

brumale have been found only seldom and some larger fungi found on the Swedish dunes or grass heaths have not been found in Finland. These are, e.g., *Geoglossum cookeianum*, *Peziza ammophila*, *Sepultaria arenicola*, *Inocybe serotina*, *Phallus hadriani*, some *Geaster* and *Disciseda* species and *Lycoperdon pusillum*.

Samples of almost all the mentioned fungi are deposited in TUR.

REFERENCES

- ANDERSSON, O., 1950: Larger fungi on sandy grass heaths and sand dunes in Scandinavia. — Bot. Not. Suppl. 2: 2, 1—89.
- EKLUND, O., 1944: Weitere Beiträge zur Pilzflora des Schärenarchipels SW-Finlands. — Mem. Soc. F. Fl. Fenn. 13, 212—216.
- ECKBLAD, F.-E., 1955: The Gasteromycetes of Norway. — Nytt Mag. f. Bot. 4, 19—86.
- KALLIO, P. & HEIKKILÄ, H., 1964: Some macromycetes from Yyteri sand dunes in SW-Finland. — Karstenia 6—7, 111—112.
- KÜHNER, R. & ROMAGNESI, H., 1953: Flore analytique des Champignons supérieurs, 556 p. — Paris.
- LANGE, M., 1955: Greenland Agaricales, Macromycetes II. — Medd. om Grønl. 147: 11, 1—69.
- NANNFELDT, J., 1942: The Geoglossaceae of Sweden. — Arkiv för Botanik 30, A: 4, 1—67.
- RAUTAVAARA, T., 1953: Juuritryffeli (*Scleroderma bovista* Fr.) lentohiekassa Pohjois-Suomessa. — Karstenia 2, 50.
- THESLEFF, A., 1919: Studier öfver basidsvampfloran i sydöstra Finland... — Bidr. Känned. Finl. Nat. Folk 79: 1, 1—140.

ON FINNISH MICROMYCETES 3. UREDINALES OF
INARI LAPLAND

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I. INTRODUCTION

Observations on the mycology of Finnish Lapland are very few; this holds true for both macromycetes and micromycetes. RAINIO (1926) studied the rust flora of Finnish Lapland in its earlier very broad sense (including Finnmark in Norway and the Petsamo district in the U.S.S.R.), and KARI (1936) published a list of the micromycetes he collected in various parts of Lapland, mainly in Petsamo and the southern part of Inari Lapland. In addition, HEIKINHEIMO (1932) and LEPİK (1933) made some notes on the mycology of the Petsamo district. This is almost all that has been written on Lappish micromycetes. J. I. LIRO and H. ROIVAINEN gathered large collections in Enontekiö Lapland (a part of these is included in the Mycotheca Fennica), but Inari Lapland has still remained an almost unexplored area.

Since 1954 the Zoological and Botanical Society of Turku has performed floristic inventories in Inari Lapland, and during these excursions I have collected also micromycetes, although not very intensively. Only during the past two years have more systematic collections been made. In 1963, also the following persons took part in this work: Mr. KAARLO SALORANTA (K.S.), Mr. LAURI KORPI, B.Sc. (L.Ko.), and Mr. LAURI KÄRENLAMP, B.Sc. (L.Kä.). In 1964, Miss MAIJA-LIISA KIVILUOMA (M.K.) collected a number of samples. The Society of Botany Students of Copenhagen University, "Theophrastos", arranged in 1962 an excursion to Kevo Subarctic Research Station. During this, Miss BIRTHE HANSEN, B.Sc. (B.H.) collected a number of rusts (preserved in the herbarium of the Institut for Sporeplanter, Gothersgade 140, Copenhagen K.) which are included in the present list. To all of these I express my sincere thanks for permission to use their material. The list includes also some collections made by Prof. PAAVO KALLIO, Miss NIINA TARÉN, Lic.Phil., Miss ESTER KANKAINEN, B.Sc., Miss RAILI SUOMINEN, B.Sc., Miss

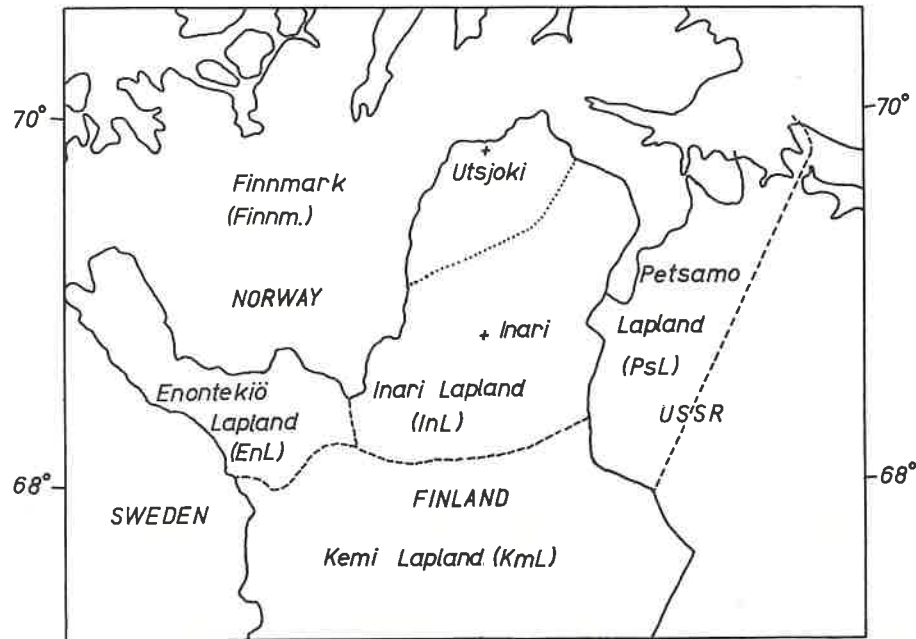


Fig. 1. The phytogeographical region of Inari Lapland and adjacent regions.

KAARINA PENNANEN, B.Sc., MISS PIIRKKO VANHATALO, B.Sc., MR. ESA KOIVISTOINEN, B.Sc., and MR. TERHO VALANNE, B.Sc., to all of whom I extend my thanks. For the present study, I also examined the vascular plant specimens deposited in TUR; the collectors not mentioned above were those who had collected these vascular plant specimens.

Inari Lapland comprises two communes, Utsjoki and Inari (see map in Fig. 1). The occurrence of the listed rusts in the surrounding provinces (see map) is based on data reported by RAUHALA (1959) for EnL, KmL, PsL, and by JØRSTAD (1940) for Finnmark. Some of our excursions were extended to Norwegian Finnmark, and rusts collected during them have also been included in the present list. The names Polmak, Sør-Varanger, Kistrand, Russenes and Lebesby refer to localities in Finnmark.

With several exceptions, in which I have maintained the narrow species concept, the nomenclature follows that of HYLANDER, JØRSTAD & NANNFELDT (1953). Unless otherwise stated (f.n. = field note without preserved specimen), all the localities are based on collections preserved at TUR. The species and hosts previously not recorded in Inari Lapland are marked with an asterisk.

Lists of other groups will be given later.

II. LIST OF UREDINALES

1. *Chrysomyxa empetri* Schroeter

On *Empetrum hermaphroditum*. — Utsjoki: Kistuskaidi 466 m (II) 26.7.1956 Y. M.; near the church (II) 23.7.1963 K. S.; Roavvioaivi (II) 14.7.1957 Oili Jääskeläinen; Saarela (II) 21.8.1964 M.K. RAINIO (1926 p. 253) found the species in many localities in Utsjoki. — Inari: on the Otsamo fjeld W of the Inari village (II) 8.7.1937 Ernst Häyrén. — Polmak: on shore of Tana R. at Alaköngäs (II) 18.8.1964 M.K. and near the mouth of Laevvajokka R. (II) 24.8.1964 Y. M. — Probably not rare, but often overlooked. (EnL [TUR], KmL [TUR], PsL [MÄKINEN 1962 N:o 842], Finm.)

On **Empetrum nigrum*. — Utsjoki: Outakoski (II) — 7.1949 Gunnar Marklund. — Inari: Ivalo, on a river bank (II) 11.7.1949 Gunnar Marklund; Angeli, close to the frontier guard post (II) 7.7.1960 Unto Laine. — (KmL [TUR])

2. *Chrysomyxa ledi* de Bary

On *Picea abies*. — Inari: Laanila (RAINIO 1926 p. 253). — (KmL)

3. *Chrysomyxa pirolata* Wint.

On *Pyrola minor*. — Utsjoki: Kevojoki, Njaggaljærret (II) 9.8.1963 Y. M.; Mie-rashjärvi (RAINIO 1926 p. 253). — Inari: Thule (RAINIO 1926 p. 253). — (PsL, Finm.)

On *Ramischia secunda*. — Inari: Törmänen (RAINIO 1926 p. 253). — (Finm.)

Compared, e.g., with *Pucciniastrum pyrolae* (p. 172), this species is much rarer in Lapland than in southern Finland. It is true that spruce has its northern distribution limit in Inari Lapland, but as *Chrysomyxa pirolata* is independent of host-alternation, it is more probable that its scarceness in Lapland is due to unfavourable climatic conditions.

4. **Chrysomyxa woroninii* Tranz.

On *Picea abies*. — Inari: eastern archipelago of Lake Inari, near the southern shore of Iso-Roiro island (I) 8.7.1962 Paavo Kallio & Y. M. This locality is one of the northernmost isolated habitats of spruce; only few of the ca. 30 trees were infected. — (KmL, Finm.)

On *Ledum palustre*. — Inari: very abundant in the same locality as above (II); E of Lake Inari, N of Lake Meällijærret (II) 10.7.1962 Y. M.; S-shore of Vironniemi, NE-shore of Lake Tshuolisjärvi, W-shore of Lake Valajærvi, 5 km SW of Lake Valajærvi (f.n.s by Y. M. 9—11.7.1962); Vätsäri, Tuulispää, in an alpine region (II) 11.7.1962 Y. M. — Found earlier only in Uusimaa province in the southernmost part of Finland (KUJALA 1950 p. 91). In Finnmark the species is common in the Pasvik valley (JØRSTAD 1937 p. 11, 1940 p. 17). *Chrysomyxa woroninii* occurs here independent of host-alternation and overwinters in the uredostage; the localities where it occurs on *Ledum palustre* (omitting the first one) are situated far beyond the northern spruce limit. In all these places the rust was very common. It can hardly be supposed that infection is caused in all these cases by aecidiospores originating from the nearest spruces in Pasvik valley in Norway.

5. **Coleosporium campanulae* Lévl.

On *Campanula rotundifolia*. — Utsjoki: on the shore of Lake Mantojärvi near the

vicarage (II + III) 26. 8. 1958 Y. M.; Vetsikko, on the shore of Teno R. (II + III) 27. 8. 1958. Y. M. — Polmak: near the mouth of Aittejokka R. on the shore of Tana R. (II + III) 19. 8. 1963 Y. M., and between the Laevvajokka and Boakkojokka rivers (II) 24. 8. 1964 Y. M. — (EnL). The host is rather common along the brooks and rivers, but the rust seems to be very rare and confined only to the host on sandy shores of big rivers. It occurs independent of host-alternation and generally causes heavy infections.

