Sandy soils
Chenopodiaceae	<i>Atriplex confertifolia</i>	shadscale	Native	Pres	May-Sep	x	x			Clayey to gravelly soils
Chenopodiaceae	<i>Krascheninikovia lanata</i> var. <i>lanata</i>	winterfat	Native	Pres	May-Jul	x	x			
Compositae (Asteraceae)	<i>Acamptopappus sphaerocephalus</i>	goldenhead	Native	Pres	Apr-May	x				
Compositae (Asteraceae)	<i>Ambrosia salsola</i>	burrobush	Native	Pres	Mar-Jun	x				
Compositae (Asteraceae)	<i>Artemisia filifolia</i>	sand sagebrush	Native	Pres	Aug-Oct	x	x			
Compositae (Asteraceae)	<i>Artemisia nova</i> var. <i>nova</i>	black sagebrush	Native	Pres	Sep-Oct	x	x			



Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Shrubs, cont.</i>										
Compositae (Asteraceae)	<i>Artemisia tridentata</i> var. <i>tridentata</i>	basin big sagebrush	Native	Pres	Jul-Sep		x			
Compositae (Asteraceae)	<i>Artemisia tridentata</i> var. <i>vaseyana</i>	mountain big sagebrush	Native	Rep	Jul-Sep		x	x		
Compositae (Asteraceae)	<i>Baccharis glutinosa</i>	sticky seepwillow	Native	Pres	Jun-Oct				x	
Compositae (Asteraceae)	<i>Baccharis salicina</i>	Rio Grande seepwillow	Native	Pres	May-Nov				x	
Compositae (Asteraceae)	<i>Baccharis viminea</i> var. <i>viminea</i>	mule-fat	Native	Pres	Mar-Jun				x	
Compositae (Asteraceae)	<i>Brickellia atractyloides</i>	spiny brickellbush	Native	Pres	Apr-May	x				Rock crevices
Compositae (Asteraceae)	<i>Brickellia californica</i>	California brickellbush	Native	Pres	Aug-Sep					Rock crevices
Compositae (Asteraceae)	<i>Brickellia longifolia</i>	longleaf brickellbush	Native	Pres	Aug-Sep				x	
Compositae (Asteraceae)	<i>Brickellia microphylla</i> var. <i>scabra</i>	rough brickellbush	Native	Pres	Aug-Oct	x	x			Sandstone
Compositae (Asteraceae)	<i>Chrysothamnus depressus</i>	dwarf rabbitbrush	Native	Pres	Jul-Sep	x	x	x		
Compositae (Asteraceae)	<i>Chrysothamnus nauseosus</i> var. <i>arenarius</i>	sand rabbitbrush	Native	Pres	Aug-Oct		x			
Compositae (Asteraceae)	<i>Chrysothamnus nauseosus</i> var. <i>consimilis</i>	greenish rabbitbrush	Native	Pres	Aug-Oct	x	x	x		
Compositae (Asteraceae)	<i>Chrysothamnus nauseosus</i> var. <i>gnaphalodes</i>	graystem rabbitbrush	Native	Pres	Aug-Oct	x	x			
Compositae (Asteraceae)	<i>Chrysothamnus nauseosus</i> var. <i>graveolens</i>	glabrate rabbitbrush	Native	Pres	Aug-Oct	x	x	x		
Compositae (Asteraceae)	<i>Chrysothamnus nauseosus</i> var. <i>junceus</i>	rush rabbitbrush	Native	Pres	Aug-Oct	x	x			

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Shrubs, cont.</i>										
Compositae (Asteraceae)	<i>Chrysothamnus nauseosus</i> var. <i>leiospermus</i>	smoothseed rabbitbrush	Native	Pres	Aug-Oct	x	x	x		Rock crevices
Compositae (Asteraceae)	<i>Chrysothamnus nauseosus</i> var. <i>speciosus</i>	whitestem rabbitbrush	Native	Pres	Aug-Oct		x	x		
Compositae (Asteraceae)	<i>Chrysothamnus nauseosus</i> var. <i>turbinatus</i>	dune rabbitbrush	Native	Rep	Aug-Oct	x	x			
Compositae (Asteraceae)	<i>Chrysothamnus parryi</i> var. <i>howardii</i>	longbract rabbitbrush	Native	Pres	Jul-Sep		x	x		
Compositae (Asteraceae)	<i>Chrysothamnus parryi</i> var. <i>nevadensis</i>	Nevada rabbitbrush	Native	Pres	Jul-Sep		x	x		
Compositae (Asteraceae)	<i>Chrysothamnus viscidiflorus</i> var. <i>puberulus</i>	puberulent rabbitbrush	Native	Pres	Jul-Sep	x	x	x		
Compositae (Asteraceae)	<i>Chrysothamnus viscidiflorus</i> var. <i>stenophyllus</i>	slenderleaf rabbitbrush	Native	Pres	Jul-Sep	x	x			
Compositae (Asteraceae)	<i>Chrysothamnus viscidiflorus</i> var. <i>viscidiflorus</i>	green rabbitbrush	Native	Pres	Jul-Sep	x	x	x		
Compositae (Asteraceae)	<i>Encelia frutescens</i> var. <i>virginensis</i>	Virgin encelia	Native	Pres	Apr-Jun	x				
Compositae (Asteraceae)	<i>Gutierrezia microcephala</i>	thread snakeweed	Native	Pres	Jul-Oct	x	x			
Compositae (Asteraceae)	<i>Gutierrezia sarothrae</i>	broom snakeweed	Native	Pres	Jul-Oct	x	x			
Compositae (Asteraceae)	<i>Haplopappus linearifolius</i> var. <i>interior</i>	Mohave goldenbush	Native	Pres	Apr-May	x	x			
Compositae (Asteraceae)	<i>Haplopappus scopulorum</i> var. <i>scopulorum</i>	spindly goldenbush	Native	Pres	Aug-Sep		x	x		
Compositae (Asteraceae)	<i>Haplopappus zionis</i>	Cedar Breaks goldenbush	Native	Rep	Jul-Aug			x		Claron F

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Shrubs, cont.</i>										
Compositae (Asteraceae)	<i>Pluchea sericea</i>	arrowweed	Native	Pres	May–Jun				x	
Compositae (Asteraceae)	<i>Sphaeromeria ruthiae</i>	Ruth's sphaeromeria	Native	Pres	Sep			x	x	Kayenta & Navajo
Compositae (Asteraceae)	<i>Tetradymia axillaris</i>	longspine horsebrush	Native	Pres	Apr–Jun	x				
Compositae (Asteraceae)	<i>Tetradymia canescens</i>	spineless horsebrush	Native	Pres	Jun–Sep		x	x		
Cornaceae	<i>Cornus sericea</i> var. <i>sericea</i>	red-osier dogwood	Native	Hist	May–Jul				x	
Crossosomataceae (Celastraceae)	<i>Glossopetalon spinescens</i> var. <i>aridum</i>	Nevada greasebush	Native	Pres	Mar–Jun	x	x			
Cupressaceae	<i>Juniperus communis</i> var. <i>depressa</i>	common juniper	Native	Pres	NA			x		
Cupressaceae	<i>Juniperus osteosperma</i>	Utah juniper	Native	Pres	NA	x	x	x	x	
Elaeagnaceae	<i>Shepherdia rotundifolia</i>	roundleaf buffaloberry	Native	Pres	Mar–May	x	x	x		
Ephedraceae	<i>Ephedra nevadensis</i>	Nevada ephedra	Native	Pres	NA	x	x			
Ephedraceae	<i>Ephedra torreyana</i>	Torrey's ephedra	Native	Pres	NA	x	x			
Ephedraceae	<i>Ephedra viridis</i> var. <i>viridis</i>	green ephedra	Native	Pres	NA	x	x			
Ericaceae	<i>Arctostaphylos patula</i>	greenleaf manzanita	Native	Pres	Mar–Jul		x	x		
Ericaceae	<i>Arctostaphylos pungens</i>	Mexican manzanita	Native	Pres	Feb–Jun		x			
Fagaceae	<i>Quercus turbinella</i>	turbinella live-oak	Native	Pres	Apr–Jun		x			
Fagaceae	<i>Quercus x pauciloba</i>	few-lobed oak	Native	Pres	Apr–Jun		x	x		
Garryaceae	<i>Garrya flavescens</i>	silk-tassel-bush	Native	Pres	Apr–May		x	x		
Hydrophyllaceae	<i>Eriodictyon angustifolium</i>	yerba santa	Native	Pres	May–Jun	x	x			
Labiatae (Lamiaceae)	<i>Salvia dorrii</i> ssp. <i>dorrii</i>	Dorr's sage	Native	Pres	May–Jun	x	x			
Leguminosae (Fabaceae)	<i>Colutea arborescens</i>	bladder-senna	Intro	Pres	May–Aug					Cultivated
Leguminosae (Fabaceae)	<i>Psoralea argemone</i> ssp. <i>fremontii</i>	Fremont's indigo-bush	Native	Pres	Apr–Jun	x	x			

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Shrubs, cont.</i>										
Oleaceae	<i>Fraxinus anomala</i>	singleleaf ash	Native	Pres	Apr–May	x	x	x		
Oleaceae	<i>Ligustrum vulgare</i>	common privet	Intro	Pres	Jun–Jul					Cultivated
Polemoniaceae	<i>Leptodactylon pungens</i>	prickly-phlox	Native	Pres	May–Jul	x	x	x		
Polygonaceae	<i>Eriogonum corymbosum</i> var. <i>albiflorum</i>	Virgin wild buckwheat	Native	Pres	Jun–Oct	x	x			Chinle & Moenkopi
Polygonaceae	<i>Eriogonum corymbosum</i> var. <i>aureum</i>	golden wild buckwheat	Native	Pres	Aug–Oct	x	x	x		
Polygonaceae	<i>Eriogonum corymbosum</i> var. <i>corymbosum</i>	crisp-leaf wild buckwheat	Native	Pres	Jul–Oct	x	x			
Polygonaceae	<i>Eriogonum corymbosum</i> var. <i>matthewsiae</i>	Springdale wild buckwheat	Native	Pres	Aug–Oct	x				Chinle
Polygonaceae	<i>Eriogonum corymbosum</i> var. <i>thompsoniae</i>	Thompson's wild buckwheat	Native	Pres	Jul–Nov	x	x			Chinle & Moenkopi
Polygonaceae	<i>Eriogonum fasciculatum</i> var. <i>polifolium</i>	Mojave wild buckwheat	Native	Pres	Mar–Oct	x	x			
Rhamnaceae	<i>Ceanothus fendleri</i>	Fendler's mountain-lilac	Native	Pres	Jun–Aug		x	x		
Rhamnaceae	<i>Ceanothus greggii</i> var. <i>vestitus</i>	Mohave desert-lilac	Native	Rep	Mar–May	x	x			
Rhamnaceae	<i>Ceanothus martinii</i>	Utah mountain-lilac	Native	Pres	Jun–Jul		x	x		
Rosaceae	<i>Amelanchier alnifolia</i>	Saskatoon serviceberry	Native	Pres	May–Jul		x	x	x	
Rosaceae	<i>Amelanchier utahensis</i>	Utah serviceberry	Native	Pres	Apr–Jun		x	x	x	
Rosaceae	<i>Cercocarpus intricatus</i>	dwarf mountain mahogany	Native	Pres	Apr–Jun	x	x	x		Rock crevices
Rosaceae	<i>Cercocarpus ledifolius</i> var. <i>intermontanus</i>	curl-leaf mountain mahogany	Native	Pres	May–Jun		x	x		Rocky sites
Rosaceae	<i>Cercocarpus montanus</i>	alder-leaf mountain mahogany	Native	Pres	May–Jun		x	x		
Rosaceae	<i>Coleogyne ramosissima</i>	blackbrush	Native	Pres	Apr–Jun	x				Shallow sandy to clay soil

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Shrubs, cont.</i>										
Rosaceae	<i>Fallugia paradoxa</i>	Apache plume	Native	Pres	Apr–Aug	x	x		x	
Rosaceae	<i>Holodiscus dumosus</i>	bush oceanspray	Native	Pres	Jun–Aug		x	x		Rock crevices
Rosaceae	<i>Peraphyllum ramosissimum</i>	squaw-apple	Native	Pres	May–Jun		x	x		
Rosaceae	<i>Physocarpus alternans</i>	dwarf ninebark	Native	Pres	May–Aug	x	x	x		Rock crevices
Rosaceae	<i>Prunus fasciculata</i>	desert peach	Native	Rep	Apr–May	x	x			
Rosaceae	<i>Prunus virginiana</i> var. <i>melanocarpa</i>	western chokecherry	Native	Pres	May–Jul		x	x		
Rosaceae	<i>Purshia glandulosa</i>	desert bitterbrush	Native	Rep	Apr–May	x	x		x	
Rosaceae	<i>Purshia mexicana</i> var. <i>stansburyana</i>	cliff-rose	Native	Pres	May–Jun	x	x	x		
Rosaceae	<i>Purshia tridentata</i>	antelope bitterbrush	Native	Pres	Apr–Jul		x	x		
Rosaceae	<i>Rosa woodsii</i>	Woods' rose	Native	Pres	May–Jul		x	x	x	
Rosaceae	<i>Rubus leucodermis</i>	western black raspberry	Native	Pres	Jun–Jul		x		x	
Salicaceae	<i>Salix boothii</i>	Booth's willow	Native	Pres	May–Jun				x	
Salicaceae	<i>Salix eriocephala</i> var. <i>watsonii</i>	yellow willow	Native	Pres	Apr–Aug				x	
Salicaceae	<i>Salix exigua</i> var. <i>stenophylla</i>	coyote willow	Native	Pres	Apr–Aug				x	
Salicaceae	<i>Salix geeyeriana</i> var. <i>geyeriana</i>	Geyer's willow	Native	Pres	May–Jun				x	
Salicaceae	<i>Salix laevigata</i>	red willow	Native	Pres	Apr–May				x	
Salicaceae	<i>Salix lasiolepis</i>	arroyo willow	Native	Pres	Apr–May				x	
Salicaceae	<i>Salix lucida</i> ssp. <i>caudata</i>	whiplash willow	Native	Pres	Apr–Jun				x	
Salicaceae	<i>Salix scouleriana</i>	Scouler's willow	Native	Pres	Apr–Jun			x	x	
Saxifragaceae (Hydrangeaceae)	<i>Fendlerella utahensis</i>	Utah fendlerella	Native	Pres	Apr–Sep		x			
Saxifragaceae (Hydrangeaceae)	<i>Jamesia americana</i> var. <i>zionis</i>	Zion jamesia	Native	Pres	May–Aug		x	x	x	
Saxifragaceae (Hydrangeaceae)	<i>Philadelphus microphyllus</i>	littleleaf mock-orange	Native	Pres	May–Sep		x	x		
Saxifragaceae (Grossulariaceae)	<i>Ribes aureum</i>	golden currant	Native	Pres	Mar–Jul	x	x	x	x	

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Shrubs, cont.</i>										
Saxifragaceae (Grossulariaceae)	<i>Ribes cereum</i> var. <i>inebrians</i>	wax currant	Native	Pres	Apr–Aug		x	x		
Saxifragaceae (Grossulariaceae)	<i>Ribes velutinum</i> var. <i>velutinum</i>	desert gooseberry	Native	Pres	Mar–Aug		x			
Solanaceae	<i>Lycium andersonii</i>	Anderson's wolfberry	Native	Pres	Feb–May	x	x			
Solanaceae	<i>Lycium pallidum</i>	pale wolfberry	Native	Pres	Mar–May	x	x			
Tamaricaceae	<i>Tamarix chinensis</i>	five-stamen tamarisk	Intro	Pres	Apr–Sep				x	Disturbed areas
Vitaceae	<i>Vitis arizonica</i>	canyon grape	Native	Pres	May–Jun		x	x		
Vitaceae	<i>Vitis vinifera</i>	wine grape	Intro	Pres	May–Jun					Cultivated
Zygophyllaceae	<i>Larrea tridentata</i>	creosote bush	Native	Pres	Apr–Jun	x				
<b>Perennial Forbs</b>										
Alismataceae	<i>Alisma plantago-aquatica</i>	water-plantain	Native	Pres	Jun–Sep				x	
Apocynaceae	<i>Apocynum androsaemifolium</i> var. <i>androsaemifolium</i>	spreading dogbane	Native	Pres	Jun–Aug		x	x		
Apocynaceae	<i>Apocynum cannabinum</i>	common dogbane	Native	Pres	Jun–Aug				x	
Araliaceae	<i>Aralia racemosa</i> ssp. <i>bicrenata</i>	spikenard	Native	Pres	Jun–Aug				x	
Asclepiadaceae	<i>Asclepias asperula</i> var. <i>asperula</i>	spider milkweed	Native	Pres	May–Jul	x	x	x		
Asclepiadaceae	<i>Asclepias hallii</i>	Hall's milkweed	Native	Pres	Jun–Aug		x	x		
Asclepiadaceae	<i>Asclepias speciosa</i>	showy milkweed	Native	Pres	May–Aug				x	
Asclepiadaceae	<i>Asclepias subverticillata</i>	whorled milkweed	Native	Pres	May–Sep	x	x			Disturbed areas
Asclepiadaceae	<i>Asclepias tuberosa</i> var. <i>interior</i>	orange milkweed	Native	Pres	May–Aug		x	x		
Asclepiadaceae	<i>Periploca graeca</i>	silkvine	Intro	Pres	May–Aug					Cultivated
Boraginaceae	<i>Cryptantha cinerea</i> var. <i>arenicola</i>	sand cryptanth	Native	Pres	Jun		x	x		Navajo blow sands
Boraginaceae	<i>Cryptantha confertiflora</i>	basin yellow cryptanth	Native	Pres	Apr–Jun	x	x	x		
Boraginaceae	<i>Cryptantha flavoculata</i>	yellow-eye cryptanth	Native	Pres	Apr–Jun		x	x		

