



# Annotated Checklist of Vascular Flora

## *Fossil Butte National Monument*

Natural Resource Technical Report NPS/NCPN/NRTR—2009/205



**ON THE COVER**

Fossil Butte, Fossil Butte National Monument, Wyoming. Photograph by Walter Fertig.

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### **Author**

Walter Fertig  
Moenave Botanical Consulting  
1117 W. Grand Canyon Dr.  
Kanab, UT 84741

Clay Kyte  
Naturalist, retired  
Fossil Butte National Monument  
Kemmerer, WY

### **Editing and Design**

Alice Wondrak Biel  
Northern Colorado Plateau Network  
P.O. Box 848  
Moab, UT 84532

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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 Fossil Butte National Monument. This entailed a thorough review of existing literature, re-examination of specimens from the Fossil Butte National Monument 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, 546 vascular plant taxa have been confirmed or reliably reported as occurring in the monument (509 are known from validated herbarium specimens and 37 from unvouchered literature reports). Another 68 species formerly considered part of the monument flora have now been shown to be falsely reported. The current flora of Fossil Butte National Monument represents about 19.5% of the known flora of Wyoming, and 36.7% of the flora of the Wyoming Basins ecoregion within Wyoming. At least eight of these taxa are considered species of concern by the state natural heritage program. Introduced plants make up 13.2% of the monument flora (72 species), of which 10 species are considered noxious weeds by the State of Wyoming. Further surveys in Fossil Butte National Monument are likely to find additional new species (114 are known from similar habitats outside the monument boundary), especially among late-season flowering, weedy, or wetland taxa.



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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 Fossil Butte National Monument, in southwestern Wyoming. 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.† 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 Fossil Butte National Monument based on a review of herbarium collections and past literature.
2. Develop an annotated checklist of the flora of Fossil Butte National Monument 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

Fifty million years ago, the area that is now Fossil Butte was located at the bottom of a large, freshwater lake enclosed by steep mountains (analogous to the Rift Valley lakes of central Africa today). During its two million-year existence, Fossil Lake gradually filled with fine sediments that entombed hundreds of different species of freshwater fish, invertebrates, primitive mammals, bats, giant turtles, crocodiles, birds, and a variety of subtropical plants. This Eocene time capsule remained unopened until the mid-1880s, when quarries were established at Fossil Butte and adjacent ridges at the north end of Fossil Basin (McGrew and Casilliano 1975). Since that time, several million fossil specimens have been

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†Taxa refer to all named species, subspecies, and varieties.

quarried from the Fossil Butte area for museums and private collectors (Grande 1998).

Fossil Butte National Monument (NM) was established in October 1972, to preserve this globally significant paleontological and geological resource “. . . for the benefit and enjoyment of present and future generations . . . and to provide for the display and interpretation of scientific specimens. . . .” (Evenden et al. 2002). The monument is located at the southern end of the Tump Range in southern Lincoln County, Wyoming, approximately 12 miles west of Kemmerer on U.S. Highway 30 (Figure 1.3.1). The boundaries of the monument encompass Fossil Butte and Cundick Ridge, two sedimentary ridges that rise approximately 1,000 feet above the valley of Chicken Creek. The entire monument covers an area of 3,318 hectares (8,200 acres). Fossil Butte NM has a cool, dry, continental climate. Precipitation averages 9–12 inches (229–305 mm) and is distributed year-round with a small peak in May and June (Jones 1993). Summer daytime temperatures can exceed 90° F (with nighttime lows below 50° F), while winter lows can reach –30° F (Evenden et al. 2002).

### 1.3.2 Geology

Fossil Butte NM is located near the north end of the Fossil Basin, a long depression amid a series of north-south trending ridges of the Overthrust Belt (Lageson and Spearing 1988). During the Eocene, approximately 50 million years ago, the basin was hydrologically closed and inundated by a shallow, freshwater lake (Fossil Lake) that covered much of southwestern Wyoming. Over a two million-year period, the lake was gradually filled by river delta deposits that gave rise to the Wasatch Formation. Portions of the lake also were covered by fine-grained, dolomitic marlstone (also known as oil shale), which comprises much of the Green River Formation. The shoreline of the lake shifted often, resulting in frequent interfingering of the Wasatch and Green River formations. These lake deposits were uplifted several thousand feet during the Laramide Orogeny in the late Eocene and have been gradually eroding ever since. Today, remnants of the Green River Formation are exposed on the summit and upper slopes of Fossil Butte and Cundick Ridge, while the colorful badlands forming the lower slopes of these ridges consist of Wasatch deposits (McGrew and Casilliano 1975). Two members of the Green River Formation are present, with the Angelo Member located above the fossil-rich Fossil Butte Mem-

ber. Colluvial and alluvial Quaternary sediments consisting of gravel, sand, silt, and clay cover the valley bottom of the Chicken Creek drainage.

### 1.3.3 Vegetation

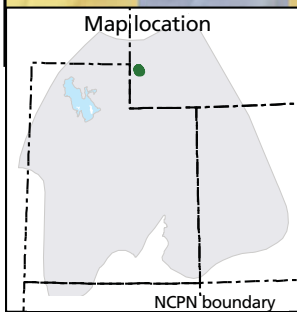
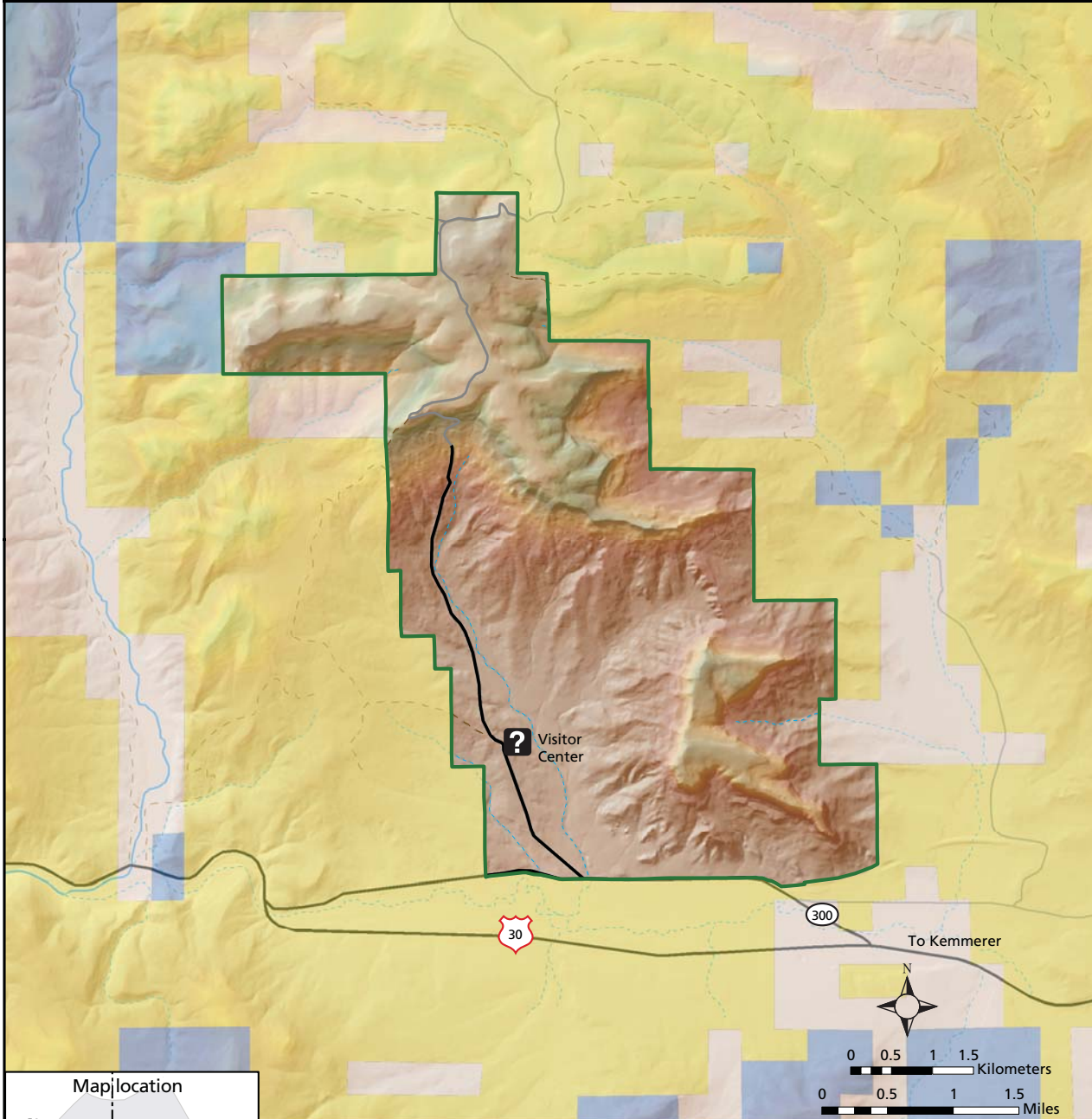
Dorn and others (1984) and Jones (1993) recognized 12–13 vegetation types in Fossil Butte NM; this classification is currently being revised by the NCPN (in ed.). Nearly three-quarters of the monument is dominated by three different taxa of sagebrush. Mountain big sagebrush (*Artemisia tridentata* var. *vaseyana*) predominates on deep, loamy soils on the summit of Cundick Ridge and, to a lesser extent, on the top of Fossil Butte. This taxon is gradually replaced by basin big sagebrush (*A. tridentata* var. *tridentata*) on lower slopes or gravelly stream deposits in the bottom of Fossil Basin, usually associated with outcrops of the Wasatch Formation or Quaternary alluvium. Alkali sagebrush (*A. arbuscula*) becomes dominant on clay-rich soils found over much of the valley floor or in scattered inclusions on ridge slopes. Some low ridges within the Chicken Creek Valley are locally dominated by western wheatgrass (*Elymus smithii*), Sandberg bluegrass (*Poa secunda*), and a variety of perennial forbs, rather than sagebrush (Jones 1993).

Several mountain shrub and forest communities occur on the upper slopes of Fossil Butte and Cundick Ridge. Small patches of mountain shrub vegetation (dominated by alder-leaf mountain mahogany, *Cercocarpus montanus*, and Utah serviceberry, *Amelanchier utahensis*) occur interspersed with mountain big sagebrush on the slopes of Cundick Ridge. Mountain shrub communities may be seral to mixed-timber forests of Douglas-fir (*Pseudotsuga menziesii*) and limber pine (*Pinus flexilis*), especially on north-facing slopes. Stands of quaking aspen (*Populus tremuloides*) are found on north-facing slopes and areas associated with drifting snow or seeps (Jones 1993). Barren, wind-swept rims and slopes on the west and south ends of Fossil Butte and Cundick Ridge support cushion plant communities that contain several of the monument's rarer species, including the narrowly endemic tufted twinpod (*Physaria condensata*) (Fertig 2000).

The banks of Chicken Creek support wet meadow vegetation consisting of beaked sedge (*Carex utriculata*), blackcreeper sedge (*C. praegracilis*), and Nebraska sedge (*C. nebrascensis*) in wet areas and tufted hairgrass (*Deschampsia cespitosa*) and Baltic rush (*Juncus balticus*) on slightly drier sites.

# Fossil Butte National Monument

Wyoming



Established October 23, 1972  
 2,018–2,464 m elevation  
 (6,620–8,084 ft elevation)  
 3,318 ha (8,198 ac)



| Legend |                      |  |                                |
|--------|----------------------|--|--------------------------------|
|        | Intermittent streams |  | Park boundary (NPS)            |
|        | Perennial streams    |  | U.S. Bureau of Land Management |
|        | Paved roads          |  | Private                        |
|        | Unpaved roads        |  | State                          |
|        | Unimproved/4WD roads |  |                                |

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

Figure 1.3.1. Location of Fossil Butte National Monument, Lincoln County, Wyoming.

Small patches of saline vegetation, dominated by greasewood (*Sarcobatus vermiculatus*) and saltbush (*Atriplex*) also occur near the creek and support populations of the rare entire-leaf peppercorn (*Lepidium integrifolium*) (Fertig 2000). Perennial springs at the base of Fossil Butte and Cundick Ridge have small thickets of yellow willow (*Salix eriocephala* var. *watsonii*) and narrow-leaved cottonwood (*Populus angustifolia*) or silver sagebrush (*Artemisia cana*)/sedge communities (Jones 1993; Springer et al. 2006).

#### 1.3.4 Previous botanical studies

George Letterman was probably the first botanist to explore the area around Fossil Butte, stopping briefly at the Fossil Station train stop (probably in the vicinity of Twin Creek) in 1885 (Table 1.3.4). The full extent of Letterman's collecting is not known, but he did collect entire-leaf peppercorn, a rare species also found in Fossil Butte NM (Fertig 2000; Heidel 2004; Hitchcock 1936).

The first systematic study of the vegetation of Fossil Butte NM occurred in 1973, less than a year after the monument was formally established. The National Park Service hired Dr. Alan Beetle and C. B. Marlow, of the University of Wyoming's Department of Range Management, to create a baseline vegetation map and assess range conditions. Beetle and Marlow (1974) recorded 13 main vegetation types for the monument and compiled a checklist of 78 vascular plant species (now recognized as 72 taxa with the elimination of synonyms, misidentifications, and specimens from outside the monument as documented by Fertig [2000]).

William Litzinger collected approximately 200 voucher specimens in 1977, in the course of conducting vegetation transect studies and developing the Fossil Butte NM herbarium (FOBU). Through his efforts, 132 new species were added to the monument flora, bringing the total number of reported species to just over 200 (Table 1.3.4, Figure 1.3.4) (Litzinger 1977; Fertig 2000).

In 1984, the National Park Service hired Robert and Jane Dorn and Robert Lichvar, of Mountain West Environmental Services, to study grazing impacts and revise Beetle and Marlow's 1974 veg-

etation map. Dorn and others (1984) produced a detailed vegetation map depicting 12 major vegetation types and compiled a checklist of 347 vascular plants for Fossil Butte NM. In all, Dorn and colleagues reported 181 new species for the monument, of which all but 28 have since been corroborated with voucher specimens.

George Jones, plant ecologist with the Wyoming Natural Diversity Database, conducted a follow-up vegetation mapping study for the National Park Service in 1992. Jones (1993) reported two new sedge species for the monument. Recently, Bonnie Heidel reported a third new sedge, meadow sedge (*Carex praticola*), from Jones's collections deposited at the University of Wyoming. *C. praticola* was not cited in Jones's 1993 species list, nor has it previously been collected in Lincoln County. This species is tentatively included in the flora of Fossil Butte NM (Appendix A), but actually may have been collected by Jones in the Absaroka Range, on another research project, and mislabeled.

Clay Kyte, long-time (and recently retired) seasonal ranger and naturalist for Fossil Butte NM, began filling in gaps in the FOBU herbarium in 1994. From 1994 to 2000, Kyte added 101 new taxa to the monument flora and collected specimens for more than 100 other species previously reported (but not vouchered) by Dorn and others (1984) or Beetle and Marlow (1974). With the addition of Kyte's collections, the documented flora of Fossil Butte NM reached 505 taxa in 2000 (Fertig 2000).

Since 2000, Kyte has added 47 new species vouchers and one additional unvouchered record for the monument. Rebecca Harms and Clay Kyte collected seven new wetland plants during an inventory of seeps and springs in 2005 (Springer et al. 2006). Vegetation mappers with the NCPN (in ed.) contributed two additional species reports during 2005 fieldwork. Katie Moon, a graduate student at Brigham Young University, made 15 collections from Fossil Butte NM in 2006, as part of her floristic survey of northeastern Utah and adjacent Wyoming, but added no new taxa to the monument checklist.



**Table 1.3.4. Chronology of plant-collecting efforts in Fossil Butte National Monument.**

| Year      | Collector(s)   | # of new taxa       | Comments  |
|-----------|--|---------------------|---|
| 1885      | G. Letterman   | 0                   | George Letterman collected entire-leaf pepperwort ( <i>Lepidium integrifolium</i> var. <i>integrifolium</i> ) near "Fossil Station" (Fertig 2000; Hitchcock 1936). The train siding was apparently located east of the current site of Fossil Butte NM (closer to the coal seams west of Kemmerer) in the 1880s, and so this collection probably came from the Twin Creek drainage, rather than Chicken Creek.                                  |
| 1973      | A. A. Beetle and C. B. Marlow  | 67 (+ 5 reported)   | Alan Beetle and C. B. Marlow, of the University of Wyoming, reported 78 vascular plant taxa (72 by modern count, based on synonyms, misidentifications, and specimens documented outside the monument) while conducting a baseline assessment of range conditions and developing a vegetation map (Beetle and Marlow 1974).   |
| 1977      | W. J. Litzinger  | 132                 | William Litzinger documented at least 132 new species for the monument while conducting vegetation studies and developing the FOBU herbarium. Litzinger's 1977 checklist of the Fossil Butte NM flora cited nearly 200 plant species in 137 genera and 46 families (Evenden et al. 2002).   |
| 1984      | R. Dorn, J. Dorn, R. Lichvar   | 153 (+ 28 reported) | Dorn and others (1984) produced a revised monument checklist with 347 plant species based on their vegetation mapping and classification project for the National Park Service. Of the 181 new taxa reported by Robert and Jane Dorn and Robert Lichvar, 153 have since been corroborated with vouchers by Clay Kyte, but 28 have still not been relocated.   |
| 1992      | G. P. Jones  | 3                   | George Jones, of the Wyoming Natural Diversity Database, documented 3 new sedge species while conducting a vegetation study of Fossil Butte (Jones 1993). One of Jones's collections, meadow sedge ( <i>Carex praticola</i> ), may have actually come from the Absaroka Range in northwestern Wyoming.  |
| 1994–1999 | C. Kyte  | 100 (+ 1 reported)  | Beginning in 1994, Fossil Butte NM seasonal naturalist Clay Kyte systematically catalogued and vouchered the flora of the monument, adding 100 new species to the local flora and confirming species previously reported by Dorn and others (1984) and Beetle and Marlow (1974).  |
| 2000–2003 | C. Kyte  | 37 (+ 1 reported)   | Kyte's collecting efforts continued into the new millenium, with 38 additional species confirmed or reported, including 27 since 2001 that were not included in the monument species list of Fertig (2000).   |
| 2004–2006 | C. Kyte & W. Fertig, R. Harms, and NCPN vegetation mapping team, K. Moon (BYU) | 17 (+ 2 reported)   | Since 2004, Clay Kyte, Walter Fertig, and Rebecca Harms have collected 17 new species for the Fossil Butte NM flora, focusing primarily on wetland and weedy species (Springer et al. 2006). Vegetation mappers from the NCPN (in ed.) added two new species reports during their field work in 2005. Katie Moon, graduate student at Brigham Young University, collected 15 species in Fossil Butte in 2006, but none was new to the monument. |

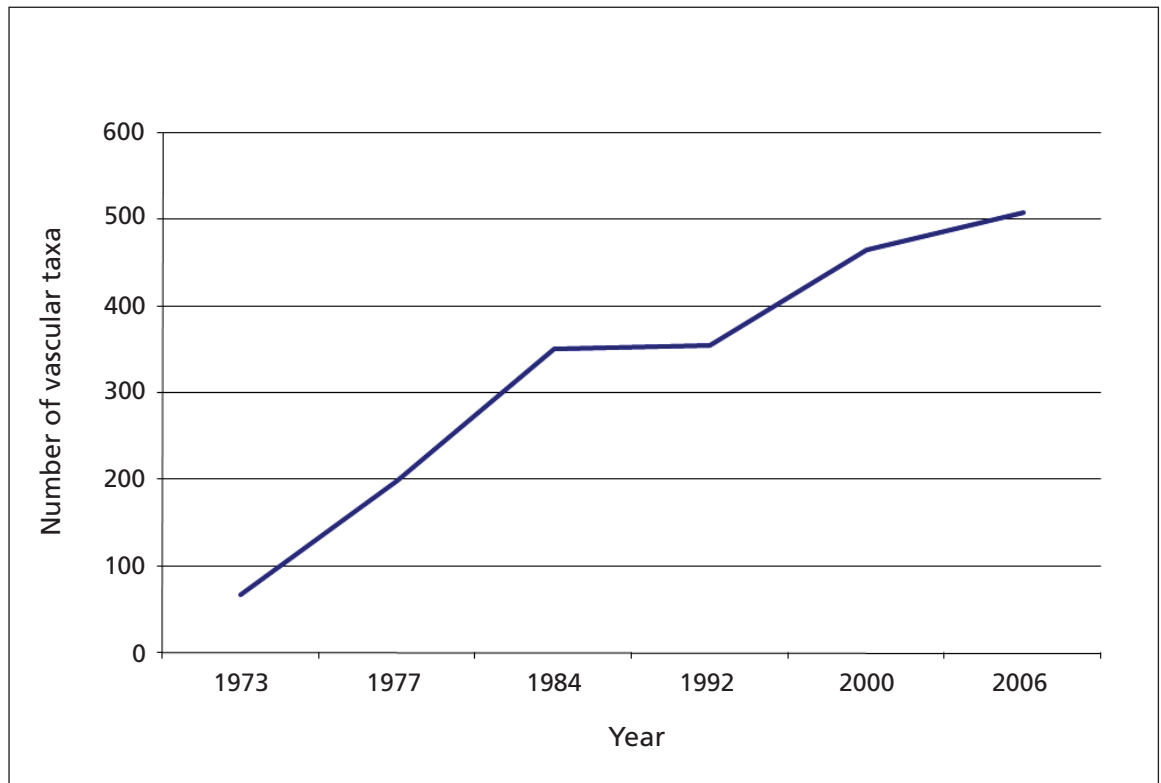


Figure 1.3.4. Increase in the number of plant taxa confirmed as present in Fossil Butte National Monument, 1973–2006.

## 2 Methods

In July 2004, we reviewed all mounted specimens in the Fossil Butte National Monument herbarium to determine whether each was correctly identified to species, subspecies, or variety following the nomenclature of Dorn (2001). As necessary, we made corrections and annotations to each specimen and to the voucher records in the monument's Automated National Cataloging System (ANCS+) and NPSpecies database.

Based on this herbarium work and a review of monument references (Beetle and Marlow 1974; Dorn et al. 1984; Fertig 2000; Jones 1993; NCPN in ed.; Springer et al. 2006), 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) known from the vicinity of Fossil Butte National Monument based on Fertig (2000) (included in 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 Wyoming), population size in the monument (derived from NCPN in ed.; Springer et al. 2006; 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; Flora of North America Editorial Committee 1993, 1997, 2000, 2002a, 2002b, 2003, 2005, 2006a, 2006b, 2006c; Holmgren et al. 2005; Weber and Wittmann 2001; and Welsh et al. 2003). The annotations to these lists and label data from the FOBU herbarium review were then incorporated into the NPSpecies database for the monument.



# 3 Results

## 3.1 Summary of the flora of Fossil Butte National Monument

Of the 1,146 vascular plant vouchers in the FOBU herbarium that we examined in 2004, 124 were misidentified (10.8%), 84 were revised to a more current name (7.3%), 126 had variety or subspecies names added (11.0%), and 812 were found to be correctly determined (70.9%). In 2000, the confirmed (vouchered) flora of Fossil Butte NM stood at 436, with another 69 known from literature reports (Fertig 2000). Since 2000, Clay Kyte, Walter Fertig, and Rebecca Harms have corroborated the presence of 19 species on the reported list and added 54 new taxa to the monu-

ment's confirmed species list, bringing the total of vouchered species to 509 (Table 3.1, Appendices A, D).

Currently, 37 additional taxa have been reported for Fossil Butte NM but have yet to be corroborated with a voucher specimen (Table 3.1, Appendix A). Of these, 33 were reported by Dorn and others (1984) or Beetle and Marlow (1973) and four others came from observations by recent vegetation mapping crews (NCPN in ed.) or Fossil Butte NM naturalist Clay Kyte. Taken together, the number of confirmed and reported vascular plant taxa in Fossil Butte National Monument stands at 546 taxa (Table 3.1, Appendix A).

Fertig (2000) identified 146 additional plant species that might potentially occur in Fossil Butte NM, based on the existence of suitable habitat

**Table 3.1. Statistical summary of the flora of Fossil Butte National Monument.**

| Category  | Number confirmed in park | Number additionally reported for park | Total      |
|---|--------------------------|---------------------------------------|------------|
| <b>Taxonomic diversity</b>                        |                          |                                       |            |
| Total taxa (including varieties and subspecies)   | 509                      | 37                                    | 546        |
| Full species (excluding varieties and subspecies) | 486                      | 35                                    | 521        |
| Families  | 77                       | 0                                     | 77         |
| <b>Life form diversity</b>                        |                          |                                       |            |
| Tree taxa   | 5                        | 0                                     | 5          |
| Shrub taxa  | 52                       | 3                                     | 55         |
| Perennial forb taxa                               | 284                      | 25                                    | 309        |
| Annual forb taxa                                  | 78                       | 2                                     | 80         |
| Perennial graminoid taxa                          | 82                       | 7                                     | 89         |
| Annual graminoid taxa                             | 6                        | 0                                     | 6          |
| Fern taxa   | 2                        | 0                                     | 2          |
| <b>Biogeographic diversity</b>                    |                          |                                       |            |
| Introduced taxa                                   | 69                       | 3                                     | 72         |
| Native taxa                                       |                          |                                       |            |
| Locally endemic taxa                              | 1                        | 0                                     | 1          |
| Regionally endemic taxa                           | 20                       | 0                                     | 20         |
| Disjunct taxa                                     | 0                        | 0                                     | 0          |
| Peripheral taxa                                   | 8                        | 0                                     | 8          |
| Sparse taxa                                       | 1                        | 0                                     | 1          |
| Widespread taxa                                   | 410                      | 34                                    | 444        |
| <i>Total native taxa</i>                          | <i>440</i>               | <i>34</i>                             | <i>474</i> |

The number of taxa and families is based on taxonomic concepts of Dorn (2001). See Appendices for an explanation of the various categories.

or the proximity of the monument to known populations (Hartman et al. 1996; Refsdal 1996; Rocky Mountain Herbarium's digital atlas of the Flora of Wyoming <<http://www.rmh.uwyo.edu>>). At least 29 of these species (19.9%) have been discovered in the monument since 2000, and 3 others have been dropped to the falsely reported list or are no longer recognized as valid taxa. The current number of potential species that we are recognizing for Fossil Butte National Monument is 114 (Appendix B).

Following the 2000 FOBU herbarium review (Fertig 2000), 56 plant species previously reported for Fossil Butte NM in the literature or from herbarium specimens were found to be misidentified or documented outside of the monument. Currently, the number of falsely reported taxa for the monument stands at 68 (Appendix C). Of these, 17 were based on unvouchered literature reports (Beetle and Marlow 1974; Dorn et al. 1984; Fertig 2000; Springer et al. 2006) that are now considered questionable because Fossil Butte NM either lacks likely habitat or is well outside of a species's expected range. The remaining 51 false reports are based on misidentified specimens.

The confirmed and reported flora of Fossil Butte NM represent 19.5% of the 2,800 native and naturalized taxa documented for the state of Wyoming by Dorn (2001) and 54.2% of the state's 142 plant families (Table 3.1). Within Lincoln County, the monument flora captures 44.7% of the 1,222 taxa reported by Dorn (2001). At the ecoregional scale, Fossil Butte NM contains 36.7% of the 1,487 species reported for the Wyoming Basins ecoregion (Fertig et al. 2002).

### 3.2 Life form and biogeographic diversity

Although ecologically dominant, tree and shrub species make up only 11.0% of the confirmed and reported plant taxa of Fossil Butte NM (see Table 3.1). Perennial forbs are the most species-rich life form in the monument's flora, with 309 known and reported taxa (56.6% of the total flora). Less than 16% of the flora is comprised of annual forbs and grass-like plants. Like trees and shrubs, perennial graminoids are ecologically important but relatively species-poor, representing 16.3% of the total flora. The diversity of ferns and fern-allies in Fossil Butte NM is especially low (0.4%) (see Table 3.1).

Of the monument's 474 native taxa, 444 (93.7%)

are widespread across Wyoming and western North America. Only 21 species (4.4% of the monument's native flora) are restricted to the state of Wyoming or the Utah–Wyoming Rocky Mountains and Wyoming Basins ecoregions (regional and local endemics). Nine other species (1.9%) are at the edge of their global range (peripheral) or occur sparsely across the state (see Table 3.1).

### 3.3 Plants of special concern

Fossil Butte National Monument contains no plants presently listed as threatened or endangered under the U.S. Endangered Species Act. Tufted twinpod was formerly a Category 2 candidate for potential listing under the act (Table 3.3), but was dropped as a candidate when the Category 2 designation was eliminated in 1995. The Wyoming Natural Diversity Database (WYNDD) currently lists eight species from Fossil Butte NM as species of special concern or potential concern (Heidel 2007). A ninth species, Payson's beard-tongue (*Penstemon paysoniorum*), is a Wyoming endemic that was formerly considered a potential species of concern (Fertig 2000), but was recently dropped from the WYNDD list. Several rare species projects have recently been completed for Fossil Butte NM, including surveys of tufted twinpod (Fertig 2002; Kyte 2000b), and entire-leaved peppergrass (Heidel 2004), and a summary of rare species (Fertig 2000).

### 3.4 Non-native species and noxious weeds

Introduced plant species (not historically native to Wyoming or North America) make up 13.2% of the confirmed and reported flora of Fossil Butte NM (see Table 3.1). This figure is slightly higher than the statewide average of 12.6% non-native species (Fertig 1999). Of the 72 introduced plant species confirmed or reported for Fossil Butte NM, 10 are listed as noxious by the State of Wyoming (Table 3.4) (Wyoming Department of Agriculture 2003). Since the early 1990s, the monument has had an active control program for Canada thistle (*Cirsium arvense*), musk thistle (*Carduus nutans*), spotted knapweed (*Centaurea maculosa*), diffuse knapweed (*Centaurea diffusa*), common hound's-tongue (*Cynoglossum officinale*), five-stamen tamarisk (*Tamarix chinensis*), and several other weed species not on the state noxious list (Kyte 2000a). These efforts have resulted in the eradication of diffuse knapweed and five-stamen tamarisk (Evenden et al. 2002).

**Table 3.3. Plant species of conservation concern from Fossil Butte National Monument.**

| Family           | Species   | Common name              | TNC global rank | Legal status                                  | WYNDD status |
|------------------|---|--------------------------|-----------------|---|--------------|
| Apiaceae         | <i>Lomatium bicolor</i> var. <i>bicolor</i>             | Wasatch biscuitroot      | G4T3T4          |   | PotConc, S2  |
| Apiaceae         | <i>Lomatium triternatum</i> var. <i>anomalum</i>        | ternate desert-parsley   | G5T4T5          |   | SpecConc, S1 |
| Brassicaceae     | <i>Lepidium integrifolium</i> var. <i>integrifolium</i> | entire-leaved pepperwort | G1G2T1?         |   | SpecConc, S1 |
| Brassicaceae     | <i>Physaria condensata</i>                              | tufted twinpod           | G2              | WY BLM: Sensitive, USFWS: former C2 candidate | SpecConc, S2 |
| Chenopodiaceae   | <i>Atriplex falcata</i>                                 | falcate saltbush         | G4Q             |   | SpecCon, S1  |
| Cuscutaceae      | <i>Cuscuta occidentalis</i>                             | western dodder           | G4G5            |   | SpecCon, S1  |
| Fabaceae         | <i>Astragalus lentiginosus</i> var. <i>salinus</i>      | Sodaville milkvetch      | G5T5            |   | SpecCon, S1  |
| Rhamnaceae       | <i>Ceanothus martinii</i>                               | Martin's ceanothus       | G4              |   | SpecCon, S1  |
| Scrophulariaceae | <i>Penstemon paysoniorum</i>                            | Payson beardtongue       | G3              |   | S3           |

This list is derived from Heidel (2007) and Fertig (2000).

**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, and NR = not ranked. A comparable scoring system is used to measure state abundance (S) in Wyoming under the column WYNDD status. Under **legal status**, USFWS = U.S. Fish and Wildlife Service. WY BLM = U.S. Bureau of Land Management, Wyoming Office. C2 = Category 2 candidate (a former category used for taxa that might warrant being proposed for threatened or endangered status following additional research). **WYNDD status** includes species of concern (SpecConc) that are actively tracked by the state natural heritage program and species of potential concern (PotConc) that are mostly intrinsically rare regional endemics that are currently stable, but could become species of concern if present management conditions or trends change significantly (Heidel 2007).

**Table 3.4. Noxious weed species of Fossil Butte National Monument.**

| Family         | Species                       | Common name           | Park status |
|----------------|-------------------------------|-----------------------|-------------|
| Asteraceae     | <i>Arctium minus</i>          | burdock               | Present     |
| Asteraceae     | <i>Carduus nutans</i>         | musk thistle          | Present     |
| Asteraceae     | <i>Centaurea diffusa</i>      | diffuse knapweed      | Eradicated  |
| Asteraceae     | <i>Centaurea maculosa</i>     | spotted knapweed      | Present     |
| Asteraceae     | <i>Centaurea repens</i>       | Russian knapweed      | Present     |
| Asteraceae     | <i>Cirsium arvense</i>        | Canada thistle        | Present     |
| Boraginaceae   | <i>Cynoglossum officinale</i> | common hound's-tongue | Present     |
| Convolvulaceae | <i>Convolvulus arvensis</i>   | field bindweed        | Present     |
| Poaceae        | <i>Elymus repens</i>          | quackgrass            | Present     |
| Tamaricaceae   | <i>Tamarix chinensis</i>      | five-stamen tamarisk  | Eradicated  |

This list is derived from the Wyoming Department of Agriculture (2003).





## 4 Discussion

In the nearly 35 years since Beetle and Marlow's original survey, the flora of Fossil Butte National Monument has grown from 73 to 546 taxa, an increase of 86% (Tables 1.3.4 and 3.1, Figure 1.3.4, Appendix A). Based on available habitats and proximity, at least 114 additional plant taxa may occur within the monument (Appendix B). Should all of these potential species be found, the documented flora of the monument would in-

crease 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 wetland or weedy habitats. Confirmation of reported species should remain a high priority, as some of these taxa may ultimately prove to be erroneous. Additional 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).



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# Appendices

The following appendices contain annotated checklists of the vascular flora of Fossil Butte National Monument.

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 monument in the literature (Beetle and Marlow 1974; Dorn et al. 1984; Jones 1993; Fertig 2000; NCPN in ed.; Springer et al. 2006). Vouchers were examined from the FOBU herbarium, and collections from Brigham Young University (BRY) and the University of Wyoming (RM). Species entries in Appendix A are organized alphabetically by family and genus.

Appendix B includes species that may potentially occur within Fossil Butte NM based on the proximity of the monument to other populations or the presence of suitable habitat.

Appendix C lists species that have been previously reported for Fossil Butte NM but are now considered erroneous because they are 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 *Vascular Plants of Wyoming, third edition* (Dorn 2001). Alternative family names and treatments from other regional floras (Flora of North America Editorial Committee 1993, 2002b; Holmgren et al. 2005; Weber and Wittman 2001; Welsh et al. 2003) are listed in parentheses.

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

Nomenclature for scientific names and taxonomic concepts are derived from Dorn (2001). 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; Flora of North America Editorial Committee 1993, 1997, 2000, 2002a, 2002b, 2003, 2005, 2006a, 2006b, 2006c; Holmgren et al. 2005; Weber and Wittmann 2001; Welsh et al. 2003).

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 and others (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 Wyoming and the state's contribution to the plants overall global range. **Disjunct (Disj)** taxa have their Wyoming 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 Wyoming 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 Wyoming, 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 Wyoming or North America, but their range within Wyoming 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 Fossil Butte NM.

Species are considered Present if a confirmed voucher or documented observation has been made within monument boundaries since 1970. Historical species have been confirmed with a voucher from the monument but have not been relocated since before 1970. Reported species are listed for the monument in the literature (Beetle and Marlow 1974; Dorn et al. 1984; Jones 1993; Fertig 2000; NCPN in ed.; Springer et al. 2006), but have not been corroborated with a voucher specimen. Species that may potentially occur in FOBU 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 Fossil Butte NM. Abundance data are derived from Jones (1993), NCPN (in ed.), 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 monument. Common (**Com**) taxa have large local populations but may be restricted to a single vegetation type or do not occur across the entire monument. 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 monument. **Rare** taxa usually have low population numbers and are restricted to a single location within the monument. 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 monument. Specimen repositories include the Fossil Butte NM herbarium (**FOBU**), Brigham Young University (**BRY**), 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 Fossil Butte NM. 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 monument, the place of origin for introduced species, legal status, and other data.

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

Nativity indicates whether a species is native to Wyoming or Introduced (Intro) based on Fertig (1999).

#### **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 Fossil Butte NM is indicated by an “x” in the columns Sage/Grass through Wet and is derived from the Fossil Butte NM vegetation classification (NCPN in ed.), Dorn and others (1984), Jones (1993), and Beetle and Marlow (1974). **Sage/Grass** = big sagebrush or alkali sagebrush grassland and montane shrub communities. **Mix Con** = Douglas-fir or limber pine woodlands. **Asp** = quaking aspen forests. **Wet** = wetland areas (including pond margins, wet meadows, and willow thickets). Additional comments are included for species that are restricted to a particular soil/geologic type or are found mostly in barren or disturbed sites.



Appendix A. Confirmed, historical, and reported vascular plant taxa of Fossil Butte National Monument, organized by family and scientific name with taxonomic and biogeographic notes.

| Family                        | Species name  | Synonyms/<br>Taxonomic notes  | Common name                    | Life<br>form | Range  | Park<br>status | Pop.<br>size | Source                      | Year<br>doc. | Comments |
|-------------------------------|---|---|--------------------------------|--------------|--------|----------------|--------------|-----------------------------|--------------|----------|
| Aceraceae                     | <i>Acer glabrum</i>                                       | Includes vars.<br><i>neomexicanum</i> ,<br><i>douglasii</i> ,<br><i>tripartitum</i> , &<br><i>glabrum</i>             | Rocky Mountain<br>maple        | Shrub        | Wide   | Pres           | Unc          | Kyte 96-208<br>(FOBU)       | 1984         |          |
| Adoxaceae<br>(Caprifoliaceae) | <i>Sambucus racemosa</i><br>var. <i>melanocarpa</i>       |   | black elderberry               | Shrub        | Wide   | Pres           | Unc          | Kyte 97-98<br>(FOBU)        | 1984         |          |
| Alliaceae (Liliaceae)         | <i>Allium acuminatum</i>                                  |   | taper-tip onion                | PerF         | Wide   | Pres           | Unc          | Harms & Kyte<br>s.n. (FOBU) | 2005         |          |
| Alliaceae (Liliaceae)         | <i>Allium brevistylum</i>                                 |   | short-style onion              | PerF         | Wide   | Pres           | Unc          | Litzinger 1110<br>(FOBU)    | 1977         |          |
| Alliaceae (Liliaceae)         | <i>Allium geyeri</i> var.<br><i>tenerum</i>               | <i>A. rubrum</i>  | Geyer's onion                  | PerF         | Wide   | Pres           | Unc          | Kyte 96-61<br>(FOBU)        | 1977         |          |
| Alliaceae (Liliaceae)         | <i>Allium textile</i>                                     |   | textile onion                  | PerF         | Wide   | Pres           | Unc          | Kyte 97-62<br>(FOBU)        | 1977         |          |
| Amaranthaceae                 | <i>Amaranthus blitoides</i>                               | <i>A. graecizans</i>  | prostrate pigweed              | AnnF         | Wide   | Pres           | Unc          | Litzinger 1254<br>(FOBU)    | 1977         |          |
| Apiaceae<br>(Umbelliferae)    | <i>Angelica arguta</i>                                    |   | Lyall's angelica               | PerF         | Wide   | Pres           | Unc          | Harms & Kyte<br>s.n. (FOBU) | 1984         |          |
| Apiaceae<br>(Umbelliferae)    | <i>Angelica pinnata</i>                                   |   | pinnate angelica               | PerF         | Wide   | Pres           | Unc          | Kyte 97-119<br>(FOBU)       | 1997         |          |
| Apiaceae<br>(Umbelliferae)    | <i>Cymopterus acaulis</i>                                 | <i>C. acaulis</i> var.<br><i>acaulis</i> , <i>C.</i><br><i>glomeratus</i>   | plains spring-parsley          | PerF         | Wide   | Rep            | ?            | Dorn et al.<br>(1984)       | 1984         |          |
| Apiaceae<br>(Umbelliferae)    | <i>Cymopterus constancei</i>                              |   | Constance's spring-<br>parsley | PerF         | Wide   | Pres           | Unc          | Kyte 97-98<br>(FOBU)        | 1973         |          |
| Apiaceae<br>(Umbelliferae)    | <i>Cymopterus longipes</i>                                | <i>C. longipes</i> var.<br><i>longipes</i>  | long-stalk spring-<br>parsley  | PerF         | Reg En | Pres           | Unc          | Kyte 97-36<br>(FOBU)        | 1984         |          |
| Apiaceae<br>(Umbelliferae)    | <i>Cymopterus nivalis</i>                                 | <i>C. bipinnatus</i>  | snowline spring-<br>parsley    | PerF         | Wide   | Pres           | Unc          | Kyte 98-3<br>(FOBU)         | 1984         |          |
| Apiaceae<br>(Umbelliferae)    | <i>Cymopterus terebinthinus</i> var.<br><i>albiflorus</i> | <i>C. terebinthinus</i><br>var. <i>calcareus</i> ,<br><i>Pteryxia</i><br><i>terebinthina</i> var.<br><i>albiflora</i> | aromatic spring-<br>parsley    | PerF         | Wide   | Pres           | Unc          | Kyte 97-29<br>(FOBU)        | 1977         |          |

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

| Family                  | Species name  | Synonyms/<br>Taxonomic notes   | Common name                | Life form | Range  | Park status | Pop. size | Source                   | Year doc. | Comments |
|-------------------------|---|--|----------------------------|-----------|--------|-------------|-----------|--------------------------|-----------|----------|
| Apiaceae (Umbelliferae) | <i>Ligusticum filicinum</i>                         |  | fernleaf ligusticum        | PerF      | Reg En | Pres        | Unc       | Kyte 96-52 (FOBU)        | 1984      |          |
| Apiaceae (Umbelliferae) | <i>Lomatium bicolor</i>                             | <i>L. bicolor</i> var. <i>bicolor</i>  | Wasatch biscuitroot        | PerF      | Reg En | Pres        | Unc       | Kyte 96-51 (FOBU)        | 1984      |          |
| Apiaceae (Umbelliferae) | <i>Lomatium dissectum</i> var. <i>multifidum</i>    | <i>L. dissectum</i> var. <i>eatonii</i>  | fern-leaved desert-parsley | PerF      | Wide   | Rep         | ?         | Dorn et al. (1984)       | 1984      |          |
| Apiaceae (Umbelliferae) | <i>Lomatium macrocarpum</i>                         |  | big-seed desert-parsley    | PerF      | Wide   | Pres        | Unc       | Litzinger 1163 (FOBU)    | 1977      |          |
| Apiaceae (Umbelliferae) | <i>Lomatium triternatum</i> var. <i>anomalum</i>    | <i>L. triternatum</i> ssp. <i>triternatum</i>  | ternate desert-parsley     | PerF      | Reg En | Pres        | Rare      | Kyte s.n. (FOBU)         | 1996      |          |
| Apiaceae (Umbelliferae) | <i>Lomatium triternatum</i> var. <i>platycarpum</i> | <i>L. simplex</i>  | ternate desert-parsley     | PerF      | Wide   | Pres        | Unc       | Kyte 96-54 (FOBU)        | 1984      |          |
| Apiaceae (Umbelliferae) | <i>Orogenia linearifolia</i>                        |  | Indian-potato              | PerF      | Wide   | Pres        | Unc       | Kyte 99-1 (FOBU)         | 1999      |          |
| Apiaceae (Umbelliferae) | <i>Osmorhiza berteroi</i>                           | <i>O. chilensis</i>  | Chilean sweet-cicely       | PerF      | Wide   | Pres        | Unc       | Kyte 96-53 (FOBU)        | 1984      |          |
| Apiaceae (Umbelliferae) | <i>Osmorhiza occidentalis</i>                       |  | western sweet-cicely       | PerF      | Wide   | Pres        | Unc       | Harms & Kyte s.n. (FOBU) | 2005      |          |
| Apiaceae (Umbelliferae) | <i>Perideridia montana</i>                          | <i>P. gairdneri</i> ssp. <i>borealis</i> , <i>P. montana</i> var. <i>borealis</i>              | common yampah              | PerF      | Wide   | Pres        | Unc       | Kyte 2000-31 (FOBU)      | 1984      |          |
| Apiaceae (Umbelliferae) | <i>Sium suave</i>                                   |  | water parsnip              | PerF      | Wide   | Pres        | Unc       | Kyte 96-120 (FOBU)       | 1996      |          |
| Apocynaceae             | <i>Apocynum androsaemifolium</i>                    | <i>A. androsaemifolium</i> var. <i>androsaemifolium</i>  | spreading dogbane          | PerF      | Wide   | Pres        | Unc       | Kyte 96-121 (FOBU)       | 1996      |          |
| Asclepiadaceae          | <i>Asclepias speciosa</i>                           |  | showy milkweed             | PerF      | Wide   | Pres        | Unc       | Kyte 98-31 (FOBU)        | 1998      |          |
| Asteraceae (Compositae) | <i>Achillea millefolium</i> var. <i>lanulosa</i>    | Includes vars. <i>alpica</i> & <i>occidentalis</i> & ssp. <i>lanulosa</i> , <i>A. lanulosa</i> | common yarrow              | PerF      | Wide   | Pres        | Com       | Litzinger 1116 (FOBU)    | 1973      |          |

