

What are the historic and contemporary
ethnobotanical uses of
native Rhode Island wetlands
plants?

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the plants

What the plants, they are to
me
is an amazing life that be

And tho' few have marketable
uses
(like cranberries made into
juices)

Each has its place that it must
be
in one of the world's great
mysteries

All are important to each
other,
like our relationships to our
brothers

To the ground they may offer
a coffer
full of properties
only some of which we do see
others which we need believe

Today, may not be used for
medicine,
but healing properties have
they within

And our crafts they so adorn
but we might look at them with
scorn

"They take up too much
space!
What right have they to be in
this place?"

They are to the water near,
but we want to build our
houses here!
at that the plants would
leer

They know, they know
what's going to happen
And they will be the ones a
laughin'

When water crawls upon the
shore
and knocks upon our front door

The plants do not feel sore
from lack of presence in our
stores

What they do mind, however
is that we humans never
respect the plants for who
they are
instead of what they can do
for us

Table of Contents

Abstract p 5

Body

Chapter 1 - Introduction p 6

Chapter 2 - Historic Plant Use p 8

Contemporary Uses

Chapter 3 - Library Research p 20

Chapter 4 - Field Research p 29

Chapter 5 - Data Analysis p 32

Chapter 6 - Synthesis p 39

Chapter 7 - Recommendations for Plant Retailers p 45

Glossary p 46

Bibliography p 47

Tables and Graphs

Table 1: "Historic, Medicinal and Current Uses of Plants" p 27

Table 2: "Ethnic Markets / Street Address" p 29

Table 3: "Herb Gardens, Nurseries and Landscape Architects" p 31

Graph 1: Mean Percent of Native and Invasive Species Carried
by Various RI Plant Suppliers p 33

Table 4: "Plants and Vendors" p 34

Picture Insert

Abstract

What are the historic and contemporary ethnobotanical uses of native Rhode Island wetlands plants?

Wetlands plants have their own niche in the ecosystem. They provide nutrient exchange and erosion prevention, as well as food and shelter for wildlife. In some cases, certain plants have coevolved as the primary food source for a species.

I explored historic and contemporary uses of these 10 native species of wetlands plants hoping to find reason for land conservation based on these uses. I surveyed ethnic markets in South Providence and a sampling of nurseries, herb gardens and landscape architects around Rhode Island.

I did not find many contemporary commercial uses of these plants, however most species are commercially available at local nurseries, herb gardens and for use in landscaping. There are those who are maintaining the traditional uses of plants through practice of home remedies, and folk crafts. The chokecherry (*Prunus virginiana*) is used as a cough medicine, by Henry Niese, and Evelyn Dean uses jewelweed (*Impatiens pallida*) as a remedy for poison ivy. Helen King uses the bark of the white oak for a dye, and it is also used in preparations for biodynamic agriculture. In the spring, Lisa Gould gathers cattail (*Typha latifolia*), and eats the shoots and uses the pollen mixed with regular flower to make bread. These type of uses are not traceable from the markets, however, because people using local plants are likely to gather materials themselves.

It appears that except for the important role that these species play in their ecosystem, there is not an overwhelming demand for these species in today's market. Though they are not being used to their fullest potential today, the future possibilities are promising.

What are the historic and contemporary ethnobotanical uses of native RI wetlands plants?

Chapter 1 - Introduction

My interest in plants began with my amazement and admiration for their beauty. The more I discovered about plants, the more I realized how valuable they are to the human species. People eat all parts of plants, from roots to seeds. Some of these same plants are the oldest medicines. Plant fibers are used to make twine and cloth, and the fruits and leaves provided the first dyes. Vines and reeds were traditionally used to make baskets, mats, and even siding on wigwams.

Ethnobotany is the study of people's relationships to plants. This can be taken to mean many different things. A study of what foods are available to an inner city population, and an exploration for medicinal plants in the Amazon would both be considered ethnobotany. I wanted to focus on edible, medicinal and craft uses of local plants. I was also originally interested in looking for prospects for land conservation based on uses of plants. Wetlands are a protected but contested habitat, which seemed to be a good framework for this study. However, the lack of evidence for contemporary uses made wetlands merely a parameter for choosing the plants.

Why are native plants important? All plants are native to some place or another. However, when displaced, they can become invasive species due to a lack of competitors or predators. Invasive species tend to wipe out native plants on a large scale. This negatively affects biodiversity.

“From both wild and domesticated components of biodiversity humanity derives all of its food and many medicines and industrial products. Economic benefits from wild species alone make up an estimated 4.5

percent of the Gross Domestic Product of the United States- worth \$87 billion annually in the late 1970s.”¹

I compiled a list of Rhode Island wetlands plants by looking through lists of plants found in local wetlands (the Great Swamp, and Garden in the Woods). That list was cross checked with Peterson’s Guides which identify medicinal and edible plants. I also checked a Rhode Island Botanical Survey, to determine whether the plants were native². Those plants with evidence of historical medicinal or edible use remained on the list. It was surprising how many plants did have historic use. The list needed further narrowing, so I chose a diverse sampling of trees and herbaceous plants.

<i>Acer rubrum</i> -	red maple
<i>Asclepias incarnata</i> -	swamp milkweed
<i>Impatiens pallida</i> -	jewelweed
<i>Lindera benzoin</i> -	spicebush
<i>Prunus virginiana</i> -	chokecherry
<i>Quercus alba</i> -	white oak
<i>Sagittaria latifolia</i> -	arrowhead
<i>Thuja occidentalis</i> -	white cedar
<i>Typha latifolia</i> -	cattail
<i>Vaccinium macrocarpon</i> -	cranberry

The final thesis question, based on these plants, emerged as the following:

“What are the historic and contemporary ethnobotanical uses of native RI wetlands plants?”

