

FINAL REPORT

2001



COOPERATIVE SCREENING STUDY

OF

NATIVE SOURCES OF

EASTERN COTTONWOOD

AND

INTRODUCED HYBRID POPLAR

## **Final Report**

# **Cooperative Screening Study of Native Sources of Eastern Cottonwood and Introduced Hybrid Poplar**

## **Introduction**

Adapted and recommended sources of eastern cottonwood (*Populus deltoides* Bart.) and hybrid poplar are presently not available for distribution to landowners within the state of Missouri. Attempts have been made at identifying superior trees; however, the rather limited research has produced little in the way of results. With the increasing demand from the fine papers industry for cottonwood, especially in the Bootheel, and for biomass production and erosion control in other parts of the state, an extensive study is needed to identify both native sources of cottonwood and sources of hybrid poplar suitable for release. The proposed screening study at the Natural Resources Conservation Service (NRCS) Plant Materials Center in Elsberry, Missouri is just part of a statewide network of screening studies currently being established by the Missouri Department of Conservation (MDC) in an attempt to meet the objectives listed below. The following is a listing of the twelve best performing accessions in this assembly: 0404042, 0402059, 0403059, 0403111, 0401112, 040401114, 0406114, 17, 20, 23, 25, 26.

## **Problem**

A genuine need has developed to search out superior trees of Eastern cottonwood and hybrid poplar for use within the state of Missouri for biomass production and erosion control in certain parts of the state.

## **Study Objectives**

Evaluate the performance (i.e. growth rate, and pest resistance) of selective sources of native cottonwood and introduced hybrid poplar.

Establish a research block of *Populus* sources for cultural, weed, and pest control research.

Provide materials for teaching and other educational purposes, such as demonstrations during field days that might be conducted by the Plant Materials Center.

Release a superior selection(s) exhibiting fast growth, disease and insect resistance and adaptation.

## Study Results

This cottonwood study was initiated in Field #7 on the PMC in April 1982. It was a cooperative effort between the (NRCS) and the (MDC) Forestry Division. A total of 63 accessions of cottonwood were included in the study. Forty-two accessions came from MDC, 15 came from the U. S. Forest Service and six came from the NRCS. The objectives of the study were four-fold: (1) document growth rate and pest resistance of each accession, (2) establish a research block of *Populus* sources for cultural, weed, and pest control research, (3) provide materials for teaching and other educational purposes, such as demonstrations during field days, and finally (4) release superior selection(s) exhibiting fast growth, disease and insect resistance and adaptation.

Twelve of the 63 initial accessions were selected as being the best performing plants in this assembly. Cuttings were taken from these accessions and provided to the Missouri State Nursery (MSN) in December 1996 for propagation and later sharing with the (PMC) for further evaluation. In April of 1998 the MSN sent ten cuttings each of the selected accessions of cottonwood to the PMC for planting and further evaluations. These cuttings were planted in Field #7 on the PMC in April 1998. An evaluation on survival was made in November 1998. This evaluation reflected 100 percent survival on all 12 accessions. A final evaluation was made again in November 1999 which reflected good to excellent vigor with the majority of plants rating excellent. There were little differences noted in the growth rate of the different accessions at this time. The height ranged from 5 to 5.5 feet; spread ranged from 1.5 to 2.5 feet.

The State Conservationists' Advisory Committee for the Plant Materials Center approved the termination of this study on April 26, 2000 because private industry has become very interested in cottonwood to the degree of developing their own new cultivars.

The highest rating trees are still being maintained in Field #7 on the PMC.

The following is a listing of accessions and sources of material included in this study.

