

2 F

BNWL-1796
Special
Distribution

VASCULAR PLANTS OF WASTE STORAGE
SITES IN THE 200 AREAS
OF THE HANFORD RESERVATION

K. R. Price and W. H. Rickard



Battelle

Pacific Northwest Laboratories
Richland, Washington 99352

DECEMBER 1973

Prepared for the U.S. Atomic Energy
Commission under Contract AT(45-1):1830

BNWL-1796

NOTICE

The report was prepared as an account of work sponsored by the United States Government. Neither the United States nor the United States Atomic Energy Commission, nor any of their employees, nor any of their contractors, subcontractors, or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness or usefulness of any information, apparatus, product or process disclosed, or represents that its use would not infringe privately owned rights.

PACIFIC NORTHWEST LABORATORY
operated by
BATTELLE
for the
U.S. ATOMIC ENERGY COMMISSION
Under Contract AT(45-1)-1830

Printed in the United States of America
Available from
National Technical Information Service
U.S. Department of Commerce
5285 Port Royal Road
Springfield, Virginia 22151
Price: Printed Copy \$4.00; Microfiche \$1.45

3 3679 00052 4167

BNWL-1796
Special Distribution

VASCULAR PLANTS OF WASTE STORAGE SITES IN THE
200 AREAS OF THE HANFORD RESERVATION

by

Keith R. Price and William H. Rickard
Ecosystems Department

December 1973

This report is based on work sponsored by the
Atlantic Richfield Hanford Company under United
States Atomic Energy Commission Contract AT(45-1)-2130

BATTELLE
PACIFIC NORTHWEST LABORATORIES
RICHLAND, WASHINGTON 99352

VASCULAR PLANTS OF WASTE STORAGE SITES IN THE
200 AREAS OF THE HANFORD RESERVATION

Keith R. Price and William H. Rickard

The purpose of this report is to give a brief accounting of terrestrial, riparian and semi-aquatic plants known to be associated with radioactive waste storage sites in the 200 Areas of the Hanford Reservation. In most cases the species are characteristic of those which generally inhabit the reservation, but some plants are restricted to specialized habitats provided **by** particular waste storage sites.

It is impractical to list all species growing at each waste storage site because of seasonal variation and changes brought about by environmental management practices. An alphabetical **l**isting has been prepared with an example of where each species is known to occur. The list will be updated as needed and expanded to include other waste storage areas.

Plant specimens were collected during spring and **f**all when flowering material was available. Herbarium mounts were prepared of many specimens and have been retained as part of the Hanford Reservation herbarium collection. Identification to species level was made whenever possible.

Color photographs of the specimen mounts are used as training aids and demonstration material by ~~ARCO~~ Radiation Monitoring personnel.

Vascular Plants of Waste Storage Sites in the
200 Areas of the Hanford Reservation

<u>Common Name</u>	<u>Scientific Name</u>	<u>General Occurrence</u>
Annual fescue	<u>Festuca pacifica</u>	Dry areas
Asparagus	<u>Asparagus officinalis</u>	Ditch banks and moist areas
Aster	<u>Aster canescens</u>	Disturbed dry areas
Barnyard grass	<u>Echinochloa crusgalli</u>	Ditch banks and moist areas
Bassia	<u>Bassia hyssopifolia</u>	Disturbed dry areas
Bastard toad-flax	<u>Comandra pallida</u>	Dry areas
Beggar-tick	<u>Bidens faronosa</u>	Ditch banks and moist areas
Big bluegrass	<u>Poa ampla</u>	Dry areas
Big sagebrush	<u>Artemisia tridentata</u>	Undisturbed dry areas
Blazing Star	<u>Mentzelia albicaulis</u>	Dry areas
Bluegrass	<u>Poa canbyi</u>	Dry areas
Bracken fern	<u>Pteridium aquilinum</u>	Ditch banks and moist areas
Bristlegrass	<u>Setaria viridis</u>	Ditch banks and moist areas
Brodiaea	<u>Brodiaea douglasii</u>	Dry areas
Brodiaea	<u>Brodiaea howellii</u>	Dry areas
Bulrush	<u>Scirpus maritimus</u>	Ditches and ponds aquatic emergent
Bulrush	<u>Scirpus validus</u>	Ditches and ponds aquatic emergent
Cattail	<u>Typha latifolia</u>	Ditches and ponds aquatic emergent
Chaenactis	<u>Chaenactis douglasii</u>	Dry areas
Cheatgrass	<u>Bromus tectorum</u>	Solid waste burial grounds Disturbed dry areas
Common mullen	<u>Verbascum thapsus</u>	Ditch banks and moist areas