To answer this question, I investigated the history of the use of these plants by Native Americans from before colonial settlement through colonial times. Two methods were used to discover contemporary issues: research, and field work at local vendors. The field work began with a preliminary survey of ethnic markets in South Providence.

¹ “Global Biodiversity Strategy”, *The Nature and Value of Biodiversity*, 1995. p 1.

² George, Gilbert G. Rhode Island Botanical Survey: Checklist of the Native and Naturalized Plants, Shrubs and Trees of Rhode Island. Edition 3a. February 1997.

I thought that local ethnic markets might be a good place to start looking for native plants. I had heard of evidence of local ethnic populations fishing and gathering, so I thought that perhaps they were using the native plants. I did find native plants, native to the Dominican Republic and other places, but not to Rhode Island. I broadened the scope of my survey to nurseries, landscape architects, and herb gardens around Rhode Island. They did have native plants, but it was disturbing to find that the vendors carried a larger percentage of invasive than native plants.

Chapter 2 - Historic Plant Use

The Cherokee believe that at one time in history, all creatures assembled and invented all sorts of diseases to keep the humans in check. The plants, having no problem with people, decided to each create a cure for one of the diseases.³

Much of the knowledge we have of the medicinal properties for the plants of North America comes from the Native Americans. The medicinal properties of about 50% of tested folk remedies are scientifically substantiated.⁴ This is a significant proportion, and seems a good way to way to find new cures, by looking to the old.

The Native Americans knew their local plants better than most people probably do today. They utilized most every plant, and only what they needed. When I spoke to a representative for the Narragansett tribe, she told me that today the tribe only uses 17 wild plants today, a small fraction of what it used to be. The reason for this is not that the

³ Moerman, Daniel E. Geraniums for the Iroquois. p 2

⁴ Duke, James A. Handbook Of Northeastern Indian Medicinal Plants. Quaterman Publications, Inc: MA, 1986. p vi.

knowledge has been lost, but that “most plants are not plentiful enough for the tribe to use to their fullest extent.”⁵

The following is a description of each plant that I chose, with its Native and Colonial American uses. This includes the folk medicinal properties, along with evidence of use for food and craft. Although there is much historical evidence for plants being used as medicine, in many cases the specifics about preparations are lacking.

Acer rubrum



The red maple, also called water maple, soft maple and swamp maple, was used for food, craft, and medicine by Native American people.⁶ The bark was used to make a dark colored dye.⁷ The Iroquois also made the bark into flour.⁸

Ojibwa, the Cherokee and the Iroquois all used the inner bark from the tree to make eye medicine.⁹ The Cherokee also used red maple for an analgesic, anti diarrheal, and

⁵ Spears, Dinalyn, Environmental Specialist, Narragansett tribe. Memo: March 12, 1997.

⁶ Erichsen-Brown, Charlotte, Medicinal and other uses of North American Plants. p79.

⁷ Ibid p 81.

⁸ Ibid. p 82.

⁹ Moerman, Daniel E. Medicinal Plants of North America. p653

dermatological and gynological aid.¹⁰ For the Iroquois, red maple was also a blood medicine, and hunting medicine.¹¹

Asclepias Incarnata

Swamp milkweed also goes by the name of rose milkweed, white Indian hemp, and water nerve root.¹² The swamp milkweed was used by the Native Americans in many different ways. The fiber was for fish nets, belts, cords, and straps.¹³ Seeds were



¹⁰ Ibid. p653

¹¹ Ibid. p653

¹² Erichsen-Brown, Charlotte, Medicinal and other uses of North American Plants p 215.

¹³ Moerman, Daniel E. Geraniums for the Iroquois. p 215.

insulation for moccasins¹⁴. The flowers and shoots were eaten, in early spring before beginning to acquire toxicity.¹⁵

When this plant matures, it begins to produce cardiac glycosides¹⁶. This poison, meant to be a deterrent to predators, can also be used for healing. The Chippewa used parts of the milkweed in baths when they were sick or tired.¹⁷ The latex found in all milkweeds is said to have been used as a cure for worms.¹⁸ The Chippewa and the Iroquois used swamp milkweed as a general strengthener. The Iroquois also found many other uses for the plant.¹⁹ Among these uses are as a dermatological aid, diuretic, kidney aid, orthopedic aid, toothache remedy, urinary aid, and for witchcraft.²⁰ The Fox people used swamp milkweed as an anthelmintic, carminative, and an emetic.²¹

A reference of *Materia Medica* from 1896 lists swamp milkweed. It seems that people from this time period had some of the same medicinal uses for the plant that the Native Americans had.

A. Incarna'ta. Flesh colored Asclepias. Swamp Milkweed. The root (rhizome) official, 1820-1880. United States. Perennial Herb, smooth, 2-3 high, with two downy lines above; very leafy; leaves lanceolate, cordate base, 4-7' long, 1-2' wide; flowers rose- purple, sweet scented; root 1' long, knotty, oblong, brownish, bark thin, central pith, sweet acrid bitter, emits milky juice when wounded. Contains volatile oil, 2 acrid resins, asclepiadin. Used as alterative, emetic, cathartic, diuretic, like the official; in decoction, infusion. tincture. Dose, gr. 15-40.²²

I find this reference helpful, because not only does it describe the plant, but is also includes constituents, and proper dosage for medicinal use.