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Perennial Forbs, cont.</i>										
Boraginaceae	<i>Cryptantha humilis</i>	dwarf cryptanth	Native	Rep	Apr–Jun	x	x			
Boraginaceae	<i>Cryptantha virginensis</i>	Virgin River cryptanth	Native	Pres	Apr–Jun	x	x			
Boraginaceae	<i>Hackelia floribunda</i>	showy stickseed	Native	Pres	Jun–Aug		x	x	x	
Boraginaceae	<i>Hackelia micrantha</i>	smallflower stickseed	Native	Pres	Jun–Aug		x	x		
Boraginaceae	<i>Hackelia patens</i> var. <i>harrisonii</i>	Harrison's stickseed	Native	Pres	Jun–Aug		x	x		
Boraginaceae	<i>Lithospermum incisum</i>	showy stoneseed	Native	Pres	Apr–Jul		x	x		
Boraginaceae	<i>Lithospermum multiflorum</i>	southwestern stoneseed	Native	Pres	Jun–Aug		x	x		
Boraginaceae	<i>Lithospermum ruderale</i>	western stoneseed	Native	Pres	Apr–Jun		x	x		
Boraginaceae	<i>Mertensia arizonica</i>	aspen bluebell	Native	Pres	Jun–Aug		x	x	x	
Boraginaceae	<i>Mertensia franciscana</i>	Franciscan bluebell	Native	Pres	Jun–Aug			x	x	
Boraginaceae	<i>Mertensia fusiformis</i>	spindle-rooted bluebell	Native	Pres	May–Jun		x	x		
Cactaceae	<i>Coryphantha vivipara</i> var. <i>arizonica</i>	Arizona pincushion	Native	Rep	Apr–Aug	x	x			
Cactaceae	<i>Echinocereus engelmannii</i> var. <i>chrysocentrus</i>	Engelmann's hedgehog cactus	Native	Pres	Mar–Jul	x	x			
Cactaceae	<i>Echinocereus triglochidiatus</i> var. <i>melanacanthus</i>	claretcup	Native	Pres	Apr–Jun	x	x	x		
Cactaceae	<i>Echinocereus triglochidiatus</i> var. <i>mojavensis</i>	Mohave claretcup	Native	Rep	Apr–Jun	x	x	x		
Cactaceae	<i>Opuntia chlorotica</i>	pancake pricklypear	Native	Pres	Apr–Jul	x				
Cactaceae	<i>Opuntia erinacea</i> var. <i>aurea</i>	Pipe Spring pricklypear	Native	Pres	May–Jun		x	x		
Cactaceae	<i>Opuntia erinacea</i> var. <i>erinacea</i>	common pricklypear	Native	Pres	May–Jun	x	x			
Cactaceae	<i>Opuntia erinacea</i> var. <i>ursina</i>	grizzlybear pricklypear	Native	Pres	May–Jun	x				
Cactaceae	<i>Opuntia erinacea</i> var. <i>utahensis</i>	Utah pricklypear	Native	Pres	May–Jun	x	x	x		
Cactaceae	<i>Opuntia macrorhiza</i> var. <i>macrorhiza</i>	twist-spine pricklypear	Native	Pres	May–Jun		x			

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Perennial Forbs, cont.</i>										
Cactaceae	<i>Opuntia phaeacantha</i> var. <i>discata</i>	frying pan pricklypear	Native	Pres	Apr-Jul	x	x			
Cactaceae	<i>Opuntia phaeacantha</i> var. <i>major</i>	large pricklypear	Native	Pres	Apr-Jul	x	x			
Campanulaceae	<i>Lobelia cardinalis</i> ssp. <i>graminea</i>	cardinal-flower	Native	Pres	Aug-Oct				x	
Cannabaceae	<i>Humulus lupulus</i> var. <i>neomexicanus</i>	common hops	Native	Pres	Jul-Aug				x	
Caryophyllaceae (Alsinaeae)	<i>Arenaria congesta</i> var. <i>subcongesta</i>	looseflower sandwort	Native	Pres	May-Aug		x	x		
Caryophyllaceae (Alsinaeae)	<i>Arenaria fendleri</i> var. <i>eastwoodiae</i>	Eastwood's sandwort	Native	Pres	May-Sep	x	x	x		
Caryophyllaceae (Alsinaeae)	<i>Arenaria fendleri</i> var. <i>glabrescens</i>	basin sandwort	Native	Pres	May-Aug	x	x	x		
Caryophyllaceae (Alsinaeae)	<i>Arenaria lanuginosa</i>	sprawling sandwort	Native	Pres	May-Aug			x		
Caryophyllaceae (Alsinaeae)	<i>Arenaria macradenia</i>	shrubby sandwort	Native	Pres	Mar-Aug	x	x	x		
Caryophyllaceae	<i>Lychnis drummondii</i>	Drummond's catchfly	Native	Pres	May-Sep		x	x		
Caryophyllaceae	<i>Silene scouleri</i> ssp. <i>pringlei</i>	Scouler's campion	Native	Pres	Jul-Sep		x	x		
Caryophyllaceae	<i>Silene verecunda</i> ssp. <i>andersonii</i>	shy campion	Native	Pres	Jun-Sep		x			
Caryophyllaceae (Alsinaeae)	<i>Stellaria jamesiana</i>	James' chickweed	Native	Pres	Jun-Aug		x	x		
Commelinaceae	<i>Tradescantia occidentalis</i>	western spiderwort	Native	Pres	May-Aug		x	x		Sandy soils
Compositae (Asteraceae)	<i>Achillea millefolium</i> ssp. <i>lanulosa</i>	common yarrow	Native	Pres	May-Sep		x	x	x	
Compositae (Asteraceae)	<i>Agoseris aurantiaca</i> var. <i>purpurea</i>	purplish agoseris	Native	Pres	Jun-Aug			x		
Compositae (Asteraceae)	<i>Agoseris glauca</i> var. <i>laciniata</i>	cutleaf agoseris	Native	Pres	May-Sep		x	x		
Compositae (Asteraceae)	<i>Agoseris retrorsa</i>	retorse agoseris	Native	Pres	May-Jun		x			



Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Perennial Forbs, cont.</i>										
Compositae (Asteraceae)	<i>Anaphalis margaritacea</i>	pearly-everlasting	Native	Pres	Jul-Sep			x	x	
Compositae (Asteraceae)	<i>Antennaria dimorpha</i>	low pussytoes	Native	Pres	Apr-Jun	x	x	x		
Compositae (Asteraceae)	<i>Antennaria marginata</i>	sandstone pussytoes	Native	Pres	May-Jul		x			
Compositae (Asteraceae)	<i>Antennaria microphylla</i>	small-leaf pussyoes	Native	Pres	Jun-Aug		x	x		
Compositae (Asteraceae)	<i>Antennaria parvifolia</i>	common pussytoes	Native	Pres	May-Jul		x	x		
Compositae (Asteraceae)	<i>Arctium minus</i>	burdock	Intro	Pres	Jul-Sep				x	Disturbed areas
Compositae (Asteraceae)	<i>Arnica chamissonis</i> var. <i>foliosa</i>	Chamisso's arnica	Native	Pres	Jun-Aug			x	x	
Compositae (Asteraceae)	<i>Arnica cordifolia</i> var. <i>cordifolia</i>	heartleaf arnica	Native	Pres	May-Aug			x		
Compositae (Asteraceae)	<i>Artemisia campestris</i> var. <i>scouleriana</i>	sand wormwood	Native	Pres	Jul-Sep	x	x			Sandy soils
Compositae (Asteraceae)	<i>Artemisia dracunculus</i> var. <i>glauca</i>	tarragon	Native	Pres	Jul-Oct	x	x	x	x	
Compositae (Asteraceae)	<i>Artemisia ludoviciana</i> var. <i>albula</i>	Louisiana wormwood	Native	Pres	Jul-Oct		x		x	
Compositae (Asteraceae)	<i>Artemisia ludoviciana</i> var. <i>ludoviciana</i>	Louisiana wormwood	Native	Pres	Jul-Oct		x	x	x	
Compositae (Asteraceae)	<i>Artemisia ludoviciana</i> var. <i>mexicana</i>	Louisiana wormwood	Native	Pres	Jul-Oct		x	x	x	
Compositae (Asteraceae)	<i>Aster ascendens</i>	Pacific aster	Native	Pres	Jul-Oct		x	x	x	
Compositae (Asteraceae)	<i>Aster falcatus</i>	falcate aster	Native	Pres	Aug-Sep		x	x		
Compositae (Asteraceae)	<i>Aster glaucodes</i>	blueleaf aster	Native	Pres	Jul-Sep		x	x	x	
Compositae (Asteraceae)	<i>Aster wasatchensis</i> var. <i>pulcher</i>	modest aster	Native	Pres	Jul-Sep	x	x		x	

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Perennial Forbs, cont.</i>										
Compositae (Asteraceae)	<i>Aster welshii</i>	Welsh's aster	Native	Pres	Aug-Oct				x	
Compositae (Asteraceae)	<i>Baileya multiradiata</i>	desert-marigold	Native	Pres	Apr-Sep	x				
Compositae (Asteraceae)	<i>Balsamorhiza sagittata</i>	arrowleaf balsamroot	Native	Pres	Apr-Jul		x	x		
Compositae (Asteraceae)	<i>Brickellia grandiflora</i>	tassel-flower brickellbush	Native	Pres	Jul-Oct		x	x		
Compositae (Asteraceae)	<i>Carduus nutans</i>	musk thistle	Intro	Rep	Jun-Sep		x			Disturbed areas
Compositae (Asteraceae)	<i>Centaurea diffusa</i>	diffuse knapweed	Intro	Pres	Jul-Sep					Disturbed areas
Compositae (Asteraceae)	<i>Centaurea maculosa</i>	spotted knapweed	Intro	Pres	Jul-Sep					Disturbed areas
Compositae (Asteraceae)	<i>Centaurea solstitialis</i>	yellow star-thistle	Intro	Pres	Jul-Sep					Disturbed areas
Compositae (Asteraceae)	<i>Centaurea virgata</i> var. <i>squarrosa</i>	squarrose knapweed	Intro	Pres	Jun-Sep					Disturbed areas
Compositae (Asteraceae)	<i>Chaenactis douglasii</i>	hoary dusty-maiden	Native	Pres	May-Sep	x		x		
Compositae (Asteraceae)	<i>Chaetopappa ericoides</i>	rose-heath	Native	Pres	May-Sep	x		x		
Compositae (Asteraceae)	<i>Chrysanthemum leucanthemum</i>	ox-eye daisy	Intro	Pres	Jun-Sep					Disturbed areas
Compositae (Asteraceae)	<i>Chrysopsis jonesii</i>	Jones' golden-aster	Native	Pres	May-Sep			x		
Compositae (Asteraceae)	<i>Chrysopsis villosa</i> var. <i>minor</i>	hispid golden-aster	Native	Pres	May-Sep	x		x		
Compositae (Asteraceae)	<i>Chrysopsis villosa</i> var. <i>villosa</i>	hairy golden-aster	Native	Pres	May-Sep	x		x		
Compositae (Asteraceae)	<i>Chrysopsis zionensis</i>	Zion golden-aster	Native	Pres	May-Sep			x		
Compositae (Asteraceae)	<i>Cichorium intybus</i>	chicory	Intro	Rep	Jul-Oct					Disturbed areas

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Perennial Forbs, cont.</i>										
Compositae (Asteraceae)	<i>Cirsium arizonicum</i>	Arizona thistle	Native	Pres	Jun–Aug	x	x	x	x	
Compositae (Asteraceae)	<i>Cirsium calcareum</i> var. <i>calcareum</i>	Caineville thistle	Native	Rep	Jun–Sep				x	
Compositae (Asteraceae)	<i>Cirsium calcareum</i> var. <i>pulchellum</i>	pretty thistle	Native	Rep	Jun–Sep		x	x	x	
Compositae (Asteraceae)	<i>Cirsium joannae</i>	Joanna's thistle	Native	Pres	Aug–Sep				x	
Compositae (Asteraceae)	<i>Cirsium neomexicanum</i> var. <i>neomexicanum</i>	New Mexico thistle	Native	Pres	May–Jun	x	x			
Compositae (Asteraceae)	<i>Cirsium neomexicanum</i> var. <i>utahense</i>	Utah thistle	Native	Pres	May–Jun	x	x			
Compositae (Asteraceae)	<i>Cirsium vulgare</i>	bull thistle	Intro	Pres	Jul–Aug		x		x	Disturbed areas
Compositae (Asteraceae)	<i>Cirsium wheeleri</i> var. <i>salinensis</i>	Salina thistle	Native	Pres	Jul–Sep				x	
Compositae (Asteraceae)	<i>Cirsium wheeleri</i> var. <i>wheeleri</i>	Wheeler's thistle	Native	Pres	Jul–Sep		x	x		
Compositae (Asteraceae)	<i>Crepis intermedia</i>	gray hawksbeard	Native	Pres	May–Jul		x			
Compositae (Asteraceae)	<i>Crepis occidentalis</i> var. <i>occidentalis</i>	western hawksbeard	Native	Rep	May–Jul	x	x	x		
Compositae (Asteraceae)	<i>Erigeron canaani</i>	Canaan daisy	Native	Pres	Apr–Jul		x	x		Navajo sandstone
Compositae (Asteraceae)	<i>Erigeron divergens</i> var. <i>divergens</i>	spreading daisy	Native	Pres	May–Sep		x	x	x	
Compositae (Asteraceae)	<i>Erigeron eatonii</i>	Eaton's daisy	Native	Pres	May–Jul		x	x		
Compositae (Asteraceae)	<i>Erigeron flagellaris</i>	trailing daisy	Native	Pres	May–Aug		x	x		
Compositae (Asteraceae)	<i>Erigeron jonesii</i>	Jones' daisy	Native	Pres	Jun–Jul		x			
Compositae (Asteraceae)	<i>Erigeron pumilus</i> var. <i>concinus</i>	Navajo fleabane	Native	Pres	May–Aug	x	x	x		

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Perennial Forbs, cont.</i>										
Compositae (Asteraceae)	<i>Erigeron religiosus</i>	religious daisy	Native	Pres	May-Sep		x	x	x	Navajo sandstone
Compositae (Asteraceae)	<i>Erigeron sionis</i>	Zion daisy	Native	Pres	Apr-Sep				x	Navajo & Wingate sandstone
Compositae (Asteraceae)	<i>Erigeron speciosus</i> var. <i>macranthus</i>	aspen daisy	Native	Pres	Jun-Aug		x	x		
Compositae (Asteraceae)	<i>Erigeron ursinus</i> var. <i>meyerae</i>	Meyer's daisy	Native	Pres	Jul-Aug		x			
Compositae (Asteraceae)	<i>Erigeron utahensis</i> var. <i>utahensis</i>	Utah daisy	Native	Pres	Apr-Jun	x	x			
Compositae (Asteraceae)	<i>Eupatorium herbaceum</i>	white thoroughwort	Native	Pres	Aug-Oct		x	x		
Compositae (Asteraceae)	<i>Euthamia occidentalis</i>	western goldenrod	Native	Pres	Jul-Oct				x	
Compositae (Asteraceae)	<i>Gaillardia parryi</i>	Parry's blanketflower	Native	Hist	May-Sep		x	x		Carmel, Chinle, Moenkopi
Compositae (Asteraceae)	<i>Gaillardia pinnatifida</i>	Hopi blanketflower	Native	Pres	Apr-Aug	x	x			
Compositae (Asteraceae)	<i>Gnaphalium wrightii</i>	Wright's cudweed	Native	Pres	Aug-Oct		x	x		
Compositae (Asteraceae)	<i>Grindelia squarrosa</i> var. <i>serrulata</i>	curly-cup gumweed	Native	Pres	Jul-Sep	x	x		x	
Compositae (Asteraceae)	<i>Haplopappus leverichii</i>	canyon goldenweed	Native	Pres	Sep		x			Rock crevices
Compositae (Asteraceae)	<i>Helianthella microcephala</i>	purpledisk sunflower	Native	Pres	Jul-Sep		x	x		
Compositae (Asteraceae)	<i>Helianthella quinquenervis</i>	fivenerve sunflower	Native	Pres	Jun-Aug		x	x		
Compositae (Asteraceae)	<i>Helianthella uniflora</i>	little sunflower	Native	Pres	Jun-Aug		x	x		
Compositae (Asteraceae)	<i>Helianthus ciliaris</i>	blue-weed sunflower	Native	Pres	Jun-Aug		x			

