
PLANTS

PIGMY-WEED (*Crassula aquatica* (L.) Schoenl.) AND SPURREY KNOTWEED (*Polygonum spergulariaeforme* Meisn.) NEW TO SASKATCHEWAN, AND COMMENTS ON FIVE OTHER RARITIES FOUND 1998-1999

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Pigmy-weed

The most interesting find of 1999 - and for a good many years! - was Pigmy-weed, *Crassula aquatica* (L.) Schoenl. (*Tillaea aquatica* L. of available floras) (Fig.1). It was taken as collection # 5405 on L.S.D.9 of 26-3-XXX W3rd^a, north of Altawan (a siding which, with its railroad, now no longer exists), 30 km west and 6 km south of Consul, on 7 July 1999 where it was abundant on a dry, ungrassed pan set into low, dry prairie.

I called this depression a pan rather than a slough, as its surface was flat and 15 - 30 cm below the level of the almost equally flat prairie. It might be likened to an ulcer on the grassland surface. The exposed soil was queer stuff, being whitish, not obviously saline and seemingly of silt texture, though it must have had some clay content since it dried to hard lumps.

The vegetation of this pan consisted of much Pigmy-weed, lots of Woolly-heads (*Psilocarphus elatior*), minor amounts of Popcorn Flower (*Plagiobothrys scouleri*), stunted Mudwort (*Limosella aquatica*) and something in the *Polygonum aviculare*

Figure 1. Pigmy-weed [reproduced courtesy of the Canadian Museum of Nature, Ottawa, Canada]



complex (a Doorweed), and the odd culm of Western Wheat Grass (*Agropyron smithii*), with a good deal of bare ground between plants.

My guess about the origin of the pan is that it is a lump or erratic of marine shale in the thin till of the area, too barren to support prairie grasses and therefore slightly sunken below the level of the grassland. After the snow melt of a snowy winter, or after heavy rainfall in early summer (as was the case in 1999), the pan fills up with a shallow layer of water, which in this country south of the Cypress Hills, doesn't take long to evaporate. Thus, mud annuals have a chance to get in a life cycle if they are quick enough about it.

Pigmy-weed is in the family *Crassulaceae*, along with the stonecrops of the genus *Sedum*, and like them, has a fruit that is a cluster of follicles. It has opposite, fleshy leaves a few millimetres long, and a cymose inflorescence like chickweed. The plant material I saw and collected was 1-1.5 cm high and bright red in life (brown when dry). It was in seed and presumably was getting ready to die from drouth, as the pan was bone dry.

The distribution of Pigmy-weed is perhaps the oddest thing about it. Although circumboreal, it is not reported for Manitoba or Alberta, much less Saskatchewan, by Scoggan.¹² To the south, in Montana, it is not mentioned by Dorn, while the earlier writers, Booth and Wright, describe it but show no localities on their map.^{4,2} Farther southeast, it is not reported for the U.S. Great Plains.⁷ Other than from southern BC, the only report from western Canada is from Yellowknife on the north shore of Great Slave Lake^{11,3}

Make sense of that Great Slave Lake report if you can; but it appeared to me

not wholly impossible that Pigmy-weed could be found on the prairies. Indeed, on an earlier foray to Altawan on 30 June 1978, I had picked up a sprig of a plant with opposite leaves and reddish flower buds, which I thought for a moment might be Pigmy-weed, then on second thought, guessed it as Mud Purslane (*Elatine* sp.) and threw it away. On third thought, I wanted another look, but could find neither the sprig I had thrown away nor any other plants like it. The heavy rains of spring and early summer 1999 must have filled enough ephemeral pans to bring forth populations in this area. I did see another pan full of Pigmy-weed and Woolly-heads the same day, 100 yards southwest of the collection site, on the way back to the vehicle.

Spurrey Knotweed

Also to be reported as new to Saskatchewan is Spurrey Knotweed, (*Polygonum spergulariaeforme* Meisn.)