6. *Coleosporium rhinanthacearum* Lév.

On *Euphrasia officinalis*. — LIRO (1908 p. 474) announces this species in Inari Lapland; the exact locality is unknown. — (KmL, EnL)

7. *Cronartium flaccidum* (Alb. & Schw.) Wint.

On *Pinus silvestris*. — Utsjoki: Karigasniemi (I) 21. 7. 1955 Y. M.; near the Kevo Research Station (I) 22. 7. 1962 B. H. RAINIO (1926 p. 252) collected this species in Inari village and writes that it was present here and there at the northern pine limit. Although the species may have been partly overlooked, it must be very local in Inari Lapland. In Finnmark it has caused great damage during several years (JØRSTAD 1940 p. 19, HAGEMANN 1891 p. 71), but apparently the abundance of this rust varies within very wide limits. — (EnL, Finnm.)

8. *Gymnoconia peckiana* (Howe) Trotter

On *Rubus arcticus*. — Utsjoki: S-end of Lake Mierashjärvi (I + III) 14. 7. 1957 Y. M.; Kevonsuu (III) 18. 8. 1964 Y. M. & M. K. (2 collections); mouth of Kevojoki (III) 20. 8. 1964 Y. M. & M. K. (2 collections); Seitikko-oja near the vicarage (II) 13. 7. 1964 Paavo Kallio and (III) 20. 8. 1964 Y. M. — Inari: Ivalo (III) 26. 8. 1964 M. K.; Ivalo and the shore of Kertunjoki R. (KARI 1936 p. 14). — Polmak: mouth of Laevvajokka (III) 24. 8. 1964 Y. M. (3 collections) and on shore of Tana R. between Laevvajokka and Boakkojokka (III) 24. 8. 1964 Y. M. — (EnL, PsL, Finnm.). The host is common along the brooks and rivers, but the rust seems to be rare (cf. JØRSTAD 1940 p. 21). However, in the autumn of 1964 we found it to be frequent and most abundant almost in every locality that was examined in more detail. Apparently there are large yearly variations in its incidence.

9. *Gymnosporangium cornutum* Arth.

On *Sorbus aucuparia* (O + I). — Utsjoki: Vetsikko 27. 8. 1958 Y. M.; Kistuskaidi 466 m 26. 7. 1956 Y. M.; Raessijoki 14. 8. 1961 Raili Suominen; several localities along Tshieskuljoki R. 25. 7. 1962 B. H., 30. 8. 1958 Y. M., 1. 8. and 2. 8. 1963 L. Ko., 18. 8. 1964 Y. M. & M. K.; Kevonsuu 22. 8. 1963 Y. M. and 18. 8. 1964 Y. M. & M. K.; mouth of the Kevojoki R. 25. 7. 1962 B. H. and 23. 8. 1964 Y. M.; Kevojoki, Siedgajoki 28. 8. 1958 Y. M., Linkkapahta 29. 8. 1958 Y. M., Njaggaljärvet 9. 8. 1963 L. Ko.; Pulmankijärvi, Vertsajoki 13. 8. 1963 L. Ko.; in the subalpine region of the Tshuomasvaara fjeld 13. 8. 1963 Y. M. — Inari: 1 km E of the Jänispää fjeld 18. 7. 1960 Terho Valanne & Eero Hanhijärvi; Junkkila farm along the Pakanajoki R. (f.n.) 12. 7. 1962 Y. M.; several localities in the villages of Ivalo and Törmänen (RAINIO 1926 p. 250, KARI 1936 p. 14, RAUHALA 1959 p. 75). — Polmak: near the mouth of Polmakelven R. 12. 8. 1963 Y. M.; N-end of Lake Polmakvatn 14. 8. 1963 Y. M. and 19. 8. 1964 Y. M.; near the mouth of Laevvajokka R.

20. 8. 1963 Y. M.; along the Darjokka R. 24. 8. 1964 Y. M. (2 collections); along the Tana R. opposite the Junttila farm 18. 8. 1963 Y. M. — (KmL, EnL, PsL, Finnm.). This species is one of the most common rusts in Inari Lapland; it occurs almost everywhere where the host has been found, in both pine and birch regions (the host does not occur in alpine regions).

10. *Melampsora alpina* Juel

On **Salix herbacea*. — Utsjoki: Kistuskaidi 466 m (II) 29. 7. 1956 Y. M.; Tshuomasvaara, in the alpine region of the northern slope (II) 13. 8. 1963 L. Ko. & Y. M. — Polmak: in the alpine region of the Geidnogaissa fjeld (3 localities, II) 20. 8. 1963 Y. M.; SE-slope of the Rastegaissa fjeld (II) 24. 8. 1964 Y. M. RAINIO (1926 p. 255) apparently collected also the telio-stage on the Geidnogaissa fjeld as well as on the Rastegaissa fjeld nearby. — (EnL, PsL [HEIKINHEIMO 1932 p. 7, KARI 1936 p. 16], Finnm.)

(On *Salix polaris*. — Not known to exist in Inari Lapland; the note of RAUHALA (1959 p. 15) is based on the paper of RAINIO (1926 p. 255), who collected the species on this host not in Inari Lapland, but on the Rastegaissa and Geidnogaissa fjelds in Finnmark. — EnL, Finnm.)

11. *Melampsora epitea* Thüm.

Melampsora epitea and the allied rusts on *Salix* species form a noxious group. Little is still known about their race formation and biological specialization. Mainly the sizes of the uredospores, the breadths of the paraphysis heads and the thicknesses of the walls of heads have been used as differential morphological characters. To obtain more information a number of measurements were made. A sample of 25 spores and paraphysis heads from every specimen collected by us and by B. H. and listed above was measured after warming in lactophenol; measurements were also made on the specimens collected by L. E. Kari in Inari Lapland. Only the inner thick-walled paraphyses were measured. The total number of samples was 99. The results are presented in Fig. 2 and Table 1. The standard errors have been omitted from the table, partly for the sake of brevity, partly because they would have yielded no additional information compared with Fig. 2. (The collections made in 1964 are not included.)

It is obvious from Fig. 2 and Table 1 that no clear-cut differences exist between the various host species in respect of the size of the spores or the breadth of paraphysis heads. Neither were differences noted in the thickness of walls of paraphysis heads; this character was not systematically measured, however.

Analysis of variance showed no significant differences between the different hosts (*caprea*, *lanata* and *herbacea* with only 1, 2 and 3 specimens were omitted in the analysis) either in respect of spore size or breadth of paraphysis heads. Furthermore, Spearman's correlation test applied to spore length and paraphysis breadth gives $r = +0.07$, which shows that no cor-

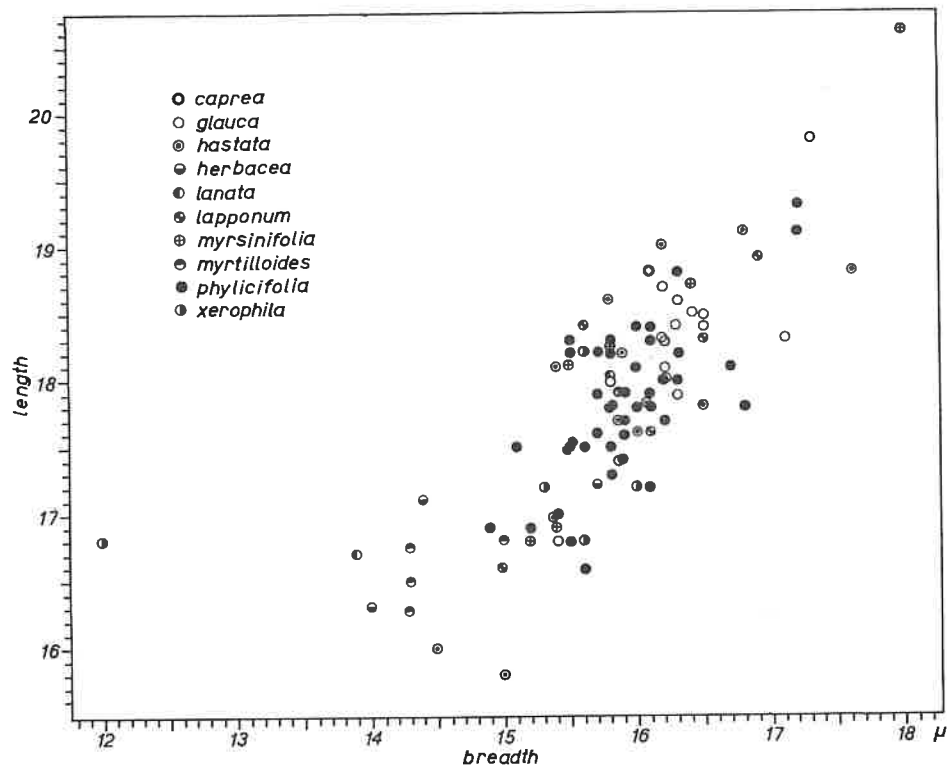


Fig. 2. Sizes of uredospores of *Melampsora epitea* on various *Salix* species in Inari Lapland.

Table 1. Dimensions in microns of uredospores of *Melampsora epitea* on various *Salix* species in Inari Lapland.

Host	Spore			Paraphyses	n
	Length	Breadth	Index		
caprea	18.80	16.10	1.17	18.20	1
glauca	18.25	16.30	1.12	18.61	16
myrsinifolia	18.22	16.05	1.14	17.67	6
lapponum	17.96	16.02	1.12	18.60	5
phyllicifolia	17.83	15.91	1.12	18.27	42
hastata	17.78	15.93	1.12	18.70	14
xerophila	17.35	15.07	1.15	18.08	6
lanata	17.35	14.85	1.17	17.05	2
herbacea	16.87	14.70	1.15	18.57	3
myrtilloides	16.65	14.48	1.15	18.28	4

Index = length-breadth ratio.

n = number of specimens measured.

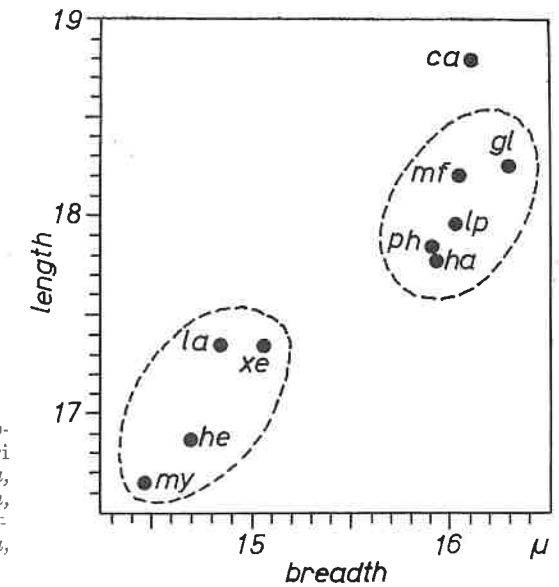


Fig. 3. The spore sizes of *Melampsora epitea* on different hosts in Inari Lapland. ca = *caprea*, gl = *glauca*, mf = *myrsinifolia*, lp = *lapponum*, ph = *phyllicifolia*, ha = *hastata*, la = *lanata*, xe = *xerophila*, he = *herbacea*, my = *myrtilloides*.

relation exists between spore size and the breadth of paraphysis heads. It seems thus very doubtful whether the latter character can be used together with the spore size as a taxonomic criterium. In addition, the length-breadth ratio of the spores varies relatively little, and the data for the hosts fall rather closely into the same range, 1.10—1.17.

