Lathyrus bijugatus

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Figure 1—Drypark pea in flower. Photo by Tara Luna, used with permission.

SUMMARY

This Species Review summarizes the scientific information that was available on drypark pea as of February 2021.

Drypark pea is a rare, leguminous forb that occurs in eastern Washington and Oregon, northern Idaho, and northwestern Montana. Within that distribution, it grows in a broad range of biogeoclimatic zones and elevations. As its common name "drypark pea" suggests, it prefers dry soils and open sites. Drypark pea grows in sagebrush-conifer and sagebrush-grassland transition zones; in ponderosa pine, Douglas-fir, and subalpine fir-Engelmann spruce woodlands and forests; and subalpine fir parklands. In conifer communities, it is most common in open stands.

Drypark pea has rhizomes that grow out from its taproot. Its roots host nitrogen-fixing *Rhizobium* bacteria. Drypark pea regenerates from seed and has a soil-stored seed bank; however, information on seed dispersal, viability, and seedling establishment of drypark pea was not available in the literature.

Fire probably top-kills drypark pea, and it likely sprouts from its rhizomes and/or caudex after top-kill; however, these responses are undocumented. Only one study provided information on the response of drypark pea to fire. In ponderosa pine forest in northern Idaho, cover and frequency of drypark pea were similar on unburned plots and plots burned under low or high intensity, when

averaged across 3 postfire years. Limited evidence from a closely related species, Nevada pea, suggests that it may persist after fire, although its biomass may be low on severely burned sites. Drypark pea may have postfire responses similar to those of Nevada pea. Because drypark pea occurs in open plant communities, fire exclusion could result in decreases in drypark pea abundance.

Citation:
Fryer, Janet L. 2021. *Lathyrus bijugatus*, drypark pea. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Missoula Fire Sciences Laboratory (Producer). Available: www.fs.fed.us/database/feis/plants/forb/latbij/all.html [2021, May 24].

In February 2021, an extensive search was done to locate information on the biology, ecology, and effects of fire of drypark pea (see FEIS's list of source literature), with limited results. This Species Review synthesizes the available information.

INTRODUCTION

FEIS Abbreviation
LATBIJ

Common Names
drypark pea
Latah tule pea
pine woods peavine
pinewoods sweetpea
peavine
White Pinewoods sweetpea

TAXONOMY
The scientific name of drypark pea is *Lathyrus bijugatus* T.G. White (Fabaceae) [10,47,58,60]. Some authorities have classified drypark pea as a variety of Nevada pea (*Lathyrus lanszwertii*, see Synonyms).

Common names are used for plants throughout this review. See table A1 for a complete list of plant species mentioned in this Species Review.

SYNONYMS
Lathyrus bijugatus T.G. White var. *sandbergii* [33,60]
Lathyrus lanszwertii Kellogg var. *sandbergii* (T.G. White) Broich [6]
Lathyrus lanszwertii Kellogg var. *bijugatus* (T.G. White) Broich [6,20,28]

LIFE FORM
Forb-vine

DISTRIBUTION AND OCCURRENCE

GENERAL DISTRIBUTION

Drypark pea occurs from southeastern British Columbia south to central Oregon, central Idaho, and northwestern Montana [20,47,58] (fig. 2). The core of its distribution is in eastern Washington, northeastern Oregon, and the panhandle of Idaho, with disjunct populations in Oregon and Montana [27,58]. Its occurrence in northern California is unverified [27].

Drypark pea is rare across its distribution [10,33,34]. In 1895, it was collected near the Big Potlatch River in Nez Perce County, Idaho, but surveys in the Big Potlatch Valley of Nez Perce and Latah counties failed to reveal further specimens [22], suggesting that even then, it was rare in the area. In British Columbia, it is documented only from Elko [10]. In Montana, it is documented only from Flathead and Lincoln counties in three widely separated valley and low-elevation montane sites [33,36].