<u>Common Name</u>	<u>Scientific Name</u>	<u>General Occurrence</u>
Cottonwood	<u>Populus deltoides</u>	Ditch banks and moist areas around pond
Cryptantha	<u>Cryptantha circurnscissa</u>	Dry areas
Cryptantha ■	<u>Cryptantha pterocarya</u>	Dry areas
Cudweed	<u>Gnaphalium chilensis</u>	Disturbed moist areas
Daisy	<u>Townsendia florifer</u>	Dry areas
Dandelion	<u>Taraxacum officinale</u>	Ditch banks and moist areas
Desert mallow	<u>Sphaeralcea munroana</u>	Dry areas
Desert parsley	<u>Lomatium grayi</u>	Dry areas
Desert parsley	<u>Lomatium spp.</u>	Dry areas
Dock	<u>Rumex spp.</u>	Old pond bottom, disturbed moist areas
Dogbane	<u>Apocynum sibiricum</u>	Ditch banks and moist areas
Dogbane	<u>Apocynum androsoemifolium</u>	Old pond bottom, moist areas
Draba	<u>Draba verna</u>	Dry areas
Evening primrose	<u>Oenothera andina</u>	Dry areas
Evening primrose	<u>Oenothera pallida</u>	Dry areas
Fiddleneck	<u>Amsinckia tessellata</u>	Disturbed dry areas
Fleabane	<u>Erigeron filifolius</u>	Dry areas
Fleabane	<u>Erigeron pumilus</u>	Dry areas
Gilia	<u>Gilia leptomeria</u>	Dry areas
Goldenrod	<u>Salidago spp.</u>	Old pond bottom and moist areas
✓ Green rabbitbrush	<u>Chrysothammos nauseosus</u>	Solid waste burial grounds, disturbed dry areas

<u>Common Name</u>	<u>Scientific Name</u>	<u>General Occurrence</u>
✓ Grey rabbitbrush	<u>Chrysothamnus viscidiflorus</u>	Solid waste burial grounds, disturbed dry areas
Hardstem bulrush	<u>Scirpus acutus</u>	Ditches and ponds, aquatic emergent
Hawksbeard	<u>Crepis atrabarba</u>	Dry areas
Horsetail	<u>Equisetum laevigatum</u>	Shoreline, wet areas
Horsetail	<u>Equisetum hyemale</u>	Ditch banks and moist areas
Horseweed	<u>Conyza canadensis</u>	Disturbed dry areas
Indian ricegrass	<u>Oryzopsis hymenoides</u>	Dry, sandy areas
✓ Jimhill mustard	<u>Sisymbrium altissimum</u>	Solid waste burial grounds, disturbed dry areas
Larkspur	<u>Delphinium nelsonii</u>	Dry areas
Layia	<u>Layia glandulosa</u>	Dry areas
Locoweed	<u>Astragalus purshii</u>	Dry areas
Locoweed	<u>Astragalus spp.</u>	Dry areas
Microsteris	<u>Microsteris gracillis</u>	Dry areas
Muhlenbergia	<u>Muhlenbergia asperifolia</u>	Ditch banks and moist areas
Mustard	<u>Thelypodium laciniatum</u>	Dry areas
Needle and thread	<u>Stipa comata</u>	Sandy, dry areas
Nettle	<u>Urtica dioica</u>	Disturbed moist areas
Panic grass	<u>Panicum capillare</u>	Ditch banks
Peachleaf willow	<u>Salix amygdaloides</u>	Ditch banks, pond shoreline
Penstemon	<u>Penstemon accuminatus</u>	Dry areas
Phacelia	<u>Phacelia linearis</u>	Solid waste burial grounds, dry areas
Phlox	<u>Phlox longifolia</u>	Dry areas