Fig. 3 presents graphically the spore size means for the hosts. In spite of the fact that the analysis of variance gave no positive result, it seems possible to divide the hosts into two groups. The first with a spore size of $17.8\text{--}18.3 \times 15.9\text{--}16.3 \mu$ and an index of 1.12—1.14 includes *S. glauca*, *myrsinifolia*, *lapponum*, *phyllicifolia* and *hastata*, the second with a spore size of $16.7\text{--}17.4 \times 14.5\text{--}15.0 \mu$ and an index of 1.15—1.17 includes *S. xerophila*, *lanata*, *herbacea* and *myrtilloides*. The first group would then be equivalent to *M. epitea* s.str., and the second group to *M. arctica* s.lat. For the present, however, I prefer to place all other hosts under the collective species *M. epitea*, leaving only the *herbacea* rust under *M. alpina*. *S. herbacea* is common throughout the greater part of Inari Lapland, but is found infected only in localities where hosts for the haplont phase are available. Possibly this holds true also for the rust on *S. lanata*.

As a collective species, *M. epitea* is certainly the most frequent rust in Lapland. The diplont hosts are all rather rare in Inari Lapland, and, accordingly, the fungus is found generally in the uredostage only, occurs independent of host-alternation and overwinters in the mycelial stage in the hosts. Teliospores are found frequently only on certain host

species, although they may have been partly overlooked, because they develop rather late in the autumn, usually not before the end of August. The hosts most often attacked are *Salix hastata*, *S. myrsinifolia* and *S. phylicifolia*, whereas *S. lapponum*, *S. lanata* and *S. myrsinites* are only rarely infected. According to JØRSTAD (1940 p. 30) the most common hosts in Northern Norway are *S. glauca*, *S. lapponum*, *S. phylicifolia*, *S. hastata*, *S. lanata* and *S. myrsinifolia*, and thus there seems to be some difference between Northern Norway and Finnish Lapland in this respect.

On *Salix caprea*. — RAINIO (1926 p. 255) states the rust to be very common everywhere. It is, in fact, very rare in Inari Lapland, where already the host is very local. Inari: Ivalo (II) 26. 8. 1964 M. K.; Törmänen (KARI 1936 p. 16). — Polmak: along the Polmakelven R. (II + III) 19. 8. 1964 Y. M. — (KML [TUR], Finnm.).

On **Salix glandulifera*. — Utsjoki: eastern shore of the Lake Pulmankijärvi, at the Norwegian frontier (II) 19. 8. 1964 Y. M. — (PsL, Finnm.). Not reported earlier from Finland.

On *Salix glauca*. — Only the uredostage has been found on this host; it is much more often infected than *S. lapponum*, with which it often grows together. — Utsjoki: Kari-gusniemi 21. 7. 1955 Y. M.; Karigasnjarga-Ailigas 16. 8. 1963 Y. M.; along the Luomushjoki R. 16. 8. 1963 Y. M.; Kevonniemi, near the mouth of the Kevojoki R. 22. 7. 1962 B. H. and 31. 7. 1963 L. Ko.; Haukiniemi 28. 7. 1963 Y. M.; Tshieskuljoki 25. 7. 1962 B. H. and 17. 8. 1964 Y. M.; Kistuskaidi 466 m 26. 7. 1956 Y. M. — Inari: along the Nellimö road 24 km from Ivalo 16. 8. 1964 Y. M.; Ivalo and Törmänen (KARI 1936 p. 16). — Polmak: SE-slope of Rastegaissa 24. 8. 1964 Y. M.; along the Polmakelven R. 18. 8. 1964 M. K. — (EnL, PsL, Finnm.)

On *Salix glauca* × *myrsinifolia*. — Inari: Törmänen (KARI 1936 p. 16).

On *Salix glauca* × *phylicifolia*. — Utsjoki: Haukiniemi (II) 5. 8. 1963 L. Ko.

On *Salix hastata*. — The rust is common and easily detectable on this host, and also the teliosstage seems to occur regularly. — Utsjoki: Jegelvedje, Välimaa (II) 26. and 27. 8. 1958 Y. M.; Kistuskaidi 466 m (II) 26. 7. 1956 Y. M.; along the Äimäjoki R. near the bridge (II) 1. 8. 1963 L. Ko.; Kevonniemi (II) 21. 7. 1962 B. H.; mouth of the Kevojoki R. (II + III) 28. 8. 1958 Y. M., (II + III) 20. 8. 1964 Y. M. and (II) 23. 8. 1964 Y. M.; Kevojoki, Njaggaljärvet (II + III) 9. 8. 1963 Y. M. and Linkkapahta (II + III) 11. 8. 1963 Y. M.; Tshieskuljoki 25. 7. 1962 B. H., 17. 8. 1964 Y. M. & M. K. (2 collections). — Inari: several localities in Ivalo and Törmänen villages (KARI 1936 p. 16). — Polmak: along the Tana R. near the mouth of Aittejokka R. (II) 19. 8. 1963 Y. M. — (KML, EnL, PsL, Finnm.). Although not much collected, the rust infects the host especially along the big gravel-shored rivers, like the Teno and Utsjoki rivers. It is much less common in the thickets along the boggy shores of small rivers.

On **Salix lanata*. — The host is not rare in the north of the area, but the rust occurs very infrequently and only in the uredostage. — Utsjoki: Tshuomasvaara, in the lower part of the alpine region on the eastern slope 13. 8. 1963 L. Kä. & Y. M. — Lebesby: along the Badnelusjokka R. near Vilggisraša 25. 6. 1961 Liisa & Y. M. — (PsL, Finnm.). Not reported earlier from Finland.

On **Salix lapponum*. — The host is common everywhere, but the rust has been found in Inari Lapland only three times, although, according to RAINIO (1926 p. 255), it is very common everywhere. — Utsjoki: along the Äimäjoki R. near the bridge (II) 1. 8. 1963 L. Ko.; Kevojoki, Njaggaljärvet (II) 9. 8. 1963 L. Ko.; along the Tshuoggajoki R. near its mouth (II) 15. 7. 1957 Niina Tarén. — Polmak: mouth of the Laevvajokka R. (II) 28. 7. 1962 B. H.; along the Darjokka R. (II) 24. 8. 1964 Y. M. (2 collections). — Russenes (II) 1. 8. 1962 B. H. — (EnL, Finnm.)

On *Salix starkeana* × *xerophila*. — Inari: Ivalo (KARI 1936 p. 16).

On *Salix myrsinifolia*. — Rather common. — Utsjoki: Kevojoki, Linkkapahta (II) 11. 8. 1963 Y. M.; mouth of the Iivvanashjoki R. (II) 13. 7. 1957 Y. M.; NE end of Lake Luossajärvi (II) 18. 7. 1956 Y. M.; close to the vicarage (II) 20. 8. 1964 Y. M. — Inari: Ivalo, Pikku Petsamo (II) 8. 7. 1962 Y. M., Ivalo (II) 26. 8. 1964 M. K. (2 collections) and KARI 1936 p. 16. — Polmak: near the mouth of Laevvajokka R. (II) 20. 8. 1963 Y. M.; along the Tana R. between Laevvajokka and Boakkojokka (II + III) 24. 8. 1964 Y. M. — (PsL, Finnm.)

On *Salix myrsinifolia* × *phylicifolia*. — Inari: Törmänen and Virtaniemi (KARI 1936 p. 16).

(On *Salix myrsinites*. — According to RAINIO [1926 p. 255] everywhere very common, but no accurate records exist. — Polmak: along the Darjokka R. (II) 24. 8. 1964 Y. M. — EnL, Finnm.)

On **Salix myrtilloides*. — Utsjoki: along the Skaidijoki R. S of the Lake Mierashjärvi (II) 13. 7. 1959 Y. M.; along the Tshuoggajoki R. 1.5 km from the mouth (II) 13. 7. 1957 Niina Tarén; 2 km S of Mierashlompola along the Utsjoki R. (II) 12. 7. 1959 Helena Ore; S of Urro-oaivi on the Norwegian border (II) 18. 7. 1956 Paavo Kallio. — (EnL, Finnm.)

On *Salix phylicifolia*. — The most commonly attacked species in Inari Lapland; also teliospores develop regularly at least in open, sunny places as on the shores of big rivers. — Utsjoki: S end of Lake Pulmankijärvi (II) 14. 8. 1963 Y. M.; on the Norwegian border S of Urro-oaivi (II) 14. 8. 1963 Y. M.; Tshuomasvaara (II) 14. 8. 1963 L. Ko.; Kistuskaidi 466 m (II) 26. 7. 1956 Y. M.; along the Äimäjoki R. near the bridge (II + III) 1. 8. 1963 L. Ko.; Utsjoki village (II) 22. 7. 1963 K. S.; Haukiniemi (II) 28. 7. 1963 Y. M.; eastern shore of the Lake Pulmankijärvi at the Norwegian border (II + III) 19. 8. 1964 Y. M.; close to the vicarage (II) 20. 8. 1964 Y. M.; Tshieskuljoki (II) 25. 7. 1962 B. H. and (II) 17. 8. 1964 M. K.; Kevonsuu (II) 20. 7. 1963 K. S. and (II) 18. 8. 1964 Y. M.; Tsharsjokskaidi (II) 31. 7. 1963 L. Ko.; mouth of Kevojoki R. (II) 21. 7. 1962 B. H., (II) 20. 7. 1963 K. S. and (II + III) 22. 8. 1963 Y. M.; Kevojoki, Njaggaljärvet (II) 9. 8. 1963 L. Ko.; S end of Lake Keneshjärvi (II, 2 collections) 10. 8. 1963 L. Ko. & L. Kä.; Karigasniemi, Ailigas, in alpine (II) and subalpine (II + III) regions 16. 8. 1963 Y. M.; along the Luomushjoki R., 2 km from Lake Luomushjärvet (II + III) 17. 8. 1963 Y. M. — Inari: Sevettijärvi, Luolajärvi, Lappalainen's farm (II) 15. 7. 1962 Y. M.; Kessivuono, Sammakkonniemi, Sarre's farm (II) 31. 7. 1963 Y. M.; Ivalo, Alempi Akujärvi (II) 8. 7. 1962 Y. M. and Ylempi Akujärvi (II) 25. 7. 1963 Y. M.; Laanila (II) 2. 7. 1927 V. Heikinheimo; Kaamanen road junction (II + III) 26. 8. 1964 Y. M.; Nanguvuono, Korpinpahta (II) 16. 8. 1964 Y. M.; Ivalo (II + III) 26. 8. 1964 M. K.; Inari, Ivalo and Törmänen villages (KARI 1936 p. 16). — Polmak: along the Tana R. at the mouth of the Aittejokka R. (II + III) 19. 8. 1963 Y. M., and opposite the Junttila farm (II) 19. 8. 1963 Y. M.; along the Laevvajokka R. near its mouth (II + III) 20. 8. 1963 Y. M.; along the Darjokka R. (II) 24. 8. 1964 Y. M.; on shore of Tana R. at Alaköngäs (II + III) 18. 8. 1864 Y. M.; along the Polmakelven R. (II) 19. 8. 1964 Y. M.; eastern shore of the Lake Polmakvatn at the Finnish border (II) 19. 8. 1964 Y. M. — Sør-Varanger: Neiden, near the bridge (II) 15. 7. 1962 Y. M. — (KML, EnL, PsL, Finnm.)