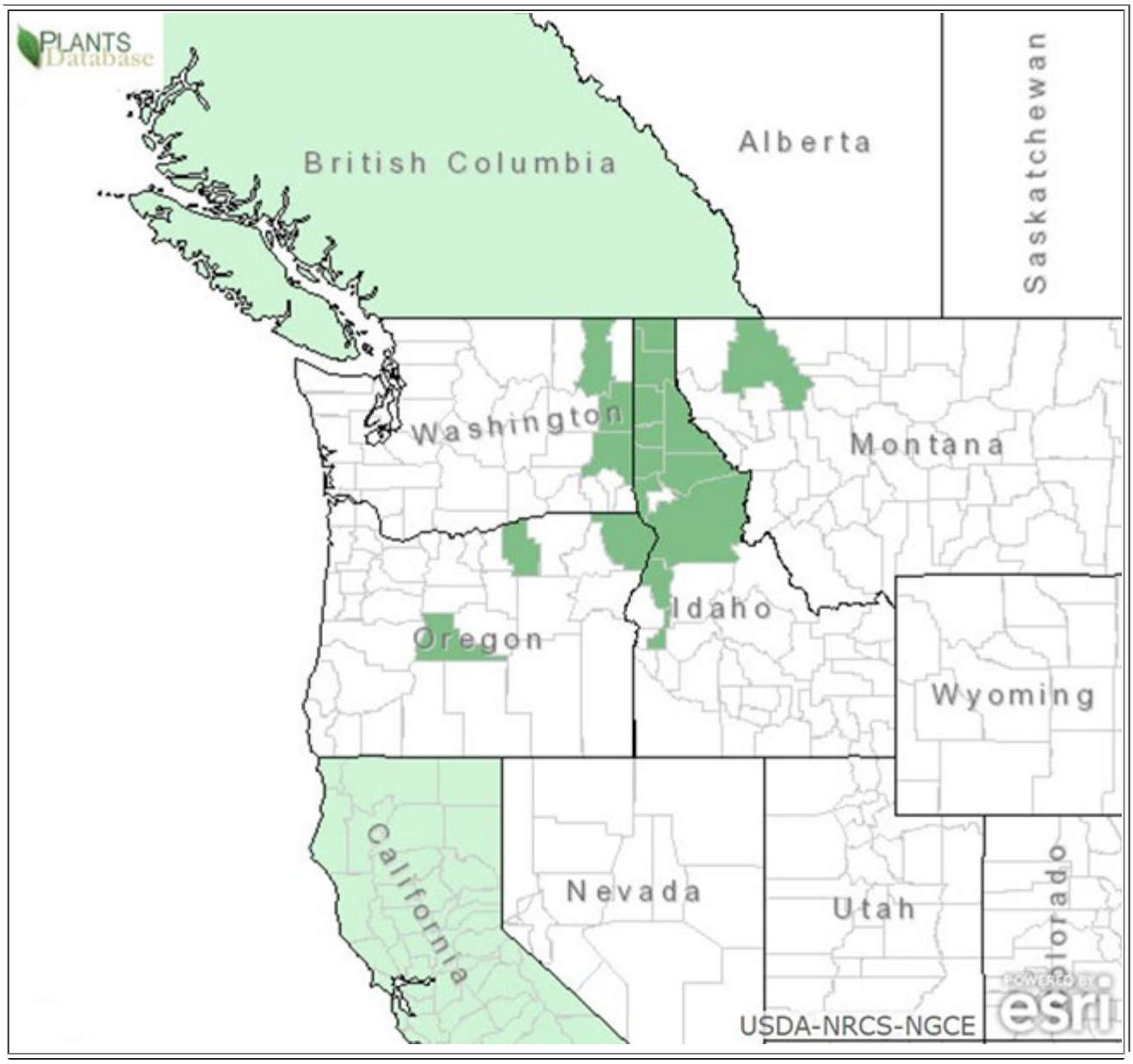

Figure 2—Distribution of drypark pea. Map courtesy of the U.S. Department of Agriculture, Natural Resources Conservation Service [58] [2021, February 9].

