

Ledum species ploidy levels

Kristian Theqvist, 25-March-2021

Flow cytometry results obtained from Coimbra University are presented in lines labeled "Source," while previously published findings are outlined in bulleted points.

R. tomentosum (L. palustre L.)

Published distribution: Europe and moderately northern Asia

Source: Kristian Theqvist, Turku Archipelago, Finland	tetraploid
Source: Kristian Theqvist, narrow leaf form, Turku Archipelago, Finland	tetraploid
Source: Kristian Theqvist, Kerimäki, Finland	tetraploid
Source: Kristian Theqvist, Liminka, Finland	tetraploid
Source: Kristian Theqvist, Enontekiö, Lapland, Finland	tetraploid
Source: Kristian Theqvist, cw Mongolia (Maurice Foster, MFM0352)	tetraploid
Source: Hans Eiberg, cw Norway	tetraploid

- HACERUP 1941; SORSA 1962; MURfN and MAJOVSKL 1983 tetraploid
- From Lantai & Kihlman (1995), Lumen, Uppsala, Sweden tetraploid

R. subarcticum (L. palustre ssp. decumbens)

Published distribution: Northern N. America and northern Asia

Source: Hans Eiberg, Kangerlussuaq, Greenland	diploid
Source: Ole Jonny Larsen, Siberia, Russia	diploid

- *Ledum palustre* L. ssp. *decumbens* (Ait.) Hulten, Sondre Stromfjord, West **Greenland** diploid
- Ogotoruk Creek, N.W. **Alaska**, JOHNSON and PACKER (1968) counted $2n = 26$. Note: This is the only *Ledum* that grows in Alaska. diploid
- ZHUKOVA and PETROVSK (1976) studied material from Chukchi Mts, **N.E. Asia** and found the chromosome number $2n = 52$ tetraploid
- Four years later, ZHUKOVA (1980) counted $2n = 26$ in material from the same main area in **N.E. Asia** diploid
- In 1987, ZHUKOVA and PETROVSKY (1987) again found the chromosome number $2n = 52$ for ssp. *decumbens* in two collections from **N.E. Asia**. tetraploid
- $2n = 52$ was also reported by Löve (1982) for *L. palustre* ssp. *decumbens* from Churchill, Manitoba in **Canada** tetraploid

Conflicting results have emerged, particularly regarding certain East Asian *R. subarcticum* (*L. palustre* ssp. *decumbens*) samples.

Questions arise: Are some of these samples *tomentosum* (tetraploid) or *subulatum* (diploid)?

Additionally, could the Löve (1982) sample from Canada possibly be *groenlandicum*?

The distribution of the tetraploid *tomentosum* extends from Scandinavia to Northern Russia and possibly into Northeastern Asia. However, differentiating an alpine-growing *tomentosum* with narrow leaves from *subarcticum* or *subulatum* proves challenging. There are potential errors in collected herbarium specimens.

In accordance with Lantai & Kihlman (1995): "When ssp. *palustre* grows under unfavourable conditions, such as at high altitudes or latitudes or under dry conditions, the plants can be confusingly similar to ssp. *decumbens*."

In Northeast Asia, what is the relationship between *subarctimum* and *subulatum*? They bear a striking resemblance to each other, both being diploids, and their morphological differences are not clearly defined.

R. subulatum (L. subulatum)

Published distribution: Russia to NE China, N Korea, and Japan

Source: Arnold Arboretum, cw, five plants from **N. China** diploid

Source: Ole Jonny Larsen, origin and identification? The plant looks like *tomentosum*. tetraploid

R. diversipilosum (L. palustre subsp. diversipilosum)

Published distribution: Japan, Sakhalin endemic

Source: Kristian Theqvist, plant from prof. Bengt Kihlman tetraploid

Source: Ole Jonny Larsen, diversipilosum 'Milky Way' (selected clone) tetraploid

Source: Hans Eiberg, cw Hokkaido, **Japan** tetraploid

R. hypoleucum (L. hypoleucum)

Published distribution: Eastern Asia

Source: Kristian Theqvist, cw, Sichote-Alin, **Russia** tetraploid

Source: Hans Eiberg, nursery plant in Denmark tetraploid

Source: Ole Jonny Larsen, seed from **Russia** (Dr. Berkutenko) tetraploid

R. tolmachevii (L. macrophyllum)

Published distribution: Northeastern Asia

Source: Kristian Theqvist, cw, Amur, **Russia** tetraploid

Source: Ole Jonny Larsen, seed from **Russia** tetraploid

R. groenlandicum (L. palustre L. subsp. groenlandicum)

Published distribution: Northern N. America

Source: Kristian Theqvist, Arboretum Mustila, cw origin tetraploid

Source: Ole Jonny Larsen, 'Helma' (selected clone) tetraploid

Source: Ole Jonny Larsen, cw Mt Washington, **USA** tetraploid

Source: Hans Eiberg, cw, Nuuk, **Greenland** tetraploid

Source: Hans Eiberg, cw Kangerlussuaq, **Greenland** tetraploid

Source: John and Sally Perkins, Sago Bog, Maine, **USA** tetraploid

R. neoglandulosum (L. glandulosum)

Published distribution: Western N. America

Source: Kristian Theqvist, plant from prof. Bengt Kihlman tetraploid

Source: Ole Jonny Larsen tetraploid

R. columbianum (L. columbianum)

Published distribution: Western N. America

Source: Kristian Theqvist, Glendoick Gardens diploid

Source: Hans Eiberg, ARS 71/2004, cw Lincoln Beach, Oregon, **USA** diploid

Source: Robert MacIntyre, Oregon, **USA** diploid