

TARTU RADIOCARBON DATES IX

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The following list contains dates of organogenous sediments (peat and sapropel from the Karelian ASSR) made in 1972 to 1977 with the aim of studying the history of the development of peat bogs in the Holocene (Elina, 1969; 1971a,b; Pyavchenko *et al*, 1976). Samples were collected with Hiller or Instorf samplers. Borings were made in the deepest parts of the peat bogs.

Pollen analyses of all the sections described in this paper were conducted by V Tchatchkhiani; botanical analyses were made by L. Belova. All samples were submitted for dating by the Institute of Botany, Karelian Branch of USSR Academy of Sciences.

Radiocarbon dates were determined by A Liiva and T Rinne, Biochemical Laboratory of the Institute of Zoology and Botany of the Academy of Sciences of the Estonian SSR.

Measurement of the activity of ^{14}C was performed by liquid scintillation with the use of benzene. All dated samples were measured in parallel on two single-channel units. Radiocarbon dates have been calculated using 5568 ± 30 as the half-life of ^{14}C , with 1950 as the reference year.

North Karelia

Region covers territory of Karelia from its N boundaries, $66^{\circ} 30'$ to 64° N, excl SE Prebelomorje. List contains description of 16 samples of organogenous sediments coll from 9 peat bogs characteristic of different types of relief.

Ptichye series

Ptichye bog lies in Louhi dist near Lake Sokol in glacial moraine plain, +120m. Fen peat bed, depth 7m. Two samples coll 1977 for dating by O Kuznetsov.

TA-1021. Ptichye 8600 ± 100

Sample from basal peat layer at 6.7 to 7m depth. Pollen analysis shows Boreal max of birch. *Comment*: date agrees well with palynologic materials from Kuusamo dist, Finland (Vasari, 1962).

TA-1020. Ptichye 6610 ± 100

Peat from 4.5 to 4.75m depth, contact of AT1/AT2. Empiric boundary of spruce pollen.

Neino suo series

Neino suo peat bog lies in Louhi dist near Lake Sokol in glacial moraine plain. Alt +111.4m. Depth of fen peat, 5m. Two samples coll 1977 by O Kuznetsov.

TA-1026. Neino suo 8695 ± 100

Benthic peat layer underlain by clay from 4.75 to 5m depth, contact of B01/B02.

TA-1025. Neino suo 7350 ± 90

Peat coll from 3.75 to 4m depth, contact of B02/AT1.

Mezhgornoye series

Mezhgornoye (intermontane) bog lies in Louhi dist, S of Lake Sokol in deep basin with large ridge-like and hilly relief of denudate-tectonic genesis. Surface alt of bog 160m, ridges rise to +235m. Peat layer of bog is transitional, depth of organogenous sediments, peat and sapropel, 5.9m underlain by clay. Sample coll 1977 by O Kuznetsov.

TA-1019. Mezhgornoye 7920 ± 100

Peat from 5.6 to 5.9m depth. Pollen analysis attributes age of sample to middle Boreal.

Zapovednoye series

Zapovednoye bog is in Kemi dist between settlements of Shomba and Kepa in slightly hilly moraine plain, +120m. Peat depth, 5.8m. Transitional peat deposit between fen and bog. Two samples coll 1977 by O Kuznetsov.

TA-954. Zapovednoye 899 ± 100

Benthic peat layer from 5.5 to 5.8m depth underlain by clay. Pollen analysis shows Boreal max of birch (beginning of B01).

TA-955. Zapovednoye 6900 ± 100

Peat from 4.7 to 5m depth. Pollen spectra indicate lower boundary of continuous curve of elm pollen (AT1).

Shomba suo series

Shomba bog is in Kemi dist near settlement of Shomba in undulating plain, +95 to 100m. Fen peat bed at 2.25m depth. Two samples for dating coll 1978 by O Kuznetsov.

TA-1102. Shomba suo 6945 ± 50

Benthic peat from 2 to 2.25m depth underlain by clay. Pollen analysis indicates optimum of Atlantic period (AT1).

TA-1103. Shomba suo 3050 ± 60

Peat from base of lakelet in ridge-pool lake complex 1 to 1.25m deep.

Kepa series

Kepa bog, Kalevala dist near Kepa settlement, in small depression in kame relief. Alt +125m. Peat deposit transitional; depth of organogenous sediments 4.9m. Two samples coll 1977 by O Kuznetsov.

TA-1017. Kepa 8995 ± 100

Sapropel from benthic layer 4.7 to 4.9m deep in contact with sand. Pollen spectrum displays max of birch (B01).

TA-1018. Kepa 6115 ± 100

Peat from 3.75 to 4m depth is in contact with sapropel. Pollen analysis displays optimum of Atlantic period (AT2).

July suo series

July bog, Kalevala dist W of Lake Kontokki, developed in narrow ravine in high-ridged denudate-tectonic relief. Borings of lacustrine bog sediments were carried out up to 6.5m depth. Sediments are made up to 5.75m of transitional fen peat and at 0.75m of sapropel. Two samples coll 1974 by O Kuznetsov.

