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The Canadian Botanical Association Bulletin



Bulletin de l'Association botanique du Canada

August / Août 2002 • Volume 35 No. / N° 3

Message de la nouvelle présidente / New President's word

En tant que présidente de l'association, j'aimerais premièrement remercier Joe Gerrath pour son mandat de présidence de l'association de botanique du Canada au cours des deux dernières années. Cette période a été des plus excitantes avec la création de Plante Canada. Je voudrais aussi remercier tous les membres de comité de direction pour leurs actions et support au cours de la dernière année et souhaiter un mot de bienvenue à tous les nouveaux membres sur le comité. J'espère pouvoir continuer à refléter l'importance et le rôle de l'association dans les sphères scientifiques et botaniques du Canada.

Cette année, notre conférence annuelle s'est tenue à Madison, Wisconsin, conjointement avec la société de botanique américaine et quelques autres associations. Il s'agissait d'une conférence de toute première classe, très bien organisée et dans une ambiance très agréable. Je voudrais remercier le comité organisateur et tout particulièrement notre vice-présidente pour cet événement, Jean Gerrath, pour leurs efforts dans l'organisation de cette conférence. Notre présence a été soulignée de façon significative avec la tenue de symposiums et autres activités très bien marquées.

J'ai été très heureuse de la participation et surtout de la qualité des présentations faites par les étudiant(e)s canadien(ne)s à la conférence cette année. J'aimerais les féliciter pour leurs efforts. Si ces présentations reflètent la qualité de leurs études, nous aurons de très bons candidats pour les postes futurs en botanique au Canada ! Il en va de même avec les affiches qui ont toutes été de très bonne qualité démontrant les capacités scientifiques et techniques (en fait informatiques) des étudiant(e)s.

Je crois que le futur de l'association est des plus positifs ces jours-ci avec la possibilité de participer à plusieurs initiatives et activités (telles que les consultations pour l'agenda scientifique sur la biodiversité au

(suite à la page suivante)

**Canadian
Botanical
Association
(CBA)**



The Canadian Botanical Association is honored to have a patron such as Her Excellency the Right Honourable Adrienne Clarkson, C.C., C.M.M., C.D., Governor General of Canada.

Bulletin

The CBA Bulletin is issued quarterly (February, May, August, November) and sent to all CBA members. Comments or suggestions about the Bulletin should be directed to the Editor at the address below.

Information for submitting texts

Texts and illustrations for the Bulletin should preferably be sent to the Editor via internet as attached files, nevertheless any medium is acceptable. Any format for texts or illustrations are welcome. Please make sure that scanned illustrations are done with a very good resolution. If you have any question about text submission please contact the Editor.

**Association
botanique
du Canada
(ABC)**



L'Association botanique du Canada jouit du bienveillant patronage de sa présidente d'honneur, Son excellence la très honorable Adrienne Clarkson, C.C., C.M.M., C.D., Gouverneure générale du Canada.

Bulletin

Le Bulletin de l'ABC paraît quatre fois par année, en février, mai, août et novembre. Il est envoyé à tous les membres de l'ABC. Tout commentaire concernant le bulletin est apprécié par le rédacteur.

Directives aux contributeurs

Les textes et les images sont de préférence envoyés sous forme électronique comme fichiers attachés, néanmoins, tous les supports de même que tous les formats imaginables sont acceptables. Les fichiers graphiques doivent être de très bonne définition. N'hésitez pas à contacter le rédacteur pour toute information.

President's word / Message du président (continued from preceding page)

Canada, voir p. 35) et ainsi garder une image active de l'association. J'encourage tous les membres à nous aider cette année à motiver d'autres personnes à devenir membres de l'association et à s'impliquer dans les activités de l'association.

Enfin, j'aimerais vous rappeler que la prochaine conférence annuelle se tiendra à St. Francis Xavier University, Antigonish, Nouvelle Écosse du 25 au 29 juin 2003. Il s'agira aussi du premier congrès de Plante Canada qui a pour titre engageant « La forêt, de la terre à la mer ». David Garbary, le nouveau vice-président et son comité organisateur sont déjà très actifs à la préparation du congrès.

J'ai bien hâte de travailler avec tous les membres de l'association botanique du Canada afin de promouvoir nos rôles dans le milieu de l'éducation, de la recherche et dans le public. Je vous souhaite donc à tous et toutes une année des plus interactives et productives.

Liette Vasseur
Présidente



As the new president of the Canadian Botanical Association, I would like to thank Joe Gerrath for his leadership and role as president of the Association for the past two years. During his mandate, Plant Canada, a federation initially linking the CBA and the CSPP, was created. Over the next years, other organisations will probably join us. I would also like to acknowledge the work and initiatives in the past year of the members of the board of directors, including the chairs of sections and the committees and welcome the new members on the board. I hope that during my mandate, I can continue to reflect the importance and the role of the association in various scientific spheres in Canada.