States and Province:
United States: ID, OR, MT, WA
Canada: BC [58]

SITE CHARACTERISTICS

Drypark pea occurs on sites with semiarid to cold temperate climates [39]. Near Pullman, Washington, it occurs on sites where annual low and high temperatures average -1.6 °C and 19.7 °C, respectively, and annual precipitation averages 520 mm [42]. In a big sagebrush/western needlegrass/drypark pea community in eastern Oregon, annual precipitation averages >510 mm, with two-thirds falling as snow and rain during winter and most of the rest falling as rain in fall and spring. About 5% of the annual precipitation falls as summer rain [42].

Although rare, drypark pea grows in a broad range of biogeoclimatic zones and elevations. It grows in sagebrush-conifer transition zones [39] and in foothill [47], montane, subalpine, and alpine [28] zones. In conifer woodlands and forests, it grows on steppes and slopes in low to upper montane and subalpine zones [10]. It occurs at elevations ranging from 780 m [42] to at least 2,100 m [8] (table 1).

Table 1—Elevation and other characteristics of sites at which drypark pea has been reported.

Area	Elevation (m)	Plant community; site characteristics
Idaho, Nez Perce County	900	not stated; rocky ground [22]
Oregon, east slope of the Cascade Range	>1,050	ponderosa pine–Douglas-fir–subalpine fir; well-drained loam and sandy loam soils [51]
Oregon, eastern	2,000-2,100	big sagebrush/western needlegrass/drypark pea; gentle, south- and west-facing slopes [8,15]
Washington, Smoot Hill Biological Preserve near Pullman	780-825	ponderosa pine; north-facing, 20%-70% slopes [42]

On sites with drypark pea, soil moisture is reported as dry [10,39] and soil texture as loamy and stony [8,39,42,51]. Near Sisters, Oregon, drypark pea grows in "moderately" dry ground [39]. In eastern Oregon, a big sagebrush/western needlegrass/drypark pea community [15] occurs in moderately deep, well-drained, stony loam over weathered basalt. Depth of the solum averages >76 cm. Bare soil and surface stones average 25% and 3% of the soil surface area, respectively, and stones in the soil average 70% by volume [8]. On the Smoot Hill Biological Preserve, Washington, drypark pea grows in silty loams and gravelly silt loams [42].

PLANT COMMUNITIES

Drypark pea grows on the edges of big sagebrush communities [5,15,39,42], Palouse prairies, and mountain grasslands [57]; and in conifer communities [35,37,40,42,44].

Drypark pea grows in Palouse prairie–sagebrush–conifer transition zones of eastern Washington and Oregon and western Idaho [5,15,39,42]. In eastern Oregon, a big sagebrush/western needlegrass/*Lathyrus* spp. community occurs in a mosaic of sagebrush and lodgepole pine woodlands. *Lathyrus* occurs with 100% frequency and 5% cover [8]. In a later

publication, Franklin (1988) identified the *Lathyrus* species as drypark pea [15]. The variety of big sagebrush was not identified. On the Smoot Hill Biological Preserve, drypark pea grows in a ponderosa pine/common snowberry habitat type that lies in a transition zone between Palouse prairie and ponderosa pine forest [42].

Drypark pea grows in lower montane, upper montane, and subalpine conifer communities [35,37,40,42,44]. In Oregon, it occurs in open ponderosa pine woodlands on the eastern slope of the Cascade Range and in the Blue Mountains [40]. Drypark pea also grows in Douglas-fir–subalpine fir woodlands on the eastern slope of the Cascade Range in Oregon [44]. In northwestern Montana, it grows in open ponderosa pine [33,37] and western larch woodlands and forests [37], in valley and low-elevation montane zones [33,37], and in subalpine fir parklands [44] and subalpine fir–Engelmann spruce forests [26].

See table A2 for a representative list of plant classifications in which drypark pea occurs.