TA-738. July suo 7400 ± 100

Sapropel from 6.25 to 6.5m depth, attributable to beginning of Atlantic period (AT1).

TA-737. July suo 5700 ± 100

Peat from 5.25 to 5.5m depth in contact with sapropel. Pollen analysis shows optimum of Atlantic period (AT2).

Kontokki series

Landscape bog, Kalevala dist SW of Lake Kontokki, occupies narrow depression in denudate plain, +202m. Fen peat bed, max depth of organic sediments, 7m. Six m of sediments are peat, 1m is sapropel underlain by clay. Two samples coll 1974 by G Elina and O Kuznetsov.

TA-730. Kontokki 8000 ± 100

Benthic sapropel, coll from 6.75 to 7m depth, from pollen analysis, assigned to Boreal period (B02).

TA-729. Kontokki 3200 ± 60

Peat from 4.25 to 4.5m depth. Pollen analysis shows Sub-Boreal max of spruce.

No suo series

No suo bog, Kalevala dist E of Lake Kontokki, occupies a narrow ravine between high eskers. Alt of esker ridges, +170m, relative alt of ridges, ca 8m. Boring exposed bore well, 8m deep. 4.25m of bore hole is transitional peat; 3.75m is sapropel. Sample coll 1972 by Elina and Kuznetsov.

TA-581. No suo

Sapropel coll near boundary of limnotelmatic contact at 4.75 to 5m depth. *Comment:* pollen spectra display optimum of AT1 and beginning and distribution of spruce.

SE Prebelomorye

This region unites territory of Prebelomorsk depression bordering on town of Belomorsk and Vyg R in W, on the boundary of Karelia with Arkhangelsk Region in E. Six samples from peat deposits of 2 bogs are listed.

Zarutskoye series

Zarutskoye bog, Belomorsk dist, SE of Nyukhcha village, on 3rd sea route of Prebelomorsk depression, +20m. Raised bog peat bed, maximum depth 8m, underlain by sea clay and loamy soil. Five samples coll 1975 by G Elina and V Antipin.

TA-836. Zarutskoye **8360 ± 100**

Peat, depth 7.5 to 7.85m, from contact zone of fen and transitional layers. *Comment:* pollen analysis shows Boreal age (B02).

TA-835. Zarutskoye **7120 ± 100**

Peat from 6.25 to 6.5m depth, ascribed by pollen analysis to 1st half of Atlantic period (AT1). *Comment:* dates appearance of spruce (empiric boundary).

TA-834. Zarutskoye **5575 ± 80**

Peat from 5 to 5.25m depth. *Comment:* pollen analysis indicates Upper Atlantic spruce pollen max.

TA-833. Zarutskoye **3500 ± 70**

Peat from 2.25 to 2.5m depth. *Comment:* assigned to Sub-Boreal period by pollen analysis. Dates Sub-Boreal max of spruce.

TA-832. Zarutskoye **1940 ± 60**

Peat from 1 to 1.25m depth. *Comment:* pollen analysis shows Sub-Atlantic max of spruce.

Nyukhcha series

TA-837. Nyukhcha **5010 ± 80**

Peat from 4.15 to 4.3m depth coll from Malyi Nyukhchensky Mokh bog, Belomorsk dist E of Nyukhcha village, on 3rd sea terrace of Prebelomorsk depression, alt 20m. Raised bog peat bed, depth, 5m. Sample coll 1975 by V Antipin. *Comment:* pollen analysis indicates end of Atlantic period (AT2) and empiric boundary of spruce pollen.

Central Karelia

Territory between 64°N and 62°N has been least thoroughly studied. Present list contains descriptions of 7 samples coll from 3 peat bogs.

Chelmuzhi series

Bog along Nemina R, Medvezhyegorsk dist E of Chelmuzhi village, has been compressed into narrow valley of Nemina R from which terrace sharply rises at alt, +6m. Three samples coll 1971 by G Elina and O

Kuznetsova from natural outcropping of peat bog with total thickness, 2.65m.

TA-434. Chelmuzhi 4480 ± 60

Peat from 1.3 to 1.35m. *Comment:* pollen analyses shows that these peat samples were deposited at beginning of Sub-Boreal period.

TA-433. Chelmuzhi 4270 ± 70

Strongly mineralized peat from 1.15 to 1.2m depth. *Comment:* pollen analyses indicate Sub-Boreal max of spruce.

TA-432. Chelmuzhi 2975 ± 60

Peat from 0.7 to 0.75m depth. *Comment:* pollen analyses show Sub-Boreal/Sub-Atlantic contact.

Chudesnoye series

Chudesnoye bog, Medvezhyegorsk dist NW of Lake Segozero, occupies narrow depression of lacustrine-glacial plain, at +185m. Two samples of fen peat bed from 6m depth coll 1977 by V Antipin.

TA-1023. Chudesnoye 8450 ± 80

Peat from 5.5 to 5.75m depth. *Comment:* pollen spectra show Boreal period for their deposition (beginning of BO₂).

TA-1022. Chudesnoye 7760 ± 100

Peat from 4.75 to 5m depth. *Comment:* pollen analyses indicate end of Boreal period.