This year, our annual conference was held in Madison, Wisconsin, with the Botanical Society of America and other American associations. It was a first class conference, well organized, with a great atmosphere. I would like to thank the organizing committee for their excellent work, especially our vice-president and representative to this event, Jean Gerrath who kept us informed. Our presence was well acknowledged during the meeting with participation to symposia and other events.

I was very pleased by the participation and the quality of the

(continued on next page)

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Next issue / Prochain numéro

Texts for the next issue, 35(4), must be received before October 30th, 2002.

La date de tombée des textes du prochain numéro, le n° 35(4), est le 30 octobre 2002.

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presentation of the students at this year's meeting. I would like to congratulate all of them for their efforts. If this is an indication of the quality of the studies, I believe the future of botany in Canada looks bright! Similarly, the poster presentations were of great interest showing the scientific and technical (in fact computing) capabilities of the students.

The association will have the opportunity to continue playing major roles in the Canadian scientific world (such as the science agenda of Canadian biodiversity, see p. 35). I encourage the members to get involved in our activities. Our presence at different meetings and agencies is important to promote botanical science in Canada. You can also help by encouraging other colleagues to become members of the CBA.

Finally, I would like to remind you that next year's conference will be held at St. Francis Xavier University, Antigonish, Nova Scotia, from June 25 to 29, 2003. It will be the first Plant Canada meeting entitled "Forest, from land to sea". David Garbary, our vice-president and his organizing committee have already been very active in preparing the meeting.

I am looking forward to working with all of the members of the Canadian Botanical Association in order to promote our roles in botany in education, science and with the public. I wish you all a very interactive and productive year.

Liette Vasseur
President

Student Awards presented at 2002 CBA Annual Meeting

JOHN MACOUN TRAVEL BURSARIES for student presenting an oral paper in the Lionel Cinq-Mars Competition

Felix Forest, Jodrell Laboratory, Royal Botanic Gardens, Kew.

Simon Joly, IRBV, Université de Montréal.

Julie Kang, Dept. of Botany, University of Toronto.

Athena McKown, Dept. of Botany, University of Toronto.

LIONEL CINQ-MARS AWARD for the best **oral paper** at the CBA Annual Meeting

Simon Joly, IRBV, Université de Montréal.

Multiple origins of auto-polyploidy in *Apios americana* as revealed by genealogical analysis of the H/D histone gene.

Honourable Mention

Athena McKown, Dept. of Botany, University of Toronto.

Kranz anatomy and leaf vein pattern of C3, C4 and C3-C4 *Flaveria*.

IAIN & SYLVIA TAYLOR AWARD for the best **poster** at the CBA Annual Meeting

Jeffery Dech, Dept. of Plant Science, University of Western Ontario

Phenotypic plasticity in *Lythrum salicaria* L. along a competition gradient in central Ontario wetlands. [co-author Peter Nosko].

L.K. WERESUB AWARD for the best student **paper in mycology**

Patrik Inderbitzen, Dept. of Botany, University of British Columbia.

Inderbitzen, P., Landvik, S., Abdel-Wahab, M.A. & Berbee, M.L. 2001. Aliquandostipitaceae, a new family for two tropical ascomycetes with unusually wide hyphae and dimorphic ascomata. *American Journal of Botany* **88**(1): 52-61.

J.S. ROWE AWARD for the best student **paper in ecology**

Karen Harper, Dept. of Renewable Resources, Univ. of Alberta [now postdoc at GREF, Univ. du Québec à Montréal].

Harper, K.A. & Macdonald, S.E. 2001. Structure and composition of riparian boreal forest: new methods for analyzing edge influence. *Ecology* **82**: 649-659.

There were no A.E. Porsild or Taylor A. Steeves Awards presented this year.

Poorly Known Economic Plants of Canada - 34. Pawpaw (Canada Banana), *Asimina triloba* (L.) Dunal

E. Small and P.M. Catling

Eastern Cereal and Oilseed Research Centre
Research Branch, Agriculture and Agri-Food Canada
Saunders Bldg., Central Experimental Farm, Ottawa ON K1A 0C6

Latin Name

The genus name *Asimina* is based on the Indian name *assimin* or *rassimin*, taken up by French colonists as *asiminier*. The specific epithet *triloba* is Latin for three-lobed, in respect to the three-parted structure of the flower (which has three sepals, three small petals and three large petals).

