Index of Species Information

SPECIES: Phalaris arundinacea

Introductory

SPECIES: Phalaris arundinacea

AUTHORSHIP AND CITATION :
Snyder, S. A. 1992. Phalaris arundinacea. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2007, September 24].

ABBREVIATION :
PHAARU

SYNONYMS :
NO-ENTRY

SCS PLANT CODE :
PHAR3

COMMON NAMES :
reed canarygrass

TAXONOMY :
The currently accepted scientific name for reed canarygrass is Phalaris arundinacea L. (Poaceae) [9]. Two varieties are recognized [15]:

P. arundinacea var. arundinacea
P. arundinacea var. pinta L.

Phalaris arundunacea var. pinta has white-striped leaves and is grown for ornamental gardens.

LIFE FORM :
Graminoid

FEDERAL LEGAL STATUS :
No special status

OTHER STATUS :
NO-ENTRY

DISTRIBUTION AND OCCURRENCE

SPECIES: Phalaris arundinacea

GENERAL DISTRIBUTION :
Reed canarygrass occurs from Newfoundland across Canada to Alaska and south to Arizona and New Mexico. In the East, it occurs as far south as northern South Carolina and Missouri [31].

ECOSYSTEMS :

FRES11	Spruce - fir
FRES15	Oak - hickory
FRES17	Elm - ash - cottonwood
FRES18	Maple - beech - birch
FRES20	Douglas-fir
FRES21	Ponderosa pine
FRES23	Fir - spruce
FRES28	Western hardwoods
FRES33	Southwestern shrubsteppe
FRES34	Chaparral - mountain shrub
FRES35	Pinyon - juniper
FRES36	Mountain grasslands
FRES37	Mountain meadows
FRES38	Plains grasslands
FRES39	Prairie
FRES41	Wet grasslands
FRES42	Annual grasslands

STATES :

AK	AZ	CA	CO	CT	DE	GA	HI	ID	IL
IN	IA	KS	KY	ME	MD	MA	MI	MN	MS
MO	MT	NE	NV	NH	NJ	NM	NY	NC	ND
OH	OK	OR	PA	RI	SC	SD	TN	UT	VT
VA	WA	WV	WI	WY	AB	BC	MB	NB	NF
NT	ON	PQ	SK	YT					

BLM PHYSIOGRAPHIC REGIONS :

1	Northern Pacific Border
2	Cascade Mountains
4	Sierra Mountains
5	Columbia Plateau
6	Upper Basin and Range
7	Lower Basin and Range
8	Northern Rocky Mountains
9	Middle Rocky Mountains
10	Wyoming Basin
11	Southern Rocky Mountains

12 Colorado Plateau
13 Rocky Mountain Piedmont
14 Great Plains
15 Black Hills Uplift
16 Upper Missouri Basin and Broken Lands

KUCHLER PLANT ASSOCIATIONS :
K011 Western ponderosa forest
K012 Douglas-fir forest
K015 Western spruce - fir forest
K016 Eastern ponderosa forest
K017 Black Hills pine forest
K018 Pine - Douglas-fir forest
K019 Arizona pine forest
K020 Spruce - fir - Douglas-fir forest
K021 Southwestern spruce - fir forest
K023 Juniper - pinyon woodland
K037 Mountain-mahogany - oak scrub
K038 Great Basin sagebrush
K039 Blackbrush
K041 Creosotebush
K049 Tule marshes
K050 Fescue - wheatgrass
K055 Sagebrush steppe
K056 Wheatgrass - needlegrass shrubsteppe
K057 Galleta - three-awn shrubsteppe
K063 Foothills prairie
K064 Grama - needlegrass - wheatgrass
K066 Wheatgrass - needlegrass
K067 Wheatgrass - bluestem - needlegrass
K070 Sandsage - bluestem prairie
K074 Bluestem prairie
K081 Oak savanna
K099 Maple - basswood forest
K100 Oak - hickory forest
K101 Elm - ash forest

SAF COVER TYPES :
16 Aspen
26 Sugar maple - basswood
52 White oak - black oak - northern red oak
53 White oak
55 Northern red oak
62 Silver maple - American elm
63 Cottonwood
109 Hawthorn
110 Black oak
206 Engelmann spruce - subalpine fir
210 Interior Douglas-fir
213 Grand fir
216 Blue spruce
217 Aspen
222 Black cottonwood - willow
235 Cottonwood - willow
237 Interior ponderosa pine
239 Pinyon - juniper

SRM (RANGELAND) COVER TYPES :
NO-ENTRY

HABITAT TYPES AND PLANT COMMUNITIES :
Reed canarygrass is dominant in the following riparian classification schemes:

Classification and management of riparian and wetland sites in northwestern Montana [3].
Riparian dominance types of Montana [12].
Classification and management of riparian sites in southwestern Montana [13].

