

THE EDIBLE GARDEN

December 2019

PRECOLUMBIAN AGRICULTURE Primitive and Neo-Primitive x

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What is the difference between agriculture and horticulture? Not a lot perhaps. Both function as commercial enterprises – agriculture usually on a larger scale but not always. Both are big business in 2019, but the word “horticulture” still tends to mostly bring up images of happy gardeners tending attractive flower beds. I suspect that in ancient times the emphasis was on agriculture – the provision of edible products through cultivation and/or hunter gathering approaches rather than beautification projects. Still, pre Columbian peoples must have sensed the link between certain flowers, their busy buzzing visitors and the success of their crops. In the American Southwest the Three Sisters had an unsung fourth Sister, Cleome, now recognized as a welcome stop for cruising pollinators.

How did pre-Columbian agriculturists adapt to vastly different climates and geography? How well will we adapt to population growth and climate change? Can we learn from our ancestors, both ancient and recent? Can we develop sustainable gardening practices that respond to the world of today?

In “*An Imperfect Balance*”, David L. Lentz and several other scholars seek to increase our knowledge and understanding of the significant achievements of the past. The research is compelling. The New World was not virgin land, and the more archeologists and their co-researchers delve into the past, aided with advanced technology, the more it is certain that complex and well planned civilizations existed in South America, Central America and North America long before Columbus arrived in 1642. Now there is extensive evidence of sophisticated built environments in the form of fields, pathways, walls, canals, and well organized communities such as milpas, some of which still exist today on the Yucatan Peninsula in eastern Mexico. What happened to these civilizations that would almost obliterate any traces of their existence?

Milpa - *Milpa is a crop-growing system used throughout Mesoamerica. It has been most extensively described in the Yucatán peninsula area of Mexico. The word milpa is derived from the Nahuatl word phrase mil-pa, which translates into "cultivated field."*

Wiki

<http://www.marc.ucsb.edu/research/maya-forest-is-a-garden/maya-forest-gardens/milpa-cycle>, gives a brief description of the Maya milpa system

PLANT BREEDING

Indigenous people were experienced farmers and horticulturalists working within an evolved and rich knowledge system. They discovered and improved many of the plants that are major crops in 2019. For example: tomatoes, potatoes, pumpkins, squash, beans, sweet potatoes, onion, strawberries, raspberries and blueberries. Two-thirds of all types of food crops grown worldwide are native to the Americas. That some indigenous peoples regarded plants as family members and farming as a spiritual practice is something for us to pause and think about.

LIVESTOCK

While not as widespread as in other areas of the world, peoples of the early Americas did



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Bee Line The Birds and the Bees

*Julianne Labreche
Master Gardener of Ottawa Carleton*

*Let me tell you about the birds and
the bees*

And the flowers and the trees

And the moon up above,

And a thing called 'Love'.

By Jewel Akens,
American singer and songwriter

As the old song goes, let me tell you about the birds and the bees. Those Sixties lyrics were really all about sex education and yet the words remain relevant today considering the current plight of native birds and bees.

Most people know by now, especially those of you who read this column regularly, that some native bees are in real trouble. The Gypsy Cuckoo Bumble Bee and the Rusty-patched Bumble Bee both are on Ontario's endangered list. The Yellow-banded Bumble Bee is listed as 'special concern'. There are other insects listed too, including the Monarch butterfly, listed as a 'special concern'. The reasons for their dwindling numbers tend not to change: habitat loss, pesticide use and climate change.

Just recently came an extensive decades-long study on hundreds of bird species showing their numbers are rapidly drop-

have livestock suited to their geography and climate: domesticated deer, llamas, alpacas, guinea pigs, iguana, turkeys and hairless dogs. In today's Costa Rica, iguanas are raised for their meat – "*Chicken of the Jungle*".

TOPOGRAPHICAL MODIFICATIONS

In the archeology of the ancient Americas there is plenty of evidence of humans modifying their environment. In Bolivia there were intentional islands covered by planted forests. Elsewhere are the remains of roads, causeways, canals, dikes, reservoirs, raised fields and fish weirs. In Peru there existed a complex system of mountain terraces, a few of which are still used today. Trade flourished up and down the mountain slopes according to what was available at each altitude. Other marvels of the early Americas included raised fields, agriculture in the middle of lake beds, floating gardens and artificial islands. When the Spanish arrived to conquer and colonize, much of this topography was laid to waste as communities were obliterated by the Europeans and the diseases they had brought with them.