English Names

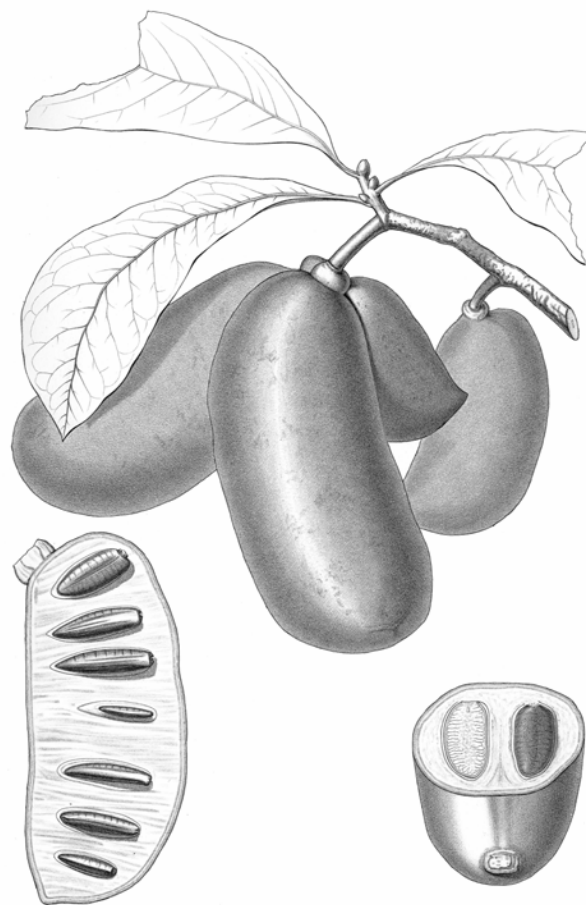
The origin of the name "pawpaw" is uncertain. The most common explanations are 1) that the word is based on a native American Indian word; and 2) that the name was transferred from its relative the papaya, *Carica papaya* L., which in Australia and sometimes in other countries is also known as pawpaw. Pawpaw (paw paw, papaw) has also been called Indiana banana, Indian banana, Hoosier banana, Kentucky banana, West Virginia banana, Michigan banana, poor man's banana, dog banana, false banana, American custard apple, pawpaw apple, and fetid shrub (when the plants are bruised they emit a heavy, disagreeable odour). The fruit often looks somewhat like a thick, short banana, and the taste is somewhat reminiscent, hence "banana" is in many of the common names. The names "Indiana banana" and "Hoosier banana" are the most common of the "banana" names, reflecting the common occurrence of the species in Indiana. (Hoosiers come from Indiana, the "Hoosier state," but the origin of the name Hoosier is obscure.) The pawpaw has been recorded in 25 states, all of which can claim it as their own, leading to the facetious name "whatever-state-the-pawpaw-happens-to-grow-in banana." Our name "Canada banana" in the title reflects this tradition.

French Name

Asiminier

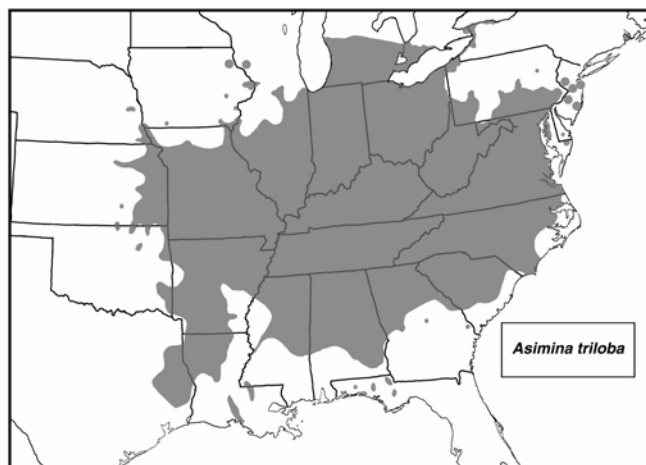
Morphology

The pawpaw is a small, deciduous tree, 5 to 12 m in height (the largest known tree was 18 m tall and 1.5 m in diameter at breast height). In Canada,



trees have been known to grow to 9 m tall. The plants tend to sucker very extensively, the offshoots sometimes appearing as far away as 3 m from the mother plant, with the result that extensive clonal thickets are produced. In sunny locations, the plants become pyramidal in habit with a straight trunk and dense, drooping foliage down to ground level. In the shade, the plant has more open branching with few lower limbs and the leaves held more horizontally to intercept available light. The bark is grey to brown, smooth with grayish blotches when young, rougher with age, and is easily peeled in strips. The trees are short-lived, but occasionally survive for more than 50 years. The leaves are pointed at the ends, widest

