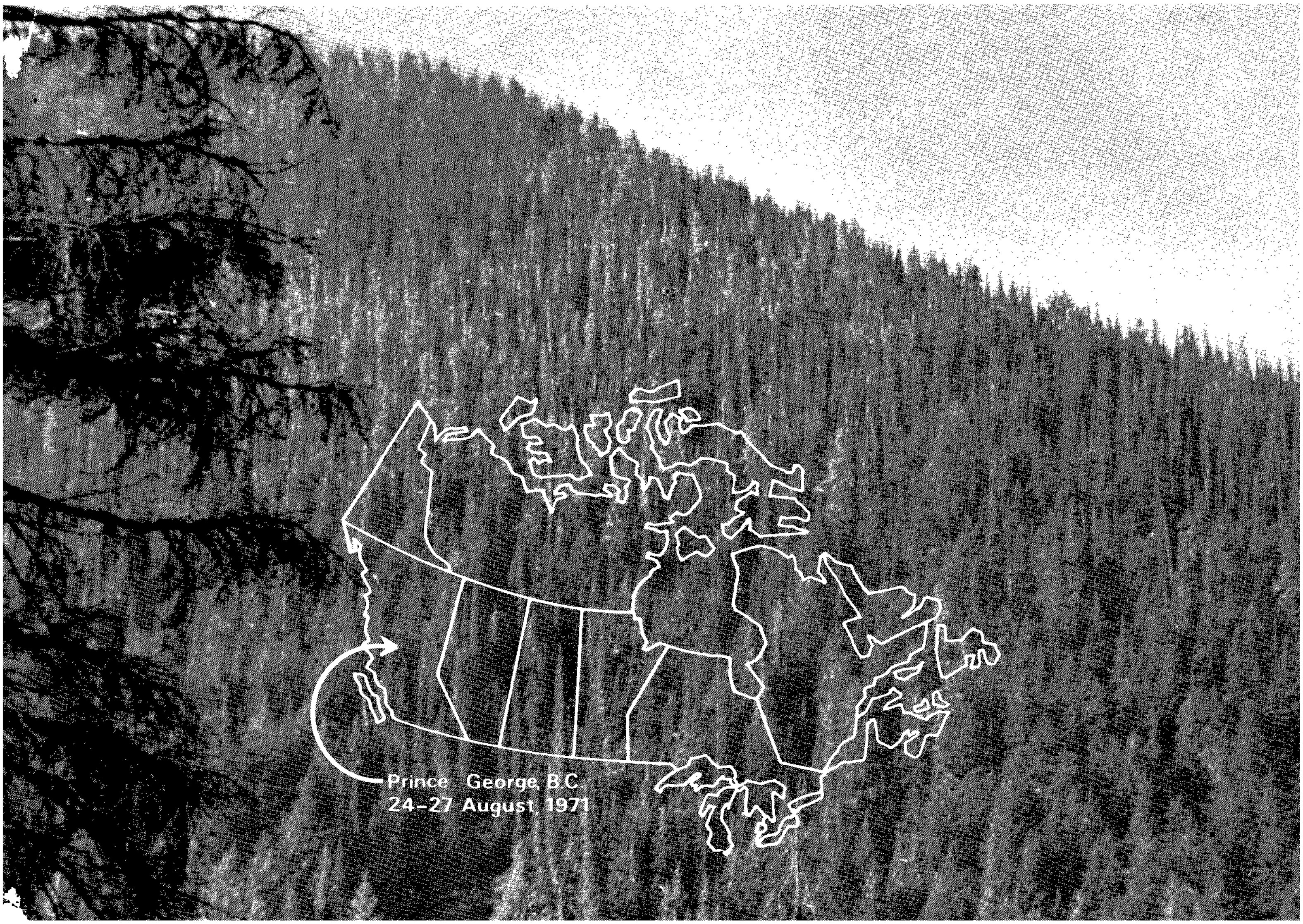
Proceedings of the thirteenth meeting of the committee on forest tree breeding in Canada: Part 2

Comptes rendus de la treizième conférence du comité canadien d'amélioration des arbres forestiers: Partie 2



PROCEEDINGS OF THE THIRTEENTH MEETING OF

THE COMMITTEE ON FOREST TREE BREEDING

IN CANADA

With the compliments of the Committee.

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Enquiries may be addressed to the authors or to Mr. K. Illingworth, Executive Secretary, C.F.T.B.C., Research Division, British Columbia Forest Service, Victoria, B.C., Canada.

The fourteenth Meeting of the Committee will be held at Fredericton, New Brunswick in August 1973. Canadian and foreign visitors will be welcome. Detailed information will be distributed early in 1972 to all members and to others upon request.

If your name, title or address is incorrect or incomplete, please complete and return this correction slip.

TO: Mr. K. Illingworth, Executive Secretary, Committee on Forest Tree Breeding in Canada, British Columbia Forest Service, Victoria, B.C., Canada.

NAME: Prof.
Dr. Mrs.
Mr. Miss .... Title ....

INSTITUTION: ....

ADDRESS: ....

....

Please correct my name and address as above.

Signed ....

PROCEEDINGS OF THE THIRTEENTH MEETING OF THE COMMITTEE ON FOREST TREE BREEDING IN CANADA

PART 2

SYMPOSIUM ON THE CONSERVATION OF FOREST GENE RESOURCES

Editors: D.P. Fowler and C.W. Yeatman

PRINCE GEORGE, B.C. 24-27, AUGUST, 1971

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Part 1, Minutes and Members' Reports, received restricted distribution to Committee members only.