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

| Family                     | Species name                                     | Synonyms/<br>Taxonomic notes  | Common name          | Life form | Range | Park status | Pop. size | Source                | Year doc. | Comments                                 |
|----------------------------|--|---|----------------------|-----------|-------|-------------|-----------|-----------------------|-----------|--|
| Asteraceae<br>(Compositae) | <i>Agoseris glauca</i> var. <i>dasycephala</i>   | Includes var. <i>agrestis</i>   | short agoseris       | PerF      | Wide  | Pres        | Unc       | Kyte 2002-07 (FOBU)   | 2002      |  |
| Asteraceae<br>(Compositae) | <i>Agoseris glauca</i> var. <i>glauca</i>        |   | pale agoseris        | PerF      | Wide  | Pres        | Unc       | Kyte s.n. (FOBU)      | 1984      |  |
| Asteraceae<br>(Compositae) | <i>Agoseris glauca</i> var. <i>laciniata</i>     | <i>A. parviflora</i>  | cutleaf agoseris     | PerF      | Wide  | Pres        | Unc       | Kyte 97-11 (FOBU)     | 1997      |  |
| Asteraceae<br>(Compositae) | <i>Antennaria dimorpha</i>                       |   | low pussytoes        | PerF      | Wide  | Pres        | Unc       | Kyte 96-37 (FOBU)     | 1977      |  |
| Asteraceae<br>(Compositae) | <i>Antennaria microphylla</i>                    | Some authors include <i>A. rosea</i> .  | small-leaf pussytoes | PerF      | Wide  | Pres        | Com       | Kyte s.n. (FOBU)      | 1977      |  |
| Asteraceae<br>(Compositae) | <i>Antennaria rosea</i>                          | Included in <i>A. microphylla</i> by many authors. Includes ssp. <i>arida</i> , <i>confinis</i> , <i>pulvinata</i> , & <i>rosea</i> .         | rosy pussytoes       | PerF      | Wide  | Pres        | Com       | Litzinger 1134 (FOBU) | 1977      |  |
| Asteraceae<br>(Compositae) | <i>Arctium minus</i>                             |   | burdock              | PerF      | Intro | Pres        | Unc       | Kyte 98-40 (FOBU)     | 1998      | Native to Eurasia. WY state noxious weed |
| Asteraceae<br>(Compositae) | <i>Arnica cordifolia</i>                         | <i>A. cordifolia</i> var. <i>cordifolia</i>   | heartleaf arnica     | PerF      | Wide  | Pres        | Unc       | Kyte 96-50 (FOBU)     | 1977      |  |
| Asteraceae<br>(Compositae) | <i>Arnica sororia</i>                            |   | meadow arnica        | PerF      | Wide  | Pres        | Unc       | Kyte 96-101 (FOBU)    | 1984      |  |
| Asteraceae<br>(Compositae) | <i>Artemisia arbuscula</i> var. <i>longiloba</i> | <i>A. longiloba</i> , <i>Seriphidium arbusculum</i> var. <i>longilobum</i> , not distinguished from var. <i>arbuscula</i> by Cronquist (1995) | dwarf sagebrush      | Shrub     | Wide  | Pres        | Com       | Kyte s.n. (FOBU)      | 1973      |  |
| Asteraceae<br>(Compositae) | <i>Artemisia biennis</i> var. <i>biennis</i>     | <i>A. biennis</i>   | biennial wormwood    | PerF      | Wide  | Pres        | Unc       | Litzinger 1640 (FOBU) | 1977      |  |
| Asteraceae<br>(Compositae) | <i>Artemisia cana</i> var. <i>viscidula</i>      | <i>Seriphidium canum</i> ssp. <i>viscidulum</i>   | silver sagebrush     | Shrub     | Wide  | Pres        | Unc       | Litzinger 1561 (FOBU) | 1973      |  |

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

| Family                     | Species name  | Synonyms/<br>Taxonomic notes  | Common name            | Life form | Range  | Park status | Pop. size | Source                       | Year doc. | Comments                                       |
|----------------------------|---|---|------------------------|-----------|--------|-------------|-----------|------------------------------|-----------|--|
| Asteraceae<br>(Compositae) | <i>Artemisia dracunculus</i>                            | <i>Oligosporus dracunculus</i> , includes spp. <i>glauca</i>                                      | tarragon               | PerF      | Wide   | Pres        | Unc       | Kyte 96-182 (FOBU)           | 1984      |  |
| Asteraceae<br>(Compositae) | <i>Artemisia frigida</i>                                |   | fringed sagebrush      | Shrub     | Wide   | Pres        | Unc       | Kyte 96-47 (FOBU)            | 1973      |  |
| Asteraceae<br>(Compositae) | <i>Artemisia ludoviciana</i><br>var. <i>ludoviciana</i> |   | Louisiana wormwood     | PerF      | Wide   | Pres        | Unc       | Litzinger 1331 (FOBU)        | 1977      |  |
| Asteraceae<br>(Compositae) | <i>Artemisia nova</i>                                   | <i>A. arbuscula</i> var. <i>nova</i> , <i>A. nova</i> var. <i>nova</i> , <i>Seriphidium novum</i> | black sagebrush        | Shrub     | Wide   | Pres        | Rare      | Kyte s.n. (FOBU)             | 2005      |  |
| Asteraceae<br>(Compositae) | <i>Artemisia spinescens</i>                             | <i>Picrothamnus desertorum</i>  | budsage                | Shrub     | Wide   | Pres        | Unc       | Kyte 97-7 (FOBU)             | 1984      |  |
| Asteraceae<br>(Compositae) | <i>Artemisia tridentata</i><br>var. <i>tridentata</i>   | <i>Seriphidium tridentatum</i> ssp. <i>tridentatum</i>  | basin big sagebrush    | Shrub     | Wide   | Pres        | Abun      | Litzinger 1563 (FOBU)        | 1973      |  |
| Asteraceae<br>(Compositae) | <i>Artemisia tridentata</i><br>var. <i>vaseyana</i>     | Includes <i>A. tridentata</i> var. <i>pauciflora</i> , <i>Seriphidium vaseyanum</i>               | mountain big sagebrush | Shrub     | Wide   | Pres        | Abun      | Kyte & Fertig 2004-02 (FOBU) | 1973      |  |
| Asteraceae<br>(Compositae) | <i>Artemisia tridentata</i><br>var. <i>wyomingensis</i> | <i>Seriphidium tridentatum</i> ssp. <i>wyomingense</i>  | Wyoming big sagebrush  | Shrub     | Wide   | Pres        | Com       | Litzinger 1553 (FOBU)        | 1973      |  |
| Asteraceae<br>(Compositae) | <i>Balsamorhiza macrophylla</i>                         |   | cutleaf balsamroot     | PerF      | Reg En | Pres        | Unc       | Kyte 96-49 (FOBU)            | 1996      |  |
| Asteraceae<br>(Compositae) | <i>Balsamorhiza sagittata</i>                           |   | arrowleaf balsamroot   | PerF      | Wide   | Pres        | Unc       | Kyte 96-41 (FOBU)            | 1973      |  |
| Asteraceae<br>(Compositae) | <i>Carduus nutans</i>                                   | Includes spp. <i>leioophyllus</i> & <i>macrolepis</i>   | musk thistle           | PerF      | Intro  | Pres        | Unc       | Kyte s.n. (FOBU)             | 1984      | Native to Eurasia. WY state noxious weed       |
| Asteraceae<br>(Compositae) | <i>Centaurea diffusa</i>                                | <i>Acosta diffusa</i>   | diffuse knapweed       | PerF      | Intro  | Ext         | NA        | Kyte 98-39 (FOBU)            | 1998      | Native to Mediterranean. WY state noxious weed |

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

| Family                     | Species name  | Synonyms/<br>Taxonomic notes   | Common name           | Life form | Range  | Park status | Pop. size | Source                   | Year doc. | Comments   |
|----------------------------|---|--|-----------------------|-----------|--------|-------------|-----------|--------------------------|-----------|--|
| Asteraceae<br>(Compositae) | <i>Centaurea maculosa</i>                                       | <i>C. stoebe</i> ssp.<br><i>micranthos</i> , <i>C. biebersteinii</i> ,<br><i>Acosta maculosa</i> | spotted knapweed      | PerF      | Intro  | Pres        | Unc       | Kyte s.n.<br>(FOBU)      | 1996      | Native to Europe.<br>WY state noxious weed   |
| Asteraceae<br>(Compositae) | <i>Centaurea repens</i>   | <i>Acroptilon repens</i>   | Russian knapweed      | PerF      | Intro  | Pres        | Unc       | Litzinger 1363<br>(FOBU) | 1977      | Native to Eurasia.<br>WY state noxious weed  |
| Asteraceae<br>(Compositae) | <i>Chaenactis douglasii</i><br>var. <i>montana</i>              | <i>C. douglasii</i> var.<br><i>douglasii</i>   | hoary dusty-maiden    | PerF      | Wide   | Pres        | Unc       | Litzinger 1204<br>(FOBU) | 1977      |  |
| Asteraceae<br>(Compositae) | <i>Chrysothamnus viscidiflorus</i> var.<br><i>lanceolatus</i>   |  | lanceleaf rabbitbrush | Shrub     | Wide   | Pres        | Com       | Litzinger 1515<br>(FOBU) | 1977      |  |
| Asteraceae<br>(Compositae) | <i>Chrysothamnus viscidiflorus</i> var.<br><i>viscidiflorus</i> | Includes var.<br><i>stenophyllus</i><br>according to some authors                                | green rabbitbrush     | Shrub     | Wide   | Pres        | Com       | Litzinger 1310<br>(FOBU) | 1973      |  |
| Asteraceae<br>(Compositae) | <i>Cirsium arvense</i>  | Includes vars.<br><i>horridum</i> &<br><i>integrifolium</i> ,<br><i>Breea arvensis</i>           | Canada thistle        | PerF      | Intro  | Pres        | Unc       | Kyte s.n.<br>(FOBU)      | 1973      | Native to Eurasia.<br>WY state noxious weed  |
| Asteraceae<br>(Compositae) | <i>Cirsium pulcherrimum</i>                                     | <i>C. pulcherrimum</i><br>var. <i>pulcherrimum</i>   | Wyoming thistle       | PerF      | Reg En | Pres        | Unc       | Litzinger 1197<br>(FOBU) | 1977      |  |
| Asteraceae<br>(Compositae) | <i>Cirsium scariosum</i>  | <i>C. scariosum</i> var.<br><i>scariosum</i>   | elk thistle           | PerF      | Wide   | Pres        | Unc       | Kyte 96-181<br>(FOBU)    | 1984      |  |
| Asteraceae<br>(Compositae) | <i>Cirsium subniveum</i>  | <i>C. inamoenum</i> var.<br><i>inamoenum</i>   | snowy thistle         | PerF      | Wide   | Pres        | Unc       | Kyte 96-124<br>(FOBU)    | 1977      |  |
| Asteraceae<br>(Compositae) | <i>Cirsium undulatum</i><br>var. <i>undulatum</i>               |  | wavy-leaved thistle   | PerF      | Wide   | Rep         | ?         | Dorn et al.<br>(1984)    | 1984      | Cited by NCPN<br>(in ed.) without a voucher.<br>Reports from FOBU herbarium are based on misidentified specimens of <i>C. pulcherrimum</i> & <i>C. subniveum</i> . |

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

| Family                     | Species name   | Synonyms/<br>Taxonomic notes  | Common name          | Life form | Range  | Park status | Pop. size | Source                   | Year doc. | Comments         |
|----------------------------|--|---|----------------------|-----------|--------|-------------|-----------|--------------------------|-----------|------------------|
| Asteraceae<br>(Compositae) | <i>Cirsium vulgare</i>                                 |   | bull thistle         | PerF      | Intro  | Pres        | Unc       | Kyte s.n.<br>(FOBU)      | 1977      | Native to Europe |
| Asteraceae<br>(Compositae) | <i>Crepis acuminata</i>                                | <i>Psilochenia acuminata</i>  | mountain hawksbeard  | PerF      | Wide   | Pres        | Unc       | Kyte 97-90<br>(FOBU)     | 1984      |                  |
| Asteraceae<br>(Compositae) | <i>Crepis intermedia</i>                               | <i>Psilochenia intermedia</i>   | gray hawksbeard      | PerF      | Wide   | Rep         | ?         | Dorn et al.<br>(1984)    | 1984      |                  |
| Asteraceae<br>(Compositae) | <i>Crepis modocensis</i>                               | <i>Psilochenia modocensis</i>   | Modoc hawksbeard     | PerF      | Wide   | Pres        | Unc       | Kyte 96-100<br>(FOBU)    | 1996      |                  |
| Asteraceae<br>(Compositae) | <i>Ericameria nauseosa</i><br>var. <i>nauseosa</i>     | <i>Chrysothamnus nauseosus</i> var.<br><i>nauseosus</i>   | rubber rabbitbrush   | Shrub     | Wide   | Pres        | Unc       | Litzinger 1311<br>(FOBU) | 1977      |                  |
| Asteraceae<br>(Compositae) | <i>Ericameria nauseosa</i><br>var. <i>oreophila</i>    | <i>Chrysothamnus nauseosus</i> var.<br><i>oreophilus</i> , <i>C. nauseosus</i> var.<br><i>consimilis</i> , <i>E. nauseosa</i> var.<br><i>consimilis</i> | greenish rabbitbrush | Shrub     | Wide   | Pres        | Unc       | Kyte 96-164<br>(FOBU)    | 1996      |                  |
| Asteraceae<br>(Compositae) | <i>Erigeron compositus</i><br>var. <i>discoideus</i>   | Includes var.<br><i>glabratus</i>   | cut-leaved daisy     | PerF      | Wide   | Pres        | Unc       | Kyte 98-12<br>(FOBU)     | 1998      |                  |
| Asteraceae<br>(Compositae) | <i>Erigeron corymbosus</i>                             |   | mountain daisy       | PerF      | Wide   | Pres        | Unc       | Kyte s.n.<br>(FOBU)      | 1984      |                  |
| Asteraceae<br>(Compositae) | <i>Erigeron eatonii</i>                                | <i>E. eatonii</i> var.<br><i>eatonii</i>  | Eaton's fleabane     | PerF      | Wide   | Pres        | Unc       | Litzinger 1162<br>(FOBU) | 1977      |                  |
| Asteraceae<br>(Compositae) | <i>Erigeron engelmannii</i>                            |   | Engelmann's daisy    | PerF      | Wide   | Pres        | Unc       | Kyte s.n.<br>(FOBU)      | 1984      |                  |
| Asteraceae<br>(Compositae) | <i>Erigeron glabellus</i> var.<br><i>glabellus</i>     | <i>E. glabellus</i>   | smooth daisy         | PerF      | Wide   | Pres        | Unc       | Kyte 96-123<br>(FOBU)    | 1996      |                  |
| Asteraceae<br>(Compositae) | <i>Erigeron lonchophyllus</i>                          | <i>Trimorpha lonchophylla</i>   | longleaf daisy       | PerF      | Wide   | Pres        | Unc       | Kyte s.n.<br>(FOBU)      | 1995      |                  |
| Asteraceae<br>(Compositae) | <i>Erigeron nanus</i>                                  |   | dwarf fleabane       | PerF      | Reg En | Pres        | Unc       | Kyte 97-60<br>(FOBU)     | 1984      |                  |
| Asteraceae<br>(Compositae) | <i>Erigeron ochroleucus</i><br>var. <i>ochroleucus</i> |   | buff fleabane        | PerF      | Wide   | Rep         | ?         | Dorn et al.<br>(1984)    | 1984      |                  |

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

| Family                     | Species name                                     | Synonyms/<br>Taxonomic notes  | Common name          | Life form | Range | Park status | Pop. size | Source                                     | Year doc. | Comments |
|----------------------------|--|---|----------------------|-----------|-------|-------------|-----------|--|-----------|----------|
| Asteraceae<br>(Compositae) | <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  | Rep         | Rare      | Northern Colorado Plateau Network (in ed.) | 2005      |          |
| Asteraceae<br>(Compositae) | <i>Erigeron pumilus</i> var. <i>pumilus</i>      |   | shaggy fleabane      | PerF      | Wide  | Rep         | ?         | Dorn et al. (1984)                         | 1984      |          |
| Asteraceae<br>(Compositae) | <i>Erigeron speciosus</i>                        | <i>E. speciosus</i> var. <i>macranthus</i>  | aspen daisy          | PerF      | Wide  | Pres        | Unc       | Kyte 96-122 (FOBU)                         | 1984      |          |
| Asteraceae<br>(Compositae) | <i>Eucephalus elegans</i>                        | <i>Aster perelegans</i>   | elegant aster        | PerF      | Wide  | Pres        | Unc       | Kyte 96-161 (FOBU)                         | 1984      |          |
| Asteraceae<br>(Compositae) | <i>Eucephalus engelmannii</i>                    | <i>Aster engelmannii</i>  | Engelmann's aster    | PerF      | Wide  | Pres        | Unc       | Litzinger 1596 (FOBU)                      | 1977      |          |
| Asteraceae<br>(Compositae) | <i>Eucephalus glaucus</i>                        | <i>Aster glaucodes</i> , <i>Eurybia glauca</i> , <i>Herrickia glauca</i> var. <i>glauca</i>             | blueleaf aster       | PerF      | Wide  | Pres        | Unc       | Kyte 96-159 (FOBU)                         | 1984      |          |
| Asteraceae<br>(Compositae) | <i>Gaillardia aristata</i>                       |   | common blanketflower | PerF      | Wide  | Pres        | Rare      | Kyte 2004-10 (FOBU)                        | 2004      |          |
| Asteraceae<br>(Compositae) | <i>Gnaphalium palustre</i>                       |   | lowland cudweed      | AnnF      | Wide  | Pres        | Unc       | Kyte s.n. (FOBU)                           | 1995      |          |
| Asteraceae<br>(Compositae) | <i>Grindelia squarrosa</i> var. <i>squarrosa</i> | Includes var. <i>serrulata</i> . Vars. not recognized in <i>Flora of North America</i> (2006)           | curly-cup gumweed    | PerF      | Wide  | Pres        | Unc       | Kyte s.n. (FOBU)                           | 1973      |          |
| Asteraceae<br>(Compositae) | <i>Gutierrezia sarothrae</i>                     |   | broom snakeweed      | Shrub     | Wide  | Pres        | Unc       | Kyte 98-36 (FOBU)                          | 1973      |          |
| Asteraceae<br>(Compositae) | <i>Helianthella uniflora</i>                     |   | little sunflower     | PerF      | Wide  | Pres        | Unc       | Kyte 96-105 (FOBU)                         | 1973      |          |
| Asteraceae<br>(Compositae) | <i>Helianthus annuus</i>                         | <i>H. annuus</i> ssp. <i>lenticularis</i> . Ssp. not recognized in <i>Flora of North America</i> (2006) | common sunflower     | AnnF      | Wide  | Pres        | Unc       | Kyte 97-105 (FOBU)                         | 1997      |          |
| Asteraceae<br>(Compositae) | <i>Hieracium cynoglossoides</i>                  | <i>Hieracium scouleri</i> var. <i>griseum</i>   | houndtongue hawkweed | PerF      | Wide  | Pres        | Unc       | Kyte 2002-08a (FOBU)                       | 2002      |          |

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

| Family                     | Species name   | Synonyms/<br>Taxonomic notes  | Common name        | Life form | Range | Park status | Pop. size | Source                   | Year doc. | Comments         |
|----------------------------|--|---|--------------------|-----------|-------|-------------|-----------|--------------------------|-----------|------------------|
| Asteraceae<br>(Compositae) | <i>Hymenoxys hoopesii</i>  | <i>Helenium hoopesii</i> ,<br><i>Dugaldia hoopesii</i>  | orange sneezeweed  | PerF      | Wide  | Pres        | Unc       | Litzinger 1208<br>(FOBU) | 1977      |                  |
| Asteraceae<br>(Compositae) | <i>Iva axillaris</i> var.<br><i>axillaris</i>                      | Vars. not<br>recognized in <i>Flora</i><br>of North America<br>(2006)   | poverty-weed       | PerF      | Wide  | Pres        | Unc       | Kyte s.n.<br>(FOBU)      | 1995      |                  |
| Asteraceae<br>(Compositae) | <i>Iva axillaris</i> var.<br><i>robustior</i>                      | Vars. not<br>recognized in <i>Flora</i><br>of North America<br>(2006)   | poverty-weed       | PerF      | Wide  | Pres        | Unc       | Litzinger 1341<br>(FOBU) | 1977      |                  |
| Asteraceae<br>(Compositae) | <i>Lactuca oblongifolia</i>  | <i>L. pulchella</i> ,<br><i>L. tatarica</i><br>var. <i>pulchella</i> ,<br><i>Mulgedium</i><br><i>pulchellum</i> | blue lettuce       | PerF      | Wide  | Pres        | Unc       | Kyte 97-117<br>(FOBU)    | 1997      |                  |
| Asteraceae<br>(Compositae) | <i>Lactuca serriola</i>  |   | prickly lettuce    | AnnF      | Intro | Pres        | Unc       | Kyte s.n.<br>(FOBU)      | 1984      | Native to Europe |
| Asteraceae<br>(Compositae) | <i>Machaeranthera</i><br><i>canescens</i> var.<br><i>canescens</i> | <i>Aster canescens</i> ,<br><i>Dieteria canescens</i><br>var. <i>canescens</i>                                  | hoary tansy-aster  | PerF      | Wide  | Pres        | Unc       | Kyte s.n.<br>(FOBU)      | 1977      |                  |
| Asteraceae<br>(Compositae) | <i>Machaeranthera</i><br><i>grindeloides</i>                       | <i>Haplopappus</i><br><i>nuttallii</i> , <i>Xanthisma</i><br><i>grindeloides</i> var.<br><i>grindeloides</i>    | gumweed aster      | PerF      | Wide  | Pres        | Unc       | Kyte 96-163<br>(FOBU)    | 1984      |                  |
| Asteraceae<br>(Compositae) | <i>Madia glomerata</i>   |   | mountain tarweed   | AnnF      | Wide  | Pres        | Unc       | Kyte s.n.<br>(FOBU)      | 1977      |                  |
| Asteraceae<br>(Compositae) | <i>Microseris nutans</i>   |   | nodding microseris | PerF      | Wide  | Pres        | Unc       | Kyte 97-76<br>(FOBU)     | 1997      |                  |
| Asteraceae<br>(Compositae) | <i>Packera cana</i>  | <i>Senecio canus</i>  | woolly groundsel   | PerF      | Wide  | Pres        | Unc       | Kyte 96-43<br>(FOBU)     | 1977      |                  |
| Asteraceae<br>(Compositae) | <i>Packera multilobata</i>   | <i>Senecio</i><br><i>multilobatus</i>   | basin groundsel    | PerF      | Wide  | Pres        | Com       | Kyte 96-44<br>(FOBU)     | 1984      |                  |
| Asteraceae<br>(Compositae) | <i>Packera pauperula</i>   | <i>Senecio</i><br><i>pauperulus</i>   | balsam groundsel   | PerF      | Wide  | Rep         | ?         | Dorn et al.<br>(1984)    | 1984      |                  |



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

| Family                  | Species name   | Synonyms/<br>Taxonomic notes   | Common name              | Life form | Range | Park status | Pop. size | Source                | Year doc. | Comments  |
|-------------------------|--|--|--------------------------|-----------|-------|-------------|-----------|-----------------------|-----------|---|
| Asteraceae (Compositae) | <i>Packera streptanthifolia</i> var. <i>streptanthifolia</i> | <i>Senecio streptanthifolius</i> var. <i>streptanthifolius</i> , included in <i>S. cymbalarioides</i> by some authors, includes vars. <i>borealis</i> & <i>oodes</i> | Rocky Mountain groundsel | PerF      | Wide  | Pres        | Com       | Kyte 2001-32 (FOBU)   | 1977      |   |
| Asteraceae (Compositae) | <i>Pyrrcoma lanceolata</i>                                   | <i>Haplopappus lanceolatus</i>   | meadow goldenweed        | PerF      | Wide  | Pres        | Unc       | Litzinger 1337 (FOBU) | 1977      |   |
| Asteraceae (Compositae) | <i>Pyrrcoma uniflora</i>                                     | <i>Haplopappus uniflorus</i>   | plantain goldenweed      | PerF      | Wide  | Pres        | Unc       | Kyte s.n. (FOBU)      | 1984      |   |
| Asteraceae (Compositae) | <i>Rudbeckia occidentalis</i>                                | <i>R. occidentalis</i> var. <i>occidentalis</i>  | western coneflower       | PerF      | Wide  | Pres        | Unc       | Kyte 96-126 (FOBU)    | 1984      |   |
| Asteraceae (Compositae) | <i>Senecio hydrophilus</i>                                   |  | water groundsel          | PerF      | Wide  | Pres        | Unc       | Kyte s.n. (FOBU)      | 1995      |   |
| Asteraceae (Compositae) | <i>Senecio integerrimus</i> var. <i>exaltatus</i>            |  | western groundsel        | PerF      | Wide  | Pres        | Unc       | Kyte 96-39 (FOBU)     | 1977      |   |
| Asteraceae (Compositae) | <i>Senecio serra</i> var. <i>serra</i>                       |  | saw-toothed groundsel    | PerF      | Wide  | Pres        | Unc       | Litzinger 1449 (FOBU) | 1977      |   |
| Asteraceae (Compositae) | <i>Solidago canadensis</i> var. <i>salebrosa</i>             | <i>S. lepida</i> var. <i>salebrosa</i>   | Canadian goldenrod       | PerF      | Wide  | Pres        | Unc       | Kyte 96-183 (FOBU)    | 1996      |   |
| Asteraceae (Compositae) | <i>Solidago velutina</i>                                     | <i>S. sparsiflora</i> , <i>S. velutina</i> var. <i>sparsiflora</i>   | three-nerve goldenrod    | PerF      | Wide  | Pres        | Unc       | Kyte s.n. (FOBU)      | 1996      | Previously considered a false report in Fertig (2000) |
| Asteraceae (Compositae) | <i>Sonchus asper</i>   |  | spiny-leaf sow-thistle   | AnnF      | Intro | Pres        | Unc       | Kyte 2001-48 (FOBU)   | 2001      | Native to Europe. First record for Lincoln County, WY |
| Asteraceae (Compositae) | <i>Sonchus uliginosus</i>                                    | <i>S. arvensis</i> ssp. <i>uliginosus</i> , <i>S. arvensis</i> var. <i>glabrescens</i>   | marsh sow-thistle        | PerF      | Intro | Pres        | Unc       | Kyte 96-160 (FOBU)    | 1984      | Native to Europe                                      |
| Asteraceae (Compositae) | <i>Stenotus acaulis</i>                                      | <i>Haplopappus acaulis</i> var. <i>acaulis</i>   | stemless goldenweed      | PerF      | Wide  | Pres        | Unc       | Litzinger 1137 (FOBU) | 1977      |   |

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

| Family                     | Species name                                      | Synonyms/<br>Taxonomic notes  | Common name                         | Life form | Range | Park status | Pop. size | Source               | Year doc. | Comments  |
|----------------------------|---|---|-------------------------------------|-----------|-------|-------------|-----------|----------------------|-----------|---|
| Asteraceae<br>(Compositae) | <i>Stephanomeria runcinata</i>                    |   | desert wirelettuce                  | PerF      | Wide  | Pres        | Unc       | Kyte 96-165 (FOBU)   | 1984      |   |
| Asteraceae<br>(Compositae) | <i>Symphotrichum ascendens</i>                    | <i>Aster chilensis</i><br><i>spp. ascendens</i> ,<br><i>A. ascendens</i> ,<br><i>Virgulastr</i><br><i>ascendens</i> | Pacific aster                       | PerF      | Wide  | Pres        | Unc       | Kyte 2000-32b (FOBU) | 1984      |   |
| Asteraceae<br>(Compositae) | <i>Symphotrichum boreale</i>                      | <i>Aster junceiformis</i> ,<br><i>A. borealis</i>   | boreal aster                        | PerF      | Spars | Pres        | Rare      | Kyte s.n. (FOBU)     | 1995      |   |
| Asteraceae<br>(Compositae) | <i>Symphotrichum foliaceum</i> var. <i>parryi</i> | <i>Aster foliaceus</i> var.<br><i>parryi</i>  | alpine leafy-head<br>American-aster | PerF      | Wide  | Rep         | ?         | Dorn et al. (1984)   | 1984      |   |
| Asteraceae<br>(Compositae) | <i>Symphotrichum frondosum</i>                    | <i>Aster frondosus</i> ,<br><i>Brachyactis frondosa</i>   | leafy aster                         | AnnF      | Wide  | Pres        | Unc       | Kyte s.n. (FOBU)     | 1995      |   |
| Asteraceae<br>(Compositae) | <i>Symphotrichum spathulatum</i>                  | <i>Aster spathulatus</i> ,<br><i>A. occidentalis</i>  | western aster                       | PerF      | Wide  | Pres        | Unc       | Kyte 2000-16 (FOBU)  | 1984      |   |
| Asteraceae<br>(Compositae) | <i>Taraxacum laevigatum</i>                       | <i>T. erythrospermum</i>  | red-seed dandelion                  | PerF      | Intro | Pres        | Unc       | Kyte 97-39 (FOBU)    | 1984      | Native to Eurasia   |
| Asteraceae<br>(Compositae) | <i>Taraxacum officinale</i>                       |   | common dandelion                    | PerF      | Intro | Pres        | Unc       | Kyte s.n. (FOBU)     | 1973      | Native to Eurasia   |
| Asteraceae<br>(Compositae) | <i>Tetradymia canescens</i>                       |   | spineless horsebrush                | Shrub     | Wide  | Pres        | Unc       | Kyte s.n. (FOBU)     | 1973      |   |
| Asteraceae<br>(Compositae) | <i>Tetradymia spinosa</i>                         | <i>T. spinosa</i> var.<br><i>spinosa</i>  | shortspine<br>horsebrush            | Shrub     | Wide  | Pres        | Unc       | Kyte 97-12 (FOBU)    | 1984      |   |
| Asteraceae<br>(Compositae) | <i>Tetranneuris acaulis</i> var. <i>acaulis</i>   | <i>Hymenoxys acaulis</i><br>var. <i>acaulis</i>   | stemless hymenoxys                  | PerF      | Wide  | Rep         | ?         | Dorn et al. (1984)   | 1973      | One record from FOBU herbarium based on a misidentified specimen of <i>Tetranneuris torreyana</i> (Fertig 2000) |
| Asteraceae<br>(Compositae) | <i>Tetranneuris torreyana</i>                     | <i>Hymenoxys torreyana</i>  | Torrey's hymenoxys                  | PerF      | Wide  | Pres        | Unc       | Kyte 98-19 (FOBU)    | 1998      |   |

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

| Family                     | Species name                   | Synonyms/<br>Taxonomic notes                        | Common name            | Life form | Range  | Park status | Pop. size | Source                | Year doc. | Comments  |
|----------------------------|--------------------------------|---|------------------------|-----------|--------|-------------|-----------|-----------------------|-----------|---|
| Asteraceae<br>(Compositae) | <i>Townsendia nuttallii</i>    | Included in <i>T. hookeri</i> by some authors.      | Nuttall's easter-daisy | PerF      | Reg En | Pres        | Unc       | Kyte 96-48 (FOBU)     | 1984      | Type locality is Limestone Mtn, Fremont Co., WY (Dorn 2963 RM)                            |
| Asteraceae<br>(Compositae) | <i>Tragopogon dubius</i>       | <i>T. dubius</i> var. <i>major</i>                  | yellow salsify         | PerF      | Intro  | Pres        | Unc       | Kyte 97-71 (FOBU)     | 1984      | Native to Europe  |
| Asteraceae<br>(Compositae) | <i>Viguiera multiflora</i>     | <i>Heliomeris multiflora</i> var. <i>multiflora</i> | showy goldeneye        | PerF      | Wide   | Pres        | Unc       | Kyte 97-106 (FOBU)    | 1973      | Cited by Beetle and Marlow (1974) under the erroneous name <i>Helianthella multiflora</i> |
| Asteraceae<br>(Compositae) | <i>Wyethia amplexicaulis</i>   |   | mule's-ears            | PerF      | Wide   | Pres        | Unc       | Litzinger 1115 (FOBU) | 1973      |   |
| Berberidaceae              | <i>Mahonia repens</i>          | <i>Berberis repens</i>                              | Oregon-grape           | Shrub     | Wide   | Pres        | Unc       | Kyte 96-13 (FOBU)     | 1973      |   |
| Boraginaceae               | <i>Cryptantha caespitosa</i>   | <i>Oreocarya caespitosa</i>                         | tufted cryptanth       | PerF      | Reg En | Pres        | Unc       | Kyte 97-8 (FOBU)      | 1984      | Type locality is Point of Rocks, Sweetwater Co., WY (Nelson 4749 RM)                      |
| Boraginaceae               | <i>Cryptantha celosiooides</i> | <i>C. bradburiana</i>                               | cockscumb cryptanth    | PerF      | Wide   | Pres        | Com       | Litzinger 1374 (FOBU) | 1977      |   |
| Boraginaceae               | <i>Cryptantha fendleri</i>     |   | sand dune cryptanth    | AnnF      | Wide   | Pres        | Unc       | Litzinger 1255 (FOBU) | 1977      |   |
| Boraginaceae               | <i>Cryptantha sericea</i>      | <i>Oreocarya sericea</i>                            | silky cryptanth        | PerF      | Reg En | Pres        | Unc       | Litzinger 1124 (FOBU) | 1977      | Type locality is Bridger's Pass, Uinta Co., WY (Engelmann s.n. GH)                        |
| Boraginaceae               | <i>Cryptantha watsonii</i>     |   | Watson's cryptanth     | AnnF      | Wide   | Pres        | Unc       | Kyte 98-13 (FOBU)     | 1998      |   |
| Boraginaceae               | <i>Cynoglossum officinale</i>  |   | common hound's-tongue  | PerF      | Intro  | Pres        | Unc       | Kyte 96-128 (FOBU)    | 1984      | Native to Eurasia. WY state noxious weed  |
| Boraginaceae               | <i>Hackelia floribunda</i>     |   | showy stickseed        | PerF      | Wide   | Pres        | Unc       | Litzinger 1547 (FOBU) | 1977      |   |

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

| Family                    | Species name   | Synonyms/<br>Taxonomic notes  | Common name            | Life form | Range | Park status | Pop. size | Source                   | Year doc. | Comments          |
|---------------------------|--|---|------------------------|-----------|-------|-------------|-----------|--------------------------|-----------|-------------------|
| Boraginaceae              | <i>Hackelia patens</i>                               | <i>H. patens</i> var. <i>patens</i>   | spotted stickseed      | PerF      | Wide  | Pres        | Unc       | Harms & Kyte s.n. (FOBU) | 1984      |                   |
| Boraginaceae              | <i>Lappula redowskii</i> var. <i>redowskii</i>       | <i>L. occidentalis</i> var. <i>occidentalis</i>   | western stickseed      | AnnF      | Wide  | Pres        | Unc       | Kyte 96-55 (FOBU)        | 1977      |                   |
| Boraginaceae              | <i>Lappula squarrosa</i> var. <i>squarrosa</i>       | <i>L. echinata</i>  | European stickseed     | AnnF      | Intro | Pres        | Unc       | Kyte 2002-04 (FOBU)      | 2002      | Native to Eurasia |
| Boraginaceae              | <i>Lithospermum ruderale</i>                         |   | western stoneseed      | PerF      | Wide  | Pres        | Unc       | Kyte 96-15 (FOBU)        | 1977      |                   |
| Boraginaceae              | <i>Mertensia oblongifolia</i>                        |   | western bluebell       | PerF      | Wide  | Pres        | Unc       | Kyte 96-14 (FOBU)        | 1977      |                   |
| Boraginaceae              | <i>Mertensia viridis</i>                             | <i>M. lanceolata</i> var. <i>nivalis</i> . Included in <i>M. oblongifolia</i> by some authors.                          | mountain bluebell      | PerF      | Wide  | Pres        | Rare      | Kyte 2001-26 (FOBU)      | 2001      |                   |
| Boraginaceae              | <i>Plagiobothrys scouleri</i> var. <i>hispidulus</i> | <i>P. scouleri</i> var. <i>penicillatus</i>   | meadow popcorn-flower  | AnnF      | Wide  | Pres        | Unc       | Kyte s.n. (FOBU)         | 1984      |                   |
| Brassicaceae (Cruciferae) | <i>Alyssum desertorum</i>                            |   | desert madwort         | AnnF      | Intro | Pres        | Unc       | Kyte 96-106 (FOBU)       | 1984      | Native to Europe  |
| Brassicaceae (Cruciferae) | <i>Arabis glabra</i>                                 | <i>Turritis glabra</i> , <i>A. glabra</i> var. <i>glabra</i>  | tower-mustard          | PerF      | Wide  | Pres        | Unc       | Kyte 2001-39 (FOBU)      | 2001      |                   |
| Brassicaceae (Cruciferae) | <i>Arabis hirsuta</i> var. <i>pyncocarpa</i>         |   | hairy rockcress        | PerF      | Wide  | Pres        | Unc       | Kyte 97-53 (FOBU)        | 1997      |                   |
| Brassicaceae (Cruciferae) | <i>Barbarea orthoceras</i>                           |   | northern wintercress   | PerF      | Wide  | Pres        | Unc       | Kyte 96-131 (FOBU)       | 1996      |                   |
| Brassicaceae (Cruciferae) | <i>Boechera angustifolia</i>                         | <i>Arabis drummondii</i> , <i>B. drummondii</i> , <i>B. stricta</i>   | Drummond's rockcress   | PerF      | Wide  | Pres        | Unc       | Kyte 2001-10 (FOBU)      | 2001      |                   |
| Brassicaceae (Cruciferae) | <i>Boechera brachycarpa</i>                          | <i>Arabis confinis</i> , <i>A. x divaricarpa</i> , <i>A. holboellii</i> var. <i>brachycarpa</i> , <i>B. divaricarpa</i> | spreadingpod rockcress | PerF      | Wide  | Pres        | Unc       | Kyte 2001-36 (FOBU)      | 2001      |                   |

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

| Family                       | Species name   | Synonyms/<br>Taxonomic notes  | Common name                | Life form | Range  | Park status | Pop. size | Source                             | Year doc. | Comments         |
|------------------------------|--|---|----------------------------|-----------|--------|-------------|-----------|------------------------------------|-----------|------------------|
| Brassicaceae<br>(Cruciferae) | <i>Boechea exilis</i>                                | <i>Arabis holboellii</i><br>var. <i>pendulocarpa</i> ,<br><i>A. pendulocarpa</i><br>var. <i>pendulocarpa</i> ,<br><i>A. exilis</i>  | deflexed rockcress         | PerF      | Wide   | Pres        | Unc       | Kyte 2001-13<br>(FOBU)             | 2001      |                  |
| Brassicaceae<br>(Cruciferae) | <i>Boechea holboellii</i><br>var. <i>secunda</i>     | <i>Arabis holboellii</i><br>var. <i>secunda</i> , <i>A.</i><br><i>holboellii</i> var.<br><i>retrofracta</i> , <i>B.</i><br><i>retrofracta</i>                                     | Holboell's rockcress       | PerF      | Wide   | Rep         | ?         | Dorn et al.<br>(1984)              | 1984      |                  |
| Brassicaceae<br>(Cruciferae) | <i>Boechea nuttallii</i>                             | <i>Arabis nuttallii</i>   | Nuttall's rockcress        | PerF      | Wide   | Pres        | Unc       | Moon &<br>Moon 1664<br>(FOBU, BRY) | 1996      |                  |
| Brassicaceae<br>(Cruciferae) | <i>Boechea williamsii</i><br>var. <i>saximontana</i> | <i>Arabis microphylla</i><br>var. <i>saximontana</i> ,<br><i>A. pendulocarpa</i><br>var. <i>saximontana</i> ,<br><i>A. williamsii</i> var.<br><i>saximontana</i>                  | Wind River rockcress       | PerF      | Reg En | Pres        | Rare      | Kyte 2001-16<br>(FOBU)             | 2001      |                  |
| Brassicaceae<br>(Cruciferae) | <i>Camelina microcarpa</i>                           |   | little-pod false flax      | AnnF      | Intro  | Pres        | Unc       | Kyte 98-26<br>(FOBU)               | 1998      | Native to Asia   |
| Brassicaceae<br>(Cruciferae) | <i>Capsella bursa-pastoris</i>                       |   | shepherd's-purse           | AnnF      | Intro  | Rep         | ?         | Dorn et al.<br>(1984)              | 1984      | Native to Europe |
| Brassicaceae<br>(Cruciferae) | <i>Cardaria chalepensis</i>                          | <i>C. draba</i> ssp.<br><i>chalepensis</i> , <i>C.</i><br><i>draba</i> var. <i>repens</i>   | orbicular whitetop         | PerF      | Intro  | Pres        | Unc       | Kyte s.n.<br>(FOBU)                | 1996      | Native to Europe |
| Brassicaceae<br>(Cruciferae) | <i>Chorispora tenella</i>                            |   | blue mustard               | AnnF      | Intro  | Pres        | Unc       | Kyte 97-37<br>(FOBU)               | 1984      | Native to Asia   |
| Brassicaceae<br>(Cruciferae) | <i>Descurainia incana</i><br>var. <i>incana</i>      | <i>D. richardsonii</i> var.<br><i>sonnei</i> , <i>D. incisa</i><br>var. <i>incisa</i> , <i>D.</i><br><i>incana</i> ssp. <i>incisa</i> ,<br><i>D. incana</i> var.<br><i>sonnei</i> | mountain tansy-<br>mustard | AnnF      | Wide   | Pres        | Unc       | Kyte 96-108<br>(FOBU)              | 1977      |                  |

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

| Family                       | Species name   | Synonyms/<br>Taxonomic notes  | Common name                  | Life form | Range | Park status | Pop. size | Source                       | Year doc. | Comments          |
|------------------------------|--|---|------------------------------|-----------|-------|-------------|-----------|------------------------------|-----------|-------------------|
| Brassicaceae<br>(Cruciferae) | <i>Descurainia incana</i><br>var. <i>macrosperma</i>   | <i>D. richardsonii</i> var. <i>macrosperma</i> , <i>D. incana</i> ssp. <i>procera</i> , <i>D. incana</i> var. <i>brevipes</i> | gray tansy-mustard           | PerF      | Wide  | Pres        | Unc       | Kyte & Fertig 2004-16 (FOBU) | 2004      |                   |
| Brassicaceae<br>(Cruciferae) | <i>Descurainia incana</i><br>var. <i>viscosa</i>       | <i>D. incisa</i> var. <i>viscosa</i> , <i>D. richardsonii</i> var. <i>viscosa</i> , <i>D. incisa</i> var. <i>leptophylla</i>  | slender-leaved tansy-mustard | AnnF      | Wide  | Pres        | Unc       | Harms & Kyte s.n. (FOBU)     | 2005      |                   |
| Brassicaceae<br>(Cruciferae) | <i>Descurainia pinnata</i><br>var. <i>brachycarpa</i>  |   | western tansy-mustard        | AnnF      | Wide  | Pres        | Unc       | Kyte 2001-38 (FOBU)          | 2001      |                   |
| Brassicaceae<br>(Cruciferae) | <i>Descurainia sophia</i>                              |   | flixweed                     | AnnF      | Intro | Pres        | Unc       | Litzinger 1368 (FOBU)        | 1977      | Native to Europe  |
| Brassicaceae<br>(Cruciferae) | <i>Draba albertina</i>                                 | <i>D. stenoloba</i> var. <i>nana</i>  | slender whitlow-grass        | PerF      | Wide  | Pres        | Unc       | Kyte 96-57 (FOBU)            | 1996      |                   |
| Brassicaceae<br>(Cruciferae) | <i>Draba nemorosa</i>                                  |   | woodland whitlow-grass       | AnnF      | Intro | Pres        | Unc       | Kyte 97-54 (FOBU)            | 1984      | Native to Eurasia |
| Brassicaceae<br>(Cruciferae) | <i>Draba oligosperma</i>                               | <i>D. oligosperma</i> var. <i>oligosperma</i>   | few-seed whitlow-grass       | PerF      | Wide  | Rep         | ?         | Dorn et al. (1984)           | 1984      |                   |
| Brassicaceae<br>(Cruciferae) | <i>Erysimum asperum</i><br>var. <i>arkansanum</i>      | <i>E. capitatum</i> var. <i>capitatum</i> , <i>E. asperum</i> var. <i>elatum</i>  | western wallflower           | PerF      | Wide  | Pres        | Unc       | Litzinger 1175 (FOBU)        | 1977      |                   |
| Brassicaceae<br>(Cruciferae) | <i>Erysimum cheiranthoides</i>                         | <i>E. cheiranthoides</i> ssp. <i>altum</i>  | worm-seed wallflower         | PerF      | Wide  | Pres        | Unc       | Kyte 2000-30 (FOBU)          | 2000      |                   |
| Brassicaceae<br>(Cruciferae) | <i>Erysimum inconspicuum</i>                           |   | shy wallflower               | PerF      | Wide  | Pres        | Unc       | Kyte 96-98 (FOBU)            | 1984      |                   |
| Brassicaceae<br>(Cruciferae) | <i>Erysimum repandum</i>                               |   | spreading wallflower         | AnnF      | Intro | Pres        | Unc       | Kyte 2002-02 (FOBU)          | 2002      | Native to Europe  |
| Brassicaceae<br>(Cruciferae) | <i>Lepidium campestre</i>                              | <i>Neolepia campestre</i>   | field pepperwort             | AnnF      | Intro | Pres        | Rare      | Kyte s.n. (FOBU)             | 2006      | Native to Asia    |
| Brassicaceae<br>(Cruciferae) | <i>Lepidium densiflorum</i><br>var. <i>densiflorum</i> | Some authors include var. <i>macrocarpum</i>  | prairie pepperwort           | AnnF      | Wide  | Pres        | Unc       | Litzinger 1412 (FOBU)        | 1977      |                   |