above the middle, 15-30 cm long. Flowering occurs in early spring, before the leaves emerge. The purple-brown-red flowers are about 4 cm (sometimes 5 cm) across, on stout club-shaped pedicels arising from the axils of the previous season's leaves. The stigmas mature before the anthers, promoting outcrossing. The fruits are typically 3-15 cm in length, oblong to banana-shaped. Larger fruits are often plump, like a mango. The fruits are borne singly or in clusters which resemble the "hands" of a banana plant. Occasional fruits reach 1 kg in weight, but typically weigh 140-450 g. Larger fruits falling from the higher branches sometimes hit the ground with such velocity that they are splattered. The skin is generally smooth and thin, ranging in colour from green to bright yellow at maturity and turning brown or black after a frost. When ripe, the custard-like flesh is typically orange, also yellow, and sometimes white. The fruit contains two rows of large, brown to blackish, bean shaped, laterally compressed seeds 1.3-3.8 cm long. Large fruits usually have 10 to 15 seeds. More northerly plants tend not to bear fruit as extensively as those in the main area of distribution.



Classification and Geography

Except for the pawpaw genus *Asimina*, which is native to temperate and semi-tropical North America, the Annonaceae or custard apple family is entirely tropical. The family is well known for some of the most delicious of tropical fruits, including soursop (*Annona muricata* L.), cherimoya (*Annona cherimola* Mill.), sugar apple (*Annona squamosa* L.), atemoya (*Annona squamosa* x *A. cherimola*), custard apple (*Annona reticulata* L.), ilama (*Annona diversifolia* Saff.), soncoya (*Annona purpurea* Moc. & Sessé ex Dunal), and biriba (*Rollinia mucosa* (Jacq.) Baill.).

There are nine species of *Asimina* in the US, but *A. triloba* is the only one to reach Canada, and most of the remaining species are confined to the southeastern US. Although none of the other species provides notably attractive fruit, there have been many hybrids generated with the goal of improving the pawpaw.

"Of all the important native fruits ..., the least known is probably the pawpaw... Its creamy pulp is of exquisite texture in the mouth, while its distinctive flavor and its aroma, often too pungent, give it a decided individuality... The drawbacks of the fruit are largely of a commercial character. They are drawbacks which can probably be removed by intelligent breeding. With this idea... the American Genetics Association therefore feels the desirability of calling attention to the pawpaw, and pointing out the attractiveness of the problem it offers."
 --Journal of Heredity (article in 1916, announcing a prize of \$50.00 for the best pawpaw fruit, and \$50.00 for the largest tree)

Pawpaws grow wild in the hardwood forests of the eastern North America, ranging from northern Florida to southern Ontario in Canada, and as far west as eastern Nebraska. They are most common in Indiana, Ohio, Illinois, and Michigan. The Canadian plants occur in two separate regions in extreme southwestern Ontario where the lower Great Lakes moderate the temperature (pawpaw has been observed to survive to -35°C). Fossils show that during the Pleistocene the pawpaw grew as far north as Toronto. American Indians and pioneers made extensive use of pawpaws, and may have extended the range of the species far beyond its natural growing area.

Ecology

In the Canadian range in southwestern Ontario, the pawpaw occurs in the deciduous forest region, usually in deep, moist, rich soil along streams, rivers, and especially river flats. The plants are tolerant of shade, and characteristically constitute part of the undergrowth in forests. In the main part of its range in the US, the pawpaw generally grows in comparable circumstances, but is also found in unshaded, relatively dry sites. It has been suggested that the proximity to water is related to the fact that the fruits are buoyant, and the seeds are distributed by floating fruits. An equally plausible explanation is that native people travelling by canoe along watercourses distributed the seeds. See Myths, Legends, etc. for a hypothesis that extinct large herbivores were once the primary dispersal agents. Because of conversion of forest to agricultural and urban landscapes, pawpaws have notably decreased in North America in the last 200 years.

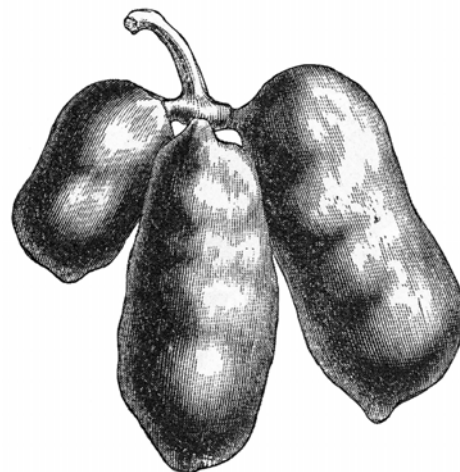
Pawpaw may be declining in Ontario and parts of the Midwestern US, not only because of habitat destruction, but also because of low fruit production, which is limited by both pollinators and shade. An extensive study in Ontario found that the flowers are self-incompatible, so that different genotypes and pollinators are essential for fruit production. Some patches are apparently a single clone, unable to produce fruit because of isolation from a different genotype. A study in central Illinois found that fruit set was extremely limited because of lack of pollinators. With hand-pollination 17% of flowers produced fruit, but with open-pollination less than 1% produced fruit. Although pawpaw is shade-tolerant and occurs under woodland canopies, the plant seems to produce more fruit in

semi-open and open habitats. In Canada, many populations are densely shaded, and fruit production is limited. In the past, fire and other disturbances would have generated semi-open habitats which pawpaw could have colonized, and where it could have produced abundant fruit. A 1932 photograph published in the Canadian Field-Naturalist in 1951 shows a pawpaw grove in an open situation in the Niagara Peninsula.