<u>Common Name</u>	<u>Scientific Name</u>	<u>General Occurrence</u>
Pigweed	<u>Chenopodium leptophyllum</u>	Dry areas
Plantain	<u>Plantago patagonica</u>	Moist areas
Plectritis	<u>Plectritis macrocera</u>	Moist areas
Canary grass	<u>Phalaris arundinacea</u>	Moist areas
Russian Napweed	<u>Centaurea repens</u>	Disturbed moist areas
✓ Russian thistle	<u>Salsola kali</u>	Solid waste burial grounds, tank farms, dry areas
Sand dropseed	<u>Sporobolus cryptandrus</u>	Ditch banks, disturbed areas
Sandbar willow	<u>Salix exigua</u>	Ditch banks, pond shoreline
Sandbur	<u>Franseria acanthicarpa</u>	Solid waste burial grounds, disturbed dry areas
Sandberg bluegrass	<u>Poa sandbergii</u>	Undisturbed dry areas
Sand verbena	<u>Abronia mellifera</u>	Dry areas
Smartweed	<u>Polygonum persicaria</u>	Ditch banks and pond shoreline
Speedwell	<u>Veronica anagallis-aquatica</u>	Ditch banks, pond shoreline, moist areas
Spiny hopsage	<u>Grayia spinosa</u>	Solid waste burial sites, dry areas
Squirrel tail	<u>Sitanion hystrix</u>	Dry areas
Stickseed	<u>Lappula redowskii</u>	Disturbed dry areas
Sunflower	<u>Balsamorhiza careyana</u>	Dry areas
Swainsona	<u>Swainsona salsula</u>	Ditch banks, moist areas
Sweet bullclove	<u>Melilotus alba</u>	Ditch banks, disturbed moist areas

<u>Common Name</u>	<u>Scientific Name</u>	<u>General Occurrence</u>
Tansy mustard	<u>Descurainea pinnata</u>	Solid waste burial grounds, disturbed dry areas
Thistle	<u>Cirsium brevifolium</u>	Moist areas
Three-square bulrush	<u>Scirpus americanus</u>	Ditches and ponds, aquatic emergent
Tumbleweed	(see Russian thistle)	
Wallflower	<u>Erysimum asperum</u>	Dry areas
Watercress	<u>Rorippa nasturtium-aquaticum</u>	Ditches, running water
Willow herb	<u>Epilobium suffruticosum</u>	Disturbed dry areas
Wild lettuce	<u>Lactuca serriola</u>	Ditch bank, disturbed moist areas
Yarrow	<u>Achillaea millifolium</u>	Disturbed dry areas

DISTRIBUTION

<u>No. of Copies</u>		<u>No. of Copies</u>
	<u>OFFSITE</u>	<u>ONSITE</u>
1	<u>Chicago Patent Group</u> U.S. Atomic Energy Commission 9800 S. Cass Avenue Argonne, Illinois 60439 A. A. Churm	<u>Atlantic Richfield Hanford Company (contd)</u> T. R. McKenzie B. J. McMurray G. C. Oberg J. V. Panesko (5) D. J. Rochon H. P. Shaw A. E. Smith M. J. Szulinski R. E. Wheeler D. D. Wodrich
5	<u>AEC Technical Information Center</u>	
	<u>ONSITE</u>	
1	<u>AEC/RL Patent Attorney</u> R. W. Poteat	
7	<u>AEC Richland Operations Office</u> P. F. X. Dunnigan, Jr. O. J. Elgert P. G. Holsted E. B. Jackson B. J. Melton S. Moy P. G. Rhoades	59
		<u>Battelle-Northwest</u> E. L. Alpen J. P. Corley J. J. Fuquay K. R. Price (50) W. H. Rickard J. K. Soldat B. E. Vaughan Technical Information (3)
25	<u>Atlantic Richfield Hanford Company</u> M. D. Alford G. E. Blackman J. M. Blackburn G. L. Borsheim D. J. Brown L. E. Bruns R. I. Grob G. L. Hanson W. M. Harty R. E. Isaacson C. W. Malody H. L. Maxfield	3
		<u>United Nuclear Industries</u> L. V. Barker T. E. Dabrowski J. L. Goodenow
		2
		<u>Westinghouse Hanford</u> G. D. Carpenter R. B. Hall