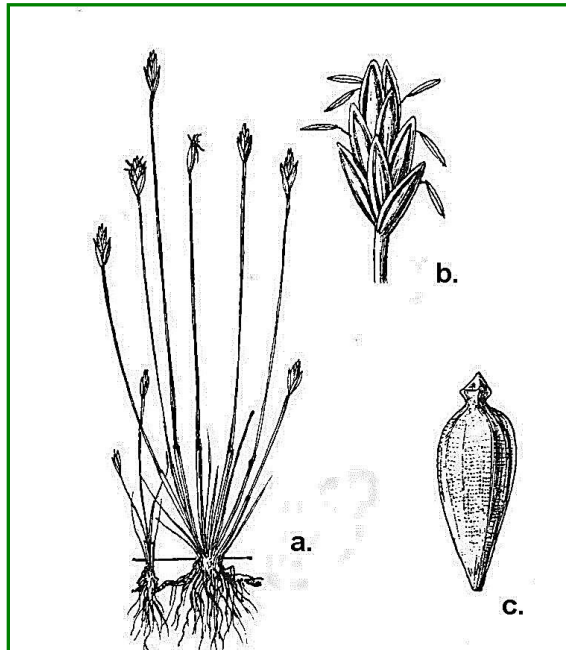


**Scientific Name:** *Eleocharis acicularis* (L.) Roemer & J.A. Schultes

**Family:** *Cyperaceae*

**Common Names:** needle spike rush, needle spike sedge



*Eleocharis acicularis* showing a. inflorescence, culms, leaves, rhizomes and roots, b. flower head, c. achene (seed).

### Plant Description

Grass-like perennial herb with slender creeping rhizomes, forming dense mats and floating masses; loosely tufted culms, needle-like stems, 3 to 12 cm high, angled and grooved; small, inconspicuous needle-like square-tipped leaves located at stem base with pale reddish basal sheaths; single ovate to lanceolate flowering spike at stem tip, 2 to 7 mm long arranged spirally, somewhat flattened consisting of 3 to 15 flowers, reddish-brown scales with green centers; 3 stigmas; submerged plants are usually non-flowering (Moss 1983).

**Fruit/Seed:** Whitish-straw coloured, slender obovoid achenes 0.7 to 1 mm long, with several longitudinal ridges and many fine transverse lines, tubercle conic with 3 to 4 bristles equal to or

slightly longer than achene. Reddish-brown scales with margins and midribs of greenish to straw color (Moss 1983).

### Habitat and Distribution

Wet places, marshes, sloughs, mudflats, shallow water of lakes, ponds and streambeds. Adapted to fluctuating water levels. Shade intolerant.

**Seral Stage:** Establishes well in disturbed areas. Indicative of terrestrialization (Bornette et al. 1994).

**Soil:** Found on infertile sand and gravel shorelines. pH range of 6.1 to 7.0 (Day et al. 1988). Found in sandy soils, with low silt and clay content, and low phosphorous levels (Day et al. 1988).

Has a moderate salinity tolerance; intolerant to shade (USDA NRCS n.d.).

**Distribution:** Common and widespread across Alberta. Circumpolar: Alaska, Arctic coast to Baffin Island (Moss 1983, USDA NRCS n.d.).

### Phenology

Flowers June to October (USDA NRCS n.d.).

### Pollination

Wind pollinated.

### Seed Dispersal

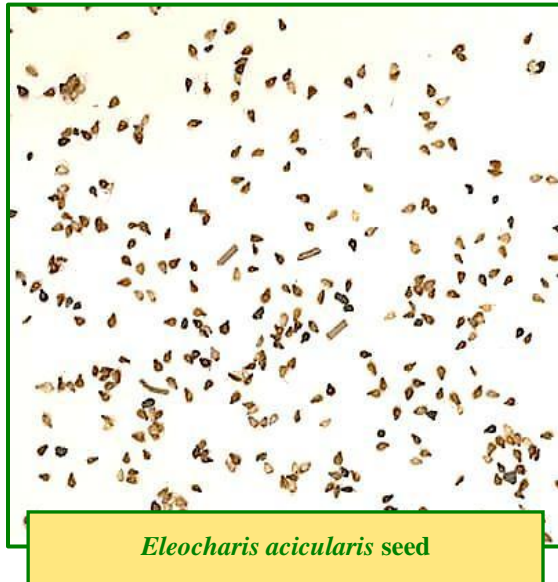
Seed fall off plant and sink in the water. Seed can only travel any significant distance if the water is running (Leck and Schutz 2005).

### Genetics

2n=20 (Moss 1983).

### Symbiosis

Forms arbuscular mycorrhizae (Barnola and Montilla 1997).



### Seed Processing

**Collection:** Pick ripe seed head and place in paper bag.

**Seed Weight:** 0.044 g/1,000 seeds (Royal Botanic Gardens Kew 2008).

**Storage/Longevity:** Orthodox, 1 to 5 years in soil seed bank, little known on method (Royal Botanic Gardens Kew 2008).

### Propagation

**Natural Regeneration:** Regenerates primarily by rhizomes, occasionally by seed (Cooper et al. 2006, Rook 2002).

**Germination:** 40% to 50% germination at warm temperatures (22 to 35°C) after pericarp removed (Yeo 1986).

Seed germinated at 15°C (Baskin and Baskin 2001).

**Planting Density:** 4,200 to 11,900 plants per hectare (USDA NRCS n.d.).

**Pre-treatment:** Remove pericarp via mechanical scarification (Yeo 1986).

60 day cold stratification required (Baskin and Baskin 2001).

**Vegetative Propagation:** 43% survival of rhizome cuttings the first year and 25% survival by year 2 in northeastern Alberta. It spreads extensively in the wet areas.

**Micro-propagation:** Are micro-propagated to use in decorative ponds, aqua gardens and fish tanks (LiveAquaria.com n.d.).

### Aboriginal/Food Uses

**Food:** No literature found

**Medicinal:** No literature found.

**Other:** No literature found.

### Wildlife/Forage Uses

**Wildlife:** Provides habitat for amphibians and fish. Seeds and stems are an important food source for waterfowl and mammals (Hamel and Parsons 2001).

**Livestock:** No literature found.

**Grazing Response:** No literature found.



### Reclamation Potential

Well-adapted to nutrient-poor, high-stress habitats. Tolerates stress due to its small stature, slow growth rate and evergreen tissues (Day et al.



1988). Spike-rush helps stabilize shorelines (Hamel 2001).

Hoang et al. (2009) found *Eleocharis acicularis* to accumulate heavy metals from contaminated mine sites and to be a hyper-accumulator of lead (Pb). Has also been found to accumulate Sb, As, Cu and Zn in a study by Ha et al. (2009).

### Commercial Resources

Available from numerous Alberta and Saskatchewan nurseries.

**Cultivars:** None are known.

### Photo Credits

**Photo 1:** Prairie Moon Nursery 2012.

**Photo 2:** Bernd Sauerwein @ Wikimedia Commons 2012.

**Line Diagram:** John Maywood, used by permission of Bruce Peel Special Collections, University of Alberta.

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