On *Salix xerophila*. — Utsjoki: Tsharsjokskaidi (II) 31. 7. 1963 L. Ko.; along the Tsharsjoki R. (II) 16. 7. 1958 Liisa Pakarinen; Kevonniemi (II) 19. 7. 1962 B. H.; Kevojoki, Linkkapahta (II) 18. 7. 1955 Unto Laine, and Ylä-Njaggaljärvet (II) 22. 7. 1955 Unto Laine; Kevonsuu (II) 25. 8. 1964 Y. M. — Inari: Kaamanen road junction (II) 26. 8. 1964 Y. M.; Ivalo (KARI 1936 p. 16). — (EnL, Finnm.)

12. *Melampsora ribesii-purpureae* Kleb.

On *Ribes spicatum* (I). — Utsjoki: mouth of the Kevojoki R. 21. 7. 1962 B. H.; 200 m N of Tshieskuljoki bridge (II) 20. 7. 1958 Matti Tallgren. — Inari: Ivalo (KARI 1936 p. 16); Sotajocnsuu (RAINIO 1926 p. 255). — (Finnm.)

13. *Melampsora pinitorqua* Rostr.

On *Populus tremula*. — RAINIO (1926 p. 255) found this species (II + III) both in Utsjoki and Inari, Ivalo. — (KmL)

14. *Melampsoridium betulinum* (Fr.) Kleb.

Like *Melampsora epitea*, this species is one of the commonest rusts in Finnish Lapland. Its frequency seems, however, to vary much during different years. The heaviest attack during our observation period was seen in August, 1961; the rust was very common both on *Betula nana* and *B. pubescens* over the whole of Utsjoki area, the uredospores coloured all our clothes orange-red, and clouds of spores hovered in the air when we walked through thickets of *B. nana*. Our observations agree with those of RAINIO (1926 p. 254), who stated the species to be common especially in the alpine region. According to JØRSTAD (1940 p. 40), the rust grows at an altitude of 400 m in N. Norway; in 1961 the whole of the Paistunturit fjeld district was covered by the rust, which occurred up to an altitude of ca. 600 m. The rust is especially common also along roadsides and around inhabited places, where it often attacks young plants.

On *Betula nana*. — Utsjoki: Tshuomasvaara, in the alpine region of the E slope (II) 13. 8. 1963 Y. M.; Karunjarga (II + III) 27. 8. 1958 Y. M.; Paavalvaara (II + III) 6. 8. 1961 Y. M.; Karigasnjarga-Ailigas, in an alpine region (II, two collections) 16. 8. 1963 Y. M.; mouth of Kevojoki (II) 23. 8. 1964 Y. M.; Saarela (II) 21. 8. 1964 M. K. — Inari: Kessivuono, Sammakkoniemi (II) 1. 8. 1963 Y. M.; Kaamasjoki, at the mouth of the Vuob mavaaranoja R. (II + III) 20. 7. 1961 Y. M.; along the Nellimö road 25 km from Ivalo (II) 16. 8. 1964 Y. M.; Ivalo and Törmänen villages (KARI 1936 p. 16). — Polmak: along the Darjokka R. (II) 24. 8. 1964 Y. M. (2 collections). — (KmL [TUR], EnL, PsL, Finn.)

On *Betula nana* × *pubescens*. — Utsjoki: Haukiniemi (II) 5. 8. 1963 L. Ko.

On *Betula pubescens*. — Utsjoki: Vetsikko (II) 27. 8. 1958 Y. M.; Tshuoggajoki, ca. 1.5 km from the mouth (II) 7. 8. 1963 Y. M.; Kevojoki, Njaggaljärvet (II) 9. 8. 1963 L. Ko.; Jesnalvaara (II) 24. 7. 1962 B. H.; close to the vicarage (II) 20. 8. 1964 Y. M.; mouth of Kevojoki (II) 23. 8. 1964 Y. M.; Tshieskuljoki (II) 17. 8. 1964 Y. M. & M. K. (2 collections); Keneskoski (II) 26. 8. 1964 Y. M. — Inari: Kessivuono, Sammakkoniemi (II) 31. 7. 1963 Y. M.; Kaamanen road junction (II) 17. 8. 1963 Y. M. and (II) 26. 8. 1964 Y. M.; along the Nellimö road 26 km from Ivalo (II) 16. 8. 1964 Y. M.; Ivalo (II) 26. 8. 1964 M. K.; Törmänen (KARI 1936 p. 16); Inari and Ivalo (RAUHALA 1959 p. 81). — Polmak: at the mouth of Aittejokka R. (II + III) 18. 8. 1963 Y. M.; along the Tana R. at Alaköngäs (II) 18. 8. 1964 Y. M. and between Lacvvajokka and Boakkajokka (II) 24. 8. 1964 Y. M. — (KmL, EnL, PsL [TUR], Finn.)

(On *Betula verrucosa*. — RAINIO (1926 p. 254) stated the rust to be common on this host in Inari Lapland, but no exactly defined localities are known. The host is rare already in the southern part of Inari Lapland, but no doubt could be found infected. — EnL, KmL)

15. *Phragmidium acuminatum* (Fr.) Cooke

On *Rubus saxatilis*. — Inari: Inari village (III, RAINIO 1926 p. 252). — (Finnm.)

16. *Phragmidium arcticum* Lagh.

On *Rubus arcticus*. — Inari: Ivalo and Törmänen (KARI 1936 p. 14). — (Finnm.)

17. **Phragmidium mucronatum* (Pers.) Schlecht.

On *Rosa majalis*. — Inari: 3 km S of Ivalo, in a meadow beside the road (I) 16. 7. 1962, (I + II) 15. 8. 1964 and (I + II) 26. 8. 1964 Y. M. — Not found in surrounding provinces; the northernmost localities in Norway are at the polar circle in Nordland (JØRSTAD 1940 p. 41) and in Finland at 65°45' in North Pohjanmaa (Kemi, KUO).

18. *Phragmidium potentillae* (Pers.) Karst.

On **Potentilla crantzii*. — Utsjoki: Kevojoki, Linkkapahta (I) 29. 8. 1958 Y. M. — Not recorded earlier in Finland on this host.

On *Potentilla nivea*. — Utsjoki, Kevojoki, Linkkapahta (I) 8. 7. 1956 Y. M. and 19. 7. 1957 (II + III) Niina Tarén (MÄKINEN 1962 N:o 587), and Könkäänpahta (I + II) 3. 7. 1955 Unto Laine; Kenespahta (II) 16. 7. 1957 Niina Tarén. — In Finland found on this host only in Kuusamo province in northern Finland.

19. *Puccinia acetosae* Körn.

On *Rumex acetosa*. — Inari: Ivalo (RAINIO 1926 p. 245).

On *Rumex acetosella*. — Inari: Ivalo (RAINIO 1926 p. 245). — (KmL)

(*Puccinia albulensis* P. Magn.

On *Veronica alpina* (III). — Polmak: upper course of the Darjokka R., in alpine region 24. 8. 1964 Y. M. — EnL, PsL, Finn.)

20. **Puccinia alpina* Fuck.

On *Viola biflora* (III). — Utsjoki: Kistuskaidi 466 m 27. 7. 1956 Y. M.; Kistuskaidi 482 m 29. 7. 1956 Y. M.; Keavonsuu 24. 7. 1962 B. H., 20. 7. 1963 K. S. and 18. 8. 1964 M. K.; Puksala 21. 7. 1963 K. S.; Keneshkoski 7. 7. 1956 Niina Tarén; along the Luomushjoki R. ca. 1.5 km from Luomushjärvet 16. 8. 1963 L. Kä. — Polmak: SE slope of Raste-gaissa 24. 8. 1964 Y. M. — (EnL, PsL)

21. **Puccinia anthoxanthina* Gäum.

On *Anthoxanthum odoratum*. — Utsjoki: Tshuomasvaara, on the E slope in the upper part of the subalpine region (II) 13. 8. 1963 Y. M. & L. Kä.; Keavonsuu (II) 18. 8. 1964 Y. M. & M. K. — Polmak: two localities along the Darjokka R. (II + III) 24. 8. 1964 Y. M. — (Finnm.)

22. *Puccinia arenariae* (Schum.) Wint.

On *Stellaria graminea* (III). — Inari: Törmänen (RAINIO 1926 p. 246). — (KmL, PsL, Finn.)

On **Stellaria nemorum* ssp. *montanum*. — Utsjoki: Vetsikko ([II+] III) 27. 8. 1958 Y. M.; Jegelvedje, Välimaa (III) 26. 8. 1958 Y. M. — (PsL, Finn.)

23. *Puccinia bistortae* DC.

On *Polygonum viviparum*. — Utsjoki: Lake Pulmankijärvi, Vertsajoki (II + III) 13. 8. 1963 L. Ko.; S end of Lake Pulmankijärvi (III) 14. 8. 1963 Y. M. & L. Kä.; Yläjalve (II + III) 30. 7. 1956 Y. M.; Kaava (RAINIO 1926 p. 245); along the Äimäjoki R. near the bridge (III) 1. 8. 1963 L. Ko.; near the vicarage (III) 26. 8. 1958 Y. M. and (II + III) 20. 8. 1964 Y. M.; Haukiniemi (III) 28. 7. 1963 Y. M.; Kevonsuu 21. 7. 1962 B. H. and (II + III) 18. 8. 1964 Y. M.; in the mouth of Kevojoki R. (II + III) 31. 7. 1963 L. Ko. and (II + III) 20. 8. 1964 Y. M. & M. K.; Tshieskula (II + III) 22. 8. 1964 Y. M.; Saarela (III) 21. 8. 1964 M. K. — Inari: Näätämö, Pakanajoki (II + III) 12. 7. 1962 Y. M.; Tshuolisjärvi, Järvenpää (II + III) 11. 7. 1962 Y. M.; Törmänen, Ivalo and Laanila (RAINIO 1926 p. 245, KARI 1936 p. 11). — Polmak: Rastegaissa 28. 7. 1962 B. H. and (III) 24. 8. 1964 M. K.; upper course of Darjokka (II + III) 24. 8. 1964 Y. M.; on shore of the Tana R. between Laevvajokka and Boakkojokka (III) 24. 8. 1964 Y. M.; along the Polmakelven R. (III) 18. 8. 1964 M. K.; eastern shore of Lake Polmakvatn at the Finnish border (II + III) 19. 8. 1964 Y. M. — Sør-Varanger: Neiden (II + III) 15. 7. 1962 Y. M. — (KmL, EnL, PsL, Finnm.)