¹⁴ Exhibit at Haffenreffer museum.

¹⁵ *ibid.*

¹⁶ Moerman, Daniel E. Medicinal Plants of North America. p 665.

¹⁷ Duke, James A. Handbook of Northeastern Indian Medicinal Plants. p 20.

¹⁸ Scully, Virginia. A Treasury of American Indian Herbs. p289.

¹⁹ Moerman, Daniel E. Medicinal Plants of North America. p 665.

²⁰ *Ibid.* p 665.

²¹ Moerman, Daniel E. *ibid.* p 665.

Impatiens pallida

Jewelweed is also known as pale touch-me-not for the unmistakable reaction of the seed pod; when touched, it explodes. For crafting, the plant yields a yellow dye.²³

The Jewelweed was also used for medicine by the Cherokee, Iroquois, Delaware, Menominee, Meskwaki, Ojibwa and Potawami.²⁴ Among their varied and diverse uses for this plant are for gastrointestinal and gynecological problems, and as a part of ceremonies. Some used it for jaundice, asthma, ringworm and removing warts and burns.

²⁵ It also was used as an emetic, acroptic, and a linament for sprains and bruises.²⁶ The Omaha used a poultice of the leaves for skin rash,²⁷ as did the Blackfoot.²⁸

John Josselyn writes about touch-me-not as a medicine for the times in 1672.

“...for bruises and aches upon stroaks. Indians make use of it for aches, being bruised between two stones, laid to cold, but made (after the English manner) into an unguent with Hogs Graefe, there is not a more foreign remedy for bruises of what kind so ever and for aches upon stroaks.”²⁹



²² Culbreth, David M.R. A Manual of Materia Medica and Pharmacology. Lea Brothers & Co:1896.p 332.

²³ Ibid. p268.

²⁴ Ibid.p 688.

²⁵ Erichesen-Brown, Charlotte, Medicinal and other uses of North American Plants. p268.

²⁶ Ibid.p269.

²⁷ Duke, James A. Handbook of Northeastern Indian Medicinal Plants. p 76.

²⁸ Moerman, Daniel E. Medicinal Plants of North America.p 688.

²⁹ Josselyn, John, gent. New England's Rarities discovered in birds, beasts, fishes, serpents, and plants of that country. Boston Press of John Wilson and Son, 1672. p 94.

I quoted it directly because it is not perfectly clear to me, and perhaps another reader can glean from it what I can't.

Lindera benzoin



Spicebush was a plant was used as both a spice (hence the name) and medicine by at least five Native American tribes. The dried fruits were used as a substitute for allspice.³⁰ The twig tea was used by the Rappahanocks to aid in menstruation. The Cherokee used all parts of the plant for blood disorders, cold, cough, hives, phthisis and swellings. The bark was used as a spring tonic, and also with the bark of the chokecherry (see *Prunus virginiana*) to break out the measles.³¹ It was a panacea, or cure-all for the Creek and the Iroquois.³²

From the Materia Medica, of 1896:

Lindera benzoin. *Spice* or *Benjamin Bush*. N. America, damp woods. Shrub 6-15 high, smooth, bark, berries and leaves used; tonic, aromatic stimulant, diaphoretic; berries for allspice. Dose, gr. 15-60.

Prunus virginiana

³⁰Prindle, Tara.p 7.

³¹Duke, James A. Handbook of Northeastern Indian Medicinal Plants. p 84.

³²Moerman, Daniel E. Medicinal Plants of North America p 726.

A type of wild cherry, with very sour fruit, the chokecherry, has been a very useful medicine to many. It is cited in reference to twenty-six different tribes, having anywhere from one to ten uses for each tribe. Some of the most frequent uses are as an antidiarrheal, dermatological aid, and in ceremonial medicine.³³ Other prevalent uses are as a gastrointestinal aid, for tuberculosis, a tonic for the blood, and for colds and coughs.³⁴ Some less widely spread uses are for throat medicine, as a laxative, sedative, cathartic, disinfectant, emetic, and strangely enough, an antiemetic! Because of this seemingly contrary use, it is inferred that this, too was considered a panacea³⁵

In colonial times, *Prunus virginiana* appears both in the Materia Medica, 1896 and the US Pharmacopoeia, 1883. The excerpt from the USP is as follows:

The bark, collected in autumn

In curved pieces or irregular fragments, one twelfth of an inch thick, outer surface greenish-brown, or yellowish brown, smooth and somewhat glossy, marked with transverse scars; if collected from old wood and deprived of the corky layer, the outer surface is rust brown and uneven; inner surface somewhat striate or fissured. Upon maceration, in water it develops a distinct bitter almond color; its taste astringent, aromatic and bitter.

The bark of the small branches to be rejected.

Preparations: Extractum Pruni Virginianae Fluidum. Infusum Pruni Virginianae. Syrupus Pruni Virginianae³⁶

The Materia Medica³⁷ has the same information and more. The tree and its habitat are fully described. The wood is recognized as being valuable for furniture, because of its fine grain, red color, and it is easily polished.

³³ Ibid., p768.

³⁴ Moerman, Daniel E. Medicinal Plants of North America p768.

³⁵ Ibid. p 768.

³⁶ National Convention for Revising the Pharmacopoeia. The Pharmacopoeia of the United States of America. William Wood & Company: New York, 1883. p 271.

