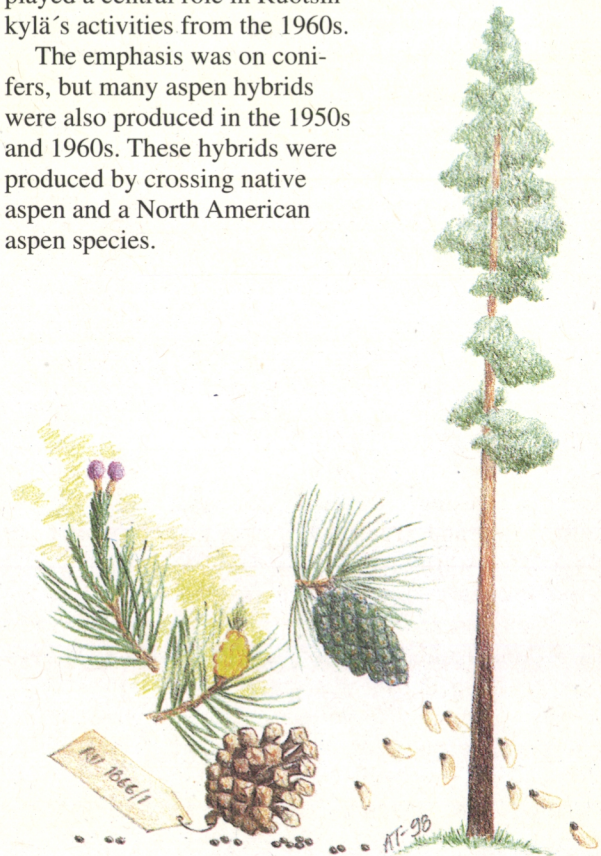


HALF A CENTURY OF RESEARCH IN FOREST TREE BREEDING

Ruotsinkylä has been a centre of forest tree breeding and of the associated research since 1949. At first this activity focused on the production of grafts obtained from plus trees, selected on the basis of their outstanding growth and form. Grafting was used to preserve the genetic material of these trees in clone collections and seed orchards.

Grafts of the clone collections were used in producing crossings between the plus trees. The seeds thus obtained were used to establish plus-tree progeny trials to test their genetic quality and to obtain the best possible cultivation material for practical forestry. Cross-breeding and progeny trials has played a central role in Ruotsinkylä's activities from the 1960s.

The emphasis was on conifers, but many aspen hybrids were also produced in the 1950s and 1960s. These hybrids were produced by crossing native aspen and a North American aspen species.



LONG-TERM FIELD EXPERIMENTS

The oldest tree species and provenance trials in Ruotsinkylä were founded close to 70 years ago. There are precise measurements going back scores of years for most of the trial stands.

Data collected many years ago are useful to the study of current phenomena. For example, provenance trials of spruce and pine established in the 1930s have proved to be valuable when studying the impact of climate change on tree growth. An important sample bank of forest-stand litterfall collected since 1950s has been established and analysed for their concentrations of heavy metals and environmental toxins.



IMPACTS OF ENVIRONMENTAL CHANGES ON THE FORESTS

Research focusing on examining the impact of the "greenhouse" effect and air-borne pollution has been very much to the fore in work done in the greenhouses at Ruotsinkylä in the past few years. The trials have looked into the effects of such phenomena as nitrogen and heavy metal deposition, temperature and rainfall variation, nutrient dynamics and cycling, and the microbial activity in forest soils. There is on-going research into the control mechanisms of winter dormancy in relation to changes in winter temperatures, the responses of the undergrowth to environmental changes, and the effects of tree species on forest biology.

FINNISH FOREST RESEARCH INSTITUTE METLA

Metla was established in 1917. It is a research institution under the jurisdiction of the Ministry of Agriculture and Forestry. According to its mission statement, Metla strives to solve forest-related problems through research. Applied research work is done at the research centres of Helsinki and Vantaa and at eight regional research stations. As a means of ensuring the continuity of long-term research undertakings, Metla has at its disposal and management about 150 000 hectares of research forests. Of these research forests, nearly 70 000 hectares are conservation areas and 4 500 hectares are demonstration forests serving forestry education.

LOCATION

The Ruotsinkylä Research Area and Field Station are located about 10 km from the Vantaa Research Centre, from where it is administered. It is 25 km from the Helsinki Research Centre.



METLA

Vantaa Research Centre / Ruotsinkylä Research Area
Jokiniemenkuja 1, FIN-01301 Vantaa
Tel. +358 9 857 051, fax +358 9 8570 5569

Ruotsinkylä Field Station
Maisalantie 230, FIN-01590 Maisala
Tel. +358 9 8274 420, fax +358 9 8274 683

Anne Turunen 1998

RUOTSINKYLÄ RESEARCH AREA



ENGLISH

RUOTSINKYLÄ – THE FLAGSHIP OF FINNISH FOREST RESEARCH

Welcome to this research forest!

The Ruotsinkylä Research Area was established in 1923. Located in Tuusula, it is in the immediate vicinity of the capital city area. There are over 500 hectares of diverse research forests in Ruotsinkylä. The Ruotsinkylä Research Area is also responsible for a further 700 hectares of land and waters located in eight municipalities in the provinces of Uusimaa and Häme. The area includes important conservation areas serving the needs of research; e.g. the Karkali Strict Nature Reserve, the Porkkala Archipelago Conservation Area, and several herb-rich forests under conservation. There is also a forest-research field station with its own greenhouses at Ruotsinkylä.