One of the commonest rusts in the area (cf. KARI 1936 p. 11). It seems to occur mainly around houses and in other anthropochorous places and hardly is missing around any of the Lapp houses. Outside of the inhabited places the rust is normally found only on the banks of large rivers and lakes.

24. *Puccinia borealis* Juel

On *Thalictrum alpinum* (I). — Utsjoki: on the shore of Teno R. (RAINIO 1926 p. 242); Vuoguljärvet 14. 7. 1956 Y. M.; on the Norwegian border S of Urro-oaivi 14. 8. 1963 Y. M. — Inari: on the Norwegian border, on the path leading from Pakanajoki to Neiden 13. 7. 1962 Y. M. — Polmak: along the Darjokka R. 24. 8. 1964 Y. M. — (EnL, PsL, Finnm.)

(*Puccinia chaerophylli* Purt.

On *Anthriscus silvestris*. — Polmak: between the Polmak and Horma villages (II + III) 18. 8. 1964 Y. M. — PsL, Finnm.)

25. *Puccinia cirsii* Lasch

On *Cirsium heterophyllum*. — Utsjoki: Kevojoki, Njaggaljärvet (II + III) 9. 8. 1963 Y. M.; mouth of Kevojoki R. (III) 22. 8. 1963 Y. M. and (III) 23. 8. 1964 Y. M. — Inari: Ivalo (KARI 1936 p. 14, RAUHALA 1959 p. 104). — Polmak: along the Tana R. opposite the Junttila farm (III) 19. 8. 1963 Kaarina Pennanen, and at the mouth of the Aittejokka R. (II + III) 19. 8. 1963 L. Kä.; along the Laevvajokka R. near its mouth (III) 20. 8. 1963 Kaarina Pennanen. — (KmL, PsL, Finnm.)

26. **Puccinia coronata* Corda

On *Elytrigia repens*. — Utsjoki: Kevo Subarctic Research Station, in the yard of the upper house (II) 22. 8. 1963 Y. M. — This rust has earlier been found in Norway only as far north as in Nordland (66°49'); the northernmost sites in Finland are in North Pohjanmaa at the same latitude. Because *Rhamnus* species are not found in Inari Lapland,

the rust must here be independent of host-alternation or introduced together with its host; as *Elytrigia* has grown there at least two years, the rust must have overwintered in the uredostage.

27. *Puccinia cruciferarum* Rud.

On *Cardamine bellidifolia* (III). — Utsjoki: Karigasniemi, on the W slope of the Ailigas fjeld, near the summit (ca. 600 m above sea level) 11. 7. 1954 Y. M. — Inari: Kuorvekodsh (LIRO 1908 p. 261). — Polmak: on the S slope of Geidnogaissa fjeld, at an altitude of ca. 800 m 20. 8. 1963 Ester Kankainen. — (KmL, EnL, Finnm.)

28. **Puccinia deschampsiae* Arth.

On *Deschampsia caespitosa*. — Utsjoki: Haukiniemi (II) 28. 7. 1963 Y. M., vicarage (II) 20. 8. 1964 Y. M.; Saarela (II) 22. 8. 1964 Y. M.; Kevonsuu (II) 18. 8. 1964 Y. M.; Tshieskula (II) 22. 8. 1964 Y. M.; eastern shore of Lake Pulmankijärvi, at the Norwegian border (II) 19. 8. 1964 Y. M. — (Finnm.)

29. **Puccinia dioicae* Magn.

On *Cirsium heterophyllum* (I). — Utsjoki: Tshuomasvaara 18. 7. 1956 Y. M.; at the S end of Lake Pulmankijärvi 14. 8. 1963 L. Ko. & L. Kä. — Inari: along a brook ca. 1700 m W of the 211-metre-high Kontutshokka fjeld 16. 7. 1960 Eero Hanhijärvi. — (KmL, EnL, PsL, Finnm.)

30. *Puccinia drabae* Rud.

On *Draba hirta* (III). — Utsjoki: Kenespahta 16. 7. 1957 Niina Tarén & Y. M. (MÄKINEN 1962 N:o 909) and 20. 7. 1958 Paavo Kallio. — (EnL, Finnm.)

On *Draba incana* (III). — Utsjoki: yard of the vicarage 2. 8. 1956 Y. M. (KARI 1957 N:o 384) and 4. 8. 1961 Pirkko Vanhatalo; Jomppala 29. 7. 1963 Pirkko Vanhatalo. — (Finnm.)

31. *Puccinia epilobii* DC.

On *Epilobium anagallidifolium* (III). — Utsjoki (RAINIO 1926 p. 248 sub *E. alpinum*). RAINIO found this combination also in Inari, Törmänen. As far as I know, however, *E. anagallidifolium* does not occur near Törmänen village, and so this record probably refers to *E. hornemanni* (even this species and *E. palustre* are sometimes difficult to distinguish when badly rusted). — Polmak: Rastegaissa, in the alpine region 24. 8. 1964 M. K. — (EnL, Finnm.)

On *Epilobium hornemanni* (III). — Utsjoki: along the Raessijoki R. 21. 7. 1958 Maire Kovanen; Karigasnjarga-Ailigas, on the SW slope between alpine and subalpine regions 11. 7. 1954 Y. M. & Niina Tarén and 16. 8. 1963 Y. M. — Inari: Aksujärvi, Njak-kajoki 21. 7. 1958 Y. M.; cf. RAINIO 1926 p. 248. — (EnL, PsL, Finnm.)

31 a. *Puccinia epilobii* ssp. *palustris* Urban

On *Epilobium davuricum*. — Inari: Kuorvekodsh (LIRO 1908 p. 289). — (Finnm.)

On **Epilobium palustre* (III). Utsjoki: Tshuomasvaara 18. 7. 1956 Y. M.; Äimäjoki, Isotalo 22. 7. 1963 K. S.; Karigasniemi, Pasijärvi 17. 7. 1954 Y. M. — (KmL, EnL, Finnm.)

32. *Puccinia fergussonii* Berk. & Br.

On *Viola epipsila* (III). — Rather common in Inari Lapland, although not collected often. — Utsjoki: Vetsikko 27. 8. 1958 Y. M.; Äimäjoki, Isotalo 22. 7. 1963 K. S. and near the bridge 1. 8. 1963 L. Ko.; Kevonsuu 20. 7. 1963 K. S. and 18. 8. 1964 Y. M. & M. K.; at the mouth of Madjoki R. near the highway 18. 7. 1957 Y. M.; Tshuoggajoki, ca. 1.5 km from the mouth 7. 8. 1963 Y. M.; N end of Lake Tshuoggajärvi 7. 8. 1963 L. Ko.; Luomushjoki, ca. 1.5 km S of Luomushjärvet 16. 8. 1963 Y. M. — Inari: Iijärvi, Vaijoki 14. 7. 1959 Liisa Häkkinen & Y. M.; Törmänen (RAINIO 1926 p. 248). — (KmL, EnL, Finnm.)

33. **Puccinia festucae* Plowr.

On *Festuca rubra*. — Inari: Ivalo (II + III) 26. 8. 1964 M. K. This species has not earlier been found in Finland. On *Festuca* spp. it is known to occur in eastern Fennoscandia only in Russian Karelia, where LIRO (1908 p. 179) reports three localities for the species on *F. ovina* and one on *F. rubra*. Also in northern Norway the species is very rare having been found only once on *F. rubra* (JØRSTAD 1937 p. 105, 1940 p. 65) and once on *F. ovina* (JØRSTAD 1962 p. 94). No native species of *Lonicera* occurs at a distance of 250 km from the Ivalo locality. *L. coerulea* and *L. xylosteum* (the aecial hosts) are not known to grow cultivated in Ivalo. *L. tatarica* might well be there planted but it is not known to possess an aecidium belonging to this species. JØRSTAD supposes that the finds in northern Norway are connected to some undiscovered native locality of *L. coerulea*, but it can also be supposed that a non-obligatory host alternating race of *P. festucae* exists.

34. *Puccinia gigantea* Karst.

On *Chamaenerion angustifolium* (III). — Utsjoki: along the Tshuoggajoki R. ca. 1.5 km S of Lake Tshuoggajärvi 13. 7. 1957 Y. M., 15. 7. 1957 Y. M. & Nina Tarén (MÄKINEN 1962 N:o 913) and 7. 8. 1963 Y. M.; S end of Lake Mierasjärvi 14. 7. 1957 Y. M. — Polmak: on the E shore near the N end of Lake Polmakvatn 14. 8. 1963 Y. M. — (KmL, EnL, Finnm.)

The host is common everywhere in Inari Lapland, but the parasite is rare. Moreover, all the listed localities closely resemble one another topographically and ecologically: infected *Chamaenerion* grows here always at the feet of steep cliffs facing west, which deviate clearly from the surrounding areas in being microclimatically typically south bluffs ("Südbergen"). The infection has been in all cases severe. The occurrence of *Puccinia gigantea* on *Chamaenerion* is an interesting example of how the distribution of the parasite can be influenced by local ecological factors.

35. *Puccinia graminis* Pers.

On *Avena sativa*. — Inari: on cultivated oats on the shores of Lake Inari (ca. 68° 50' N; LIRO 1929 p. 557). This rust is very rare in northern Fennoscandia, and the locality mentioned is apparently the northernmost place where it has been found. RAINIO (1926 p. 244) found it also in Sodankylä and Muonio (KmL).

36. *Puccinia hieracii* Mart.

On *Hieracium* spp. (subgenus *Hieracium*). — Utsjoki: Tshuomasvaara, in the sub-alpine region on the N slope (II + III) 13. 8. 1963 Y. M.; Äimäjoki, Isotalo (II + III) 22. 7. 1963 K. S.; along the Tshuoggajoki R. ca. 2 km from its mouth (II + III) 7. 8. 1963 Y. M.; Karigasniemi, on the W slope of the Ailigas fjeld in the alpine region (II + III) 16. 8. 1963 L. Kä.; vicarage (II + III) 20. 8. 1964 Y. M. & M. K. — Inari: Tshuolisjärvi, Järvenpää (II) 11. 7. 1962 Y. M.; Ivalo (RAUHALA 1959 p. 112). — Polmak: along the Polmakelven R. ca. 500 m from its mouth (II + III) 14. 8. 1963 Y. M. — Russenes: Skaidi 30. 7. 1962 B. H. — (KmL, EnL, Finnm.)

37. **Puccinia leontodontis* Jacky

On *Leontodon autumnalis*. — Utsjoki: Karunjarga, near the Norwegian ferry landing (II + III) 23. 7. 1963 K. S. — (KmL, Finnm.)

38. *Puccinia leveillei* Mon.

On *Geranium silvaticum* (L.). — Utsjoki: Tshuomasvaara 18. 7. 1956 Y. M.; Nuorgam, Suomenrinne 24. 7. 1963 K. S.; Kevonsuu 24. 7. 1962 B. H. — Inari: S of Lake Iijärvi, along Katajaoja R. ca. 2 km from Lake Juntshelgijärvi 12. 7. 1959 Y. M. & Liisa Häkkinen; Ivalo (KARI 1936 p. 12). — (KmL, EnL, PsL, Finnm.)

39. *Puccinia millefolii* Fuck.