“Bark after collection is deprived of the outside layer (peridorm) dried: while that from all portions of the tree is used, that from the root is strongest, yet it all too soon deteriorates consequently only the fresh dried should be employed; that collected in April yields hydrocyanic acid .0478 p.c.; in June .0956 p.c.; in October, .1436 p.c. or 1/7 gr. from 100 gr. bark, which equals 7-8 gtt. of official acid.” CONSTITUENTS. Amaygdalin. Emulsion (or a ferment almost identical with it) Bitter principle, volatile oil, hydrocyanic acid, tannin, gallic acid, resin, starch.

PREPARATIONS. 1. *Extractum Pruni Virginianae*. Fluid Extract of Wild Cherry.

Manufacture : Macerate with glycerin 10, water 20 p.c., then percolate with alcohol 85, water 14 p.c. Dose, 3ss-j.

2. *Infusium Pruni Virginianae*. Infusion of Wild Cherry.

Manufacture : 4 p.c Macerate, percolate with cold water. Dose, 5ss-2.

3. *Syrupus Pruni Virginianae* . Syrup of Wild Cherry.

Manufacture : 15 p.c. With sugar 70, glycerin 15, water, q.s. 100. Dose, 3j-4. Mainly for flavoring.

PROPERTIES. Sedative, pectora; tonic, astringent; increases appetite, digestion. Volatile oil = local stimulant on alimentary canal like cascarilla, serpentaria, etc. Hydrocyanic acid = sedative, nervine. Tannin is astringent.

Uses. Consumption, cough, bronchitis, scrofula, heart palpitation, stomach debility, dyspepsia, hectic fever. Cold infusion in ophthalmia.



The chokecherry is attributed some of the same medicinal properties by the Native Americans as are listed in the *Materia*

Medica. This causes me to wonder if the information was passed down, and whether there is some truth to it!

Quercus alba

White oak is a deciduous woody species that was widely used among at least 11 Native American tribes.³⁸ The bark contains tannins which have antiseptic and astringent properties,³⁹ and are also used for tanning rawhide into leather. The bark also yields a

³⁷ Culbreth, David M.R. *A Manual of Materia Medica and Pharmacology*. Lea Brothers & Co: 1896. p 194.

³⁸ Moerman, Daniel E. *Medicinal Plants of North America* p715.

³⁹ Duke, James A. *Handbook of Northeastern Indian Medicinal Plants*, p 124.

brown dye.⁴⁰ For the Iroquois, the white oak had symbolic meaning. A broken branch which had partly grown back looked to them like a navel, so the powdered bark was used in healing infected infants' navels.⁴¹

Among the Penobscot Indians, the powdered bark was used as a folk remedy for cancer.⁴² The Ojibwa used the root and bark in tea to treat diarrhea. The Fox, Houma, Potawatomi and Creek shared this remedy.⁴³ Among the other cures provided by the white oak are for rheumatism, tuberculosis, and it was also used in witchcraft medicine.⁴⁴

Parts of the oak are also edible, the acorns can be eaten raw or browned, and ground as a substitute for coffee.⁴⁵ The acorns were also eaten boiled, roasted in ashes, or boiled and mashed with grease.⁴⁶

In this account from 1672, John Josselyn reports the use of the white oak by natives:

The making of Oyl of Akorns. To strengthen weak members. For Scall'd- heads.

There is *Oak* of three kinds, white, red and black, the white is excellent to make Canoes of, Shallopes, Ships, and other vessels for sea, and for Claw- board, and Pipe-staves... The Natives fraw an OYL, taking the rottened Maple Wood, which being burnt to ashes, they make a strong lye therewith, wherein they boyl their white Oak- Acorns until the Oyl swim on the top in great quantity; this they fleet off. And put into bladders to annoint their naked Limbs, which corroborates them exceedingly; they eat it likewise with their meat, it is an excellent clear an sweet Oyl; of the Mole that grows at the roots of the white oak the *Indesses* make a strong dedoction, with which they help their *Paposes* young Children's scall'd- heads

The Materia Medica, 1883 describes the habitat, then lists its constituents:

⁴⁰Ericesen-Brown, Charlotte, Medicinal and other uses of North American Plants.p 65.

⁴¹Moerman, Daniel E. Geraniums for the Iroquois .p 153.

⁴²Duke, James A. Handbook of Northeastern Indian Medicinal Plants.p124.

⁴³Moerman, Daniel E. Geraniums for the Iroquois p 153.

⁴⁴ Ibid. p 715.

⁴⁵Ericesen-Brown, Charlotte, Medicinal and other uses of North American Plants. p 66.

CONSTITUENTS. Tannin 6- 11 p.c. Oak red, Quercin, resin, pectin.

Tannin. (Querci- tannic acid) $C_{28}H_{24}O_{11}$. Obtained by washed ether, gives olive- brown with ferric salts, is not identical with gallo- tannic acid as it is not convertible into gallo or pyrogallic acid. It is yellowish- brown, amorphous, precipitates with lead acetate, gelatin, albumin, tartar emetic, alkaloids. The young bark contains most, and although it yields sugar with dil. H_2SO_4 , some claim that it may not be a glucoside.

Oak Red. $C_2H_{22}O_{11}$ Obtained by heating, under pressure querci (querco-) tannic acid; it is reddish brown.

Quercin. Bitter principle, Obtained by boiling bark in acidulated (H_2SO_4) water, adding milk of lime to neutralize, filter, add solution K_2CO_3 , dissolve precipitate in alcohol, evaporate when yellow needles slowly form. Some say this is only quercit (oak sugar), $C_6H_{12}O_5$.

Preparations. Astringent, tonic.