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

| Family                       | Species name   | Synonyms/<br>Taxonomic notes  | Common name                  | Life form | Range  | Park status | Pop. size | Source                 | Year doc. | Comments   |
|------------------------------|--|---|------------------------------|-----------|--------|-------------|-----------|------------------------|-----------|--|
| Brassicaceae<br>(Cruciferae) | <i>Lepidium integrifolium</i>                            | <i>L. integrifolium</i><br>var. <i>integrifolium</i> ,<br><i>L. montanum</i> var.<br><i>integrifolium</i> | entire-leaf<br>pepperwort    | PerF      | Reg En | Pres        | Unc       | Kyte 96-167<br>(FOBU)  | 1996      | WY BLM Sensitive   |
| Brassicaceae<br>(Cruciferae) | <i>Lepidium perfoliatum</i>                              |   | clasping pepperwort          | AnnF      | Intro  | Pres        | Unc       | Kyte 96-130<br>(FOBU)  | 1984      | Native to Europe   |
| Brassicaceae<br>(Cruciferae) | <i>Lepidium ramosissimum</i> var.<br><i>ramosissimum</i> |   | branched<br>pepperwort       | AnnF      | Wide   | Pres        | Unc       | Kyte 2000-29<br>(FOBU) | 2000      |  |
| Brassicaceae<br>(Cruciferae) | <i>Lepidium virginicum</i><br>var. <i>pubescens</i>      |   | poorman's<br>pepperwort      | AnnF      | Periph | Pres        | Unc       | Kyte 2002-03<br>(FOBU) | 1984      |  |
| Brassicaceae<br>(Cruciferae) | <i>Lesquerella alpina</i>                                | Includes var.<br><i>spatulata</i> , <i>Physaria</i><br><i>reediana</i> var.<br><i>reediana</i>            | alpine bladderpod            | PerF      | Wide   | Pres        | Unc       | Kyte 97-24<br>(FOBU)   | 1984      |  |
| Brassicaceae<br>(Cruciferae) | <i>Malcolmia africana</i>                                |   | African mustard              | AnnF      | Intro  | Pres        | Unc       | Kyte 96-168<br>(FOBU)  | 1996      | Native to Africa   |
| Brassicaceae<br>(Cruciferae) | <i>Physaria acutifolia</i>                               | <i>P. acutifolia</i> var.<br><i>acutifolia</i> , <i>P.</i><br><i>australis</i>                            | sharp-leaf twinpod           | PerF      | Wide   | Pres        | Unc       | Kyte 96-97<br>(FOBU)   | 1984      |  |
| Brassicaceae<br>(Cruciferae) | <i>Physaria condensata</i>                               |   | tufted twinpod               | PerF      | LocEn  | Pres        | Unc       | Kyte 98-16<br>(FOBU)   | 1973      | WY BLM Sensitive,<br>USFWS former C2<br>candidate. Type<br>locality is foothills<br>of Bridger Butte,<br>Unita Co., WY<br>(Rollins 2385 G) |
| Brassicaceae<br>(Cruciferae) | <i>Rorippa curvipes</i> var.<br><i>curvipes</i>          |   | blunt-leaf yellowcress       | PerF      | Wide   | Pres        | Unc       | Kyte 96-194<br>(FOBU)  | 1984      |  |
| Brassicaceae<br>(Cruciferae) | <i>Schoenocrambe linifolia</i>                           | <i>Sisymbrium</i><br><i>linifolium</i>  | flax-leaved<br>plainsmustard | PerF      | Wide   | Pres        | Unc       | Kyte 97-59<br>(FOBU)   | 1984      |  |
| Brassicaceae<br>(Cruciferae) | <i>Sisymbrium altissimum</i>                             |   | tumble mustard               | AnnF      | Intro  | Pres        | Unc       | Kyte 2001-67<br>(FOBU) | 2001      | Native to Europe   |
| Brassicaceae<br>(Cruciferae) | <i>Stanleya viridiflora</i>                              |   | green prince's-plume         | PerF      | Wide   | Pres        | Unc       | Kyte 96-170<br>(FOBU)  | 1977      |  |
| Brassicaceae<br>(Cruciferae) | <i>Streptanthus cordatus</i>                             | <i>S. cordatus</i> var.<br><i>cordatus</i>  | heart-leaf<br>jewelflower    | PerF      | Periph | Pres        | Unc       | Kyte 96-107<br>(FOBU)  | 1984      |  |

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

| Family                          | Species name   | Synonymic/<br>Taxonomic notes  | Common name            | Life form | Range | Park status | Pop. size | Source                | Year doc. | Comments          |
|---------------------------------|--|--|------------------------|-----------|-------|-------------|-----------|-----------------------|-----------|-------------------|
| Brassicaceae<br>(Cruciferae)    | <i>Thelypodium integrifolium</i>                       | <i>T. integrifolium</i> var. <i>integrifolium</i>  | entire-leaf thelypody  | PerF      | Wide  | Pres        | Unc       | Litzinger 1377 (FOBU) | 1977      |                   |
| Brassicaceae<br>(Cruciferae)    | <i>Thelypodium paniculatum</i>                         | <i>T. sagittatum</i> var. <i>crassiscarpum</i>   | northwestern thelypody | PerF      | Wide  | Pres        | Unc       | Kyte 96-4 (FOBU)      | 1984      |                   |
| Brassicaceae<br>(Cruciferae)    | <i>Thlaspi arvense</i>                                 |  | field pennycress       | AnnF      | Intro | Pres        | Com       | Kyte 96-109 (FOBU)    | 1977      | Native to Europe  |
| Cactaceae                       | <i>Opuntia polyacantha</i> var. <i>polyacantha</i>     | <i>Flora of North America</i> (2003) includes vars. <i>rufispina</i> and <i>trichophora</i> in var. <i>polyacantha</i>   | plains prickly-pear    | PerF      | Wide  | Pres        | Unc       | Kyte 97-110 (FOBU)    | 1984      |                   |
| Calochortaceae<br>(Liliaceae)   | <i>Calochortus nuttallii</i>                           |  | sego-lily              | PerF      | Wide  | Pres        | Unc       | Kyte 96-144 (FOBU)    | 1984      |                   |
| Capparaceae<br>(Cleomaceae)     | <i>Cleome serrulata</i>                                |  | Rocky Mountain beelant | AnnF      | Wide  | Pres        | Unc       | Litzinger 1413 (FOBU) | 1977      |                   |
| Caprifoliaceae                  | <i>Lonicera involucrata</i>                            | <i>Distegia involucrata</i>  | black twinberry        | Shrub     | Wide  | Pres        | Unc       | Litzinger 1111 (FOBU) | 1977      |                   |
| Caprifoliaceae                  | <i>Symphoricarpos oreophilus</i> var. <i>utahensis</i> | Includes vars. <i>parishii</i> & <i>oreophilus</i> , <i>S. rotundifolius</i>   | mountain snowberry     | Shrub     | Wide  | Pres        | Com       | Kyte 96-93 (FOBU)     | 1973      |                   |
| Caryophyllaceae<br>(Aisinaceae) | <i>Cerastium fontanum</i>                              | <i>C. vulgatum</i> , <i>C. fontanum</i> ssp. <i>vulgare</i>  | mouse-ear chickweed    | PerF      | Intro | Pres        | Unc       | Litzinger 1215 (FOBU) | 1977      | Native to Eurasia |
| Caryophyllaceae<br>(Aisinaceae) | <i>Eremogone congesta</i> var. <i>congesta</i>         | <i>Arenaria congesta</i> var. <i>congesta</i>  | ball-head sandwort     | PerF      | Wide  | Pres        | Unc       | Kyte 96-94 (FOBU)     | 1977      |                   |
| Caryophyllaceae<br>(Aisinaceae) | <i>Eremogone kingii</i> var. <i>glabrescens</i>        | <i>Arenaria kingii</i> var. <i>glabrescens</i> , <i>A. kingii</i> ssp. <i>compacta</i> & ssp. <i>uintahensis</i> , <i>A. fendleri</i> var. <i>glabrescens</i> , <i>E. kingii</i> ssp. <i>uintahensis</i> | basin sandwort         | PerF      | Wide  | Pres        | Unc       | Kyte 96-58 (FOBU)     | 1977      |                   |



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

| Family                          | Species name                                       | Synonyms/<br>Taxonomic notes   | Common name         | Life form | Range  | Park status | Pop. size | Source                             | Year doc. | Comments  |
|---------------------------------|--|--|---------------------|-----------|--------|-------------|-----------|------------------------------------|-----------|---|
| Caryophyllaceae<br>(Alsinaeeae) | <i>Minuartia nuttallii</i>                         | <i>Arenaria nuttallii</i> ,<br><i>Minuopsis nuttallii</i>  | Nuttall's sandwort  | PerF      | Wide   | Pres        | Unc       | Kyte 98-14<br>(FOBU)               | 1998      |   |
| Caryophyllaceae<br>(Alsinaeeae) | <i>Moehringia lateriflora</i>                      | <i>Arenaria lateriflora</i>  | blunt-leaf sandwort | PerF      | Wide   | Pres        | Unc       | Kyte 96-133<br>(FOBU)              | 1996      |   |
| Caryophyllaceae<br>(Alsinaeeae) | <i>Pseudostellaria jamesiana</i>                   | <i>Stellaria jamesiana</i>   | James' chickweed    | PerF      | Wide   | Rep         | ?         | Dorn et al.<br>(1984)              | 1984      | Also cited by Springer et al. (2006) without a voucher. |
| Caryophyllaceae                 | <i>Silene drummondii</i>                           | <i>Lychnis drummondii</i> ,<br>includes<br>vars. <i>striata</i> ,<br><i>kruckebergii</i> ,<br>& <i>drummondii</i> ,<br><i>Gastrolychnis drummondii</i> | Drummond's catchfly | PerF      | Wide   | Pres        | Unc       | Kyte & Fertig<br>2004-01<br>(FOBU) | 2004      |   |
| Caryophyllaceae                 | <i>Silene menziesii</i> var.<br><i>menziesii</i>   | <i>Anotites menziesii</i><br>var. <i>menziesii</i>   | Menzies' campion    | PerF      | Wide   | Pres        | Unc       | Kyte 96-132<br>(FOBU)              | 1984      |   |
| Caryophyllaceae<br>(Alsinaeeae) | <i>Stellaria longipes</i>                          | <i>S. longipes</i> ssp.<br><i>stricta</i>  | long-stalk starwort | PerF      | Wide   | Pres        | Unc       | Kyte 96-95<br>(FOBU)               | 1984      |   |
| Celastraceae                    | <i>Paxistima myrsinites</i>                        | <i>Pachistima myrsinites</i> ,<br><i>Pachystima myrsinites</i>   | mountain-lover      | Shrub     | Wide   | Pres        | Unc       | Kyte 96-209<br>(FOBU)              | 1984      |   |
| Chenopodiaceae                  | <i>Atriplex canescens</i> var.<br><i>canescens</i> | Includes var.<br><i>occidentalis</i>   | four-wing saltbush  | Shrub     | Wide   | Pres        | Unc       | Kyte 97-132<br>(FOBU)              | 1997      |   |
| Chenopodiaceae                  | <i>Atriplex confertifolia</i>                      |  | shadscale           | Shrub     | Wide   | Pres        | Unc       | Kyte 97-133<br>(FOBU)              | 1973      |   |
| Chenopodiaceae                  | <i>Atriplex falcata</i>                            | <i>A. gardneri</i> var.<br><i>falcata</i>  | sickle saltbush     | Shrub     | Periph | Pres        | Unc       | Litzinger<br>11262 (FOBU)          | 1977      |   |
| Chenopodiaceae                  | <i>Atriplex gardneri</i> var.<br><i>gardneri</i>   | <i>A. nuttallii</i>  | Gardner's saltbush  | Shrub     | Wide   | Pres        | Unc       | Kyte s.n.<br>(FOBU)                | 1973      |   |
| Chenopodiaceae                  | <i>Atriplex rosea</i>                              |  | tumbling orache     | AnnF      | Intro  | Pres        | Unc       | Kyte 96a<br>(FOBU)                 | 1977      | Native to Eurasia                                       |
| Chenopodiaceae                  | <i>Atriplex subspicata</i>                         | <i>A. patula</i> var.<br><i>subspicata</i> , <i>A. dioica</i>  | thickleaf orache    | AnnF      | Wide   | Pres        | Unc       | Kyte s.n.<br>(FOBU)                | 1977      |   |

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

| Family         | Species name   | Synonyms/<br>Taxonomic notes  | Common name            | Life form | Range | Park status | Pop. size | Source                       | Year doc. | Comments          |
|----------------|--|---|------------------------|-----------|-------|-------------|-----------|------------------------------|-----------|-------------------|
| Chenopodiaceae | <i>Atriplex truncata</i>   |   | wedge-leaf orache      | AnnF      | Wide  | Pres        | Unc       | Kyte 2000-17 (FOBU)          | 1984      |                   |
| Chenopodiaceae | <i>Bassia sieversiana</i>  | <i>Kochia scoparia</i> , <i>B. scoparia</i>   | summer-cypress         | AnnF      | Intro | Pres        | Unc       | Kyte s.n. (FOBU)             | 1984      | Native to Eurasia |
| Chenopodiaceae | <i>Chenopodium atrovirens</i>  | <i>C. fremontii</i> var. <i>atrovirens</i>  | mountain goosefoot     | AnnF      | Wide  | Pres        | Unc       | Kyte 2000-11 (FOBU)          | 1977      |                   |
| Chenopodiaceae | <i>Chenopodium berlandieri</i> var. <i>berlandieri</i><br><i>zschackei</i> | <i>C. album</i> var. <i>berlandieri</i> , <i>C. berlandieri</i>                                       | pitseed goosefoot      | AnnF      | Wide  | Pres        | Unc       | Kyte 2001-73 (FOBU)          | 2001      |                   |
| Chenopodiaceae | <i>Chenopodium capitatum</i> var. <i>parvicapitatum</i>                    | <i>C. overi</i> , <i>C. foliosum</i>  | smallhead goosefoot    | AnnF      | Wide  | Pres        | Unc       | Kyte 2000-28 (FOBU)          | 2000      |                   |
| Chenopodiaceae | <i>Chenopodium fremontii</i>   | <i>C. fremontii</i> var. <i>fremontii</i>   | Fremont's goosefoot    | AnnF      | Wide  | Pres        | Rare      | Kyte & Fertig 2004-11 (FOBU) | 2004      |                   |
| Chenopodiaceae | <i>Chenopodium glaucum</i> var. <i>salinum</i>                             | <i>C. salinum</i>   | oakleaf goosefoot      | AnnF      | Wide  | Pres        | Unc       | Litzinger 1321 (FOBU)        | 1977      |                   |
| Chenopodiaceae | <i>Chenopodium leptophyllum</i>  |   | narrow-leaf goosefoot  | AnnF      | Wide  | Pres        | Unc       | Kyte 2002-05 (FOBU)          | 2002      |                   |
| Chenopodiaceae | <i>Chenopodium rubrum</i> var. <i>glomeratum</i>                           | <i>C. chenopodioides</i>  | low goosefoot          | AnnF      | Wide  | Pres        | Unc       | Kyte 2000-37 (FOBU)          | 2000      |                   |
| Chenopodiaceae | <i>Halogeton glomeratus</i>  |   | halogeton              | AnnF      | Intro | Pres        | Unc       | Kyte 96-173 (FOBU)           | 1977      | Native to Eurasia |
| Chenopodiaceae | <i>Krascheninnikovia lanata</i>  | <i>Ceratooides lanata</i> , <i>Eurotia lanata</i> , includes vars. <i>subspinosa</i> & <i>ruinina</i> | winterfat              | Shrub     | Wide  | Pres        | Com       | Kyte 96-22 (FOBU)            | 1973      |                   |
| Chenopodiaceae | <i>Monolepis nuttalliana</i>   |   | Nuttall's poverty-weed | AnnF      | Wide  | Pres        | Unc       | Kyte s.n. (FOBU)             | 1977      |                   |
| Chenopodiaceae | <i>Salsola tragus</i>  | <i>S. kali</i> , <i>S. iberica</i> , <i>S. pestifer</i> , <i>S. australis</i>                         | Russian-thistle        | AnnF      | Intro | Pres        | Unc       | Kyte 96-122 (FOBU)           | 1977      | Native to Asia    |
| Chenopodiaceae | <i>Suaeda calceoliformis</i>   | <i>S. depressa</i>  | broom seepweed         | AnnF      | Wide  | Pres        | Unc       | Kyte s.n. (FOBU)             | 1984      |                   |

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

| Family                       | Species name  | Synonyms/<br>Taxonomic notes   | Common name                 | Life form | Range  | Park status | Pop. size | Source                   | Year doc. | Comments                                 |
|------------------------------|---|--|-----------------------------|-----------|--------|-------------|-----------|--------------------------|-----------|--|
| Convallariaceae (Liliaceae)  | <i>Maianthemum racemosum</i> var. <i>amplexicaule</i> | <i>Smilacina racemosa</i> , <i>M. amplexicaule</i>                                   | false Solomon's-seal        | PerF      | Wide   | Pres        | Unc       | Kyte 2001-46 (FOBU)      | 2001      |  |
| Convallariaceae (Liliaceae)  | <i>Maianthemum stellatum</i>                          | <i>Smilacina stellata</i>  | starry false Solomon's-seal | PerF      | Wide   | Pres        | Com       | Litzinger 1231 (FOBU)    | 1977      |  |
| Convolvulaceae               | <i>Convolvulus arvensis</i>                           |  | field bindweed              | PerF      | Intro  | Pres        | Unc       | Kyte 97-91 (FOBU)        | 1997      | Native to Eurasia. WY state noxious weed |
| Convolvulaceae (Cuscutaceae) | <i>Cuscuta occidentalis</i>                           | <i>C. californica</i> var. <i>breviflora</i> , <i>Grammica occidentalis</i>          | chaparral dodder            | PerF      | Periph | Pres        | Rare      | Kyte 97-115 (FOBU)       | 1997      |  |
| Cornaceae                    | <i>Cornus sericea</i>                                 | <i>C. stolonifera</i> var. <i>stolonifera</i> , <i>Swida sericea</i>                 | red-osier dogwood           | Shrub     | Wide   | Pres        | Unc       | Kyte 96-134 (FOBU)       | 1977      |  |
| Crassulaceae                 | <i>Sedum lanceolatum</i>                              | Includes spp. <i>lanceolatum</i> & <i>subalpinum</i> , <i>Amerosedum lanceolatum</i> | lance-leaved stonecrop      | PerF      | Wide   | Pres        | Unc       | Kyte 96-59 (FOBU)        | 1984      |  |
| Cupressaceae                 | <i>Juniperus communis</i> var. <i>depressa</i>        | <i>J. communis</i> ssp. <i>alpina</i>  | common juniper              | Shrub     | Wide   | Pres        | Unc       | Kyte 2000-10 (FOBU)      | 2000      |  |
| Cupressaceae                 | <i>Juniperus scopulorum</i>                           | <i>Sabina scopulorum</i>   | Rocky Mountain juniper      | Tree      | Wide   | Pres        | Unc       | Kyte 96-203 (FOBU)       | 1977      |  |
| Cyperaceae                   | <i>Carex aquatilis</i>                                | <i>C. aquatilis</i> var. <i>aquatilis</i>  | water sedge                 | PerG      | Wide   | Pres        | Unc       | Harms & Kyte s.n. (FOBU) | 2005      |  |
| Cyperaceae                   | <i>Carex athrostachya</i>                             |  | slender-beaked sedge        | PerG      | Wide   | Pres        | Unc       | Kyte 2000-20 (FOBU)      | 1995      |  |
| Cyperaceae                   | <i>Carex aurea</i>                                    | <i>C. garberi</i>  | golden sedge                | PerG      | Wide   | Pres        | Unc       | Litzinger 1397 (FOBU)    | 1977      |  |
| Cyperaceae                   | <i>Carex douglasii</i>                                |  | Douglas' sedge              | PerG      | Wide   | Pres        | Unc       | Kyte s.n. (FOBU)         | 1984      |  |
| Cyperaceae                   | <i>Carex filifolia</i>                                |  | threadleaf sedge            | PerG      | Wide   | Rep         | ?         | Dorn et al. (1984)       | 1984      |  |
| Cyperaceae                   | <i>Carex geyeri</i>                                   |  | elk sedge                   | PerG      | Wide   | Rep         | ?         | Dorn et al. (1984)       | 1984      |  |

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

| Family     | Species name                                      | Synonyms/<br>Taxonomic notes  | Common name        | Life<br>form | Range | Park<br>status | Pop.<br>size | Source                             | Year<br>doc. | Comments  |
|------------|---|---|--------------------|--------------|-------|----------------|--------------|------------------------------------|--------------|---|
| Cyperaceae | <i>Carex hoodii</i>                               |   | Hood's sedge       | PerG         | Wide  | Pres           | Unc          | Kyte & Fertig<br>2004-04<br>(FOBU) | 2004         |   |
| Cyperaceae | <i>Carex microptera</i> var.<br><i>microptera</i> | <i>C. festivella</i> , <i>C.</i><br><i>macloviana</i> var.<br><i>microptera</i>                                   | small-wing sedge   | PerG         | Wide  | Pres           | Unc          | Litzinger 1190<br>(FOBU)           | 1977         |   |
| Cyperaceae | <i>Carex nebrascensis</i>                         |   | Nebraska sedge     | PerG         | Wide  | Pres           | Unc          | Kyte s.n.<br>(FOBU)                | 1995         |   |
| Cyperaceae | <i>Carex pellita</i>                              | <i>C. lanuginosa</i>  | woolly sedge       | PerG         | Wide  | Pres           | Unc          | Kyte 2000-26<br>(FOBU)             | 1984         |   |
| Cyperaceae | <i>Carex petasata</i>                             |   | liddon sedge       | PerG         | Wide  | Pres           | Unc          | Kyte 2001-35<br>(FOBU)             | 1977         |   |
| Cyperaceae | <i>Carex praeegracilis</i>                        |   | blackcreeper sedge | PerG         | Wide  | Pres           | Unc          | Kyte 96-92<br>(FOBU)               | 1977         |   |
| Cyperaceae | <i>Carex praticola</i>                            |   | meadow sedge       | PerG         | Wide  | Pres           | Rare         | Jones 502<br>(RM)                  | 1992         | Jones collection<br>is out of range<br>and was not cited<br>in Jones (1993).<br>Specimen may be<br>from the Absaroka<br>Range (Aug 1992). |
| Cyperaceae | <i>Carex rossii</i>                               | <i>C. deflexa</i> var.<br><i>boottii</i> , <i>C. brevipes</i> ,<br><i>C. pityophila</i>                           | Ross' sedge        | PerG         | Wide  | Pres           | Com          | Jones s.n.<br>(FOBU)               | 1992         |   |
| Cyperaceae | <i>Carex simulata</i>                             |   | analogue sedge     | PerG         | Wide  | Pres           | Unc          | Kyte s.n.<br>(FOBU)                | 1995         |   |
| Cyperaceae | <i>Carex stenophylla</i>                          | <i>C. duriuscula</i> , <i>C.</i><br><i>eleocharis</i> , <i>C.</i><br><i>stenophylla</i> ssp.<br><i>eleocharis</i> | narrowleaf sedge   | PerG         | Wide  | Pres           | Com          | Kyte 2001-02<br>(FOBU)             | 1973         |   |
| Cyperaceae | <i>Carex utriculata</i>                           | <i>C. rostrata</i> ( <i>sensu</i><br><i>lato</i> )  | beaked sedge       | PerG         | Wide  | Pres           | Unc          | Kyte 97-120<br>(FOBU)              | 1977         |   |
| Cyperaceae | <i>Carex vallicola</i>                            |   | valley sedge       | PerG         | Wide  | Pres           | Unc          | Kyte 2001-18<br>(FOBU)             | 1992         |   |
| Cyperaceae | <i>Eleocharis acicularis</i>                      |   | slender spikerush  | PerG         | Wide  | Pres           | Unc          | Kyte 2001-61<br>(FOBU)             | 2001         |   |

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

| Family                 | Species name  | Synonyms/<br>Taxonomic notes  | Common name             | Life form | Range | Park status | Pop. size | Source                | Year doc. | Comments |
|------------------------|---|---|-------------------------|-----------|-------|-------------|-----------|-----------------------|-----------|----------|
| Cyperaceae             | <i>Eleocharis palustris</i>                           | Includes <i>E. macrostachya</i> , <i>E. erythropoda</i> , & <i>E. uniglumis</i>           | common spikerush        | PerG      | Wide  | Pres        | Unc       | Kyte s.n. (FOBU)      | 1984      |          |
| Cyperaceae             | <i>Schoenoplectus acutus</i> var. <i>occidentalis</i> | <i>Scirpus acutus</i> , <i>Schoenoplectus lacustris</i> ssp. <i>acutus</i>                | hardstem bulrush        | PerG      | Wide  | Pres        | Unc       | Kyte 96-200 (FOBU)    | 1996      |          |
| Elaeagnaceae           | <i>Shepherdia canadensis</i>                          |   | Canada buffaloberry     | Shrub     | Wide  | Pres        | Unc       | Kyte 96-210 (FOBU)    | 1973      |          |
| Equisetaceae           | <i>Equisetum arvense</i>                              |   | field horsetail         | Fern      | Wide  | Pres        | Unc       | Kyte 2000-38 (FOBU)   | 2000      |          |
| Equisetaceae           | <i>Equisetum laevigatum</i>                           | <i>Hippochaete laevigata</i> , <i>E. kansanum</i>   | smooth scouring-rush    | Fern      | Wide  | Pres        | Unc       | Kyte s.n. (FOBU)      | 1977      |          |
| Ericaceae              | <i>Arctostaphylos uva-ursi</i> var. <i>uva-ursi</i>   | <i>A. uva-ursi</i> ssp. <i>coactilis</i> . Vars. not recognized by Holmgren et al. (1997) | bearberry               | Shrub     | Wide  | Pres        | Unc       | Kyte 97-101 (FOBU)    | 1973      |          |
| Ericaceae (Pyrolaceae) | <i>Pyrola asarifolia</i>                              | <i>P. rotundifolia</i> sp. <i>asarifolia</i>  | pink wintergreen        | PerF      | Wide  | Pres        | Unc       | Kyte 96-136 (FOBU)    | 1996      |          |
| Euphorbiaceae          | <i>Chamaesyce glyptosperma</i>                        | <i>Euphorbia glyptosperma</i>   | ridge-seeded spurge     | AnnF      | Wide  | Pres        | Unc       | Litzinger 1503 (FOBU) | 1977      |          |
| Euphorbiaceae          | <i>Chamaesyce serpyllifolia</i>                       | <i>Euphorbia serpyllifolia</i>  | thyme-leaved spurge     | AnnF      | Wide  | Pres        | Unc       | Kyte 96-137 (FOBU)    | 1996      |          |
| Fabaceae (Leguminosae) | <i>Astragalus agrestis</i>                            | <i>A. dasygloTTis</i>   | field milkvetch         | PerF      | Wide  | Pres        | Unc       | Kyte s.n. (FOBU)      | 1973      |          |
| Fabaceae (Leguminosae) | <i>Astragalus argophyllus</i> var. <i>argophyllus</i> |   | silver-leaved milkvetch | PerF      | Wide  | Pres        | Unc       | Kyte s.n. (FOBU)      | 1984      |          |
| Fabaceae (Leguminosae) | <i>Astragalus bisulcatus</i> var. <i>bisulcatus</i>   |   | two-grooved milkvetch   | PerF      | Wide  | Pres        | Rare      | Kyte 2001-44 (FOBU)   | 2001      |          |
| Fabaceae (Leguminosae) | <i>Astragalus bisulcatus</i> var. <i>major</i>        | Included in var. <i>bisulcatus</i> by Barneby (1989)                                      | two-grooved milkvetch   | PerF      | Wide  | Pres        | Unc       | Kyte s.n. (FOBU)      | 1984      |          |
| Fabaceae (Leguminosae) | <i>Astragalus canadensis</i> var. <i>brevidens</i>    |   | pasture milkvetch       | PerF      | Wide  | Pres        | Unc       | Litzinger 1338 (FOBU) | 1977      |          |

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

| Family                    | Species name  | Synonyms/<br>Taxonomic notes   | Common name            | Life form | Range  | Park status | Pop. size | Source                     | Year doc. | Comments  |
|---------------------------|---|--|------------------------|-----------|--------|-------------|-----------|----------------------------|-----------|---|
| Fabaceae<br>(Leguminosae) | <i>Astragalus cicer</i>                               |  | chickpea milkvetch     | PerF      | Intro  | Pres        | Unc       | Kyte s.n.<br>(Fertig 2000) | 2000      | Native to Europe. Specimen hasn't been relocated; may be at RM.                 |
| Fabaceae<br>(Leguminosae) | <i>Astragalus convallarius</i>                        | <i>A. diversifolius</i> var. <i>campestris</i> , <i>A. convallarius</i> var. <i>convallarius</i> | lesser rushy milkvetch | PerF      | Wide   | Pres        | Unc       | Kyte 97-92 (FOBU)          | 1973      |   |
| Fabaceae<br>(Leguminosae) | <i>Astragalus jejunus</i> var. <i>jejunus</i>         |  | starveling milkvetch   | PerF      | Reg En | Pres        | Unc       | Kyte 96-23 (FOBU)          | 1984      | Type locality is Bear River Valley near Evanston, Unita Co., WY (Watson 279 US) |
| Fabaceae<br>(Leguminosae) | <i>Astragalus kentrophyta</i> var. <i>tegetarius</i>  | <i>A. kentrophyta</i> var. <i>implexus</i>   | mountain kentrophyta   | PerF      | Wide   | Rep         | ?         | Dorn et al. (1984)         | 1984      |   |
| Fabaceae<br>(Leguminosae) | <i>Astragalus lentiginosus</i> var. <i>chartaceus</i> | <i>A. lentiginosus</i> var. <i>platyphyllidus</i>  | broad-leaved milkvetch | PerF      | Wide   | Pres        | Unc       | Kyte 97-81 (FOBU)          | 1984      |   |
| Fabaceae<br>(Leguminosae) | <i>Astragalus lentiginosus</i> var. <i>salinus</i>    |  | salt milkvetch         | PerF      | Periph | Pres        | Rare      | Kyte 97-82 (FOBU)          | 1995      |   |
| Fabaceae<br>(Leguminosae) | <i>Astragalus miser</i> var. <i>tenuifolius</i>       |  | timber milkvetch       | PerF      | Wide   | Pres        | Unc       | Kyte s.n. (FOBU)           | 1973      |   |
| Fabaceae<br>(Leguminosae) | <i>Astragalus purshii</i>                             | <i>A. purshii</i> var. <i>purshii</i>  | Pursh's milkvetch      | PerF      | Wide   | Pres        | Unc       | Kyte 96-16 (FOBU)          | 1984      |   |
| Fabaceae<br>(Leguminosae) | <i>Astragalus spatulatus</i>                          |  | spoonleaf milkvetch    | PerF      | Wide   | Pres        | Unc       | Kyte 97-26 (FOBU)          | 1984      |   |
| Fabaceae<br>(Leguminosae) | <i>Astragalus tenellus</i>                            |  | pulse milkvetch        | PerF      | Wide   | Pres        | Unc       | Kyte s.n. (FOBU)           | 1995      |   |
| Fabaceae<br>(Leguminosae) | <i>Glycyrrhiza lepidota</i> var. <i>lepidota</i>      | <i>G. lepidota</i>   | licorice-root          | PerF      | Wide   | Pres        | Unc       | Kyte 97-134 (FOBU)         | 1977      |   |
| Fabaceae<br>(Leguminosae) | <i>Hedysarum boreale</i> var. <i>pabulare</i>         | Var. not recognized by some authors  | Utah sweet-vetch       | PerF      | Reg En | Pres        | Unc       | Kyte 97-80 (FOBU)          | 1997      |   |
| Fabaceae<br>(Leguminosae) | <i>Lupinus argenteus</i> var. <i>rubicaulis</i>       |  | subalpine lupine       | PerF      | Wide   | Pres        | Com       | Kyte 97-88 (FOBU)          | 1984      |   |

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

| Family                 | Species name                                       | Synonyms/<br>Taxonomic notes  | Common name            | Life form | Range | Park status | Pop. size | Source                       | Year doc. | Comments         |
|------------------------|--|---|------------------------|-----------|-------|-------------|-----------|------------------------------|-----------|------------------|
| Fabaceae (Leguminosae) | <i>Lupinus leucophyllus</i>                        |   | white-leaved lupine    | PerF      | Wide  | Rep         | ?         | Dorn et al. (1984)           | 1984      |                  |
| Fabaceae (Leguminosae) | <i>Lupinus sericeus</i>                            | <i>L. sericeus</i> var. <i>sericeus</i>   | silky lupine           | PerF      | Wide  | Pres        | Com       | Kyte & Fertig 2004-12 (FOBU) | 1973      |                  |
| Fabaceae (Leguminosae) | <i>Medicago lupulina</i>                           |   | black medick           | AnnF      | Intro | Pres        | Unc       | Kyte 98-4 (FOBU)             | 1998      | Native to Europe |
| Fabaceae (Leguminosae) | <i>Medicago sativa</i> var. <i>sativa</i>          |   | alfalfa                | PerF      | Intro | Pres        | Unc       | Kyte 97-126 (FOBU)           | 1984      | Native to Europe |
| Fabaceae (Leguminosae) | <i>Melilotus albus</i>                             | <i>M. alba</i> , included in <i>M. officinalis</i> by some authors                                  | white sweet-clover     | AnnF      | Intro | Pres        | Unc       | Kyte 96-139 (FOBU)           | 1996      | Native to Europe |
| Fabaceae (Leguminosae) | <i>Melilotus officinalis</i>                       |   | yellow sweet-clover    | PerF      | Intro | Pres        | Unc       | Litzinger 1454 (FOBU)        | 1977      | Native to Europe |
| Fabaceae (Leguminosae) | <i>Oxytropis deflexa</i> var. <i>sericea</i>       |   | nodding locoweed       | PerF      | Wide  | Pres        | Unc       | Kyte 96-186 (FOBU)           | 1996      |                  |
| Fabaceae (Leguminosae) | <i>Oxytropis sericea</i> var. <i>sericea</i>       |   | white locoweed         | PerF      | Wide  | Pres        | Unc       | Kyte 97-69 (FOBU)            | 1984      |                  |
| Fabaceae (Leguminosae) | <i>Trifolium gymnocarpon</i> var. <i>plummerae</i> |   | holly-leaf clover      | PerF      | Wide  | Pres        | Unc       | Kyte 96-17 (FOBU)            | 1984      |                  |
| Fabaceae (Leguminosae) | <i>Trifolium hybridum</i>                          |   | alsike clover          | PerF      | Intro | Pres        | Unc       | Kyte 98-32 (FOBU)            | 1998      | Native to Europe |
| Fabaceae (Leguminosae) | <i>Trifolium repens</i>                            |   | white clover           | PerF      | Intro | Pres        | Unc       | Litzinger 1345 (FOBU)        | 1977      | Native to Europe |
| Fumariaceae            | <i>Corydalis aurea</i> var. <i>aurea</i>           |   | golden smoke           | PerF      | Wide  | Pres        | Unc       | Kyte 96-141 (FOBU)           | 1984      |                  |
| Gentianaceae           | <i>Frasera speciosa</i>                            | <i>Swertia radiata</i>  | elkweed                | PerF      | Wide  | Pres        | Unc       | Litzinger 1170 (FOBU)        | 1977      |                  |
| Gentianaceae           | <i>Gentiana affinis</i> var. <i>affinis</i>        | <i>Pneumonanthe affinis</i>   | Rocky Mountain gentian | PerF      | Wide  | Pres        | Unc       | Kyte s.n. (FOBU)             | 1977      |                  |
| Gentianaceae           | <i>Gentiana amarella</i> var. <i>amarella</i>      | <i>Gentiana amarella</i> , <i>Gentianella amarella</i> ssp. <i>acuta</i> , <i>Gentianella acuta</i> | northern gentian       | PerF      | Wide  | Pres        | Unc       | Kyte 96-187 (FOBU)           | 1984      |                  |

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

| Family                          | Species name  | Synonyms/<br>Taxonomic notes   | Common name                | Life form | Range  | Park status | Pop. size | Source                | Year doc. | Comments         |
|---------------------------------|---|--|----------------------------|-----------|--------|-------------|-----------|-----------------------|-----------|------------------|
| Geraniaceae                     | <i>Erodium cicutarium</i>                               |  | stork's-bill               | AnnF      | Intro  | Pres        | Unc       | Kyte 98-37 (FOBU)     | 1984      | Native to Europe |
| Geraniaceae                     | <i>Geranium richardsonii</i>                            |  | Richardson's crane's-bill  | PerF      | Wide   | Pres        | Unc       | Litzinger 1253 (FOBU) | 1973      |                  |
| Geraniaceae                     | <i>Geranium viscosissimum</i> var. <i>incisum</i>       | <i>G. viscosissimum</i> var. <i>nervosum</i>                         | sticky crane's-bill        | PerF      | Wide   | Pres        | Unc       | Kyte 96-24 (FOBU)     | 1984      |                  |
| Geraniaceae                     | <i>Geranium viscosissimum</i> var. <i>viscosissimum</i> |  | sticky purple crane's-bill | PerF      | Wide   | Pres        | Unc       | Kyte 96-142 (FOBU)    | 1996      |                  |
| Grossulariaceae (Saxifragaceae) | <i>Ribes cereum</i> var. <i>pedicellare</i>             | <i>R. cereum</i> var. <i>inebrians</i> , includes var. <i>ceruum</i> | wax currant                | Shrub     | Wide   | Pres        | Unc       | Kyte 96-25 (FOBU)     | 1973      |                  |
| Grossulariaceae (Saxifragaceae) | <i>Ribes inerme</i>                                     |  | whitestem gooseberry       | Shrub     | Wide   | Pres        | Unc       | Litzinger 1230 (FOBU) | 1977      |                  |
| Grossulariaceae (Saxifragaceae) | <i>Ribes viscosissimum</i>                              | <i>R. viscosissimum</i> var. <i>viscosissimum</i>                    | sticky currant             | Shrub     | Wide   | Rep         | ?         | Dorn et al. (1984)    | 1984      |                  |
| Hippuridaceae                   | <i>Hippuris vulgaris</i>                                |  | common mare's-tail         | PerF      | Wide   | Pres        | Unc       | Kyte 96-188 (FOBU)    | 1984      |                  |
| Hyacinthaceae (Liliaceae)       | <i>Camassia quamash</i>                                 | <i>C. quamash</i> var. <i>utahensis</i>                              | camas                      | PerF      | Wide   | Pres        | Unc       | Kyte 96-62 (FOBU)     | 1977      |                  |
| Hydrophyllaceae                 | <i>Hydrophyllum capitatum</i>                           | <i>H. capitatum</i> var. <i>capitatum</i>                            | capitate waterleaf         | PerF      | Wide   | Pres        | Unc       | Kyte 97-22 (FOBU)     | 1984      |                  |
| Hydrophyllaceae                 | <i>Nemophila breviflora</i>                             |  | Great Basin nemophila      | AnnF      | Wide   | Pres        | Unc       | Kyte 97-48 (FOBU)     | 1984      |                  |
| Hydrophyllaceae                 | <i>Phacelia hastata</i>                                 | Includes vars. <i>alpina</i> , <i>hastata</i> , & <i>leucophylla</i> | lanceleaf phacelia         | PerF      | Wide   | Pres        | Unc       | Litzinger 1177 (FOBU) | 1977      |                  |
| Hydrophyllaceae                 | <i>Phacelia heterophylla</i> var. <i>virgata</i>        | Includes ssp. <i>heterophylla</i>                                    | wand phacelia              | PerF      | Periph | Pres        | Unc       | Kyte 96-143 (FOBU)    | 1984      |                  |
| Hydrophyllaceae                 | <i>Phacelia sericea</i> var. <i>ciliosa</i>             |  | silky phacelia             | PerF      | Wide   | Pres        | Unc       | Kyte 96-90 (FOBU)     | 1977      |                  |
| Hypericaceae (Guttiferae)       | <i>Hypericum formosum</i> var. <i>scouleri</i>          | <i>H. scouleri</i> , <i>H. scouleri</i> ssp. <i>nortoniae</i>        | western St. John's-wort    | PerF      | Wide   | Pres        | Unc       | Kyte s.n. (FOBU)      | 1995      |                  |



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

| Family               | Species name  | Synonyms/<br>Taxonomic notes   | Common name            | Life<br>form | Range | Park<br>status | Pop.<br>size | Source                | Year<br>doc. | Comments  |
|----------------------|---|--|------------------------|--------------|-------|----------------|--------------|-----------------------|--------------|---|
| Iridaceae            | <i>Iris missouriensis</i>                             |  | Rocky Mountain iris    | PerF         | Wide  | Rep            | ?            | Dorn et al. (1984)    | 1984         |   |
| Iridaceae            | <i>Sisyrinchium idahoense</i> var. <i>occidentale</i> |  | Idaho blue-eyed grass  | PerF         | Wide  | Pres           | Unc          | Litzinger (FOBU)      | 1319 1977    |   |
| Juncaceae            | <i>Juncus balticus</i> var. <i>montanus</i>           | <i>J. arcticus</i> var. <i>balticus</i> , <i>J. arcticus</i> ssp. <i>ater</i> , <i>J. balticus</i> var. <i>mexicanus</i> | Baltic rush            | PerG         | Wide  | Pres           | Unc          | Kyte s.n. (FOBU)      | 1977         | Includes report of var. <i>mexicanus</i> from NCPN (in ed.) |
| 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          | Kyte 2000-35 (FOBU)   | 1984         |   |
| Juncaceae            | <i>Juncus confusus</i>                                |  | perplexing rush        | PerG         | Wide  | Pres           | Unc          | Litzinger 1395 (FOBU) | 1973         |   |
| Juncaceae            | <i>Juncus ensifolius</i> var. <i>montanus</i>         | <i>J. saximontanus</i> , includes <i>J. tracyi</i>   | mountain rush          | PerG         | Wide  | Pres           | Unc          | Kyte s.n. (FOBU)      | 1977         |   |
| Juncaceae            | <i>Juncus longistylus</i>                             |  | longstyle rush         | PerG         | Wide  | Pres           | Unc          | Kyte s.n. (FOBU)      | 1984         |   |
| Juncaceae            | <i>Juncus tenuis</i> var. <i>dudleyi</i>              | <i>J. dudleyi</i> , includes <i>J. tenuis</i> (sensu <i>stricto</i> )  | poverty rush           | PerG         | Wide  | Pres           | Unc          | Kyte 96-174 (FOBU)    | 1996         |   |
| Juncaginaceae        | <i>Triglochin maritima</i> var. <i>elata</i>          | Includes <i>T. concinnum</i>   | seaside arrowgrass     | PerG         | Wide  | Pres           | Unc          | Kyte s.n. (FOBU)      | 1977         |   |
| Lamiaceae (Labiatae) | <i>Agastache urticifolia</i>                          |  | nettle-leaf horsemint  | PerF         | Wide  | Pres           | Unc          | Kyte 96-112 (FOBU)    | 1977         |   |
| Lamiaceae (Labiatae) | <i>Dracocephalum parviflorum</i>                      | <i>Moldavica parviflora</i>  | smallflower dragonhead | PerF         | Wide  | Pres           | Unc          | Kyte 96-113 (FOBU)    | 1996         |   |
| Lamiaceae (Labiatae) | <i>Marrubium vulgare</i>                              |  | common horehound       | PerF         | Intro | Pres           | Unc          | Kyte 97-103 (FOBU)    | 1984         | Native to Eurasia   |
| Lamiaceae (Labiatae) | <i>Mentha arvensis</i> var. <i>canadensis</i>         | <i>M. arvensis</i> var. <i>glabrata</i>  | field mint             | PerF         | Wide  | Pres           | Unc          | Kyte 96-188 (FOBU)    | 1977         |   |
| Lamiaceae (Labiatae) | <i>Stachys palustris</i> var. <i>pilosa</i>           |  | hairy hedge-nettle     | PerF         | Wide  | Pres           | Unc          | Litzinger 1333 (FOBU) | 1977         |   |