Part 2, received wider distribution to persons and organizations actively engaged or interested in forest genetics and tree improvement.

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"The decades through which we are living are critical and disturbing ones. An increasing world population means increasing demands on its environment. This has resulted in an intensified exploitation of the biosphere, very often without long-term planning or the necessary research background, and without coordination between nations. As a consequence, there is an alarming deterioration of natural resources, which not only adversely affects the present human habitat but constitutes a threat to the well-being of future generations."

A.H. Boerma
Director-General (1970)
F.A.O. of the United Nations.

Gene conservation is no longer the reserve of a few agricultural plant breeders or geneticists seeking desperately for new sources of variation to enrich the gene pools of a few highly selected plant species. Scientists in many fields of biology recognize the need to conserve or preserve a sizeable portion of genetic variation of this planet so that man can continue to enjoy and further develop the living organisms upon which he is so dependent.

The gene pools available to tree breeders are, with few exceptions, "wild" and relatively unselected by man. Certainly when compared to the agriculturalist, tree breeders are in an enviable position, at least in respect to available genetic variation. Among the forests of the northern temperate zone, Canada's forests (250 million hectares of productive forest) are closer to the "wild" condition than the forest of any other nation. Why then should Canadian tree breeders give even lip-service to conservation of forest gene resources? There are a number of reasons. First, although the conservation of forest gene resources is not a pressing matter over Canada as a whole, there are parts of the country where the forests have been heavily cut for several generations, and where the local populations of tree species are being replaced with non-local ones. Certain populations of certain tree species, especially northern outliers, are in danger of serious gene depauperation. Canada is in the enviable position of being able to do something to prevent serious losses of genetic variability before the situation deteriorates further. To do this it is necessary to understand exactly what problems face us, to recognize species or populations before they are in serious danger, and to take what ever steps are necessary to conserve valuable populations.

The F.A.O. Panel of Experts on Conservation of Forest Gene Resources is exploring the problems of gene conservation at an international level and I.U.F.R.O. has formed a Working Party on gene resource conservation. The North American Forestry Commission (F.A.O.), Working Party on Forest Tree Improvement, has given consideration to gene resources on a continental scale. At the national level, in Canada, no single organization is concerned solely with conservation of forest gene resources. Programs such as the IBP-ct program and the Canadian Institute of Forestry, Natural Areas Program, undoubtedly make a positive contribution to gene conservation. The logical question is, is this enough? If not, what further efforts are required?

The purposes of this symposium include an attempt to bring together knowledgeable people from several related fields to discuss gene conservation, to provide members of the C.F.T.B.C. with the background knowledge necessary for them to decide what role, if any, the Committee should play in this field; and how this role, if accepted, can be implemented. After the symposium, the C.F.T.B.C. held a discussion on the role it should play in conservation of forest gene resources in Canada. A policy statement was accepted by the members and is presented as Appendix I.

D.P. Fowler, Chairman
L. Roche, Secretary
Comm. Forest Tree Breeding in Canada

RESOURCE GENE POOLS AND THEIR CONSERVATION

Tibor Rejhathy

Canada Department of Agriculture, Research Branch,
Ottawa, Ontario

INTRODUCTION

In this gathering of distinguished forest tree geneticists, it may be prudent to confess my ignorance of forestry before it becomes obvious. Being a cytogeneticist working primarily with cultivated and wild cereal species, the honor of having been invited to this Symposium is probably due to my involvement with plant exploration. I have collected and studied cereal species along the Mediterranean and in the Middle-East, and have made their gene pools available for research and breeding. However, species are populations and populations are the reservoirs of gene pools regardless of whether they are annual grasses or perennial trees. Although different species, depending on their genetic and breeding systems, present somewhat different problems, the underlying genetic principles apply to all.

As the title of this Symposium suggests, genetic resources are components of our environment and their preservation is part of conservation. Conservation has traditionally included a broad range of activities from the top soil to the whooping crane and has been motivated by ethical, aesthetic, economic, and scientific reasons. It has recently become an emotional issue when we came to realize that man's survival still depends on the increasingly endangered balance between the human species and its environment. As we learn more about the disruptive effects of the overcrowding technological society on the biosphere, new items with new priorities are constantly added to the long list of the conservationist. Because of their fundamental economic and scientific importance, genetic resources should have high priority on this list. Yet I question the wisdom of putting them on the list at all. The conservation of genetic resources provide genetic variability, the essential raw materials for plant breeding in which lies the hope of meeting the demands of an all too rapidly growing human population. To deal with genetic resources requires careful analysis and an inventory by species and economic needs. We need a great deal more scientific information on how to preserve populations without losing their genetic variability. This is a national as well as a global issue, involving political sensitivities and resistance, particularly since many of the primary gene pools of economic species are in the underdeveloped part of the world. It is a job for geneticists with national and international cooperation sponsored by agencies at both levels. Save our forests may have emotional appeal and may have its usefulness, but save land races of wheat or potato would hardly capture public imagination. Specific problems such as forest gene resources may be swamped by the general war cry: emotional oversell usually invites public apathy. What is needed is to identify specific problems and priorities, to find efficient methods of conservation at a manageable level, and the enlist government support.