Uses. Similar to tannin, anciently for dysentery, haemaptosis, uterine hemorrhages (by bark pessaries); crushed leaves for relaxed parts, now used likewise for bronchial flux; bathe body with decoction, for marasmus, scrofula, intermittents, chronic diarrhea, cholera infantum, injections for leucorrhoe, gonorrhoea, wash in prolapsus ani, haemorrhoids, ulcers, gargle for prolapsed uvula; poultice in gangrene; powder in to have intermittents or phthisis. The wood is very durable, hence good in shipbuilding, furniture, arts, wheelrights coopers, etc.

The oak has been praised for its hard wood which has been used consistently throughout history. Its has also been consistently recognized for its medicinal properties.

Sagittaria latifolia

Swamp potato, also known as arrowhead, or wopato, has that nickname for a reason. The tubers from arrowhead were either eaten raw, boiled, or roasted.⁴⁷ They are said to have a consistency similar to the potato, and the taste of watercress.⁴⁸

⁴⁶Ibid. p 67.

⁴⁷Scully, Virginia. A Treasury of American Indian Herbs,p 8.

⁴⁸ Ibid.p 8.



The Cherokee bathed infants in arrowhead tea, and gave them a deduction of it for fevers.⁴⁹ Chippewa used the plant for a gastrointestinal aid, and Potawatomi for a dermatological aid.⁵⁰ The Iroquois used arrowhead as an antirheumatic, and a laxative.⁵¹

In 1672, John Josselyn wrote of the ‘small water archer’, or arrowhead:

“...for burns, scalds and to draw water out of swelled legs.”⁵²

This was probably an observation about how the Native Americans used the plant. Since he bothered to record it, perhaps he had either witnessed the action of the plant, or believed that this cure worked.

Thuja Occidentalis

Whoever gave the name ‘arbor vitae,’ tree of life, to the white cedar must have thought it a very important tree. Its wood has been used by the Native Americans for making boatmasts and canoes, among other things.⁵³ The wood and leaves were also burned as medicine.⁵⁴ The Cree used the smoke of the white cedar for purification in the opening of the medicine pipe ceremony.⁵⁵ The Hurons used the leaves for brooms and needles, and the gum as incense. The bark was used by the Chippewa for white dye.⁵⁶

⁴⁹Duke, James A. Handbook of Northeastern Indian Medicinal Plants.p 135.

⁵⁰Moerman, Daniel E. Medicinal Plants of North America.p 653.

⁵¹ Ibid.p 653.

⁵² Josselyn, John, gent. New England’s Rarities discovered in birds, beasts, fishes, serpents, and plants of that country. Boston Press of John Wilson and Son, 1672. p 97.

⁵³Ericesen-Brown, Charlotte, Medicinal and other uses of North American Plants.p 26.

⁵⁴Duke, James A. Handbook of Northeastern Indian Medicinal Plants.p 158.

⁵⁵ Ibid. p 158.

⁵⁶Ericesen-Brown, Charlotte, Medicinal and other uses of North American Plants.p 26.



The arbor vita's branches were used medicinally by the Algonquin for colds, fevers, pleurisy, puerperium, toothache and colic.

Rotten wood was for skin ailments and leaf tea for rheumatism.⁵⁷ The Chippewa used the charcoal powder of the tree on their temples as an analgesic. Boughs were brought to bed by the Huron for snake repellent.⁵⁸ The Montagnais dedocted the bruised twigs for a diaphoretic, and mashed twigs to apply to heart pain.⁵⁹ Penobscot poulticed leaves for swollen extremities, and to remove cancerous warts.⁶⁰

White oak is mentioned by the Materia Medica, of 1801. Its bark is a powerful astringent.⁶¹ Juice, for care of bloody urine.⁶² Powder of roasted acorns for dysentery.⁶³ Dedoction: 2/3 oz bark in a quart of water.⁶⁴ The water from hollow stumps, for warts.⁶⁵

The U.S. Pharmacopoeia, 1883 also mentions *Thuja occidentalis*:

[Arbor Vitae]

The fresh tops of the scale- like leaves appressed and closely imbricate in four rows, rhombic- ovate and obtusely pointed, with roundish gland upon back; of a balsamic, some terebinthinate odor, and pungently aromatic, comphoraceous and bitter taste.

From the Materia Medica, 1896:

⁵⁷Duke, James A. Handbook of Northeastern Indian Medicinal Plants.p 156.

⁵⁸ Ibid.p 158.

⁵⁹ Ibid. p 158.

⁶⁰ Ibid.p 158.

⁶¹ Stearns, Samuel, 1741- 1809. The American herbal, or materia medica. Walpole, NH: Thomas and Thomas, 1801. p 64.

⁶² Ibid. p 65.

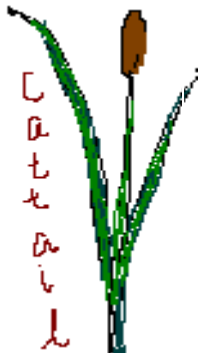
⁶³ Ibid, p 65.

⁶⁴ Ibid, p 65.

⁶⁵ Ibid, p 65.

