


Plant Propagation Protocol for [*Opuntia polyacantha*]
 ESRM 412 – Native Plant Production



TAXONOMY	
Family Names	
Family Scientific Name:	Cactaceae
Family Common Name:	Cactus
Scientific Names	
Genus:	Opuntia
Species:	Polyacantha
Species Authority:	Haworth
Variety:	N/A
Sub-species:	<i>Opuntia polyacantha</i> var. <i>arenaria</i> (Englm.) Parfitt <i>Opuntia polyacantha</i> var. <i>erinacea</i> (Englm.) Parfitt <i>Opuntia polyacantha</i> var. <i>hysricina</i> (Engelm.) Parfitt <i>Opuntia polyacantha</i> var. <i>nicholii</i> (L. Benson) Parfitt <i>Opuntia polyacantha</i> . var. <i>polyacantha</i> (Johnson) <i>Opuntia heacockiae</i> <i>Opuntia missouriensis</i> <i>Opuntia rutila</i> <i>Opuntia xanthostemma</i> (Dave's Garden)
Cultivar:	N/A
Authority for	N/A

Variety/Sub-species:	
Common Synonym(s):	<i>Opuntia arenaria</i> , <i>Opuntia hystricina</i> , <i>Opuntia nicholii</i> , <i>Opuntia rhodantha</i> (UNEP) <i>Opuntia polyacantha</i> var. <i>polyacantha</i> <i>Opuntia heacockiae</i> <i>Opuntia missouriensis</i> <i>Opuntia rutila</i> <i>Opuntia xanthostemma</i> (Dave's Garden)
Common Name(s):	Plains pricklypear, (Johnson) hairspine cactus Cliff Prickly Pear, Hedgehog Prickly Pear, Juniper Prickly Pear, Heacock's Prickly Pear (Dave's Garden)
Species Code:	OPPO
GENERAL INFORMATION	
Geographical range	Canada , Mexico , United States (UNEP)  Images courtesy of USDA Plants Database The USDA Plants Database did not have a WA distribution map.
Ecological distribution :	Plains prickly-pear grows in the northern and southern Great Plains, the shrub- and woodlands of the Great Basin, the eastern Sierra Nevada, the borders of the Rocky Mountain forest regions, and the northern Chihuahuan Desert. It occurs from British Columbia to Manitoba southward through the Dakotas and Missouri to Texas and every state westward. (Johnson)
Climate and elevation range:	Low to mid elevations in zones 3b to 9b. (Robson, Richter & Filbert)
Local habitat and	<i>Opuntia polyacantha</i> is found in dry, sandy soils and often with sagebrush.

abundance; may include commonly associated species:	
Plant strategy type / successional stage	Even though <i>Opuntia polyacantha</i> is present and often abundant in climax or late-successional communities throughout its range, it is often thought of as disturbance-adapted, early seral species. This cactus increases in number in response to disturbances such as drought, grazing pressure, and severe hailstorms. Its cover decreases as precipitation normalizes following drought. (Johnson)
Plant characteristics:	<p>Perennial Shrub (stem succulent). (USDA)</p> <p><i>Opuntia polyacantha</i> is a low growing and very hardy in most conditions, so hardy that it is a weed in some areas. It is in the diet of scale insects. (Mace)</p> <p>This cactus is decumbent in shape and orientation and is adapted to all textured soils. It is CaCO_3 and drought tolerant and uses low amounts of moisture. The pH needs to be very alkaline, between 7.0 and 8.8. (USDA)</p>
PROPAGATION DETAILS	
Ecotype:	N/A
Propagation Goal:	Plants
Propagation Method:	Seed or vegetative.
Product Type:	Propagules (cuttings)
Stock Type:	cutting
Time to Grow:	The cutting should root in 2-6 weeks and the plant should be of good size in 2-3 years. (Toogood)
Target Specifications:	<p>This cactus grows to 30cm tall, often with extensive clumps (Robson, Richter & Filbert) and may take as much as 15 years to develop. (Johnson)</p> <p>Its mature height is 2 feet. (USDA)</p>
Propagule Collection:	In the spring or summer make a cutting (Toogood) or collect some pads with roots whenever the plants are disturbed (Robson, Richter & Filbert). See Growing Area Preparation section for how.
Propagule Processing or Propagule Characteristics:	<p>Seeds are large with thick coats; they may take up to two years to germinate, (Toogood) leaving cutting as the most efficient propagation method.</p> <p>145,000 seeds per pound. (USDA)</p>
Pre-Planting Propagule	When planting, let cutting or pad sit in a warm, dry place for 2-3 days to allow to callus. (Toogood and Robson, Richter & Filbert)