On *Achillea millefolium* (III). — Inari: Ivalo and Törmänen (RAINIO 1926 p. 250, KARI 1936 p. 14). The host occurs frequently also along Teno R., and there the rust has certainly been overlooked, because it is said to be very abundant in Ivalo and Törmänen. Not found elsewhere in Finnish or Norwegian Lapland.

40. *Puccinia minusensis* Thüm.

On *Lactuca sibirica*. — Inari: Ivalo and Törmänen (RAINIO 1926 p. 249). — (PsL)

41. *Puccinia morthieri* Körn.

On *Geranium silvaticum* (III). — Utsjoki: Pulmankijärvi, Vertsajoki 13. 8. 1963 L. Ko.; Leibivaara 18. 7. 1956 Y. M.; West Tsieskaljärvi 18. 7. 1956 Y. M.; near the Norwegian ferry landing 23. 7. 1963 K. S. — Inari: Kaamasjoki, at the mouth of Vuobma-vaaranoja R. 20. 7. 1961 Y. M.; 3 km S of Ivalo 16. 7. 1962 Y. M.; Ivalo and Törmänen (RAINIO 1926 p. 248, KARI 1936 p. 12). — (KmL, EnL, PsL, Finnm.)

42. **Puccinia persistens* Plowr.

On *Trollius europaeus* (I). — Utsjoki: Kevonsuu 24. 7. 1962 B. H. and 18. 8. 1964 M. K. — Inari: 3 km S of Ivalo 16. 7. 1962 Y. M. — (KmL, EnL, Finnm.)

43. *Puccinia poae-nemoralis* Otth

On *Poa nemoralis*. — Inari: Ivalo (KARI 1936 p. 11). — Not found elsewhere in Lapland.

On **Poa alpina*. — Utsjoki: vicarage (II) 20. 8. 1964 Y. M.

On **Poa pratensis* ssp. *pratensis*. — Utsjoki: vicarage (II) 20. 8. 1964 Y. M.

On *Poa pratensis* ssp. *alpigena*. — Utsjoki: on the shore of Teno R. close to the Norwegian ferry landing (II) 23. 7. 1963 K. S.; vicarage (II) 20. 8. 1964 Y. M.; Saarela (II) 21. 8. 1964 Y. M.; Kevonsuu (II) 18. 8. 1964 Y. M.; Kevo station (II) 17. 8. 1964 Y. M.; Tshieskula (II) 22. 8. 1964 Y. M. — Inari: Ivalo 3 localities (II) 26. 8. 1964 Y. M. & M. K.; (KARI 1936 p. 11). — (Finnm.)

44. **Puccinia poarum* Niels.

On *Poa pratensis* ssp. *alpigena*. — Utsjoki: Haukiniemi (III) 28. 7. 1963 Y. M. — (EnL, PsL, Finn.)

(On *Tussilago farfara* (I). — Polmak: along the Poimakelven R. ca. 500 m N of Lake Polmakvatn 13. 8. 1963 L. Ko. — EnL, PsL)

45. *Puccinia rhytismoides* Johans.

On *Thalictrum alpinum* (III). — Utsjoki: Kevojoki, Njaggaljärvet 9. 8. 1963 Y. M., and Linkkapahta (RAUHALA 1959 p. 132). — (KmL, EnL, PsL, Finn.)

(*Puccinia ribis* DC.)

On *Ribes spicatum* (III). — Polmak: on the E shore near the N end of Lake Polmakvatn 19. 8. 1964 Y. M. — Not found earlier in Finnmark; the northernmost localities in Norway are in Målselv and Sørreisa in Troms (JØRSTAD 1940 p. 78, 1962 p. 111.)

46. *Puccinia rubefaciens* Johans.

On *Galium boreale* (III). — Utsjoki: Vetsikko 27. 8. 1958 Y. M. — Inari: 3 km S of Ivalo 16. 7. 1962 Y. M.; several localities in the villages of Ivalo and Törmänen (RAINIO 1926 p. 249, KARI 1936 p. 13, 1957 N:o 467, LIRO 1939 N:o 445). The rust has prevailed a long time in the localities near Törmänen and Ivalo villages, where we found it to be rather common every year, although it has not been collected. — Finn.; 1 locality

47. *Puccinia saxifragae* Schlecht.

On *Saxifraga nivalis* (III). — Utsjoki: Kenespahta 16. 7. 1957 Kielo Virtanen & Maija Mattila and 8. 7. 1958 Y. M.; S end of Lake Mierashjärvi 14. 7. 1957 Y. M.; along the Tshuoggajoki R., ca. 1.5 km S of Tshuoggajärvi 13. 7. 1957 Y. M. and 15. 7. 1957 Y. M. & Niina Tarén (MÄKINEN 1962 N:o 946). — (EnL [TUR], PsL, Finn.)

(*Puccinia scandica* Johans.)

On *Epilobium anagallidifolium* (III). — Polmak: Geidnogaissa, in the alpine region of the S slope 20. 8. 1963 Y. M. One of the two infected individuals had reached the flowering stage (cf. JØRSTAD 1940 p. 84). This rust is clearly more arctic than *P. epilobii*; in Finland it has been found on this host only in EnL, and in PsL in Russia.)

48. *Puccinia septentrionalis* Juel

On **Polygonum viviparum*. — Utsjoki: Tshuoggajoki, ca. 2 km S of Tshuoggajärvi (III) 7. 8. 1963 Y. M.; on the shores of Lake Kevojärvi at Kevo Research Station (III) 10. 8. 1963 Y. M. and opposite the Station (III) 22. 8. 1963 Y. M.; mouth of the Kevojoki R. (III) 23. 8. 1964 Y. M.; Tshieskuljoki (III) 17. 8. 1964 Y. M. — Polmak: on the bank of Tana R., at the mouth of the Aittejokka R. (III) 19. 8. 1963 L. Kä.; along the Darjokka R. (II + III) 24. 8. 1964 Y. M.

The dikaryontic phase of this species has not earlier been found in Finland; LEPIC (1932 p. 159) mentions it to occur in the Petsamo district. The combination *Thalictrum alpinum* — *Polygonum viviparum* is not rare in our area, but in places where *Thalictrum alpinum* is infected usually only *Puccinia bistorta* is found on *Polygonum viviparum* (cf. KARI 1936 p. 11). *P. septentrionalis* seems to be confined to the natural plant communities on shores of rivers and lakes, whereas *P. bistorta* is often found in Lapp meadows ("kenttä").

On *Thalictrum alpinum* (I). — Utsjoki: Kevojärvi, Kutuniemi 20. 7. 1963 K. S., Tshieskula 19. 7. 1963 K. S., Puksala 21. 7. 1963 K. S.; Tshuomasvaara 18. 7. 1956 Y. M. — Inari: Lemmenjoki (RAINIO 1926 p. 246); Inari village (LIRO 1908 p. 238, RAUHALA 1959 p. 134). — Kistrand: Börselv 27. 6. 1961 Y. M. — Russenes: Skaidi 30. 7. 1962 B. H. — (EnL, PsL, Finn.)

49. *Puccinia striiformis* West.

On *Secale cereale*. — Inari: Inari and Törmänen (RAINIO 1926 p. 244). — (KmL)

50. *Puccinia taraxaci* Plowr.

On *Taraxacum* spp. Utsjoki: Tshuomasvaara, in the subalpine region on the N slope (II + III) 13. 8. 1963 Y. M.; Nuorgam, Suomenrinne (II + III) 24. 7. 1963 K. S.; Jompala (II + III) 28. 7. 1963 Y. M.; Kevojärvi, Kutuniemi (II + III) 20. 7. 1963 K. S. and Puksala (II + III) 21. 7. 1963 K. S.; Karigasnjarga-Ailigas, in the alpine region on the W slope (II + III) 16. 8. 1963 L. Kä.; Saarela (III) 21. 8. 1964 M. K.; eastern shore of Lake Pulmankijärvi, at the Norwegian border (III) 19. 8. 1964 Y. M. — Inari: Peldoaiivi, in the alpine region ca. 2 km NNE of the Toanganooivi fjeld (II + III) 3. 8. 1962 Esa Koi-vistoinen; Inari and Törmänen (RAINIO 1926 p. 250). — Polmak: in the alpine region on the S slope of Geidnogaissa fjeld (III) 20. 8. 1963 L. Kä. & Y. M. and the upper course of Geidnojokka R. (III) 20. 8. 1963 Y. M.; two localities along the upper course of Darjokka R. (II + III) 24. 8. 1964 Y. M. and in the alpine region of Rastegaissa fjeld (II + III) 24. 8. 1964 M. K. — (KmL, EnL, PsL, Finn.)

This rust occurs often in natural communities, not rarely in alpine and subalpine regions, usually on *Taraxacum croceum* coll. (cf. JØRSTAD 1940 p. 70).

51. *Puccinia trollii* Karst.

On *Trollius europaeus* (III). — Utsjoki: on the Norwegian border S of Urrooivi 14. 8. 1963 L. Kä.; Kistuskaidi 466 m 27. 7. 1956 Y. M.; Kevojärvi, Kevonsuu 24. 7. 1962 B. H. and 20. 7. 1963 K. S. and Kutuniemi 20. 7. 1963 K. S.; along Tshuoggajoki R. ca. 2 km S of the mouth 7. 8. 1963 L. Ko. — Inari: Ivalo and Törmänen (RAINIO 1926 p. 246, KARI 1936 p. 12, RAUHALA 1959 p. 140). — (KmL, EnL, PsL, Finn.)

52. *Puccinia veronicarum* DC.

On *Veronica longifolia* (III). — Utsjoki: on the shore of Lake Mantojärvi close to the vicarage 26. 8. 1958 Y. M. and 20. 8. 1964 Y. M. — Inari: 3 km S of Ivalo 26. 8. 1964 Y. M.; Laanila, Thule, Ivalo and Törmänen (RAINIO 1926 p. 249, KARI 1936 p. 13). — Polmak: on the E shore near the N end of Lake Polmakvatn 19. 8. 1964 Y. M. — (KmL, EnL, Finm.). The host is not rare along big rivers in Utsjoki, but the rust is almost completely absent as from Finnmark (JØRSTAD 1940 p. 92).

53. *Puccinia virgae-aureae* (DC.) Lib.

On *Solidago virgaurea* (III). — Utsjoki: Kevojoki, Linkkapahta 29. 8. 1958 Y. M. — Inari: Ivalo (RAUHALA 1959 p. 144). — (KmL)

54. *Pucciniastrum arcticum* Tranz.

On *Rubus arcticus*. — Utsjoki: Kevojärvi, Kevonsuu (II) 20. 7. 1963 K. S. and (II) 18. 8. 1964 Y. M. & M. K.; along Tshieskuljoki R. near the road (II) 2. 8. 1963 L. Ko. and (II) 17. 8. 1964 Y. M. — Inari: Ivalo (II, KARI 1936 p. 15, RAUHALA 1959 p. 145). — Polmak: on shore of Tana R. at Alaköngäs (II) 18. 8. 1964 M. K. — (KmL, EnL, PsL, Finm.). So far only the uredostage has been found in the area, and the same applies also to northern Norway (JØRSTAD 1940 p. 94).