Thuja Occidentalis. Arbor Vitae. The fresh tops official, 1880-1890. Canada, United States. Tree resembles *closely Chamoecey'paris sphaeroidea* , 20- 50 high, trunk crooked, bark pale, shreddy, wood light, soft, durable; leaves 4- rows rhomboid ovate, pointed, basamic. terebinthinate odor; pungent, camphoraceous, bitter taste; twigs flattish, contains volatile oil 1 p.c; resin, tannin, thujigenin. Used as stimulant, diuretic, irritant for intermittents, coughs, fevers, scurvy, rheumatism, amennorrhoea, dropsy, worms, pulmonary cattarrh, ulcers, warts; in infusion, dedoction, fluid extract. Dose, gr. 15-60

Typha Latifolia



Every part of the common cattail has multiple uses. Stems, shoots, pollen, and flowering heads were all eaten raw, and the stem and root were boiled and eaten, with a taste similar to cucumber.⁶⁶ The root was ground into a meal and stored for winter food.⁶⁷ This food source is nearly equivalent nutritionally to corn or rice.⁶⁸ The sap was used by the Paiute⁶⁹ both for candy, and caulking for boats!!⁷⁰ Cattail leaves were woven into mats,⁷¹ and used as siding on wigwams.⁷² The Chippewa made toy ducks and dolls out of the leaves for children. The ducks were also used in bigger form, as decoys by the Chippewa and Cree.⁷³ The pollen was for stuffing quilts, pillows, mattresses, and for tinder.⁷⁴

⁶⁶Scully, Virginia. A Treasury of American Indian Herbs,p 25.

⁶⁷Ibid.p 25.

⁶⁸Cattail Research Center

⁶⁹Scully, Virginia. A Treasury of American Indian Herbs,p 25.

⁷⁰Erichesen-Brown, Charlotte, Medicinal and other uses of North American Plants,p 213.

⁷¹Scully, Virginia. A Treasury of American Indian Herbs,p 25.

⁷²Erichesen-Brown, Charlotte, Medicinal and other uses of North American Plants,p 213.

⁷³Prindle, Tara. Native American Uses for Cattails,p 1

⁷⁴Scully, Virginia. A Treasury of American Indian Herbs,p 25.

Washoe ate the flower heads as a remedy for diarrhea. Ojibwa crushed the root for boils.⁷⁵ The down was applied to burns and used like baby powder by the Dakota, Omaha, Pawnee, and Winnebago. Cattail was used as a cure for kidney stones.⁷⁶ It was also used ceremonially by the Cheyenne and the Navajo.⁷⁷

The 'cat's tail' was still used in the late 18th early 19th century for bed filling⁷⁸. It was also used for candle wicks, and the downy pollen was simmered with cream and made into an ointment, for burns, sore heads, and ulcers.

Vaccinium macrocarpon



Cranberries aren't just for food! The berries were used historically for pleurisy. Steeped branches were taken as a tea by the Montagnais, and the Ojibwa took the leaf decoction for nausea.⁷⁹ The fruit was used as a laxative, and for fevers, dropsy, and scurvy.⁸⁰ The leaf was mixed with tobacco to smoke.⁸¹ It was also used for dysentery, tumors and

wounds.⁸²

⁷⁵Duke, James A. Handbook of Northeastern Indian Medicinal Plants.p 161.

⁷⁶ Ibid.p 161.

⁷⁷Ericesen-Brown, Charlotte, Medicinal and other uses of North American Plants.p 785.

⁷⁸ Stearns, Samuel, 1741- 1809. The American herbal, or materia medica. Walpole, NH: Thomas and Thomas, 1801. p 77.

⁷⁹Duke, James A. Handbook of Northeastern Indian Medicinal Plants.p 162.

⁸⁰Ibid.p 162.

⁸¹Ericesen-Brown, Charlotte, Medicinal and other uses of North American Plants.p 206.

⁸²Duke, James A. Handbook of Northeastern Indian Medicinal Plants.p 162.

Contemporary Uses

Chapter 3 - Library Research

Plants are used somewhat differently today than they have been historically. An interesting note is that modern uses were more difficult to investigate. My primary resource was economic botany literature. The following chapter discusses these contemporary uses.

Acer Rubrum

Today, the red maple is appreciated for its wood, and sap. The trees are tapped for their sap, which is a good source for sugar and is boiled into maple syrup⁸³. The wood is evenly grained and finely textured, often very beautiful. Maple wood is used mainly for furniture, veneers, floors and bowling alleys, and interior paneling.⁸⁴ It is also used in the making of violins and pianos, tool handles, keels of vessels, bowls, fuel, and wood distillation products.⁸⁵

⁸³ Peterson, Lee Allen. Peterson's Guide to Edible Plants. Houghton Mifflin Company: NY, 1977.p 176.

⁸⁴ Hill, Albert F. Economic Botany. McGraw-Hill Book Company, Inc: New York, 1952. p 100.

⁸⁵ Ibid. p 101.

Asclepias incarnata

During the second World War, the floss from the seed pods of the milkweed plant was used as a substitute for kapok, a similar substance, which had been imported.⁸⁶

Milkweed was used as a filling for life preservers and cushions because of its buoyancy.⁸⁷ Its floss is also a good insulator, and was used in the lining of sleeping bags.⁸⁸

Milkweed floss is being used by the Ogallala Down Comforter Company for comforter filling.⁸⁹ Their cotton covered comforters are filled with 70% down, and 30% milkweed.⁹⁰ The company oversees 160 acres of land that supplies them with the milkweed.⁹¹

The swamp milkweed plays an important and unique function in its ecosystem. It is the exclusive nesting site and food for the monarch butterfly, who has evolved resistance to cardiac glycosides, a toxin found in the plant.⁹²

Impatiens pallida

The fresh flowering jewelweed is a remedy for poison ivy. It can be used either by crushing leaves on an affected area, or steeping the leaves in hot water, and using the

⁸⁶ Ibid, p 49.