Pawpaws are the exclusive larval host plant of the zebra swallowtail butterfly (*Eurytides marcellus*). This insect once had well established populations in parts of southern Ontario, but breeding populations have not been reported over the past several years. Its apparent decline and possible extirpation in Ontario (and Canada) is undoubtedly associated with substantial reduction in populations of pawpaw. This attractive butterfly is not likely to become a serious pest of cultivated pawpaw because the caterpillars are cannibals, and are often heavily parasitized.

Use as Food

Pawpaw fruit is very sweet, pleasant, unique, and attractive. The taste is reminiscent of papaya with pineapple overtones, and hints of banana and mango. When cut open, the aromatic fruits fill a whole room with their fruity aroma. The fruit may be eaten when it becomes soft although some prefer to wait until after the skin has darkened. Pawpaw fruits are best consumed fresh when fully ripe. The thin, leathery skin and the seeds should not be eaten. Tree-ripened fruit stored at room temperature lasts only 2 or 3 days, but with refrigeration can be held up to 3 weeks. Specialty processed products, such as pawpaw ice cream, are occasionally available. Pawpaws are delicious in





preserves, puddings, cookies, pies, cakes, and breads. When eaten raw some people find the taste of pawpaw cloyingly sweet.

Toxicity

Some people are allergic to the fruits, contracting a skin rash from handling them, or serious nausea, vomiting or diarrhea from eating them. The seeds contain chemicals that induce vomiting. The seeds can easily be removed and discarded after cutting the fruits in half like an avocado. Recipes that call for “pawpaw seeds” are referring to papaya, which as noted above is often called pawpaw outside of North America.

Non-Food Uses

Pawpaw is considered to be an attractive ornamental, but the wood is of no value as timber. The plants produce natural pesticide compounds (long chain fatty acid lactones called annonaceous acetogenins) which have exceptional anti-tumour properties, currently under investigation for possible anti-cancer applications. Should these compounds prove useful as drugs or pesticides, the leaves and twigs could be harvested for extraction, providing an economic opportunity that complements fruit production.

Agricultural and Commercial Aspects

Spanish explorer Fernando de Soto (1500?-1542), observed native Americans cultivating the pawpaw. Currently, however, most pawpaw fruit found in markets has been collected from the wild, not from

commercial orchards, which are scarcely present in North America. Orchards have recently been planted for research throughout the range of pawpaw for evaluation of cultivars and advanced selections. It has been found that the best sites have deep, fertile, moist soils, and plants are best established using containerized seedlings. Filtered light or partial shade is said to be optimal. A seedling takes 6-8 years to reach fruiting size. Fruit ripens after mid-August. It has been calculated that yield from a mature orchard would be of the order of 17,300 to 29,000 kg per ha, worth (in 1990) \$US \$19,000 - \$95,000 per ha.

Despite the availability of cultivars, noted below, pawpaw domestication is relatively limited. A chief practical difficulty with pawpaws is that they deteriorate rapidly. Mature fruit lasts only 2-3 days at room temperature. The fruits ripen off the tree, but degenerate quickly, and they bruise easily, making it very difficult to get pawpaws to market in a usable form. Accordingly, pawpaws are mainly a local fruit. Appropriate selection for non-bruising forms and development of appropriate refrigerated transportation would overcome these problems. With refrigeration the fruit can be held up to 3 weeks. Retail nursery trade in pawpaw in the US has thrived over the past few years, with demand far exceeding supply. Pawpaw trees sell for up to \$30.00 US, roughly ten times the cost of an apple tree. In Kentucky pawpaw fruits sell for \$6.50-\$11.00/kg and pawpaw ice cream is \$10.00 a gallon. The Oakroom Dining Lounge in Louisville, Kentucky is internationally recognized for the many specialty items featuring pawpaw in their menu.

Cultivars & Germplasm

Well before the arrival of Europeans, Native Americans undoubtedly used both the bark and the fruit of the pawpaw. Bark strips were used to make fabric and nets, but such harvesting weakens or kills trees. The selection for superior fruiting characters probably began many hundreds of years ago by sparing the best fruit producers. This early selection and later cultivation by the first American people were the first stages in domestication.