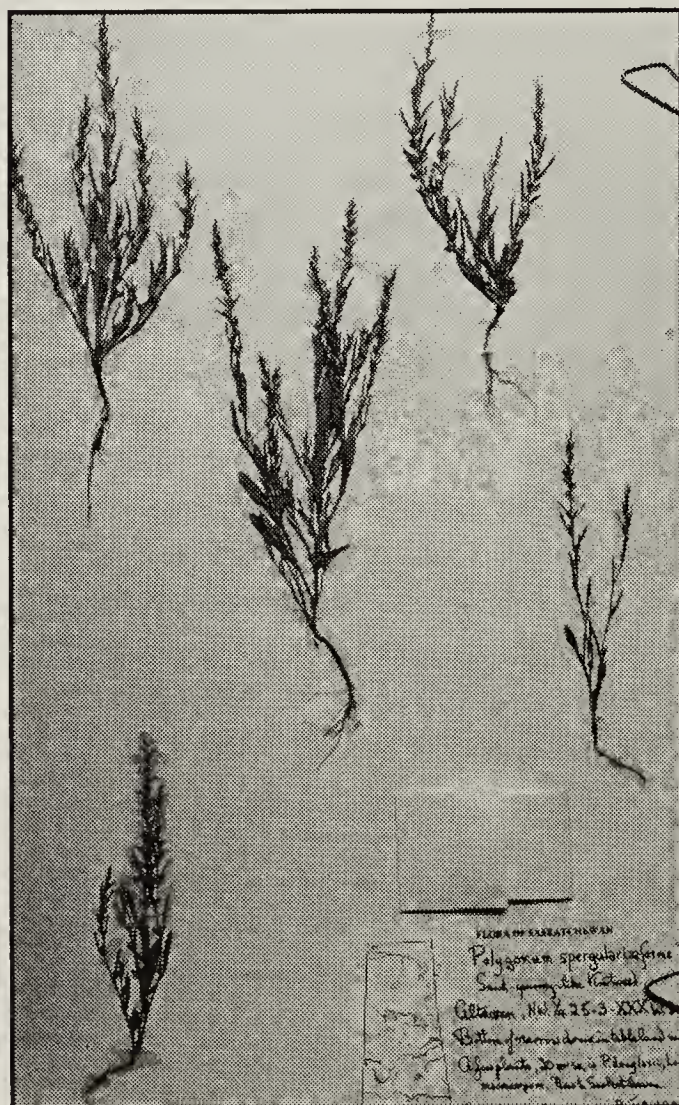


Figure 2. Spurrey Knotweed

(Fig. 2). Collection data are as follows : collection #5407, 8 July 1999, bottom of narrow draw in tableland margin, N.W. 1/4 25-3-XXX W. 3rd (thus near vanished Altawan), a few plants - 20 or so - with Douglas' Knotweed (*Polygonum douglasii*). I saw another population of the plant the next day on the same quarter but in a different ravine.

This small knotweed, 1-2 dm high, looks like Douglas' Knotweed in being strict and erect (even though branched) with linear-lanceolate ascending leaves, but differs markedly therefrom in that the flowers, fruits and their long subtending bracts, are erect not reflexed, and are crowded, not widely spaced, along the stem.

Spurrey Knotweed differs from the erect native forms related to *Polygonum aviculare* (Doorweed), found on bentonitic clay flats and dry slough bottoms, in having shiny black achenes rather than brown achenes, more or less dull-surfaced.

It might well be objected : "You are here dealing with a *Polygonum* in Section *Avicularia*, a section of ill-defined species running into one another. What is the evidence for reporting from this section a species new to Saskatchewan?" The answer is that from the keys of both Scoggan and Hitchcock & Cronquist, the material comes out to *Polygonum spergulariaeforme* or perhaps to a *Polygonum nuttallii* Small.^{12,9} These two entities are stated to differ only in that *P. spergulariaeforme* has shiny, black achenes 3 mm long, *P. nuttallii* has similar achenes 2-2.5 mm long.