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Perennial Forbs, cont.</i>										
Compositae (Asteraceae)	<i>Hymenopappus filifolius</i> var. <i>cinereus</i>	common hyalineherb	Native	Pres	May-Oct	x	x	x		
Compositae (Asteraceae)	<i>Hymenopappus filifolius</i> var. <i>nudipes</i>	alpine hyalineherb	Native	Pres	May-Oct		x	x		
Compositae (Asteraceae)	<i>Hymenoxys acaulis</i> var. <i>arizonica</i>	Arizona hymenoxys	Native	Pres	Apr-Jun	x	x	x		
Compositae (Asteraceae)	<i>Hymenoxys cooperi</i>	Cooper's hymenoxys	Native	Pres	May-Jul	x	x			
Compositae (Asteraceae)	<i>Iva axillaris</i>	poverty-weed	Native	Pres	May-Sep	x	x	x	x	
Compositae (Asteraceae)	<i>Lactuca tatarica</i> var. <i>pulchella</i>	blue lettuce	Native	Pres	Jun-Sep				x	
Compositae (Asteraceae)	<i>Lygodesmia grandiflora</i> var. <i>dianthopsis</i>	western rush-pink	Native	Pres	May-Jun	x	x			
Compositae (Asteraceae)	<i>Machaeranthera canescens</i> var. <i>aristata</i>	aristate aster	Native	Pres	Jul-Oct	x	x	x		
Compositae (Asteraceae)	<i>Machaeranthera canescens</i> var. <i>leucanthemifolia</i>	thickleaf aster	Native	Pres	May-Sep	x	x	x		
Compositae (Asteraceae)	<i>Onopordum acanthium</i>	Scotch thistle	Intro	Pres	Jun-Sep					Disturbed areas
Compositae (Asteraceae)	<i>Perityle tenella</i>	Dixie rock-daisy	Native	Pres	May-Aug	x	x	x		
Compositae (Asteraceae)	<i>Petradoria pumila</i> var. <i>pumila</i>	rock goldenrod	Native	Pres	Jul-Sep	x	x	x		
Compositae (Asteraceae)	<i>Ratibida columnifera</i>	prairie coneflower	Native	Pres	Jun-Aug	x	x			
Compositae (Asteraceae)	<i>Rudbeckia montana</i>	montane coneflower	Native	Pres	Jun-Sep			x		
Compositae (Asteraceae)	<i>Rudbeckia occidentalis</i>	western coneflower	Native	Pres	Jun-Aug		x	x		
Compositae (Asteraceae)	<i>Senecio douglasii</i> var. <i>longilobus</i>	Douglas' groundsel	Native	Pres	May-Oct	x	x			
Compositae (Asteraceae)	<i>Senecio eremophilus</i> var. <i>kingii</i>	cut-leaved groundsel	Native	Pres	Jul-Sep			x		

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Perennial Forbs, cont.</i>										
Compositae (Asteraceae)	<i>Senecio integerrimus</i> var. <i>exaltatus</i>	western groundsel	Native	Pres	Jun–Aug		x	x		
Compositae (Asteraceae)	<i>Senecio multilobatus</i>	basin groundsel	Native	Pres	Apr–Aug	x	x	x		
Compositae (Asteraceae)	<i>Senecio spartioides</i> var. <i>spartioides</i>	broom groundsel	Native	Pres	Jun–Oct	x	x	x		Sandy soils
Compositae (Asteraceae)	<i>Senecio streptanthifolius</i> var. <i>streptanthifolius</i>	Rocky Mountain groundsel	Native	Pres	Jun–Aug		x	x		
Compositae (Asteraceae)	<i>Solidago canadensis</i> var. <i>salebrosa</i>	Canadian goldenrod	Native	Pres	Aug–Oct				x	
Compositae (Asteraceae)	<i>Solidago nana</i>	baby goldenrod	Native	Pres	Aug–Sep			x	x	
Compositae (Asteraceae)	<i>Solidago velutina</i>	three-nerve goldenrod	Native	Pres	Aug–Oct		x	x		
Compositae (Asteraceae)	<i>Sonchus arvensis</i>	field sow-thistle	Intro	Rep	Jul–Oct				x	Disturbed areas
Compositae (Asteraceae)	<i>Stephanomeria pauciflora</i>	brown-plume wire-lettuce	Native	Pres	May–Oct	x	x			Sandy soils
Compositae (Asteraceae)	<i>Stephanomeria tenuifolia</i> var. <i>tenuifolia</i>	slender wirelettuce	Native	Pres	Jun–Sep	x	x	x		
Compositae (Asteraceae)	<i>Taraxacum officinale</i>	common dandelion	Intro	Pres	Apr–Dec		x	x	x	
Compositae (Asteraceae)	<i>Thelesperma megapotamicum</i>	Hopi-tea	Native	Pres	Jun–Aug	x	x	x		
Compositae (Asteraceae)	<i>Thymophylla pentachaeta</i> var. <i>belenidium</i>	scale glandweed	Native	Pres	May–Oct	x				
Compositae (Asteraceae)	<i>Townsendia incana</i>	hoary townsendia	Native	Pres	Apr–Jul	x	x			
Compositae (Asteraceae)	<i>Tragopogon dubius</i>	yellow salsify	Intro	Pres	May–Jul		x		x	Disturbed areas
Compositae (Asteraceae)	<i>Tragopogon porrifolius</i>	salsify	Intro	Pres	Apr–Aug				x	Disturbed areas

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Perennial Forbs, cont.</i>										
Compositae (Asteraceae)	<i>Viguiera multiflora</i> var. <i>multiflora</i>	showy goldeneye	Native	Pres	Jun-Sep		x	x	x	
Compositae (Asteraceae)	<i>Viguiera multiflora</i> var. <i>nevadensis</i>	showy goldeneye	Native	Pres	Jun-Sep	x				
Compositae (Asteraceae)	<i>Wyethia arizonica</i>	Arizona mulesears	Native	Pres	Jun-Aug		x	x		
Convolvulaceae	<i>Convolvulus arvensis</i>	field bindweed	Intro	Pres	Jun-Aug					Disturbed areas
Crassulaceae	<i>Sedum debile</i>	weak-stemmed stonecrop	Native	Pres	Jun-Aug			x		
Crassulaceae	<i>Sedum lanceolatum</i>	lance-leaved stonecrop	Native	Pres	Jun-Aug		x	x		
Cruciferae (Brassicaceae)	<i>Arabis demissa</i>	nodding rock cress	Native	Hist	May-Aug		x	x		
Cruciferae (Brassicaceae)	<i>Arabis drummondii</i>	Drummond's rockcress	Native	Pres	May-Sep		x	x		
Cruciferae (Brassicaceae)	<i>Arabis holboellii</i> var. <i>fendleri</i>	Fendler's rockcress	Native	Pres	Apr-Aug		x	x		
Cruciferae (Brassicaceae)	<i>Arabis holboellii</i> var. <i>pinetorum</i>	Holboell's rockcress	Native	Pres	May-Jul		x	x	x	
Cruciferae (Brassicaceae)	<i>Arabis holboellii</i> var. <i>secunda</i>	Holboell's rockcress	Native	Pres	May-Jul		x	x		
Cruciferae (Brassicaceae)	<i>Arabis perennans</i> var. <i>perennans</i>	perennial rockcress	Native	Pres	Mar-Jul	x	x	x		
Cruciferae (Brassicaceae)	<i>Arabis pulchra</i> var. <i>munciensis</i>	Muncie rockcress	Native	Pres	Mar-Jun	x	x			
Cruciferae (Brassicaceae)	<i>Cardaria draba</i>	whitetop	Intro	Pres	May-Aug					Disturbed areas
Cruciferae (Brassicaceae)	<i>Caulanthus crassicaulis</i> var. <i>glaber</i>	smooth spindlestem	Native	Pres	May-Jul		x	x		
Cruciferae (Brassicaceae)	<i>Descurainia californica</i>	California tansy-mustard	Native	Pres	Jun-Sep		x	x		
Cruciferae (Brassicaceae)	<i>Descurainia incana</i> var. <i>brevipes</i>	gray tansy-mustard	Native	Pres	Jun-Sep			x		
Cruciferae (Brassicaceae)	<i>Draba asprella</i> var. <i>zionensis</i>	Zion draba	Native	Pres	Apr-Jun		x	x		

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.										
Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Perennial Forbs, cont.</i>										
Cruciferae (Brassicaceae)	<i>Erysimum asperum</i> var. <i>purshii</i>	sand dune wallflower	Native	Pres	Apr–Aug	x	x	x		
Cruciferae (Brassicaceae)	<i>Lepidium fremontii</i>	Fremont's pepperwort	Native	Pres	Apr–Jul	x				
Cruciferae (Brassicaceae)	<i>Lepidium montanum</i> var. <i>jonesii</i>	Jones' pepperwort	Native	Pres	Apr–Sep	x	x			
Cruciferae (Brassicaceae)	<i>Lepidium montanum</i> var. <i>montanum</i>	mountain pepperwort	Native	Hist	Apr–Sep	x	x			
Cruciferae (Brassicaceae)	<i>Nasturtium officinale</i>	watercress	Intro	Pres	May–Sep				x	
Cruciferae (Brassicaceae)	<i>Physaria chambersii</i> var. <i>chambersii</i>	Chambers' twinpod	Native	Pres	Apr–Aug	x	x	x		
Cruciferae (Brassicaceae)	<i>Physaria chambersii</i> var. <i>membranacea</i>	lepidote twinpod	Native	Pres	May–Jul	x	x	x		
Cruciferae (Brassicaceae)	<i>Physaria intermedia</i>	Watson's bladderpod	Native	Pres	May–Aug		x	x		
Cruciferae (Brassicaceae)	<i>Physaria kingii</i> var. <i>parvifolia</i>	King's bladderpod	Native	Pres	Apr–Jul	x	x	x		
Cruciferae (Brassicaceae)	<i>Physaria ludoviciana</i>	silver bladderpod	Native	Pres	May–Jun		x	x		
Cruciferae (Brassicaceae)	<i>Physaria newberryi</i>	Newberry's twinpod	Native	Pres	Mar–Jun	x	x	x		
Cruciferae (Brassicaceae)	<i>Physaria rectipes</i>	Colorado Plateau bladderpod	Native	Pres	Apr–Aug	x	x	x		
Cruciferae (Brassicaceae)	<i>Rorippa curvipes</i> var. <i>curvipes</i>	blunt-leaf yellowcress	Native	Pres	May–Aug				x	
Cruciferae (Brassicaceae)	<i>Stanleya pinnata</i>	prince's-plume	Native	Pres	Apr–Sep	x	x			Often on seleniferous soils
Cruciferae (Brassicaceae)	<i>Streptanthus cordatus</i>	heart-leaf jewelflower	Native	Pres	Apr–Jul	x	x	x		
Cruciferae (Brassicaceae)	<i>Thelypodium integrifolium</i> var. <i>affine</i>	cousin thelypody	Native	Pres	Jun–Sep				x	



Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Perennial Forbs, cont.</i>										
Cruciferae (Brassicaceae)	<i>Thelypodium laxiflorum</i>	slate thelypody	Native	Pres	May-Sep		x	x		
Cruciferae (Brassicaceae)	<i>Thlaspi montanum</i> var. <i>montanum</i>	alpine pennycress	Native	Pres	Apr-Aug		x	x		
Cucurbitaceae	<i>Cucurbita foetidissima</i>	buffalo gourd	Native	Pres	May-Aug	x	x			
Euphorbiaceae	<i>Chamaesyce albomarginata</i>	rattlesnake-weed	Native	Pres	Apr-Sep	x	x			
Euphorbiaceae	<i>Chamaesyce fendleri</i>	Fendler's spurge	Native	Pres	May-Sep	x	x	x		
Euphorbiaceae	<i>Croton californicus</i>	Mohave croton	Native	Hist	Apr-Aug	x	x			Sand desert
Euphorbiaceae	<i>Euphorbia brachycera</i>	shorthorn spurge	Native	Pres	May-Jun		x	x	x	
Euphorbiaceae	<i>Tragia ramosa</i>	noseburn	Native	Pres	May-Aug	x	x			
Fumariaceae	<i>Corydalis aurea</i> var. <i>occidentalis</i>	golden corydalis	Native	Pres	Apr-Sep	x	x	x		
Gentianaceae	<i>Centaurium exaltatum</i>	Great Basin centaury	Native	Pres	Jun-Sep				x	
Gentianaceae	<i>Gentiana affinis</i> var. <i>affinis</i>	Rocky Mountain gentian	Native	Pres	Jul-Sep			x	x	
Gentianaceae	<i>Gentianella amarella</i>	northern gentian	Native	Rep	Jul-Aug			x		
Gentianaceae	<i>Gentianella heterosepala</i>	Engelmann's gentian	Native	Rep	Jun-Aug		x	x		
Gentianaceae	<i>Swertia albomarginata</i>	white-margined swertia	Native	Pres	May-Jul	x	x			
Gentianaceae	<i>Swertia radiata</i>	elkweed	Native	Pres	Jun-Aug		x	x		
Geraniaceae	<i>Geranium caespitosum</i> var. <i>marginale</i>	small-leaf geranium	Native	Pres	Jun-Aug		x	x		
Guttiferae (Hypericaceae, Clusiaceae)	<i>Hypericum formosum</i>	western St. John's-wort	Native	Pres	May-Sep		x	x	x	
Hydrophyllaceae	<i>Hesperochiron pumilus</i>	dwarf hesperochiron	Native	Pres	Apr-Jun		x	x		
Hydrophyllaceae	<i>Hydrophyllum occidentale</i> var. <i>watsonii</i>	western waterleaf	Native	Pres	Apr-Jun		x	x		
Hydrophyllaceae	<i>Phacelia heterophylla</i>	wand phacelia	Native	Pres	Jun-Aug		x	x		
Hydrophyllaceae	<i>Phacelia palmeri</i>	Palmer's phacelia	Native	Pres	Apr-Jun	x				Moenkopi
Hydrophyllaceae	<i>Phacelia rafaensis</i>	San Rafael phacelia	Native	Pres	Apr-Jun	x	x			Chinle & Moenkopi

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Perennial Forbs, cont.</i>										
Hydrophyllaceae	<i>Tricardia watsonii</i>	three hearts	Native	Rep	Apr–May	x				
Iridaceae	<i>Sisyrinchium demissum</i>	blue-eyed grass	Native	Pres	Apr–Aug				x	
Labiatae (Lamiaceae)	<i>Agastache urticifolia</i>	nettle-leaf horsemint	Native	Pres	Jun–Aug		x	x		
Labiatae (Lamiaceae)	<i>Dracocephalum parviflorum</i>	smallflower dragonhead	Native	Pres	Jun–Aug		x	x		
Labiatae (Lamiaceae)	<i>Hedeoma nanum</i>	dwarf pennyroyal	Native	Pres	May–Jun	x		x	x	
Labiatae (Lamiaceae)	<i>Leonurus cardiaca</i>	motherwort	Intro	Pres	Jun–Sep		x	x		Disturbed areas
Labiatae (Lamiaceae)	<i>Marrubium vulgare</i>	common horehound	Intro	Pres	May–Oct					Disturbed areas
Labiatae (Lamiaceae)	<i>Mentha arvensis</i> var. <i>glabrata</i>	field mint	Native	Pres	Jun–Sep				x	
Labiatae (Lamiaceae)	<i>Mentha piperita</i>	peppermint	Intro	Pres	Jul–Sep				x	
Labiatae (Lamiaceae)	<i>Mentha spicata</i>	spearmint	Intro	Rep	Jun–Aug				x	
Labiatae (Lamiaceae)	<i>Monardella odoratissima</i>	stinking horsemint	Native	Pres	May–Aug		x	x		
Labiatae (Lamiaceae)	<i>Nepeta cataria</i>	catnip	Intro	Hist	Jun–Sep		x			
Labiatae (Lamiaceae)	<i>Prunella vulgaris</i> var. <i>lanceolata</i>	self-heal	Native	Pres	May–Sep			x	x	
Leguminosae (Fabaceae)	<i>Astragalus amphioxys</i> var. <i>amphioxys</i>	crescent milkvetch	Native	Pres	Mar–Jun	x				
Leguminosae (Fabaceae)	<i>Astragalus ampullarioides</i>	Shivwits milkvetch	Native	Pres	May	x				Chinle F
Leguminosae (Fabaceae)	<i>Astragalus ampullarius</i>	gumbo milkvetch	Native	Pres	Apr–May	x				Chinle F.
Leguminosae (Fabaceae)	<i>Astragalus argophyllus</i> var. <i>panguicensis</i>	Panguitch milkvetch	Native	Pres	May–Jul		x	x		
Leguminosae (Fabaceae)	<i>Astragalus bisulcatus</i> var. <i>major</i>	Johnson milkvetch	Native	Pres	May–Aug	x				
Leguminosae (Fabaceae)	<i>Astragalus ceramicus</i> var. <i>ceramicus</i>	painted milkvetch	Native	Pres	Apr–Jun	x			x	Sandy soils
Leguminosae (Fabaceae)	<i>Astragalus cibaricus</i>	browse milkvetch	Native	Pres	Apr–Jul	x				
Leguminosae (Fabaceae)	<i>Astragalus cicer</i>	chickpea milkvetch	Intro	Pres	May–Aug		x	x		Disturbed areas