The pawpaw was popular in the US early in the 20th century, but became less significant subsequently. About a hundred varieties were selected, although most of these have not survived. More than 2 dozen cultivars are still available, supplied by over 50 nurseries in the US. At present, a good tree is considered to produce more than 40 fruits averaging

about 300 g, with less than four seeds per fruit. Attempts are underway to improve the fruit and to make it more marketable. While there are relatively good-tasting varieties, none is considered good enough for commercial purposes, and there is a need to improve the taste. It is believed that the problems with commercialization of pawpaw have genetic solutions in traditional plant breeding. The transfer of traits from other *Asimina* species to *A. triloba* has proven realistic and practical. Another interesting possibility is intergeneric crosses with species of *Annona*. In 1994, Kentucky State University became the United States Department of Agriculture's National Clonal Germplasm Repository site for *Asimina* species germplasm. The collection includes about 3,000 orchard trees.

Much of the landscape formerly occupied by pawpaw has been converted to agriculture and native stands are now small and isolated over much of the range. James A. Little may have been the first to note this great reduction in abundance in his classic *Treatise on the Pawpaw*, published in 1905. Although much reduced and locally extirpated, pawpaw still has an extensive geographic distribution. Some populations have very little variation, presumably due to clonal propagation. Several studies have found peripheral populations to be the most distinct, so that marginal populations, particularly those in Canada, need to be protected.

Prospects

The pawpaw is an extraordinarily attractive fruit, but one that requires considerable breeding and research before it can be produced and marketed profitably. The areas needing attention are: harvest methodology; shelf life; development of processed products; development of markets; increased yield, particularly through pollination research; breeding for desirable characteristics (reduced seed size and number, skin colour, pulp colour and texture, reduced toxins and allergens, improved flavour, fruit uniformity).

Researchers have recently highlighted the following advantages of pawpaw as a crop for eastern North America: (1) adaptation to existing climate and soil, (2) nutritional/cosmetic value of the fruit, (3) presence of valuable natural compounds, (4) established nursery wholesale and retail production, (5) relatively high level of

resistance to pests and pathogens (attributed to natural defense compounds), (6) considerable information available on crop culture (including greenhouse seedling production), and (7) increasing popularity as evidenced by numerous recent articles with titles such as "The return of the pawpaw," "Pawpaws making a comeback," "Spotlight on pawpaw," "A tropical tree for the temperate zone," and many others. Prospects for commercialization appear to be improving.

The Canadian native plants likely represent the hardiest germplasm, and need to be protected for the possible future development of the industry in this country. While the US already has superior trees that are adapted to local conditions, it should not be conceded that the "Canada banana" is too marginally suited to Canada's climate to ever become a commercial fruit here. True, Canadian plants are dwarfed compared to the larger trees that are present in the US, but the fruit industry has developed productive dwarf cultivars for most of the major fruit trees, so that this should not be an impediment. It is also the case that the pawpaw requires a fairly long growing season, but it should be possible to select short-season varieties. In the US, the pawpaw has been found to develop superbly in many areas well outside of its native range, and it is desirable to examine its possible areas of cultivation in Canada. Pawpaw has recently been strongly promoted as a diversification crop in the US and an active research program at Kentucky State University has the goal of making it into a new high-value fruit crop. Those interested in developing the pawpaw in Canada should consult publications on the species that have appeared in the Annual Reports of the Northern Nut Growers Association and the Kentucky State University website (see below).

Myths, Legends, Tales, Folklore, and Interesting Facts

During the Pleistocene Era (1.8 million to 10,000 years ago) large mammals ruled Earth. At the end of the period, it is thought that the pawpaw was in serious danger of becoming extinct because of the disappearance of the giant fruit-eating animals, which likely ate and distributed the seeds. Some of the mammals, such as the mastodon, may well have been hunted to extinction by humans, but at least they seem to have taken over the role of distributing the pawpaw.

American president Thomas Jefferson (1743-1826) authorized an expedition in 1803 to explore the country west of the Mississippi, especially the "Louisiana Purchase," an immense tract of territory obtained from Napoleon Bonaparte (1769-1821) for \$15 million, doubling the size of the US at a cost of 7 cents/ha. The expedition was led by his young secretary, Captain Meriwether Lewis (1774-1809), and Lewis' friend, Lieutenant William Clark (1770-1838). Both were familiar with the frontier through their service in the army. The two men were accompanied by 14 soldiers, nine frontiersmen from Kentucky, two French boatmen, and Clark's slave, York. By 1805, after an adventurous journey of over 18 months, they reached the Pacific Ocean. The party returned to St. Louis in 1806. Their trip lasted 2 years and 4 months, during which they travelled about 9,650 km. They brought back much new material for map makers and specimens of previously unknown wildlife (including 178 plants and 122 animals previously not recorded), and they established travel routes for American settlers and traders. During the return, the Lewis & Clark expedition found itself running very low on rations, and with 240 km to go, had less than one biscuit for each man. The journal of the expedition recorded that they feasted contentedly on almost nothing but pawpaws until they reached St. Louis.