⁸⁷ Ibid, p 49.

⁸⁸ Ibid, p 49.

⁸⁹ Kahn, E.M. All Natural Bedding: "Counting on sheep, cotton, even milkweed." New York Times, 3/28/91, Vol 140 Issue 48553, p C1.

⁹⁰ Ibid, p C1.

⁹¹ Ibid, p C1.

⁹² Moerman, Daniel E. Geraniums for the Iroquois. p 132-3.

water to wash the skin.⁹³ Jewelweed is usually used to prevent a reaction before it has manifested, but it can also be used to heal a rash that has already developed.⁹⁴ Jewelweed also has fungicidal properties, which can reduce the itchiness caused by athlete's foot.⁹⁵ The young leaves can be eaten as a cooked green.⁹⁶

Lindera benzoin

The spicebush lives up to its namesake. The Seneca use the plant as a flavoring for several different kinds of dishes⁹⁷. The buds are used as a flavoring for meat.⁹⁸ Teas are made from all parts of the plant. The leaves make a tea solely for beverage, and the root, twig and bark tea is used medicinally for intestinal disorders⁹⁹.

The spicebush also has an important niche in its habitat. Its berries are the primary food source for larval spicebush swallowtail butterflies.¹⁰⁰

Prunus virginiana

The wood of the cherry tree is probably valued above all for its color. It is used in industry for making printers blocks, furniture, interior trim in boats, cars, and buildings, woodenware handles and toys.¹⁰¹

⁹³ Martin, Corinne. "Jewelweed and Gentian: Two new members of the natural medicine cabinet." *Mother Earth News*, Oct/ Nov 92 Issue 134, p 71.

⁹⁴ Ibid.

⁹⁵ Ibid.

⁹⁶ Peterson, Lee Allen. Peterson's Guide to Edible Plants. Houghton Mifflin Company: NY, 1977. p 78.

⁹⁷ Mohawk, John. "Spicebush". *Conservationist*, Feb 95, Vol 49 Issue 4, p 7.

⁹⁸ Ibid.

⁹⁹ Ibid.

¹⁰⁰ "New England Wetlands Plants," catalog.

¹⁰¹ Brown, H.P and Panshin, A J. Commercial Timbers of the United States. McGraw- Hill Book Company, Inc: New York, 1940. p 485.

Henry Niese, a Sioux man who spoke to me about his tribe's traditional medicines, uses the chokecherry as a cough medicine.¹⁰² Despite its name, the fruits of the chokecherry can be eaten. Best made into jam or jelly.¹⁰³

Quercus alba

The Seneca still use the white oak tree today as they have for as long as the tribe remembers. The wood is made into pestles and mortars, to beat dried corn kernels and acorns into flour.¹⁰⁴ Also carved into spoons and tool handles¹⁰⁵.

Although most acorns are too bitter to be eaten raw, boiling rids them of their tannins, which are the cause of that taste.¹⁰⁶ They then can be roasted and eaten or dipped into sugar for candy.¹⁰⁷ They can also be redried and ground into a flour which is rich in protein and fat.¹⁰⁸

This species of oak has a wood that is harder, stronger, and more durable than many other oaks.¹⁰⁹ It is used in industry for building timber, pilings, parts of machinery, furniture, cabinets, and interior panels.¹¹⁰ Oak barrels are used exclusively for beer, wine and alcoholic spirits.¹¹¹

¹⁰² Henry Niese.

¹⁰³ Peterson, Lee Allen. Peterson's Guide to Edible Plants. Houghton Mifflin Company: NY, 1977. p 218.

¹⁰⁴ Ibid.

¹⁰⁵ Ibid.

¹⁰⁶ Peterson, Lee Allen. Peterson's Guide to Edible Plants. Houghton Mifflin Company: NY, 1977.p 204.

¹⁰⁷ Peterson, Lee Allen. Peterson's Guide to Edible Plants. Houghton Mifflin Company: NY, 1977. p204.

¹⁰⁸ Peterson, Lee Allen. Peterson's Guide to Edible Plants. Houghton Mifflin Company: NY, 1977. p 204.

¹⁰⁹ Hill, Albert F. Economic Botany. McGraw-Hill Book Company, Inc: New York, 1952. p 102.

¹¹⁰ Ibid.

¹¹¹ Ibid.

Not only are plants for healing people, but also for healing the land. Biodynamics is the agricultural aspect of anthroposophy, a theology based on the principles of Rudolph Steiner. Biodynamic agriculture uses preparations of herbs for healing the land the way homeopathy is used for people. These processes attempt to harness cosmic energy. It is the essence (or energy) captured in different states of matter that is said to give life back to the earth.

One of these villages in Kimberton, Pennsylvania, uses preparations of oak bark, and others like it.¹¹² These preparations are sprayed directly on the land or mixed with the compost.¹¹³ Preparation BD 505 is made by putting the bark of a white oak tree into a domestic animal skull- preferably cow, sheep, pig, or goat, and placing it into the earth under a layer of peat moss¹¹⁴. This concoction acquires a layer of slime, and the stuff is removed, and stirred into water¹¹⁵. The water is stirred to create a vortex for several hours, to channel energy into the mixture. It is then put into the compost to help it to more quickly and fully develop into humus.¹¹⁶

Sagittaria latifolia

The root of the arrowhead is much like a potato, and should be prepared in the same way.¹¹⁷ The field guide does not recommend eating them raw.¹¹⁸

Thuja occidentalis

¹¹² Personal knowledge from living at the village

¹¹³ Tompkins, Peter. and Bird, Christopher. Secrets of the Soil.p 5.