DIVERSE COLLECTION OF TREE SPECIES

Ruotsinkylä's collection of exotic tree species enables visitors to acquaint themselves with tree species otherwise rarely encountered in Finnish forests. Most of these stands were established in the 1920s and 1930s. There are more than 40 exotic tree species to be seen. Altogether, the research area includes about 60 coniferous and 50 deciduous taxons (species, subspecies, varieties and forms).

TRAILS THROUGH THE RESEARCH FOREST

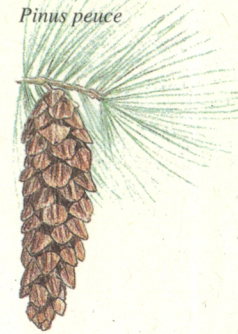
There are five trails through the Ruotsinkylä area:

- A. Paratiisinmäki (1 km)
- B. Lehtikuusenmäki (6 km)
- C. Lymypirtti (4 km)
- D. Suomisensuo (3.5 km)
- E. Pirunkorpi (6.5 km).

An arboretum is located along the Paratiisinmäki trail and specimen trees are marked. Maps of the other routes are shown on the guiding placards at the Ruotsinkylä Field Station. Furthermore, detailed descriptions of all points of interest along the trails are provided in the book entitled *Ruotsinkylän tutkimusalueen kohdeselosteet* (Finnish Forest Research Report 468), which may be purchased or borrowed from the Institute.

PARATIISINMÄKI TREE TRAIL

- A1 Norway spruce (*Picea abies*)
- A3 Scots pine (*Pinus sylvestris*)
- A4 Weeping spruce (*Picea abies* f. *pendula*)
- A5 Larch (*Larix* sp.)
- A6 Jack pine (*Pinus banksiana*)
- A7 Serbian spruce (*Picea omorica*)
- A8 White spruce (*Picea glauca*)
- A9 Yedo spruce (*Picea jezoënsis*)
- A10 Sachalin fir (*Abies sachalinensis*)
- A12 Plus-tree* grafts of conifers
- A13 Various deciduous and coniferous trees
- A14 Sachalin fir (*Abies sachalinensis*)
- A15 *Abies sachalinensis* var. *mayriana*
- A16 Stone pine (*Pinus cembra*)
- A17 Fraser fir (*Abies fraseri*)
- A18 Indigenous trees, shrubs and dwarf shrubs
- A19 European larch (*Larix decidua*)
- A21 Kurilen larch (*Larix gmelinii* var. *japonica*)
- A22 Kurilen larch (*Larix gmelinii* var. *japonica*)
- A23 Dahurian larch (*Larix gmelinii*)
- A25 Siberian larch (*Larix sibirica*)
- A26 Plantation of larches
- A27 Macedonian pine (*Pinus peuce*)
- A29 Artificial crossings of pinnate-leaved alder
- A30 Curly birch (*Betula pendula* var. *carelica*)
- Red oak (*Quercus robur*)
- A31 Alder crossings (*Alnus glutinosa* x *incana*)
- A32 Plus-tree grafts of various forms of spruce
- A33 Douglas fir (*Pseudotsuga menziesii*)
- A34 Veitch fir (*Abies veitchii*)
- A35 Colorado white fir (*Abies concolor*)
- A36 Plus-tree grafts of pine
- A37 English oak (*Quercus robur*)



Larix sibirica



- A38 Alpine fir (*Abies lasiocarpa*)
 - A39 English oak (*Quercus robur*)
 - Collection of tree species
 - A40 Plus-tree grafts (wych elm, oak, ash, aspen, spruce)
 - A41 Plus-tree grafts of pine
 - A42 Plus-tree grafts of various spruce species
 - A43 Kurilen larch (*Larix gmelinii* var. *japonica*)
 - A44 Dahurian larch (*Larix gmelinii*)
 - A45 Douglas fir (*Pseudotsuga menziesii*)
 - A46 Mountain hemlock (*Tsuga mertensiana*)
 - A47 Japanese lime (*Tilia japonica*)
 - Japanese yew (*Taxus cuspidata*)
 - A48 Stone pine (*Pinus cembra*)
 - A49 Plus-tree grafts (larch, birch, spruce, alder)
 - A51 Kurilen larch (*Larix gmelinii* var. *japonica*)
 - A52 Plus-tree grafts (aspen, rowan, alder)
 - A53 Willow species and crossings
- *Plus-tree (the tree of outstanding size and form)

Taxus cuspidata



INSTRUCTIONS TO VISITORS

The best way to become acquainted with the Ruotsinkylä Research Area is by following the trails on foot and on skis in winter. Some of the trails are suitable for cycling along. Leave your car in one of the marked car parks. In the forest you are free to pick berries and mushrooms. Do not break off tree branches or collect cones – they are needed for research purposes. Remember that there may be on-going measurements requiring a high degree of precision; for example, the development of the ground vegetation is followed regularly through repeated assessments. Please leave all equipment untouched!