As late as the early 1900s, fishermen in the Ohio valley used strips of the inner bark of pawpaw trees for stringing fish, a technique likely acquired from the Indians.

During the famous feud between the Hatfields and the McCoys along the Kentucky - West Virginia border, on Aug. 9, 1882 three sons of clan leader Randolph McCoy were tied to pawpaws and executed by the Hatfields.

The pawpaw fruit is the largest of any tree fruit native to the US and Canada.

Pollination of pawpaw is by flies and beetles. To attract these insects, the flowers have dark, meat-colored petals and a fetid aroma. To insure pollination so that fruits will be produced, road kill is sometimes collected and hung in trees of commercial plantings to attract flies! Corwin Davis (in the 1979, 79th Annual Report of the Northern Nut Growers Association) gave the following advice: "The vectors of pawpaw pollen are the

carrion flies, house flies, and the green flies found on "cards" left on your lawn by your neighbour's dog... Dead cats are best to use for breeding places for these flies, as dogs will not carry the cats off and bury them. These bothersome animals can now be put to good use! Woodchucks are a ready source but must be hung up high enough to be out of the reach of dogs... The only objection is your neighbours might not enjoy the idea very much."

Racoons are quite fond of pawpaw fruit. In the US, "coon" hunters often start their dogs in or near a pawpaw thicket in hopes of finding a fresh trail.

The states of Kentucky, Illinois, Michigan and West Virginia have towns named Pawpaw.

In parts of the US, father and mother are respectively called "pawpaw" and "mawmaw" (in the manner of "papa" and "mama").

Pawpaws sucker very extensively, characteristically producing the "pawpaw patch" of the well known children's song:

Where, oh where, is dear little Nellie?
Way down yonder in the pawpaw patch.

Additional Information

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The Pawpaw Foundation:
The Second International Pawpaw Conference:
Northern Nut Growers Association:

Acknowledgments: B. Brookes (artwork).

The GEORGE LAWSON MEDAL to Nancy Turner, University of Victoria

Here is the citation read by CBA/ABC President, Joe Gerrath, before presentation of the Lawson Medal at the Annual Meeting in Madison, Wisconsin.

The George Lawson Medal is presented this year in the category of lifetime contribution to Canadian botany to the person who is, no doubt, the foremost ethnobotanist in Canada: Nancy Jean Turner, Professor in the School of Environmental Sciences, University of Victoria. Dr. Turner received her undergraduate education at the University of Victoria and her Ph.D. at the University of British Columbia. She was associated with the Royal British Columbia Museum for many years prior to her appointment at the University of Victoria. During that time and up to the present, she has had an enormously active research program dealing with the taxonomic systems of First Nations people and the use of plants by these people. In the words of a person supporting this award, she has become "both a world-class botanist and a world-class anthropologist, who has devoted her career to understanding the cultural context of plant uses -- a rare combination, indeed".

She is regarded with high esteem by her colleagues, both within Canada and internationally, and was recognized by being elected President of the Society for Ethnobiology. She was elected as a member of the Royal Society of Canada in 1999. Nancy has a huge list of publications, both scholarly and popular, and has also spread her knowledge widely through her many public lectures and workshops. I note that some of these presentations have been to First Nations youth who are trying to rediscover their heritage of plant use.

In bringing this citation to a close I think I can do no better than to quote a few passages from two more supporting letters.

"Nancy Turner did not pursue a career in ethnobotany because it was trendy or likely to bring her recognition, riches or enhanced standing in academic circles. Her reputation comes not from self-promotion or aggrandisement, but from

true merit. The passion that she embodies is of the deepest and purest form, and her dedication to this field and to the academic and aboriginal colleagues among whom she has worked is a striking beacon for others."

"At the beginning of the 21st century ethnobotany has important contributions to make to global and Canadian issues related to the environment, to aboriginal rights, to health and to other domains. Nancy Turner has been a promoter for this field and an able spokesperson on these and other issues for more than 30 years. She is an important ambassador for both her chosen discipline, for all botanical sciences and for the important issues that have formed her life work."

"She personifies the very epitome of why we established the Medal, namely to honour Canada's most distinguished botanists who have devoted their life to the research and effective dissemination of botanical knowledge. She is a role model for students pursuing careers in Canadian botany."