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Perennial Forbs, cont.</i>										
Leguminosae (Fabaceae)	<i>Astragalus concordius</i>	hairy-pod milkvetch	Native	Pres	May–Jun		x	x		
Leguminosae (Fabaceae)	<i>Astragalus ensiformis</i>	Pagumpa milkvetch	Native	Pres	Apr–Jun	x	x			
Leguminosae (Fabaceae)	<i>Astragalus flavus</i> var. <i>higginsii</i>	Higgins' milkvetch	Native	Pres	Mar–May	x				Chinle F
Leguminosae (Fabaceae)	<i>Astragalus lancearius</i>	lancer milkvetch	Native	Pres	May–Jun	x	x			
Leguminosae (Fabaceae)	<i>Astragalus lentiginosus</i> var. <i>palans</i>	straggling milkvetch	Native	Pres	Apr–Jun	x	x			
Leguminosae (Fabaceae)	<i>Astragalus mollissimus</i> var. <i>thompsoniae</i>	woolly milkvetch	Native	Pres	Feb–Jun	x	x			
Leguminosae (Fabaceae)	<i>Astragalus newberryi</i> var. <i>newberryi</i>	Newberry's milkvetch	Native	Pres	Mar–Jul	x	x			
Leguminosae (Fabaceae)	<i>Astragalus oophorus</i> var. <i>caulescens</i>	egg milkvetch	Native	Pres	May–Jul		x			
Leguminosae (Fabaceae)	<i>Astragalus piutensis</i>	Sevier milkvetch	Native	Rep	Apr–Jun	x	x	x		
Leguminosae (Fabaceae)	<i>Astragalus praelongus</i> var. <i>praelongus</i>	stinking milkvetch	Native	Pres	Apr–Jul	x	x			
Leguminosae (Fabaceae)	<i>Astragalus striatiflorus</i>	escarpment milkvetch	Native	Pres	May–Jun		x			Slickrock
Leguminosae (Fabaceae)	<i>Astragalus subcinereus</i> var. <i>silerianus</i>	Siler's milkvetch	Native	Pres	May–Jul		x	x		
Leguminosae (Fabaceae)	<i>Astragalus zionis</i> var. <i>zionis</i>	Zion milkvetch	Native	Pres	Apr–Jun	x	x	x	x	
Leguminosae (Fabaceae)	<i>Dalea searlsiae</i>	Searls' prairie-clover	Native	Pres	May–Jul	x	x	x		
Leguminosae (Fabaceae)	<i>Glycyrrhiza lepidota</i>	Nuttall's licorice	Native	Pres	May–Jul				x	
Leguminosae (Fabaceae)	<i>Lathyrus brachycalyx</i> var. <i>zionis</i>	Zion sweetpea	Native	Pres	Apr–Jun		x		x	Sandy soils
Leguminosae (Fabaceae)	<i>Lathyrus lanszwertii</i> var. <i>laetivirens</i>	largeflower sweetpea	Native	Pres	May–Aug		x	x	x	

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Perennial Forbs, cont.</i>										
Leguminosae (Fabaceae)	<i>Lathyrus latifolius</i>	perennial sweetpea	Intro	Pres	Jun–Aug					Cultivated
Leguminosae (Fabaceae)	<i>Lotus plebeius</i>	longbracted trefoil	Native	Pres	Apr–Jun	x	x	x	x	
Leguminosae (Fabaceae)	<i>Lotus rigidus</i>	bush trefoil	Native	Rep	Mar–May	x	x		x	
Leguminosae (Fabaceae)	<i>Lotus utahensis</i>	Utah trefoil	Native	Pres	May–Aug		x	x		
Leguminosae (Fabaceae)	<i>Lupinus argenteus</i> var. <i>argenteus</i>	silvery lupine	Native	Pres	May–Aug	x	x	x		
Leguminosae (Fabaceae)	<i>Lupinus caudatus</i> var. <i>utahensis</i>	Utah lupine	Native	Pres	May–Aug		x	x		
Leguminosae (Fabaceae)	<i>Lupinus latifolius</i> var. <i>columbianus</i>	broad-leaved lupine	Native	Pres	Jun–Aug		x			
Leguminosae (Fabaceae)	<i>Lupinus sericeus</i> var. <i>barbiger</i>	sink lupine	Native	Pres	May–Aug		x	x		
Leguminosae (Fabaceae)	<i>Lupinus sericeus</i> var. <i>jonesii</i>	Jones' lupine	Native	Pres	May–Aug		x	x		
Leguminosae (Fabaceae)	<i>Medicago sativa</i>	alfalfa	Intro	Pres	May–Sep					Disturbed areas
Leguminosae (Fabaceae)	<i>Melilotus officinalis</i>	yellow sweet-clover	Intro	Pres	May–Oct					Disturbed areas
Leguminosae (Fabaceae)	<i>Pediomelum mephiticum</i>	skunk breadroot	Native	Pres	Apr–Jun	x	x			
Leguminosae (Fabaceae)	<i>Pediomelum paritense</i>	Paria breadroot	Native	Pres	Jun–Jul		x			Carmel
Leguminosae (Fabaceae)	<i>Peteria thompsoniae</i>	Thompson's peteria	Native	Pres	Apr–Jun	x	x			
Leguminosae (Fabaceae)	<i>Psoralidium lanceolatum</i> var. <i>lanceolatum</i>	lemon scurf-pea	Native	Pres	Apr–Aug		x			Sandy soils
Leguminosae (Fabaceae)	<i>Psoralidium tenuiflorum</i>	slender-flowered scurf-pea	Native	Pres	Apr–Sep		x	x		
Leguminosae (Fabaceae)	<i>Thermopsis montana</i>	montane golden pea	Native	Pres	May–Aug			x	x	

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Perennial Forbs, cont.</i>										
Leguminosae (Fabaceae)	<i>Trifolium gymnocarpon</i>	dwarf clover	Native	Pres	Apr–Aug	x	x	x		
Leguminosae (Fabaceae)	<i>Trifolium longipes</i> var. <i>rusbyi</i>	Rusby's clover	Native	Pres	May–Aug				x	
Leguminosae (Fabaceae)	<i>Trifolium macilentum</i>	lean clover	Native	Pres	May–Jul		x	x		
Leguminosae (Fabaceae)	<i>Trifolium repens</i>	white clover	Intro	Pres	Apr–Sep				x	Disturbed areas
Leguminosae (Fabaceae)	<i>Vicia americana</i> var. <i>americana</i>	American vetch	Native	Pres	May–Aug		x	x		
Lemnaceae	<i>Lemna minor</i>	lesser duckweed	Native	Hist	Jun–Oct				x	
Lemnaceae	<i>Lemna minuta</i>	tiny duckweed	Native	Hist	Jun–Sep				x	
Liliaceae (Alliaceae)	<i>Allium acuminatum</i>	taper-tip onion	Native	Pres	May–Jul		x	x		
Liliaceae (Alliaceae)	<i>Allium bisceptrum</i>	twincrest onion	Native	Pres	May–Jul		x	x		
Liliaceae (Alliaceae)	<i>Allium nevadense</i>	Nevada onion	Native	Pres	Apr–Jul	x	x			
Liliaceae (Themidaceae)	<i>Androstaphium breviflorum</i>	pink funnel-lily	Native	Pres	Apr–May	x	x			Saline to seleniferous soils
Liliaceae (Asparagaceae)	<i>Asparagus officinalis</i>	asparagus	Intro	Pres	Jun–Jul				x	Disturbed areas
Liliaceae (Calochortaceae)	<i>Calochortus ambiguus</i>	Jones' mariposa	Native	Pres	May–Jul		x			
Liliaceae (Calochortaceae)	<i>Calochortus aureus</i>	golden mariposa	Native	Pres	May–Jun	x	x			
Liliaceae (Calochortaceae)	<i>Calochortus flexuosus</i>	sinuous mariposa	Native	Pres	Apr–Jun	x	x			
Liliaceae (Calochortaceae)	<i>Calochortus nuttallii</i>	sego-lily	Native	Pres	Jun–Jul	x	x	x		
Liliaceae (Themidaceae)	<i>Dichelostemma pulchellum</i>	bluedicks	Native	Pres	Mar–May	x	x	x		
Liliaceae (Calochortaceae)	<i>Disporum trachycarpum</i>	rough-fruited fairy-bells	Native	Pres	Jun–Aug		x	x		
Liliaceae	<i>Fritillaria atropurpurea</i>	leopard-lily	Native	Pres	Apr–Jul	x	x	x		

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Perennial Forbs, cont.</i>										
Liliaceae (Convallariaceae)	<i>Smilacina racemosa</i>	false Solomon's-seal	Native	Pres	Jun-Jul		x	x		
Liliaceae (Convallariaceae)	<i>Smilacina stellata</i>	starry false Solomon's-seal	Native	Pres	Apr-Jun		x	x	x	
Liliaceae (Melanthiaceae)	<i>Zigadenus elegans</i>	mountain death camas	Native	Pres	Jun-Aug			x		
Liliaceae (Melanthiaceae)	<i>Zigadenus paniculatus</i>	foothills death camas	Native	Pres	Mar-Jun	x	x	x		
Liliaceae (Melanthiaceae)	<i>Zigadenus vaginatus</i>	alcove death camas	Native	Pres	Jul-Aug				x	
Linaceae	<i>Linum perenne</i> ssp. <i>lewisii</i>	blue flax	Native	Pres	Apr-Aug		x	x		
Linaceae	<i>Linum subteres</i>	Utah yellow-flax	Native	Pres	May-Aug	x	x			Sandy soils
Loasaceae	<i>Mentzelia integra</i>	Virgin stickleaf	Native	Pres	Apr-Oct	x	x			
Loasaceae	<i>Mentzelia pterosperma</i>	wing-seed stickleaf	Native	Pres	Mar-Aug	x	x			
Lythraceae	<i>Lythrum californicum</i>	California loosestrife	Native	Pres	Jun-Aug				x	
Malvaceae	<i>Iliamna rivularis</i>	wild hollyhock	Native	Pres	Jun-Oct				x	
Malvaceae	<i>Sphaeralcea ambigua</i> var. <i>ambigua</i>	Mohave globemallow	Native	Pres	Mar-Sep	x	x			
Malvaceae	<i>Sphaeralcea grossulariifolia</i>	gooseberry-leaf globemallow	Native	Pres	Mar-Oct	x	x	x		
Malvaceae	<i>Sphaeralcea parvifolia</i>	small-leaf globemallow	Native	Pres	Mar-Oct	x	x	x		
Malvaceae	<i>Sphaeralcea rusbyi</i>	Rusby's globemallow	Native	Pres	Mar-Oct	x	x		x	
Monotropaceae (Ericaceae)	<i>Pteropora andromeda</i>	woodland pinedrops	Native	Pres	Jun-Sep		x	x		
Nyctaginaceae	<i>Abronia fragrans</i>	fragrant sand-verbena	Native	Pres	Apr-Sep	x	x	x		
Nyctaginaceae	<i>Allionia incarnata</i>	trailing four-o'clock	Native	Hist	Apr-Sep	x	x			
Nyctaginaceae	<i>Mirabilis linearis</i> var. <i>linearis</i>	narrow-leaf four-o'clock	Native	Pres	May-Aug	x	x	x	x	
Nyctaginaceae	<i>Mirabilis multiflora</i>	showy four-o'clock	Native	Pres	Apr-Jul	x	x			
Onagraceae	<i>Epilobium angustifolium</i> var. <i>canescens</i>	fireweed	Native	Pres	Jun-Sep		x	x		
Onagraceae	<i>Epilobium ciliatum</i>	northern willow-herb	Native	Pres	Jun-Aug				x	

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Perennial Forbs, cont.</i>										
Onagraceae	<i>Epilobium glaberrimum</i> var. <i>fastigiatum</i>	glaucous willow-herb	Native	Pres	Jun-Aug				x	
Onagraceae	<i>Epilobium nevadense</i>	Nevada willow-herb	Native	Pres	Jun-Sep		x			
Onagraceae	<i>Gaura coccinea</i>	scarlet gaura	Native	Pres	May-Jul	x	x			
Onagraceae	<i>Oenothera caespitosa</i> var. <i>crinita</i>	Jones' evening-primrose	Native	Pres	Apr-Jun	x	x	x		
Onagraceae	<i>Oenothera caespitosa</i> var. <i>marginata</i>	long-tube evening-primrose	Native	Pres	Apr-Jun		x	x		
Onagraceae	<i>Oenothera californica</i>	California evening-primrose	Native	Hist	May-Jul	x	x			
Onagraceae	<i>Oenothera flava</i> var. <i>flava</i>	yellow evening-primrose	Native	Pres	Jun-Jul		x	x	x	
Onagraceae	<i>Oenothera howardii</i>	bronze evening-primrose	Native	Pres	May-Jul	x	x	x		
Onagraceae	<i>Oenothera longissima</i>	Bridges evening-primrose	Native	Pres	Jul-Sep				x	
Onagraceae	<i>Oenothera pallida</i> var. <i>pallida</i>	pale evening-primrose	Native	Pres	May-Jul	x	x	x		
Onagraceae	<i>Zauschneria latifolia</i> var. <i>garrettii</i>	hummingbird-flower	Native	Pres	Jul-Sep		x	x		
Orchidaceae	<i>Corallorhiza maculata</i>	spotted coral-root	Native	Pres	Jun-Jul		x	x		
Orchidaceae	<i>Epipactis gigantea</i>	giant helleborine	Native	Pres	Apr-Aug				x	
Orchidaceae	<i>Goodyera oblongifolia</i>	giant rattlesnake-plantain	Native	Pres	Jul-Aug		x	x		
Orchidaceae	<i>Habenaria dilatata</i> var. <i>leucostachys</i>	Lindley's white bog-orchid	Native	Hist	Jun-Aug				x	
Orchidaceae	<i>Habenaria sparsiflora</i> var. <i>sparsiflora</i>	slender bog orchid	Native	Pres	Jun-Jul				x	
Orobanchaceae	<i>Orobanche fasciculata</i>	clustered broomrape	Native	Pres	Jun-Jul	x	x	x		
Orobanchaceae	<i>Orobanche ludoviciana</i>	Cooper's broomrape	Native	Pres	May-Jul	x	x			
Papaveraceae	<i>Argemone munita</i> var. <i>rotundata</i>	armed prickly-poppy	Native	Pres	May-Sep	x	x			
Plantaginaceae	<i>Plantago lanceolata</i>	English plantain	Intro	Pres	May-Aug				x	
Plantaginaceae	<i>Plantago major</i>	common plantain	Intro	Pres	May-Aug	x	x			Disturbed areas
Polemoniaceae	<i>Ipomopsis aggregata</i> var. <i>aggregata</i>	scarlet gilia	Native	Pres	May-Aug		x	x	x	

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Perennial Forbs, cont.</i>										
Polemoniaceae	<i>Ipomopsis aggregata</i> var. <i>arizonica</i>	scarlet gilia	Native	Pres	May-Aug		x			
Polemoniaceae	<i>Ipomopsis congesta</i> var. <i>congesta</i>	ball-head gilia	Native	Rep	Jun-Aug	x	x			
Polemoniaceae	<i>Ipomopsis congesta</i> var. <i>frutescens</i>	shrubby gilia	Native	Pres	Jun-Sep		x	x		Sandy soils
Polemoniaceae	<i>Ipomopsis longiflora</i>	long-flower gilia	Native	Pres	May-Aug		x	x		
Polemoniaceae	<i>Leptodactylon watsonii</i>	Watson's prickly-phlox	Native	Hist	May-Aug	x	x	x		
Polemoniaceae	<i>Linanthastrum nuttallii</i>	Nuttall's linanthus	Native	Pres	Jun-Aug		x	x		
Polemoniaceae	<i>Phlox austromontana</i> var. <i>austromontana</i>	desert phlox	Native	Pres	Apr-Jun	x	x	x		
Polemoniaceae	<i>Phlox austromontana</i> var. <i>jonesii</i>	Jones' phlox	Native	Pres	Apr-May		x	x		
Polemoniaceae	<i>Phlox austromontana</i> var. <i>prostrata</i>	Silver Reef phlox	Native	Pres	Apr-Jun		x	x		
Polemoniaceae	<i>Phlox longifolia</i>	long-leaf phlox	Native	Pres	Apr-Jul	x	x	x		
Polygonaceae	<i>Eriogonum alatum</i>	winged wild buckwheat	Native	Pres	Jun-Oct		x			Sandy soils
Polygonaceae	<i>Eriogonum inflatum</i> var. <i>inflatum</i>	desert trumpet	Native	Pres	Mar-Oct	x	x			
Polygonaceae	<i>Eriogonum jamesii</i> var. <i>rupicola</i>	slickrock wild buckwheat	Native	Pres	Jun-Oct		x	x		
Polygonaceae	<i>Eriogonum microthecum</i> var. <i>simpsonii</i>	slender wild buckwheat	Native	Pres	Jun-Oct	x	x	x		
Polygonaceae	<i>Eriogonum ovalifolium</i>	cushion wild buckwheat	Native	Pres	Apr-Aug	x	x			
Polygonaceae	<i>Eriogonum panguicense</i>	Panguitch wild buckwheat	Native	Pres	Jun-Sep		x	x		
Polygonaceae	<i>Eriogonum racemosum</i> var. <i>racemosum</i>	redroot wild buckwheat	Native	Pres	Jun-Oct		x	x		
Polygonaceae	<i>Eriogonum racemosum</i> var. <i>zionis</i>	Zion wild buckwheat	Native	Pres	Jul-Oct		x	x		
Polygonaceae	<i>Eriogonum umbellatum</i> var. <i>subaridum</i>	arid wild buckwheat	Native	Pres	Jun-Oct		x	x		



Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Perennial Forbs, cont.</i>										
Polygonaceae	<i>Rumex acetosella</i>	sheep sorrel	Intro	Pres	Apr-Sep					Disturbed areas
Polygonaceae	<i>Rumex crispus</i>	curly dock	Intro	Hist	May-Sep				x	Disturbed areas
Polygonaceae	<i>Rumex hymenosepalus</i>	canaigre dock	Native	Pres	Apr-Jun	x	x			Sandy soils
Polygonaceae	<i>Rumex salicifolius</i> ssp. <i>triangulivalvis</i>	willow dock	Native	Hist	May-Sep	x	x	x		Disturbed areas
Portulacaceae	<i>Claytonia lanceolata</i>	lanceleaf springbeauty	Native	Pres	Apr-Jul		x	x		
Portulacaceae	<i>Lewisia brachycalyx</i>	showy lewisia	Native	Pres	Apr-Jun		x	x		
Portulacaceae	<i>Lewisia pygmaea</i>	alpine bitter-root	Native	Pres	May-Aug		x	x		
Portulacaceae	<i>Talinum parviflorum</i>	small-flowered fame-flower	Native	Pres	Apr-Sep		x	x		
Potamogetonaceae	<i>Potamogeton filiformis</i> var. <i>occidentalis</i>	slenderleaf waterweed	Native	Pres	Jul-Sep				x	
Primulaceae	<i>Dodecatheon pulchellum</i> var. <i>zionense</i>	Zion shooting-star	Native	Pres	Mar-Aug				x	
Primulaceae	<i>Samolus floribundus</i>	water-pimpernel	Native	Pres	May-Aug				x	
Pyrolaceae (Ericaceae)	<i>Chimaphila menziesii</i>	Menzies' wintergreen	Native	Pres	May-Aug			x		
Ranunculaceae (Helleboraceae)	<i>Aconitum columbianum</i> var. <i>columbianum</i>	Columbian monkshood	Native	Pres	Jun-Aug			x	x	
Ranunculaceae (Helleboraceae)	<i>Actaea rubra</i>	red baneberry	Native	Pres	May-Aug			x	x	
Ranunculaceae	<i>Anemone multifida</i>	cutleaf anemone	Native	Rep	Jun-Aug		x	x		
Ranunculaceae	<i>Anemone tuberosa</i>	desert anemone	Native	Pres	Mar-May	x	x			
Ranunculaceae (Helleboraceae)	<i>Aquilegia chrysantha</i>	golden columbine	Native	Pres	May-Jun				x	
Ranunculaceae (Helleboraceae)	<i>Aquilegia coerulea</i>	Colorado columbine	Native	Pres	Jun-Aug		x	x		
Ranunculaceae (Helleboraceae)	<i>Aquilegia formosa</i>	western columbine	Native	Pres	May-Sep				x	
Ranunculaceae (Helleboraceae)	<i>Aquilegia fosteri</i>	Foster's columbine	Native	Pres	May-Aug				x	

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Perennial Forbs, cont.</i>										
Ranunculaceae	<i>Clematis columbiana</i>	Columbian virgin's-bower	Native	Pres	May-Sep		x	x		
Ranunculaceae	<i>Clematis ligusticifolia</i>	white virgin's-bower	Native	Pres	Jul-Aug				x	
Ranunculaceae (Helleboraceae)	<i>Delphinium andersonii</i> var. <i>scaposum</i>	pale larkspur	Native	Pres	Apr-Jun	x	x			
Ranunculaceae (Helleboraceae)	<i>Delphinium barbeyi</i>	subalpine larkspur	Native	Pres	Jul-Aug		x	x		
Ranunculaceae (Helleboraceae)	<i>Delphinium nuttallianum</i>	Nuttall's larkspur	Native	Pres	Apr-Jul	x	x	x		
Ranunculaceae	<i>Ranunculus andersonii</i> var. <i>juniperinus</i>	juniper buttercup	Native	Pres	Apr-May		x	x		
Ranunculaceae	<i>Ranunculus aquatilis</i> var. <i>diffusus</i>	thread water-buttercup	Native	Pres	May-Sep				x	
Ranunculaceae	<i>Ranunculus cymbalaria</i>	marsh buttercup	Native	Pres	May-Sep				x	
Ranunculaceae	<i>Ranunculus glaberrimus</i> var. <i>ellipticus</i>	sagebrush buttercup	Native	Pres	Apr-Jun		x	x		
Ranunculaceae	<i>Ranunculus inamoenus</i>	drab buttercup	Native	Pres	Jun-Sep		x	x		
Ranunculaceae (Thalictraceae)	<i>Thalictrum fendleri</i>	Fendler's meadow-rue	Native	Pres	Jun-Aug		x	x	x	
Rosaceae	<i>Ivesia sabulosa</i>	Sevier ivesia	Native	Pres	Jun-Aug		x	x		
Rosaceae	<i>Petrophyton caespitosum</i>	rock spiraea	Native	Pres	Aug-Sep		x	x		Rock crevices
Rosaceae	<i>Potentilla glandulosa</i> var. <i>pseudorupestris</i>	sticky cinquefoil	Native	Pres	Jun-Aug		x	x		
Rosaceae	<i>Potentilla gracilis</i> var. <i>pulcherrima</i>	beautiful cinquefoil	Native	Pres	Jun-Aug		x	x		
Rosaceae	<i>Potentilla hippiana</i>	woolly cinquefoil	Native	Pres	Jul-Aug			x		
Rosaceae	<i>Sanguisorba minor</i>	garden burnet	Intro	Pres	May-Jun					Disturbed areas
Rubiaceae	<i>Galium multiflorum</i> var. <i>multiflorum</i>	shrubby bedstraw	Native	Pres	May-Aug	x	x	x	x	
Rubiaceae	<i>Galium trifidum</i>	small bedstraw	Native	Pres	Jul-Aug				x	
Rubiaceae	<i>Galium triflorum</i>	sweet-scented bedstraw	Native	Pres	Jul-Aug				x	
Rubiaceae	<i>Galium wrightii</i>	Wright's bedstraw	Native	Pres	Jul-Sep				x	

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Perennial Forbs, cont.</i>										
Rubiaceae	<i>Kelloggia galloides</i>	milky kelloggia	Native	Pres	Jun-Aug		x	x		
Rubiaceae	<i>Rubia tinctorum</i>	madder	Intro	Pres	Jun-Sep					Disturbed areas
Santalaceae	<i>Comandra umbellata</i> var. <i>pallida</i>	bastard toadflax	Native	Pres	Apr-Aug	x	x	x		
Saxifragaceae	<i>Heuchera parvifolia</i>	littleleaf alumroot	Native	Pres	May-Sep		x	x		
Saxifragaceae	<i>Heuchera rubescens</i> var. <i>versicolor</i>	hairy alumroot	Native	Pres	Apr-Sep		x	x		
Saxifragaceae	<i>Lithophragma glabrum</i> var. <i>ramulosum</i>	fringecup woodlandstar	Native	Pres	Mar-Aug		x	x	x	
Saxifragaceae	<i>Lithophragma tenellum</i>	slender woodlandstar	Native	Pres	Apr-Aug		x	x	x	
Saxifragaceae (Parnassiaceae)	<i>Parnassia palustris</i> var. <i>montanensis</i>	marsh grass-of-Parnassus	Native	Pres	May-Oct				x	
Saxifragaceae	<i>Saxifraga rhomboidea</i>	diamondleaf saxifrage	Native	Pres	May-Sep			x		
Scrophulariaceae	<i>Castilleja chromosa</i>	desert paintbrush	Native	Pres	Apr-Jun	x	x			
Scrophulariaceae	<i>Castilleja linariifolia</i>	Wyoming paintbrush	Native	Pres	Jul-Aug		x	x		
Scrophulariaceae	<i>Castilleja miniata</i>	scarlet paintbrush	Native	Pres	Jul-Aug			x	x	
Scrophulariaceae	<i>Castilleja scabrida</i> var. <i>scabrida</i>	Eastwood's paintbrush	Native	Pres	May-Jul	x	x	x		Sandstone
Scrophulariaceae	<i>Linaria dalmatica</i>	dalmatian toadflax	Intro	Rep	Jul-Aug		x	x	x	Disturbed areas
Scrophulariaceae	<i>Mimulus cardinalis</i>	cardinal monkey-flower	Native	Pres	May-Aug				x	
Scrophulariaceae	<i>Mimulus glabratus</i>	glabrous monkeyflower	Native	Pres	Jun-Aug				x	
Scrophulariaceae	<i>Mimulus guttatus</i>	yellow monkeyflower	Native	Pres	Jun-Aug				x	
Scrophulariaceae	<i>Pedicularis centranthera</i>	dwarf lousewort	Native	Pres	Apr-Jun		x			
Scrophulariaceae	<i>Penstemon barbatus</i> var. <i>barbatus</i>	beardlip penstemon	Native	Pres	Jun-Jul			x	x	
Scrophulariaceae	<i>Penstemon comarrhenus</i>	dusty penstemon	Native	Pres	Jun-Aug		x	x		
Scrophulariaceae	<i>Penstemon confusus</i>	mistaken penstemon	Native	Pres	Apr-Jun	x	x			
Scrophulariaceae	<i>Penstemon eatonii</i> var. <i>eatonii</i>	Eaton's firecracker	Native	Pres	May-Jul	x	x	x		

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Perennial Forbs, cont.</i>										
Scrophulariaceae	<i>Penstemon eatonii</i> var. <i>undosus</i>	undulate penstemon	Native	Pres	May-Jul	x	x	x		
Scrophulariaceae	<i>Penstemon higginsii</i>	Higgins' penstemon	Native	Pres	Jun-Jul		x	x		
Scrophulariaceae	<i>Penstemon humilis</i> var. <i>obtusifolius</i>	Zion penstemon	Native	Pres	May-Jun		x	x		
Scrophulariaceae	<i>Penstemon laevis</i>	smooth penstemon	Native	Pres	May-Jun		x	x		
Scrophulariaceae	<i>Penstemon leiophyllus</i> var. <i>leiophyllus</i>	Markagunt penstemon	Native	Pres	Jun-Aug		x	x		
Scrophulariaceae	<i>Penstemon linarioides</i> var. <i>sileri</i>	Siler's penstemon	Native	Pres	May-Aug		x	x		
Scrophulariaceae	<i>Penstemon pachyphyllus</i> var. <i>congestus</i>	Rockville penstemon	Native	Pres	May-Jul	x	x	x		
Scrophulariaceae	<i>Penstemon palmeri</i> var. <i>eglandulosus</i>	Palmer's penstemon	Native	Pres	May-Aug		x	x		
Scrophulariaceae	<i>Penstemon palmeri</i> var. <i>palmeri</i>	Palmer's penstemon	Native	Pres	May-Aug	x	x	x		
Scrophulariaceae	<i>Penstemon rostriflorus</i>	beaked penstemon	Native	Pres	Jun-Aug	x	x	x	x	
Scrophulariaceae	<i>Penstemon rydbergii</i> var. <i>aggregatus</i>	Rydberg's penstemon	Native	Pres	Jun-Jul		x	x		
Scrophulariaceae	<i>Penstemon sepalulus</i>	littlecup penstemon	Native	Hist	Jun-Jul		x	x		
Scrophulariaceae	<i>Penstemon utahensis</i>	Utah penstemon	Native	Pres	Apr-Jun	x	x			
Scrophulariaceae	<i>Penstemon x jonesii</i>	fuchsia penstemon	Native	Pres	May-Jun		x	x		
Scrophulariaceae	<i>Verbascum thapsus</i>	woolly mullein	Intro	Pres	Jun-Aug		x	x		Disturbed areas
Scrophulariaceae	<i>Veronica americana</i>	American brooklime	Native	Pres	Jul-Aug				x	
Scrophulariaceae	<i>Veronica anagallis-aquatica</i>	water speedwell	Intro	Pres	Jun-Aug				x	
Solanaceae	<i>Chamaesaracha coronopus</i>	false nightshade	Native	Pres	Apr-Jul	x	x			
Solanaceae	<i>Physalis hederifolia</i> var. <i>fendleri</i>	Fendler's ground-cherry	Native	Pres	May-Oct		x			
Solanaceae	<i>Physalis hederifolia</i> var. <i>palmeri</i>	Palmer's ground-cherry	Native	Pres	May-Oct	x	x	x	x	

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Perennial Forbs, cont.</i>										
Solanaceae	<i>Physalis longifolia</i>	long-leaf ground-cherry	Native	Pres	Apr-Aug		x		x	
Solanaceae	<i>Solanum elaeagnifolium</i>	silverleaf nightshade	Intro	Pres	Apr-Aug	x	x			
Umbelliferae (Apiaceae)	<i>Angelica pinnata</i>	pinnate angelica	Native	Pres	Jun-Aug			x	x	
Umbelliferae (Apiaceae)	<i>Berula erecta</i> var. <i>incisa</i>	cutleaf water-parsnip	Native	Hist	Jun-Sep				x	
Umbelliferae (Apiaceae)	<i>Cymopterus multinervatus</i>	purple-nerved spring-parsley	Native	Pres	Mar-Apr	x	x			
Umbelliferae (Apiaceae)	<i>Cymopterus newberryi</i>	sticky spring-parsley	Native	Pres	Apr-May	x	x			
Umbelliferae (Apiaceae)	<i>Cymopterus purpureus</i> var. <i>purpureus</i>	Colorado Plateau spring-parsley	Native	Pres	Apr-Jun	x	x	x		
Umbelliferae (Apiaceae)	<i>Cymopterus purpureus</i> var. <i>rosei</i>	Rose's spring-parsley	Native	Pres	May		x	x		
Umbelliferae (Apiaceae)	<i>Ligusticum porteri</i>	southern ligusticum	Native	Pres	Jun-Aug		x	x		
Umbelliferae (Apiaceae)	<i>Lomatium dissectum</i> var. <i>eatonii</i>	giant lomatium	Native	Pres	Apr-Jun		x	x	x	
Umbelliferae (Apiaceae)	<i>Lomatium graveolens</i> var. <i>clarkii</i>	Clark's lomatium	Native	Pres	Jun-Jul			x		Carmel & Navajo
Umbelliferae (Apiaceae)	<i>Lomatium nevadense</i> var. <i>parishii</i>	Nevada lomatium	Native	Pres	Apr-May	x	x	x		
Umbelliferae (Apiaceae)	<i>Orogenia linearifolia</i>	Indian-potato	Native	Pres	Mar-May		x	x		
Umbelliferae (Apiaceae)	<i>Osmorhiza depauperata</i>	blunt sweet-cicely	Native	Pres	Jun-Jul		x	x	x	
Umbelliferae (Apiaceae)	<i>Osmorhiza occidentalis</i>	western sweet-cicely	Native	Pres	May-Jul		x	x	x	
Valerianaceae	<i>Valeriana arizonica</i>	Arizona valerian	Native	Pres	May-Jun		x	x		
Verbenaceae	<i>Verbena bracteata</i>	prostrate vervain	Native	Pres	May-Sep		x	x		Disturbed areas
Violaceae	<i>Viola canadensis</i>	Canadian white violet	Native	Pres	Apr-Aug		x	x		
Violaceae	<i>Viola clauseniana</i>	Clausen's violet	Native	Pres	May-Jun			x	x	

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Perennial Forbs, cont.</i>										
Violaceae	<i>Viola nephrophylla</i>	northern bog violet	Native	Pres	Apr-Jul				x	
Violaceae	<i>Viola purpurea</i> var. <i>charlestonensis</i>	Charleston Mountain violet	Native	Pres	May-Jun			x		Claron & Carmel
Viscaceae	<i>Arceuthobium divaricatum</i>	pinyon dwarf-mistletoe	Native	Pres	Aug-Sep		x			
Viscaceae	<i>Arceuthobium douglasii</i>	Douglas-fir dwarf-mistletoe	Native	Rep	Mar-May			x		
Viscaceae	<i>Arceuthobium vaginatum</i> var. <i>cryptopodium</i>	southwestern dwarf-mistletoe	Native	Pres	May-Jun			x		
Viscaceae	<i>Phoradendron juniperinum</i>	juniper mistletoe	Native	Pres	Jul-Sep		x			
Zannichelliaceae	<i>Zannichellia palustris</i>	horned pondweed	Native	Pres	Mar-Nov				x	
<b>Annual Forbs</b>										
Aizoaceae (Molluginaceae)	<i>Mollugo cerviana</i>	slender carpetweed	Intro	Pres	Aug-Sep		x			
Amaranthaceae	<i>Amaranthus albus</i>	tumble pigweed	Intro	Pres	Jun-Oct					Disturbed areas
Amaranthaceae	<i>Amaranthus blitoides</i>	prostrate pigweed	Native	Pres	Jun-Sep					Disturbed areas
Boraginaceae	<i>Amsinckia intermedia</i>	tarweed fiddleneck	Native	Pres	Apr-May	x				
Boraginaceae	<i>Amsinckia tessellata</i>	rough fiddleneck	Native	Pres	Apr-Jun	x	x			
Boraginaceae	<i>Cryptantha ambigua</i>	obscure cryptanth	Native	Pres	May-Jul		x	x		
Boraginaceae	<i>Cryptantha barbigera</i>	bearded cryptanth	Native	Pres	Apr-May	x	x			
Boraginaceae	<i>Cryptantha decipiens</i>	beguiling cryptanth	Native	Pres	Apr-May	x	x			
Boraginaceae	<i>Cryptantha fendleri</i>	sand dune cryptanth	Native	Pres	May-Jul		x	x		
Boraginaceae	<i>Cryptantha gracilis</i>	slender cryptanth	Native	Pres	Apr-Jul	x	x			
Boraginaceae	<i>Cryptantha micrantha</i>	redroot cryptanth	Native	Pres	Mar-May	x	x			
Boraginaceae	<i>Cryptantha pterocarya</i> var. <i>cycloptera</i>	wing-nut cryptanth	Native	Pres	Apr-Jul	x	x			
Boraginaceae	<i>Cryptantha pterocarya</i>	wing-nut cryptanth	Native	Pres	Apr-Jul	x	x			
Boraginaceae	<i>Heliotropium convolvulaceum</i>	bindweed heliotrope	Native	Pres	May-Sep	x	x			Sandy soils