MANAGEMENT CONSIDERATIONS

SPECIES: Phalaris arundinacea

IMPORTANCE TO LIVESTOCK AND WILDLIFE :
Waterfowl, upland game birds, riparian mammals, and fish all use reed canarygrass for cover and food. Reed canarygrass hay fields have been created for goose grazing areas [4].

PALATABILITY :
Reed canarygrass has been rated as good forage for cattle, sheep, and horses in Utah, Colorado, Wyoming, and Montana [6]. It is most palatable when it is growing, becoming more coarse and increasing in alkaloids by autumn [3].

NUTRITIONAL VALUE :
Nutrient contents were measured for reed canarygrass in the United Kingdom following two seasons of simulated grazing trials and cutting for silage [10]:

Simulated grazing	content g kg-1 year 2	year 3	Silage	g kg-1 year 2	year 3
Phosphorus	4.6	3.8	Phosphorus	3.7	3.0
Potassium	38.7	31.7	Potassium	34.1	25.8
Calcium	4.2	4.6	Calcium	4.5	4.0
Magnesium	2.5	2.3	Magnesium	2.5	2.4

In the same simulated grazing trials dry matter production decreased from 8.82 t/ha to 7.0 t/ha in 3 years, and digestive organic matter decreased from 5.87 t/ha to 4.62 t/ha.

Crude protein during winter has been measured at 7.8 percent [32].

COVER VALUE :
Prairie chickens use reed canarygrass for hiding cover in winter [28]. It is also used by muskrats and fish for cover [3].

VALUE FOR REHABILITATION OF DISTURBED SITES :
Reed canarygrass is rated as a good for streambank stabilization and excellent for rehabilitating waterways and trapping and filtering sediments to prevent erosion [27]. However, because it is an aggressive

competitor, it can replace other native riparian vegetation, and its use should be restricted [3]. In some areas it is desirable, especially where the exotic, purple loosestrife (Lythrum salicaria), is invading riparian areas [22]. Reed canarygrass is used to revegetate strip mine spoils [26]. Seeding guidelines are available [7].

OTHER USES AND VALUES :
NO-ENTRY

OTHER MANAGEMENT CONSIDERATIONS :
Reed canarygrass is considered an undesirable invader in oak savannahs of south-central Wisconsin [14]. It can be controlled with glyphosate, followed by covering treated areas with black plastic. This method is successful if done for 3 years, and then the treated area seeded with desirable species. Selective hand-pulling is also successful but must be carried out two to three times a year for 5 years [14]. Other chemicals, such as Dalapon and Amitrol, are effective in fall or early winter [1]. Reed canarygrass can also be eliminated by applying boron. Root growth is reduced by 50 percent by adding 29 parts per million of boron. Shoot growth is reduced by the same percentage by adding 82 parts per million [23].

Mowing can increase reed canarygrass, although repeated mowing over a 5-year period mowing can reduce percent frequency [19].

Reed canarygrass can be a desirable forage crop for cattle. Grazing should begin when the grass is 12 inches (30 cm) tall, and when soils are dry to minimize trampling [3]. Intense stocking rates with a short rotation period are recommended. Reed canarygrass should not be grazed to less than 5 to 8 inches (13-20 cm) in height.

BOTANICAL AND ECOLOGICAL CHARACTERISTICS

SPECIES: Phalaris arundinacea

GENERAL BOTANICAL CHARACTERISTICS :
Reed canarygrass is a perennial grass that can grow as tall as 8 feet (2.66 m) but usually reaches heights of only 27.6 to 55.1 inches (70-140 cm) [12]. Leaves are up to 12 inches (30 cm) long and 0.75 inch (2 cm) wide [21]. The seed head is a compact panicle that can vary in length from 2.8 to 15.7 inches (7-40 cm) [1]. The panicle is green or light purple [17].