BOTANICAL AND ECOLOGICAL CHARACTERISTICS

SPECIES: Lathyrus bijugatus

Figure 3—Drypark pea in flower. Photo by Tara Luna, used with permission.

GENERAL BOTANICAL CHARACTERISTICS

Botanical Description

This description covers characteristics that may be relevant to fire ecology and is not meant for identification. Keys for identification are available (e.g., [6,10,20,33,47]).

Drypark pea is a perennial, leguminous forb. The stems are slender and erect to slightly decumbent [5,10,60]. Stems range from 1 to 30 cm tall [5,10] but are usually 10 to 13 cm tall [5]. Drypark pea typically bears small (<1 cm long) [6], bristly tendrils [5,6,28], but tendrils are sometimes lacking [5,60]. The stems may vine [28,58], although vining is less pronounced in drypark pea than in legumes with more developed tendrils. The leaves are usually evenly pinnate [5,56] (fig. 1) but sometimes uneven [5]. The inflorescence is a raceme [60] with two pea-like flowers [5] (fig. 3). Flowers are borne on ascending stalks in the axils of the upper leaves [37]. The fruit is a two-valved pod [5,33,37] that is 3 to 4 cm long, bearing 6 to 12 seeds [5,37]. *Lathyrus* spp. have caudices, taproots [18], fibrous horizontal roots, and slender rhizomes growing from the taproot [10,33,37]. The roots of perennial *Lathyrus* species are nodulated with nitrogen-fixing bacteria in the genus *Rhizobium* (e.g., [11,19]).

Raunkiaer Life Form:
Chamaephyte
Geophyte [43]

SEASONAL DEVELOPMENT
Drypark pea flowers in spring and summer [28] (table 2). The entire plant of *Lathyrus* species desiccates in fall, or after the first heavy frost, and sprouts from the caudex in spring [56].

Table 2—Phenology of drypark pea by area.

Area	Event
Pacific Northwest	flowers May–July [21]
Idaho	flowers May–June [5,60]
Montana	flowers June [37]
Oregon, eastern Cascade Range	flowers mid-July–late August; fruits early to mid-August [44]
Washington, eastern	flowers May–June [5,60]

REGENERATION PROCESSES

- **Pollination and Breeding System**
- **Seed Banking**
- **Germination**
- **Vegetative Regeneration**

Drypark pea reproduces from seed; however, information on seed production, seed dispersal, and patterns of drypark pea seedling establishment and growth was lacking. Drypark pea also sprouts from the rhizomes and/or caudex, but how strong the sprouting response is, or if disturbances or other environmental cues trigger sprouting, had not been investigated as of this writing.

Pollination and Breeding System
Bumble bees (*Bombus* spp.) pollinate *Lathyrus* species [13,29,30,37] (table 3).

Table 3—Potential pollinators of drypark pea [13,29,30,37].

Common name	Scientific name
golden northern bumble bee	*Bombus fervidus*
Sitka bumble bee	*Bombus sitkensis*
western bumble bee	*Bombus occidentalis*
white-shouldered bumble bee	*Bombus appositus*
yellow-fronted bumble bee	*Bombus flavifrons*

Seed Banking
Lathyrus species have a soil-stored seed bank [1,42], although the long-term viability of drypark seed is undocumented. In a ponderosa pine/common snowberry forest in east-central Washington, density of drypark pea in the top 10 cm of soil averaged 183 seeds/m² in April and 100 seeds/m² in October. Seed viability was not determined [42].

Germination

Little is known of drypark pea's germination requirements. Germination rates of drypark pea are likely greater in soils containing *Rhizobium* symbionts of drypark pea (see Value for Rehabilitation of Disturbed Sites) or those of associated legumes. In Colorado, the closely related species Nevada pea (see Taxonomy) had higher germination rates in initially sterile soil that was inoculated with rhizobial symbionts of silvery lupine than in sterile, uninoculated soil (abstract [29]).