55. *Pucciniastrum epilobii* Otth

On *Chamaenerion angustifolium*. — Inari: Laanila (II, RAINIO 1926 p. 254). — Not found elsewhere in Lapland.

On *Epilobium palustre*. — Utsjoki: Äimäjoki, Isotalo (II) 22. 7. 1963 K. S. — Inari: Kessivuono, Sammakkoniemi (II) 1. 8. 1963 L. Käl.; Sätshjärvi (II, LIRO 1908 p. 510, RAINIO 1926 p. 254); along the Kaamasjoki R. near Kaamanen road junction (II) 26. 8. 1964 Y. M. — (EnL, PsL, Finm.)

56. *Pucciniastrum pyrolae* Diet.

On *Moneses uniflora*. — Inari: S slope of Äggisvaara, ca. 25 km from Ivalo along the Nellimö road (II) 16. 8. 1964 Y. M. — (Finm.)

On *Pyrola minor* (II). — Utsjoki: Tshieskuljoki 25. 7. 1962 B. H.; Kevojärvi, along Tsharsjoki R. — 7. 1958 Mirjaelina Tomanterä; near Keneskoski 19. 7. 1957 Seppo Hietavuo; along the Utsjoki R. ca. 1 km N of Mierashlompola 15. 7. 1957 Auli Sirkka; S end of Lake Mierashjärvi 14. 7. 1957 Varpu Kivisalmi; along Luomushjoki R., ca. 1.5 km S of Luomushjärvet 16. 8. 1963 L. Käl.; Kevonsuu 25. 8. 1964 Y. M. — Inari: Kaamanen, along the Kaamasjoki R. near the bridge 9. 7. 1957 Hannu Muhonen, and Tuurukoski 9. 7. 1957 Maija Äyräs; Ivalo 15. 8. 1931 Lauri E. Kari. — Polmak: on shore of Tana R. between Laevvajokka and Boakkojokka 24. 8. 1964 Y. M. — (PsL, Finm.)

(On *Pyrola rotundifolia*. — According to KARI (1936 p. 15) found in Ivalo. However in the collection in TUR, the host is *P. minor*, and thus *P. rotundifolia* is to be disregarded as a host of *Pucciniastrum pyrolae* in Inari Lapland. The rust has so far not been found on this host in northernmost Fennoscandia.)

On *Ramischia secunda* (II). — Utsjoki: Nuorgam, Suomenrinne 24. 7. 1963 K. S.; Utsjoki village 22. 7. 1963 K. S.; Kevojoki, Njaggaljärvet 9. 8. 1963 Y. M. & L. Ko. (2 collections); Tshieskuljoki 17. 7. 1957 E. Helevä; S end of Lake Keneshjärvi 10. 8. 1963 L. Ko.; Haukiniemi 5. 8. 1963 L. Ko.; mouth of Kevojoki R. 23. 8. 1964 Y. M. & M. K.; close to the vicarage 20. 8. 1964 Y. M.; Shirratshokka 27. 7. 1964 Unto Laine. — Inari: S shore of Vironniemi 10. 7. 1962 Y. M.; Syysjärvi, Silmänkajomajärvi 10. 7. 1957 Y. M.; Kaamanen, along the Kaamasjoki R. near the bridge 9. 7. 1957 Hannu Muhonen; Törmänen (RAINIO 1926 p. 254). — Polmak: ca. 500 m from the mouth of the Polmakelven R. 12. 8. 1963 Y. M. — (KmL, EnL, PsL, Finm.)

57. *Pucciniastrum sparsum* (Wint.) Jørst.

On *Arctostaphylos alpina*. — Utsjoki: Tshaggaltshokka (II) 6. 8. 1961 Y. M.; Tanssijoki (RAINIO 1926 p. 254); between Ashkasjoki and Kevojoki W of Ollila (II) 9. 8. 1963 Y. M.; Saarela (II) 21. 8. 1964 Y. M.; Kevonniemi (II) 23. 8. 1964 Y. M.; E shore of Lake Kevojärvi, Syväoja (II) 21. 8. 1964 Y. M. — Inari: Kaunispää (KARI 1936 p. 15). — Polmak: lower course of Darjokka R. (II) 24. 8. 1964 Y. M. & M. K. (2 collections); 2 km N of the N end of Lake Polmakvatn (II) 19. 8. 1964 Y. M. — (KmL, EnL, PsL, Finm.). Although the host is very common all over the area, the rust appears to be rather rare.

58. *Pucciniastrum vaccinii* (Wint.) Jørst.

On *Vaccinium myrtillus*. — Utsjoki: Tshuomasvaara, in the subalpine region on the N slope (II) 13. 8. 1963 Y. M.; Karigasnjarga-Ailigas (II) 16. 8. 1963 L. Käl.; vicarage (II) 20. 8. 1964 Y. M.; Saarela (II) 21. 8. 1964 Y. M.; Kevo station (II) 23. 8. 1964 Y. M. — Inari: Ivalo (II) 26. 8. 1964 M. K. — Polmak: lower course of Geidnojokka R., ca. 2 km from the mouth (II) 20. 8. 1963 Y. M.; two localities along Darjokka R. (II) 24. 8. 1964 Y. M. and lower course of Laevvajokka R. (II) 24. 8. 1964; alpine region of Rastegaissa (II) 24. 8. 1964 M. K.; eastern shore of Lake Polmakvatn, at the Finnish border (II) 19. 8. 1964 Y. M. — (KmL [TUR], EnL [TUR], PsL, Finm.). Although not earlier found on this host, *V. myrtillus* seems to be often infected, but the parasite appears rather late, after July. Observed also elsewhere, but not collected.

On *Vaccinium uliginosum*. — Utsjoki: Tshuomasvaara, in the subalpine region on the W slope (II) 13. 8. 1963 Y. M.; Kevojoki, Njaggaljärvet (II) 9. 8. 1963 L. Ko. and mouth of the river (II) 28. 8. 1958 Y. M. and (II) 20. 8. 1964 Y. M.; Kevonsuu (II) 22. 8. 1964 Y. M.; Saarela (II) 21. 8. 1964 Y. M.; Karigasnjarga-Ailigas (II) 16. 8. 1963 Y. M. — Inari: Nanguvuono, Korpimpahta (II) 16. 8. 1964 Y. M.; along Kaamasjoki R. near Kaamanen road junction (II) 26. 8. 1964 Y. M. — Polmak: on shore of Tana R. between Laevvajokka and Boakkojokka (II) 24. 8. 1964 Y. M.; mouth of Laevvajokka R. (II) 24. 8. 1964 Y. M.; along Darjokka R. (II) 24. 8. 1964 Y. M.; along Polmakelven R. (II) 18. 8. 1964 M. K. Apparently overlooked and probably common. — (KmL, EnL, PsL, Finm.)

On *Vaccinium vitis-idaea*. — Utsjoki: Tshuomasvaara (II) 11. 8. 1963 L. Ko.; Kistuskaidi 476 m (II) 29. 7. 1956 Y. M.; Haukiniemi (II) 5. 8. 1963 L. Ko.; Kevonniemi (II) 20. 7. 1963 K. S. and (II) 10. 8. 1963 Y. M.; S of the Kevo Research Station (II) 23. 7. 1962 B. H.; Kevojoki, Njaggaljärvet (II) 9. 8. 1963 Y. M. and mouth of the river (II) 31. 7. 1963 L. Ko.; by the Tshieskuljoki R. near the road (II) 1. 8. 1963 L. Ko. and (II) 17. 8. 1964 Y. M.; S end of Lake Keneshjärvi (II) 10. 8. 1963 L. Ko.; Karigasniemi, between Pasijärvi and the road (II) 16. 7. 1954 Y. M. and on the bank of the Pasijoki R.

(II) 15. 7. 1954 Ritva Nikoskelainen. — Inari: Nanguvuono, Korpinpahta (II) 16. 8. 1964 Y. M.; Thule, Palotunturi (RAINIO 1926 p. 254). — Polmak: mouth of the Aittejokka R. (II) 19. 8. 1963 L. Kä. Apparently much more common than reported. — (EnL [TUR], PsL, Finnm.)

59. *Trachyspora intrusa* (Grev.) Arth.

On *Alchemilla glomerulans*. — Utsjoki: Nuorgam (III) 24. 7. 1963 K. S.; Pulmankijärvi, Vertsajoki (II + III) 13. 8. 1963 L. Ko.; Kistuskaidi 466 m (III) 27. 7. 1956 Y. M. and 482 m (III) 29. 7. 1956 Y. M.; Kevojärvi, Kevonsuu (III) 20. 7. 1963 K. S. and Kutuniemi (III) 4. 8. 1962 L. Ko.; Tshieskuljoki (II + III) 18. 7. 1957 Y. M.; along the Luomushjoki R. ca. 1.5 km S of Luomushjärvet (III) 16. 8. 1963 Y. M.; eastern shore of Lake Pulmankijärvi, at the Norwegian border (II + III) 19. 8. 1964 Y. M. — Polmak: at the mouth of the Aittejokka R. (III) 19. 8. 1963 L. Kä.

On *Alchemilla murbeckiana*. — Utsjoki: Kevonsuu (III) 24. 7. 1962 B. H. and (II + III) 18. 8. 1964 Y. M. & M. K.; Kevojoki, Linkkapahta (III) 11. 8. 1963 Y. M.; NE end of the Vuogulvaara fjeld (II + III) 13. 7. 1956 Y. M. — Polmak: upper course of Darjokka R. (II + III) 24. 8. 1964 Y. M.

On *Alchemilla* sp. — Inari: Laanila (II, KARI 1936 p. 10). — Found on *Alchemilla* species in EnL, PsL, Finnm.

60. **Uromyces airae-flexuosae* Ferd. & Winge

On *Deschampsia flexuosa*. — Utsjoki: Kevo station (II) 17. 8. 1964 Y. M. — Inari: Äggisvaara ca. 25 km from Ivalo along the Nellimö road (II) 16. 8. 1964 Y. M. — (EnL, Finnm.)

61. *Uromyces dactylidis* Otth

On *Poa palustris*. — Inari: Törmänen (RAINIO 1926 p. 240). — Not found elsewhere in Lapland.

On *Ranunculus repens* (I). — Inari: Törmänen (RAINIO 1926 p. 240). — (KmL)

62. *Uromyces festucae* Syd.

On *Festuca ovina*. — Utsjoki: Tshieskuljoki bridge (II) 17. 8. 1964 Y. M.; vicarage (II) 20. 8. 1964 M. K. — Polmak: along the Tana R. opposite the Junttila farm (II) 19. 8. 1963 L. Kä.; on the E shore near the N end of Lake Polmakvatn (II) 19. 8. 1964 Y. M. — (KmL [TUR], Finnm.)

On *Festuca rubra*. — Utsjoki: vicarage (II) 20. 8. 1964 M. K. — Inari: Törmänen (KARI 1936 p. 9). — (Finnm.)

63. *Uromyces lapponicus* Lagh.