RAUNKIAER LIFE FORM :
Chamaephyte
Geophyte

REGENERATION PROCESSES :
Reed canarygrass reproduces mainly by rhizomes [12]. Rhizomes grow into

dense mats within 1 year, and up to 74 percent of new shoots are believed to arise from rhizomes. Tillers bud within 2 inches (5 cm) of the soil surface [1]. Reed canarygrass can also readily reproduce by seeds, which germinate shortly after ripening. There are no known domancy requirements [1].

SITE CHARACTERISTICS :
Reed canarygrass occurs along streambanks, ponds, lakes, irrigation canals, ditches, and in wet meadows, brackish tidelands, and marshes [31]. It tolerates frequent and prolonged flooding as well as submergence. pH of water has been measured at 7.3 to 8.8 [1]. Soils are usually Entisols and Mollisols, fine textured, and poorly drained [3]. Elevation ranges have been recorded for some western states [6]:

Colorado	4,500 to 9,000 feet (1,372-2,743 m)
Wyoming	3,500 to 9,000 feet (1,067-2,743 m)
Montana	3,600 to 7,000 feet (1,097-2,134 m)
Utah	6,400 to 8,900 feet (1,951-2,713 m)

Some plant associates of reed canarygrass include cattail (Typha spp.), bulrush (Scirpus spp.), rush (Juncus spp.), sedge (Carex spp.), smartweed (Polygonum spp.), spikerush (Eleocharis spp.), horsetail (Equisetum spp.), pondweed (Potamogeton spp.), arrowhead (Sagittaria latifolia), rice cutgrass (Leersia oryzoides), bluejoint reedgrass (Calamagrostis canadensis), fowl bluegrass (Poa palustris), prairie cordgrass (Spartina pectinata), and white spiraea (Spiraea alba) [5,25,30].

SUCCESSIONAL STATUS :
Reed canarygrass is a native, cool-season, perennial grass [12,17]. It is not shade tolerant but is moderately tolerant of drought and saline or alkaline soils [31]. It usually forms monotypic stands and is highly competitive with timothy (Phleum pratense), Kentucky bluegrass (Poa pratensis), and redtop (Agrostis alba), often invading these grasslands to become the dominant cover type [1].

SEASONAL DEVELOPMENT :
Inflorescence and seed development dates for reed canarygrass have been recorded for Montana [33]:

inflorescence boot -	May through June
inflorescence appears -	June
seed development -	June through July
seed dispersal -	July

Similar dates have been recorded for Illinois and Wisconsin [1]. Reed canarygrass can bloom 16 weeks after germination. At 5 to 7 weeks, tillers form, and at 26 days rhizomes begin to develop [1]. Occasionally panicles are not produced until the second growing season, and full stands are not reached until the third growing season [31].

FIRE ECOLOGY

SPECIES: Phalaris arundinacea

FIRE ECOLOGY OR ADAPTATIONS :
Reed canarygrass can survive fires because of its rhizomes [31].

POSTFIRE REGENERATION STRATEGY :
Rhizomatous herb, rhizome in soil

FIRE EFFECTS

SPECIES: Phalaris arundinacea

IMMEDIATE FIRE EFFECT ON PLANT :
Fire probably top-kills reed canarygrass.

DISCUSSION AND QUALIFICATION OF FIRE EFFECT :
NO-ENTRY

PLANT RESPONSE TO FIRE :
Early April fires may cause increases in reed canarygrass, while mid to late May burns can prevent it from producing seed [14].

DISCUSSION AND QUALIFICATION OF PLANT RESPONSE :
NO-ENTRY

FIRE MANAGEMENT CONSIDERATIONS :
Reed canarygrass can be controlled to a limited extent by burning every 2 to 3 years during the dry season [3]. Prescribed fires are recommended in April and May to prevent shrub invasion of sedge and reed canarygrass meadows [25]. Marshes, where reed canarygrass is present, can be burned in winter (when the ice is 9 to 12 inches [23-30 cm] thick) to reduce plant density and improve wildlife feeding areas [34].