I checked the achenes of all my collections in Section *Avicularia* and found that shiny, black achenes were confined to *P. douglasii* (3-4 mm long) and *P. spergulariaeforme* (2.5-3 mm

long). This Altawan material, (collection #5407), had shiny black achenes 2.5-3 mm long, so may safely be placed as *P. spergulariaeforme*. Not so definite was the placement of a collection I made at Chappice Lake northeast of Medicine Hat AB - collection #4921 from L.S.D.7 in 17-14-III W 4th on 23 June 1990; shiny black achenes 2-2.5 mm long placed it in *P. nuttallii*, though there is no apparent difference in the plant body from the Altawan material. Hitchcock and Cronquist thought *P. nuttallii* merely a small-flowered form of *P. spergulariaeforme*.⁹ Most likely the variation is continuous between them. So, although we have a new species for Saskatchewan, it is still in a state of taxonomic muddle, which Douglas, Straley and Meidinger have not cleared up by making these species, and a couple of others, all subspecies of the clearly different *Polygonum douglasii*.⁵ Scoggan attributes both *P. spergulariaeforme* and *P. nuttallii* to B.C.¹²

Rice Cut-grass



Figure 3. Rice Cut-grass

Another novelty for Saskatchewan is Rice Cut-grass, *Leersia oryzoides* (L.) Sw., (Fig. 3) but I am not the first collector of this one. I had seen a specimen collected by Dr. V. L. Harms as his collection # 39709B, 30 July 1988, on the shores of Antler River on S.E. 1/4 22-1-XXXI W 1st, in a stack of unmounted material from his trips into southeastern SK in the 1980s. (The specimen has subsequently been mounted.) The summer before last, I decided to look for it, remembering of the location only that it was somewhere along the Antler River. I did remember that Harms' material, collected in midsummer, had a wide-spreading panicle as shown in the drawings in Gleason and Boivin.^{6,1}

In September, my wife and I visited the most downstream point on the Antler River which one may easily attain by car in Saskatchewan, some 3 miles from the Manitoba line and 2 miles from that of North Dakota. I expected to pick out *Leersia* quickly by the spreading panicles, but both east and west of the north-south road, no such grass was to be seen along the river. Growing tired, we sat down on hummocks by the river shore west of the road. I looked around at the vegetation and saw among the bulrushes some unusual-looking grass leaves - light green, 6 - 10 mm wide (which is very wide for a grass leaf), rough and saw-toothed on the edges. I thought, "This might be *Leersia*" and examined the culms, which were swollen towards the tip. The swellings proved to contain cleistogamous panicles of *Leersia* spikelets included in the leaf sheaths. Gleason writes that these cleistogamous panicles are produced late in the season.⁶

The collection data for the Rice Cut-grass are : #5376, 3 September 1998, admixed with *Scirpus validus* on muddy bank of Antler River, N part L.S.D.9 in

9-1-XXX W1st. Rhizomatic. Also, #5428, 9 September 1999, colonies along Antler River at a reservoir on L.S.D.16 in 33-2-XXXII W 1st, with *Scirpus validus*, *Spartina pectinata*. Colonies every now and then.

Leersia is easy to spot when you know what to look for. The light green, unusually wide leaves will help the observer pick it out, and one may confirm the identification by feeling the saw-like, cutting leaf margins, which give the plant the name Cut-grass. Unlike the spikelets of other grasses, those of *Leersia* lack glumes; the spikelet consists only of a lemma and palea, both fringed with stiff hairs, with the included grain.

It is seen from the collection locations that *Leersia oryzoides* is known along the Antler River, for 3 ranges, or 18 miles (29 km), in some abundance by the way. Someone should check Gainsborough Creek and the lower Souris River for *Leersia* - something I neglected to do when down in that country.

This species has a wide range east into Manitoba and eastern Canada, and south nearly throughout the United States.

Next to be mentioned are four retakes of earlier found or reported rarities.