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

| Family                    | Species name                                     | Synonyms/<br>Taxonomic notes   | Common name             | Life form | Range  | Park status | Pop. size | Source                       | Year doc. | Comments |
|---------------------------|--|--|-------------------------|-----------|--------|-------------|-----------|------------------------------|-----------|----------|
| Lemnaceae                 | <i>Lemna turionifera</i>                         | <i>L. minor</i>  | lesser duckweed         | PerF      | Wide   | Pres        | Unc       | Kyte 2000-36 (FOBU)          | 2000      |          |
| Liliaceae                 | <i>Fritillaria atropurpurea</i>                  |  | leopard-lily            | PerF      | Wide   | Pres        | Unc       | Kyte 96-18 (FOBU)            | 1977      |          |
| Liliaceae                 | <i>Fritillaria pudica</i>                        |  | yellow-bell             | PerF      | Wide   | Pres        | Unc       | Kyte 97-3 (FOBU)             | 1984      |          |
| Limnathaceae              | <i>Floerkea proserpinacoides</i>                 |  | false mermaid           | AnnF      | Wide   | Pres        | Unc       | Moon & Moon 1669 (FOBU, BRY) | 1984      |          |
| Linaceae                  | <i>Linum lewisii</i>                             | <i>L. perenne</i> var. <i>lewisii</i> ,<br><i>Adenolinum lewisii</i> | blue flax               | PerF      | Wide   | Pres        | Unc       | Kyte s.n. (FOBU)             | 1973      |          |
| Loasaceae                 | <i>Mentzelia laevicaulis</i>                     | <i>Nuttallia laevicaulis</i>   | giant blazingstar       | PerF      | Wide   | Pres        | Unc       | Kyte 96-195 (FOBU)           | 1977      |          |
| Malvaceae                 | <i>Iliamna rivularis</i>                         | Includes vars. <i>diversa</i> & <i>rivularis</i>                     | wild hollyhock          | PerF      | Wide   | Rep         | ?         | Dorn et al. (1984)           | 1984      |          |
| Malvaceae                 | <i>Sidalcea oregana</i>                          | <i>S. oregana</i> var. <i>oregana</i>                                | Oregon checker-mallow   | PerF      | Periph | Pres        | Unc       | Kyte s.n. (FOBU)             | 1984      |          |
| Malvaceae                 | <i>Sphaeralcea coccinea</i>                      | Includes ssp. <i>coccinea</i> & <i>elata</i>                         | scarlet globe-mallow    | PerF      | Wide   | Pres        | Unc       | Kyte 98-18 (FOBU)            | 1998      |          |
| Malvaceae                 | <i>Sphaeralcea munroana</i>                      | Includes ssp. <i>munroana</i> & <i>subrhomboidea</i>                 | white-stem globe-mallow | PerF      | Wide   | Pres        | Unc       | Kyte 96-175 (FOBU)           | 1977      |          |
| Melanthiaceae (Liliaceae) | <i>Zigadenus paniculatus</i>                     | <i>Toxicoscordion paniculatum</i>                                    | foothills death-camas   | PerF      | Wide   | Pres        | Unc       | Kyte 97-67 (FOBU)            | 1997      |          |
| Melanthiaceae (Liliaceae) | <i>Zigadenus venenosus</i> var. <i>gramineus</i> |  | meadow death-camas      | PerF      | Wide   | Pres        | Unc       | Kyte 97-63 (FOBU)            | 1984      |          |
| Myrsinaceae (Primulaceae) | <i>Glaux maritima</i>                            |  | sea-milkwort            | PerF      | Wide   | Pres        | Unc       | Kyte s.n. (FOBU)             | 1995      |          |
| Onagraceae                | <i>Camissonia subcaulis</i>                      | <i>Oenothera subcaulis</i>   | meadow camissonia       | PerF      | Wide   | Rep         | ?         | Dorn et al. (1984)           | 1984      |          |

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

| Family        | Species name   | Synonyms/<br>Taxonomic notes   | Common name             | Life form | Range | Park status | Pop. size | Source                   | Year doc. | Comments |
|---------------|--|--|-------------------------|-----------|-------|-------------|-----------|--------------------------|-----------|----------|
| Onagraceae    | <i>Chamerion angustifolium</i> var. <i>canescens</i> | <i>Epilobium angustifolium</i> var. <i>canescens</i> , <i>C. angustifolium</i> ssp. <i>circumvagum</i> , <i>C. danielsii</i> | fireweed                | PerF      | Wide  | Pres        | Unc       | Kyte 96-176 (FOBU)       | 1984      |          |
| Onagraceae    | <i>Epilobium brachycarpum</i>                        | <i>E. paniculatum</i> var. <i>paniculatum</i>  | autumn willow-herb      | AnnF      | Wide  | Pres        | Unc       | Kyte 96-196 (FOBU)       | 1984      |          |
| Onagraceae    | <i>Epilobium ciliatum</i> var. <i>ciliatum</i>       | <i>E. watsonii</i> , <i>E. adenocaulon</i>   | northern willow-herb    | PerF      | Wide  | Pres        | Unc       | Litzinger 1369 (FOBU)    | 1977      |          |
| Onagraceae    | <i>Epilobium ciliatum</i> var. <i>glandulosum</i>    | <i>E. glandulosum</i>  | glandular willow-herb   | PerF      | Wide  | Pres        | Unc       | Kyte s.n. (FOBU)         | 1995      |          |
| Onagraceae    | <i>Epilobium halleanum</i>                           |  | Hall's willow-herb      | PerF      | Wide  | Pres        | Rare      | Harms s.n. (FOBU)        | 2005      |          |
| Onagraceae    | <i>Epilobium hornemanii</i>                          | <i>E. hornemanii</i> var. <i>hornemanii</i>  | Hornemann's willow-herb | PerF      | Wide  | Pres        | Rare      | Harms & Kyte s.n. (FOBU) | 2005      |          |
| 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       | Litzinger 1592 (FOBU)    | 1977      |          |
| Onagraceae    | <i>Gayophytum racemosum</i>                          |  | raceme groundsmoke      | AnnF      | Wide  | Rep         | ?         | Dorn et al. (1984)       | 1984      |          |
| Onagraceae    | <i>Oenothera cespitosa</i> var. <i>cespitosa</i>     |  | tufted evening-primrose | PerF      | Wide  | Pres        | Unc       | Kyte s.n. (FOBU)         | 1984      |          |
| Onagraceae    | <i>Oenothera flava</i>                               | <i>O. flava</i> var. <i>flava</i>  | yellow evening-primrose | PerF      | Wide  | Pres        | Unc       | Litzinger 1136 (FOBU)    | 1977      |          |
| Orchidaceae   | <i>Corallorhiza maculata</i> var. <i>maculata</i>    | <i>C. maculata</i>   | spotted coral-root      | PerF      | Wide  | Pres        | Unc       | Kyte 96-89 (FOBU)        | 1996      |          |
| Orchidaceae   | <i>Corallorhiza striata</i> var. <i>striata</i>      | <i>C. striata</i>  | striped coral-root      | PerF      | Wide  | Pres        | Unc       | Kyte 96-88 (FOBU)        | 1996      |          |
| Orchidaceae   | <i>Platanthera aquilonis</i>                         | Previously included in <i>Habenaria hyperborea</i> or <i>Platanthera hyperborea</i>  | northern bog-orchid     | PerF      | Wide  | Pres        | Unc       | Kyte 96-145 (FOBU)       | 1996      |          |
| Orobanchaceae | <i>Orobanche fasciculata</i>                         | <i>Aphyllon fasciculatum</i>   | clustered broomrape     | PerF      | Wide  | Pres        | Unc       | Kyte 98-17 (FOBU)        | 1998      |          |

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

| Family              | Species name                                      | Synonyms/<br>Taxonomic notes   | Common name                 | Life form | Range  | Park status | Pop. size | Source                | Year doc. | Comments                 |
|---------------------|---|--|-----------------------------|-----------|--------|-------------|-----------|-----------------------|-----------|--------------------------|
| Pinaceae            | <i>Pinus flexilis</i>                             |  | limber pine                 | Tree      | Wide   | Pres        | Unc       | Kyte 96-212 (FOBU)    | 1973      |                          |
| Pinaceae            | <i>Pseudotsuga menziesii</i> var. <i>glauca</i>   |  | Douglas-fir                 | Tree      | Wide   | Pres        | Com       | Litzinger 1601 (FOBU) | 1973      |                          |
| Plantaginaceae      | <i>Plantago eriopoda</i>                          |  | woolly-base plantain        | Perf      | Wide   | Pres        | Unc       | Kyte s.n. (FOBU)      | 1977      |                          |
| Plantaginaceae      | <i>Plantago major</i>                             | Includes "native" var. <i>pachyphylla</i>  | common plantain             | Perf      | Intro  | Rep         | ?         | Dorn et al. (1984)    | 1984      | Mostly native to Europe. |
| Poaceae (Gramineae) | <i>Achnatherum contractum</i>                     | <i>Oryzopsis contracta</i> , <i>O. hymenoides</i> var. <i>contracta</i>  | contracted Indian ricegrass | PerG      | Reg En | Pres        | Unc       | Kyte 97-107 (FOBU)    | 1997      |                          |
| Poaceae (Gramineae) | <i>Achnatherum hymenoides</i>                     | <i>Oryzopsis hymenoides</i> , <i>Stipa hymenoides</i>  | Indian ricegrass            | PerG      | Wide   | Pres        | Com       | Litzinger 1365 (FOBU) | 1973      |                          |
| Poaceae (Gramineae) | <i>Achnatherum lettermanii</i>                    | <i>Stipa lettermanii</i>   | Letterman's needlegrass     | PerG      | Wide   | Pres        | Unc       | Kyte s.n. (FOBU)      | 1977      |                          |
| Poaceae (Gramineae) | <i>Achnatherum nelsonii</i> var. <i>dorei</i>     | <i>Stipa nelsonii</i> var. <i>dorei</i> , <i>S. occidentalis</i> var. <i>nelsonii</i>  | Nelson's needlegrass        | PerG      | Wide   | Pres        | Unc       | Kyte 2001-55 (FOBU)   | 2001      |                          |
| Poaceae (Gramineae) | <i>Achnatherum nelsonii</i> var. <i>nelsonii</i>  | <i>Stipa nelsonii</i> var. <i>nelsonii</i> , <i>S. columbiana</i> var. <i>nelsonii</i>   | Nelson's needlegrass        | PerG      | Wide   | Pres        | Unc       | Kyte 97-100 (FOBU)    | 1977      |                          |
| Poaceae (Gramineae) | <i>Achnatherum pinetorum</i>                      | <i>Stipa pinetorum</i>   | pine needlegrass            | PerG      | Wide   | Rep         | ?         | Dorn et al. (1984)    | 1973      |                          |
| Poaceae (Gramineae) | <i>Agropyron cristatum</i> var. <i>cristatum</i>  | <i>A. cristatum</i> ssp. <i>pectinatum</i> , <i>A. pectinatum</i> , <i>A. sibiricum</i> , <i>A. fragile</i> , <i>A. mongolicum</i> | crested wheatgrass          | PerG      | Intro  | Pres        | Unc       | Kyte s.n. (FOBU)      | 1995      | Native to Eurasia        |
| Poaceae (Gramineae) | <i>Agropyron cristatum</i> var. <i>desertorum</i> | <i>A. desertorum</i> , included within <i>A. cristatum</i> by some authors.  | clustered wheatgrass        | PerG      | Intro  | Pres        | Unc       | Litzinger 1276 (FOBU) | 1977      | Native to Eurasia        |

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

| Family              | Species name                              | Synonyms/<br>Taxonomic notes   | Common name          | Life form | Range | Park status | Pop. size | Source                                | Year doc. | Comments                     |
|---------------------|---|--|----------------------|-----------|-------|-------------|-----------|---------------------------------------|-----------|------------------------------|
| Poaceae (Gramineae) | <i>Agropyron triticeum</i>                | <i>Eremopyrum triticeum</i>  | annual wheatgrass    | AnnG      | Intro | Pres        | Unc       | Kyte 97-73 (FOBU)                     | 1984      | Native to Asia               |
| Poaceae (Gramineae) | <i>Agrostis stolonifera</i>               | <i>A. alba</i> , <i>A. gigantea</i>  | redtop               | PerG      | Intro | Pres        | Unc       | Kyte 2001-64 (FOBU)                   | 2001      | Native to Eurasia and Africa |
| Poaceae (Gramineae) | <i>Alopecurus aequalis</i>                | <i>A. aequalis</i> var. <i>aequalis</i>  | short-awn foxtail    | PerG      | Wide  | Pres        | Unc       | Kyte 97-130 (FOBU)                    | 1997      |                              |
| Poaceae (Gramineae) | <i>Alopecurus arundinaceus</i>            | <i>A. ventricosus</i>  | creeping foxtail     | PerG      | Intro | Pres        | Unc       | Kyte s.n. (FOBU)                      | 1995      | Native to Eurasia            |
| Poaceae (Gramineae) | <i>Alopecurus pratensis</i>               |  | meadow foxtail       | PerG      | Intro | Rep         | Rare      | No. Colorado Plateau Network (in ed.) | 2005      | Native to Eurasia            |
| Poaceae (Gramineae) | <i>Beckmannia syzigachne</i>              |  | American sloughgrass | AnnG      | Wide  | Pres        | Unc       | Kyte 97-131 (FOBU)                    | 1977      |                              |
| Poaceae (Gramineae) | <i>Bromus anomalus</i>                    | <i>Bromopsis porteri</i> , <i>Bromus frondosus</i> .<br>According to <i>Flora of North America</i> (2007), 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       | Kyte 97-116 (FOBU)                    | 1997      |                              |
| Poaceae (Gramineae) | <i>Bromus carinatus</i>                   | <i>B. marginatus</i> , <i>B. polyanthus</i> , <i>Ceratochloa carinata</i>  | mountain brome       | PerG      | Wide  | Pres        | Unc       | Harms & Kyte s.n. (FOBU)              | 1973      |                              |
| Poaceae (Gramineae) | <i>Bromus inermis</i> var. <i>inermis</i> | <i>Bromopsis inermis</i>   | smooth brome         | PerG      | Intro | Pres        | Unc       | Kyte 2000-18 (FOBU)                   | 1973      | Native to Eurasia            |
| Poaceae (Gramineae) | <i>Bromus japonicus</i>                   | <i>B. arvensis</i> , includes <i>B. commutatus</i> according to some authors   | Japanese brome       | AnnG      | Intro | Pres        | Unc       | Kyte 97-84 (FOBU)                     | 1997      | Native to Eurasia            |
| Poaceae (Gramineae) | <i>Bromus tectorum</i>                    | <i>Anisantha tectorum</i>  | cheatgrass           | AnnG      | Intro | Pres        | Unc       | Kyte 97-61 (FOBU)                     | 1984      | Native to Eurasia            |

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

| Family              | Species name                                  | Synonyms/<br>Taxonomic notes   | Common name             | Life form | Range | Park status | Pop. size | Source                 | Year doc. | Comments  |
|---------------------|---|--|-------------------------|-----------|-------|-------------|-----------|------------------------|-----------|---|
| Poaceae (Gramineae) | <i>Calamagrostis inexpansa</i>                | <i>C. stricta</i> ssp. <i>inexpansa</i> , <i>C. neglecta</i>                               | slimstem reedgrass      | PerG      | Wide  | Pres        | Unc       | Litzinger 1279 (FOBU)  | 1977      |   |
| Poaceae (Gramineae) | <i>Catabrosa aquatica</i>                     |  | brookgrass              | PerG      | Wide  | Pres        | Unc       | Kyte 97-129 (FOBU)     | 1984      |   |
| Poaceae (Gramineae) | <i>Dactylis glomerata</i>                     |  | orchard grass           | PerG      | Intro | Pres        | Unc       | Kyte 2000-4 (FOBU)     | 2000      | Native to Eurasia and Africa  |
| Poaceae (Gramineae) | <i>Danthonia californica</i>                  |  | California oatgrass     | PerG      | Wide  | Pres        | Unc       | Kyte 2001-49 (FOBU)    | 1984      |   |
| Poaceae (Gramineae) | <i>Danthonia intermedia</i>                   |  | timber oatgrass         | PerG      | Wide  | Rep         | ?         | Beetle & Marlow (1974) | 1973      | Report from FOBU herbarium is based on a misidentified specimen of <i>D. unispicata</i> . |
| Poaceae (Gramineae) | <i>Danthonia unispicata</i>                   |  | oneside oatgrass        | PerG      | Wide  | Pres        | Unc       | Litzinger 1391 (FOBU)  | 1977      |   |
| Poaceae (Gramineae) | <i>Deschampsia cespitosa</i>                  | <i>D. caespitosa</i>   | tufted hairgrass        | PerG      | Wide  | Pres        | Unc       | Kyte s.n. (FOBU)       | 1973      |   |
| Poaceae (Gramineae) | <i>Distichlis stricta</i>                     | <i>D. spicata</i> var. <i>stricta</i>  | desert saltgrass        | PerG      | Wide  | Pres        | Unc       | Kyte 2001-75 (FOBU)    | 2001      |   |
| Poaceae (Gramineae) | <i>Elymus cinereus</i>                        | <i>Leymus cinereus</i>   | Great Basin wildrye     | PerG      | Wide  | Pres        | Com       | Litzinger 1283 (FOBU)  | 1973      |   |
| Poaceae (Gramineae) | <i>Elymus elymoides</i> var. <i>elymoides</i> | <i>Sitanion hystrix</i>  | squirreltail            | PerG      | Wide  | Pres        | Unc       | Litzinger 1139 (FOBU)  | 1973      |   |
| Poaceae (Gramineae) | <i>Elymus glaucus</i>                         | Includes spp. <i>glaucus</i> & <i>jepsonii</i>   | blue wildrye            | PerG      | Wide  | Pres        | Com       | Kyte 97-124 (FOBU)     | 1984      |   |
| Poaceae (Gramineae) | <i>Elymus hispidus</i> var. <i>hispidus</i>   | <i>Agropyron intermedium</i> , <i>Elytrigia intermedia</i> , <i>Thinopyrum intermedium</i> | intermediate wheatgrass | PerG      | Intro | Pres        | Unc       | Kyte 2000-3 (FOBU)     | 1977      | Native to Eurasia   |

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

| Family                 | Species name   | Synonymic/<br>Taxonomic notes   | Common name                | Life<br>form | Range | Park<br>status | Pop.<br>size | Source                             | Year<br>doc. | Comments                                       |
|------------------------|--|---|----------------------------|--------------|-------|----------------|--------------|------------------------------------|--------------|--|
| Poaceae<br>(Gramineae) | <i>Elymus hispidus</i> var.<br><i>ruthenicus</i>       | <i>Agropyron<br/>intermedium</i> ,<br><i>Elytrigia<br/>intermedia</i> ,<br><i>Thinopyrum<br/>intermedium</i> ssp.<br><i>barbulatum</i>                              | intermediate<br>wheatgrass | PerG         | Intro | Pres           | Unc          | Kyte & Fertig<br>2004-18<br>(FOBU) | 2004         | Native to Eurasia                              |
| Poaceae<br>(Gramineae) | <i>Elymus lanceolatus</i><br>var. <i>lanceolatus</i>   | <i>Agropyron<br/>dasystachyum</i> var.<br><i>dasystachyum</i> ,<br><i>A. albicans</i> var.<br><i>albicans</i> , <i>A.<br/>albicans</i> var.<br><i>griffithsii</i> . | thickspike<br>wheatgrass   | PerG         | Wide  | Pres           | Unc          | Kyte 97-112<br>(FOBU)              | 1973         |  |
| Poaceae<br>(Gramineae) | <i>Elymus repens</i>                                   | <i>Agropyron repens</i> ,<br><i>Elytrigia repens</i>  | quackgrass                 | PerG         | Intro | Pres           | Unc          | Kyte 2001-56<br>(FOBU)             | 1984         | Native to Eurasia.<br>WY state noxious<br>weed |
| Poaceae<br>(Gramineae) | <i>Elymus smithii</i>                                  | <i>Agropyron smithii</i> ,<br><i>Pascopyrum<br/>smithii</i> , includes<br>vars. <i>smithii</i> &<br><i>palmeri</i>  | western wheatgrass         | PerG         | Wide  | Pres           | Com          | Kyte s.n.<br>(FOBU)                | 1973         |  |
| Poaceae<br>(Gramineae) | <i>Elymus spicatus</i>                                 | <i>Agropyron<br/>spicatum</i> ,<br><i>Pseudoroegneria<br/>spicata</i> , includes<br>ssp. <i>inermis</i> &<br><i>spicata</i>   | bluebunch<br>wheatgrass    | PerG         | Wide  | Pres           | Com          | Kyte 97-108<br>(FOBU)              | 1973         |  |
| Poaceae<br>(Gramineae) | <i>Elymus trachycaulus</i><br>var. <i>trachycaulus</i> | <i>Agropyron<br/>caninum</i> , <i>A.<br/>subsecundum</i> ,<br><i>A. trachycaulum</i> ,<br><i>A latiglume</i> , <i>E.<br/>alaskanus</i> ssp.<br><i>latiglumis</i>    | slender wheatgrass         | PerG         | Wide  | Pres           | Com          | Kyte & Fertig<br>2004-09<br>(FOBU) | 1973         |  |

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

| Family              | Species name                     | Synonyms/<br>Taxonomic notes   | Common name         | Life form | Range | Park status | Pop. size | Source                       | Year doc. | Comments  |
|---------------------|----------------------------------|--|---------------------|-----------|-------|-------------|-----------|------------------------------|-----------|---|
| Poaceae (Gramineae) | <i>Elymus x saundersii</i>       | x <i>Agrostianion saundersii</i> , hybrid between <i>E. trachycaulus</i> & <i>E. elymoides</i> | Saunders' wild-rye  | PerG      | Wide  | Pres        | Rare      | Kyte & Fertig 2004-15 (FOBU) | 2004      |   |
| Poaceae (Gramineae) | <i>Festuca idahoensis</i>        | <i>F. ovina</i> var. <i>ingrata</i>  | Idaho fescue        | PerG      | Wide  | Pres        | Unc       | Kyte & Fertig 2004-17 (FOBU) | 1984      |   |
| Poaceae (Gramineae) | <i>Glyceria striata</i>          | Includes <i>G. elata</i>   | fowl mannagrass     | PerG      | Wide  | Pres        | Unc       | Kyte s.n. (FOBU)             | 1973      |   |
| Poaceae (Gramineae) | <i>Hordeum brachyantherum</i>    | <i>Critesion brachyantherum</i>  | meadow barley       | PerG      | Wide  | Pres        | Unc       | Kyte s.n. (FOBU)             | 1984      |   |
| Poaceae (Gramineae) | <i>Hordeum jubatum</i>           | <i>Critesion jubatum</i>   | foxtail barley      | PerG      | Wide  | Pres        | Unc       | Kyte s.n. (FOBU)             | 1977      |   |
| Poaceae (Gramineae) | <i>Hordeum x caespitosum</i>     | <i>H. jubatum</i> ssp. <i>intermedium</i>  | intermediate barley | PerG      | Wide  | Pres        | Unc       | Litzinger 1402 (FOBU)        | 1973      |   |
| Poaceae (Gramineae) | <i>Koeleria macrantha</i>        | <i>Koeleria cristata</i> , <i>K. pyramidata</i> , <i>K. nitida</i>                             | junegrass           | PerG      | Wide  | Pres        | Unc       | Kyte s.n. (FOBU)             | 1973      |   |
| Poaceae (Gramineae) | <i>Leucopoa kingii</i>           | <i>Hesperochloa kingii</i>   | spike fescue        | PerG      | Wide  | Pres        | Com       | Kyte 97-55 (FOBU)            | 1973      |   |
| Poaceae (Gramineae) | <i>Melica bulbosa</i>            | <i>Bromelica bulbosa</i>   | oniongrass          | PerG      | Wide  | Pres        | Unc       | Kyte 2001-05 (FOBU)          | 1984      |   |
| Poaceae (Gramineae) | <i>Muhlenbergia richardsonis</i> |  | mat muhly           | PerG      | Wide  | Pres        | Unc       | Kyte s.n. (FOBU)             | 1973      |   |
| Poaceae (Gramineae) | <i>Phalaris arundinacea</i>      | <i>Phalaroides arundinacea</i>   | reed canary grass   | PerG      | Wide  | Rep         | ?         | Fertig (2000)                | 2000      | Voucher has not been relocated (may be at RM)             |
| Poaceae (Gramineae) | <i>Phleum alpinum</i>            | <i>P. commutatum</i>   | alpine timothy      | PerG      | Wide  | Pres        | Unc       | Kyte 98-7 (FOBU)             | 1998      |   |
| Poaceae (Gramineae) | <i>Phleum pratense</i>           |  | timothy             | PerG      | Intro | Pres        | Unc       | Kyte 2000-5 (FOBU)           | 1984      | Native to Eurasia   |
| Poaceae (Gramineae) | <i>Poa arida</i>                 |  | prairie bluegrass   | PerG      | Wide  | Pres        | Unc       | Kyte s.n. (FOBU)             | 1984      | Reported in Dorn et al. (1984) as <i>P. glaucifolia</i> . |



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

| Family              | Species name                            | Synonyms/<br>Taxonomic notes  | Common name        | Life form | Range | Park status | Pop. size | Source                | Year doc. | Comments                     |
|---------------------|---|---|--------------------|-----------|-------|-------------|-----------|-----------------------|-----------|------------------------------|
| Poaceae (Gramineae) | <i>Poa bulbosa</i>                      |   | bulbous bluegrass  | PerG      | Intro | Pres        | Unc       | Kyte 96-65 (FOBU)     | 1996      | Native to Eurasia and Africa |
| Poaceae (Gramineae) | <i>Poa compressa</i>                    |   | Canada bluegrass   | PerG      | Intro | Pres        | Unc       | Kyte & Fertig 2004-20 | 1984      | Native to Eurasia            |
| Poaceae (Gramineae) | <i>Poa cusickii</i> var. <i>pallida</i> | <i>P. cusickii</i> var. <i>cusickii</i> ; included in <i>P. fendleriana</i> by some authors               | Cusick's bluegrass | PerG      | Wide  | Pres        | Unc       | Kyte 97-34 (FOBU)     | 1984      |                              |
| Poaceae (Gramineae) | <i>Poa fendleriana</i>                  | <i>P. longiligula</i> , includes sp. <i>fendleriana</i> & <i>longiligula</i>                              | muttongrass        | PerG      | Wide  | Pres        | Com       | Litzinger 1665 (FOBU) | 1973      |                              |
| Poaceae (Gramineae) | <i>Poa interior</i>                     | <i>P. nemoralis</i> ssp. <i>interior</i> ; <i>P. glauca</i> ssp. <i>glauca</i>                            | interior bluegrass | PerG      | Wide  | Pres        | Unc       | Kyte 97-125 (FOBU)    | 1984      |                              |
| Poaceae (Gramineae) | <i>Poa juncifolia</i> var. <i>ampla</i> | Included in <i>P. secunda</i> by some authors; <i>P. ampla</i> , <i>P. secunda</i> ssp. <i>juncifolia</i> | big bluegrass      | PerG      | Wide  | Pres        | Unc       | Kyte 2001-53 (FOBU)   | 1977      |                              |
| Poaceae (Gramineae) | <i>Poa nevadensis</i>                   | Included in <i>P. secunda</i> by some authors; <i>P. secunda</i> ssp. <i>juncifolia</i>                   | Nevada bluegrass   | PerG      | Wide  | Pres        | Unc       | Kyte 97-97 (FOBU)     | 1995      |                              |
| Poaceae (Gramineae) | <i>Poa pratensis</i>                    | <i>P. agassizensis</i>  | Kentucky bluegrass | PerG      | Intro | Pres        | Unc       | Kyte s.n. (FOBU)      | 1973      | Native to Europe             |
| Poaceae (Gramineae) | <i>Poa secunda</i> var. <i>elongata</i> | <i>P. canbyi</i> ; <i>P. secunda</i> ssp. <i>secunda</i> . Vars. not recognized by some authors           | Canby bluegrass    | PerG      | Wide  | Pres        | Com       | Litzinger 1199 (FOBU) | 1977      |                              |

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

| Family              | Species name                                     | Synonymic/<br>Taxonomic notes  | Common name           | Life form | Range | Park status | Pop. size | Source                 | Year doc. | Comments  |
|---------------------|--|--|-----------------------|-----------|-------|-------------|-----------|------------------------|-----------|---|
| Poaceae (Gramineae) | <i>Poa secunda</i> var. <i>secunda</i>           | <i>P. sandbergii</i> , includes <i>P. gracillima</i> , <i>P. juncifolia</i> , <i>P. canbyi</i> , <i>P. scabrella</i> , <i>P. nevadensis</i> , <i>P. ampla</i> and all vars. of <i>P. secunda</i> | Sandberg bluegrass    | PerG      | Wide  | Pres        | Com       | Litzinger 1394 (FOBU)  | 1973      |   |
| Poaceae (Gramineae) | <i>Polygonon monspeliensis</i>                   |  | rabbitfoot grass      | AnnG      | Intro | Pres        | Unc       | Kyte s.n. (FOBU)       | 1995      | Native to Eurasia and Africa                            |
| Poaceae (Gramineae) | <i>Puccinellia nuttalliana</i>                   | <i>P. airoides</i>   | Nuttall's alkaligrass | PerG      | Wide  | Pres        | Unc       | Litzinger 1259 (FOBU)  | 1977      |   |
| Poaceae (Gramineae) | <i>Spartina gracilis</i>                         |  | alkali cordgrass      | PerG      | Wide  | Pres        | Unc       | Kyte s.n. (FOBU)       | 1995      |   |
| Poaceae (Gramineae) | <i>Sporobolus airoides</i>                       | <i>S. airoides</i> var. <i>airoides</i>  | alkali sacaton        | PerG      | Wide  | Pres        | Unc       | Litzinger 1258 (FOBU)  | 1977      | Incorrectly considered a false report in Fertig (2000). |
| Poaceae (Gramineae) | <i>Trisetum spicatum</i>                         | <i>T. montanum</i>   | spike trisetum        | PerG      | Wide  | Rep         | ?         | Beetle & Marlow (1974) | 1973      |   |
| Polemoniaceae       | <i>Collomia linearis</i>                         |  | small collomia        | AnnF      | Wide  | Pres        | Unc       | Kyte 96-86 (FOBU)      | 1984      |   |
| Polemoniaceae       | <i>Ipomopsis aggregata</i> var. <i>aggregata</i> | <i>Gilia aggregata</i> var. <i>aggregata</i>   | scarlet gilia         | PerF      | Wide  | Pres        | Unc       | Kyte 96-87 (FOBU)      | 1973      |   |
| Polemoniaceae       | <i>Ipomopsis congesta</i> var. <i>congesta</i>   | <i>Gilia congesta</i> var. <i>congesta</i>   | ball-head gilia       | PerF      | Wide  | Pres        | Unc       | Kyte 96-26 (FOBU)      | 1984      |   |
| Polemoniaceae       | <i>Leptosiphon septentrionalis</i>               | <i>Linanthus septentrionalis</i> , <i>Linanthus harknessii</i> var. <i>septentrionalis</i>   | northern linanthus    | AnnF      | Wide  | Pres        | Unc       | Litzinger 1212 (FOBU)  | 1977      |   |
| Polemoniaceae       | <i>Linanthus pungens</i>                         | <i>Leptodactylon pungens</i>   | prickly-phlox         | Shrub     | Wide  | Pres        | Unc       | Litzinger 1132 (FOBU)  | 1977      |   |
| Polemoniaceae       | <i>Microsteris gracilis</i> var. <i>humilior</i> | <i>Phlox gracilis</i> ssp. <i>humilis</i>  | slender phlox         | AnnF      | Wide  | Pres        | Unc       | Kyte 2002-01 (FOBU)    | 2002      |   |

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

| Family        | Species name  | Synonyms/<br>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       | Kyte s.n. (FOBU)      | 1995      |          |
| Polemoniaceae | <i>Navarretia intertexta</i> var. <i>propinqua</i>  | <i>N. saximontana</i> , <i>N. minima</i>  | Great Basin navarretia     | AnnF      | Wide   | Pres        | Rare      | Kyte s.n. (FOBU)      | 2003      |          |
| Polemoniaceae | <i>Phlox hoodii</i>                                 | Includes spp. <i>canescens</i> , <i>glabrata</i> , <i>hoodii</i> , & <i>viscidula</i> | Hood's phlox               | PerF      | Wide   | Pres        | Com       | Kyte 96-6 (FOBU)      | 1973      |          |
| Polemoniaceae | <i>Phlox longifolia</i>                             | Includes vars. <i>longifolia</i> & <i>stansburyi</i>                                  | long-leaf phlox            | PerF      | Wide   | Pres        | Unc       | Kyte s.n. (FOBU)      | 1977      |          |
| Polemoniaceae | <i>Phlox multiflora</i>                             | Includes spp. <i>multiflora</i> , <i>depressa</i> , & <i>patula</i>                   | Rocky Mountain phlox       | PerF      | Wide   | Pres        | Unc       | Kyte 96-147 (FOBU)    | 1977      |          |
| Polemoniaceae | <i>Phlox muscoides</i>                              | <i>P. hoodii</i> spp. <i>muscoides</i> , <i>P. bryoides</i>                           | moss phlox                 | PerF      | Wide   | Rep         | ?         | Dorn et al. (1984)    | 1984      |          |
| Polygonaceae  | <i>Eriogonum acaule</i>                             |   | single-stem wild buckwheat | PerF      | Reg En | Pres        | Unc       | Kyte 98-2 (FOBU)      | 1984      |          |
| Polygonaceae  | <i>Eriogonum brevicaule</i> var. <i>brevicaule</i>  |   | shortstem wild buckwheat   | PerF      | Wide   | Pres        | Unc       | Kyte 96-198 (FOBU)    | 1977      |          |
| Polygonaceae  | <i>Eriogonum brevicaule</i> var. <i>laxifolium</i>  | Includes <i>E. brevicaule</i> var. <i>cottamii</i>                                    | loose-leaf wild buckwheat  | PerF      | Reg En | Pres        | Unc       | Kyte 96-205 (FOBU)    | 1977      |          |
| Polygonaceae  | <i>Eriogonum caespitosum</i>                        |   | matted wild buckwheat      | PerF      | Wide   | Pres        | Unc       | Kyte 98-25 (FOBU)     | 1984      |          |
| Polygonaceae  | <i>Eriogonum cernuum</i>                            | <i>E. cernuum</i> var. <i>cernuum</i>   | matted wild buckwheat      | AnnF      | Wide   | Pres        | Unc       | Kyte 97-113 (FOBU)    | 1997      |          |
| Polygonaceae  | <i>Eriogonum microthecum</i> var. <i>laxiflorum</i> |   | slender wild buckwheat     | Shrub     | Wide   | Pres        | Unc       | Litzinger 1387 (FOBU) | 1973      |          |
| Polygonaceae  | <i>Eriogonum ovalifolium</i> var. <i>purpureum</i>  | Included in var. <i>ovalifolium</i> by some authors, or vars. not recognized.         | cushion wild buckwheat     | PerF      | Wide   | Pres        | Unc       | Kyte 97-85 (FOBU)     | 1984      |          |

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

| Family        | Species name  | Synonyms/<br>Taxonomic notes  | Common name            | Life form | Range | Park status | Pop. size | Source                   | Year doc. | Comments                                 |
|---------------|---|---|------------------------|-----------|-------|-------------|-----------|--------------------------|-----------|--|
| Polygonaceae  | <i>Eriogonum umbellatum</i> var. <i>majus</i>         | <i>E. umbellatum</i> var. <i>subalpinum</i> , <i>E. subalpinum</i>  | cream wild buckwheat   | PerF      | Wide  | Pres        | Unc       | Litzing 1516 (FOBU)      | 1973      |  |
| Polygonaceae  | <i>Polygonum aviculare</i>                            | <i>P. arenastrum</i>  | yard knotweed          | AnnF      | Intro | Pres        | Unc       | Kyte s.n. (FOBU)         | 1977      | Native to Eurasia                        |
| Polygonaceae  | <i>Polygonum bistortoides</i>                         | <i>Bistorta bistortoides</i>  | American bistort       | PerF      | Wide  | Pres        | Unc       | Kyte 96-67 (FOBU)        | 1984      |  |
| Polygonaceae  | <i>Polygonum douglasii</i> var. <i>douglasii</i>      | <i>P. douglasii</i>   | Douglas' knotweed      | AnnF      | Wide  | Pres        | Unc       | Kyte 96-178 (FOBU)       | 1984      |  |
| Polygonaceae  | <i>Polygonum sawatchense</i>                          | <i>P. douglasii</i> var. <i>johnstonii</i> , <i>P. sawatchense</i> var. <i>sawatchense</i>  | Sawatch knotweed       | AnnF      | Wide  | Pres        | Unc       | Harms & Kyte s.n. (FOBU) | 2005      |  |
| Polygonaceae  | <i>Rumex crispus</i>                                  |   | curly dock             | PerF      | Intro | Pres        | Unc       | Kyte 96-179 (FOBU)       | 1977      | Native to Eurasia                        |
| Polygonaceae  | <i>Rumex paucifolius</i>                              | <i>Acetosella paucifolia</i>  | alpine sorrel          | PerF      | Wide  | Pres        | Unc       | Kyte 98-8 (FOBU)         | 1998      |  |
| Polygonaceae  | <i>Rumex salicifolius</i> var. <i>triangulivalvis</i> | <i>R. mexicanus</i> , <i>R. salicifolius</i> var. <i>mexicanus</i> , <i>R. utahensis</i> , <i>R. triangulivalvis</i> var. <i>mexicanus</i> , <i>R. triangulivalvis</i> var. <i>montigenitus</i> | willow dock            | PerF      | Wide  | Pres        | Unc       | Kyte s.n. (FOBU)         | 1984      |  |
| Polygonaceae  | <i>Stenogonum salsuginosum</i>                        | <i>Eriogonum salsuginosum</i>   | smooth wild buckwheat  | AnnF      | Wide  | Pres        | Unc       | Kyte 97-109 (FOBU)       | 1984      |  |
| Portulacaceae | <i>Claytonia lanceolata</i>                           | <i>C. lanceolata</i> var. <i>lanceolata</i>   | lanceleaf springbeauty | PerF      | Wide  | Pres        | Unc       | Kyte 96-68 (FOBU)        | 1984      |  |
| Portulacaceae | <i>Lewisia pygmaea</i>                                | <i>Oreobroma pygmaea</i>  | alpine bitter-root     | PerF      | Wide  | Rep         | Rare      | Kyte observation         | 1994      | Cited in Fertig (2000) without a voucher |
| Portulacaceae | <i>Lewisia rediviva</i>                               | <i>L. rediviva</i> var. <i>rediviva</i>   | Oregon bitter-root     | PerF      | Wide  | Pres        | Unc       | Kyte 97-79 (FOBU)        | 1997      |  |

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

| Family                        | Species name  | Synonyms/<br>Taxonomic notes  | Common name               | Life form | Range | Park status | Pop. size | Source                | Year doc. | Comments  |
|-------------------------------|---|---|---------------------------|-----------|-------|-------------|-----------|-----------------------|-----------|---|
| Potamogetonaceae              | <i>Stuckenia pectinata</i>                              | <i>Potamogeton pectinatus</i> ,<br><i>Coleogeton pectinatus</i>                           | fennel-leaf pondweed      | PerF      | Wide  | Pres        | Rare      | Kyte 2001-41 (FOBU)   | 2001      |   |
| Primulaceae                   | <i>Androsace septentrionalis</i> var. <i>subulifera</i> | Includes ssp. <i>puberulenta</i> & <i>subumbellata</i>                                    | pygmy-flower rock-jasmine | AnnF      | Wide  | Pres        | Unc       | Kyte 98-1 (FOBU)      | 1977      |   |
| Primulaceae                   | <i>Dodecatheon pulchellum</i>                           | <i>D. pauciflorum</i> ,<br><i>D. pulchellum</i> var. <i>pulchellum</i>                    | dark-throat shooting-star | PerF      | Wide  | Pres        | Unc       | Kyte 96-69 (FOBU)     | 1977      |   |
| Ranunculaceae (Helleboraceae) | <i>Actaea rubra</i>                                     | <i>A. rubra</i> ssp. <i>arguta</i>  | red baneberry             | PerF      | Wide  | Pres        | Unc       | Kyte 96-85 (FOBU)     | 1984      |   |
| Ranunculaceae (Helleboraceae) | <i>Aquilegia coerulea</i>                               | Includes vars. <i>alpina</i> , <i>coerulea</i> , & <i>ochroleuca</i> , <i>A. coerulea</i> | Colorado columbine        | PerF      | Wide  | Pres        | Unc       | Kyte 96-114 (FOBU)    | 1984      |   |
| Ranunculaceae                 | <i>Clematis hirsutissima</i>                            | Includes vars. <i>hirsutissima</i> & <i>scottii</i> , <i>Coriflora hirsutissima</i>       | sugar-bowls               | PerF      | Wide  | Pres        | Unc       | Kyte 97-86 (FOBU)     | 1997      | Includes reports of wideleaved form sometimes attributed to var. <i>scottii</i> |
| Ranunculaceae                 | <i>Clematis occidentalis</i> var. <i>groseserrata</i>   | <i>Atragene occidentalis</i>  | purple virgin's-bower     | PerF      | Wide  | Pres        | Rare      | Kyte 2000-1 (FOBU)    | 2000      |   |
| Ranunculaceae (Helleboraceae) | <i>Delphinium glaucum</i>                               |   | tower larkspur            | PerF      | Wide  | Pres        | Unc       | Kyte 96-115 (FOBU)    | 1996      |   |
| Ranunculaceae (Helleboraceae) | <i>Delphinium nuttallianum</i>                          | <i>D. nelsonii</i>  | Nuttall's larkspur        | PerF      | Wide  | Pres        | Unc       | Litzinger 1117 (FOBU) | 1977      |   |
| Ranunculaceae                 | <i>Myosurus apetalus</i> var. <i>montanus</i>           | <i>M. aristatus</i> , <i>A. apetalus</i>  | bristly mouse-tail        | AnnF      | Wide  | Pres        | Unc       | Kyte 97-38 (FOBU)     | 1984      |   |
| Ranunculaceae                 | <i>Ranunculus acrifloris</i> var. <i>montanensis</i>    |   | sharp buttercup           | PerF      | Wide  | Pres        | Unc       | Kyte 96-84 (FOBU)     | 1984      |   |
| Ranunculaceae                 | <i>Ranunculus acris</i>                                 | <i>R. acris</i> var. <i>acris</i>   | tall buttercup            | PerF      | Intro | Pres        | Unc       | Kyte 96-3 (FOBU)      | 1996      | Native to Eurasia   |

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

| Family                        | Species name  | Synonyms/<br>Taxonomic notes  | Common name                   | Life form | Range  | Park status | Pop. size | Source                 | Year doc. | Comments          |
|-------------------------------|---|---|-------------------------------|-----------|--------|-------------|-----------|------------------------|-----------|-------------------|
| Ranunculaceae                 | <i>Ranunculus aquatilis</i><br>var. <i>diffusus</i>   | Includes <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>R. aquatilis</i> var. <i>hispidulus</i> , <i>Batrachium circinatum</i> | thread water-buttercup        | PerF      | Wide   | Pres        | Unc       | Kyte 96-83 (FOBU)      | 1977      |                   |
| Ranunculaceae                 | <i>Ranunculus cymbalaria</i> var. <i>saximontanus</i> | <i>Halerpestes cymbalaria</i> var. <i>saximontana</i>   | marsh buttercup               | PerF      | Wide   | Pres        | Unc       | Kyte s.n. (FOBU)       | 1984      |                   |
| Ranunculaceae                 | <i>Ranunculus glaberrimus</i> var. <i>ellipticus</i>  | Includes <i>R. oreogenes</i>  | sagebrush buttercup           | PerF      | Wide   | Pres        | Unc       | Kyte 97-14 (FOBU)      | 1984      |                   |
| Ranunculaceae                 | <i>Ranunculus gmelinii</i>                            | <i>R. gmelinii</i> var. <i>hookeri</i> . Vars. not recognized by some authors   | lesser yellow water buttercup | PerF      | Wide   | Pres        | Rare      | Kyte 2000-34 (FOBU)    | 2000      |                   |
| Ranunculaceae                 | <i>Ranunculus sceleratus</i> var. <i>multifidus</i>   | <i>Hecatonia scelerata</i>  | blister buttercup             | AnnF      | Wide   | Pres        | Unc       | Kyte 96-149 (FOBU)     | 1977      |                   |
| Ranunculaceae                 | <i>Ranunculus testiculatus</i>                        | <i>Ceratocephala orthoceras</i> , <i>C. testiculata</i>   | bur buttercup                 | AnnF      | Intro  | Pres        | Unc       | Kyte 97-21 (FOBU)      | 1984      | Native to Eurasia |
| Ranunculaceae (Thalictraceae) | <i>Thalictrum occidentale</i>                         |   | western meadow-rue            | PerF      | Wide   | Pres        | Unc       | Kyte 96-82 (FOBU)      | 1996      |                   |
| Rhamnaceae                    | <i>Ceanothus martinii</i>                             |   | Utah mountain-lilac           | Shrub     | Periph | Pres        | Rare      | Kyte 97-121 (FOBU)     | 1997      |                   |
| Rhamnaceae                    | <i>Ceanothus velutinus</i>                            | <i>C. velutinus</i> var. <i>velutinus</i>   | deer-brush                    | Shrub     | Wide   | Pres        | Rare      | Kyte 2001-45 (FOBU)    | 1984      |                   |
| Rosaceae                      | <i>Amelanchier alnifolia</i> var. <i>alnifolia</i>    |   | Saskatoon serviceberry        | Shrub     | Wide   | Rep         | ?         | Beetle & Marlow (1974) | 1973      |                   |

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

| Family   | Species name                                       | Synonyms/<br>Taxonomic notes  | Common name                  | Life form | Range | Park status | Pop. size | Source                   | Year doc. | Comments  |
|----------|--|---|------------------------------|-----------|-------|-------------|-----------|--------------------------|-----------|---|
| Rosaceae | <i>Amelanchier alnifolia</i><br>var. <i>pumila</i> | <i>A. pumila</i>  | dwarf serviceberry           | Shrub     | Wide  | Pres        | Unc       | Kyte 2002-10<br>(FOBU)   | 2002      | Many reports of this species from vegetation mapping plots may actually represent <i>A. utahensis</i> . |
| Rosaceae | <i>Amelanchier utahensis</i>                       |   | Utah serviceberry            | Shrub     | Wide  | Pres        | Com       | Kyte 96-28<br>(FOBU)     | 1984      |   |
| Rosaceae | <i>Cercocarpus montanus</i>                        |   | alder-leaf mountain mahogany | Shrub     | Wide  | Pres        | Com       | Litzinger 1187<br>(FOBU) | 1973      |   |
| Rosaceae | <i>Fragaria virginiana</i>                         | Includes ssp. <i>glauca</i> & <i>platypetala</i>  | Virginia strawberry          | Perf      | Wide  | Pres        | Unc       | Kyte 96-191<br>(FOBU)    | 1984      |   |
| Rosaceae | <i>Geum macrophyllum</i><br>var. <i>perincisum</i> |   | large-leaved avens           | Perf      | Wide  | Pres        | Unc       | Kyte 96-80<br>(FOBU)     | 1984      |   |
| Rosaceae | <i>Geum triflorum</i> var. <i>ciliatum</i>         | <i>Erythrocoma triflora</i>   | prairie smoke                | Perf      | Wide  | Pres        | Unc       | Kyte 96-77<br>(FOBU)     | 1984      |   |
| Rosaceae | <i>Holodiscus dumosus</i>                          | <i>H. discolor</i>  | bush oceanspray              | Shrub     | Wide  | Pres        | Unc       | Kyte 96-79<br>(FOBU)     | 1973      |   |
| Rosaceae | <i>Pentaptylloides floribunda</i>                  | <i>Pentaptylloides fruticosa</i> , <i>Potentilla fruticosa</i> , <i>Dasiphora fruticosa</i> ssp. <i>floribunda</i> , <i>D. floribunda</i> | shrubby cinquefoil           | Shrub     | Wide  | Pres        | Unc       | Kyte 96-81<br>(FOBU)     | 1984      |   |
| Rosaceae | <i>Potentilla anserina</i>                         | <i>Argentina anserina</i>   | silverweed                   | Perf      | Wide  | Pres        | Unc       | Kyte s.n.<br>(FOBU)      | 1984      |   |
| Rosaceae | <i>Potentilla arguta</i>                           | <i>Drymocalis arguta</i> , includes ssp. <i>arguta</i> & <i>convallaria</i>   | tall cinquefoil              | Perf      | Wide  | Pres        | Unc       | Kyte 2001-34<br>(FOBU)   | 1984      |   |
| Rosaceae | <i>Potentilla biennis</i>                          |   | biennial cinquefoil          | AnnF      | Wide  | Pres        | Unc       | Kyte 97-70<br>(FOBU)     | 1997      |   |
| Rosaceae | <i>Potentilla gracilis</i> var. <i>elmeri</i>      | <i>P. pectinsecta</i>   | comb-leaf cinquefoil         | Perf      | Wide  | Pres        | Unc       | Harms & Kyte s.n. (FOBU) | 1995      |   |
| Rosaceae | <i>Potentilla gracilis</i> var. <i>fastigiata</i>  | <i>P. gracilis</i> var. <i>nuttallii</i> , <i>P. gracilis</i> var. <i>glabrata</i>  | glabrate cinquefoil          | Perf      | Wide  | Pres        | Unc       | Kyte 96-117<br>(FOBU)    | 1977      |   |

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

| Family     | Species name                                       | Synonyms/<br>Taxonomic notes  | Common name              | Life form | Range | Park status | Pop. size | Source                       | Year doc. | Comments         |
|------------|--|---|--------------------------|-----------|-------|-------------|-----------|------------------------------|-----------|------------------|
| Rosaceae   | <i>Potentilla gracilis</i> var. <i>pulcherrima</i> | <i>P. pulcherrima</i>   | beautiful cinquefoil     | PerF      | Wide  | Pres        | Unc       | Litzinger 1214 (FOBU)        | 1977      |                  |
| Rosaceae   | <i>Potentilla pennsylvanica</i>                    |   | Pennsylvania cinquefoil  | PerF      | Wide  | Rep         | ?         | Dorn et al. (1984)           | 1984      |                  |
| Rosaceae   | <i>Prunus virginiana</i> var. <i>melanocarpa</i>   | <i>Padus virginiana</i> ssp. <i>melanocarpa</i>                         | western chokecherry      | Shrub     | Wide  | Pres        | Unc       | Litzinger 1229 (FOBU)        | 1973      |                  |
| Rosaceae   | <i>Purshia tridentata</i>                          |   | antelope bitterbrush     | Shrub     | Wide  | Pres        | Com       | Kyte 96-27 (FOBU)            | 1973      |                  |
| Rosaceae   | <i>Rosa nutkana</i> var. <i>hispida</i>            | <i>R. nootkana</i>  | Nootka rose              | Shrub     | Wide  | Pres        | Unc       | Kyte 96-116 (FOBU)           | 1996      |                  |
| Rosaceae   | <i>Rosa woodsii</i>                                | <i>R. woodsii</i> var. <i>ultramontana</i>                              | Woods' rose              | Shrub     | Wide  | Pres        | Unc       | Kyte 96-150 (FOBU)           | 1973      |                  |
| Rosaceae   | <i>Sanguisorba minor</i>                           | <i>S. minor</i> ssp. <i>muricata</i>                                    | garden burnet            | PerF      | Intro | Pres        | Unc       | Kyte 96-192 (FOBU)           | 1996      | Native to Europe |
| Rubiaceae  | <i>Galium bifolium</i>                             |   | twin-leaf bedstraw       | AnnF      | Wide  | Pres        | Unc       | Kyte 97-31 (FOBU)            | 1984      |                  |
| Rubiaceae  | <i>Galium boreale</i>                              | <i>G. septentrionale</i>  | northern bedstraw        | PerF      | Wide  | Pres        | Unc       | Kyte 96-76 (FOBU)            | 1977      |                  |
| Rubiaceae  | <i>Galium trifidum</i>                             | Includes ssp. <i>columbianum</i> , <i>trifidum</i> & <i>subbiflorum</i> | small bedstraw           | PerF      | Wide  | Pres        | Unc       | Kyte 2000-23 (FOBU)          | 1984      |                  |
| Salicaceae | <i>Populus angustifolia</i>                        |   | narrow-leaved cottonwood | Tree      | Wide  | Pres        | Unc       | Kyte 96-206 (FOBU)           | 1984      |                  |
| Salicaceae | <i>Populus tremuloides</i>                         |   | quaking aspen            | Tree      | Wide  | Pres        | Com       | Kyte 96-207 (FOBU)           | 1973      |                  |
| Salicaceae | <i>Salix bebbiana</i>                              |   | Bebb's willow            | Shrub     | Wide  | Pres        | Unc       | Kyte & Fertig 2004-08 (FOBU) | 1984      |                  |
| Salicaceae | <i>Salix boothii</i>                               |   | Booth's willow           | Shrub     | Wide  | Rep         | ?         | Dorn et al. (1984)           | 1984      |                  |
| Salicaceae | <i>Salix eriocephala</i> var. <i>watsonii</i>      | <i>Salix lutea</i> , <i>S. rigida</i> var. <i>watsonii</i>              | yellow willow            | Shrub     | Wide  | Pres        | Unc       | Kyte 96-152 (FOBU)           | 1984      |                  |



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

| Family                         | Species name                                      | Synonyms/<br>Taxonomic notes   | Common name              | Life form | Range | Park status | Pop. size | Source                | Year doc. | Comments   |
|--------------------------------|---|--|--------------------------|-----------|-------|-------------|-----------|-----------------------|-----------|--|
| Salicaceae                     | <i>Salix exigua</i> var. <i>exigua</i>            | <i>S. exigua</i> var. <i>stenophylla</i>                             | coyote willow            | Shrub     | Wide  | Pres        | Unc       | Kyte 96-151 (FOBU)    | 1996      | Kyte (s.n., 1995) collected a hybrid between <i>S. exigua</i> x <i>S. melanopsis</i> at FOBU |
| Salicaceae                     | <i>Salix geyeriana</i>                            | <i>S. geyeriana</i> var. <i>geyeriana</i>                            | Geyer's willow           | Shrub     | Wide  | Pres        | Unc       | Kyte s.n. (FOBU)      | 1996      |  |
| Salicaceae                     | <i>Salix scouleriana</i>                          |  | Scouler's willow         | Shrub     | Wide  | Pres        | Unc       | Kyte 96-70 (FOBU)     | 1973      |  |
| Santalaceae                    | <i>Comandra umbellata</i> var. <i>pallida</i>     |  | bastard toadflax         | PerF      | Wide  | Pres        | Unc       | Litzinger 1119 (FOBU) | 1977      |  |
| Sarcobataceae (Chenopodiaceae) | <i>Sarcobatus vermiculatus</i>                    |  | greasewood               | Shrub     | Wide  | Pres        | Unc       | Kyte 96-202 (FOBU)    | 1977      |  |
| Saxifragaceae                  | <i>Heuchera parvifolia</i>                        | Includes vars. <i>major</i> , <i>parvifolia</i> , & <i>utahensis</i> | little-leaf alumroot     | PerF      | Wide  | Pres        | Unc       | Kyte 97-96 (FOBU)     | 1984      |  |
| Saxifragaceae                  | <i>Lithophragma glabrum</i> var. <i>ramulosum</i> | <i>L. bulbifera</i> , <i>L. glabra</i>                               | fringecup woodlandstar   | PerF      | Wide  | Pres        | Unc       | Kyte 97-43 (FOBU)     | 1984      |  |
| Saxifragaceae                  | <i>Lithophragma parviflorum</i>                   | <i>L. parviflora</i>   | smallflower woodlandstar | PerF      | Wide  | Pres        | Unc       | Kyte 96-71 (FOBU)     | 1984      |  |
| Saxifragaceae                  | <i>Lithophragma tenellum</i>                      | <i>L. tenella</i>  | slender woodlandstar     | PerF      | Wide  | Pres        | Unc       | Kyte 97-33 (FOBU)     | 1984      |  |
| Scrophulariaceae               | <i>Besseya wyomingensis</i>                       |  | Wyoming kittentails      | PerF      | Wide  | Pres        | Unc       | Kyte 96-9 (FOBU)      | 1984      |  |
| Scrophulariaceae               | <i>Castilleja angustifolia</i> var. <i>dubia</i>  | <i>C. chromosa</i> , <i>C. applegatei</i> ssp. <i>martinii</i>       | desert paintbrush        | PerF      | Wide  | Pres        | Unc       | Kyte 96-31 (FOBU)     | 1984      |  |
| Scrophulariaceae               | <i>Castilleja flava</i>                           | <i>C. flava</i> var. <i>flava</i>                                    | yellow paintbrush        | PerF      | Wide  | Pres        | Unc       | Kyte 96-30 (FOBU)     | 1977      |  |
| Scrophulariaceae               | <i>Castilleja linariifolia</i>                    | <i>C. linariaefolia</i>  | Wyoming paintbrush       | PerF      | Wide  | Pres        | Unc       | Kyte 96-29 (FOBU)     | 1977      | State flower of Wyoming  |
| Scrophulariaceae               | <i>Castilleja sulphurea</i>                       | <i>C. rhexifolia</i> var. <i>sulphurea</i>                           | sulphur paintbrush       | PerF      | Wide  | Pres        | Unc       | Kyte 97-93 (FOBU)     | 1997      |  |
| Scrophulariaceae               | <i>Collinsia parviflora</i>                       |  | blue-eyed Mary           | AnnF      | Wide  | Pres        | Unc       | Kyte 96-33 (FOBU)     | 1984      |  |

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

| Family           | Species name                                     | Synonyms/<br>Taxonomic notes   | Common name            | Life form | Range  | Park status | Pop. size | Source                       | Year doc. | Comments  |
|------------------|--|--|------------------------|-----------|--------|-------------|-----------|------------------------------|-----------|---|
| Scrophulariaceae | <i>Cordylanthus ramosus</i>                      |  | bushy bird's-beak      | AnnF      | Wide   | Pres        | Unc       | Kyte s.n. (FOBU)             | 1984      |   |
| Scrophulariaceae | <i>Mimulus guttatus</i>                          |  | yellow monkeyflower    | PerF      | Wide   | Pres        | Unc       | Kyte s.n. (FOBU)             | 1984      |   |
| Scrophulariaceae | <i>Orthocarpus luteus</i>                        |  | yellow owl-clover      | AnnF      | Wide   | Pres        | Unc       | Kyte s.n. (FOBU)             | 1984      |   |
| Scrophulariaceae | <i>Orthocarpus tolmiei</i>                       |  | Tolmie's owl-clover    | AnnF      | Reg En | Pres        | Unc       | Kyte s.n. (FOBU)             | 1995      |   |
| Scrophulariaceae | <i>Penstemon cyananthus</i>                      | Includes vars. <i>cyananthus</i> & <i>subglaber</i>                                | Wasatch penstemon      | PerF      | Reg En | Pres        | Unc       | Kyte & Fertig 2004-06 (FOBU) | 1977      |   |
| Scrophulariaceae | <i>Penstemon humilis</i>                         | <i>P. humilis</i> var. <i>humilis</i>  | low penstemon          | PerF      | Wide   | Pres        | Unc       | Kyte 96-34 (FOBU)            | 1984      |   |
| Scrophulariaceae | <i>Penstemon paysoniorum</i>                     |  | Payson's penstemon     | PerF      | Reg En | Pres        | Unc       | Kyte 97-75 (FOBU)            | 1984      | Type locality is between Opal and Kemmerer, Lincoln Co., WY (Payson & Armstrong 3221) |
| Scrophulariaceae | <i>Penstemon procerus</i>                        | <i>P. procerus</i> var. <i>procerus</i> , <i>P. confertus</i> ssp. <i>procerus</i> | small-flower penstemon | PerF      | Wide   | Pres        | Unc       | Kyte s.n. (FOBU)             | 1995      |   |
| Scrophulariaceae | <i>Penstemon radicosus</i>                       |  | mat-root penstemon     | PerF      | Wide   | Pres        | Unc       | Kyte 97-95 (FOBU)            | 1973      | Kyte specimen may have been collected outside of FOBU.                                |
| Scrophulariaceae | <i>Penstemon rydbergii</i> var. <i>rydbergii</i> |  | Rydberg's penstemon    | PerF      | Wide   | Rep         | ?         | Dorn et al. (1984)           | 1984      | Also cited by No. Colorado Plateau Network (1997 in ed.) without a voucher.           |
| Scrophulariaceae | <i>Scrophularia lanceolata</i>                   |  | lance-leaf figwort     | PerF      | Wide   | Pres        | Unc       | Kyte 97-83 (FOBU)            | 1997      |   |
| Scrophulariaceae | <i>Verbascum thapsus</i>                         |  | woolly mullein         | PerF      | Intro  | Pres        | Unc       | Kyte 97-102 (FOBU)           | 1997      | Native to Eurasia   |
| Scrophulariaceae | <i>Veronica americana</i>                        |  | American brooklime     | PerF      | Wide   | Pres        | Unc       | Kyte 96-72 (FOBU)            | 1984      |   |

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

| Family           | Species name                                  | Synonymic/<br>Taxonomic notes  | Common name           | Life form | Range | Park status | Pop. size | Source                | Year doc. | Comments                                 |
|------------------|---|--|-----------------------|-----------|-------|-------------|-----------|-----------------------|-----------|--|
| Scrophulariaceae | <i>Veronica biloba</i>                        | <i>Pocilla biloba</i>  | two-lobe speedwell    | AnnF      | Intro | Pres        | Unc       | Kyte 96-32 (FOBU)     | 1984      | Native to Asia                           |
| Solanaceae       | <i>Hyoscyamus niger</i>                       |  | black henbane         | AnnF      | Intro | Pres        | Unc       | Kyte 96-155 (FOBU)    | 1977      | Native to Europe                         |
| Solanaceae       | <i>Nicotiana attenuata</i>                    |  | coyote tobacco        | AnnF      | Wide  | Pres        | Rare      | Kyte s.n. (FOBU)      | 2006      | Arrived in FOBU after 2005 burn.         |
| Solanaceae       | <i>Solanum dulcamara</i>                      |  | European bittersweet  | PerF      | Intro | Pres        | Unc       | Kyte 98-38 (FOBU)     | 1997      | Native to Eurasia                        |
| Solanaceae       | <i>Solanum triflorum</i>                      |  | cut-leaf nightshade   | AnnF      | Wide  | Pres        | Unc       | Kyte 97-127 (FOBU)    | 1977      |  |
| Sparganiaceae    | <i>Sparganium emersum</i>                     | <i>S. simplex</i> , <i>S. erectum</i> sp. <i>stoloniferum</i>                          | emersed burr-reed     | PerF      | Wide  | Pres        | Rare      | Kyte 2001-68 (FOBU)   | 2001      |  |
| Tamaricaceae     | <i>Tamarix chinensis</i>                      | <i>T. pentandra</i> , <i>T. ramosissima</i>  | five-stamen tamarisk  | Shrub     | Intro | Ext         | NA        | Kyte 99-2 (FOBU)      | 1999      | Native to Eurasia. WY state noxious weed |
| Typhaceae        | <i>Typha latifolia</i>                        |  | broad-leaved cattail  | PerG      | Wide  | Pres        | Unc       | Kyte 97-104 (FOBU)    | 1977      |  |
| Urticaceae       | <i>Urtica dioica</i> var. <i>occidentalis</i> | <i>U. dioica</i> sp. <i>holosericea</i> , <i>U. gracilis</i> sp. <i>holosericea</i>    | stinging nettle       | PerF      | Wide  | Pres        | Unc       | Kyte 96-156 (FOBU)    | 1977      |  |
| Valerianaceae    | <i>Valeriana edulis</i>                       |  | tobacco-root          | PerF      | Wide  | Pres        | Unc       | Litzinger 1322 (FOBU) | 1977      |  |
| Valerianaceae    | <i>Valeriana occidentalis</i>                 |  | western valerian      | PerF      | Wide  | Pres        | Unc       | Kyte 97-49 (FOBU)     | 1984      |  |
| Verbenaceae      | <i>Verbena bracteata</i>                      |  | prostrate vervain     | PerF      | Wide  | Pres        | Unc       | Kyte 96-157 (FOBU)    | 1977      |  |
| Violaceae        | <i>Viola adunca</i>                           |  | hook-spur violet      | PerF      | Wide  | Pres        | Unc       | Kyte 96-36 (FOBU)     | 1977      |  |
| Violaceae        | <i>Viola canadensis</i>                       | <i>V. canadensis</i> var. <i>rugulosa</i> , <i>V. scopulorum</i> , <i>V. rydbergii</i> | Canadian white violet | PerF      | Wide  | Rep         | ?         | Dorn et al. (1984)    | 1984      |  |

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

| Family    | Species name                              | Synonyms/<br>Taxonomic notes  | Common name          | Life form | Range | Park status | Pop. size | Source             | Year doc. | Comments |
|-----------|---|---|----------------------|-----------|-------|-------------|-----------|--------------------|-----------|----------|
| Violaceae | <i>Viola praemorsa</i> var. <i>altior</i> | <i>V. nuttallii</i> var. <i>praemorsa</i> , includes ssp. <i>flavovirens</i> , <i>major</i> , & <i>lingulifolia</i> | upland yellow violet | PerF      | Wide  | Rep         | ?         | Dorn et al. (1984) | 1984      |          |
| Violaceae | <i>Viola purpurea</i> var. <i>venosa</i>  |   | goose-foot violet    | PerF      | Wide  | Pres        | Unc       | Kyte 96-10 (FOBU)  | 1984      |          |
| Violaceae | <i>Viola sororia</i> var. <i>affinis</i>  | <i>V. nephrophylla</i>  | northern bog violet  | PerF      | Wide  | Pres        | Unc       | Kyte 97-51 (FOBU)  | 1996      |          |
| Violaceae | <i>Viola vallicola</i>                    | <i>V. nuttallii</i> var. <i>vallicola</i>   | valley violet        | PerF      | Wide  | Pres        | Unc       | Kyte 96-11 (FOBU)  | 1984      |          |

**Appendix B. Potential (unconfirmed) taxa of Fossil Butte National Monument.**

| Family   | Species name  | Synonyms/Taxonomic notes   | Common name                        | Life form | Range  | Comments |
|--|---|--|------------------------------------|-----------|--------|----------|
| Aceraceae                                      | <i>Acer grandidentatum</i>                              |  | bigtooth maple                     | Tree      | Periph |          |
| Adiantaceae (Polypodiaceae or Sinopteridaceae) | <i>Pellaea breweri</i>                                  |  | Brewer's cliffbrake                | Fern      | Wide   |          |
| Adoxaceae (Caprifoliaceae)                     | <i>Sambucus racemosa</i> var. <i>microbotrys</i>        | Included in <i>S. racemosa</i> var. <i>racemosa</i> by some authors                  | red elderberry                     | Shrub     | Wide   |          |
| Alliaceae (Liliaceae)                          | <i>Allium brandegeei</i>                                | <i>A. brandegeei</i>   | Brandegee's onion                  | PerF      | Wide   |          |
| Anacardiaceae                                  | <i>Rhus aromatica</i> var. <i>trilobata</i>             | <i>R. trilobata</i> var. <i>trilobata</i>  | squawbush                          | Shrub     | Wide   |          |
| Apiaceae (Umbelliferae)                        | <i>Cymopterus bulbosus</i>                              |  | onion spring-parsley               | PerF      | Wide   |          |
| Apiaceae (Umbelliferae)                        | <i>Heracleum sphondylium</i> var. <i>lanatum</i>        | <i>H. lanatum</i> , <i>H. maximum</i> , <i>H. sphondylium</i> ssp. <i>montanum</i>   | cow parsnip                        | PerF      | Wide   |          |
| Apiaceae (Umbelliferae)                        | <i>Lomatium grayi</i>                                   | <i>L. grayi</i> var. <i>grayi</i>  | milfoil lomatium                   | PerF      | Wide   |          |
| Apiaceae (Umbelliferae)                        | <i>Osmorhiza depauperata</i>                            |  | blunt sweet-cicely                 | PerF      | Wide   |          |
| Aspleniaceae (Polypodiaceae)                   | <i>Cystopteris fragilis</i>                             | Some authors include <i>C. utahensis</i> , <i>C. reevesiana</i> , & <i>C. tenuis</i> | brittle bladder-fern               | Fern      | Wide   |          |
| Asteraceae (Compositae)                        | <i>Agoseris aurantiaca</i>                              | Includes vars. <i>aurantiaca</i> & <i>purpurea</i>                                   | orange agoseris                    | PerF      | Wide   |          |
| Asteraceae (Compositae)                        | <i>Artemisia arbuscula</i> var. <i>arbuscula</i>        | <i>Seriphidium arbusculum</i> var. <i>arbusculum</i>                                 | low sagebrush                      | Shrub     | Periph |          |
| Asteraceae (Compositae)                        | <i>Crepis atribarba</i>                                 | <i>C. atribarba</i>  | slender hawksbeard                 | PerF      | Wide   |          |
| Asteraceae (Compositae)                        | <i>Crepis occidentalis</i> var. <i>costata</i>          |  | basin hawksbeard                   | PerF      | Wide   |          |
| Asteraceae (Compositae)                        | <i>Crepis runcinata</i> var. <i>runcinata</i>           | <i>Psilochenia runcinata</i>   | meadow hawksbeard                  | PerF      | Wide   |          |
| Asteraceae (Compositae)                        | <i>Eurybia integrifolia</i>                             | <i>Aster integrifolius</i>   | thick-stem wood-aster              | PerF      | Wide   |          |
| Asteraceae (Compositae)                        | <i>Hymenopappus filifolius</i> var. <i>luteus</i>       |  | Wyoming hyalineherb                | PerF      | RegEn  |          |
| Asteraceae (Compositae)                        | <i>Matricaria matricarioides</i>                        | <i>M. discoidea</i> , <i>Lepidotheca suaveolens</i>                                  | pineapple-weed                     | AnnF      | Wide   |          |
| Asteraceae (Compositae)                        | <i>Packera streptanthifolia</i> var. <i>rubricaulis</i> | <i>Senecio streptanthifolius</i> var. <i>rubricaulis</i>                             | red-stemmed cleft-leaved groundsel | PerF      | Wide   |          |
| Asteraceae (Compositae)                        | <i>Solidago missouriensis</i> var. <i>missouriensis</i> | Includes var. <i>extraria</i>  | Missouri goldenrod                 | PerF      | Wide   |          |
| Asteraceae (Compositae)                        | <i>Stenotus armerioides</i>                             | <i>Haplopappus armerioides</i> var. <i>armerioides</i>                               | thrift goldenweed                  | PerF      | Wide   |          |
| Asteraceae (Compositae)                        | <i>Symphotrichum ciliatum</i>                           | <i>Aster brachyactis</i> , <i>Brachyactis ciliata</i> ssp. <i>angusta</i>            | rayless alkali aster               | AnnF      | Wide   |          |

Appendix B. Potential (unconfirmed) taxa of Fossil Butte National Monument, cont.

| Family                    | Species name   | Synonyms/Taxonomic notes  | Common name            | Life form | Range | Comments                                |
|---------------------------|--|---|------------------------|-----------|-------|---|
| Asteraceae (Compositae)   | <i>Symphotrichum lanceolatum</i> var. <i>hesperium</i> | <i>Aster lanceolatus</i> var. <i>hesperius</i> ,<br><i>A. hesperius</i>                           | Siskiyou aster         | PerF      | Wide  |   |
| Asteraceae (Compositae)   | <i>Tragopogon lamottei</i>                             | <i>T. pratensis</i>   | meadow salsify         | PerF      | Intro | Native to Europe                        |
| Asteraceae (Compositae)   | <i>Xylorhiza glabriuscula</i>                          | <i>Machaeranthera glabriuscula</i> .<br>Includes vars. <i>glabriuscula</i> & <i>villosa</i>       | smooth woody-aster     | PerF      | RegEn |   |
| Boraginaceae              | <i>Cryptantha affinis</i>                              |   | ally cryptanth         | AnnF      | Wide  |   |
| Boraginaceae              | <i>Cryptantha flavoculata</i>                          | <i>Oreocarya flavoculata</i>  | yellow-eye cryptanth   | PerF      | Wide  |   |
| Boraginaceae              | <i>Cryptantha torreyana</i>                            |   | Torrey's cryptanth     | AnnF      | Wide  |   |
| Boraginaceae              | <i>Hackelia micrantha</i>                              | <i>H. jessicae</i>  | smallflower stickseed  | PerF      | Wide  |   |
| Boraginaceae              | <i>Lappula redowskii</i> var. <i>cupulata</i>          | <i>L. texana</i> , <i>L. occidentalis</i> var. <i>cupulata</i> , <i>L. marginata</i>              | cupseed stickseed      | AnnF      | Wide  |   |
| Boraginaceae              | <i>Lithospermum incisum</i>                            |   | showy stoneseed        | PerF      | Wide  |   |
| Brassicaceae (Cruciferae) | <i>Boechea cobrensis</i>                               | <i>Arabis cobrensis</i>   | masonic rockcress      | PerF      | Wide  |   |
| Brassicaceae (Cruciferae) | <i>Boechea demissa</i> var. <i>languida</i>            | <i>Arabis demissa</i> var. <i>languida</i>  | nodding rock cress     | PerF      | Wide  |   |
| Brassicaceae (Cruciferae) | <i>Boechea holboellii</i> var. <i>pinetorum</i>        | <i>Arabis holboellii</i> var. <i>pinetorum</i> ,<br>name may be misapplied (Holmgren et al. 2005) | Holboell's rockcress   | PerF      | Wide  |   |
| Brassicaceae (Cruciferae) | <i>Boechea lignifera</i>                               | <i>Arabis lignifera</i>   | Sweetwater rockcress   | PerF      | Wide  |   |
| Brassicaceae (Cruciferae) | <i>Cardaria pubescens</i>                              |   | hairy whitetop         | PerF      | Intro | Native to Asia. WY state noxious weed   |
| Brassicaceae (Cruciferae) | <i>Conringia orientalis</i>                            |   | hare's-ear mustard     | AnnF      | Intro | Native to Europe                        |
| Brassicaceae (Cruciferae) | <i>Descurainia incana</i> var. <i>major</i>            | <i>D. richardsonii</i> var. <i>richardsonii</i> ,<br><i>D. incana</i> ssp. <i>incana</i>          | mountain tansy-mustard | PerF      | Wide  |   |
| Brassicaceae (Cruciferae) | <i>Descurainia pinnata</i> var. <i>nelsonii</i>        |   | western tansy-mustard  | AnnF      | Wide  |   |
| Brassicaceae (Cruciferae) | <i>Isatis tinctoria</i>                                |   | Dyer's woad            | PerF      | Intro | Native to Europe. WY state noxious weed |
| Brassicaceae (Cruciferae) | <i>Lepidium densiflorum</i> var. <i>macrocarpum</i>    | Included in var. <i>densiflorum</i> by some authors   | miner's pepperwort     | AnnF      | Wide  |   |

Appendix B. Potential (unconfirmed) taxa of Fossil Butte National Monument, cont.

| Family                      | Species name                                 | Synonyms/Taxonomic notes   | Common name           | Life form | Range | Comments   |
|-----------------------------|--|--|-----------------------|-----------|-------|--|
| Brassicaceae (Cruciferae)   | <i>Lepidium latifolium</i>                   | <i>Cardaria latifolia</i>  | broad-leaf pepperwort | PerF      | Intro | Native to Eurasia. WY state noxious weed   |
| Brassicaceae (Cruciferae)   | <i>Lesquerella condensata</i>                | <i>L. alpina</i> var. <i>condensata</i> ,<br><i>Physaria reediana</i> var. <i>condensata</i> | dense bladderpod      | PerF      | RegEn | Type locality is Tipton, Sweetwater Co, WY (Nelson 4797 RM)  |
| Brassicaceae (Cruciferae)   | <i>Lesquerella prostrata</i>                 | <i>Physaria prostrata</i>  | prostrate bladderpod  | PerF      | RegEn | WY BLM: Sensitive. Type locality is Piedmont, Uinta Co, WY (Nelson 4564 RM)                                      |
| Brassicaceae (Cruciferae)   | <i>Physaria dornii</i>                       |  | Dorn's twinpod        | PerF      | LocEn | WY BLM: Sensitive, USFWS: former C2 candidate. Type locality is Rock Creek Ridge, Lincoln Co., WY (Dorn 3476 RM) |
| Brassicaceae (Cruciferae)   | <i>Physaria integrifolia</i>                 | Includes var. <i>monticola</i>   | Snake River twinpod   | PerF      | RegEn |  |
| Brassicaceae (Cruciferae)   | <i>Rorippa palustris</i> var. <i>hispida</i> | <i>R. islandica</i> var. <i>hispida</i>  | hairy yellowcress     | PerF      | Wide  |  |
| Brassicaceae (Cruciferae)   | <i>Sisymbrium loeselii</i>                   |  | false London rocket   | AnnF      | Intro | Native to Eurasia  |
| Brassicaceae (Cruciferae)   | <i>Stanleya pinnata</i>                      | Includes vars. <i>bipinnata</i> & <i>pinnata</i>   | prince's-plume        | PerF      | Wide  |  |
| Callitrichaceae             | <i>Callitriche palustris</i>                 | <i>C. verna</i>  | Vernal water-starwort | PerF      | Wide  |  |
| Caryophyllaceae (Alsinaeae) | <i>Eremogone hookeri</i> var. <i>hookeri</i> | <i>Arenaria hookeri</i> var. <i>hookeri</i>  | Hooker's sandwort     | PerF      | Wide  |  |
| Caryophyllaceae (Alsinaeae) | <i>Spergularia rubra</i>                     |  | ruby sandspurrey      | AnnF      | Intro | Native to Europe   |
| Chenopodiaceae              | <i>Atriplex argentea</i>                     | <i>A. argentea</i> var. <i>argentea</i>  | silver orache         | AnnF      | Wide  |  |

Appendix B. Potential (unconfirmed) taxa of Fossil Butte National Monument, cont.

| Family                          | Species name                                      | Synonyms/Taxonomic notes  | Common name            | Life form | Range  | Comments          |
|---------------------------------|---|---|------------------------|-----------|--------|-------------------|
| Chenopodiaceae                  | <i>Bassia hyssopifolia</i>                        |   | five-horn smotherweed  | AnnF      | Intro  | Native to Eurasia |
| Chenopodiaceae                  | <i>Salicornia rubra</i>                           | <i>S. europaea</i> , <i>S. europaea</i> ssp. <i>rubra</i>                               | red saltwort           | AnnF      | Wide   |                   |
| Cyperaceae                      | <i>Carex vesicaria</i>                            |   | blister sedge          | PerG      | Wide   |                   |
| 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   |                   |
| Ericaceae (Pyrolaceae)          | <i>Orthilia secunda</i>                           | <i>Pyrola secunda</i>   | sidebells pyrola       | PerF      | Wide   |                   |
| Fabaceae (Leguminosae)          | <i>Astragalus chamaeleuce</i>                     | <i>A. chamaeleuce</i> var. <i>chamaeleuce</i>   | cicada milkvetch       | PerF      | Wide   |                   |
| Fabaceae (Leguminosae)          | <i>Astragalus cibaricus</i>                       |   | browse milkvetch       | PerF      | Wide   |                   |
| Fabaceae (Leguminosae)          | <i>Astragalus miser</i> var. <i>decumbens</i>     |   | timber milkvetch       | PerF      | RegEn  |                   |
| Fabaceae (Leguminosae)          | <i>Astragalus utahensis</i>                       |   | Utah milkvetch         | PerF      | Periph |                   |
| Fabaceae (Leguminosae)          | <i>Hedysarum occidentale</i>                      | <i>H. occidentale</i> var. <i>occidentale</i>   | western sweetvetch     | PerF      | Wide   |                   |
| Fabaceae (Leguminosae)          | <i>Lupinus argenteus</i> var. <i>argenteus</i>    |   | silvery lupine         | PerF      | Wide   |                   |
| Fabaceae (Leguminosae)          | <i>Lupinus lepidus</i> var. <i>utahensis</i>      | <i>L. lepidus</i> var. <i>caespitosus</i> , <i>L. caespitosus</i> var. <i>utahensis</i> | stemless lupine        | PerF      | Wide   |                   |
| Fabaceae (Leguminosae)          | <i>Lupinus pusillus</i> var. <i>intermontanus</i> |   | Great Basin lupine     | AnnF      | Wide   |                   |
| Fabaceae (Leguminosae)          | <i>Trifolium andinum</i>                          | <i>T. andinum</i> var. <i>andinum</i>   | Andean clover          | PerF      | RegEn  |                   |
| Fabaceae (Leguminosae)          | <i>Trifolium longipes</i> var. <i>reflexum</i>    |   | Wind River clover      | PerF      | Wide   |                   |
| Grossulariaceae (Saxifragaceae) | <i>Ribes aureum</i> var. <i>aureum</i>            |   | golden currant         | Shrub     | Wide   |                   |
| Grossulariaceae (Saxifragaceae) | <i>Ribes oxycanthoides</i> var. <i>setosum</i>    | <i>R. setosum</i>   | Missouri gooseberry    | Shrub     | Wide   |                   |
| Hydrophyllaceae                 | <i>Phacelia scopulina</i>                         | <i>P. lutea</i> var. <i>scopulina</i>   | Debeque scorpion-weed  | AnnF      | Wide   |                   |
| Lamiaceae (Labiatae)            | <i>Prunella vulgaris</i>                          | <i>P. vulgaris</i> var. <i>lanceolata</i> , includes ssp. <i>vulgaris</i>               | self-heal              | PerF      | Wide   |                   |
| Linaceae                        | <i>Linum kingii</i>                               | <i>Mesyniopsis kingii</i>   | King's yellow flax     | PerF      | Wide   |                   |
| Loasaceae                       | <i>Mentzelia albicaulis</i>                       | <i>Acrolasia albicaulis</i> , <i>A. gracilis</i> , <i>M. obscura</i>                    | white-stem blazingstar | AnnF      | Wide   |                   |
| Onagraceae                      | <i>Camissonia breviflora</i>                      | <i>Oenothera breviflora</i>   | dandelion camissonia   | PerF      | Wide   |                   |



Appendix B. Potential (unconfirmed) taxa of Fossil Butte National Monument, cont.

| Family              | Species name  | Synonyms/Taxonomic notes   | Common name                   | Life form | Range  | Comments                              |
|---------------------|---|--|-------------------------------|-----------|--------|---------------------------------------|
| Onagraceae          | <i>Camissonia scapoidea</i>                               | <i>C. scapoidea</i> var. <i>scapoidea</i> ,<br><i>Oenothera scapoidea</i>                  | Paiute suncup                 | AnnF      | Wide   |                                       |
| Onagraceae          | <i>Oenothera cespitosa</i> var.<br><i>marginata</i>       |  | long-tube evening-primrose    | PerF      | Periph |                                       |
| Onagraceae          | <i>Oenothera pallida</i> var.<br><i>trichocalyx</i>       |  | pale evening-primrose         | PerF      | RegEn  |                                       |
| Onagraceae          | <i>Oenothera villosa</i> var. <i>strigosa</i>             | <i>O. strigosa</i> , <i>O. biennis</i>   | biennial evening-primrose     | PerF      | Wide   |                                       |
| Poaceae (Gramineae) | <i>Agrostis exarata</i>                                   |  | spike bentgrass               | PerG      | Wide   |                                       |
| Poaceae (Gramineae) | <i>Agrostis scabra</i>                                    | <i>A. hiemalis</i> , <i>A. geminata</i>  | ticklegass                    | PerG      | Wide   |                                       |
| Poaceae (Gramineae) | <i>Hesperostipa comata</i> var.<br><i>intermedia</i>      | <i>Stipa comata</i> var. <i>intermedia</i>   | needle-and-thread             | PerG      | Wide   |                                       |
| Poaceae (Gramineae) | <i>Muhlenbergia filiformis</i>                            |  | pullup muhly                  | AnnG      | Wide   |                                       |
| Poaceae (Gramineae) | <i>Poa annua</i>  |  | annual bluegrass              | AnnG      | Intro  | Native to Eurasia and W North America |
| Poaceae (Gramineae) | <i>Poa juncifolia</i> var. <i>juncifolia</i>              | Included in <i>P. secunda</i> by some authors; <i>P. nevadensis</i> var. <i>juncifolia</i> | alkali bluegrass              | PerG      | Wide   |                                       |
| Poaceae (Gramineae) | <i>Poa palustris</i>                                      |  | fowl bluegrass                | PerG      | Wide   |                                       |
| Poaceae (Gramineae) | <i>Poa wheeleri</i>                                       | <i>P. nervosa</i> var. <i>wheeleri</i>   | Wheeler bluegrass             | PerG      | Wide   |                                       |
| Polemoniaceae       | <i>Aliciella leptomeria</i>                               | <i>Gilia leptomeria</i> var. <i>leptomeria</i>   | common gilia                  | AnnF      | Wide   |                                       |
| Polemoniaceae       | <i>Ipomopsis aggregata</i> var.<br><i>attenuata</i>       | <i>Gilia aggregata</i> var. <i>attenuata</i>   | scarlet gilia                 | PerF      | RegEn  |                                       |
| Polemoniaceae       | <i>Lathrocasis tenerrima</i>                              | <i>Gilia tenerrima</i>   | delicate gilia                | AnnF      | Wide   |                                       |
| Polygonaceae        | <i>Eriogonum brevicaulum</i> var.<br><i>micranthum</i>    |  | shortstem wild buckwheat      | PerF      | RegEn  |                                       |
| Polygonaceae        | <i>Eriogonum heracleoides</i>                             | <i>E. heracleoides</i> var. <i>heracleoides</i>  | whorled wild buckwheat        | PerF      | Spars  |                                       |
| Polygonaceae        | <i>Eriogonum umbellatum</i> var.<br><i>dichrocephalum</i> | Included in var. <i>majus</i> by some authors  | sulphur-flower wild buckwheat | PerF      | Wide   |                                       |
| Polygonaceae        | <i>Polygonum kelloggii</i> var.<br><i>kelloggii</i>       | <i>P. polygaloides</i> var. <i>kelloggii</i>   | Kellogg's knotweed            | AnnF      | Wide   |                                       |
| Polygonaceae        | <i>Rumex maritimus</i> var.<br><i>fueginus</i>            | <i>R. fueginus</i>   | golden dock                   | AnnF      | Wide   |                                       |

Appendix B. Potential (unconfirmed) taxa of Fossil Butte National Monument, cont.

| Family           | Species name   | Synonyms/Taxonomic notes  | Common name             | Life form | Range | Comments   |
|------------------|--|---|-------------------------|-----------|-------|--|
| Polygonaceae     | <i>Rumex utahensis</i>                                     | <i>R. salicifolius</i> var. <i>montigenitus</i> ,<br><i>R. salicifolius</i> var. <i>denticulatus</i> ,<br>included in <i>R. salicifolius</i> by some<br>authors | Utah dock               | PerF      | Wide  |  |
| Potamogetonaceae | <i>Stuckenia filiformis</i> var.<br><i>occidentalis</i>    | <i>Potamogeton filiformis</i> var.<br><i>occidentalis</i>   | slenderleaf pondweed    | PerF      | Wide  |  |
| Ranunculaceae    | <i>Ranunculus macounii</i>                                 |   | Macoun's buttercup      | PerF      | Wide  |  |
| Rosaceae         | <i>Fragaria vesca</i>                                      | <i>F. vesca</i> var. <i>bracteata</i>   | woodland strawberry     | PerF      | Wide  |  |
| Rosaceae         | <i>Ivesia gordonii</i>                                     |   | Gordon's ivesia         | PerF      | Wide  |  |
| Rosaceae         | <i>Potentilla concinna</i> var.<br><i>concinna</i>         |   | red cinquefoil          | PerF      | Wide  |  |
| Rosaceae         | <i>Potentilla ovina</i> var. <i>ovina</i>                  |   | sheep cinquefoil        | PerF      | Wide  |  |
| Rosaceae         | <i>Rosa sayi</i>   | <i>R. acicularis</i> var. <i>sayi</i>   | prickly rose            | Shrub     | Wide  |  |
| Rosaceae         | <i>Rubus idaeus</i> var. <i>strigosus</i>                  | <i>R. idaeus</i> var. <i>aculeatissimus</i> , <i>R.</i><br><i>idaeus</i> ssp. <i>melanolasius</i>   | common red raspberry    | Shrub     | Wide  |  |
| Salicaceae       | <i>Salix lasiandra</i> var. <i>caudata</i>                 | <i>S. lucida</i> ssp. <i>caudata</i>  | whiplash willow         | Shrub     | Wide  |  |
| Scrophulariaceae | <i>Castilleja angustifolia</i> var.<br><i>angustifolia</i> |   | narrowleaf paintbrush   | PerF      | Wide  |  |
| Scrophulariaceae | <i>Castilleja miniata</i>                                  | Includes <i>C. gracillima</i>   | scarlet paintbrush      | PerF      | Wide  |  |
| Scrophulariaceae | <i>Limosella aquatica</i>                                  |   | mudwort                 | PerF      | Wide  |  |
| Scrophulariaceae | <i>Linaria dalmatica</i>                                   | <i>L. genistifolia</i> ssp. <i>dalmatica</i>  | Dalmatian toadflax      | PerF      | Intro | Native to<br>Europe. WY<br>state noxious<br>weed |
| Scrophulariaceae | <i>Mimulus suksdorfii</i>                                  |   | Suksdorf's monkeyflower | AnnF      | Wide  |  |
| Scrophulariaceae | <i>Pedicularis crenulata</i>                               |   | purple-flower lousewort | PerF      | Wide  |  |
| Scrophulariaceae | <i>Penstemon caespitosus</i>                               | <i>P. caespitosus</i> var. <i>caespitosus</i>   | mat penstemon           | PerF      | Wide  |  |
| Scrophulariaceae | <i>Penstemon fremontii</i>                                 | <i>P. fremontii</i> var. <i>fremontii</i>   | Fremont's penstemon     | PerF      | RegEn |  |
| Scrophulariaceae | <i>Veronica anagallis-aquatica</i>                         |   | water speedwell         | PerF      | Intro | Native to<br>Europe                              |

The vascular plant species listed here are known from the vicinity of Fossil Butte National Monument in Lincoln County, Wyoming, but have not previously been reported or confirmed for the monument. Species on this list are derived from Fertig (2000), Hartman et al. (1996), Reifsdal 1996, and the digital Atlas of the Vascular Plants of Wyoming ([www.esb.utexas.edu/tchumley/wyommap/at.as.htm](http://www.esb.utexas.edu/tchumley/wyommap/at.as.htm)). Some species from Appendix C could be considered as potentially occurring in the monument, but are not included here.

**Appendix C. Rejected (falsely reported or questionable) taxa of Fossil Butte National Monument.**

| Family                  | Species name   | Synonyms/<br>Taxonomic notes  | Common name             | Life form | Range  | Park status | Comments   |
|-------------------------|--|---|-------------------------|-----------|--------|-------------|--|
| Alliaceae (Liliaceae)   | <i>Allium geyeri</i> var. <i>geyeri</i>                |   | Geyer's onion           | PerF      | Wide   | FalsRep     | Report from BRY & FOBU herbaria based on misidentified specimens of <i>A. textile</i>  |
| Amaranthaceae           | <i>Amaranthus albus</i>                                |   | tumble pigweed          | AnnF      | Intro  | FalsRep     | Report from FOBU herbarium based on a misidentified specimen of <i>Chenopodium glaucum</i> var. <i>salinum</i> . Native to tropical America.   |
| Apiaceae (Umbelliferae) | <i>Lomatium juniperinum</i>                            |   | juniper lomatium        | PerF      | RegEn  | FalsRep     | Report from FOBU herbarium based on a misidentified specimen of <i>L. macrocarpum</i> .  |
| Apiaceae (Umbelliferae) | <i>Lomatium orientale</i>                              |   | oriental desert-parsley | PerF      | Wide   | Ques?       | Reported by Dorn et al. (1984) without a voucher, but Fossil Butte is well outside its known range   |
| Asteraceae (Compositae) | <i>Antennaria rosulata</i>                             |   | Breaks pussytoes        | PerF      | na     | FalsRep     | Report from FOBU herbarium based on a misidentified specimen of <i>A. dimorpha</i> .   |
| Asteraceae (Compositae) | <i>Arnica latifolia</i> var. <i>latifolia</i>          | <i>A. latifolia</i>   | broadleaf arnica        | PerF      | Wide   | FalsRep     | Report from FOBU herbarium based on a misidentified specimen of <i>A. cordifolia</i> .   |
| Asteraceae (Compositae) | <i>Artemisia campestris</i> var. <i>scouleriana</i>    | <i>Oligosporus campestris</i> ssp. <i>pacificus</i> , <i>A. campestris</i> ssp. <i>pacifica</i> | sand wormwood           | PerF      | Wide   | Ques?       | Reported by Dorn et al. (1984) without a voucher, but Fossil Butte is well outside its known range. Specimen from FOBU herbarium is based on a misidentified specimen of <i>A. biennis</i> var. <i>biennis</i> . |
| Asteraceae (Compositae) | <i>Artemisia tripartita</i> var. <i>rupicola</i>       |   | three-tip sagebrush     | Shrub     | RegEn  | Ques?       | Reported by Dorn et al. (1984) without a voucher, but Fossil Butte is well outside its known range   |
| Asteraceae (Compositae) | <i>Balsamorhiza incana</i>                             |   | hoary balsamroot        | PerF      | Wide   | FalsRep     | Report from FOBU herbarium based on a misidentified specimen of <i>B. macrophylla</i> .  |
| Asteraceae (Compositae) | <i>Chaenactis stevioides</i>                           |   | stevia dusty-maiden     | AnnF      | Periph | FalsRep     | Report from FOBU herbarium based on a misidentified specimen of <i>C. douglasii</i> var. <i>montana</i> .  |
| Asteraceae (Compositae) | <i>Chrysothamnus viscidiflorus</i> ssp. <i>pumilus</i> | Included in var. <i>viscidiflorus</i> by many authors   | green rabbitbrush       | Shrub     | na     | FalsRep     | Report from FOBU herbarium based on a misidentified specimen of <i>C. viscidiflorus</i> var. <i>viscidiflorus</i>  |
| Asteraceae (Compositae) | <i>Cirsium scopulorum</i>                              | <i>C. eatonii</i> var. <i>eriocephalum</i>  | carmine thistle         | PerF      | na     | FalsRep     | Report from FOBU herbarium based on a misidentified specimen of <i>C. pulcherrimum</i> .   |
| Asteraceae (Compositae) | <i>Conyza canadensis</i>                               | <i>C. canadensis</i> var. <i>glabrata</i>   | Canadian horseweed      | AnnF      | Wide   | FalsRep     | Report from FOBU herbarium based on a misidentified specimen of <i>Gnaphalium palustre</i> .   |

Appendix C. Rejected (falsely reported or questionable) taxa of Fossil Butte National Monument, cont.

| Family                       | Species name  | Synonyms/<br>Taxonomic notes  | Common name                      | Life<br>form | Range  | Park<br>status | Comments  |
|------------------------------|---|---|----------------------------------|--------------|--------|----------------|---|
| Asteraceae<br>(Compositae)   | <i>Erigeron peregrinus</i><br>var. <i>scaposus</i>                | <i>E. peregrinus</i> var.<br><i>callianthemus</i> , <i>E.</i><br><i>glacialis</i> var. <i>glacialis</i> | wandering fleabane               | PerF         | Wide   | FalsRep        | Report from FOBU herbarium based on a<br>misidentified specimen of <i>E. speciosus</i> .  |
| Asteraceae<br>(Compositae)   | <i>Packera fendleri</i>   | <i>Senecio fendleri</i>   | Fendler's groundsel              | PerF         | Wide   | FalsRep        | Report from FOBU herbarium based on a<br>misidentified specimen of <i>P. multilobata</i> .  |
| Asteraceae<br>(Compositae)   | <i>Packera</i><br><i>streptanthifolia</i> var.<br><i>borealis</i> | <i>Senecio</i><br><i>streptanthifolius</i> var.<br><i>borealis</i>                                      | boreal cleft-leaved<br>groundsel | PerF         | na     | FalsRep        | Reports from FOBU herbarium based<br>on misidentified specimens of <i>Senecio</i><br><i>multilobatus</i>  |
| Asteraceae<br>(Compositae)   | <i>Senecio rapifolius</i>   |   | turnip-leaf ragwort              | PerF         | RegEn  | FalsRep        | Report from FOBU herbarium based<br>on a misidentified specimen of <i>Packera</i><br><i>streptanthifolia</i> var. <i>streptanthifolia</i>   |
| Asteraceae<br>(Compositae)   | <i>Senecio</i><br><i>sphaerocephalus</i>                          |   | ballhead groundsel               | PerF         | Wide   | FalsRep        | Report from FOBU herbarium based on a<br>misidentified specimen of <i>S. serra</i> var. <i>serra</i> .  |
| Asteraceae<br>(Compositae)   | <i>Symphotrichum</i><br><i>eatonii</i>                            | <i>Aster eatonii</i> , <i>A.</i><br><i>bracteolatus</i>   | Eaton's aster                    | PerF         | Wide   | FalsRep        | Report from FOBU herbarium based on a<br>misidentified specimen of <i>Aster glaucodes</i> .   |
| Boraginaceae                 | <i>Cryptantha gracilis</i>  |   | slender cryptanth                | AnnF         | Periph | FalsRep        | Report from FOBU herbarium based on a<br>misidentified specimen of <i>C. fendleri</i> .   |
| Boraginaceae                 | <i>Hackelia deflexa</i> var.<br><i>americana</i>                  | <i>H. leptophylla</i>   | nodding stickseed                | PerF         | Wide   | FalsRep        | Reports from FOBU herbarium (as <i>H.</i><br><i>leptophylla</i> ) are based on misidentified<br>specimens of <i>H. floribunda</i> & <i>H. patens</i> .  |
| Boraginaceae                 | <i>Mertensia ciliata</i>  |   | streamside bluebell              | PerF         | Wide   | FalsRep        | Report from FOBU herbarium based on a<br>misidentified specimen of <i>M. oblongifolia</i> .   |
| Brassicaceae<br>(Cruciferae) | <i>Barbarea vulgaris</i>  | European<br>wintercress   |                                  | PerF         | Intro  | Ques?          | Reported by Dorn et al. (1984) and<br>Springer et al. (2006) without a voucher,<br>but Fossil Butte is well outside its known<br>range. Native to Eurasia.  |
| Brassicaceae<br>(Cruciferae) | <i>Cardaria draba</i>   | <i>C. draba</i> var. <i>draba</i> ,<br><i>Lepidium draba</i>  | whitetop                         | PerF         | Intro  | FalsRep        | Reports from FOBU herbarium based on<br>misidentified specimens of <i>C. chalepensis</i><br>and <i>Lepidium densiflorum</i> var. <i>densiflorum</i> .<br>Native to Europe. WY state noxious weed. |
| Brassicaceae<br>(Cruciferae) | <i>Descurainia pinnata</i><br>var. <i>osmiarum</i>                | <i>D. pinnata</i> ssp.<br><i>halictorum</i>   | western tansy-<br>mustard        | AnnF         | Wide   | FalsRep        | Report from Fertig (2000) is based on<br>collections from outside FOBU.   |
| Brassicaceae<br>(Cruciferae) | <i>Physaria didymocarpa</i>                                       | <i>P. didymocarpa</i> var.<br><i>didymocarpa</i>  | common twinpod                   | PerF         | Wide   | FalsRep        | Reports from FOBU and UW Range<br>herbaria based on misidentified specimens<br>of <i>P. condensata</i> .  |

Appendix C. Rejected (falsely reported or questionable) taxa of Fossil Butte National Monument, cont.

| Family                          | Species name                                      | Synonyms/<br>Taxonomic notes                                | Common name               | Life<br>form | Range  | Park<br>status | Comments  |
|---------------------------------|---|---|---------------------------|--------------|--------|----------------|---|
| Brassicaceae<br>(Cruciferae)    | <i>Thelypodium sagittatum</i>                     | <i>Thelypodopsis sagittata</i> var. <i>sagittata</i>        | arrowhead<br>thelypody    | PerF         | Sparse | FalsRep        | Report from FOBU based on a misidentified specimen of <i>T. paniculatum</i>   |
| Caprifoliaceae                  | <i>Symphoricarpos occidentalis</i>                |   | western snowberry         | Shrub        | Periph | FalsRep        | Report from FOBU herbarium based on a misidentified specimen of <i>S. oreophilus</i> var. <i>utahensis</i> .  |
| Caryophyllaceae<br>(Alsinaceae) | <i>Cerastium arvense</i>                          | <i>C. strictum</i> , <i>C. arvense</i> ssp. <i>strictum</i> | field chickweed           | PerF         | Wide   | FalsRep        | Report from FOBU herbarium based on a misidentified specimen of <i>C. fontanum</i> .  |
| Chenopodiaceae                  | <i>Atriplex patula</i>                            |   | spear orache              | AnnF         | Periph | FalsRep        | Report from FOBU herbarium based on a misidentified specimen of <i>A. subspicata</i> .  |
| Chenopodiaceae                  | <i>Atriplex suckleyi</i>                          | <i>Endolepis dioica</i>                                     | Suckley's saltbush        | AnnF         | Wide   | FalsRep        | Report from Fertig (2000) based on misinterpretation of Dorn et al. (1984) report of <i>A. dioica</i> which is a synonym of <i>A. subspicata</i> , not <i>Endolepis dioica</i> [= <i>A. suckleyi</i> ]. |
| Chenopodiaceae                  | <i>Chenopodium album</i>                          | <i>C. album</i> var. <i>album</i>                           | lambquarter               | AnnF         | Intro  | FalsRep        | Report from FOBU herbarium based on a misidentified specimen of <i>C. atrovirens</i> . Native to Eurasia.   |
| Chenopodiaceae                  | <i>Grayia spinosa</i>                             | <i>Atriplex spinosa</i> , <i>A. grayi</i>                   | spiny hop-sage            | Shrub        | Wide   | FalsRep        | Report from Fertig (2000) is based on records from outside FOBU.  |
| Crassulaceae                    | <i>Sedum rhodanthum</i>                           | <i>Rhodiola rhodantha</i> , <i>Clementsia rhodantha</i>     | redtop stonecrop          | PerF         | Wide   | Ques?          | Reported by Dorn et al. (1984) without a voucher, but Fossil Butte is well outside its known range  |
| Euphorbiaceae                   | <i>Chamaesyce fendleri</i>                        | <i>Euphorbia fendleri</i>                                   | Fendler's spurge          | PerF         | Wide   | FalsRep        | Report from FOBU herbarium based on a misidentified specimen of <i>C. glyptosperma</i> .  |
| Fabaceae<br>(Leguminosae)       | <i>Astragalus alpinus</i>                         |   | alpine milkvetch          | PerF         | Wide   | FalsRep        | Reports from FOBU herbarium based on misidentified specimens of <i>A. canadensis</i> var. <i>brevidens</i> and <i>Oxytropis deflexa</i> var. <i>sericea</i> .   |
| Fabaceae<br>(Leguminosae)       | <i>Astragalus laxmannii</i> var. <i>robustior</i> | <i>A. adsurgens</i> var. <i>robustior</i>                   | standing milkvetch        | PerF         | Wide   | Ques?          | Reported by Dorn et al. (1984) without a voucher, but Fossil Butte is well outside its known range  |
| Fabaceae<br>(Leguminosae)       | <i>Astragalus platytropis</i>                     |   | broad-keeled<br>milkvetch | PerF         | Periph | Ques?          | Report from Beetle & Marlow (1974) probably based on a misidentified specimen of <i>A. jejunus</i> var. <i>jejunus</i> .  |
| Fabaceae<br>(Leguminosae)       | <i>Astragalus vexilliflexus</i>                   |   | bent-flower<br>milkvetch  | PerF         | Wide   | Ques?          | Reported by Dorn et al. (1984) without a voucher, but Fossil Butte is well outside its known range  |

Appendix C. Rejected (falsely reported or questionable) taxa of Fossil Butte National Monument, cont.

| Family                       | Species name  | Synonyms/<br>Taxonomic notes                                | Common name                               | Life<br>form | Range  | Park<br>status | Comments   |
|------------------------------|---|---|---|--------------|--------|----------------|--|
| Fabaceae<br>(Leguminosae)    | <i>Lupinus polyphyllus</i>                                  |   | hairy bigleaf lupine                      | PerF         | Wide   | FalsRep        | Report from FOBU herbarium based on a misidentified specimen of <i>L. argenteus</i> var. <i>rubricaulis</i>  |
| Hypericaceae<br>(Guttiferae) | <i>Hypericum formosum</i><br>var. <i>formosum</i>           | <i>H. scouleri</i> ssp.<br><i>nortoniae</i>                 | western St. John's-<br>wort               | PerF         | Wide   | FalsRep        | Report from Fertig (2000) based on a misidentified specimen of <i>H. formosum</i> var. <i>scouleri</i>   |
| Iridaceae                    | <i>Sisyrinchium montanum</i>                                | <i>S. montanum</i> var.<br><i>montanum</i>                  | mountain blue-eyed<br>grass               | PerF         | Wide   | FalsRep        | Report from FOBU herbarium based on a misidentified specimen of <i>S. idahoense</i> var. <i>occidentale</i> .  |
| Juncaceae                    | <i>Juncus filiformis</i>                                    |   | thread rush                               | PerG         | Periph | FalsRep        | Report from FOBU herbarium based on a misidentified specimen of <i>J. ensifolius</i> var. <i>montanus</i> (not var. <i>saximontanus</i> as reported in Fertig 2000).   |
| Juncaceae                    | <i>Juncus nevadensis</i>                                    | Includes vars. <i>badius</i><br>& <i>nevadensis</i>         | Nevada rush                               | PerG         | Wide   | FalsRep        | Report from FOBU herbarium based on a misidentified specimen of <i>J. ensifolius</i> var. <i>montanus</i> (not var. <i>saximontanus</i> as reported in Fertig 2000).   |
| Lamiaceae<br>(Labiatae)      | <i>Agastache pallidiflora</i>                               |   | Bill Williams<br>Mountain giant<br>hyssop | PerF         | na     | FalsRep        | Report from FOBU herbarium based on a misidentified specimen of <i>A. urticifolia</i> .  |
| Malvaceae                    | <i>Malva pusilla</i>  | <i>M. rotundifolia</i>                                      | low mallow                                | AnnF         | Intro  | Ques?          | Reported by Dorn et al. (1984) without a voucher, but Fossil Butte is well outside its known range. Native to Europe.  |
| Malvaceae                    | <i>Sphaeralcea ambigua</i>                                  | <i>S. ambigua</i> var.<br><i>ambigua</i>                    | Mohave<br>globemallow                     | PerF         | na     | FalsRep        | Report from FOBU herbarium based on a misidentified specimen of <i>S. munroana</i> . <i>S. ambigua</i> is not native to Wyoming.   |
| Onagraceae                   | <i>Chamerion angustifolium</i> var.<br><i>angustifolium</i> | <i>Epilobium angustifolium</i> var.<br><i>angustifolium</i> | narrowleaf fireweed                       | PerF         | Wide   | Ques?          | Reported for FOBU by Fertig 2000 based on a report from Dorn et al. (1984) that did not include the variety. No vouchers of var. <i>angustifolia</i> have been documented from FOBU, but var. <i>canescens</i> has been collected. |
| Onagraceae                   | <i>Epilobium palustre</i><br>var. <i>palustre</i>           | <i>E. palustre</i> var.<br><i>grammadophyllum</i>           | marsh willowherb                          | PerF         | Sparse | FalsRep        | Report from FOBU herbarium based on a misidentified specimen of <i>E. ciliatum</i> var. <i>ciliatum</i>  |
| Onagraceae                   | <i>Gayophytum ramosissimum</i>                              |   | branching<br>groundsmoke                  | AnnF         | Wide   | FalsRep        | Report from FOBU herbarium based on a misidentified specimen of <i>G. diffusum</i> var. <i>strictipes</i> .  |

Appendix C. Rejected (falsely reported or questionable) taxa of Fossil Butte National Monument, cont.

| Family                 | Species name  | Synonyms/<br>Taxonomic notes  | Common name                  | Life<br>form | Range  | Park<br>status | Comments   |
|------------------------|---|---|------------------------------|--------------|--------|----------------|--|
| Onagraceae             | <i>Oenothera elata</i>  | <i>O. hookeri</i> , <i>O. elata</i><br>ssp. <i>hirsutissima</i>   | western evening-<br>primrose | PerF         | na     | FalsRep        | Report from FOBU herbarium (under<br><i>O. hookeri</i> ) is based on a misidentified<br>specimen of <i>O. flava</i> .  |
| Orchidaceae            | <i>Corallorhiza trifida</i>                                   |   | early coralroot              | PerF         | Wide   | FalsRep        | Report from FOBU herbarium based on a<br>misidentified specimen of <i>C. striata</i> .   |
| Plantaginaceae         | <i>Plantago tweedyi</i>                                       |   | Tweedy's plantain            | PerF         | Wide   | FalsRep        | Report from FOBU herbarium based on a<br>misidentified specimen of <i>P. eriopoda</i> .  |
| Poaceae<br>(Gramineae) | <i>Elymus trachycaulus</i><br>var. <i>andinus</i>             | <i>Agropyron caninum</i><br>var. <i>andinum</i> .<br>Considered a<br>hybrid between <i>E.</i><br><i>trachycaulus</i> and<br><i>E. scribneri</i> in FNA<br>(2007). | slender wildrye              | PerG         | Wide   | Ques?          | Report in Fertig 2000 was incorrectly based<br>on Dorn et al. 1984 citation of <i>Agropyron</i><br><i>caninum</i> (without variety). The Dorn et al.<br>1984 report is now considered to represent<br><i>Elymus trachycaulus</i> var. <i>trachycaulus</i><br>rather than var. <i>andinus</i> . |
| Poaceae<br>(Gramineae) | <i>Nassella viridula</i>                                      | <i>Stipa viridula</i>   | green needlegrass            | PerG         | Wide   | Ques?          | Reported by Beetle & Marlow (1974) and<br>Dorn et al. (1984) without a voucher, but<br>Fossil Butte is well outside its known range  |
| Poaceae<br>(Gramineae) | <i>Poa glaucifolia</i>  | Included in <i>P. arida</i><br>by some authors  | pale-leaf bluegrass          | PerG         | Wide   | FalsRep        | Reports from Dorn et al. (1984) and FOBU<br>herbarium are based on misidentified<br>specimens of <i>P. arida</i> .   |
| Polemoniaceae          | <i>Linanthus caespitosus</i>                                  | <i>Leptodactylon</i><br><i>caespitosum</i>  | matted prickly-phlox         | PerF         | Sparse | FalsRep        | Report from FOBU herbarium based on a<br>misidentified specimen of <i>Phlox hoodii</i> .   |
| Polygonaceae           | <i>Eriogonum flavum</i><br>var. <i>flavum</i>                 |   | yellow wild<br>buckwheat     | PerF         | Wide   | FalsRep        | Report from FOBU herbarium based on a<br>misidentified specimen of <i>E. brevicaule</i> var.<br><i>laxifolium</i> .  |
| Polygonaceae           | <i>Eriogonum</i><br><i>microthecum</i> var.<br><i>effusum</i> | <i>E. effusum</i>   | spreading wild<br>buckwheat  | Shrub        | Wide   | Ques?          | Report from Beetle & Marlow (1974)<br>probably based on a misidentified<br>specimen of <i>E. microthecum</i> var. <i>laxiflorum</i> .  |
| Potamogetonaceae       | <i>Potamogeton pusillus</i><br>var. <i>pusillus</i>           |   | dwarf pondweed               | PerF         | Wide   | Ques?          | Reported by Dorn et al. (1984) without a<br>voucher, but Fossil Butte is well outside its<br>known range   |
| Ranunculaceae          | <i>Clematis hirsutissima</i><br>var. <i>scottii</i>           |   | sugar-bowls                  | PerF         | na     | FalsRep        | Report from FOBU herbarium based on<br>a misidentified specimen of <i>Clematis</i><br><i>hirsutissima</i> (without variety)  |
| Ranunculaceae          | <i>Ranunculus</i><br><i>hyperboreus</i>                       | <i>R. natans</i> var.<br><i>intertextus</i> , <i>R.</i><br><i>hyperboreus</i> var.<br><i>intertextus</i>  | floating buttercup           | PerF         | Periph | FalsRep        | Report from FOBU herbarium based on a<br>misidentified specimen of <i>R. sceleratus</i> var.<br><i>multifidus</i> .  |

**Appendix C. Rejected (falsely reported or questionable) taxa of Fossil Butte National Monument, cont.**

| Family                           | Species name   | Synonyms/<br>Taxonomic notes               | Common name           | Life form | Range | Park status | Comments  |
|----------------------------------|--|--|-----------------------|-----------|-------|-------------|---|
| Ranunculaceae<br>(Thalictraceae) | <i>Thalictrum venulosum</i>                            |  | veiny-leaf meadow-rue | Perf      | Wide  | Ques?       | Reported by Dorn et al. (1984) without a voucher, but Fossil Butte is well outside its known range. Reports from FOBU herbarium are based on misidentified specimens of <i>T. occidentale</i> .             |
| Salicaceae                       | <i>Populus deltoides</i> var. <i>occidentalis</i>      | <i>P. deltoides</i> ssp. <i>monilifera</i> | plains cottonwood     | Tree      | Wide  | Ques?       | Reported by Beetle and Marlow (1974) without a voucher, but Fossil Butte is well outside its known range. Report may have been based on a cultivated individual that has since died. State tree of Wyoming. |
| Salicaceae                       | <i>Salix lemmonii</i>                                  |  | Lemmon's willow       | Shrub     | Wide  | FalsRep     | Report from FOBU herbarium based on a misidentified specimen of <i>S. geeyeriana</i>  |
| Scrophulariaceae                 | <i>Penstemon attenuatus</i> var. <i>pseudoprocerus</i> |  | sulphur beardtongue   | Perf      | RegEn | FalsRep     | Report from FOBU herbarium based on a misidentified specimen of <i>P. radicosus</i> .   |
| Scrophulariaceae                 | <i>Penstemon saxosorum</i>                             |  | upland beardtongue    | Perf      | RegEn | FalsRep     | Report from FOBU herbarium based on a misidentified specimen of <i>P. cyananthus</i> .  |
| Violaceae                        | <i>Viola nuttallii</i>                                 | <i>V. nuttallii</i> var. <i>major</i>      | yellow prairie violet | Perf      | Wide  | Ques?       | Reported by Beetle and Marlow (1974) without a voucher, but Fossil Butte is well outside its known range  |

The vascular plant species listed here have been reported for Fossil Butte NM from published and unpublished literature (Beetle and Marlow 1974, Dorn et al. 1984) or from herbarium specimens, but are now believed to be erroneous because of misidentifications (False Reports or FalsRep) or because the monument is well outside the known or expected range of the species (Questionable or Ques?).



Appendix D. Confirmed, historical, and reported taxa of Fossil Butte National Monument, organized by life form with ecological notes.

| Family                     | Species name   | Common name              | Nativity | Park status | Flower time | Sage/Grs | MiX Con | Asp | Wet | Comments     |
|----------------------------|--|--------------------------|----------|-------------|-------------|----------|---------|-----|-----|--------------|
| <b>Trees</b>               |  |                          |          |             |             |          |         |     |     |              |
| Cupressaceae               | <i>Juniperus scopulorum</i>                                  | Rocky Mountain juniper   | Native   | Pres        | NA          | X        |         | X   |     |              |
| Pinaceae                   | <i>Pinus flexilis</i>  | limber pine              | Native   | Pres        | NA          | X        | X       | X   |     |              |
| Pinaceae                   | <i>Pseudotsuga menziesii</i> var. <i>glauca</i>              | Douglas-fir              | Native   | Pres        | NA          | X        | X       | X   |     |              |
| Salicaceae                 | <i>Populus angustifolia</i>                                  | narrow-leaved cottonwood | Native   | Pres        | Apr–Jun     |          |         |     | X   |              |
| Salicaceae                 | <i>Populus tremuloides</i>                                   | quaking aspen            | Native   | Pres        | Mar–Jun     |          | X       | X   |     |              |
| <b>Shrubs</b>              |  |                          |          |             |             |          |         |     |     |              |
| Aceraceae                  | <i>Acer glabrum</i>  | Rocky Mountain maple     | Native   | Pres        | Apr–Jun     |          | X       |     |     |              |
| Adoxaceae (Caprifoliaceae) | <i>Sambucus racemosa</i> var. <i>melanocarpa</i>             | black elderberry         | Native   | Pres        | May–Jul     | X        |         | X   |     |              |
| Asteraceae (Compositae)    | <i>Artemisia arbuscula</i> var. <i>longiloba</i>             | dwarf sagebrush          | Native   | Pres        | Jun–Sep     | X        |         |     |     | Clayey soils |
| Asteraceae (Compositae)    | <i>Artemisia cana</i> var. <i>viscidula</i>                  | silver sagebrush         | Native   | Pres        | Aug–Sep     | X        |         | X   | X   |              |
| Asteraceae (Compositae)    | <i>Artemisia frigida</i>                                     | fringed sagebrush        | Native   | Pres        | Jul–Sep     | X        |         |     |     |              |
| Asteraceae (Compositae)    | <i>Artemisia nova</i>  | black sagebrush          | Native   | Pres        | Sep–Oct     | X        |         |     |     |              |
| Asteraceae (Compositae)    | <i>Artemisia spinescens</i>                                  | budsage                  | Native   | Pres        | Apr–Jun     | X        |         |     |     |              |
| Asteraceae (Compositae)    | <i>Artemisia tridentata</i> var. <i>tridentata</i>           | basin big sagebrush      | Native   | Pres        | Jul–Sep     | X        |         |     |     |              |
| Asteraceae (Compositae)    | <i>Artemisia tridentata</i> var. <i>vaseyana</i>             | mountain big sagebrush   | Native   | Pres        | Jul–Sep     | X        |         |     |     |              |
| Asteraceae (Compositae)    | <i>Artemisia tridentata</i> var. <i>wyomingensis</i>         | Wyoming big sagebrush    | Native   | Pres        | Jul–Sep     | X        |         |     |     |              |
| Asteraceae (Compositae)    | <i>Chrysothamnus viscidiflorus</i> var. <i>lanceolatus</i>   | lanceleaf rabbitbrush    | Native   | Pres        | Jul–Sep     | X        |         |     |     |              |
| Asteraceae (Compositae)    | <i>Chrysothamnus viscidiflorus</i> var. <i>viscidiflorus</i> | green rabbitbrush        | Native   | Pres        | Jul–Sep     | X        |         |     |     | Barren sites |
| Asteraceae (Compositae)    | <i>Ericameria nauseosa</i> var. <i>nauseosa</i>              | rubber rabbitbrush       | Native   | Pres        | Aug–Oct     | X        |         |     |     |              |
| Asteraceae (Compositae)    | <i>Ericameria nauseosa</i> var. <i>oreophila</i>             | greenish rabbitbrush     | Native   | Pres        | Aug–Oct     | X        |         |     |     |              |

Appendix D. Confirmed, historical, and reported taxa of Fossil Butte National Monument, organized by life form with ecological notes, cont.

| Family                          | Species name   | Common name            | Nativity | Park status | Flower time | Sage/Grass | Mix/Con | Asp | Wet | Comments        |
|---------------------------------|--|------------------------|----------|-------------|-------------|------------|---------|-----|-----|-----------------|
| <i>Shrubs, cont.</i>            |  |                        |          |             |             |            |         |     |     |                 |
| Asteraceae (Compositae)         | <i>Gutierrezia sarothrae</i>                           | broom snakeweed        | Native   | Pres        | Jul-Oct     | X          |         |     |     |                 |
| Asteraceae (Compositae)         | <i>Tetradymia canescens</i>                            | spineless horsebrush   | Native   | Pres        | Jun-Sep     | X          |         |     |     |                 |
| Asteraceae (Compositae)         | <i>Tetradymia spinosa</i>                              | shortspine horsebrush  | Native   | Pres        | Apr-Jun     | X          |         |     |     | Barren sites    |
| Berberidaceae                   | <i>Mahonia repens</i>                                  | Oregon-grape           | Native   | Pres        | Apr-Jun     | X          | X       | X   |     |                 |
| Caprifoliaceae                  | <i>Lonicera involucrata</i>                            | black twinberry        | Native   | Pres        | May-Jul     |            |         | X   | X   |                 |
| Caprifoliaceae                  | <i>Symphoricarpos oreophilus</i> var. <i>utahensis</i> | mountain snowberry     | Native   | Pres        | Jun-Aug     | X          | X       | X   |     |                 |
| Celastraceae                    | <i>Paxistima myrsinites</i>                            | mountain-lover         | Native   | Pres        | May-Aug     |            | X       | X   |     |                 |
| Chenopodiaceae                  | <i>Atriplex canescens</i> var. <i>canescens</i>        | four-wing saltbush     | Native   | Pres        | May-Sep     | X          |         |     |     | Disturbed areas |
| Chenopodiaceae                  | <i>Atriplex confertifolia</i>                          | shadscale              | Native   | Pres        | May-Sep     | X          |         |     |     | Barren sites    |
| Chenopodiaceae                  | <i>Atriplex falcata</i>                                | sickle saltbush        | Native   | Pres        | Jun-Sep     | X          |         |     |     |                 |
| Chenopodiaceae                  | <i>Atriplex gardneri</i> var. <i>gardneri</i>          | Gardner's saltbush     | Native   | Pres        | May-Aug     | X          |         |     |     | Barren sites    |
| Chenopodiaceae                  | <i>Krascheninnikovia lanata</i>                        | winterfat              | Native   | Pres        | May-Jul     | X          |         |     |     | Barren sites    |
| Cornaceae                       | <i>Cornus sericea</i>                                  | red-osier dogwood      | Native   | Pres        | May-Jul     |            |         |     | X   |                 |
| Cupressaceae                    | <i>Juniperus communis</i> var. <i>depressa</i>         | common juniper         | Native   | Pres        | NA          |            | X       |     |     |                 |
| Elaeagnaceae                    | <i>Shepherdia canadensis</i>                           | Canada buffaloberry    | Native   | Pres        | May-Jul     |            | X       | X   |     |                 |
| Ericaceae                       | <i>Arctostaphylos uva-ursi</i> var. <i>uva-ursi</i>    | bearberry              | Native   | Pres        | May-Aug     |            | X       | X   |     |                 |
| Grossulariaceae (Saxifragaceae) | <i>Ribes cereum</i> var. <i>pedicellare</i>            | wax currant            | Native   | Pres        | Apr-Aug     | X          | X       |     |     |                 |
| Grossulariaceae (Saxifragaceae) | <i>Ribes inerme</i>                                    | whitestem gooseberry   | Native   | Pres        | Apr-Jul     |            |         | X   | X   |                 |
| Grossulariaceae (Saxifragaceae) | <i>Ribes viscosissimum</i>                             | sticky currant         | Native   | Rep         | May-Aug     |            | X       | X   |     |                 |
| Polemoniaceae                   | <i>Linanthus pungens</i>                               | prickly-phlox          | Native   | Pres        | May-Jul     | X          |         |     |     |                 |
| Polygonaceae                    | <i>Eriogonum microthecum</i> var. <i>laxiflorum</i>    | slender wild buckwheat | Native   | Pres        | Jun-Oct     | X          |         |     |     | Barren sites    |
| Rhamnaceae                      | <i>Ceanothus martinii</i>                              | Utah mountain-lilac    | Native   | Pres        | Jun-Jul     | X          | X       |     |     |                 |

Appendix D. Confirmed, historical, and reported taxa of Fossil Butte National Monument, organized by life form with ecological notes, cont.

| Family                         | Species name                                       | Common name                  | Nativity | Park status | Flower time | Sage/ Grs | MiX Con | Asp | Wet | Comments       |
|--------------------------------|--|------------------------------|----------|-------------|-------------|-----------|---------|-----|-----|----------------|
| <i>Shrubs, cont.</i>           |  |                              |          |             |             |           |         |     |     |                |
| Rhamnaceae                     | <i>Ceanothus velutinus</i>                         | deer-brush                   | Native   | Pres        | Jun-Jul     |           | X       |     |     |                |
| Rosaceae                       | <i>Amelanchier alnifolia</i> var. <i>alnifolia</i> | Saskatoon serviceberry       | Native   | Rep         | May-Jul     | X         | X       | X   |     |                |
| Rosaceae                       | <i>Amelanchier alnifolia</i> var. <i>pumila</i>    | dwarf serviceberry           | Native   | Pres        | May-Jul     | X         | X       | X   |     |                |
| Rosaceae                       | <i>Amelanchier utahensis</i>                       | Utah serviceberry            | Native   | Pres        | Apr-Jun     | X         | X       |     |     |                |
| Rosaceae                       | <i>Cercocarpus montanus</i>                        | alder-leaf mountain mahogany | Native   | Pres        | May-Jun     | X         | X       | X   |     |                |
| Rosaceae                       | <i>Holodiscus dumosus</i>                          | bush oceanspray              | Native   | Pres        | Jun-Aug     | X         |         |     |     | Rocky areas    |
| Rosaceae                       | <i>Pentaphylloides floribunda</i>                  | shrubby cinquefoil           | Native   | Pres        | Jun-Aug     | X         | X       | X   | X   |                |
| Rosaceae                       | <i>Prunus virginiana</i> var. <i>melanocarpa</i>   | western chokecherry          | Native   | Pres        | May-Jul     | X         |         | X   |     |                |
| Rosaceae                       | <i>Purshia tridentata</i>                          | antelope bitterbrush         | Native   | Pres        | Apr-Jul     | X         |         |     |     |                |
| Rosaceae                       | <i>Rosa nutkana</i> var. <i>hispida</i>            | Nootka rose                  | Native   | Pres        | Jun-Jul     | X         |         | X   |     |                |
| Rosaceae                       | <i>Rosa woodsii</i>                                | Woods' rose                  | Native   | Pres        | May-Jul     | X         |         | X   |     |                |
| Salicaceae                     | <i>Salix bebbiana</i>                              | Bebb's willow                | Native   | Pres        | May-Jun     |           |         | X   | X   |                |
| Salicaceae                     | <i>Salix boothii</i>                               | Booth's willow               | Native   | Rep         | May-Jun     |           |         |     | X   |                |
| Salicaceae                     | <i>Salix eriocephala</i> var. <i>watsonii</i>      | yellow willow                | Native   | Pres        | Apr-Jun     |           |         |     | X   |                |
| Salicaceae                     | <i>Salix exigua</i> var. <i>exigua</i>             | coyote willow                | Native   | Pres        | Apr-Aug     |           |         |     | X   |                |
| Salicaceae                     | <i>Salix geyeriana</i>                             | Geyer's willow               | Native   | Pres        | Apr-Aug     |           |         |     | X   |                |
| Salicaceae                     | <i>Salix scouleriana</i>                           | Scouler's willow             | Native   | Pres        | Apr-Jun     |           |         | X   |     |                |
| Sarcobataceae (Chenopodiaceae) | <i>Sarcobatus vermiculatus</i>                     | greasewood                   | Native   | Pres        | May-Aug     | X         |         |     |     | Alkaline soils |
| Tamaricaceae                   | <i>Tamarix chinensis</i>                           | five-stamen tamarisk         | Intro    | Ext         | Apr-Sep     |           |         |     | X   |                |
| <b>Perennial Forbs</b>         |  |                              |          |             |             |           |         |     |     |                |
| Alliaceae (Liliaceae)          | <i>Allium acuminatum</i>                           | taper-tip onion              | Native   | Pres        | May-Jul     |           |         |     |     | X              |
| Alliaceae (Liliaceae)          | <i>Allium brevistylum</i>                          | short-style onion            | Native   | Pres        | Jun-Aug     |           |         | X   |     |                |
| Alliaceae (Liliaceae)          | <i>Allium geyeri</i> var. <i>tenerum</i>           | Geyer's onion                | Native   | Pres        | May-Jun     |           |         | X   | X   |                |

Appendix D. Confirmed, historical, and reported taxa of Fossil Butte National Monument, organized by life form with ecological notes, cont.

| Family                        | Species name   | Common name                | Nativity | Park status | Flower time | Sage/Gr | Mix Con | Asp | Wet | Comments       |
|-------------------------------|--|----------------------------|----------|-------------|-------------|---------|---------|-----|-----|----------------|
| <i>Perennial Forbs, cont.</i> |  |                            |          |             |             |         |         |     |     |                |
| Alliaceae (Liliaceae)         | <i>Allium textile</i>                                  | textile onion              | Native   | Pres        | May–Jun     | X       |         |     |     |                |
| Apiaceae (Umbelliferae)       | <i>Angelica arguta</i>                                 | Lyall's angelica           | Native   | Pres        | Jun–Aug     |         |         | X   | X   |                |
| Apiaceae (Umbelliferae)       | <i>Angelica pinnata</i>                                | pinnate angelica           | Native   | Pres        | Jun–Aug     |         |         |     | X   |                |
| Apiaceae (Umbelliferae)       | <i>Cymopterus acaulis</i>                              | plains spring-parsley      | Native   | Rep         | Apr–May     | X       |         |     |     |                |
| Apiaceae (Umbelliferae)       | <i>Cymopterus constancei</i>                           | Constance's spring-parsley | Native   | Pres        | Apr–May     | X       |         |     |     |                |
| Apiaceae (Umbelliferae)       | <i>Cymopterus longipes</i>                             | long-stalk spring-parsley  | Native   | Pres        | Apr–Jun     | X       |         |     | X   |                |
| Apiaceae (Umbelliferae)       | <i>Cymopterus nivalis</i>                              | snowline spring-parsley    | Native   | Pres        | Jun         | X       |         |     |     | Barren sites   |
| Apiaceae (Umbelliferae)       | <i>Cymopterus terebinthinus</i> var. <i>albiflorus</i> | aromatic spring-parsley    | Native   | Pres        | Apr–Jun     | X       |         |     |     |                |
| Apiaceae (Umbelliferae)       | <i>Ligusticum filicinum</i>                            | fernleaf ligusticum        | Native   | Pres        | Jul–Aug     |         |         | X   |     |                |
| Apiaceae (Umbelliferae)       | <i>Lomatium bicolor</i>                                | Wasatch biscuitroot        | Native   | Pres        | May–Jul     | X       | X       |     |     |                |
| Apiaceae (Umbelliferae)       | <i>Lomatium dissectum</i> var. <i>multifidum</i>       | fern-leaved desert-parsley | Native   | Rep         | Apr–Jun     | X       |         | X   |     |                |
| Apiaceae (Umbelliferae)       | <i>Lomatium macrocarpum</i>                            | big-seed desert-parsley    | Native   | Pres        | Apr–May     | X       |         |     |     | Alkaline soils |
| Apiaceae (Umbelliferae)       | <i>Lomatium triternatum</i> var. <i>anomalum</i>       | ternate desert-parsley     | Native   | Pres        | May–Jul     | X       |         |     |     |                |
| Apiaceae (Umbelliferae)       | <i>Lomatium triternatum</i> var. <i>platycarpum</i>    | ternate desert-parsley     | Native   | Pres        | May–Jul     | X       |         |     |     |                |
| Apiaceae (Umbelliferae)       | <i>Orogenia linearifolia</i>                           | Indian-potato              | Native   | Pres        | Mar–May     | X       |         |     |     |                |
| Apiaceae (Umbelliferae)       | <i>Osmorhiza berteroi</i>                              | Chilean sweet-cicely       | Native   | Pres        | May–Jul     |         |         | X   |     |                |
| Apiaceae (Umbelliferae)       | <i>Osmorhiza occidentalis</i>                          | western sweet-cicely       | Native   | Pres        | May–Jul     |         |         |     | X   |                |

Appendix D. Confirmed, historical, and reported taxa of Fossil Butte National Monument, organized by life form with ecological notes, cont.

| Family                        | Species name   | Common name          | Nativity | Park status | Flower time | Sage/ Grs | MiX Con | Asp | Wet | Comments |
|-------------------------------|--|----------------------|----------|-------------|-------------|-----------|---------|-----|-----|----------|
| <i>Perennial Forbs, cont.</i> |  |                      |          |             |             |           |         |     |     |          |
| Apiaceae (Umbelliferae)       | <i>Perideridia montana</i>                           | common yampah        | Native   | Pres        | Jul–Aug     | X         |         |     | X   |          |
| Apiaceae (Umbelliferae)       | <i>Sium suave</i>                                    | water parsnip        | Native   | Pres        | Jul–Aug     |           |         | X   | X   |          |
| Apocynaceae                   | <i>Apocynum androsaemifolium</i>                     | spreading dogbane    | Native   | Pres        | Jun–Aug     |           |         | X   |     |          |
| Asclepiadaceae                | <i>Asclepias speciosa</i>                            | showy milkweed       | Native   | Pres        | May–Aug     | X         |         |     |     |          |
| Asteraceae (Compositae)       | <i>Achillea millefolium</i> var. <i>lanulosa</i>     | common yarrow        | Native   | Pres        | May–Sep     | X         |         |     |     |          |
| Asteraceae (Compositae)       | <i>Agoseris glauca</i> var. <i>dasycephala</i>       | short agoseris       | Native   | Pres        | May–Sep     | X         |         |     |     |          |
| Asteraceae (Compositae)       | <i>Agoseris glauca</i> var. <i>glauca</i>            | pale agoseris        | Native   | Pres        | May–Sep     | X         |         |     | X   |          |
| Asteraceae (Compositae)       | <i>Agoseris glauca</i> var. <i>laciniata</i>         | cutleaf agoseris     | Native   | Pres        | May–Sep     | X         |         |     |     |          |
| Asteraceae (Compositae)       | <i>Antennaria dimorpha</i>                           | low pussytoes        | Native   | Pres        | Apr–Jun     | X         |         |     |     |          |
| Asteraceae (Compositae)       | <i>Antennaria microphylla</i>                        | small-leaf pussytoes | Native   | Pres        | Jun–Aug     | X         |         |     | X   |          |
| Asteraceae (Compositae)       | <i>Antennaria rosea</i>                              | rosy pussytoes       | Native   | Pres        | Jun–Aug     | X         |         |     |     |          |
| Asteraceae (Compositae)       | <i>Arctium minus</i>                                 | burdock              | Intro    | Pres        | Jul–Sep     | X         |         |     |     |          |
| Asteraceae (Compositae)       | <i>Arnica cordifolia</i>                             | heartleaf arnica     | Native   | Pres        | May–Aug     |           |         | X   |     |          |
| Asteraceae (Compositae)       | <i>Arnica sororia</i>                                | meadow arnica        | Native   | Pres        | May–Aug     |           |         |     | X   |          |
| Asteraceae (Compositae)       | <i>Artemisia biennis</i> var. <i>biennis</i>         | biennial wormwood    | Native   | Pres        | Aug–Oct     | X         |         |     |     |          |
| Asteraceae (Compositae)       | <i>Artemisia dracunculus</i>                         | tarragon             | Native   | Pres        | Jul–Oct     | X         |         | X   |     |          |
| Asteraceae (Compositae)       | <i>Artemisia ludoviciana</i> var. <i>ludoviciana</i> | Louisiana wormwood   | Native   | Pres        | Jul–Oct     | X         |         |     | X   |          |
| Asteraceae (Compositae)       | <i>Balsamorhiza macrophylla</i>                      | cutleaf balsamroot   | Native   | Pres        | May–Jul     | X         |         |     |     |          |

Appendix D. Confirmed, historical, and reported taxa of Fossil Butte National Monument, organized by life form with ecological notes, cont.

| Family                        | Species name                                      | Common name          | Nativity | Park status | Flower time | Sage/ Grs | Mix Con | Asp | Wet | Comments        |
|-------------------------------|---|----------------------|----------|-------------|-------------|-----------|---------|-----|-----|-----------------|
| <i>Perennial Forbs, cont.</i> |   |                      |          |             |             |           |         |     |     |                 |
| Asteraceae (Compositae)       | <i>Balsamorhiza sagittata</i>                     | arrowleaf balsamroot | Native   | Pres        | Apr–Jul     | X         | X       |     |     |                 |
| Asteraceae (Compositae)       | <i>Carduus nutans</i>                             | musk thistle         | Intro    | Pres        | Jun–Sep     | X         |         |     |     | Disturbed areas |
| Asteraceae (Compositae)       | <i>Centaurea diffusa</i>                          | diffuse knapweed     | Intro    | Ext         | Jul–Sep     | X         |         |     |     | Disturbed areas |
| Asteraceae (Compositae)       | <i>Centaurea maculosa</i>                         | spotted knapweed     | Intro    | Pres        | Jul–Sep     | X         |         |     |     | Disturbed areas |
| Asteraceae (Compositae)       | <i>Centaurea repens</i>                           | Russian knapweed     | Intro    | Pres        | Jun–Sep     | X         |         |     |     |                 |
| Asteraceae (Compositae)       | <i>Chaenactis douglasii</i> var. <i>montana</i>   | hoary dusty-maiden   | Native   | Pres        | May–Sep     | X         |         |     |     |                 |
| Asteraceae (Compositae)       | <i>Cirsium arvense</i>                            | Canada thistle       | Intro    | Pres        | Jul–Sep     |           |         |     | X   | Disturbed areas |
| Asteraceae (Compositae)       | <i>Cirsium pulcherrimum</i>                       | Wyoming thistle      | Native   | Pres        | Jun–Aug     | X         |         |     |     |                 |
| Asteraceae (Compositae)       | <i>Cirsium scariosum</i>                          | elk thistle          | Native   | Pres        | Jun–Aug     | X         |         | X   | X   |                 |
| Asteraceae (Compositae)       | <i>Cirsium subniveum</i>                          | snowy thistle        | Native   | Pres        | Jun–Aug     |           |         | X   |     |                 |
| Asteraceae (Compositae)       | <i>Cirsium undulatum</i> var. <i>undulatum</i>    | wavy-leaved thistle  | Native   | Rep         | Jun–Sep     | X         |         |     |     | Disturbed areas |
| Asteraceae (Compositae)       | <i>Cirsium vulgare</i>                            | bull thistle         | Intro    | Pres        | Jul–Aug     |           |         |     | X   | Disturbed areas |
| Asteraceae (Compositae)       | <i>Crepis acuminata</i>                           | mountain hawksbeard  | Native   | Pres        | May–Jul     | X         |         |     |     |                 |
| Asteraceae (Compositae)       | <i>Crepis intermedia</i>                          | gray hawksbeard      | Native   | Rep         | May–Jul     | X         |         |     |     |                 |
| Asteraceae (Compositae)       | <i>Crepis modocensis</i>                          | Modoc hawksbeard     | Native   | Pres        | May–Jul     | X         |         |     |     |                 |
| Asteraceae (Compositae)       | <i>Erigeron compositus</i> var. <i>discoideus</i> | cut-leaved daisy     | Native   | Pres        | May–Aug     | X         |         |     |     |                 |
| Asteraceae (Compositae)       | <i>Erigeron corymbosus</i>                        | mountain daisy       | Native   | Pres        | Jun–Jul     | X         |         | X   |     |                 |

Appendix D. Confirmed, historical, and reported taxa of Fossil Butte National Monument, organized by life form with ecological notes, cont.

| Family                        | Species name  | Common name          | Nativity | Park status | Flower time | Sage/ Grs | MiX Con | Asp | Wet | Comments        |
|-------------------------------|---|----------------------|----------|-------------|-------------|-----------|---------|-----|-----|-----------------|
| <i>Perennial Forbs, cont.</i> |   |                      |          |             |             |           |         |     |     |                 |
| Asteraceae (Compositae)       | <i>Erigeron eatonii</i>                             | Eaton's fleabane     | Native   | Pres        | May-Jul     | X         |         |     |     |                 |
| Asteraceae (Compositae)       | <i>Erigeron engelmannii</i>                         | Engelmann's daisy    | Native   | Pres        | May-Jul     | X         |         |     |     |                 |
| Asteraceae (Compositae)       | <i>Erigeron glabellus</i> var. <i>glabellus</i>     | smooth daisy         | Native   | Pres        | Jun-Aug     |           |         |     | X   |                 |
| Asteraceae (Compositae)       | <i>Erigeron lonchophyllus</i>                       | longleaf daisy       | Native   | Pres        | Jun-Sep     |           |         |     | X   |                 |
| Asteraceae (Compositae)       | <i>Erigeron nanus</i>                               | dwarf fleabane       | Native   | Pres        | Jun-Jul     | X         |         |     |     | Barren sites    |
| Asteraceae (Compositae)       | <i>Erigeron ochroleucus</i> var. <i>ochroleucus</i> | buff fleabane        | Native   | Rep         | May-Aug     | X         |         |     |     |                 |
| Asteraceae (Compositae)       | <i>Erigeron pumilus</i> var. <i>concinus</i>        | Navajo fleabane      | Native   | Rep         | May-Aug     | X         |         |     |     |                 |
| Asteraceae (Compositae)       | <i>Erigeron pumilus</i> var. <i>pumilus</i>         | shaggy fleabane      | Native   | Rep         | May-Aug     | X         |         |     |     |                 |
| Asteraceae (Compositae)       | <i>Erigeron speciosus</i>                           | aspen daisy          | Native   | Pres        | Jun-Aug     | X         |         | X   |     |                 |
| Asteraceae (Compositae)       | <i>Eucephalus elegans</i>                           | elegant aster        | Native   | Pres        | Jul-Aug     | X         | X       |     |     |                 |
| Asteraceae (Compositae)       | <i>Eucephalus engelmannii</i>                       | Engelmann's aster    | Native   | Pres        | Jun-Sep     |           | X       |     |     |                 |
| Asteraceae (Compositae)       | <i>Eucephalus glaucus</i>                           | blueleaf aster       | Native   | Pres        | Jul-Sep     | X         |         | X   | X   |                 |
| Asteraceae (Compositae)       | <i>Gaillardia aristata</i>                          | common blanketflower | Native   | Pres        | Jun-Sep     | X         |         |     |     | Disturbed areas |
| Asteraceae (Compositae)       | <i>Grindelia squarrosa</i> var. <i>squarrosa</i>    | curly-cup gumweed    | Native   | Pres        | Jul-Sep     | X         |         |     |     | Disturbed areas |
| Asteraceae (Compositae)       | <i>Helianthella uniflora</i>                        | little sunflower     | Native   | Pres        | Jun-Aug     | X         | X       |     |     |                 |
| Asteraceae (Compositae)       | <i>Hieracium cynoglossoides</i>                     | houndtongue hawkweed | Native   | Pres        | Jul-Aug     |           |         | X   |     |                 |
| Asteraceae (Compositae)       | <i>Hymenoxys hoopesii</i>                           | orange sneezeweed    | Native   | Pres        | Jun-Aug     | X         |         | X   |     |                 |

Appendix D. Confirmed, historical, and reported taxa of Fossil Butte National Monument, organized by life form with ecological notes, cont.

| Family                        | Species name   | Common name              | Nativity | Park status | Flower time | Sage/Grass | Mix Con | Asp | Wet | Comments     |
|-------------------------------|--|--------------------------|----------|-------------|-------------|------------|---------|-----|-----|--------------|
| <i>Perennial Forbs, cont.</i> |  |                          |          |             |             |            |         |     |     |              |
| Asteraceae (Compositae)       | <i>Iva axillaris</i> var. <i>axillaris</i>                   | poverty-weed             | Native   | Pres        | May-Sep     | X          |         |     |     | Barren sites |
| Asteraceae (Compositae)       | <i>Iva axillaris</i> var. <i>robustior</i>                   | poverty-weed             | Native   | Pres        | May-Sep     | X          |         |     |     | Barren sites |
| Asteraceae (Compositae)       | <i>Lactuca oblongifolia</i>                                  | blue lettuce             | Native   | Pres        | Jun-Sep     |            |         |     | X   |              |
| Asteraceae (Compositae)       | <i>Machaeranthera canescens</i> var. <i>canescens</i>        | hoary tansy-aster        | Native   | Pres        | May-Sep     | X          |         |     |     | Barren sites |
| Asteraceae (Compositae)       | <i>Machaeranthera grindeloides</i>                           | gumweed aster            | Native   | Pres        | May-Jul     | X          |         |     |     | Barren sites |
| Asteraceae (Compositae)       | <i>Microseris nutans</i>                                     | nodding microseris       | Native   | Pres        | Apr-Aug     | X          |         |     |     |              |
| Asteraceae (Compositae)       | <i>Packera cana</i>  | woolly groundsel         | Native   | Pres        | May-Aug     | X          |         |     |     |              |
| Asteraceae (Compositae)       | <i>Packera multilobata</i>                                   | basin groundsel          | Native   | Pres        | Apr-Aug     | X          |         |     | X   |              |
| Asteraceae (Compositae)       | <i>Packera pauperula</i>                                     | balsam groundsel         | Native   | Rep         | Jun-Aug     |            |         | X   |     |              |
| Asteraceae (Compositae)       | <i>Packera streptanthifolia</i> var. <i>streptanthifolia</i> | Rocky Mountain groundsel | Native   | Pres        | Jun-Aug     | X          |         | X   |     |              |
| Asteraceae (Compositae)       | <i>Pyrrocoma lanceolata</i>                                  | meadow goldenweed        | Native   | Pres        | May-Aug     |            |         |     | X   |              |
| Asteraceae (Compositae)       | <i>Pyrrocoma uniflora</i>                                    | plantain goldenweed      | Native   | Pres        | May-Aug     | X          |         |     | X   |              |
| Asteraceae (Compositae)       | <i>Rudbeckia occidentalis</i>                                | western coneflower       | Native   | Pres        | Jun-Aug     |            |         | X   | X   |              |
| Asteraceae (Compositae)       | <i>Senecio hydrophilus</i>                                   | water groundsel          | Native   | Pres        | Jul-Aug     |            |         |     | X   |              |
| Asteraceae (Compositae)       | <i>Senecio integerrimus</i> var. <i>exaltatus</i>            | western groundsel        | Native   | Pres        | Jun-Aug     | X          |         |     |     |              |
| Asteraceae (Compositae)       | <i>Senecio serra</i> var. <i>serra</i>                       | saw-toothed groundsel    | Native   | Pres        | Jul-Sep     | X          |         | X   |     |              |
| Asteraceae (Compositae)       | <i>Solidago canadensis</i> var. <i>saebrosa</i>              | Canadian goldenrod       | Native   | Pres        | Aug-Oct     |            |         | X   | X   |              |



Appendix D. Confirmed, historical, and reported taxa of Fossil Butte National Monument, organized by life form with ecological notes, cont.

| Family                        | Species name                                      | Common name                      | Nativity | Park status | Flower time | Sage/Gr | MiX Con | Asp | Wet | Comments        |
|-------------------------------|---|----------------------------------|----------|-------------|-------------|---------|---------|-----|-----|-----------------|
| <i>Perennial Forbs, cont.</i> |   |                                  |          |             |             |         |         |     |     |                 |
| Asteraceae (Compositae)       | <i>Solidago velutina</i>                          | three-nerve goldenrod            | Native   | Pres        | Aug-Oct     |         |         | X   |     |                 |
| Asteraceae (Compositae)       | <i>Sonchus uliginosus</i>                         | marsh sow-thistle                | Intro    | Pres        | Jul-Oct     | X       |         |     |     | Disturbed areas |
| Asteraceae (Compositae)       | <i>Stenotus acaulis</i>                           | stemless goldenweed              | Native   | Pres        | May-Jul     | X       |         |     |     | Barren sites    |
| Asteraceae (Compositae)       | <i>Stephanomeria runcinata</i>                    | desert wirelettuce               | Native   | Pres        | Jul-Aug     | X       |         |     |     | Barren sites    |
| Asteraceae (Compositae)       | <i>Symphotrichum ascendens</i>                    | Pacific aster                    | Native   | Pres        | Jul-Oct     | X       |         |     | X   |                 |
| Asteraceae (Compositae)       | <i>Symphotrichum boreale</i>                      | boreal aster                     | Native   | Pres        | Jul-Sep     |         |         |     | X   |                 |
| Asteraceae (Compositae)       | <i>Symphotrichum foliaceum</i> var. <i>parryi</i> | alpine leafy-head American-aster | Native   | Rep         | Jul-Sep     |         |         | X   | X   |                 |
| Asteraceae (Compositae)       | <i>Symphotrichum spathulatum</i>                  | western aster                    | Native   | Pres        | Jul-Sep     |         |         | X   |     |                 |
| Asteraceae (Compositae)       | <i>Taraxacum laevigatum</i>                       | red-seed dandelion               | Intro    | Pres        | Mar-Dec     | X       |         |     |     | Disturbed areas |
| Asteraceae (Compositae)       | <i>Taraxacum officinale</i>                       | common dandelion                 | Intro    | Pres        | Apr-Dec     | X       |         |     | X   |                 |
| Asteraceae (Compositae)       | <i>Tetranneuris acaulis</i> var. <i>acaulis</i>   | stemless hymenoxys               | Native   | Rep         | Apr-Jun     | X       |         |     |     |                 |
| Asteraceae (Compositae)       | <i>Tetranneuris torreyana</i>                     | Torrey's hymenoxys               | Native   | Pres        | May-Jul     |         |         |     |     | Barren sites    |
| Asteraceae (Compositae)       | <i>Townsendia nuttallii</i>                       | Nuttall's easter-daisy           | Native   | Pres        | May-Jun     | X       |         |     |     | Barren sites    |
| Asteraceae (Compositae)       | <i>Tragopogon dubius</i>                          | yellow salsify                   | Intro    | Pres        | May-Jul     | X       |         |     |     | Disturbed areas |
| Asteraceae (Compositae)       | <i>Viguiera multiflora</i>                        | showy goldeneye                  | Native   | Pres        | Jun-Sep     | X       |         |     |     |                 |
| Asteraceae (Compositae)       | <i>Wyethia amplexicaulis</i>                      | mule's-ears                      | Native   | Pres        | May-Jun     | X       |         |     |     |                 |
| Boraginaceae                  | <i>Cryptantha caespitosa</i>                      | tufted cryptanth                 | Native   | Pres        | May-Jun     | X       |         |     |     | Barren sites    |
| Boraginaceae                  | <i>Cryptantha celosoides</i>                      | cockscorn cryptanth              | Native   | Pres        | Apr-Jul     | X       |         |     |     | Barren sites    |
| Boraginaceae                  | <i>Cryptantha sericea</i>                         | silky cryptanth                  | Native   | Pres        | May-Jul     | X       |         |     |     | Barren sites    |

Appendix D. Confirmed, historical, and reported taxa of Fossil Butte National Monument, organized by life form with ecological notes, cont.

| Family                        | Species name                                      | Common name            | Nativity | Park status | Flower time | Sage/ Grs | Mix Con | Asp | Wet | Comments        |
|-------------------------------|---|------------------------|----------|-------------|-------------|-----------|---------|-----|-----|-----------------|
| <i>Perennial Forbs, cont.</i> |   |                        |          |             |             |           |         |     |     |                 |
| Boraginaceae                  | <i>Cynoglossum officinale</i>                     | common hound's-tongue  | Intro    | Pres        | May-Jul     |           |         |     | X   | Disturbed areas |
| Boraginaceae                  | <i>Hackelia floribunda</i>                        | showy stickseed        | Native   | Pres        | Jun-Aug     | X         |         |     |     | Disturbed areas |
| Boraginaceae                  | <i>Hackelia patens</i>                            | spotted stickseed      | Native   | Pres        | Jun-Aug     | X         |         |     | X   |                 |
| Boraginaceae                  | <i>Lithospermum ruderale</i>                      | western stoneseed      | Native   | Pres        | Apr-Jun     | X         |         |     |     |                 |
| Boraginaceae                  | <i>Mertensia oblongifolia</i>                     | western bluebell       | Native   | Pres        | Apr-May     | X         |         | X   |     |                 |
| Boraginaceae                  | <i>Mertensia viridis</i>                          | mountain bluebell      | Native   | Pres        | Jun-Aug     |           | X       |     |     |                 |
| Brassicaceae (Cruciferae)     | <i>Arabis glabra</i>                              | tower-mustard          | Native   | Pres        | May-Sep     |           |         | X   |     |                 |
| Brassicaceae (Cruciferae)     | <i>Arabis hirsuta</i> var. <i>pyncocarpa</i>      | hairy rockcress        | Native   | Pres        | Jun-Aug     | X         |         |     |     |                 |
| Brassicaceae (Cruciferae)     | <i>Barbarea orthoceras</i>                        | northern wintercress   | Native   | Pres        | May-Aug     |           |         | X   | X   |                 |
| Brassicaceae (Cruciferae)     | <i>Boechea angustifolia</i>                       | Drummond's rockcress   | Native   | Pres        | May-Sep     | X         |         | X   |     |                 |
| Brassicaceae (Cruciferae)     | <i>Boechea brachycarpa</i>                        | spreadingpod rockcress | Native   | Pres        | Jun-Jul     | X         |         | X   |     |                 |
| Brassicaceae (Cruciferae)     | <i>Boechea exilis</i>                             | deflexed rockcress     | Native   | Pres        | Jun-Jul     | X         |         |     |     |                 |
| Brassicaceae (Cruciferae)     | <i>Boechea holboellii</i> var. <i>secunda</i>     | Holboell's rockcress   | Native   | Rep         | May-Jul     | X         |         |     |     |                 |
| Brassicaceae (Cruciferae)     | <i>Boechea nuttallii</i>                          | Nuttall's rockcress    | Native   | Pres        | Apr-Jun     | X         |         |     | X   |                 |
| Brassicaceae (Cruciferae)     | <i>Boechea williamsii</i> var. <i>saximontana</i> | Wind River rockcress   | Native   | Pres        | Apr-Jun     | X         |         |     |     |                 |
| Brassicaceae (Cruciferae)     | <i>Cardaria chalepensis</i>                       | orbicular whitetop     | Intro    | Pres        | May-Aug     | X         |         |     |     | Disturbed areas |
| Brassicaceae (Cruciferae)     | <i>Descurainia incana</i> var. <i>macroserma</i>  | gray tansy-mustard     | Native   | Pres        | Jun-Sep     |           |         | X   |     |                 |
| Brassicaceae (Cruciferae)     | <i>Draba albertina</i>                            | slender whitlow-grass  | Native   | Pres        | Jun-Aug     | X         |         | X   |     |                 |
| Brassicaceae (Cruciferae)     | <i>Draba oligosperma</i>                          | few-seed whitlow-grass | Native   | Rep         | May-Aug     | X         |         |     |     |                 |
| Brassicaceae (Cruciferae)     | <i>Erysimum asperum</i> var. <i>arkansanum</i>    | western wallflower     | Native   | Pres        | Apr-Aug     | X         |         |     |     |                 |

Appendix D. Confirmed, historical, and reported taxa of Fossil Butte National Monument, organized by life form with ecological notes, cont.

| Family                        | Species name                                       | Common name               | Nativity | Park status | Flower time | Sage/Grass | Mix Con | Asp | Wet | Comments       |
|-------------------------------|--|---------------------------|----------|-------------|-------------|------------|---------|-----|-----|----------------|
| <i>Perennial Forbs, cont.</i> |  |                           |          |             |             |            |         |     |     |                |
| Brassicaceae (Cruciferae)     | <i>Erysimum cheiranthoides</i>                     | worm-seed wallflower      | Native   | Pres        | Jun-Aug     |            |         |     | X   |                |
| Brassicaceae (Cruciferae)     | <i>Erysimum inconspicuum</i>                       | shy wallflower            | Native   | Pres        | Apr-Jul     | X          |         |     |     |                |
| Brassicaceae (Cruciferae)     | <i>Lepidium integrifolium</i>                      | entire-leaf pepperwort    | Native   | Pres        | Jun-Aug     | X          |         |     | X   | Alkaline soils |
| Brassicaceae (Cruciferae)     | <i>Lesquerella alpina</i>                          | alpine bladderpod         | Native   | Pres        | May-Jul     | X          |         |     |     | Barren sites   |
| Brassicaceae (Cruciferae)     | <i>Physaria acutifolia</i>                         | sharp-leaf twinpod        | Native   | Pres        | May-Jul     | X          |         |     |     |                |
| Brassicaceae (Cruciferae)     | <i>Physaria condensata</i>                         | tufted twinpod            | Native   | Pres        | May-Jun     | X          |         |     |     | Barren sites   |
| Brassicaceae (Cruciferae)     | <i>Rorippa curvipes</i> var. <i>curvipes</i>       | blunt-leaf yellowcress    | Native   | Pres        | May-Aug     |            |         | X   | X   |                |
| Brassicaceae (Cruciferae)     | <i>Schoenocrambe linifolia</i>                     | flax-leaved plainsmustard | Native   | Pres        | Apr-Jul     | X          |         |     |     |                |
| Brassicaceae (Cruciferae)     | <i>Stanleya viridiflora</i>                        | green prince's-plume      | Native   | Pres        | May-Aug     | X          |         |     |     | Barren sites   |
| Brassicaceae (Cruciferae)     | <i>Streptanthus cordatus</i>                       | heart-leaf jewelflower    | Native   | Pres        | Apr-Jul     | X          | X       |     |     |                |
| Brassicaceae (Cruciferae)     | <i>Thelypodium integrifolium</i>                   | entire-leaf thelypody     | Native   | Pres        | Jun-Sep     | X          |         |     | X   |                |
| Brassicaceae (Cruciferae)     | <i>Thelypodium paniculatum</i>                     | northwestern thelypody    | Native   | Pres        | Jun-Aug     |            |         |     | X   |                |
| Cactaceae                     | <i>Opuntia polyacantha</i> var. <i>polyacantha</i> | plains prickly-pear       | Native   | Pres        | May-Jun     | X          |         |     |     |                |
| Calochortaceae (Liliaceae)    | <i>Calochortus nuttallii</i>                       | sego-lily                 | Native   | Pres        | Jun-Jul     | X          |         |     |     |                |
| Caryophyllaceae (Alsinaeae)   | <i>Cerastium fontanum</i>                          | mouse-ear chickweed       | Intro    | Pres        | Apr-Sep     | X          |         |     |     |                |
| Caryophyllaceae (Alsinaeae)   | <i>Eremogone congesta</i> var. <i>congesta</i>     | ball-head sandwort        | Native   | Pres        | May-Aug     | X          |         |     |     |                |
| Caryophyllaceae (Alsinaeae)   | <i>Eremogone kingii</i> var. <i>glabrescens</i>    | basin sandwort            | Native   | Pres        | May-Aug     | X          |         |     |     |                |

Appendix D. Confirmed, historical, and reported taxa of Fossil Butte National Monument, organized by life form with ecological notes, cont.

| Family                        | Species name  | Common name                 | Nativity | Park status | Flower time | Sage/Gr | Mix Con | Asp | Wet | Comments        |
|-------------------------------|---|-----------------------------|----------|-------------|-------------|---------|---------|-----|-----|-----------------|
| <i>Perennial Forbs, cont.</i> |   |                             |          |             |             |         |         |     |     |                 |
| Caryophyllaceae (Aisinaceae)  | <i>Minuartia nuttallii</i>                            | Nuttall's sandwort          | Native   | Pres        | May-Aug     |         |         |     |     | Barren sites    |
| Caryophyllaceae (Aisinaceae)  | <i>Moehringia lateriflora</i>                         | blunt-leaf sandwort         | Native   | Pres        | Apr-Aug     |         |         |     | X   |                 |
| Caryophyllaceae (Aisinaceae)  | <i>Pseudostellaria jamesiana</i>                      | James' chickweed            | Native   | Rep         | Jun-Aug     |         | X       |     |     |                 |
| Caryophyllaceae               | <i>Silene drummondii</i>                              | Drummond's catchfly         | Native   | Pres        | May-Sep     | X       |         |     |     |                 |
| Caryophyllaceae               | <i>Silene menziesii</i> var. <i>menziesii</i>         | Menzies' campion            | Native   | Pres        | Jun-Aug     |         |         | X   |     |                 |
| Caryophyllaceae (Aisinaceae)  | <i>Stellaria longipes</i>                             | long-stalk starwort         | Native   | Pres        | May-Aug     | X       |         | X   |     |                 |
| Convallariaceae (Liliaceae)   | <i>Maianthemum racemosum</i> var. <i>amplexicaule</i> | false Solomon's-seal        | Native   | Pres        | Jun-Jul     |         | X       |     |     |                 |
| Convallariaceae (Liliaceae)   | <i>Maianthemum stellatum</i>                          | starry false Solomon's-seal | Native   | Pres        | Apr-Jun     | X       | X       | X   |     |                 |
| Convulvaceae                  | <i>Convolvulus arvensis</i>                           | field bindweed              | Intro    | Pres        | Jun-Aug     | X       |         |     |     | Disturbed areas |
| Convulvaceae (Cuscutaceae)    | <i>Cuscuta occidentalis</i>                           | chaparral dodder            | Native   | Pres        | May-Aug     | X       |         |     |     |                 |
| Crassulaceae                  | <i>Sedum lanceolatum</i>                              | lance-leaved stonecrop      | Native   | Pres        | Jun-Aug     | X       |         |     |     |                 |
| Ericaceae (Pyrolaceae)        | <i>Pyrola asarifolia</i>                              | pink wintergreen            | Native   | Pres        | Jun-Aug     |         |         |     | X   |                 |
| Fabaceae (Leguminosae)        | <i>Astragalus agrestis</i>                            | field milkvetch             | Native   | Pres        | May-Aug     | X       |         |     | X   |                 |
| Fabaceae (Leguminosae)        | <i>Astragalus argophyllus</i> var. <i>argophyllus</i> | silver-leaved milkvetch     | Native   | Pres        | Apr-Jun     |         |         |     | X   |                 |
| Fabaceae (Leguminosae)        | <i>Astragalus bisulcatus</i> var. <i>bisulcatus</i>   | two-grooved milkvetch       | Native   | Pres        | May-Aug     | X       |         |     |     | Barren sites    |
| Fabaceae (Leguminosae)        | <i>Astragalus bisulcatus</i> var. <i>major</i>        | two-grooved milkvetch       | Native   | Pres        | May-Aug     | X       |         |     |     | Barren sites    |
| Fabaceae (Leguminosae)        | <i>Astragalus canadensis</i> var. <i>brevidens</i>    | pasture milkvetch           | Native   | Pres        | May-Sep     |         |         | X   | X   |                 |
| Fabaceae (Leguminosae)        | <i>Astragalus cicer</i>                               | chickpea milkvetch          | Intro    | Pres        | May-Aug     | X       |         |     |     | Disturbed areas |
| Fabaceae (Leguminosae)        | <i>Astragalus convallarius</i>                        | lesser rushy milkvetch      | Native   | Pres        | May-Aug     | X       |         |     |     |                 |

Appendix D. Confirmed, historical, and reported taxa of Fossil Butte National Monument, organized by life form with ecological notes, cont.

| Family                        | Species name  | Common name            | Nativity | Park status | Flower time | Sage/Grass | Mix Con | Asp | Wet | Comments        |
|-------------------------------|---|------------------------|----------|-------------|-------------|------------|---------|-----|-----|-----------------|
| <i>Perennial Forbs, cont.</i> |   |                        |          |             |             |            |         |     |     |                 |
| Fabaceae (Leguminosae)        | <i>Astragalus jejunus</i> var. <i>jejunus</i>         | starveling milkvetch   | Native   | Pres        | May–Jul     | X          |         |     |     | Barren sites    |
| Fabaceae (Leguminosae)        | <i>Astragalus kentrophyta</i> var. <i>tegetarius</i>  | mountain kentrophyta   | Native   | Rep         | Jun–Sep     | X          |         |     |     |                 |
| Fabaceae (Leguminosae)        | <i>Astragalus lentiginosus</i> var. <i>chartaceus</i> | broad-leaved milkvetch | Native   | Pres        | Apr–Jun     | X          |         |     |     |                 |
| Fabaceae (Leguminosae)        | <i>Astragalus lentiginosus</i> var. <i>salinus</i>    | salt milkvetch         | Native   | Pres        | Apr–Jun     | X          |         |     |     |                 |
| Fabaceae (Leguminosae)        | <i>Astragalus miser</i> var. <i>tenuifolius</i>       | timber milkvetch       | Native   | Pres        | Jun–Aug     | X          |         |     | X   |                 |
| Fabaceae (Leguminosae)        | <i>Astragalus purshii</i>                             | Pursh's milkvetch      | Native   | Pres        | Apr–Jun     | X          |         |     |     |                 |
| Fabaceae (Leguminosae)        | <i>Astragalus spatulatus</i>                          | spoonleaf milkvetch    | Native   | Pres        | May–Jul     | X          |         |     |     |                 |
| Fabaceae (Leguminosae)        | <i>Astragalus tenellus</i>                            | pulse milkvetch        | Native   | Pres        | May–Aug     | X          |         |     | X   |                 |
| Fabaceae (Leguminosae)        | <i>Glycyrrhiza lepidota</i> var. <i>lepidota</i>      | licorice-root          | Native   | Pres        | May–Jul     | X          |         |     | X   |                 |
| Fabaceae (Leguminosae)        | <i>Hedysarum boreale</i> var. <i>pabulare</i>         | Utah sweet-vetch       | Native   | Pres        | May–Aug     | X          |         |     |     |                 |
| Fabaceae (Leguminosae)        | <i>Lupinus argenteus</i> var. <i>rubicaulis</i>       | subalpine lupine       | Native   | Pres        | May–Aug     | X          |         | X   |     |                 |
| Fabaceae (Leguminosae)        | <i>Lupinus leucophyllus</i>                           | white-leaved lupine    | Native   | Rep         | Jun–Aug     | X          |         |     |     |                 |
| Fabaceae (Leguminosae)        | <i>Lupinus sericeus</i>                               | silky lupine           | Native   | Pres        | May–Aug     | X          |         |     |     |                 |
| Fabaceae (Leguminosae)        | <i>Medicago sativa</i> var. <i>sativa</i>             | alfalfa                | Intro    | Pres        | May–Sep     | X          |         |     |     | Disturbed areas |
| Fabaceae (Leguminosae)        | <i>Melilotus officinalis</i>                          | yellow sweet-clover    | Intro    | Pres        | May–Oct     | X          |         |     |     |                 |
| Fabaceae (Leguminosae)        | <i>Oxytropis deflexa</i> var. <i>sericea</i>          | nodding locoweed       | Native   | Pres        | Jun–Aug     |            |         | X   | X   |                 |
| Fabaceae (Leguminosae)        | <i>Oxytropis sericea</i> var. <i>sericea</i>          | white locoweed         | Native   | Pres        | May/Jul     | X          |         |     |     | Barren sites    |

Appendix D. Confirmed, historical, and reported taxa of Fossil Butte National Monument, organized by life form with ecological notes, cont.

| Family                        | Species name  | Common name                | Nativity | Park status | Flower time | Sage/Grass | Mix/Con | Asp | Wet | Comments     |
|-------------------------------|---|----------------------------|----------|-------------|-------------|------------|---------|-----|-----|--------------|
| <i>Perennial Forbs, cont.</i> |   |                            |          |             |             |            |         |     |     |              |
| Fabaceae (Leguminosae)        | <i>Trifolium gymnocarpon</i> var. <i>plummerae</i>      | holly-leaf clover          | Native   | Pres        | Apr–Aug     | X          |         |     |     |              |
| Fabaceae (Leguminosae)        | <i>Trifolium hybridum</i>                               | alsike clover              | Intro    | Pres        | May–Oct     | X          |         | X   |     |              |
| Fabaceae (Leguminosae)        | <i>Trifolium repens</i>                                 | white clover               | Intro    | Pres        | Apr–Sep     |            |         |     | X   |              |
| Fumariaceae                   | <i>Corydalis aurea</i> var. <i>aurea</i>                | golden smoke               | Native   | Pres        | Apr–Sep     | X          | X       |     | X   |              |
| Gentianaceae                  | <i>Frasera speciosa</i>                                 | elkweed                    | Native   | Pres        | Jun–Aug     | X          | X       |     |     |              |
| Gentianaceae                  | <i>Gentiana affinis</i> var. <i>affinis</i>             | Rocky Mountain gentian     | Native   | Pres        | Jul–Sep     | X          |         |     | X   |              |
| Gentianaceae                  | <i>Gentianella amarella</i> var. <i>amarella</i>        | northern gentian           | Native   | Pres        | Jul–Aug     |            |         | X   | X   |              |
| Geraniaceae                   | <i>Geranium richardsonii</i>                            | Richardson's crane's-bill  | Native   | Pres        | Jun–Aug     | X          |         |     |     |              |
| Geraniaceae                   | <i>Geranium viscosissimum</i> var. <i>incisum</i>       | sticky crane's-bill        | Native   | Pres        | Jun–Aug     | X          | X       | X   |     |              |
| Geraniaceae                   | <i>Geranium viscosissimum</i> var. <i>viscosissimum</i> | sticky purple crane's-bill | Native   | Pres        | Jun–Aug     | X          | X       | X   |     |              |
| Hippuridaceae                 | <i>Hippuris vulgaris</i>                                | common mare's-tail         | Native   | Pres        | Jun–Sep     |            |         |     | X   |              |
| Hyacinthaceae (Liliaceae)     | <i>Camassia quamash</i>                                 | camas                      | Native   | Pres        | Apr–Jun     |            |         | X   | X   |              |
| Hydrophyllaceae               | <i>Hydrophyllum capitatum</i>                           | capitate waterleaf         | Native   | Pres        | Apr–Jul     | X          |         | X   |     |              |
| Hydrophyllaceae               | <i>Phacelia hastata</i>                                 | lanceleaf phacelia         | Native   | Pres        | May–Aug     | X          |         |     |     | Barren sites |
| Hydrophyllaceae               | <i>Phacelia heterophylla</i> var. <i>virgata</i>        | wand phacelia              | Native   | Pres        | Jun–Aug     | X          |         |     |     |              |
| Hydrophyllaceae               | <i>Phacelia sericea</i> var. <i>ciliosa</i>             | silky phacelia             | Native   | Pres        | Jun–Aug     | X          | X       | X   |     |              |
| Hypericaceae (Guttiferae)     | <i>Hypericum formosum</i> var. <i>scouleri</i>          | western St. John's-wort    | Native   | Pres        | May–Aug     |            |         |     | X   |              |
| Iridaceae                     | <i>Iris missouriensis</i>                               | Rocky Mountain iris        | Native   | Rep         | May–Jul     |            |         |     | X   |              |
| Iridaceae                     | <i>Sisyrinchium idahoense</i> var. <i>occidentale</i>   | Idaho blue-eyed grass      | Native   | Pres        | May–Aug     |            |         |     | X   |              |
| Lamiaceae (Labiatae)          | <i>Agastache urticifolia</i>                            | nettle-leaf horsemint      | Native   | Pres        | Jun–Aug     | X          |         | X   | X   |              |
| Lamiaceae (Labiatae)          | <i>Dracocephalum parviflorum</i>                        | smallflower dragonhead     | Native   | Pres        | Jun–Aug     |            |         |     | X   |              |

Appendix D. Confirmed, historical, and reported taxa of Fossil Butte National Monument, organized by life form with ecological notes, cont.

| Family                        | Species name   | Common name             | Nativity | Park status | Flower time | Sage/Gr | MiX Con | Asp | Wet | Comments        |
|-------------------------------|--|-------------------------|----------|-------------|-------------|---------|---------|-----|-----|-----------------|
| <i>Perennial Forbs, cont.</i> |  |                         |          |             |             |         |         |     |     |                 |
| Lamiaceae (Labiatae)          | <i>Marrubium vulgare</i>                             | common horehound        | Intro    | Pres        | May-Oct     | X       |         |     |     | Disturbed areas |
| Lamiaceae (Labiatae)          | <i>Mentha arvensis</i> var. <i>canadensis</i>        | field mint              | Native   | Pres        | Jun-Sep     |         |         |     | X   |                 |
| Lamiaceae (Labiatae)          | <i>Stachys palustris</i> var. <i>pilosa</i>          | hairy hedge-nettle      | Native   | Pres        | Jun-Aug     |         |         |     | X   |                 |
| Lemnaceae                     | <i>Lemna turionifera</i>                             | lesser duckweed         | Native   | Pres        | Jun-Oct     |         |         |     | X   |                 |
| Liliaceae                     | <i>Fritillaria atropurpurea</i>                      | leopard-lily            | Native   | Pres        | Apr-Jul     | X       |         |     |     |                 |
| Liliaceae                     | <i>Fritillaria pudica</i>                            | yellow-bell             | Native   | Pres        | Mar-Jun     | X       |         |     |     |                 |
| Linaceae                      | <i>Linum lewisii</i>                                 | blue flax               | Native   | Pres        | Apr-Aug     | X       |         |     | X   |                 |
| Loasaceae                     | <i>Mentzelia laevicaulis</i>                         | giant blazingstar       | Native   | Pres        | May-Oct     | X       |         |     |     | Barren sites    |
| Malvaceae                     | <i>Iliamna rivularis</i>                             | wild hollyhock          | Native   | Rep         | Jun-Oct     | X       |         |     |     |                 |
| Malvaceae                     | <i>Sidalcea oregana</i>                              | Oregon checker-mallow   | Native   | Pres        | May-Aug     | X       |         | X   | X   |                 |
| Malvaceae                     | <i>Sphaeralcea coccinea</i>                          | scarlet globe-mallow    | Native   | Pres        | Apr-Oct     | X       |         |     |     |                 |
| Malvaceae                     | <i>Sphaeralcea munroana</i>                          | white-stem globe-mallow | Native   | Pres        | May-Oct     | X       |         |     |     |                 |
| Melanthiaceae (Liliaceae)     | <i>Zigadenus paniculatus</i>                         | foothills death-camas   | Native   | Pres        | Mar-Jun     | X       |         |     |     |                 |
| Melanthiaceae (Liliaceae)     | <i>Zigadenus venenosus</i> var. <i>gramineus</i>     | meadow death-camas      | Native   | Pres        | Apr-Jul     | X       |         |     | X   |                 |
| Myrsinaceae (Primulaceae)     | <i>Glaux maritima</i>                                | sea-milkwort            | Native   | Pres        | May-Jul     |         |         |     | X   |                 |
| Onagraceae                    | <i>Camissonia subcaulis</i>                          | meadow camissonia       | Native   | Rep         | May-Jul     |         |         |     | X   |                 |
| Onagraceae                    | <i>Chamerion angustifolium</i> var. <i>canescens</i> | fireweed                | Native   | Pres        | Jun-Sep     |         |         | X   | X   |                 |
| Onagraceae                    | <i>Epilobium ciliatum</i> var. <i>ciliatum</i>       | northern willow-herb    | Native   | Pres        | Jun-Aug     |         |         | X   | X   |                 |
| Onagraceae                    | <i>Epilobium ciliatum</i> var. <i>glandulosum</i>    | glandular willow-herb   | Native   | Pres        | Jun-Aug     |         |         | X   | X   |                 |
| Onagraceae                    | <i>Epilobium halleanum</i>                           | Hall's willow-herb      | Native   | Pres        | Jun-Aug     |         |         |     | X   |                 |
| Onagraceae                    | <i>Epilobium hornemanii</i>                          | Hornemann's willow-herb | Native   | Pres        | Jun-Aug     |         |         |     | X   |                 |
| Onagraceae                    | <i>Oenothera cespitosa</i> var. <i>cespitosa</i>     | tufted evening-primrose | Native   | Pres        | Apr-Jun     | X       |         |     |     | Barren sites    |
| Onagraceae                    | <i>Oenothera flava</i>                               | yellow evening-primrose | Native   | Pres        | Jun-Jul     | X       |         |     | X   |                 |

Appendix D. Confirmed, historical, and reported taxa of Fossil Butte National Monument, organized by life form with ecological notes, cont.

| Family                        | Species name                                       | Common name                | Nativity | Park status | Flower time | Sage/Gr | Mix Con | Asp | Wet | Comments        |
|-------------------------------|--|----------------------------|----------|-------------|-------------|---------|---------|-----|-----|-----------------|
| <i>Perennial Forbs, cont.</i> |  |                            |          |             |             |         |         |     |     |                 |
| Orchidaceae                   | <i>Corallorhiza maculata</i> var. <i>maculata</i>  | spotted coral-root         | Native   | Pres        | Jun-Jul     |         |         | X   |     |                 |
| Orchidaceae                   | <i>Corallorhiza striata</i> var. <i>striata</i>    | striped coral-root         | Native   | Pres        | Jun-Jul     |         |         | X   |     |                 |
| Orchidaceae                   | <i>Platanthera aquilonis</i>                       | northern bog-orchid        | Native   | Pres        | Jun-Aug     |         |         |     | X   |                 |
| Orobanchaceae                 | <i>Orobanche fasciculata</i>                       | clustered broomrape        | Native   | Pres        | Jun-Jul     | X       |         |     |     |                 |
| Plantaginaceae                | <i>Plantago eriopoda</i>                           | woolly-base plantain       | Native   | Pres        | May-Aug     |         |         |     | X   |                 |
| Plantaginaceae                | <i>Plantago major</i>                              | common plantain            | Intro    | Rep         | May-Aug     | X       |         |     |     |                 |
| Polemoniaceae                 | <i>Ipomopsis aggregata</i> var. <i>aggregata</i>   | scarlet gilia              | Native   | Pres        | May-Aug     | X       |         |     |     |                 |
| Polemoniaceae                 | <i>Ipomopsis congesta</i> var. <i>congesta</i>     | ball-head gilia            | Native   | Pres        | Jun-Aug     | X       |         |     |     | Barren sites    |
| Polemoniaceae                 | <i>Phlox hoodii</i>                                | Hood's phlox               | Native   | Pres        | Apr-Jun     | X       |         |     |     |                 |
| Polemoniaceae                 | <i>Phlox longifolia</i>                            | long-leaf phlox            | Native   | Pres        | Apr-Jul     | X       |         |     |     |                 |
| Polemoniaceae                 | <i>Phlox multiflora</i>                            | Rocky Mountain phlox       | Native   | Pres        | Jun-Aug     | X       |         |     |     | Barren sites    |
| Polemoniaceae                 | <i>Phlox muscoides</i>                             | moss phlox                 | Native   | Rep         | May-Jun     | X       |         |     |     | Barren sites    |
| Polygonaceae                  | <i>Eriogonum acaule</i>                            | single-stem wild buckwheat | Native   | Pres        | May-Jul     | X       |         |     |     | Barren sites    |
| Polygonaceae                  | <i>Eriogonum brevicaule</i> var. <i>brevicaule</i> | shortstem wild buckwheat   | Native   | Pres        | Jun-Sep     | X       |         |     |     | Barren sites    |
| Polygonaceae                  | <i>Eriogonum brevicaule</i> var. <i>laxifolium</i> | loose-leaf wild buckwheat  | Native   | Pres        | Jun-Sep     | X       |         |     |     | Barren sites    |
| Polygonaceae                  | <i>Eriogonum caespitosum</i>                       | matted wild buckwheat      | Native   | Pres        | Apr-Jul     | X       |         |     |     |                 |
| Polygonaceae                  | <i>Eriogonum ovalifolium</i> var. <i>purpureum</i> | cushion wild buckwheat     | Native   | Pres        | Apr-Aug     | X       |         |     |     |                 |
| Polygonaceae                  | <i>Eriogonum umbellatum</i> var. <i>majus</i>      | cream wild buckwheat       | Native   | Pres        | Jun-Sep     | X       | X       |     |     |                 |
| Polygonaceae                  | <i>Polygonum bistortoides</i>                      | American bistort           | Native   | Pres        | Jul-Sep     | X       |         | X   | X   |                 |
| Polygonaceae                  | <i>Rumex crispus</i>                               | curly dock                 | Intro    | Pres        | May-Sep     | X       |         |     |     | Disturbed areas |
| Polygonaceae                  | <i>Rumex paucifolius</i>                           | alpine sorrel              | Native   | Pres        | Apr-Sep     | X       |         |     |     |                 |
| Polygonaceae                  | <i>Rumex salicifolius</i> var. <i>triangularis</i> | willow dock                | Native   | Pres        | May-Sep     | X       |         |     | X   | Disturbed areas |
| Portulacaceae                 | <i>Claytonia lanceolata</i>                        | lanceleaf springbeauty     | Native   | Pres        | Apr-Jul     | X       |         | X   |     |                 |
| Portulacaceae                 | <i>Lewisia pygmaea</i>                             | alpine bitter-root         | Native   | Rep         | May-Aug     | X       |         |     |     |                 |



Appendix D. Confirmed, historical, and reported taxa of Fossil Butte National Monument, organized by life form with ecological notes, cont.

| Family                        | Species name   | Common name                   | Nativity | Park status | Flower time | Sage/Grass | Mix/Con | Asp | Wet | Comments |
|-------------------------------|--|-------------------------------|----------|-------------|-------------|------------|---------|-----|-----|----------|
| <i>Perennial Forbs, cont.</i> |  |                               |          |             |             |            |         |     |     |          |
| Portulacaceae                 | <i>Lewisia rediviva</i>                                | Oregon bitter-root            | Native   | Pres        | May-Jun     | X          |         |     |     |          |
| Potamogetonaceae              | <i>Stuckenia pectinata</i>                             | fennel-leaf pondweed          | Native   | Pres        | Jul-Sep     |            |         |     | X   |          |
| Primulaceae                   | <i>Dodecatheon pulchellum</i>                          | dark-throat shooting-star     | Native   | Pres        | Mar-Aug     |            | X       | X   | X   |          |
| Ranunculaceae (Helleboraceae) | <i>Actaea rubra</i>                                    | red baneberry                 | Native   | Pres        | May-Aug     |            |         | X   |     |          |
| Ranunculaceae (Helleboraceae) | <i>Aquilegia coerulea</i>                              | Colorado columbine            | Native   | Pres        | Jun-Aug     |            | X       |     |     |          |
| Ranunculaceae                 | <i>Clematis hirsutissima</i>                           | sugar-bowls                   | Native   | Pres        | May-Aug     | X          |         |     |     |          |
| Ranunculaceae                 | <i>Clematis occidentalis</i> var. <i>grosseserrata</i> | purple virgin's-bower         | Native   | Pres        | May-Aug     | X          |         |     |     |          |
| Ranunculaceae (Helleboraceae) | <i>Delphinium glaucum</i>                              | tower larkspur                | Native   | Pres        | Jun-Aug     |            |         | X   |     |          |
| Ranunculaceae (Helleboraceae) | <i>Delphinium nuttallianum</i>                         | Nuttall's larkspur            | Native   | Pres        | Apr-Jul     | X          |         |     |     |          |
| Ranunculaceae                 | <i>Ranunculus acriformis</i> var. <i>montanensis</i>   | sharp buttercup               | Native   | Pres        | Jul-Aug     |            |         | X   | X   |          |
| Ranunculaceae                 | <i>Ranunculus acris</i>                                | tall buttercup                | Intro    | Pres        | Jun-Sep     |            |         | X   |     |          |
| Ranunculaceae                 | <i>Ranunculus aquatilis</i> var. <i>diffusus</i>       | thread water-buttercup        | Native   | Pres        | May-Sep     |            |         |     | X   |          |
| Ranunculaceae                 | <i>Ranunculus cymbalaria</i> var. <i>saximontanus</i>  | marsh buttercup               | Native   | Pres        | May-Sep     |            |         |     | X   |          |
| Ranunculaceae                 | <i>Ranunculus glaberrimus</i> var. <i>ellipticus</i>   | sagebrush buttercup           | Native   | Pres        | Apr-Jun     | X          |         |     |     |          |
| Ranunculaceae                 | <i>Ranunculus gmelinii</i>                             | lesser yellow water buttercup | Native   | Pres        | Jun-Aug     |            |         |     | X   |          |
| Ranunculaceae (Thalictraceae) | <i>Thalictrum occidentale</i>                          | western meadow-rue            | Native   | Pres        | Jun-Aug     |            |         | X   |     |          |
| Rosaceae                      | <i>Fragaria virginiana</i>                             | Virginia strawberry           | Native   | Pres        | Jun-Jul     | X          |         | X   |     |          |
| Rosaceae                      | <i>Geum macrophyllum</i> var. <i>perincisum</i>        | large-leaved avens            | Native   | Pres        | May-Aug     |            |         | X   | X   |          |
| Rosaceae                      | <i>Geum triflorum</i> var. <i>ciliatum</i>             | prairie smoke                 | Native   | Pres        | Jun-Aug     | X          |         |     |     |          |
| Rosaceae                      | <i>Potentilla anserina</i>                             | silverweed                    | Native   | Pres        | May-Aug     |            |         |     | X   |          |
| Rosaceae                      | <i>Potentilla arguta</i>                               | tall cinquefoil               | Native   | Pres        | Jun-Jul     | X          |         | X   |     |          |

Appendix D. Confirmed, historical, and reported taxa of Fossil Butte National Monument, organized by life form with ecological notes, cont.

| Family                         | Species name                                       | Common name              | Nativity | Park status | Flower time | Sage/ Grs | Mix Con | Asp | Wet | Comments        |
|--------------------------------|--|--------------------------|----------|-------------|-------------|-----------|---------|-----|-----|-----------------|
| <i>Perennial/ Forbs, cont.</i> |  |                          |          |             |             |           |         |     |     |                 |
| Rosaceae                       | <i>Potentilla gracilis</i> var. <i>elmeri</i>      | comb-leaf cinquefoil     | Native   | Pres        | Jun-Aug     |           |         |     | X   |                 |
| Rosaceae                       | <i>Potentilla gracilis</i> var. <i>fastigiata</i>  | glabrate cinquefoil      | Native   | Pres        | Jun-Aug     |           |         | X   |     |                 |
| Rosaceae                       | <i>Potentilla gracilis</i> var. <i>pulcherrima</i> | beautiful cinquefoil     | Native   | Pres        | Jun-Aug     |           |         | X   | X   |                 |
| Rosaceae                       | <i>Potentilla pensylvanica</i>                     | Pennsylvania cinquefoil  | Native   | Rep         | Jul-Aug     |           |         | X   |     |                 |
| Rosaceae                       | <i>Sanguisorba minor</i>                           | garden burnet            | Intro    | Pres        | May-Jun     | X         |         |     |     |                 |
| Rubiaceae                      | <i>Galium boreale</i>                              | northern bedstraw        | Native   | Pres        | Jun-Aug     | X         | X       | X   |     |                 |
| Rubiaceae                      | <i>Galium trifidum</i>                             | small bedstraw           | Native   | Pres        | Jul-Aug     |           |         | X   | X   |                 |
| Santalaceae                    | <i>Comandra umbellata</i> var. <i>pallida</i>      | bastard toadflax         | Native   | Pres        | Apr-Aug     | X         |         |     |     | Barren sites    |
| Saxifragaceae                  | <i>Heuchera parvifolia</i>                         | little-leaf alumroot     | Native   | Pres        | May-Sep     |           | X       |     |     |                 |
| Saxifragaceae                  | <i>Lithophragma glabrum</i> var. <i>ramulosum</i>  | fringecup woodlandstar   | Native   | Pres        | Mar-Aug     | X         |         | X   |     |                 |
| Saxifragaceae                  | <i>Lithophragma parviflorum</i>                    | smallflower woodlandstar | Native   | Pres        | Apr-Aug     | X         |         | X   |     |                 |
| Saxifragaceae                  | <i>Lithophragma tenellum</i>                       | slender woodlandstar     | Native   | Pres        | Apr-Aug     | X         |         | X   |     |                 |
| Scrophulariaceae               | <i>Besseyia wyomingensis</i>                       | Wyoming kittentails      | Native   | Pres        | Jun-Aug     | X         |         |     |     |                 |
| Scrophulariaceae               | <i>Castilleja angustifolia</i> var. <i>dubia</i>   | desert paintbrush        | Native   | Pres        | Apr-Jun     | X         |         |     |     | Barren sites    |
| Scrophulariaceae               | <i>Castilleja flava</i>                            | yellow paintbrush        | Native   | Pres        | Jun-Aug     | X         |         |     |     |                 |
| Scrophulariaceae               | <i>Castilleja linariifolia</i>                     | Wyoming paintbrush       | Native   | Pres        | Jul-Aug     | X         |         |     |     |                 |
| Scrophulariaceae               | <i>Castilleja sulphurea</i>                        | sulphur paintbrush       | Native   | Pres        | Jun-Aug     | X         | X       |     |     |                 |
| Scrophulariaceae               | <i>Mimulus guttatus</i>                            | yellow monkeyflower      | Native   | Pres        | Jun-Aug     |           |         |     | X   |                 |
| Scrophulariaceae               | <i>Penstemon cyananthus</i>                        | Wasatch penstemon        | Native   | Pres        | May-Jul     | X         |         |     |     |                 |
| Scrophulariaceae               | <i>Penstemon humilis</i>                           | low penstemon            | Native   | Pres        | May-Jun     | X         |         |     |     |                 |
| Scrophulariaceae               | <i>Penstemon paysoniorum</i>                       | Payson's penstemon       | Native   | Pres        | May-Jun     | X         |         |     |     | Barren sites    |
| Scrophulariaceae               | <i>Penstemon procerus</i>                          | small-flower penstemon   | Native   | Pres        | Jun-Aug     | X         |         |     | X   |                 |
| Scrophulariaceae               | <i>Penstemon radicosus</i>                         | mat-root penstemon       | Native   | Pres        | May-Jul     | X         | X       | X   |     |                 |
| Scrophulariaceae               | <i>Penstemon rydbergii</i> var. <i>rydbergii</i>   | Rydberg's penstemon      | Native   | Rep         | Jun-Jul     |           |         |     | X   |                 |
| Scrophulariaceae               | <i>Scrophularia lanceolata</i>                     | lance-leaf figwort       | Native   | Pres        | Jun-Jul     | X         |         | X   | X   |                 |
| Scrophulariaceae               | <i>Verbascum thapsus</i>                           | woolly mullein           | Intro    | Pres        | Jun-Aug     | X         |         |     | X   | Disturbed areas |

Appendix D. Confirmed, historical, and reported taxa of Fossil Butte National Monument, organized by life form with ecological notes, cont.

| Family                        | Species name                                   | Common name            | Nativity | Park status | Flower time | Sage/Gr | MiX Con | Asp | Wet | Comments        |
|-------------------------------|--|------------------------|----------|-------------|-------------|---------|---------|-----|-----|-----------------|
| <i>Perennial Forbs, cont.</i> |  |                        |          |             |             |         |         |     |     |                 |
| Scrophulariaceae              | <i>Veronica americana</i>                      | American brooklime     | Native   | Pres        | Jul–Aug     |         |         |     | X   |                 |
| Solanaceae                    | <i>Solanum dulcamara</i>                       | European bittersweet   | Intro    | Pres        | May–Sep     | X       |         |     |     | Disturbed areas |
| Sparganiaceae                 | <i>Sparganium emersum</i>                      | emersed burr-reed      | Native   | Pres        | Jun–Sep     |         |         |     | X   |                 |
| Urticaceae                    | <i>Urtica dioica</i> var. <i>occidentalis</i>  | stinging nettle        | Native   | Pres        | Jul–Aug     |         |         |     | X   |                 |
| Valerianaceae                 | <i>Valeriana edulis</i>                        | tobacco-root           | Native   | Pres        | Jun–Aug     |         |         |     | X   |                 |
| Valerianaceae                 | <i>Valeriana occidentalis</i>                  | western valerian       | Native   | Pres        | May/Jul     | X       |         | X   |     |                 |
| Verbenaceae                   | <i>Verbena bracteata</i>                       | prostrate vervain      | Native   | Pres        | May–Sep     | X       |         |     |     | Disturbed areas |
| Violaceae                     | <i>Viola adunca</i>                            | hook-spur violet       | Native   | Pres        | Mar–Aug     | X       |         | X   |     |                 |
| Violaceae                     | <i>Viola canadensis</i>                        | Canadian white violet  | Native   | Rep         | Apr–Aug     |         |         | X   |     |                 |
| Violaceae                     | <i>Viola praemorsa</i> var. <i>altior</i>      | upland yellow violet   | Native   | Rep         | Apr–Aug     | X       |         |     |     |                 |
| Violaceae                     | <i>Viola purpurea</i> var. <i>venosa</i>       | goose-foot violet      | Native   | Pres        | Mar–Aug     | X       | X       |     |     |                 |
| Violaceae                     | <i>Viola sororia</i> var. <i>affinis</i>       | northern bog violet    | Native   | Pres        | Apr–Jul     |         |         |     | X   |                 |
| Violaceae                     | <i>Viola vallicola</i>                         | valley violet          | Native   | Pres        | Mar–Jul     | X       |         |     |     |                 |
| <b>Annual Forbs</b>           |  |                        |          |             |             |         |         |     |     |                 |
| Amaranthaceae                 | <i>Amaranthus blitoides</i>                    | prostrate pigweed      | Native   | Pres        | Jun–Sep     | X       |         |     |     | Disturbed areas |
| Asteraceae (Compositae)       | <i>Gnaphalium palustre</i>                     | lowland cudweed        | Native   | Pres        | May–Oct     |         |         |     | X   |                 |
| Asteraceae (Compositae)       | <i>Helianthus annuus</i>                       | common sunflower       | Native   | Pres        | Jun–Sep     | X       |         |     |     | Disturbed areas |
| Asteraceae (Compositae)       | <i>Lactuca serriola</i>                        | prickly lettuce        | Intro    | Pres        | Jul–Sep     |         |         |     | X   | Disturbed areas |
| Asteraceae (Compositae)       | <i>Madia glomerata</i>                         | mountain tarweed       | Native   | Pres        | Jul–Sep     | X       |         |     |     | Disturbed areas |
| Asteraceae (Compositae)       | <i>Sonchus asper</i>                           | spiny-leaf sow-thistle | Intro    | Pres        | Jul–Oct     |         |         |     | X   | Disturbed areas |
| Asteraceae (Compositae)       | <i>Symphotrichum frondosum</i>                 | leafy aster            | Native   | Pres        | Aug–Oct     |         |         |     | X   |                 |
| Boraginaceae                  | <i>Cryptantha fendleri</i>                     | sand dune cryptanth    | Native   | Pres        | May–Jul     | X       |         |     |     |                 |
| Boraginaceae                  | <i>Cryptantha watsonii</i>                     | Watson's cryptanth     | Native   | Pres        | May–Jul     | X       |         |     |     |                 |
| Boraginaceae                  | <i>Lappula redowskii</i> var. <i>redowskii</i> | western stickseed      | Native   | Pres        | Apr–Jun     | X       |         |     |     | Disturbed areas |

Appendix D. Confirmed, historical, and reported taxa of Fossil Butte National Monument, organized by life form with ecological notes, cont.

| Family                     | Species name  | Common name                  | Nativity | Park status | Flower time | Sage/Gr | Mix Con | Asp | Wet | Comments        |
|----------------------------|---|------------------------------|----------|-------------|-------------|---------|---------|-----|-----|-----------------|
| <i>Annual Forbs, cont.</i> |   |                              |          |             |             |         |         |     |     |                 |
| Boraginaceae               | <i>Lappula squarrosa</i> var. <i>squarrosa</i>        | European stickseed           | Intro    | Pres        | Jun–Aug     | X       |         |     |     | Disturbed areas |
| Boraginaceae               | <i>Plagiobothrys scouleri</i> var. <i>hispidulus</i>  | meadow popcorn-flower        | Native   | Pres        | May–Aug     |         |         |     | X   |                 |
| Brassicaceae (Cruciferae)  | <i>Alyssum desertorum</i>                             | desert madwort               | Intro    | Pres        | Apr–Jul     | X       |         |     |     | Disturbed areas |
| Brassicaceae (Cruciferae)  | <i>Camelina microcarpa</i>                            | little-pod false flax        | Intro    | Pres        | Apr–Jul     | X       |         |     |     |                 |
| Brassicaceae (Cruciferae)  | <i>Capsella bursa-pastoris</i>                        | shepherd's-purse             | Intro    | Rep         | Apr–Sep     | X       |         |     |     | Disturbed areas |
| Brassicaceae (Cruciferae)  | <i>Choripora tenella</i>                              | blue mustard                 | Intro    | Pres        | Apr–Jun     | X       |         |     |     | Disturbed areas |
| Brassicaceae (Cruciferae)  | <i>Descurainia incana</i> var. <i>incana</i>          | mountain tansy-mustard       | Native   | Pres        | Apr–Jul     | X       |         |     |     |                 |
| Brassicaceae (Cruciferae)  | <i>Descurainia incana</i> var. <i>viscosa</i>         | slender-leaved tansy-mustard | Native   | Pres        | Apr–Jul     |         |         |     | X   |                 |
| Brassicaceae (Cruciferae)  | <i>Descurainia pinnata</i> var. <i>brachycarpa</i>    | western tansy-mustard        | Native   | Pres        | Apr–Aug     | X       |         |     |     |                 |
| Brassicaceae (Cruciferae)  | <i>Descurainia sophia</i>                             | flixweed                     | Intro    | Pres        | Mar–Aug     |         |         | X   |     |                 |
| Brassicaceae (Cruciferae)  | <i>Draba nemorosa</i>                                 | woodland whitlow-grass       | Intro    | Pres        | Apr–Jun     | X       |         |     |     |                 |
| Brassicaceae (Cruciferae)  | <i>Erysimum repandum</i>                              | spreading wallflower         | Intro    | Pres        | Apr–Jun     | X       |         |     |     | Disturbed areas |
| Brassicaceae (Cruciferae)  | <i>Lepidium campestre</i>                             | field pepperwort             | Intro    | Pres        | May–Jul     | X       |         |     |     | Disturbed areas |
| Brassicaceae (Cruciferae)  | <i>Lepidium densiflorum</i> var. <i>densiflorum</i>   | prairie pepperwort           | Native   | Pres        | May–Jul     | X       |         |     |     | Disturbed areas |
| Brassicaceae (Cruciferae)  | <i>Lepidium perfoliatum</i>                           | clasping pepperwort          | Intro    | Pres        | May–Jul     | X       |         |     |     | Disturbed areas |
| Brassicaceae (Cruciferae)  | <i>Lepidium ramosissimum</i> var. <i>ramosissimum</i> | branched pepperwort          | Native   | Pres        | Apr–Aug     |         |         |     | X   |                 |
| Brassicaceae (Cruciferae)  | <i>Lepidium virginicum</i> var. <i>pubescens</i>      | poorman's pepperwort         | Native   | Pres        | Apr–Aug     | X       |         |     |     | Disturbed areas |

Appendix D. Confirmed, historical, and reported taxa of Fossil Butte National Monument, organized by life form with ecological notes, cont.

| Family                       | Species name   | Common name             | Nativity | Park status | Flower time | Sage/ Grs | MiX Con | Asp | Wet | Comments        |
|------------------------------|--|-------------------------|----------|-------------|-------------|-----------|---------|-----|-----|-----------------|
| <i>Annual Forbs, cont.</i>   |  |                         |          |             |             |           |         |     |     |                 |
| Brassicaceae<br>(Cruciferae) | <i>Malcolmia africana</i>                                  | African mustard         | Intro    | Pres        | Apr–Jul     | X         |         |     |     | Disturbed areas |
| Brassicaceae<br>(Cruciferae) | <i>Sisymbrium altissimum</i>                               | tumble mustard          | Intro    | Pres        | May–Aug     | X         |         |     |     | Disturbed areas |
| Brassicaceae<br>(Cruciferae) | <i>Thlaspi arvense</i>                                     | field pennycress        | Intro    | Pres        | May–Aug     | X         |         |     |     | Disturbed areas |
| Capparaceae<br>(Cleomaceae)  | <i>Cleome serrulata</i>                                    | Rocky Mountain beeplant | Native   | Pres        | May–Oct     | X         |         |     |     | Disturbed areas |
| Chenopodiaceae               | <i>Atriplex rosea</i>                                      | tumbling orache         | Intro    | Pres        | Jul–Sep     | X         |         |     |     | Barren sites    |
| Chenopodiaceae               | <i>Atriplex subspicata</i>                                 | thickleaf orache        | Native   | Pres        | Jun–Sep     | X         |         |     | X   | Barren sites    |
| Chenopodiaceae               | <i>Atriplex truncata</i>                                   | wedge-leaf orache       | Native   | Pres        | Jun–Sep     | X         |         |     |     | Alkaline soils  |
| Chenopodiaceae               | <i>Bassia sieversiana</i>                                  | summer-cypress          | Intro    | Pres        | Aug–Oct     | X         |         |     |     | Disturbed areas |
| Chenopodiaceae               | <i>Chenopodium atrovirens</i>                              | mountain goosefoot      | Native   | Pres        | Jul–Sep     | X         |         |     |     | Disturbed areas |
| Chenopodiaceae               | <i>Chenopodium berlandieri</i><br>var. <i>zschackei</i>    | pitseed goosefoot       | Native   | Pres        | Jul–Sep     | X         |         |     |     | Disturbed areas |
| Chenopodiaceae               | <i>Chenopodium capitatum</i><br>var. <i>parvicapitatum</i> | smallhead goosefoot     | Native   | Pres        | Jun–Sep     |           |         |     | X   |                 |
| Chenopodiaceae               | <i>Chenopodium fremontii</i>                               | Fremont's goosefoot     | Native   | Pres        | Aug–Oct     | X         |         |     |     |                 |
| Chenopodiaceae               | <i>Chenopodium glaucum</i> var. <i>salinum</i>             | oakleaf goosefoot       | Native   | Pres        | Aug–Sep     |           |         |     | X   |                 |
| Chenopodiaceae               | <i>Chenopodium leptophyllum</i>                            | narrow-leaf goosefoot   | Native   | Pres        | Jul–Sep     |           | X       | X   |     |                 |
| Chenopodiaceae               | <i>Chenopodium rubrum</i> var. <i>glomeratum</i>           | low goosefoot           | Native   | Pres        | Jun–Aug     |           |         |     | X   |                 |
| Chenopodiaceae               | <i>Halogeton glomeratus</i>                                | halogeton               | Intro    | Pres        | Jul–Aug     | X         |         |     |     | Disturbed areas |
| Chenopodiaceae               | <i>Monolepis nuttalliana</i>                               | Nuttall's poverty-weed  | Native   | Pres        | Apr–Jul     | X         |         |     |     | Disturbed areas |
| Chenopodiaceae               | <i>Salsola tragus</i>                                      | Russian-thistle         | Intro    | Pres        | Jun–Sep     | X         |         |     |     | Disturbed areas |
| Chenopodiaceae               | <i>Suaeda calceoliformis</i>                               | broom seepweed          | Native   | Pres        | Jul–Sep     | X         |         |     |     | Alkaline soils  |
| Euphorbiaceae                | <i>Chamaesyce glyptosperma</i>                             | ridge-seeded spurge     | Native   | Pres        | Jun–Aug     | X         |         |     |     |                 |
| Euphorbiaceae                | <i>Chamaesyce serpyllifolia</i>                            | thyme-leaved spurge     | Native   | Pres        | May–Sep     | X         |         |     |     | Disturbed areas |
| Fabaceae<br>(Leguminosae)    | <i>Medicago lupulina</i>                                   | black medick            | Intro    | Pres        | May–Oct     | X         |         |     |     | Disturbed areas |
| Fabaceae<br>(Leguminosae)    | <i>Melilotus albus</i>                                     | white sweet-clover      | Intro    | Pres        | May–Oct     | X         |         |     |     | Disturbed areas |

Appendix D. Confirmed, historical, and reported taxa of Fossil Butte National Monument, organized by life form with ecological notes, cont.

| Family                     | Species name  | Common name               | Nativity | Park status | Flower time | Sage/ Grs | Mix Con | Asp | Wet | Comments        |
|----------------------------|---|---------------------------|----------|-------------|-------------|-----------|---------|-----|-----|-----------------|
| <i>Annual Forbs, cont.</i> |   |                           |          |             |             |           |         |     |     |                 |
| Geraniaceae                | <i>Erodium cicutarium</i>                               | stork's-bill              | Intro    | Pres        | Feb-Oct     | X         |         |     |     | Disturbed areas |
| Hydrophyllaceae            | <i>Nemophila breviflora</i>                             | Great Basin nemophila     | Native   | Pres        | Apr-Jul     |           |         | X   |     |                 |
| Limnathaceae               | <i>Floerkea proserpinacoides</i>                        | false mermaid             | Native   | Pres        | Apr-Aug     | X         |         | X   | X   |                 |
| Onagraceae                 | <i>Epilobium brachycarpum</i>                           | autumn willow-herb        | Native   | Pres        | Jul-Sep     | X         |         |     | X   | Disturbed areas |
| Onagraceae                 | <i>Gayophytum diffusum</i> var. <i>strictipes</i>       | diffuse groundsmoke       | Native   | Pres        | May-Aug     |           | X       |     |     |                 |
| Onagraceae                 | <i>Gayophytum racemosum</i>                             | raceme groundsmoke        | Native   | Rep         | May-Aug     | X         |         |     |     |                 |
| Polemoniaceae              | <i>Collomia linearis</i>                                | small collomia            | Native   | Pres        | May-Aug     |           |         | X   |     |                 |
| Polemoniaceae              | <i>Leptosiphon septentrionalis</i>                      | northern linanthus        | Native   | Pres        | May-Aug     | X         |         |     |     |                 |
| Polemoniaceae              | <i>Microsteris gracilis</i> var. <i>humiflor</i>        | slender phlox             | Native   | Pres        | Mar-Jun     | X         |         |     |     |                 |
| Polemoniaceae              | <i>Navarretia breweri</i>                               | yellow navarretia         | Native   | Pres        | May-Jul     | X         |         |     |     |                 |
| Polemoniaceae              | <i>Navarretia intertexta</i> var. <i>propinqua</i>      | Great Basin navarretia    | Native   | Pres        | Jun-Aug     | X         |         |     |     |                 |
| Polygonaceae               | <i>Eriogonum cernuum</i>                                | matted wild buckwheat     | Native   | Pres        | Apr-Oct     | X         |         |     |     | Disturbed areas |
| Polygonaceae               | <i>Polygonum aviculare</i>                              | yard knotweed             | Intro    | Pres        | May-Oct     | X         |         |     | X   | Disturbed areas |
| Polygonaceae               | <i>Polygonum douglasii</i> var. <i>douglasii</i>        | Douglas' knotweed         | Native   | Pres        | Jun-Oct     | X         |         | X   | X   |                 |
| Polygonaceae               | <i>Polygonum sawatchense</i>                            | Sawatch knotweed          | Native   | Pres        | Jun-Aug     |           |         |     | X   |                 |
| Polygonaceae               | <i>Stenogonum salsuginosum</i>                          | smooth wild buckwheat     | Native   | Pres        | Apr-Sep     |           |         |     |     | Barren sites    |
| Primulaceae                | <i>Androsace septentrionalis</i> var. <i>subulifera</i> | pygmy-flower rock-jasmine | Native   | Pres        | May-Aug     | X         |         |     | X   |                 |
| Ranunculaceae              | <i>Myosurus apetalus</i> var. <i>montanus</i>           | bristly mouse-tail        | Native   | Pres        | Apr-Aug     |           |         |     | X   |                 |
| Ranunculaceae              | <i>Ranunculus sceleratus</i> var. <i>multifidus</i>     | blister buttercup         | Native   | Pres        | May-Sep     |           |         |     | X   |                 |
| Ranunculaceae              | <i>Ranunculus testiculatus</i>                          | bur buttercup             | Intro    | Pres        | Apr-Jun     | X         |         |     |     | Disturbed areas |
| Rosaceae                   | <i>Potentilla biennis</i>                               | biennial cinquefoil       | Native   | Pres        | May-Aug     | X         |         |     | X   | Disturbed areas |
| Rubiaceae                  | <i>Galium bifolium</i>                                  | twin-leaf bedstraw        | Native   | Pres        | May-Aug     | X         |         | X   |     |                 |
| Scrophulariaceae           | <i>Collinsia parviflora</i>                             | blue-eyed Mary            | Native   | Pres        | Apr-Jun     | X         | X       | X   |     |                 |
| Scrophulariaceae           | <i>Cordylanthus ramosus</i>                             | bushy bird's-beak         | Native   | Pres        | Jun-Aug     | X         |         |     |     |                 |
| Scrophulariaceae           | <i>Orthocarpus luteus</i>                               | yellow owl-clover         | Native   | Pres        | Jul-Aug     |           |         |     | X   |                 |
| Scrophulariaceae           | <i>Orthocarpus tolmiei</i>                              | Tolmie's owl-clover       | Native   | Pres        | Jul-Sep     |           |         |     | X   |                 |

Appendix D. Confirmed, historical, and reported taxa of Fossil Butte National Monument, organized by life form with ecological notes, cont.

| Family                      | Species name  | Common name          | Nativity | Park status | Flower time | Sage/Grass | Mix Con | Asp | Wet | Comments        |
|-----------------------------|---|----------------------|----------|-------------|-------------|------------|---------|-----|-----|-----------------|
| <i>Annual Forbs, cont.</i>  |   |                      |          |             |             |            |         |     |     |                 |
| Scrophulariaceae            | <i>Veronica biloba</i>                                | two-lobe speedwell   | Intro    | Pres        | May-Jun     | X          |         | X   |     |                 |
| Solanaceae                  | <i>Hyoscyamus niger</i>                               | black henbane        | Intro    | Pres        | Jun-Aug     | X          |         |     |     | Disturbed areas |
| Solanaceae                  | <i>Nicotiana attenuata</i>                            | coyote tobacco       | Native   | Pres        | Jun-Sep     | X          |         |     |     | Burned area     |
| Solanaceae                  | <i>Solanum triflorum</i>                              | cut-leaf nightshade  | Native   | Pres        | May-Sep     | X          |         |     |     | Disturbed areas |
| <b>Perennial Graminoids</b> |   |                      |          |             |             |            |         |     |     |                 |
| Cyperaceae                  | <i>Carex aquatilis</i>                                | water sedge          | Native   | Pres        | Jun-Aug     |            |         |     | X   |                 |
| Cyperaceae                  | <i>Carex athrostachya</i>                             | slender-beaked sedge | Native   | Pres        | May-Aug     |            |         |     | 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          |         |     |     |                 |
| Cyperaceae                  | <i>Carex filifolia</i>                                | threadleaf sedge     | Native   | Rep         | Apr-Jul     | X          |         |     |     |                 |
| Cyperaceae                  | <i>Carex geyeri</i>                                   | elk sedge            | Native   | Rep         | Apr-Jul     | X          |         |     |     |                 |
| Cyperaceae                  | <i>Carex hoodii</i>                                   | Hood's sedge         | Native   | Pres        | May-Jul     |            |         | X   |     |                 |
| Cyperaceae                  | <i>Carex microptera</i> var. <i>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 pellita</i>                                  | woolly sedge         | Native   | Pres        | May-Sep     |            |         |     | X   |                 |
| Cyperaceae                  | <i>Carex petasata</i>                                 | liddon sedge         | Native   | Pres        | May-Jul     | X          |         |     |     |                 |
| Cyperaceae                  | <i>Carex praegracilis</i>                             | blackcreeper sedge   | Native   | Pres        | May-Aug     |            |         |     | X   |                 |
| Cyperaceae                  | <i>Carex praticola</i>                                | meadow sedge         | Native   | Pres        | Jun-Aug     |            |         |     | X   |                 |
| Cyperaceae                  | <i>Carex rossii</i>                                   | Ross' sedge          | Native   | Pres        | May-Aug     | X          | X       |     |     |                 |
| Cyperaceae                  | <i>Carex simulata</i>                                 | analogue sedge       | Native   | Pres        | Jun-Aug     |            |         |     | X   |                 |
| Cyperaceae                  | <i>Carex stenophylla</i>                              | narrowleaf sedge     | Native   | Pres        | Jun-Jul     | X          |         |     |     |                 |
| Cyperaceae                  | <i>Carex utriculata</i>                               | beaked sedge         | Native   | Pres        | Jun-Aug     |            |         |     | X   |                 |
| Cyperaceae                  | <i>Carex vallicola</i>                                | valley sedge         | Native   | Pres        | May-Jul     | X          |         |     |     |                 |
| Cyperaceae                  | <i>Eleocharis acicularis</i>                          | slender spikerush    | Native   | Pres        | Jun-Sep     |            |         |     | X   |                 |
| Cyperaceae                  | <i>Eleocharis palustris</i>                           | common spikerush     | Native   | Pres        | May-Aug     |            |         |     | X   |                 |
| Cyperaceae                  | <i>Schoenoplectus acutus</i> var. <i>occidentalis</i> | hardstem bulrush     | Native   | Pres        | Jun-Aug     |            |         |     | X   |                 |
| Juncaceae                   | <i>Juncus balticus</i> var. <i>montanus</i>           | Baltic rush          | Native   | Pres        | May-Jul     |            |         |     | X   |                 |
| Juncaceae                   | <i>Juncus confusus</i>                                | perplexing rush      | Native   | Pres        | Jun-Aug     |            |         | X   | X   |                 |

Appendix D. Confirmed, historical, and reported taxa of Fossil Butte National Monument, organized by life form with ecological notes, cont.

| Family                             | Species name                                      | Common name                 | Nativity | Park status | Flower time | Sage/Grass | Mix/Con | Asp | 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   | X   |                 |
| Juncaceae                          | <i>Juncus tenuis</i> var. <i>dudleyi</i>          | poverty rush                | Native   | Pres        | Jun-Aug     |            |         |     | X   |                 |
| Juncaginaceae                      | <i>Triglochin maritima</i> var. <i>elata</i>      | seaside arrowgrass          | Native   | Pres        | May-Aug     |            |         |     | X   |                 |
| Poaceae (Gramineae)                | <i>Achnatherum contractum</i>                     | contracted Indian ricegrass | Native   | Pres        | Jun-Jul     | X          |         |     |     |                 |
| Poaceae (Gramineae)                | <i>Achnatherum hymenoides</i>                     | Indian ricegrass            | Native   | Pres        | May-Jul     | X          |         |     |     |                 |
| Poaceae (Gramineae)                | <i>Achnatherum lettermanii</i>                    | Letterman's needlegrass     | Native   | Pres        | Jul-Sep     |            |         |     | X   |                 |
| Poaceae (Gramineae)                | <i>Achnatherum nelsonii</i> var. <i>dorei</i>     | Nelson's needlegrass        | Native   | Pres        | Jun-Sep     |            |         |     | X   |                 |
| Poaceae (Gramineae)                | <i>Achnatherum nelsonii</i> var. <i>nelsonii</i>  | Nelson's needlegrass        | Native   | Pres        | Jun-Sep     | X          |         |     |     |                 |
| Poaceae (Gramineae)                | <i>Achnatherum pinetorum</i>                      | pine needlegrass            | Native   | Rep         | Jun-Aug     | X          |         |     |     |                 |
| Poaceae (Gramineae)                | <i>Agropyron cristatum</i> var. <i>cristatum</i>  | crested wheatgrass          | Intro    | Pres        | Jun-Aug     | X          |         |     |     | Disturbed areas |
| Poaceae (Gramineae)                | <i>Agropyron cristatum</i> var. <i>desertorum</i> | clustered wheatgrass        | Intro    | Pres        | Jun-Aug     | X          |         |     |     |                 |
| Poaceae (Gramineae)                | <i>Agrostis stolonifera</i>                       | redtop                      | Intro    | Pres        | Jun-Sep     |            |         |     | X   |                 |
| Poaceae (Gramineae)                | <i>Alopecurus aequalis</i>                        | short-awn foxtail           | Native   | Pres        | Jun-Aug     |            |         |     | X   |                 |
| Poaceae (Gramineae)                | <i>Alopecurus arundinaceus</i>                    | creeping foxtail            | Intro    | Pres        | Jun-Jul     |            |         |     | X   |                 |
| Poaceae (Gramineae)                | <i>Alopecurus pratensis</i>                       | meadow foxtail              | Intro    | Rep         | Jun-Jul     |            |         |     | X   |                 |
| Poaceae (Gramineae)                | <i>Bromus anomalus</i>                            | nodding brome               | Native   | Pres        | Jun-Aug     |            |         | X   |     |                 |
| Poaceae (Gramineae)                | <i>Bromus carinatus</i>                           | mountain brome              | Native   | Pres        | May-Aug     | X          |         |     | X   | Disturbed areas |



Appendix D. Confirmed, historical, and reported taxa of Fossil Butte National Monument, organized by life form with ecological notes, cont.

| Family                             | Species name                                      | Common name             | Nativity | Park status | Flower time | Sage/Grass | Mix Con | Asp | Wet | Comments        |
|------------------------------------|---|-------------------------|----------|-------------|-------------|------------|---------|-----|-----|-----------------|
| <i>Perennial Graminoids, cont.</i> |   |                         |          |             |             |            |         |     |     |                 |
| Poaceae (Gramineae)                | <i>Bromus inermis</i> var. <i>inermis</i>         | smooth brome            | Intro    | Pres        | Jun-Aug     |            |         | X   |     |                 |
| Poaceae (Gramineae)                | <i>Calamagrostis inexpansa</i>                    | slimstem reedgrass      | Native   | Pres        | Jul-Aug     |            |         |     | X   |                 |
| Poaceae (Gramineae)                | <i>Catabrosa aquatica</i>                         | brookgrass              | Native   | Pres        | Jun-Sep     |            |         |     | X   |                 |
| Poaceae (Gramineae)                | <i>Dactylis glomerata</i>                         | orchard grass           | Intro    | Pres        | Jun-Aug     | X          |         |     |     | Disturbed areas |
| Poaceae (Gramineae)                | <i>Danthonia californica</i>                      | California oatgrass     | Native   | Pres        | Jun-Aug     |            |         | X   |     |                 |
| Poaceae (Gramineae)                | <i>Danthonia intermedia</i>                       | timber oatgrass         | Native   | Rep         | Jul-Aug     |            | X       |     |     |                 |
| Poaceae (Gramineae)                | <i>Danthonia unispicata</i>                       | oneside oatgrass        | Native   | Pres        | Jun-Aug     | X          |         |     |     |                 |
| Poaceae (Gramineae)                | <i>Deschampsia cespitosa</i>                      | tufted hairgrass        | Native   | Pres        | Jul-Sep     |            |         | X   | X   |                 |
| Poaceae (Gramineae)                | <i>Distichlis stricta</i>                         | desert saltgrass        | Native   | Pres        | Jun-Sep     | X          |         |     | X   |                 |
| Poaceae (Gramineae)                | <i>Elymus cinereus</i>                            | Great Basin wildrye     | Native   | Pres        | Jun-Aug     | X          |         | X   | X   |                 |
| Poaceae (Gramineae)                | <i>Elymus elymoides</i> var. <i>elymoides</i>     | squirreltail            | Native   | Pres        | May-Aug     | X          |         |     |     |                 |
| Poaceae (Gramineae)                | <i>Elymus glaucus</i>                             | blue wildrye            | Native   | Pres        | Jul-Aug     |            |         | X   |     |                 |
| Poaceae (Gramineae)                | <i>Elymus hispidus</i> var. <i>hispidus</i>       | intermediate wheatgrass | Intro    | Pres        | Jun-Aug     | X          |         |     |     | Disturbed areas |
| Poaceae (Gramineae)                | <i>Elymus hispidus</i> var. <i>ruthenicus</i>     | intermediate wheatgrass | Intro    | Pres        | Jun-Aug     | X          |         |     |     | Disturbed areas |
| Poaceae (Gramineae)                | <i>Elymus lanceolatus</i> var. <i>lanceolatus</i> | thickspike wheatgrass   | Native   | Pres        | Jun-Aug     | X          |         |     |     |                 |
| Poaceae (Gramineae)                | <i>Elymus repens</i>                              | quackgrass              | Intro    | Pres        | Jun-Aug     | X          |         |     | X   |                 |
| Poaceae (Gramineae)                | <i>Elymus smithii</i>                             | western wheatgrass      | Native   | Pres        | Jun-Aug     | X          |         |     |     |                 |

Appendix D. Confirmed, historical, and reported taxa of Fossil Butte National Monument, organized by life form with ecological notes, cont.

| Family                             | Species name  | Common name          | Nativity | Park status | Flower time | Sage/Grass | Mix/Con | Asp | Wet | Comments        |
|------------------------------------|---|----------------------|----------|-------------|-------------|------------|---------|-----|-----|-----------------|
| <i>Perennial Graminoids, cont.</i> |   |                      |          |             |             |            |         |     |     |                 |
| Poaceae (Gramineae)                | <i>Elymus spicatus</i>                              | bluebunch wheatgrass | Native   | Pres        | Jun-Aug     | X          |         |     |     |                 |
| Poaceae (Gramineae)                | <i>Elymus trachycaulus</i> var. <i>trachycaulus</i> | slender wheatgrass   | Native   | Pres        | Jun-Aug     | X          |         |     | X   |                 |
| Poaceae (Gramineae)                | <i>Elymus x saundersii</i>                          | Saunders' wild-rye   | Native   | Pres        | Jun-Aug     |            |         | X   |     |                 |
| Poaceae (Gramineae)                | <i>Festuca idahoensis</i>                           | Idaho fescue         | Native   | Pres        | May-Aug     | X          |         | X   |     |                 |
| Poaceae (Gramineae)                | <i>Glyceria striata</i>                             | fowl mannagrass      | Native   | Pres        | Jul-Aug     |            |         |     | X   |                 |
| Poaceae (Gramineae)                | <i>Hordeum brachyantherum</i>                       | meadow barley        | Native   | Pres        | Jun-Aug     |            |         |     | X   | Disturbed areas |
| Poaceae (Gramineae)                | <i>Hordeum jubatum</i>                              | foxtail barley       | Native   | Pres        | Jun-Aug     |            |         |     | X   | Disturbed areas |
| Poaceae (Gramineae)                | <i>Hordeum x caespitosum</i>                        | intermediate barley  | Native   | Pres        | Jun-Aug     | X          |         |     | X   |                 |
| Poaceae (Gramineae)                | <i>Koeleria macrantha</i>                           | junegrass            | Native   | Pres        | Jun-Aug     | X          |         |     |     |                 |
| Poaceae (Gramineae)                | <i>Leucopoa kingii</i>                              | spike fescue         | Native   | Pres        | Jun-Aug     | X          | X       |     |     |                 |
| Poaceae (Gramineae)                | <i>Melica bulbosa</i>                               | oniongrass           | Native   | Pres        | May-Aug     | X          |         |     | X   |                 |
| Poaceae (Gramineae)                | <i>Muhlenbergia richardsonis</i>                    | mat muhly            | Native   | Pres        | Jul-Sep     |            |         |     | X   |                 |
| Poaceae (Gramineae)                | <i>Phalaris arundinacea</i>                         | reed canary grass    | Native   | Rep         | Jun-Aug     |            |         |     | X   |                 |
| Poaceae (Gramineae)                | <i>Phleum alpinum</i>                               | alpine timothy       | Native   | Pres        | Jun-Aug     | X          |         |     | X   |                 |
| Poaceae (Gramineae)                | <i>Phleum pratense</i>                              | timothy              | Intro    | Pres        | Jun-Sep     | X          |         |     | X   | Disturbed areas |
| Poaceae (Gramineae)                | <i>Poa arida</i>                                    | prairie bluegrass    | Native   | Pres        | Jun-Aug     |            |         |     | X   |                 |
| Poaceae (Gramineae)                | <i>Poa bulbosa</i>                                  | bulbous bluegrass    | Intro    | Pres        | Apr-Jul     |            |         | X   |     |                 |

Appendix D. Confirmed, historical, and reported taxa of Fossil Butte National Monument, organized by life form with ecological notes, cont.

| Family                             | Species name                            | Common name          | Nativity | Park status | Flower time | Sage/Grass | Mix Con | Asp | Wet | Comments        |
|------------------------------------|---|----------------------|----------|-------------|-------------|------------|---------|-----|-----|-----------------|
| <i>Perennial Graminoids, cont.</i> |   |                      |          |             |             |            |         |     |     |                 |
| Poaceae (Gramineae)                | <i>Poa compressa</i>                    | Canada bluegrass     | Intro    | Pres        | Jun-Aug     | X          | X       |     |     | Disturbed areas |
| Poaceae (Gramineae)                | <i>Poa cusickii</i> var. <i>pallida</i> | Cusick's bluegrass   | Native   | Pres        | May-Jul     | X          |         |     |     |                 |
| Poaceae (Gramineae)                | <i>Poa fendleriana</i>                  | muttongrass          | Native   | Pres        | May-Aug     | X          | X       |     |     |                 |
| Poaceae (Gramineae)                | <i>Poa interior</i>                     | interior bluegrass   | Native   | Pres        | Jun-Aug     | X          |         | X   |     |                 |
| Poaceae (Gramineae)                | <i>Poa juncifolia</i> var. <i>ampla</i> | big bluegrass        | Native   | Pres        | Jun-Aug     | X          |         |     | X   |                 |
| Poaceae (Gramineae)                | <i>Poa nevadensis</i>                   | Nevada bluegrass     | Native   | Pres        | Jun-Aug     | X          |         |     | X   |                 |
| Poaceae (Gramineae)                | <i>Poa pratensis</i>                    | Kentucky bluegrass   | Intro    | Pres        | May-Aug     | X          |         | X   | X   |                 |
| Poaceae (Gramineae)                | <i>Poa secunda</i> var. <i>elongata</i> | Canby bluegrass      | Native   | Pres        | May-Aug     | X          | X       |     |     |                 |
| Poaceae (Gramineae)                | <i>Poa secunda</i> var. <i>secunda</i>  | Sandberg bluegrass   | Native   | Pres        | Apr-Sep     | X          |         |     |     |                 |
| Poaceae (Gramineae)                | <i>Puccinellia nuttalliana</i>          | Nuttall's alkalglass | Native   | Pres        | May-Aug     | X          |         |     |     |                 |
| Poaceae (Gramineae)                | <i>Spartina gracilis</i>                | alkali cordgrass     | Native   | Pres        | Jun-Sep     |            |         |     | X   |                 |
| Poaceae (Gramineae)                | <i>Sporobolus airoides</i>              | alkali sacaton       | Native   | Pres        | Jun-Aug     | X          |         |     |     |                 |
| Poaceae (Gramineae)                | <i>Trisetum spicatum</i>                | spike trisetum       | Native   | Rep         | Jul-Sep     | X          | X       |     |     |                 |
| Typhaceae                          | <i>Typha latifolia</i>                  | broad-leaved cattail | Native   | Pres        | Jun-Aug     |            |         |     | X   |                 |
| <i>Annual Graminoids</i>           |   |                      |          |             |             |            |         |     |     |                 |
| Juncaceae                          | <i>Juncus bufonius</i>                  | toad rush            | Native   | Pres        | Jun-Aug     |            |         |     | X   |                 |
| Poaceae (Gramineae)                | <i>Agropyron triticeum</i>              | annual wheatgrass    | Intro    | Pres        | May-Jul     | X          |         |     |     | Disturbed areas |
| Poaceae (Gramineae)                | <i>Beckmannia syzigachne</i>            | American sloughgrass | Native   | Pres        | Jul-Aug     |            |         |     | X   |                 |
| Poaceae (Gramineae)                | <i>Bromus japonicus</i>                 | Japanese brome       | Intro    | Pres        | Jun-Aug     | X          |         |     |     | Disturbed areas |

Appendix D. Confirmed, historical, and reported taxa of Fossil Butte National Monument, organized by life form with ecological notes, cont.

| Family                             | Species name                   | Common name          | Nativity | Park status | Flower time | Sage/Grass | Mix Con | Asp | Wet | Comments        |
|------------------------------------|--------------------------------|----------------------|----------|-------------|-------------|------------|---------|-----|-----|-----------------|
| <i>Perennial Graminoids, cont.</i> |                                |                      |          |             |             |            |         |     |     |                 |
| Poaceae (Gramineae)                | <i>Bromus tectorum</i>         | cheatgrass           | Intro    | Pres        | May-Jul     | X          |         |     |     | Disturbed areas |
| Poaceae (Gramineae)                | <i>Polygonum monspeliensis</i> | rabbitfoot grass     | Intro    | Pres        | Jun-Aug     |            |         |     | X   |                 |
| Ferns and Allies                   |                                |                      |          |             |             |            |         |     |     |                 |
| Equisetaceae                       | <i>Equisetum arvense</i>       | field horsetail      | Native   | Pres        | NA          |            |         | X   | X   |                 |
| Equisetaceae                       | <i>Equisetum laevigatum</i>    | smooth scouring-rush | Native   | Pres        | NA          |            |         |     | X   |                 |

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1201 Oak Ridge Drive, Suite 150  
Fort Collins, Colorado 80525

[www.nature.nps.gov](http://www.nature.nps.gov)