On *Astragalus alpinus*. — Rather common throughout the area, mainly in inhabited places. — Utsjoki: (cf. RAINIO 1926 p. 241) S end of Lake Pulmankijärvi (II) 14. 8. 1963 Y. M. & L. Ko.; on the shore of the Teno R. close to the Norwegian ferry landing (I + II + III) 23. 7. 1963 K. S.; Suoppajoki (I + II) 20. 7. 1955 Y. M.; vicarage (II) 20. 8. 1964 Y. M. — Inari: 3 km S of Ivalo (I + II) 16. 7. 1962 Y. M.; Ivalo (I + II +

III) 19. 7. 1957 Y. M.; several localities in Ivalo, Inari and Törmänen villages (RAINIO 1926 p. 241, LEPIK 1932 p. 159, KARI 1936 p. 10, LIRO 1939 N:o 526, RAUHALA 1959 p. 159). — Sør-Vanger: Neiden, near the bridge (I + II + III) 15. 7. 1962 Y. M. — (KmL, EnL, PsL, Finnm.)

On *Oxytropis campestris*. — Utsjoki: Tshuomasvaara, in the alpine region (I) 11. 7. 1956 Y. M. & Niina Tarón (KARI 1957 N:o 545). — (KmL, PsL)

64. **Uromyces phacae-frigidae* (Wbg) Hariot

On *Astragalus frigidus* (III). — Utsjoki: eastern shore of Lake Pulmankijärvi, at the Norwegian border 19. 8. 1964 Y. M. & M. K. — Polmak: eastern shore of Lake Polmakvatn, at the Finnish border 19. 8. 1964 Y. M. & M. K. — (PsL, Finnm.)

This species has not earlier been found in Finland. Only three localities are known in eastern Fennoscandia: A. O. Kihlman collected the rust in Ponoj Lapland (Kola Peninsula) in 1889 (LIRO 1908 p. 113) and A. V. Auer in Kuusamo in 1937 (RAUHALA 1959 p. 161 and TUR); KARI (1936 p. 10) reports it from Petsamo Lapland. Also in northern Norway the species is very rare. JØRSTAD (1940 p. 108 and 1962 p. 125) mentions only two localities in Finnmark, the other in Polmak, which is the type locality for the species. — On shore of Lake Pulmankijärvi the rust was very abundant both on Norwegian and on Finnish side. Material will be distributed in Fungi Exsiccati Fennici.

65. *Uromyces polygoni-aviculariae* (Pers.) Karst.

On *Polygonum aviculare*. — Utsjoki: Tshieskula (II + III) 22. 8. 1964 Y. M. — Inari: Ivalo (II) 22. 7. 1930 Bruno Malmio; Inari (II + III) 19. 7. 1961 Elma Tourunen; Inari, Ivalo and Törmänen (RAINIO 1926 p. 240). — (KmL, EnL, PsL, Finnm.)

66. *Uromyces sommerfeltii* Hyl., Jørst. & Nannf.

On *Solidago virgaurea* (III). — Utsjoki: Pulmankijärvi, Vertsajoki 13. 8. 1963 L. Ko.; on the shore of Teno R. close to the Norwegian ferry landing 23. 7. 1963 K. S.; along the Äimäjoki R. near the bridge 1. 8. 1963 L. Ko.; Kevojärvi, Kutuniemi 20. 7. 1963 K. S., Kevonsuu (III) 18. 8. 1964 Y. M.; Yläköngäs (RAINIO 1926 p. 242). — Inari: along the Kaamasjoki R. opposite Haraldjärvi 2. 8. 1961 Y. M.; Inari, Ivalo, Törmänen and Laanila villages (RAINIO 1926 p. 242, KARI 1936 p. 10, RAUHALA 1959 p. 164). — Polmak: along the Tana R. near the mouth of Aittejokka R. 19. 8. 1963 L. Kä. & Y. M. — (KmL, EnL, PsL, Finnm.)

In the preceding list, a total of 66 rust species with 97 rust-host combinations is recorded for Inari Lapland. *Puccinia septentrionalis* on *Polygonum viviparum* and *Melampsora epitea* on *Salix glandulifera* have not been found earlier in Finland, and also *Puccinia festucae* and *Uromyces phacae-frigidae* are new for the country. 14 of the species listed above are new for Inari Lapland. There are considerable differences in the rust flora of the two communes, Utsjoki and Inari; only 38 species have been found in both. The rust flora of Utsjoki comprises 53 species with 76 rust-

host combinations, and that of Inari 52 species with 69 rust-host combinations. The differences are mainly due to the occurrence of many anthropochorous species in Inari and of many arctic and alpine host species in Utsjoki.

III. LIST OF PROSPECTIVE RUSTS

Inari Lapland is still not well known as regards its rust flora. The following list indicates which rust-host combinations are likely to be found in Inari Lapland. The adjoining provinces where the combination has been found are given in parentheses.

- Chrysomyxa abietis* / *Picea abies* (KmL)
C. ledi / *Ledum palustre* (KmL, Finnm.)
Colcosporium melampyri / *Melampyrum pratense* (KmL, Finnm.)
C. rhinanthacearum / *Rhinanthus groenlandicus* (on minor PsL)
Gymnoconia peckiana / *Rubus saxatilis* (EnL, PsL, Finnm.)
Gymnosporangium cornutum / *Juniperus communis* (KmL, EnL)
Hyalopsora aspidiotus / *Lastrea dryopteris* (KmL, PsL, Finnm.)
Melampsora alpina / *Saxifraga groenlandica* (Finnm.), *S. oppositifolia* (EnL, Finnm.),
S. rivularis (PsL, Finnm.), *Salix polaris* (EnL, PsL, Finnm.)
M. epitea / *S. myrsinites* (EnL, Finnm.)
M. reticulatae / *Saxifraga aizoides* (EnL, PsL, Finnm.), *Salix reticulata* (EnL, PsL,
 Finnm.)
Melampsorella caryophyllacearum / *Cerastium alpinum* (EnL, Finnm.), *C. fontanum* ssp.
scandicum (EnL, Finnm.), *Stellaria graminca*, *S. longifolia*
Melampsoridium betulinum / *Betula verrucosa* (KmL, EnL)
Phragmidium tuberculatum / *Rosa majalis*
Puccinia albulensis / *Vernonia alpina* (EnL, PsL, Finnm.)
P. arenariae / *Melandrium rubrum* (EnL), *Stellaria longifolia*, *S. media*
P. borealis / *Hierochloë odorata* (Finnm.)
P. calthae / *Caltha palustris* (EnL)
P. carduorum / *Carduus crispus* (KmL)
P. caricis / *Parnassia palustris* (Finnm.), *Urtica dioeca* (KmL, PsL)
P. chacrophylli / *Anthriscus silvestris* (PsL, Finnm.)
P. deschampsiae / *Deschampsia alpina* (EnL, Finnm.)
P. dioicae / *Carex dioeca* (PsL, Finnm.)
P. epilobii / *Epilobium alsinifolium* (PsL)
P. fergussonii / *Viola palustris* (KmL, PsL, Finnm.)
P. lapponica / *Pedicularis lapponica* (EnL)
P. oxyriac / *Oxyria digyna* (EnL, Finnm.)
P. pazschkei / *Saxifraga aizoides* (KmL, PsL, Finnm.)
P. persistens / *Rocgneria canina* (Finnm.)
P. poae-nemoralis / *Anthoxanthum odoratum* (EnL, Finnm.), *Trisetum spicatum* (EnL,
 Finnm.)
P. poarum / *Tussilago farfara* (EnL, PsL, Finnm.)
P. rupestris / *Saussurea alpina*, *Carex rupestris* (EnL)

- P. saussurea-alpinae* / *Saussurea alpina* (EnL)
P. saxifragae / *Saxifraga cernua* (EnL, Finnm.), *S. stellaris* (EnL, Finnm.)
P. scandica / *Epilobium anagallidifolium* (EnL, PsL, Finnm.)
P. thlaspeos / *Erysimum hieraciifolium* (EnL, Finnm.)
P. umbilici / *Sedum rosea* (EnL, PsL)
P. violae / *Viola montana* (KmL, Finnm.)
Triphragmium ulmariae / *Filipendula ulmaria* (PsL, Finnm.)
Uromyces acetosae / *Rumex acetosa* (EnL, PsL, Finnm.)
U. dactylidis / *Ranunculus auricomus* (EnL), *Poa nemoralis* (KmL)
U. geranii / *Geranium silvaticum* (KmL, EnL, Finnm.)
U. nerviphilus / *Trifolium repens* (KmL, Finnm.)

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REFERENCES

- HAGEMANN, A., 1891: Skytte i Finmarken. — Den norske Forstforen. Aarbog 1891, 71—73 (cited according to JØRSTAD 1940).
 HEIKINHEIMO, V., 1932: Seltene Rostpilze aus Finnish-Lapland. — Ann. Bot. Soc. 'Vanamo' 2: 6, 5—8.
 HYLANDER, N., JØRSTAD, I. & NANNFELDT, J. A., 1953: Enumeratio Uredinearum Scandinavicarum. — Opera Botanica 1: 1, 1—102.
 JØRSTAD, I., 1937: Notes on some heteroecious rust fungi. — Nytt Mag. f. Naturvidensk. 77, 105—119.
 „ 1940: Uredinales of Northern Norway. — Skr. Norske Vidensk.-Akad. I. Mat. — Naturv. Kl. 1940: 6, 1—145.
 „ 1962: Distribution of the Uredinales within Norway. — Nytt Mag. Bot. 9, 61—134.
 KARI, L. E. K., 1936: Mikromyceten aus Finnisch-Lapland. — Ann. Bot. Soc. 'Vanamo' 8: 3, 1—24.
 „ 1957: Fungi Exsiccati Fennici. Schedae ad fasciculos I—X (N:o 1—500). — Ann. Univ. Turku A, II: 23, 1—194.
 KUJALA, V., 1950: Über die Kleinpilze der Koniferen in Finnland. — Comm. Inst. Forest. Fenn. 38: 4, 1—121.
 LEPIK, E., 1933: Verzeichnis der im Sommer 1932 in Lapland gesammelten Pilze. — Sitzber. Nat.forsch. Ges. Tartu 40, 225—232.
 LIRO, J. I., 1908: Uredineae Fennicae. — Bidr. Känned. Finl. Nat. Folk 65, 1—640.
 „ 1929: Spörmål beträffande svartrostproblemet i de nordiska länderna. — Ber. N. J. F.:s fjerde Kongress, Helsingfors Juli 1929, 555—558. København.
 „ 1934: Mycotheca Fennica. Die Etiketten N:o 1—300. — Inst. Phytopath. Univ. Hels., 1—97.
 „ 1939: Mycotheca Fennica. Die Etiketten N:o 301—600. — Inst. Phytopath. Univ. Hels., 1—136.
 MÄKINEN, Y., 1962: Fungi Exsiccati Fennici. Schedae ad fasciculos XI—XX (N:o 501—1000). — Ann. Univ. Turku. A, II: 30, 1—199.
 RAINIO, A. J., 1926: Uredinae Lapponicae. — Ann. Soc. 'Vanamo' 3, 239—267.
 RAUHALA, A., 1959: Enumeratio Uredinearum Fennicarum et distributio hucusque cognita earum in provinciis phytogeographicis Fennoscandiae orientalis. — Kuopion Luonn. Yst. Yhd. Julk. B, 3: 3, 1—181.