REFERENCES

SPECIES: Phalaris arundinacea

REFERENCES :

1. Apfelbaum, Stephen I.; Sams, Charles E. 1987. Ecology and control of reed canary grass (Phalaris arundinacea L.). Natural Areas Journal. 7(2): 69-74. [5725]

2. Bernard, Stephen R.; Brown, Kenneth F. 1977. Distribution of mammals, reptiles, and amphibians by BLM physiographic regions and A.W. Kuchler's associations for the eleven western states. Tech. Note 301. Denver, CO: U.S. Department of the Interior, Bureau of Land Management. 169 p. [434]

3. Boggs, Keith; Hansen, Paul; Pfister, Robert; Joy, John. 1990. Classification and management of riparian and wetland sites in northwestern Montana. Missoula, MT: University of Montana, School of Forestry, Montana Forest and Conservation Experiment Station, Montana Riparian Association. 217 p. Draft Version 1. [8447]

4. Burgess, Harold H. 1969. Habitat management on a mid-continent waterfowl refuge. Journal of Wildlife Management. 33(4): 843-847. [14506]

5. Clambey, Gary K.; Landers, Roger Q. 1978. A survey of wetland vegetation in north-central Iowa. In: Glenn-Lewin, David C.; Landers, Roger Q., Jr., eds. Proceedings, 5th Midwest prairie conference; 1976 August 22-24; Ames, IA. Ames, IA: Iowa State University: 32-35. [3304]

6. Dittberner, Phillip L.; Olson, Michael R. 1983. The plant information network (PIN) data base: Colorado, Montana, North Dakota, Utah, and Wyoming. FWS/OBS-83/86. Washington, DC: U.S. Department of the Interior, Fish and Wildlife Service. 786 p. [806]

7. Duebbert, Harold F.; Jacobson, Erling T.; Higgins, Kenneth F.; Podoll, Erling B. 1981. Establishment of seeded grasslands for wildlife habitat in the praire pothole region. Special Scientific Report-Wildlife No. 234. Washington, DC: U.S. Department of the Interior, Fish and Wildlife Service. 21 p. [5740]

8. Eyre, F. H., ed. 1980. Forest cover types of the United States and Canada. Washington, DC: Society of American Foresters. 148 p. [905]

9. Fernald, Merritt Lyndon. 1950. Gray's manual of botany. [Corrections supplied by R. C. Rollins]. Portland, OR: Dioscorides Press. 1632 p. (Dudley, Theodore R., gen. ed.; Biosystematics, Floristic & Phylogeny Series; vol. 2). [14935]

10. Frame, J.; Morrison, M. W. 1991. Herbage productivity of prairie grass, reed canary-grass and phalaris. Grass and Forage Science. 46(4): 417-425. [17762]

11. Garrison, George A.; Bjugstad, Ardell J.; Duncan, Don A.; [and others]. 1977. Vegetation and environmental features of forest and range ecosystems. Agric. Handb. 475. Washington, DC: U.S. Department of Agriculture, Forest Service. 68 p. [998]

12. Hansen, Paul L.; Chadde, Steve W.; Pfister, Robert D. 1988. Riparian dominance types of Montana. Misc. Publ. No. 49. Missoula, MT: University of Montana, School of Forestry, Montana Forest and Conservation Experiment Station. 411 p. [5660]

13. Hansen, Paul; Pfister, Robert; Joy, John; [and others]. 1989. Classification and management of riparian sites in southwestern Montana. Missoula, MT: University of Montana, School of Forestry, Montana Riparian Association. 292 p. Draft Version 2. [8900]

14. Henderson, Richard A. 1990. Controlling reed canary grass in a degraded oak savanna. Restoration & Management Notes. 8(2): 123-124. [13756]

15. Hitchcock, A. S. 1951. Manual of the grasses of the United States. Misc. Publ. No. 200. Washington, DC: U.S. Department of Agriculture, Agricultural Research Administration. 1051 p. [2nd edition revised by Agnes Chase in two volumes. New York: Dover Publications, Inc.]. [1165]

16. Hunt, Robert L. 1979. Removal of woody streambank vegetation to improve trout habitat. Tech. Bull. No. 115. Madison, WI: Department of Natural Resources. 37 p. [13744]

17. Johnson, James R.; Nichols, James T. 1970. Plants of South Dakota grasslands: A photographic study. Bull. 566. Brookings, SD: South Dakota State University, Agricultural Experiment Station. 163 p. [18483]

18. Kuchler, A. W. 1964. Manual to accompany the map of potential vegetation of the conterminous United States. Special Publication No. 36. New York: American Geographical Society. 77 p. [1384]

19. Larson, John L.; Stearns, Forest W. 1990. Effects of mowing on a woolgrass (Scirpus cyperinus (L.) Kunth) dominated sedge meadow in southeastern Wisconsin. In: Hughes, H. Glenn; Bonnicksen, Thomas M., eds. Restoration `89: the new management challange: Proceedings, 1st annual meeting of the Society for Ecological Restoration; 1989 January 16-20; Oakland, CA. Madison, WI: The University of Wisconsin Arboretum, Society for Ecological Restoration: 549-560. [14722]