Dry Lamba series

Dry Lamba bog, Kontopohja dist Kivach Nature Reserve, among high hills of limno-glacial montane relief, at +60m. Raised bog peat bed 8m deep. Two samples coll 1976 by V Antipin.

TA-890. Dry Lamba 8250 ± 80

Peat from 7.75 to 8m. *Comment:* pollen analyses from 7.75 to 8m depth show middle of Boreal period.

TA-889. Dry Lamba 7360 ± 80

Peat from 7.5 to 7.75m. *Comment:* pollen spectra show beginning of Atlantic period.

South Karelia

Territory S of 62°N has been studied rather thoroughly. The following describes 13 samples from 7 bog secs. *Comment:* materials of region under study obtained by authors agree well with data pub 1967 by K Tolonen on Finland (Tolonen, 1967).

Bezdonnoye series

Bezdonnoye bog is in Suoyärvi dist W of Lake Samozero in moraine aqueoglacial undulating plain lying in basin between 2 low ridges, at

+123m. Fen peat bed is transitional. Max depth of organogenous sediments is 13.5m of which 5.25m are made up of peat and 8.25m of sapropel. Four samples coll 1971 by V Antipin and O Kuznetsov.

TA-535A. Bezdonnoye 9880 ± 150

Sapropel from 13 to 13.5m from base of organogenous sediments. *Comment:* pollen spectra indicate absolute max of birch, which corresponds to beginning of Pre-Boreal period.

TA-534. Bezdonnoye 9470 ± 150

Sapropel from 120m depth. *Comment:* pollen analysis indicates contact of Pre-Boreal and Boreal periods.

TA-533. Bezdonnoye 9085 ± 120

Sapropel coll from 12m depth.

TA-532. Bezdonnoye 5065 ± 70

Peat from 5m depth near limnotelmatic contact of sapropel and peat. *Comment:* pollen spectra of these sediments correspond to contact of Atlantic and Sub-Boreal periods.

Mustu suo series

Mustu suo bog lies in Pryazha dist E of Kindasovo village in extensive basin of Shuisk lowland of limno-glacial origin (Apykhtin *et al*, 1965). Alt marks contact of bog and waterless valley at 102.5m depth. Bog peat bed transitional; max depth, 5.5m. Two samples coll 1973 by V Tchatchkhiani and O Kuznetsov.

TA-579. Mustu suo 8670 ± 100

Benthic, in contact with clay, peat from 4.75 to 5m depth. Pollen analyses indicate max of birch, which corresponds to Boreal period (end of B01).

TA-578. Mustu suo 7600 ± 100

Peat from 3.5 to 3.75m depth. Appearance of spruce pollen is noticeable in pollen-analytical spectra.

Kindasovo series

Nenazvannoye bog is in Pryazha dist N of Kindasovo village in higher ridges of Shuisk lowland, at +102.5m. Fen peat bed transitional, 4 to 4.5m deep, underlain by clay. Three samples coll 1974 by V Antipin and O Kuznetsov, 2 samples from bore well in center of bog, 1 from periphery.

TA-838. Kindasovo 8460 ± 100

Benthic peat from center of bog from 4.25 to 4.4m depth. Pollen analyses assign sample to Boreal period (B01/B02).

TA-855. Kindasovo 4150 ± 40

Peat from same site (0.75 to 1m depth). Pollen-analytical spectra (sharp decrease of spruce pollen) attribute sediments to 2nd half of Sub-Atlantic period.

TA-779. Kindasovo 4070 ± 80

Benthic peat from 2.32 to 2.6m depth on periphery of bog. Pollen analysis indicates Sub-Boreal age of sediments.

Rittu suo series

Rittu suo lies in Pryazha dist NE of Kindasovo village in limno-glacial plain at +100m. Raised bog peat bed from 3.15m depth. Sample coll 1975 by V Tchatchkhiani and O Kuznetsov.

TA-580. Rittu suo 7900 ± 100

Benthic peat from 2.4 to 2.7m depth, assigned by pollen analyses to end of Boreal period (B02).

Koivu suo series

Koivu suo in Pryazha dist borders on Rittu suo in W lying at +97.5m. Fen peat bed 1.5 to 2m deep. Two samples coll 1971 by V Tchatchkhiani and O Kuznetsov.

TA-447. Koivu suo 5780 ± 100

Peat from 1.3 to 1.4m depth underlain by clay. Pollen spectra show climatic optimum (AT2).

TA-448. Koivu suo 2550 ± 70

Peat from 0.8 to 0.9m depth. Pollen spectra clearly show contact of Sub-Boreal and Sub-Atlantic periods.

TA-955. Hiili suo 8530 ± 80

Peat from 5.5 to 5.8m depth from Hiili bog, Prionega dist SE of Petrozavodsk. Bog is on slope of individual elev massif at +147m. Fen peat bed transitional, max peat depth, 6m. Sample coll 1976 by V Antipin and O Kuznetsov. *Comment:* pollen analyses and dates show Boreal period for formation of these layers, contact of B01/B02, which do not confirm Donner's data (Donner, 1951) on formation of this bog in Late-Glacial period.

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