For me, it is a privilege and it gives me great pleasure, on behalf of l'Association botanique du Canada, to present the 2002 George Lawson Medal to Nancy Turner.

J. F. Gerrath, Past-President

Editor's Note : There was no Mary E. Elliot Medal this year.



Obituary / Nécrologie

A member of our association, **Dexter Reid Sampson**, died accidentally last February.

I was not able to find much information about him. Is there someone who could write about him or help in locating information ? I think that every member of CBA is worth of a few words in our Bulletin. Thanks.

The Editor

Biodiversity research agenda for Canada

On July 30-31, 2002, at Dalhousie University, Halifax, Nova Scotia, a group of researchers from the biodiversity research community were invited to attend a workshop aimed at developing a biodiversity research agenda for Canada that will result in a long term strategy for addressing priority research needs; a more collaborative and inter-disciplinary approach to research, a mechanism for influencing funding; and a more visible and well-defined biodiversity research community in Canada. This was the first meeting in a series that will go across Canada in order to get the views of as many scientists as possible regarding the biodiversity science agenda in Canada. This series of workshops came into being because of the pressing need to move ahead with the Convention for Biodiversity (the main organizer of this workshop).

During this meeting, principles and proposed actions were identified and will be made public in the near future. During the concluding discussions, there was a consensus that we would need a greater level of consultation with scientific societies of Canada (e.g. CBA) and various NGO's. Since the number of participants was very limited, it was pointed out that the information and results from this workshop should be sent to other people involved in biodiversity to get their feedback, and then incorporate it into the report. The main goal is to work at cementing the biodiversity community instead of fragmenting it. There was also a need to pursue how to include traditional and local knowledge and explore the possibility of helping poorer countries with their biodiversity.

In this article, I would like to keep the members informed of this work and if possible trigger some interactions. It is important as a group that we also contribute to this process. I look forward to hearing from all of you on the issue of biodiversity and science agenda for Canada. I also hope that some of you will be able to participate in the other workshops and report on the progress made on this agenda development.

Please contact Ole Hendrickson (e-mail address: ole.hendrickson@ec.gc.ca), from the Biodiversity Convention Office if you are interested in participating in future discussions.

Liette Vasseur

Agenda de recherche sur la biodiversité au Canada

Les 30 et 31 juillet derniers à Dalhousie University, Halifax, Nouvelle Écosse, un groupe de chercheurs de la communauté scientifique travaillant en biodiversité a été invité à un atelier de travail dont le but était de développer un agenda de recherche pour le Canada qui résulterait en une stratégie à long terme pour établir les priorités de recherche en biodiversité au Canada. Cette stratégie procéderait d'une approche interdisciplinaire à la recherche et d'une plus grande collaboration, pour fournir un mécanisme qui pourrait influencer le financement et promouvoir la formation d'une communauté scientifique en biodiversité au Canada, plus visible et mieux définie. Il s'agissait d'une première réunion d'une série qui devrait être tenue à travers tout le pays afin d'amener les points de vue d'autant de chercheurs que possible. Cette série d'ateliers a été encouragée par le besoin de plus en plus pressant de bouger sur l'agenda de la biodiversité au Canada, étant signataire de la Convention sur la Biodiversité. Le bureau canadien sur la Convention sur la Biodiversité est l'instigateur principal de ces ateliers.

Pendant la réunion, les discussions ont porté sur l'établissement de principes et sur la proposition d'actions pour cet agenda (à paraître prochainement). Lors de ces discussions, il y avait un consensus parmi les participants qu'il fallait élargir la consultation aux associations scientifiques (dont l'ABC) et aux ONG du Canada. Le nombre de participants étant limité, il était clair que l'information et les résultats de cet atelier devraient être envoyés à toutes les autres personnes engagées dans la recherche en biodiversité afin de recevoir leurs commentaires et les incorporer au rapport final. Le but principal est d'amener une synergie dans la communauté scientifique et non de la fragmenter. Il y a aussi un besoin d'explorer les moyens d'inclure le savoir local et traditionnel et la possibilité d'aider les pays en voie de développement à gérer leur biodiversité.

Le but de cet article est de vous tenir au courant de ces démarches et activités et, si possible, d'initier au sein de l'association des discussions à ce sujet. Il est important que l'association puisse participer à ce débat. J'ai bien hâte de connaître vos opinions sur ce sujet et vos points de vue sur l'agenda scientifique et la biodiversité au Canada. J'espère que certains d'entre vous pourront assister aux autres ateliers et témoigner des progrès observés.

Si vous voulez participer aux ateliers, svp contactez Ole Hendrickson, au bureau de la Convention sur la Biodiversité (courriel : ole.hendrickson@ec.gc.ca).

Liette Vasseur

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