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Annual Forbs, cont.</i>										
Boraginaceae	<i>Lappula occidentalis</i> var. <i>cupulata</i>	cupseed stickseed	Native	Pres	Apr–Jun	x	x	x		Disturbed areas
Boraginaceae	<i>Pectocarya setosa</i>	saucer combseed	Native	Pres	Apr–Jun	x	x			
Boraginaceae	<i>Plagiobothrys tenellus</i>	slender popcorn-flower	Native	Pres	Apr–Jun		x	x		
Campanulaceae	<i>Nemacladus glanduliferus</i> var. <i>orientalis</i>	slender nemacladus	Native	Pres	Apr–Jun	x	x			
Campanulaceae	<i>Triodanis perfoliata</i>	Venus'-looking-glass	Intro	Pres	Jun–Jul		x	x		
Capparaceae (Cleomaceae)	<i>Cleome lutea</i>	yellow beeplant	Native	Pres	Apr–Sep	x	x	x		
Capparaceae (Cleomaceae)	<i>Cleome serrulata</i>	Rocky Mountain beeplant	Native	Rep	May–Oct				x	Disturbed areas
Caryophyllaceae (Aisinaceae)	<i>Arenaria pusilla</i>	dwarf sandwort	Native	Pres	Apr–Jul		x	x		
Caryophyllaceae	<i>Cerastium nutans</i>	nodding chickweed	Native	Pres	Apr–Aug		x		x	
Caryophyllaceae	<i>Silene antirrhina</i>	sleepy catchfly	Native	Pres	May–Aug	x	x			
Caryophyllaceae (Aisinaceae)	<i>Stellaria media</i>	common chickweed	Intro	Pres	Feb–Oct					Disturbed areas
Chenopodiaceae	<i>Atriplex saccaria</i> var. <i>saccaria</i>	stalked orach	Native	Pres	Aug–Sep	x	x			Mancos & Morrison F
Chenopodiaceae	<i>Chenopodium album</i> var. <i>album</i>	lambsquarter	Intro	Rep	Jun–Sep					Disturbed areas
Chenopodiaceae	<i>Chenopodium botrys</i>	Jerusalem-oak	Intro	Pres	Aug–Oct					Disturbed areas
Chenopodiaceae	<i>Chenopodium desiccatum</i>	desert goosefoot	Native	Pres	Jun–Sep	x	x		x	
Chenopodiaceae	<i>Chenopodium fremontii</i> var. <i>fremontii</i>	Fremont's goosefoot	Native	Pres	Aug–Oct	x	x	x		
Chenopodiaceae	<i>Chenopodium fremontii</i> var. <i>incanum</i>	silvery goosefoot	Native	Hist	Jun–Aug	x	x	x		
Chenopodiaceae	<i>Monolepis nuttalliana</i>	Nuttall's poverty-weed	Native	Pres	Apr–Jul	x	x	x		
Chenopodiaceae	<i>Salsola tragus</i>	Russian thistle	Intro	Pres	Jun–Sep					Disturbed areas
Chenopodiaceae	<i>Suaeda occidentalis</i>	western seepweed	Native	Pres	Jun–Sep				x	

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Annual Forbs, cont.</i>										
Compositae (Asteraceae)	<i>Ambrosia acanthicarpa</i>	bur ragweed	Native	Pres	Jul-Oct	x	x		x	Disturbed areas
Compositae (Asteraceae)	<i>Chaenactis macrantha</i>	showy dusty-maiden	Native	Pres	Apr-Jun	x	x			
Compositae (Asteraceae)	<i>Chaenactis stevioides</i>	stevia dusty-maiden	Native	Pres	Apr-Jul	x	x			
Compositae (Asteraceae)	<i>Conyza canadensis</i> var. <i>glabrata</i>	Canadian horseweed	Native	Pres	Jul-Sep				x	
Compositae (Asteraceae)	<i>Eriophyllum wallacei</i>	Wallace's woollyleaf	Native	Pres	Apr-Jun	x				
Compositae (Asteraceae)	<i>Glyptopleura setulosa</i>	setose crustweed	Native	Hist	Apr-May	x				
Compositae (Asteraceae)	<i>Gnaphalium palustre</i>	lowland cudweed	Native	Pres	May-Oct		x	x	x	
Compositae (Asteraceae)	<i>Haplopappus gracilis</i>	slender goldenweed	Native	Pres	May-Oct	x	x	x		
Compositae (Asteraceae)	<i>Helianthus annuus</i> ssp. <i>lenticularis</i>	common sunflower	Native	Pres	Jun-Sep	x	x			Disturbed areas
Compositae (Asteraceae)	<i>Helianthus petiolaris</i> ssp. <i>fallax</i>	prairie sunflower	Native	Pres	Jun-Sep	x	x		x	
Compositae (Asteraceae)	<i>Lactuca serriola</i>	prickly lettuce	Intro	Pres	Jul-Sep		x			Disturbed areas
Compositae (Asteraceae)	<i>Layia glandulosa</i>	tidytips	Native	Pres	Apr-Jul		x			
Compositae (Asteraceae)	<i>Machaeranthera tanacetifolia</i>	tansyleaf aster	Native	Pres	May-Sep	x	x			
Compositae (Asteraceae)	<i>Madia glomerata</i>	mountain tarweed	Native	Pres	Jul-Sep		x	x		
Compositae (Asteraceae)	<i>Malacothrix clelandii</i> var. <i>stebbinsii</i>	Cleveland's desert-dandelion	Native	Pres	Apr-May	x	x			
Compositae (Asteraceae)	<i>Microseris lindleyi</i>	Lindley's microseris	Native	Pres	Mar-Jun	x	x			
Compositae (Asteraceae)	<i>Pectis papposa</i>	cinch-weed	Native	Pres	Aug-Oct		x			Sandy soils



Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Annual Forbs, cont.</i>										
Compositae (Asteraceae)	<i>Psathyrotes pilifera</i>	pilliferous turtleback	Native	Pres	Aug–Oct	x				
Compositae (Asteraceae)	<i>Rafinesquia neomexicana</i>	desert chicory	Native	Hist	Apr–May	x				
Compositae (Asteraceae)	<i>Senecio vulgaris</i>	common groundsel	Intro	Pres	May–Oct					Disturbed areas
Compositae (Asteraceae)	<i>Sonchus asper</i>	spiny-leaf sow-thistle	Intro	Pres	Jul–Oct				x	Disturbed areas
Compositae (Asteraceae)	<i>Stephanomeria exigua</i>	white-plume wire-lettuce	Native	Pres	May–Sep	x	x			
Compositae (Asteraceae)	<i>Viguiera longifolia</i> var. <i>annua</i>	southern goldeneye	Native	Pres	Jun–Oct	x	x			Chinle & Tropic Shale
Compositae (Asteraceae)	<i>Xanthium strumarium</i> var. <i>canadense</i>	rough cocklebur	Native	Pres	Apr–Oct				x	
Convolvulaceae	<i>Cuscuta pentagona</i>	field dodder	Native	Hist	Jul–Sep	x	x			
Convolvulaceae	<i>Ipomoea purpurea</i>	morning glory	Intro	Pres	Jul–Sep				x	Disturbed areas
Cruciferae (Brassicaceae)	<i>Brassica campestris</i>	field mustard	Intro	Hist	May–Jun				x	Disturbed areas
Cruciferae (Brassicaceae)	<i>Brassica juncea</i>	Indian mustard	Intro	Hist	May–Jul					Disturbed areas
Cruciferae (Brassicaceae)	<i>Brassica nigra</i>	black mustard	Intro	Hist	May–Aug					Disturbed areas
Cruciferae (Brassicaceae)	<i>Capsella bursa-pastoris</i>	shepherd's-purse	Intro	Pres	Apr–Sep					Disturbed areas
Cruciferae (Brassicaceae)	<i>Chorispora tenella</i>	blue mustard	Intro	Pres	Apr–Jun					Disturbed areas
Cruciferae (Brassicaceae)	<i>Conringia orientalis</i>	hare's-ear mustard	Intro	Pres	Apr–Aug	x	x			Disturbed areas
Cruciferae (Brassicaceae)	<i>Descurainia incana</i> var. <i>sonnei</i>	mountain tansy-mustard	Native	Pres	Apr–Jul		x	x		
Cruciferae (Brassicaceae)	<i>Descurainia pinnata</i> var. <i>glabra</i>	western tansy-mustard	Native	Pres	Mar–Aug	x	x		x	
Cruciferae (Brassicaceae)	<i>Descurainia pinnata</i> var. <i>osmiarum</i>	western tansy-mustard	Native	Pres	Mar–Aug	x	x	x		

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Annual Forbs, cont.</i>										
Cruciferae (Brassicaceae)	<i>Descurainia sophia</i>	flixweed	Intro	Pres	Mar-Aug	x	x			Disturbed areas
Cruciferae (Brassicaceae)	<i>Dithyrea wislizenii</i>	spectacle-pod	Native	Pres	Apr-Sep	x	x	x		Sandy soils
Cruciferae (Brassicaceae)	<i>Draba cuneifolia</i> var. <i>cuneifolia</i>	wedgeleaf draba	Native	Pres	Feb-Jul	x	x	x		
Cruciferae (Brassicaceae)	<i>Draba reptans</i>	dwarf draba	Native	Pres	Apr-Jul	x	x			
Cruciferae (Brassicaceae)	<i>Erysimum repandum</i>	spreading wallflower	Intro	Pres	Apr-Jun		x			Disturbed areas
Cruciferae (Brassicaceae)	<i>Lepidium densiflorum</i> var. <i>densiflorum</i>	prairie pepperwort	Native	Pres	May-Jul	x	x	x		
Cruciferae (Brassicaceae)	<i>Lepidium densiflorum</i> var. <i>ramosum</i>	prairie pepperwort	Native	Pres	May-Jul	x	x	x		
Cruciferae (Brassicaceae)	<i>Lepidium lasiocarpum</i> var. <i>georginum</i>	hairy-pod pepperwort	Native	Rep	Mar-Jun	x	x			
Cruciferae (Brassicaceae)	<i>Lepidium lasiocarpum</i> var. <i>lasiocarpum</i>	hairy-pod pepperwort	Native	Hist	Mar-Jun	x	x			
Cruciferae (Brassicaceae)	<i>Lepidium perfoliatum</i>	clasping pepperwort	Intro	Pres	May-Jul	x	x			Disturbed areas
Cruciferae (Brassicaceae)	<i>Lepidium virginicum</i> var. <i>pubescens</i>	poor-man's pepperwort	Native	Pres	Apr-Aug	x	x	x		
Cruciferae (Brassicaceae)	<i>Malcolmia africana</i>	African mustard	Intro	Pres	Apr-Jul					Disturbed areas
Cruciferae (Brassicaceae)	<i>Sisymbrium altissimum</i>	tumble mustard	Intro	Pres	May-Aug					Disturbed areas
Cruciferae (Brassicaceae)	<i>Streptanthella longirostris</i>	long-beak fiddle-mustard	Native	Pres	Mar-Jun	x	x			
Cruciferae (Brassicaceae)	<i>Thysanocarpus curvipes</i> var. <i>eradiatus</i>	fringe-pod	Native	Pres	Mar-Jun	x	x			
Euphorbiaceae	<i>Chamaesyce glyptosperma</i>	ridge-seeded spurge	Native	Pres	Jun-Aug	x	x	x		
Euphorbiaceae	<i>Chamaesyce maculata</i>	spotted spurge	Intro	Pres	May-Sep					Disturbed areas
Euphorbiaceae	<i>Chamaesyce parryi</i>	Parry's spurge	Native	Pres	May-Sep	x	x			

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Annual Forbs, cont.</i>										
Euphorbiaceae	<i>Euphorbia spathulata</i>	prairie spurge	Native	Pres	May–Jun		x	x		
Gentianaceae	<i>Centaurium calycosum</i>	Buckley's centaury	Native	Pres	Jun–Sep				x	
Geraniaceae	<i>Erodium cicutarium</i>	stork's-bill	Intro	Pres	Feb–Oct	x	x			Disturbed areas
Hydrophyllaceae	<i>Phacelia ambigua</i>	Jones' phacelia	Native	Pres	Mar–May	x				
Hydrophyllaceae	<i>Phacelia cephalotes</i>	Chinle phacelia	Native	Pres	Apr–May	x	x			Chinle
Hydrophyllaceae	<i>Phacelia cryptantha</i>	cryptanth phacelia	Native	Pres	May–Jun	x	x			
Hydrophyllaceae	<i>Phacelia curvipes</i>	Washoe phacelia	Native	Pres	Apr–Jun	x	x			
Hydrophyllaceae	<i>Phacelia fremontii</i>	Fremont's phacelia	Native	Pres	Apr–May	x	x			
Hydrophyllaceae	<i>Phacelia ivesiana</i>	Ives' phacelia	Native	Pres	Apr–Jun	x	x			
Hydrophyllaceae	<i>Phacelia pulchella</i> var. <i>pulchella</i>	pretty phacelia	Native	Pres	Apr–May	x	x			
Hydrophyllaceae	<i>Phacelia vallis-mortae</i>	Death Valley phacelia	Native	Pres	Mar–Jun	x	x			
Labiatae (Lamiaceae)	<i>Molucella laevis</i>	shellflower	Intro	Pres	May–Jul	x	x			
Labiatae (Lamiaceae)	<i>Salvia columbariae</i> var. <i>argillacea</i>	Chinle chia	Native	Pres	May–Jun	x				Chinle
Labiatae (Lamiaceae)	<i>Salvia columbariae</i> var. <i>columbariae</i>	chia	Native	Pres	Mar–May	x	x			
Leguminosae (Fabaceae)	<i>Astragalus nuttallianus</i> var. <i>imperfectus</i>	Coliche milkvetch	Native	Pres	Apr–Jun	x				
Leguminosae (Fabaceae)	<i>Lotus denticulatus</i>	river-bar trefoil	Native	Pres	Jun–Aug	x	x		x	
Leguminosae (Fabaceae)	<i>Lotus humistratus</i>	low trefoil	Native	Pres	Apr–Jun	x	x	x		
Leguminosae (Fabaceae)	<i>Lupinus brevicaulis</i>	shortstem lupine	Native	Pres	May–Jul	x	x			
Leguminosae (Fabaceae)	<i>Lupinus concinnus</i> var. <i>orcuttii</i>	elegant lupine	Native	Pres	Mar–Jun	x	x		x	
Leguminosae (Fabaceae)	<i>Lupinus kingii</i> var. <i>kingii</i>	King's lupine	Native	Pres	May–Aug		x	x		
Leguminosae (Fabaceae)	<i>Lupinus pusillus</i> var. <i>rubens</i>	blackbrush lupine	Native	Pres	Apr–Jul	x	x			
Leguminosae (Fabaceae)	<i>Medicago lupulina</i>	black medick	Intro	Pres	May–Oct				x	Disturbed areas

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Annual Forbs, cont.</i>										
Leguminosae (Fabaceae)	<i>Melilotus alba</i>	white sweet-clover	Intro	Pres	May-Oct				x	Disturbed areas
Leguminosae (Fabaceae)	<i>Vicia ludoviciana</i>	Louisiana vetch	Native	Pres	Apr-May	x	x			
Linaceae	<i>Linum aristatum</i>	broom-flax	Native	Pres	Apr-Jun	x	x	x		
Loasaceae	<i>Mentzelia albicaulis</i>	white-stem blazingstar	Native	Pres	Apr-Aug	x	x	x		
Malvaceae	<i>Malva neglecta</i>	common mallow	Intro	Pres	Apr-Oct					Disturbed areas
Martyniaceae (Pedaliaceae)	<i>Proboscidea parviflora</i>	devil's claw	Native	Pres	Jun-Aug	x				Disturbed areas
Nyctaginaceae	<i>Boerhavia spicata</i>	spiderling	Native	Pres	Jun-Sep		x			Sand desert
Onagraceae	<i>Camissonia bairdii</i>	Baird's camissonia	Native	Pres	May-Jun	x	x			
Onagraceae	<i>Camissonia boothii</i> var. <i>villosa</i>	hairy camissonia	Native	Rep	Jun-Sep	x	x			
Onagraceae	<i>Camissonia multijuga</i>	manylobe camissonia	Native	Pres	Apr-Jun	x	x			
Onagraceae	<i>Camissonia parryi</i>	Parry's camissonia	Native	Pres	May-Jun	x	x			
Onagraceae	<i>Camissonia parvula</i>	tiny camissonia	Native	Pres	May-Jun	x	x			
Onagraceae	<i>Camissonia walkeri</i>	Walker's camissonia	Native	Hist	Apr-Jun	x	x			
Onagraceae	<i>Epilobium brachycarpum</i>	autumn willow-herb	Native	Pres	Jul-Sep		x	x		
Onagraceae	<i>Gaura parviflora</i>	small-flowered gaura	Native	Pres	May-Aug				x	
Onagraceae	<i>Gayophytum decipiens</i>	deceptive groundsmoke	Native	Pres	Jun-Aug		x	x		
Onagraceae	<i>Gayophytum diffusum</i> var. <i>strictipes</i>	diffuse groundsmoke	Native	Pres	May-Aug		x	x		
Onagraceae	<i>Gayophytum ramosissimum</i>	branching groundsmoke	Native	Pres	May-Aug		x	x		
Onagraceae	<i>Oenothera albicaulis</i>	white-stem evening-primrose	Native	Hist	Mar-Jun	x	x			
Onagraceae	<i>Oenothera primiveris</i> var. <i>bufonus</i>	early evening-primrose	Native	Rep	Mar-May	x	x			
Papaveraceae	<i>Eschscholzia glyptosperma</i>	desert golden-poppy	Native	Hist	Mar-May	x				
Papaveraceae	<i>Eschscholzia minutiflora</i>	pygmy golden-poppy	Native	Hist	Apr-May	x	x		x	