Treatment:	No cold stratification required (USDA)
Growing Area Preparation / Annual Practices for Perennial Crops:	<p>For a cutting, fill a 4 inch container 2/3 full of soil mix, top with a layer of fine grit and stand the cutting in it. Add more grit. (Toogood) For pads, plant them into sand or pumice, pushing the base of the pad a little way into the growing medium. Keep them moist until roots form. (Robson, Richter & Filbert)</p> <p>Consider the root depth minimum is 12 inches when choosing a container. (USDA)</p>
Establishment Phase:	Seeds may take up to two years to germinate. (Toogood)
Length of Establishment Phase:	No available information
Active Growth Phase:	<p>By the end of the 3rd growing season, plains prickly-pear seedlings are only 2.5 to 3 inches (6-8 cm) in length. The diameter of well-developed clumps may increase 3 inches (8 cm) annually. Plains prickly-pear clusters 3 feet (0.9 m) in diameter. (Johnson)</p> <p>This cactus' active growth period is Spring through Fall and has a rapid growth rate. <i>Opuntia polyacantha</i> is a stoloniferous growth form. (USDA)</p>
Length of Active Growth Phase:	This cactus may take as much as 15 years to develop. (Johnson)
Hardening Phase:	No available information
Length of Hardening Phase:	No available information
Harvesting, Storage and Shipping:	Allow unblemished fruit to ripen; then clean and dry the seeds. Properly cleaned seeds can be successfully stored. (Dave's Garden)
Length of Storage:	No available information
Guidelines for Outplanting / Performance on Typical Sites:	No available information
Other	

Comments:	
INFORMATION SOURCES	
References:	<p>Dave's Garden (online). Data collected on 17 May, 2011. <i>Dave's Garden, an Internet Brands company</i>. Data collected on 17 May, 2011. On the World Wide Web: http://davesgarden.com/guides/pf/go/82012/</p> <p>Johnson, Kathleen A. 2000. <i>Opuntia polyacantha</i>. In: <i>Fire Effects Information System</i>, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2011, May 17] On the World Wide Web: http://www.fs.fed.us/database/feis/plants/cactus/opupol/all.html</p> <p>Mace, Tony & Suzanne. <i>Cactus and Succulents: A Care Manual</i>. California: Laurel Glen Publishing, 1998.</p> <p>Robson, Kathleen A., Richter, Alice & Filbert, Marianne. <i>Encyclopedia of Northwest Native Plants for Gardens and Landscapes</i>. Oregon: Timber Press, 2007.</p> <p>Toogood, Alan. <i>The American Horticultural Society: Plant Propagation</i>. New York: DK Publishing, Inc., 1999.</p> <p>UNEP-WCMC. 17 May, 2011. <i>UNEP-WCMC Species Database: CITES-Listed Species</i> On the World Wide Web : http://www.unep-wcmc-apps.org/isdb/CITES/Taxonomy/tax-species-result.cfm/isdb/CITES/Taxonomy/tax-species-result.cfm?Genus=Opuntia&Species=polyacantha&source=plants&tabname=status</p> <p>USDA. 18 May, 2011. <i>USDA-Natural Resources Conservation Service-Plant Databases</i>: On the World Wide Web: http://plants.usda.gov/java/reference?symbol=OPPO</p>
Other Sources Consulted:	<p>Graham, Victor. <i>Growing Succulent Plants: Including Cacti</i>. Oregon: Timber Press, 1987.</p> <p>Britton, N.L. and Rose, J.N. <i>The Cactaceae: Descriptions and Illustrations of Plants of the Cactus Family</i>. New York: Dover Publications, Inc., 1963.</p> <p>Hunt, David. <i>The New Cactus Lexicon</i>. England: DH Books, 2006.</p> <p>Innes, Clive & Glass, Charles. <i>Cacti</i>. New York: Portland House, 1991.</p> <p>Martin, Margaret J., Chapman, P. R. & Auger, H. A. <i>Cacti & Their Cultivation</i>. New York: Charles Scribner's Sons, 1975.</p>

	Benson, Lyman. <i>The Cacti of the United States and Canada</i> . California: Stanford University Press, 1982.
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