WATER MANAGEMENT

The peoples of the early Americas were adept at developing ways of controlling and capturing water for themselves, their plants and their animals. Spring runoff from mountains and hills was diverted and stored using manmade channels and small reservoirs. Basin gardens caught what rain was available. Methods of irrigation were well developed. However best efforts did not always succeed. Many of the tribes that had occupied what is now South-west USA were to migrate away from unremitting drought never to return.

SILVACULTURE

It is now believed that indigenous peoples practiced selective forestry by relocating desirable plants into close proximity to their habitations. To a European these forests and orchards would have appeared to be works of nature, not of man. Sometimes fire was extensively used to create savannas and clear forest understories. This made travel easier and facilitated the growth of herbs and berry-producing plants that were important for both food and medicines. However, in Costa Rica in 1992, the destruction of forests still continued in order to create pasture for livestock. Without its canopy of jungle vines and trees, soil can wear out in six years or less. If barren soil is on a slope it slides - particularly in the rainy season. Enter the "*Chicken of the Jungle*" – a proposed substitute source of protein to replace cattle and allow reforestation of exposed slopes.

TIPPING POINTS – SERIES – AMAZON – TVO

A 2014 TVO series explored what happens if we continue to alter Mother Nature too much and for too long. The chosen example was the Amazon Basin. In the 2,000,000 square miles of the Amazon basin extinction is the rule – extinction of good soil, extinction of species, extinction of medicinal plants, extinction of communities of plants and people. At the time of this series the Amazon Basin still contained two thirds of the biodiversity of our planet – well worth saving and protecting. Efforts to curb the deforestation have been mostly unsuccessful. Fighting back is difficult. On the Ka'apor reserve in north eastern Brazil, ancient silviculture flourishes but is under attack by lumber poachers.



View of Rio Negro, Sao Sebastiao, in the Amazon basin

Susan Bickett

ANTHROPOCENE – THAT'S US – INDIVIDUALS, COMMUNITIES, GOVERNMENTS - DEVELOPERS

Anthropocene - relating to or denoting the current geological age, viewed as the period during which human activity has been the dominant influence on climate and the environment. "*We've become a major force of nature in this new Anthropocene epoch*" (Wikipedia). Meeting the challenges of sustainability in a social and political climate driven by a combination of desperate need and inflated desires, often at odds with each other, will require cooperation, innovation and human energy, as individuals, cities, municipi-

ping too. The journal *Science* published the findings in September. The study, conducted through nine universities and government agencies, looked at 529 bird species in Canada and the United States. Briefly, populations have dropped by 30 percent—three billion birds—since 1970.



Red Cardinal

Julianne Labreche

Another look at the Ontario Species at Risk list shows the roster of affected bird species is much longer than bees. Endangered bird species in Ontario include the Northern Bobwhite, Kirtland's Warbler, King Rail, the Barn Owl and Henslow's Sparrow. The Bald Eagle is listed as 'special concern', as is the Peregrine Falcon and the Red-headed Woodpecker.

It's always the same grim tale. As cities grow, agricultural lands continue to be sprayed with pesticides and weather patterns change. Fewer insects, habitat loss and degradation --- likely combined with other factors too – result in fewer birds.

On a positive note, the next line of that old song talks about the flowers and the trees. That's where the power of gardeners comes into play.

No matter if you own a little patio space in a condo or an acre or more of land, gardeners can help re-populate species at risk by planting more flowers and trees, especially native ones that provide food and habitat for insects and birds. Preserving wild, natural spaces also will help, as well as providing clean, reliable water sources. Birds and bees get thirsty too.