20. Lyon, L. Jack; Stickney, Peter F. 1976. Early vegetal succession following large northern Rocky Mountain wildfires. In: Proceedings, Tall Timbers fire ecology conference and Intermountain Fire Research Council fire and land management symposium; 1974 October 8-10; Missoula, MT. No. 14. Tallahassee, FL: Tall Timbers Research Station: 355-373. [1496]

21. Magee, Dennis W. 1981. Freshwater wetlands: A guide to common indicator plants of the Northeast. Amherst, MA: University of Massachusetts Press. 245 p. [14824]

22. Malecki, Richard A.; Rawinski, Thomas J. 1985. New methods for controlling purple loosestrife. New York Fish and Game Journal. 32(1): 9-19. [18331]

23. Marquis, Louis Y.; Comes, Richard D.; Yang, Ching-pa. 1984. Relative tolerance of desert saltgrass (Distichlis stricta) and reed canarygrass (Phalaris arundinacea) to born. Weed Science. 32: 534-538. [11204]

24. Raunkiaer, C. 1934. The life forms of plants and statistical plant geography. Oxford: Clarendon Press. 632 p. [2843]

25. Reuter, D. Dayton. 1986. Effects of prescribed burning, cutting and torching on shrubs in a sedge meadow wetland. In: Koonce, Andrea L., ed. Prescribed burning in the Midwest: state-of-the-art: Proceedings of a symposium; 1986 March 3-6; Stevens Point, WI. Stevens Point, WI: University of Wisconsin, College of Natural Resources, Fire Science Center: 108-115. [16278]

26. Rodgers, Cassandra S.; Anderson, Roger C. 1989. Establishment of grasses on sewage sludge-amended strip mine spoils. In: Bragg, Thomas B.; Stubbendieck, James, eds. Prairie pioneers: ecology, history and culture: Proceedings, 11th North American prairie conference; 1988 August 7-11; Lincoln, NE. Lincoln, NE: University of Nebraska: 103-107. [14027]

27. Sharp Bros. Seed Co. [n.d.]. Controlling water quality by the use of grasses and forbs. Fact Sheet. Amarillo, TX: Sharp Bros. Seed Co. 2 p. [18006]

28. Tester, John R.; Marshall, William H. 1962. Minnesota prairie management techniques and their wildlife implications. Proceedings, 27th North American Wildlife Conference. 27: 267-287. [14960]

29. U.S. Department of Agriculture, Soil Conservation Service. 1982. National list of scientific plant names. Vol. 1. List of plant names. SCS-TP-159. Washington, DC. 416 p. [11573]

30. van der Valk, A. G.; Bliss, L. C. 1971. Hydrarch succession and net primary production of oxbow lakes in central Alberta. Canadian Journal of Botany. 49(7): 1177-1199. [3244]

31. Wasser, Clinton H. 1982. Ecology and culture of selected species useful in revegetating disturbed lands in the West. FWS/OBS-82/56. Washington, DC: U.S. Department of the Interior, Fish and Wildlife Service, Office of Biological Services, Western Energy and Land Use Team. 347 p. Available from NTIS, Springfield, VA 22161; PB-83-167023. [2458]

32. Welch, Bruce L. 1989. Nutritive value of shrubs. In: McKell, Cyrus M., ed. The biology and utilization of shrubs. San Diego, CA: Academic Press, Inc: 405-424. [8041]

33. White, Larry M.; Wight, J. Ross. 1981. Seasonal dry matter yield and digestibility of seven grass species, alfalfa, and cicer milkvetch in eastern Montana. Agronomy Journal. 73: 457-462. [16956]

34. Wright, Henry A.; Bailey, Arthur W. 1980. Fire ecology and prescribed burning in the Great Plains--a research review. Gen. Tech. Rep. INT-77. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station. 60 p. [2618]

35. Stickney, Peter F. 1989. Seral origin of species originating in northern Rocky Mountain forests. Unpublished draft on file at: U.S. Department of Agriculture, Forest Service, Intermountain Research Station, Fire Sciences Laboratory, Missoula, MT; RWU 4403 files. 7 p. [20090]

FEIS Home Page