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Annual Forbs, cont.</i>										
Plantaginaceae	<i>Plantago patagonica</i>	woolly plantain	Native	Pres	Mar-Aug	x	x			
Polemoniaceae	<i>Collomia grandiflora</i>	large collomia	Native	Pres	Jun-Aug		x	x		
Polemoniaceae	<i>Eriastrum diffusum</i>	spreading eriastrum	Native	Pres	May-Jun	x	x			
Polemoniaceae	<i>Eriastrum eremicum</i>	Mohave eriastrum	Native	Pres	Apr-Jun	x	x			
Polemoniaceae	<i>Eriastrum sparsiflorum</i>	few-flower eriastrum	Native	Pres	May-Aug	x	x			
Polemoniaceae	<i>Gilia inconspicua</i>	shy gilia	Native	Pres	Apr-Jul	x	x			
Polemoniaceae	<i>Gilia leptomeria</i> var. <i>leptomeria</i>	common gilia	Native	Pres	May-Jun	x	x	x		
Polemoniaceae	<i>Ipomopsis polycladon</i>	spreading gilia	Native	Pres	Apr-Jun	x	x			
Polemoniaceae	<i>Langloisia setosissima</i>	Mohave langloisia	Native	Pres	Mar-May	x	x			
Polemoniaceae	<i>Linanthus bigelovii</i>	Bigelow's linanthus	Native	Pres	Apr-May	x	x			
Polemoniaceae	<i>Linanthus dichotomus</i>	evening-snow	Native	Pres	Apr-May		x	x		
Polemoniaceae	<i>Microsteris gracilis</i> var. <i>humilior</i>	slender phlox	Native	Pres	Mar-Jun		x	x		
Polemoniaceae	<i>Navarretia breweri</i>	yellow navarretia	Native	Pres	May-Jul		x	x		
Polemoniaceae	<i>Navarretia intertexta</i>	Great Basin navarretia	Native	Rep	Jun-Aug		x	x		
Polygonaceae	<i>Centrosteugia thurberi</i>	Thurber's spineflower	Native	Pres	Mar-Jul	x	x			
Polygonaceae	<i>Eriogonum cernuum</i> var. <i>cernuum</i>	nodding wild buckwheat	Native	Pres	Apr-Oct	x	x	x		
Polygonaceae	<i>Eriogonum davidsonii</i>	Davidson's wild buckwheat	Native	Pres	May-Sep	x	x	x		
Polygonaceae	<i>Eriogonum deflexum</i>	skeletonweed wild buckwheat	Native	Pres	Apr-Oct	x	x			
Polygonaceae	<i>Eriogonum palmerianum</i>	Palmer's wild buckwheat	Native	Pres	Mar-Oct	x	x			
Polygonaceae	<i>Eriogonum polycladon</i>	leafy wild buckwheat	Native	Rep	Mar-Aug		x			
Polygonaceae	<i>Eriogonum subreniforme</i>	kidney-shaped wild buckwheat	Native	Pres	Apr-Oct	x	x			
Polygonaceae	<i>Polygonum aviculare</i>	yard knotweed	Intro	Pres	May-Oct					Disturbed areas
Polygonaceae	<i>Polygonum convolvulus</i>	black-bindweed	Intro	Hist	May-Oct					Disturbed areas

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Annual Forbs, cont.</i>										
Polygonaceae	<i>Polygonum douglasii</i> var. <i>douglasii</i>	Douglas' knotweed	Native	Pres	Jun-Oct		x	x		
Polygonaceae	<i>Polygonum douglasii</i> var. <i>johnstonii</i>	Sawatch knotweed	Native	Pres	Jun-Aug		x	x		
Polygonaceae	<i>Polygonum douglasii</i> var. <i>utahense</i>	Utah knotweed	Native	Pres	Jun-Sep		x	x		
Polygonaceae	<i>Polygonum kelloggii</i>	Kellogg's knotweed	Native	Pres	Jun-Sep		x	x		
Polygonaceae	<i>Polygonum persicaria</i>	lady's-thumb	Intro	Pres	Mar-Nov				x	
Portulacaceae	<i>Montia perfoliata</i> var. <i>perfoliata</i>	miner's lettuce	Native	Pres	Apr-Jul	x	x			
Portulacaceae	<i>Montia perfoliata</i> var. <i>utahensis</i>	Mojave miner's lettuce	Native	Hist	Apr-Jul	x	x			
Portulacaceae	<i>Portulaca oleracea</i>	common purslane	Intro	Pres	Jun-Sep					Disturbed areas
Primulaceae	<i>Androsace septentrionalis</i>	pygmy-flower rock-jasmine	Native	Pres	May-Aug		x	x		
Ranunculaceae	<i>Myosurus cupulatus</i>	horseshoe mouse-tail	Native	Rep	Apr-May	x	x			
Ranunculaceae	<i>Ranunculus testiculatus</i>	bur buttercup	Intro	Pres	Mar-Jun	x	x			
Rubiaceae	<i>Galium aparine</i> var. <i>echinospermon</i>	cleavers	Native	Pres	Apr-Jun	x	x	x		
Rubiaceae	<i>Galium bifolium</i>	twin-leaf bedstraw	Native	Pres	May-Aug		x	x		
Scrophulariaceae	<i>Castilleja exilis</i>	annual paintbrush	Native	Pres	Jun-Aug				x	
Scrophulariaceae	<i>Collinsia parviflora</i>	blue-eyed mary	Native	Pres	Apr-Jun	x	x	x		
Scrophulariaceae	<i>Cordylanthus kingii</i> var. <i>kingii</i>	King's bird's-beak	Native	Pres	Jun-Sep	x	x	x		
Scrophulariaceae	<i>Cordylanthus parviflorus</i>	smallflower bird's-beak	Native	Pres	Aug-Sep	x	x			
Scrophulariaceae	<i>Mimetanthe pilosa</i>	hairy mimetanthe	Native	Pres	Jun-Aug	x	x		x	
Scrophulariaceae	<i>Mimulus floribundus</i>	seep monkeyflower	Native	Pres	May-Jul				x	
Scrophulariaceae	<i>Mimulus parryi</i>	Parry's monkeyflower	Native	Pres	Apr-Jun	x				
Scrophulariaceae	<i>Mimulus rubellus</i>	reddish monkeyflower	Native	Pres	Apr-Jun	x	x	x		
Scrophulariaceae	<i>Mimulus suksdorfii</i>	Suksdorf's monkeyflower	Native	Pres	May-Jun	x	x	x		
Scrophulariaceae	<i>Orthocarpus luteus</i>	yellow owl-clover	Native	Hist	Jul-Aug		x	x	x	

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Annual Forbs, cont.</i>										
Scrophulariaceae	<i>Veronica peregrina</i> var. <i>xalapensis</i>	purslane speedwell	Native	Pres	Jun–Aug				x	
Solanaceae	<i>Datura wrightii</i>	angel's trumpet	Native	Pres	Apr–Oct	x	x			
Solanaceae	<i>Nicotiana attenuata</i>	coyote tobacco	Native	Pres	Jun–Sep	x	x			
Solanaceae	<i>Nicotiana trigonophylla</i>	desert tobacco	Native	Pres	Mar–Oct	x				Rock crevices
Solanaceae	<i>Solanum nigrum</i>	black nightshade	Intro	Pres	Jul–Oct					Disturbed areas
Solanaceae	<i>Solanum sarrachoides</i>	ground-cherry nightshade	Intro	Rep	May–Oct					Disturbed areas
Solanaceae	<i>Solanum triflorum</i>	cut-leaf nightshade	Native	Pres	May–Sep	x	x			
Umbelliferae (Apiaceae)	<i>Torilis arvensis</i>	field hedge-parsley	Intro	Pres	May–Jul					Disturbed areas
Urticaceae	<i>Parietaria pensylvanica</i>	Pennsylvania pellitory	Native	Pres	Mar–Aug	x			x	
Valerianaceae	<i>Plectritis macrocera</i>	plectritis	Native	Pres	Apr–May		x	x		
Zygophyllaceae	<i>Tribulus terrestris</i>	puncture vine	Intro	Pres	May–Sep					Disturbed areas
<b>Perennial Graminoids</b>										
Cyperaceae	<i>Carex alma</i>	Alma sedge	Native	Pres	Jun–Sep				x	
Cyperaceae	<i>Carex athrotaehya</i>	slender-beaked sedge	Native	Pres	May–Aug			x	x	
Cyperaceae	<i>Carex aurea</i>	golden sedge	Native	Pres	Apr–Aug				x	
Cyperaceae	<i>Carex douglasii</i>	Douglas' sedge	Native	Pres	Apr–Aug		x	x		
Cyperaceae	<i>Carex haysii</i>	Hays' sedge	Native	Pres	May–Jul				x	
Cyperaceae	<i>Carex hystericina</i>	bottlebrush sedge	Native	Pres	May–Jun				x	
Cyperaceae	<i>Carex microptera</i>	small-wing sedge	Native	Pres	Jun–Aug				x	
Cyperaceae	<i>Carex nebrascensis</i>	Nebraska sedge	Native	Pres	May–Jul				x	
Cyperaceae	<i>Carex occidentalis</i>	western sedge	Native	Pres	Jun–Aug			x		
Cyperaceae	<i>Carex pellita</i>	woolly sedge	Native	Pres	May–Sep				x	
Cyperaceae	<i>Carex praegracilis</i>	blackcreeper sedge	Native	Pres	May–Aug				x	
Cyperaceae	<i>Carex rossii</i>	Ross' sedge	Native	Pres	May–Aug		x	x		
Cyperaceae	<i>Carex scoparia</i>	broom sedge	Native	Pres	Jun–Aug			x		
Cyperaceae	<i>Carex subfusca</i>	rusty sedge	Native	Pres	Jun–Aug			x		
Cyperaceae	<i>Carex taheensis</i>	dryland sedge	Native	Pres	Jul–Aug			x		

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Perennial Graminoids, cont.</i>										
Cyperaceae	<i>Carex villoicola</i>	valley sedge	Native	Pres	May-Jul		x	x		
Cyperaceae	<i>Eleocharis bolanderi</i>	Bolander's spikerush	Native	Pres	May-Jul				x	
Cyperaceae	<i>Eleocharis palustris</i>	common spikerush	Native	Pres	May-Aug				x	
Cyperaceae	<i>Eleocharis parishii</i>	Parish's spikerush	Native	Pres	Apr-Sep				x	
Cyperaceae	<i>Scirpus acutus</i>	hardstem bulrush	Native	Pres	Jun-Aug				x	
Cyperaceae	<i>Scirpus maritimus</i>	alkali bulrush	Native	Hist	Jun-Sep				x	
Cyperaceae	<i>Scirpus microcarpus</i>	panicked bulrush	Native	Pres	Jun-Aug				x	
Cyperaceae	<i>Scirpus pungens</i> var. <i>longispicatus</i>	three-square bulrush	Native	Pres	May-Aug				x	
Cyperaceae	<i>Scirpus validus</i>	soft-stem bulrush	Native	Pres	Jun-Aug				x	
Gramineae (Poaceae)	<i>Agropyron cristatum</i>	crested wheatgrass	Intro	Pres	Jun-Aug	x	x	x		Disturbed areas
Gramineae (Poaceae)	<i>Agrostis exarata</i>	spike bentgrass	Native	Pres	Jul-Aug				x	
Gramineae (Poaceae)	<i>Agrostis scabra</i>	tickleglass	Native	Pres	Jul-Aug			x	x	
Gramineae (Poaceae)	<i>Agrostis stolonifera</i>	redtop	Intro	Pres	Jun-Sep				x	
Gramineae (Poaceae)	<i>Alopecurus aequalis</i>	shortawn foxtail	Native	Pres	Jun-Aug				x	
Gramineae (Poaceae)	<i>Andropogon gerardii</i> var. <i>chrysocomus</i>	Hall's bluestem	Native	Pres	Jul-Sep		x	x	x	
Gramineae (Poaceae)	<i>Andropogon gerardii</i> var. <i>gerardii</i>	big bluestem	Native	Pres	Jul-Sep	x	x	x		
Gramineae (Poaceae)	<i>Aristida purpurea</i>	purple three-awn	Native	Pres	Mar-Sep	x	x	x		
Gramineae (Poaceae)	<i>Blepharoneuron tricholepis</i>	pine dropseed	Native	Pres	Jul-Sep		x	x		
Gramineae (Poaceae)	<i>Bothriochloa barbinodis</i>	cane bluestem	Native	Pres	Apr-Nov	x	x	x		
Gramineae (Poaceae)	<i>Bothriochloa laguroides</i> ssp. <i>torreyana</i>	silver bluestem	Native	Pres	Aug-Sep					Disturbed areas
Gramineae (Poaceae)	<i>Bouteloua curtipendula</i>	sideoats grama	Native	Pres	Jul-Sep	x	x	x		
Gramineae (Poaceae)	<i>Bouteloua eriopoda</i>	black grama	Native	Pres	Jun-Aug	x	x			
Gramineae (Poaceae)	<i>Bouteloua gracilis</i>	blue grama	Native	Pres	Jul-Sep	x	x	x		
Gramineae (Poaceae)	<i>Bouteloua hirsuta</i>	hairy grama	Native	Hist	Jul-Aug		x			
Gramineae (Poaceae)	<i>Bouteloua uniflora</i>	one-flower grama	Native	Rep	Jul-Sep					



Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Perennial Graminoids, cont.</i>										
Gramineae (Poaceae)	<i>Bromus anomalus</i>	nodding brome	Native	Pres	Jun–Aug		x	x		
Gramineae (Poaceae)	<i>Bromus carinatus</i>	mountain brome	Native	Pres	May–Aug		x	x		
Gramineae (Poaceae)	<i>Bromus ciliatus</i>	fringed brome	Native	Pres	Jul–Sep			x		
Gramineae (Poaceae)	<i>Bromus inermis</i> var. <i>inermis</i>	smooth brome	Intro	Pres	Jun–Aug		x	x	x	Disturbed areas
Gramineae (Poaceae)	<i>Calamagrostis scopolorum</i>	Jones' reedgrass	Native	Pres	Jul–Aug			x	x	
Gramineae (Poaceae)	<i>Catabrosa aquatica</i>	brookgrass	Native	Pres	Jun–Sep				x	
Gramineae (Poaceae)	<i>Cynodon dactylon</i>	Bermuda grass	Intro	Pres	May–Sep				x	Disturbed areas
Gramineae (Poaceae)	<i>Dactylis glomerata</i>	orchard grass	Intro	Pres	Jun–Aug		x	x		Disturbed areas
Gramineae (Poaceae)	<i>Danthonia intermedia</i>	timber oatgrass	Native	Pres	Jul–Aug		x	x		
Gramineae (Poaceae)	<i>Distichlis spicata</i>	desert saltgrass	Native	Hist	Jun–Sep	x			x	Disturbed areas
Gramineae (Poaceae)	<i>Elymus canadensis</i>	Canada wildrye	Native	Pres	Jul–Aug				x	
Gramineae (Poaceae)	<i>Elymus cinereus</i>	Great Basin wildrye	Native	Rep	Jun–Aug		x	x	x	
Gramineae (Poaceae)	<i>Elymus elongatus</i>	tall wheatgrass	Intro	Pres	Jun–Aug	x	x	x		Disturbed areas
Gramineae (Poaceae)	<i>Elymus elymoides</i>	squirreltail	Native	Pres	May–Aug	x	x	x	x	
Gramineae (Poaceae)	<i>Elymus glaucus</i>	blue wildrye	Native	Pres	Jul–Aug		x	x		
Gramineae (Poaceae)	<i>Elymus hispidus</i>	intermediate wheatgrass	Intro	Pres	Jun–Aug		x	x		Disturbed areas
Gramineae (Poaceae)	<i>Elymus lanceolatus</i>	thickspike wheatgrass	Native	Pres	Jun–Aug		x	x		
Gramineae (Poaceae)	<i>Elymus repens</i>	quackgrass	Intro	Rep	Jun–Aug		x	x	x	Disturbed areas
Gramineae (Poaceae)	<i>Elymus spicatus</i>	bluebunch wheatgrass	Native	Pres	Jun–Aug		x	x		
Gramineae (Poaceae)	<i>Elymus trachycaulus</i>	slender wheatgrass	Native	Pres	Jun–Aug		x	x	x	
Gramineae (Poaceae)	<i>Elymus x macounii</i>	Macoun wildrye	Native	Pres	Jun–Aug		x	x	x	
Gramineae (Poaceae)	<i>Eragrostis lehmanniana</i>	Lehmann's lovegrass	Intro	Pres	Jul–Sep	x				Disturbed areas
Gramineae (Poaceae)	<i>Erioneuron pulchellum</i>	fluffgrass	Native	Pres	Apr–Aug	x	x			
Gramineae (Poaceae)	<i>Festuca arundinacea</i>	tall fescue	Intro	Pres	May–Jul	x	x			