Indian Grass

Indian Grass, *Sorghastrum nutans* (L.) Nash, (Fig. 4) was reported by Harms as being found "about 1 mile north and 0.3 miles east of Pinto, west-center of sec. 36-01-06 W2, below prairie bluff rising above the gallery woods and bordering shrub zone north of the Souris River 28 August 1986, #36953. A single localized colony of about a dozen rather small-sized plants was found."⁸



Figure 4. Indian Grass

I thought I'd try for this one too. Visits to NE 1/4 36-1-VI W 2nd on 14 July 1998 and 2 September 1998, and to L.S.D.s 11 and 12 of this same section 36 on 3 September 1998, failed to find *Sorghastrum*. But another try on 10 September 1999 found it as #5437. My field notes read: "Slope covered with tall grasses, L.S.D.6 in 36-1-VI W 2nd. Locally abundant, some hundreds of plants with *Andropogon gerardi*, *A. scoparius*, *Panicum virgatum*, etc. About 1/3 of the way up the slope of the north bank of the Souris R. Valley. Landform looks like an ancient landslide, and I suspect a slight groundwater influence. Very similar vegetatively to *Andropogon gerardi*, (Big Bluestem), differing in the long ligule (5 mm) and inflorescence a true panicle, not 2 or 3 spikes." The spikelets and flowers of these two tall grasses are very similar, comprising one fertile spikelet with a crooked awn, subtended by a whiskery rachis joint and

an equally whiskery stalked sterile flower. In the field I could not tell Indian Grass from Big Bluestem until I noticed that the flowers of the former were in panicles, thus I may have passed it over earlier.

I don't know if the locality is the same as Harms' – they cannot be far apart. If they are the same, the difference in numbers of plants could be explained by the inordinately great rainfall in se Saskatchewan in spring and summer 1999, whereas 1986 was about average for moisture or a little below.

Upland Evening Primrose

Another retake of an earlier reported rarity was Upland Evening Primrose, *Oenothera andina* Nutt., (*Camissonia andina* (Nutt.) Raven) (Fig 5). I had reported this 20 years ago, based on my collection #3560, 2 July 1978, from S.W.1/4 25-3-XXX W 3rd, near



Figure 5. Upland Evening Primrose

Altawan.¹⁰ I had found it again in small amounts two years later as #3951 on N.W.1/4 19-3-XXIX W 3rd, 30 June 1980. Last winter, Dr. V. L. Harms, then Curator of the Fraser Herbarium, remarked to me that no one else had ever found it, and would I look for it if I should pass that way again? I went back to Altawan in the summer of 1999 and found Upland Evening Primrose again after two days searching, as #5410 on 8 July 1999 on L.S.D.12 in 25-3-XXX W 3rd, on slightly eroded slopes at the bottom of a ravine.

As may be seen from a map, all three of the Upland Primrose sites are spanned by only a 2.4 km (1.5 mi.) stretch along the edge of a tableland. This tableland, its south edge fretted by ravines of varying depths, rises some 45 m above the flats which margin Lodge Creek, and from these flats extends north to Middle Creek at the foot of the Cypress Hills. Upland Evening Primrose is plainly a spring ephemeral, completing its life cycle in two months before the drouth of July and August. I might add that this 8 July was a horrid day - cold, cloudy, with occasional spits of rain and a fresh gale of wind from the northwest.

Annual Water Foxtail

Another spring ephemeral of southwest Saskatchewan is Annual Water Foxtail, *Alopecurus carolinianus* Walt. (Fig. 6). This was reported as #3771 from L.S.D.11 in 22-5-XXIX W 3rd, near Merryflat, in a dry slough bottom, on 17 June 1979.¹⁰ I have a little information on this grass to relate, having run across it again as #5399 on 6 July 1999 on L.S.D.4 in 11-4-XXIX W 3rd, north of Govenlock. The habitat here was recorded as "low grassy spot in valley bottom, now dry clay." Scoggan wrote of this grass, "probably introduced in the west."¹² I think not; collection #5399 came from an undisturbed habitat. It was also seen in a dried-up



Figure 6. Annual Water Foxtail

state on L.S.D.14 of 33-3-XXX W 3rd on 4 August 1999 in a dry slough bottom, also undisturbed.