Vegetative Regeneration

Drypark pea sprouts from its rhizomes [42], although its ability to do so after top-kill or to spread laterally from rhizomes had not been investigated as of this writing. It may also sprout from its caudex after top-kill; this is also undocumented.

SUCCESSIONAL STATUS

Drypark pea occurs on open sites [10,47], including woodlands, parklands [10,33] (see Plant Communities), and clearings [10]. It is reported as rare (at 1%, 1%, and 7% frequency, respectively) [26] in late-successional Douglas-fir, subalpine fir, and Engelmann spruce forests in Montana [41].

FIRE ECOLOGY AND MANAGEMENT

SPECIES: Lathyrus bijugatus

FIRE EFFECTS

Immediate Fire Effects

Fire probably top-kills drypark pea. As of this writing, there were no studies documenting the direct effects of fire on drypark pea.

Possible Postfire Regeneration Strategies

Chamaephytic caudex in organic or mineral soil
Rhizomatous herb, rhizome in soil [49]

Fire Adaptations and Plant Response to Fire

Drypark pea likely survives most fires because perennating buds on its rhizomes are insulated by soil. Based on its rhizomatous character, the Flathead National Forest (2004) rates it highly probable to survive all but severe fires [52,57]. Drypark pea may sprout from the caudex as well, although the caudex and rhizomes may be vulnerable to fire damage or mortality when growing in organic soil layers. Information on how deeply drypark pea's rhizomes and caudex are usually buried in soil was lacking.

Only one study provided information on the response of drypark pea to fire. It suggests that fires of low or high intensities may not substantially affect the abundance of drypark pea in the short term. In a ponderosa pine forest on the Coeur d'Alene Reservation in Benewah County, Idaho, cover and frequency of drypark pea were similar on unburned plots and plots burned under low or high intensity, when averaged across 3 postfire years (table 4). Significantly more duff was consumed on high-intensity plots (80%) than on low-intensity plots (40%). Postfire depth of duff averaged 6.6 cm on unburned plots, 4.0 cm on low-intensity plots, and 1.3 cm on high-intensity plots. When averaged across treatments (unburned, low-, and high-intensity fire), abundance of drypark pea increased in postfire year 2 and decreased in postfire year 3. Three sites within 25 km of each other were selected for this study. They had similar stand structures, land use histories (i.e., ungrazed by livestock and selectively logged), species compositions, and species abundances. Each site was divided into nine 0.2- to 1.0-ha plots, and three treatments were applied at each site.

Prescribed fires were conducted in fall, a year after logging [2]. See the FEIS Research Project Summary on this study for information on the postfire responses of 53 other herbaceous and shrub species in the community: Understory recovery after low- and high-intensity fires in northern Idaho ponderosa pine forests.

Table 4—Mean percent canopy cover (and frequency) of drypark pea in selectively logged ponderosa pine forest in Idaho, 1 to 3 years after low- and high-intensity[a] prescribed fires. Within rows, means followed by different letters are significantly different ($P < 0.01$). Table modified from Armour et al. (1984) [2].

Abundance by treatment (averaged across years)		
Unburned	Low intensity	High intensity
0.7a (13.9a)	0.4a (11.0a)	0.6a (12.0a)
Abundance over time (averaged across treatments)		
Postfire year 1	Postfire year 2	Postfire year 3
0.6b (11.8b)	0.8a (15.6a)	0.2c (9.4b)

[a]Energy released by low-intensity fires averaged 127 kcal/m/s and ranged from 25 to 194 kcal/m/s. Energy released by high-intensity fires averaged 781 kcal/m/s and ranged from 30 to 3,034 kcal/m/s.

Because information was so limited, three additional studies that document the postfire responses of the closely related species Nevada pea (see Taxonomy)—in ponderosa pine forests of central Oregon [7] and Arizona [4,50]—are also discussed herein. The two *Lathyrus* species taxa share similar morphologies, including rhizomes [6,20], and the plant communities involved have similar stand structures and historical fire regimes.