¹¹⁴ ibid

¹¹⁵ ibid

¹¹⁶ Tompkins, Peter. And Bird, Christopher. Secrets of the Soil.p 5.

¹¹⁷ Ibid, p 24.

¹¹⁸ Ibid.

The soft wood of the white cedar is used in boatbuilding, and to make shingles, posts, railroad ties, poles, tanks and silos.¹¹⁹ The branches are also in certain ceremonies of the Narragansett people¹²⁰.

White cedar twigs are a source of Thuja oil, which contains a nerve poison (thyaplicine) and a poisonous skin irritant (thujone)¹²¹. In 1983, 4,376 MT of oil, valued at \$2.3 million, was produced.¹²² Thujone is used in shoe polishes and perfumes, as it is harmless in small quantities.¹²³ It is also used medicinally to relieve rheumatism, for menstruation, as an expectorant, and for skin disease¹²⁴.

Typha latifolia

The flowering heads of the cattail yield a pollen that is extremely buoyant and has insulating properties. It was used in addition to floss from the pods of milkweed during the Second World War, as a substitute for kapok. This means that it was used as a filling for life preservers, and sleeping bags.¹²⁵

Cattail pollen is used today by the Seneca to line moccasins, and diapers.¹²⁶ The reeds are also bundled together and dipped in pine pitch for use as torches.¹²⁷ For the Seneca the cattail is also an important source of food. The roots yield a syrupy gluten when bruised and boiled fresh. Dried and pulverized, they make a sweet flour.¹²⁸

¹¹⁹ Hill, Albert F. Economic Botany. McGraw-Hill Book Company, Inc: New York, 1952. p 89.

¹²⁰ Spears, Dinalyn. Environmental Specialist: Narragansett Tribe. Memo, March 12, 1997.

¹²¹ Roecklein, John C. and Leung, Ping Sun. A Profile of Economic Plants.p 83

¹²²Roecklein, John C. and Leung, Ping Sun. A Profile of Economic Plants.p 83.

¹²³Roecklein, John C. and Leung, Ping Sun. A Profile of Economic Plants.p 83.

¹²⁴Peterson, Lee Allen. Peterson's Field Guide: Edible Plants. Huoghton and Miffin Co: New York. 1977.

¹²⁵Hill, Albert F. Economic Botany. McGraw-Hill Book Company, Inc: New York, 1952.

¹²⁶ Mohawk, John. "White Oak". Conservationist, Feb 95, Vol 49 Issue 4, p 7.

¹²⁷ Ibid

¹²⁸ Ibid

The cattail is praised as being “possibly one of the best and certainly the most versatile of our native plants.”¹²⁹ The young shoots can be eaten raw or cooked like asparagus.¹³⁰ The immature flower spikes can be boiled and eaten like corn on the cob.¹³¹ The pollen is a protein rich flour and works well mixed half and half with wheat flour. The roots also produce a flour rich in carbohydrates¹³². It is acquired by peeling off the outer layer of the of the root and crushing it to separate the starch from the fibers.¹³³

Cattails play an important role in wetlands used for alternative wastewater treatment. Right here in Rhode Island, Tom Holt is experimenting at URI with cattails for wastewater treatment. In 1992, there were 150 artificial wetlands municipal and industrial wastewater treatment systems in the US.¹³⁴ These artificial wetlands, employing cattails, and other aquatic species, are used in secondary and tertiary sewage treatment.¹³⁵

One advantage to the natural system is that it can provide a high level of treatment at low cost, enhancing the wetlands in the process.¹³⁶ I looked at a study comparing conventional and alternative treatment of wastewater. The alternative system used wetlands, natural and reconstructed, for wastewater treatment. The cattail was one of the primary plants found in the wetlands. The studies compared wastewater treatment to the secondary level. However, systems using wetlands treated the waste even further,

¹²⁹ Peterson, Lee Allen. Peterson's Guide to Edible Plants. Houghton Mifflin Company: NY, 1977. p 158.

¹³⁰ Ibid.

¹³¹ Ibid.

¹³² Ibid.

¹³³ Ibid.

¹³⁴ Gillette, Becky. "Green Revolution in Wastewater Treatment", *Biocycle*.p 44.

for the greater social good.¹³⁷ The value of wetlands for municipal wastewater treatment ranged from \$785- \$1500 per acre.¹³⁸ An estimate for industrial waste processing was a value of \$6,321 to \$9,635 per acre.

The cattail has an important niche in its ecosystem. Muskrat, geese, and elk eat the shoots of the plant, and many waterfowl nest among them. They are the exclusive nesting sites for ring-necked pheasants, which are introduced from China.¹³⁹

Vaccinium macrocarpon

Cranberry has been attributed with the ability to prevent recurring urinary tract infections. A recent study determined that the American cranberry irreversibly inhibits the P-fimbriae of Escheria coli.¹⁴⁰ This, according to the study, lends more credence to the treatment of urinary tract infection with the cranberry.

In 1983, 137,000 million tons of cranberries were produced in the United States¹⁴¹. This quantity was valued at \$154 million.¹⁴² The “end-use” of the cranberry is

¹³⁵ Ibid

¹³⁶ Breaux, Andree. “Using Coastal Wetlands Systems for Wastewater Treatment. *JEM*,p 286.

¹³⁷ Breaux, Andree. “Using Coastal Wetlands Systems for Wastewater Treatment. *JEM*,p 287.

¹³⁸ Breaux, