

ACER NEGUNDO  
NEW FUTURE FOR A FORGOTTEN TREE

By Friedrich Oehmichen, Landscape Architect, Ecole  
d'Architecture de paysage, University of Montreal

---

ABSTRACT. --The purpose of this paper is to identify the potentials of *Acer negundo* for renaturalization under midcity condrtions. The focus is on recent Montreal experiences. *Acer negundo* in the past planted mostly in its colored-leaf varieties, is hardly available anymore in the nurseries. Despite this, and despite the fact that *Acer negundo* is not native to our region, it has established an increasingly spreading population in the otherwise sparsely vegetated midcity district. This paper researches ways to make use of the valuable ecological potential of this species. Recommendations are made to reconsider the use of *Acer negundo* along with other "urban pioneerspecies" for ecologically founded and economically sound inner-city renaturalization efforts.

---

INTRODUCTION

There are signs that urban green space will see some dramatic changes in appreciation, use and management. Voices are mounting to reconsider the urban landscape and its all-important relationship to the surrounding countryside. Urban green space planning should allow the city to renew a natural framework which would more readily satisfy the needs of people in the city, whilst providing for those other inhabitants - the flora and fauna. It should be possible to create a finely-graded habitat including the spontaneous and the wild as well as the organized and the formal, in order to satisfy all human needs and conditions.

One species which could play an important role within this framework is *Acer ne undo* or the Box Elder (also known as Manitoba Maple, Erable a Giguere, and a dozen other common names).

## CHARACTERISTICS

Habitat: Native in southern Ontario and westwards through the Prairie Provinces and the Midwest where it grows usually on lakeshores and riverbanks, it has established itself far beyond its natural ranges. For example, in parts of Montreal, it has often become the dominant tree.

Varieties: 5 local varieties are recognized: Arizonicum Sarg, Californicum Sarg, Interius Sarg, Texanum Pax and Violaceum D. and B. (Preston 1965). More varieties are mentioned in the European literature (Krusmann, 1951). There are several horticultural varieties appreciated especially for their leaf color: "Aureo-var." and "Variegatum" are the most common ones.

Availability: Nurseries offer Acer negundo in its variegated forms only in British Columbia. Acer negundo itself is offered in Canada by several nurseries: nine in the Prairie Provinces, and one nursery each in British Columbia, Ontario and Quebec (Cole 1982). In Europe, nurseries offer the species as well as the varieties "Aureo-variegatum", "Variegatum", and "Odessanum".

## OBSERVATIONS ON URBAN HABITAT

Evaluations in literature of its potential as an ornamental tree are basically negative and discourage its use, except for cold and dry climate or for quick and temporary screens (Wyman, 1974). The negative reasons are quoted as: poor form, weak wood, no autumn color. Looked at in the conventional way, this judgement seems to be logical and correct, but there are qualities this tree shows when looked at from an ecological angle which can change this verdict quite profoundly.

If trees are to be evaluated for their adaptability to urban ecosystems other criteria become valid. Judged by our Montreal experience, Acer negundo showed very interesting qualities such as:

- vigor and rapid growth as a young tree;
- capacity to grow easily from stumps;
- early maturity and high reproductive capacity;
- easy germination even under seemingly difficult conditions. It is interesting that several local pioneer species such as Birch and Aspen fail on urban disturbed land;
- the seeds stay on the tree until midwinter. Together with Fraxinus pennsylvanica, Acer negundo represents for this reason a unique feeding-ground for different

migrating birds, especially the Grosbeak, Hesperiphona vespertina (Marie-Victorin, 1964);

- adaptation to poor urban growing conditions on landfills, disturbed sites, residual landstrips with lack of topsoil, often compacted and partially dry. This is an index of a wide ecological aptitude of the species;
- its foliage of a light and fresh green combined with a kind of lacy texture is, last but not least, an often overlooked ornamental asset.

If one adapts the biological zones described by Dorney (1979), Acer negundo is most abundant in the midcity cliff/organic detritus zone. In other zones with more favorable growing conditions Acer negundo will only appear by neglect of conventional maintenance. Acer negundo is completely absent in the remnant natural forests as well as in natural tree growths on abandoned farmland. Isolated stands exist on riverbanks.

In sharp contrast is its abundance in the inner city zone. Students in landscape architecture who conducted our surveys were often surprised by the extent of its prolific distribution. Especially in streets with no provisions for street trees, they were sometimes the only woody plants and for that matter the only green present. In midcity, where conditions for shadetrees are increasingly difficult, the spontaneous trees like Acer negundo, together with Populus Fraxinus and Rhus dominate very often not only in number but also in size. Unfortunately, spontaneous vegetation, including trees, is still looked upon as weeds and treated accordingly. The result is visible in scars and stumps as testimony of attempts to eradicate these plants. Together with other species of spontaneous "urban pioneer" trees, Acer negundo can be found on midcity sites like:

- slopes and landfills without maintenance, derelict lands in general;
- unpaved strips, even cracks along fences and on the back of buildings;
- unlandscaped backalleys
- land in transition
- landscaped zones, as invaders when overlooked by maintenance.

A sample of 48 Acer negundo in a midcity row-house district showed a preference for sunny locations (67%), open ground (63%) with 11% growing in asphalt. 17% were 10 years and older and 14% over 30 feet in height. 24% showed a last year's growth of 24' and more; we could measure 7 feet in one case, 80% had broken branches as could be expected. 65% grew

isolated, 35% together with other urban pioneer trees (students in Landscape Architecture, 1983).

The inherent somewhat crooked growth of Acer negundo is enhanced further by the effect of our cold climate, which often kills the terminal buds (Marie-Victorin, 1964). This lack of perfection can nevertheless become an interesting asset by adding diversity in form and structure to the often so perfect and uniform traditional shadetrees.

Once established as a shadetree, it will obtain! often, a similar affection as if planted by the people profiting from its existence. This shows that besides their specific physiological and physical stimulation, the major contribution of trees in cities is as the source of visual stimulation, for which purpose even the often despised "weed trees" may suffice (Brush and More, 1976).

#### POTENTIAL FOR URBAN RENATURALIZATION

The growth pattern, its vigor combined with its reproductive capacity, makes Acer negundo an interesting tree for midcity renaturalization schemes. Together with other urban pioneer plants these trees could be used, instead of fought against, could be manipulated instead of exterminated. Used skillfully as strategic weeds, they could develop complete greenspaces without planting a single tree; whole biotic systems could be created and manipulated. The Acer negundo could be a very important and useful part of such schemes. To achieve this economically interesting approach, the following is recommended:

- arrangement of a system of strategically placed mature mother trees, able to cover or seed any given sector. These mother plants could be part of already existing parks, street or alley plantings;
- development of a comprehensive naturalization plan for the inner city as part of a general development strategy;
- the creation of interim greenspaces should be accepted (Richards and Bradshaw, 1976);
- all suitable terrains should be included in the scheme regardless of ownership;
- attention should be given to the preparation of the soil, to support the germination and development of the wanted seedlings without favoring competing herbs and grasses;
- an educational campaign under professionals as well as interested citizens would have to change the "weed" image of the urban pioneer plants.

## RECOMMENDATIONS FOR RESEARCH AND ACTIVITIES

To use the potential for urban renaturalization of *Acer negundo* effectively the following questions should be tackled;

- what is the seeding range of *Acer negundo* in an urban situation?
- what seeding techniques could provide maximal germination and development of the seedling under different site conditions?
- what other plants with ornamental value - trees, shrubs, perennials; even annuals and biennials - could be associated with *Acer negundo*, both functionally and ecologically, to form interesting successions and stable biotopes?
- which of these biotopes could best withstand human impacts?
- which of these biotopes could display the most interesting diversity?
- what varieties of *Acer negundo* merit introduction to enlarge the ecological aptitude?
- a "weed-tree committee" should be formed to collect, prepare and exchange experiences & data of this group of trees and to prepare for the exchange of seeds and cultivars.

## LITERATURE CITED

- Brush, R. O. and T. A. More.  
1976. SOME PHYSIOLOGICAL AND SOCIAL ASPECTS OF TREES IN THE CITY. USDA Forest Service, Gen. Tech. Rep. NE-22. pp 25-29.
- Cole, T. J.  
1982. WOODY PLANT SOURCE LIST. Ornamentals Section, Ottawa Research Station, Agriculture Canada, Ottawa, 83 p.
- Dorney, R. S.  
1979. THE ECOLOGY AND MANAGEMENT OF DISTURBED URBAN LAND. Landscape Architecture, May, pp 268-272 and 320.
- Krussman, G.  
1951. DIE LAUBGEHOLZE. Paul Parey Verlag, Berlin, 401 p.
- Marie-Victorin, E. C.  
1964. FLORE LAURENTIENNE. Les Presses de l'universite de Montreal, 924 p.
- Preston, R. J.  
1965. NORTH AMERICAN TREES. MIT Press, Cambridge.

Richards, N. A and A. D. Bradshaw.  
1976. INTERIM GREENSPACE IN RECYCLING OF URBAN WASTELANDS,  
TREES AND FORESTS FOR HUMAN SETTLEMENTS. Conference pro-  
ceedings, Centre for urban forestry studies, University of  
Toronto. pp 38-50.

Students of Landscape Architecture.  
1983. ACER NEGUNDO - SURVEY OF ITS DISTRIBUTION IN  
MONTREAL. Unpublished manuscripts, University of  
Montreal.

Wyman, D.  
1974. TREES FOR AMERICAN GARDENS. MacMillan Publishing  
Co. Inc., New York, 501 p.