<b>MDC Accession Number</b>	<b>USFS Accession Number</b>	<b>Nearest Town Collections Were Made</b>	<b>County</b>	<b>State</b>
	<b>Twelve (12) Best Accessions</b>			
0404042		Ashburn	Pike	Missouri
0402059	34	Chamois	Osage	Missouri
0403059		Chamois	Osage	Missouri
0403111		Charleston	Mississippi	Missouri
0401112		New Madrid	Pemiscot	Missouri
0401114		Hutchinson Plantation	Pemiscot	Missouri
0406114		Netherlands	Pemiscot	Missouri
	17	Golconda	Pope	Illinois
	20	Grand Chain	Pulaski	Illinois
	23	Grand Chain	Pulaski	Illinois
	25	McClure	Alexander	Illinois
	26	Golconda	Pope	Illinois
	<b>Other Accessions Evaluated</b>			
0401019		Craig	Holt	Missouri
0402019		Craig	Holt	Missouri
0403019		Craig	Holt	Missouri
0402037		Waterloo	Lafayette	Missouri
0404037		Waterloo	Lafayette	Missouri
0401038		Arrow Rock	Saline	Missouri
0402038		Arrow Rock	Saline	Missouri
0406040		Hartsburg	Boone	Missouri
0407040		Hartsburg	Boone	Missouri
0408040		Hartsburg	Boone	Missouri
0409040		Hartsburg	Boone	Missouri
0401042		Ashburn	Pike	Missouri
0402042		Ashburn	Pike	Missouri
0404042		Ashburn	Pike	Missouri
0406042		Ashburn	Pike	Missouri
0408042		Ashburn	Pike	Missouri
0401043		Foley	Lincoln	Missouri
0402043		Foley	Lincoln	Missouri
0402043		Weldon Spring	St. Charles	Missouri
0402044		Weldon Spring	St. Charles	Missouri
0403044		Weldon Spring	St. Charles	Missouri
0401059		Chamois	Osage	Missouri
0402059		Chamois	Osage	Missouri
0403059		Chamois	Osage	Missouri
0405059		Chamois	Osage	Missouri
0401081		Menfro	Perry	Missouri
0402081		Menfro	Perry	Missouri
0403081		Menfro	Perry	Missouri
0402093		Mindenmines	Barton	Missouri
0405093		Mindenmines	Barton	Missouri
0402111		Charleston	Mississippi	Missouri
0403111		Charleston	Mississippi	Missouri
0404111		Charleston	Mississippi	Missouri
0401112		New Madrid	New Madrid	Missouri
0406114		Netherlands	Pemiscot	Missouri

MDC Accession Number	USFS Accession Number	Nearest Town Collections Were Made	County	State
0407114		Netherlands	Pemiscot	Missouri
0408114		Netherlands	Pemiscot	Missouri
0409114		Netherlands	Pemiscot	Missouri
Check 1		State Nursery		Missouri
Check 2		State Nursery		Missouri
0401213		Alton	Madison	Illinois
0402213		Alton	Madison	Illinois
0403213		Alton	Madison	Illinois
	USFS # 15	Golconda	Pope	Illinois
	USFS# 18	Golconda	Pope	Illinois
	USFS# 21	Joppa	Massac	Illinois
	USFS# 22	Golconda	Pope	Illinois
	USFS# 30	Golconda	Pope	Illinois
	USFS# 43	Fitler	Issaquena	MS
	USFS# 45	Fitler	Issaquena	MS
	USFS# 52	Rena Lara	Coahoma	MS
	USFS# 62	Eagle Levee	Issaquena	MS
	USFS# 68	McBaine	Boone	Missouri
	M1-7837	McBaine	Boone	MS
	M1-7840	Fitler	Issaquena	MO
	M1-7845	Fitler	Issaquena	MS
	M1-7846	Rosedale	Bolivar	MS
	M1-7847	Ft. Madison		MS
	M1-7851	SCS/NRCS	Ft. Madison	Iowa

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For more information about this and other conservation plants, contact your local NRCS field office or Conservation District, or browse the Web at <http://Plant-Materials.nrcs.usda.gov> (Plant Materials) or <http://plants.usda.gov> (PLANTS database).

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