Studies in Oregon and Arizona suggest that Nevada pea recovers or persists after fire, although one study [4] suggests that its biomass may decrease after severe fire. In thinned ponderosa pine stands in central Oregon, abundance of Nevada pea was greater on plots burned under prescription in spring than on unburned plots. In postfire year 2, Nevada pea was one of "the most common species" on burned plots, but it was absent from unburned plots. Data on Nevada pea's pre- and postfire cover or frequency were not provided [7]. In a ponderosa pine forest on the Apache-Sitgreaves National Forest, Arizona, Nevada pea frequency seemed unchanged 11 years after burn-only treatments (4.75% before, 5.5% after). Its frequency seemed to increase after thin-and-burn treatments (2.75% before, 6.75% after); however, frequency also seemed to increase in untreated plots (5.75% before, 8% after), and no statistical tests were performed on these data [50].

Nevada pea persisted after the mixed-severity Rattle Wildfire in May 1972, although biomass was generally low on severely burned sites. The fire occurred in a logged (1970) ponderosa pine forest on the Coconino National Forest, Arizona, and salvage logging was conducted in postfire year 1. In most postfire years, biomass of Nevada pea was lower on severely burned sites—where the fire was a mix of crown fire and surface fire that killed the overstory—compared to unburned sites, a low-severity burned site, and a site burned by prescribed fire (table 5). Nevada pea was identified as an indicator species for unburned forest in 1974, 1980, and 2003 [4]. Nevada pea, common yarrow, and American vetch were the only three forbs that were consistently present on all sites in all years [46].

Table 5—Mean biomass (kg/ha (SE)) of Nevada pea after Arizona's 1972 Rattle Wildfire on burned and unburned sites (n = 30 plots/site). One unburned site was burned under prescription in 1977. Biomass values in bold indicate Nevada pea dominated that site in that year; differences between site types were not tested for significance. Table modified from Bataineh et al. (2006) [4].

Site type	1972	1974	1980	2002	2003
High-severity fire	7.3 (1.9)	2.6 (1.0)	0.1 (0.1)	0.1 (0.1)	0.3 (0.1)
Low-severity fire	14.5 (3.8)	13.5 (3.2)	6.4 (1.8)	trace	2.6 (0.7)
Unburned until 1977 prescribed fire	18.6 (4.2)	7.8 (1.5)	10.6 (3.5)	trace	0.6 (0.3)
Unburned control	not available	29.9(4.4)	60.6 (13.8)	0.1 (0.0)	25.6 (5.7)

FUELS

Because it is rare even in plant communities where it occurs, drypark pea does not substantially contribute to fine fuels. In a ponderosa pine/common snowberry forest in east-central Washington, for example, drypark pea averaged 29% frequency and had only trace cover [42]. In a Douglas-fir/common snowberry forest in northern Idaho, it comprised 4% of understory biomass in July and 3% in August [35].

FIRE REGIMES

The ponderosa pine, Douglas-fir, and western larch communities in which drypark pea occurs are consistently noted as open (see Plant Communities and Successional Status). These open conifer forests historically experienced mostly frequent, low-severity fires. Historical mean fire intervals in ponderosa pine communities ranged from about 6 to 77 years in the eastern Cascade Range [53], 10 to 49 years in the Blue Mountains [25], and 6 to 31 years in the Northern Rocky Mountains [16]. In western larch-mixed conifer communities, mean intervals for low-severity fires historically ranged from 10 to 80 years [3,54], and mean intervals for stand-replacing fires ranged from 140 to 340 years [3]. Subalpine fir communities historically had mixed-severity and stand-replacement fires at mean intervals ranging from 133 to 302 years [55]. The open parklands in which drypark pea occurs likely have more low-severity fires than what is typical for more closed subalpine fir and subalpine fir-Engelmann spruce forests.