Granted, this call to gardeners requires some thinking outside the box. It also

palities, developers and provincial and federal governments attempt to come together for the greater good. Here are some adaptations that are taking hold, here and there, in today's agricultural and horticultural world:

Plants/Food/Pollinators – Seed saving, seed sharing, record keeping, encouraging pollinators and planting pollinator attracting plants, food producing hedges, Bee Cities, compost building, residential and city composting, pollinator gardens, seed banks, more trees, choosing “coffee houses” that supply sustainable coffee (organic, shade grown and fair trade certified) and use re-usable utensils or allow the customer to use their own cups.

Plant education – The Edible Garden, garden clubs and horticultural societies, Junior Garden initiatives, School projects.

Livestock – Eating less meat, especially meat that requires greater amounts of energy to produce, reintroduction of poultry into urban spaces, free range chickens?

Topography – Raised beds, sunken beds, moveable beds, less cement, permeable driveways, soil improvement and maintenance, pollinator gardens, swales and contour cultivation to catch water and protect the soil, recapturing biomass, “chicken tractors” (chicken coops on wheels) if space allows.

Water management – Rain gardens, well placed down spouts, plants that absorb storm runoff, rain barrels, resilient plants, capturing and containing as in cisterns, informed shopping when purchasing a new house.

Victory Gardens—Onward Nations at war have typically encouraged, sometimes enforced Victory gardens. Now we need new versions of Victory Gardens, expansions of the availability of city gardening plots, more support and education re – backyard vegetable gardens, pollinator gardens, front yard combinations of flowers and vegetables. More promotion and encouragement to support local growers – more infrastructure re composting biomass. – What are we willing and able to do at each level of decision making?

Education -

The Edible Garden aims to encourage, inspire and educate toward a broader understanding and appreciation of our resources, and our responsibility for nurturing and maintaining them. We focus on sustainable ways of growing our own produce with the help of healthy pollinators, flourishing flower gardens and science based information.

We applaud the initiatives put forth by the city of Ottawa with respect to urban trees, storm water runoff, development of more green space and the opening of more space for allotment gardens. Initiatives that come directly from the City and those represented by volunteer groups can and will continue to be mutually beneficial.

REFERENCES

The Chinampas of Mexico <https://www.chinampas.info/>
 Charles C. Mann, “1491”, Vintage Books
 David L. Lentz, “Imperfect Balance”, Columbia University Press
 Educational trip to Costa Rica, 1992, EF
 Vol 297 Science www.sciencem.ag.org
 Ottawa Citizen – “Grounds” for Tiny Houses
 Footprints of the forest – Ka’apor ethnobotany Wiki.

Watch for *Trowel Talk* the Master Gardeners of Ottawa Carleton electronic monthly gardening newsletter available on the 15th at <http://mgottawa.ca/>

Visit the Almonte online community newspaper ‘*The Millstone*’ - <http://millstonenews.com/> -for a column by David Hinks of the Lanark County Master Gardeners; under the Gardening tab.

Master Gardeners of Ottawa-Carleton and Master Gardeners of Lanark County are member groups of Master Gardeners of Ontario Inc., a registered charity with the mission of providing gardening advice to homeowners. The Edible Garden logo was created by Jon Last (jonlast13@rogers.com).

means educating ourselves, taking a more holistic approach to gardening and moving beyond just geraniums and petunias.

No matter how good our grass feels on bare feet, there are better plants for wildlife. Some future-thinking master gardeners are even getting interested in ‘wild scaping’– reclaiming land and returning it to a wild state. They’re talking about ‘meadow scaping’ and ‘forest scaping’ and other innovative ways to garden.

These are gardeners who choose to remove turf grass and return the land back into wilder spaces to attract pollinators and birds. They’re growing food at varying levels from treetops down to ground level, using permaculture techniques to produce abundant food forests.

It’s a far cry from the days when the lawnmower ruled supreme, back in the day when dads and a few moms competed to grow the greenest, most manicured monoculture of Kentucky bluegrass.

The last two lines of lyrics in that old song’s first verse are about the moon and a thing called love.

This is my holiday wish for gardeners.

As surely as the sun rises and the moon sets, let’s respect this beautiful world by moving forward to better protect Planet Earth’s ever-diminishing bird, animal, insect and plant populations. Better yet, let’s do it with gardening gloves and love.

**Merry
 Christmas
 and
 Happy New
 Year**