Examination of the Fraser Herbarium holdings of *Alopecurus* showed that some of the specimens of Water Foxtail, *Alopecurus geniculatus* L., from se Alberta and sw Saskatchewan, are in fact *A. carolinianus*. This was also the case for my #358, taken 12 July 1950 in a slough bottom on L.S.D.12 in 28-17-I W 3rd, 2.4 km (1.5 miles) northwest of Mortlach. I revisited this place 20 August 1996 but, unhappily, the slough had been destroyed and its place occupied by the Trans-Canada Highway.

Annual Water Foxtail may be spotted in the field, at least in late summer, by the awns projecting from the florets remaining on the spike in such a way that the end of the column of attached florets looks whitish.

Stemless Rubber-weed

A retake of an old collection of mine was Stemless Rubber-weed, *Hymenoxys acaulis* (Pursh) Parker [*Tetranuris acaulis* (Pursh) Greene of recent writers], # 5341, collected 24 June 1998 on the north part of L.S.D.2 in 7-16-I W 3rd, a colony about 2 m by 1.2 m at the top of the slope on the south side of a coulee. This site is among the coulees cutting the north slope of the Missouri Coteau, 11 or 12 km south of Mortlach. I had collected it at the same place as #1868 on 8 July 1956. But at that time, the only map of the area available was the old, inaccurately contoured 3 mile to the inch map, and I had recorded the location of #1868 wrongly as "N.W. corner of S.E. 1/4 of 7 - 16 - I W 3rd", which would be in L.S.D.7. It took me two afternoons in this maze of coulees to rediscover the colony.



Figure 7. Stemless Rubber-weed

The colony hadn't changed perceptibly in size since 1956, and there were no daughter colonies nearby. Indeed, I have never seen Stemless Rubberweed elsewhere in Saskatchewan, though I have seen it at Writing-on-Stone Provincial Park on the Milk River in Alberta. There is a report in *The Flora of Canada* of a John Macoun collection from the Cypress Hills in 1894¹², but the Fraser Herbarium has no duplicate of this, nor even a photocopy.

Stemless Rubber-weed (Fig. 7) looks nothing like our familiar Colorado Rubber-weed. It lacks stem leaves and all the leaves are basal, entire and linear-lanceolate. It resembles closely Stemless Stenotus, *Haplopappus armerioides*, in plant body and flower heads and even in size, but in Stemless Rubber-weed the leaves are grey with fine pubescence, rather than hairless, green and shiny as in the Stenotus.

As mentioned earlier, there were no daughter plants or colonies nearby, nor are there other colonies that I know of in these hills cloven with coulees, and I walked every coulee along the hill front in the 1950s. This leads to two inferences: 1) Stemless Rubber-weed is self-sterile; 2) if there are any other colonies of this plant in the Missouri Coteau, this one lies beyond the flying range of the usual pollinating insects, bees and the like. The occurrence would seem to be a clone, spreading vegetatively by rhizomes, if at all. We may therefore consider this species vulnerable in Saskatchewan if the definition used by COSEWIC for national rarities is applied to the provincial level.

Replicates of my collections have been distributed to SASK (U. of S. Fraser Herbarium in Saskatoon), CAN (Vascular Plant Herbarium of the

Canadian Museum of Nature, Ottawa) and USAS (University of Regina).

^a An L.S.D. is a legal subdivision of a section, being one-sixteenth of a section or 40 acres in size. These subdivisions are numbered in the same fashion as sections within a township. The numbers following the L. S. D. refer to section, township and range (here in Roman numerals). W. 3rd means west of the third meridian.

[The photographs show pressed specimens in the author's collection, mounted on 30 cm x 45 cm sheets of paper. Photos by Anna Leighton - Eds.]

Acknowledgements

I am indebted to Dr. V. L. Harms for giving me permission to cite his otherwise unpublished first discovery of *Leersia oryzoides*, Rice Cut-grass, in Saskatchewan.

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“There are enough people with an abnormal fear of crane flies – leggy, harmless insects – for psychiatrists to have given their fear a name : tipulophobia.” ,
Sue Hubbell, Broadsides from the Other Orders, p.159.