Drypark pea occurs on the edges of big sagebrush communities. Based on drypark pea's distribution and elevational range, these were likely mountain big sagebrush and Wyoming big sagebrush communities. Both big sagebrush communities historically had stand-replacement and patchy, mosaic fires. Based on postfire recovery time of big sagebrush, fire intervals for mountain big sagebrush communities likely averaged about 25 years or more, with most sites reaching full recovery in about 26 to 30 years [23]. For Wyoming big sagebrush communities, fire intervals were probably >66 years [24]. Drypark pea occurs in transitional zones where big sagebrush communities are merging into ponderosa pine communities, where fires were likely more frequent, patchier, and less severe than in the interiors of big sagebrush stands.

For additional fire regime information, see FEIS publications on historical fire regimes in the following plant communities in which drypark pea sometimes occurs:

- Mountain big sagebrush
- Wyoming big sagebrush and basin big sagebrush
- Columbia Plateau grasslands and steppe
- Northwestern montane and foothill grassland
- East Cascades ponderosa pine and montane mixed-conifer
- Blue Mountains conifer
- Northern Rocky Mountain ponderosa pine
- Rocky Mountain Douglas-fir
- Northern Rocky Mountain montane mixed-conifer
- Rocky Mountain lodgepole pine
- Rocky Mountain subalpine mixed-conifer
- Western alpine

FIRE MANAGEMENT CONSIDERATIONS

Although only one study documented drypark pea occurrence after fire [2], drypark pea likely survives fires because perennating buds on its rhizomes and caudex are insulated by soil (see Fire Adaptations and Plant Response to Fire). Limited evidence from a closely related species, Nevada pea, suggests that drypark pea may also persist after fire, at least in the short term, but severe fire may reduce its abundance.

Because drypark pea occurs in open plant communities, fire exclusion could result in decreases in drypark pea

abundance, especially in conifer woodlands and forests.

OTHER MANAGEMENT CONSIDERATIONS

SPECIES: Lathyrus bijugatus

FEDERAL LEGAL STATUS

None [59]

OTHER STATUS

Drypark pea is ranked "apparently globally secure" (G4), but with its status in need of review [38]. Table 6 provides its protection status in several areas. Further information on state- and province-level protection status of plants in the United States and Canada is available at NatureServe.

Table 6—Protection status of drypark pea.	
Agency or location	Protection Status
Forest Service, U.S. Department of Agriculture	Sensitive in Montana [37]
Glacier National Park, National Park Service, U.S. Department of the Interior	Rare [32,34]
Montana (state status)	Rare, Species of Concern (S2S3) [36,37]
British Columbia (provincial status)	Critically Imperiled because of extreme rarity (S1) [45]

IMPORTANCE TO WILDLIFE AND LIVESTOCK

Some consider drypark pea an important rangeland plant [28] that provides summer forage for wildlife and livestock [56]. However, *Lathyrus* species can be toxic in large doses [9,12]. Lathyrism is a serious, potentially fatal medical condition caused by eating some species in the *Lathyrus* genus. The pods and seeds are especially poisonous. The condition can affect wildlife, livestock, and humans [12]. The toxicity of drypark pea in particular had not been investigated as of this writing.

Palatability and Nutritional Value

Information on these topics was not available for drypark pea in particular. Because drypark pea has an erect form, it may be less palatable than *Lathyrus* species that are more strongly vining. The Rangeland handbook (1937) reports that generally, "the trailing or climbing species (of *Lathyrus*) with tendrils on the leaves are more palatable than the erect-stemmed species and are usually at least fair to good forage for cattle, sheep, and goats. Horses ordinarily graze peavines only in the fall after the pods are well matured" [56].

VALUE FOR REHABILITATION OF DISTURBED SITES

Nitrogen-fixing plants such as drypark pea help maintain nitrogen in the soil [8,26]. Substantial amounts of nitrogen can be lost in the soil during logging and other disturbances. Protecting drypark pea on sites slated for management that is

likely to disturb the soil may help replenish depleted soil nitrogen [8].

Information on establishing drypark pea from seed or rhizome cuttings was not available.