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Perennial Graminoids, cont.</i>										
Gramineae (Poaceae)	<i>Festuca ovina</i> var. <i>saximontana</i>	Rocky Mountain fescue	Native	Pres	Jul-Aug		x	x		
Gramineae (Poaceae)	<i>Festuca pratensis</i>	meadow fescue	Intro	Pres	Jun-Aug			x	x	
Gramineae (Poaceae)	<i>Glyceria striata</i>	fowl mannagrass	Native	Pres	Jul-Aug				x	
Gramineae (Poaceae)	<i>Hilaria jamesii</i>	galleta	Native	Pres	May-Aug	x	x			
Gramineae (Poaceae)	<i>Hilaria rigida</i>	big galleta	Native	Pres	Mar-Jun	x				
Gramineae (Poaceae)	<i>Hordeum brachyantherum</i>	meadow barley	Native	Pres	Jun-Aug			x	x	
Gramineae (Poaceae)	<i>Hordeum jubatum</i>	foxtail barley	Native	Pres	Jun-Aug	x	x	x	x	
Gramineae (Poaceae)	<i>Koeleria macrantha</i>	junegrass	Native	Pres	Jun-Aug		x	x		
Gramineae (Poaceae)	<i>Lycurus phleoides</i>	wolftail	Native	Pres	Jun-Aug		x			
Gramineae (Poaceae)	<i>Melica bulbosa</i>	oniongrass	Native	Pres	May-Aug		x	x		
Gramineae (Poaceae)	<i>Muhlenbergia andina</i>	foxtail muhly	Native	Pres	Jul-Sep				x	
Gramineae (Poaceae)	<i>Muhlenbergia asperifolia</i>	scratchgrass	Native	Pres	Jul-Aug				x	
Gramineae (Poaceae)	<i>Muhlenbergia montana</i>	mountain muhly	Native	Pres	Jul-Sep		x	x		
Gramineae (Poaceae)	<i>Muhlenbergia pauciflora</i>	New Mexican muhly	Native	Pres	Aug-Sep	x	x	x		
Gramineae (Poaceae)	<i>Muhlenbergia porteri</i>	bush muhly	Native	Pres	Jul-Sep	x				
Gramineae (Poaceae)	<i>Muhlenbergia pungens</i>	sandhill muhly	Native	Pres	Jul-Sep		x			
Gramineae (Poaceae)	<i>Muhlenbergia racemosa</i>	green muhly	Native	Pres	Jul-Sep				x	
Gramineae (Poaceae)	<i>Muhlenbergia richardsonis</i>	mat muhly	Native	Rep	Jul-Sep		x	x		
Gramineae (Poaceae)	<i>Muhlenbergia thurberi</i>	Thurber's muhly	Native	Pres	Jul-Sep		x	x	x	
Gramineae (Poaceae)	<i>Onyopsis micrantha</i>	littelseed ricegrass	Native	Pres	Jun-Aug		x	x		
Gramineae (Poaceae)	<i>Panicum acuminatum</i>	bundle panicgrass	Native	Pres	Jul-Sep				x	
Gramineae (Poaceae)	<i>Panicum oligosanthes</i> var. <i>scribnerianum</i>	Scribner panicgrass	Native	Pres	Jun-Sep		x	x	x	
Gramineae (Poaceae)	<i>Paspalum distichum</i>	knotgrass	Native	Pres	Aug-Sep				x	
Gramineae (Poaceae)	<i>Phalaris arundinacea</i>	reed canary grass	Native	Pres	Jun-Aug				x	
Gramineae (Poaceae)	<i>Phleum pratense</i>	timothy	Intro	Pres	Jun-Sep		x	x	x	
Gramineae (Poaceae)	<i>Phragmites australis</i>	common reed	Native	Pres	Jul-Sep				x	

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Perennial Graminoids, cont.</i>										
Gramineae (Poaceae)	<i>Piptochaetium lasianthum</i>	spargrass	Intro	Pres				x		
Gramineae (Poaceae)	<i>Poa bulbosa</i>	bulbous bluegrass	Intro	Pres	Apr-Jul		x	x	x	
Gramineae (Poaceae)	<i>Poa compressa</i>	Canada bluegrass	Intro	Pres	Jun-Aug		x	x	x	
Gramineae (Poaceae)	<i>Poa fendleriana</i>	muttongrass	Native	Pres	May-Aug	x	x	x		
Gramineae (Poaceae)	<i>Poa pratensis</i>	Kentucky bluegrass	Intro	Pres	May-Aug	x	x	x	x	
Gramineae (Poaceae)	<i>Poa secunda</i>	Sandberg's bluegrass	Native	Pres	Apr-Sep	x	x	x	x	
Gramineae (Poaceae)	<i>Polypogon interruptus</i>	ditch polypogon	Intro	Pres	May-Aug				x	
Gramineae (Poaceae)	<i>Polypogon semiverticillatus</i>	water polypogon	Intro	Pres	Jul-Aug				x	
Gramineae (Poaceae)	<i>Puccinellia distans</i>	weeping alkaligrass	Intro	Rep	Jun-Aug	x			x	
Gramineae (Poaceae)	<i>Schizachyrium scoparium</i>	little bluestem	Native	Pres	Jul-Sep		x	x	x	
Gramineae (Poaceae)	<i>Sorghastrum nutans</i>	Indiangrass	Native	Pres	Aug-Sep				x	
Gramineae (Poaceae)	<i>Sorghum halepense</i>	Johnson-grass	Intro	Pres	Jul-Sep				x	
Gramineae (Poaceae)	<i>Sphenopholis obtusata</i>	prairie wedgegrass	Native	Pres	Jul-Sep			x	x	
Gramineae (Poaceae)	<i>Sporobolus airoides</i> var. <i>airoides</i>	alkali sacaton	Native	Pres	Jun-Aug	x	x		x	
Gramineae (Poaceae)	<i>Sporobolus contractus</i>	spike dropseed	Native	Pres	Jun-Sep		x			
Gramineae (Poaceae)	<i>Sporobolus cryptandrus</i>	sand dropseed	Native	Pres	Jun-Aug		x			
Gramineae (Poaceae)	<i>Sporobolus flexuosus</i>	mesa dropseed	Native	Pres	Jun-Sep	x	x			
Gramineae (Poaceae)	<i>Sporobolus giganteus</i>	giant dropseed	Native	Rep	Jun-Sep		x			
Gramineae (Poaceae)	<i>Stipa x bloomeri</i>	Bloomer's ricegrass	Native	Pres	Jun-Aug	x	x			
Gramineae (Poaceae)	<i>Stipa comata</i> var. <i>comata</i>	needle-and-thread	Native	Pres	May-Jul	x	x	x		
Gramineae (Poaceae)	<i>Stipa hymenoides</i>	Indian ricegrass	Native	Pres	May-Jul	x	x	x		
Gramineae (Poaceae)	<i>Stipa lettermanii</i>	Letterman's needlegrass	Native	Pres	Jul-Sep		x	x		
Gramineae (Poaceae)	<i>Stipa nelsonii</i> var. <i>nelsonii</i>	Nelson's needlegrass	Native	Pres	Jun-Sep		x	x		
Gramineae (Poaceae)	<i>Stipa speciosa</i>	desert needlegrass	Native	Pres	Apr-Jun	x	x			
Juncaceae	<i>Juncus arcticus</i>	Baltic rush	Native	Pres	May-Jul				x	
Juncaceae	<i>Juncus ensifolius</i> var. <i>brunnescens</i>	Tracy's rush	Native	Pres	Jun-Aug				x	

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Perennial Graminoids, cont.</i>										
Juncaceae	<i>Juncus ensifolius</i> var. <i>montanus</i>	mountain rush	Native	Pres	Jun-Aug				x	
Juncaceae	<i>Juncus longistylus</i>	longstyle rush	Native	Pres	Jun-Aug				x	
Juncaceae	<i>Juncus nevadensis</i>	Nevada rush	Native	Pres	Jun-Aug				x	
Juncaceae	<i>Juncus tenuis</i>	poverty rush	Native	Pres	Jun-Aug				x	
Juncaceae	<i>Juncus torreyi</i>	Torrey's rush	Native	Pres	Jun-Aug				x	
Typhaceae	<i>Typha domingensis</i>	southern cattail	Native	Pres	Jun-Aug				x	
Typhaceae	<i>Typha latifolia</i>	broad-leaved cattail	Native	Pres	Jun-Aug				x	
<b>Annual Graminoids</b>										
Gramineae (Poaceae)	<i>Avena fatua</i> var. <i>sativa</i>	oats	Intro	Pres	May-Aug					Disturbed areas
Gramineae (Poaceae)	<i>Bouteloua barbata</i>	sixweeks grama	Native	Pres	Aug-Sep	x				
Gramineae (Poaceae)	<i>Bromus catharticus</i>	rescue grass	Intro	Pres	Mar-Jun				x	Disturbed areas
Gramineae (Poaceae)	<i>Bromus diandrus</i>	ripout brome	Intro	Pres	Apr-Jun	x	x			Disturbed areas
Gramineae (Poaceae)	<i>Bromus japonicus</i>	Japanese brome	Intro	Pres	Jun-Aug	x	x		x	
Gramineae (Poaceae)	<i>Bromus rubens</i>	red brome	Intro	Pres	Mar-Jun	x				
Gramineae (Poaceae)	<i>Bromus tectorum</i>	cheatgrass	Intro	Pres	May-Jul	x	x			
Gramineae (Poaceae)	<i>Cenchrus longispinus</i>	field sandbur	Native	Pres	Jul-Sep					Disturbed areas
Gramineae (Poaceae)	<i>Chloris virgata</i>	feather finger grass	Native	Pres	Aug-Sep				x	Disturbed areas
Gramineae (Poaceae)	<i>Digitaria sanguinalis</i>	hairy crabgrass	Intro	Pres	Jul-Sep					Disturbed areas
Gramineae (Poaceae)	<i>Echinochloa crus-galli</i>	barnyard-grass	Intro	Pres	Aug-Sep				x	Disturbed areas
Gramineae (Poaceae)	<i>Eleusine indica</i>	goosegrass	Intro	Pres	Jul-Oct					Disturbed areas
Gramineae (Poaceae)	<i>Eragrostis cilianensis</i>	stinkgrass	Intro	Pres	Jul-Sep					Disturbed areas
Gramineae (Poaceae)	<i>Eragrostis pectinacea</i>	tufted lovegrass	Native	Pres	Jul-Aug					Disturbed areas

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Annual Graminoids, cont.</i>										
Gramineae (Poaceae)	<i>Festuca bromoides</i>	brome six-weeks grass	Intro	Pres	Apr-Jul					Disturbed areas
Gramineae (Poaceae)	<i>Festuca microstachys</i>	small fescue	Native	Pres	May-Jun			x	x	
Gramineae (Poaceae)	<i>Festuca myuros</i>	foxtail fescue	Intro	Pres	Apr-Jul	x	x	x	x	
Gramineae (Poaceae)	<i>Festuca octoflora</i>	six-weeks fescue	Native	Pres	Apr-Jun	x	x	x	x	
Gramineae (Poaceae)	<i>Hordeum murinum</i>	rabbit barley	Intro	Pres	May-Jul		x			Disturbed areas
Gramineae (Poaceae)	<i>Hordeum pusillum</i>	little barley	Native	Pres	May-Aug	x	x			
Gramineae (Poaceae)	<i>Munroa squarrosa</i>	false buffalograss	Native	Pres	Jun-Sep	x	x			
Gramineae (Poaceae)	<i>Panicum capillare</i>	witchgrass	Native	Pres	Jun-Sep	x	x		x	
Gramineae (Poaceae)	<i>Poa bigelovii</i>	Bigelow's bluegrass	Native	Pres	Mar-May	x	x			
Gramineae (Poaceae)	<i>Polygonon monspeliensis</i>	rabbitfoot-grass	Intro	Pres	Jun-Aug				x	
Gramineae (Poaceae)	<i>Sclerochloa dura</i>	hardgrass	Intro	Pres	May-Jul					Disturbed areas
Gramineae (Poaceae)	<i>Secale cereale</i>	cultivated rye	Intro	Pres	May-Jul	x	x			Disturbed areas
Gramineae (Poaceae)	<i>Setaria glauca</i>	yellow bristlegrass	Intro	Pres	Jul-Sep					Disturbed areas
Gramineae (Poaceae)	<i>Setaria verticillata</i>	bur bristlegrass	Intro	Pres	Jul-Sep					Disturbed areas
Gramineae (Poaceae)	<i>Setaria viridis</i>	green bristlegrass	Intro	Pres	Jun-Sep					Disturbed areas
Gramineae (Poaceae)	<i>Triticum aestivum</i>	wheat	Intro	Rep	Apr-Jul					Disturbed areas
Juncaceae	<i>Juncus bryoides</i>	minute rush	Native	Pres	Jun-Jul		x	x	x	
Juncaceae	<i>Juncus bufonius</i>	toad rush	Native	Pres	Jun-Aug				x	
<b>Ferns and Allies</b>										
Equisetaceae	<i>Equisetum arvense</i>	field horsetail	Native	Pres	NA		x	x	x	
Equisetaceae	<i>Equisetum hyemale</i> var. <i>affine</i>	tall scouring-rush	Native	Pres	NA				x	
Equisetaceae	<i>Equisetum laevigatum</i>	smooth scouring-rush	Native	Pres	NA				x	
Equisetaceae	<i>Equisetum variegatum</i>	northern scouring-rush	Native	Pres	NA				x	

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Ferns and Allies, cont.</i>										
Equisetaceae	<i>Equisetum x ferrisii</i>	Ferris' scouring-rush	Native	Pres	NA				x	
Polypodiaceae (Adiantaceae)	<i>Adiantum capillus-veneris</i>	southern maidenhair fern	Native	Pres	NA				x	
Polypodiaceae (Adiantaceae)	<i>Adiantum pedatum</i> var. <i>aleuticum</i>	northern maidenhair fern	Native	Pres	NA				x	
Polypodiaceae (Aspleniaceae)	<i>Asplenium adiantum-nigrum</i>	black spleenwort	Native	Pres	NA			x		Rock crevices
Polypodiaceae (Aspleniaceae)	<i>Asplenium resiliens</i>	ebony spleenwort	Native	Pres	NA	x	x			Rock crevices
Polypodiaceae (Adiantaceae)	<i>Cheilanthes covillei</i>	Coville's lip-fern	Native	Pres	NA	x				Rock crevices
Polypodiaceae (Adiantaceae)	<i>Cheilanthes feei</i>	slender lip-fern	Native	Pres	NA		x	x		Rock crevices
Polypodiaceae (Adiantaceae)	<i>Cheilanthes wootonii</i>	Wooton's lip-fern	Native	Pres	NA		x	x		Rock crevices
Polypodiaceae (Aspleniaceae)	<i>Cystopteris bulbifera</i>	bulblet bladder fern	Native	Pres	NA			x		Rock crevices
Polypodiaceae (Aspleniaceae)	<i>Cystopteris fragilis</i>	brittle bladder fern	Native	Pres	NA			x	x	
Polypodiaceae (Aspleniaceae)	<i>Dryopteris filix-mas</i>	male fern	Native	Pres	NA		x			Rock crevices
Polypodiaceae (Adiantaceae)	<i>Pellaea atropurpurea</i>	purple cliff-brake	Native	Pres	NA		x	x		
Polypodiaceae (Adiantaceae)	<i>Pellaea glabella</i> var. <i>occidentalis</i>	western cliffbrake	Native	Pres	NA				x	
Polypodiaceae (Adiantaceae)	<i>Pellaea truncata</i>	spiny cliff-brake	Native	Pres	NA	x	x	x		Rock crevices
Polypodiaceae (Adiantaceae)	<i>Pellaea wrightiana</i>	Wright's cliff-brake	Native	Pres	NA		x	x		Rock crevices
Polypodiaceae (Pteridaceae)	<i>Pityrogramma triangularis</i>	goldback fern	Native	Pres	NA		x	x		Rock crevices
Polypodiaceae	<i>Polypodium hesperium</i>	western polypody	Native	Pres	NA			x		Rock crevices
Polypodiaceae (Aspleniaceae)	<i>Polystichum scopulinum</i>	rock holly-fern	Native	Hist	NA			x		Rock crevices

Appendix D. Confirmed, historical, and reported taxa of Zion National Park, organized by life form with ecological notes, cont.

Family	Species name	Common name	Nativity	Park status	Flower time	Warm Des	PJ/Oak/Sage	Mtn Conif	Wet	Comments
<i>Ferns and Allies, cont.</i>										
Polypodiaceae (Densstaedtiaceae)	<i>Pteridium aquilinum</i> var. <i>pubescens</i>	bracken fern	Native	Pres	NA		x	x	x	
Polypodiaceae (Aspleniaceae)	<i>Woodsia oregana</i>	Oregon woodsia	Native	Pres	NA			x		Rock crevices
Selaginellaceae	<i>Selaginella</i> <i>underwoodii</i>	Underwood's spike-moss	Native	Pres	NA		x	x		
Selaginellaceae	<i>Selaginella utahensis</i>	Utah spike-moss	Native	Pres	NA		x			Navajo sandstone





The Department of the Interior protects and manages the nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its special responsibilities to American Indians, Alaska Natives, and affiliated Island Communities.

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