ADDITIONAL MANAGEMENT CONSIDERATIONS

Drypark pea may decrease with grazing. On the west slope of the Bitterroot Mountains in Latah County, Idaho, biomass of drypark pea was lower on plots with a history of heavy cattle grazing than on ungrazed plots in an exclosure (table 7, n = fifty 0.1 m² plots). Overall, cover of drypark pea averaged 0.6% and frequency averaged 0.5% [61].

Table 7—Mean biomass (kg/ha) and cover (%) of drypark pea on grazed and ungrazed plots on the western slope of the Bitterroot Mountains, Idaho [61].

Variable	Grazed	Ungrazed
Biomass	3.4	7.4[a]
Cover	12.0	10.9

[a]Significant difference within the row at $P < 0.05$.

Management Under a Changing Climate

Some species may undergo an upwards shift in elevation in response to global climate change. It is unknown how drypark pea and its rhizobial symbionts will respond to such shifts if they retreat upwards. A study in Colorado, on Nevada pea, suggests that if the necessary *Rhizobium* bacteria are present and active in the novel soils at the time of germination [29], upward range expansion of drypark pea may be possible.

APPENDIX

SPECIES: Lathyrus bijugatus

- **Table A1: Plant Species**
- **Table A2: Plant Community Classifications**

Table A1—Common and scientific names of plants mentioned in this Species Review. Links go to FEIS Species Reviews.

Common name	Scientific name
Forbs	
American vetch	*Vicia americana*
common yarrow	*Achillea millefolium*
drypark pea	*Lathyrus bijugatus*
Nevada pea	*Lathyrus lanszwertii*
pea	*Lathyrus* spp.
silvery lupine	*Lupinus argenteus*
Graminoids	
western needlegrass	*Achnatherum occidentale*
Shrubs	
common snowberry	*Symphoricarpos albus*

mountain big sagebrush	*Artemisia tridentata* var. *vaseyana*
sagebrush	*Artemisia* spp.
Wyoming big sagebrush	*Artemisia tridentata* var. *wyomingensis*
Trees	
Douglas-fir	*Pseudotsuga menziesii* var. *glauca*
Engelmann spruce	*Picea engelmannii*
lodgepole pine	*Pinus latifolia* var. *latifolia*
ponderosa pine	*Pinus ponderosa* var. *ponderosa*
subalpine fir	*Abies lasiocarpa*
western larch	*Larix occidentalis*

Table A2—Representative plant community classifications in which drypark pea occurs.

FRES Ecosystems
FRES20 Douglas-fir
FRES21 Ponderosa pine
FRES23 Fir-spruce
FRES26 Lodgepole pine
FRES25 Larch
FRES29 Sagebrush
FRES36 Mountain grasslands [17]
Kuchler Plant Associations
K015 Western spruce-fir forest
K010 Ponderosa shrub forest
K011 Western ponderosa forest
K012 Douglas-fir forest
218 Lodgepole pine
K038 Great Basin sagebrush
K050 Fescue-wheatgrass
K055 Sagebrush steppe
K051 Wheatgrass-bluegrass
K063 Foothills prairie [31]
SAF Cover Types
SAF 206 Engelmann spruce-subalpine fir
SAF 210 Interior Douglas-fir
SAF 212 Western larch
SAF 237 Interior ponderosa pine [14]
SRM (Rangeland) Cover Types
SRM 101 Bluebunch wheatgrass
SRM 102 Idaho fescue
SRM 109 Ponderosa pine shrubland

SRM 110 Ponderosa pine-grassland
SRM 302 Bluebunch wheatgrass-Sandberg bluegrass
SRM 304 Idaho fescue-bluebunch wheatgrass
SRM 315 Big sagebrush-Idaho fescue
SRM 314 Big sagebrush-bluebunch wheatgrass
SRM 402 Mountain big sagebrush
SRM 403 Wyoming big sagebrush
SRM 409 Tall forb [48]

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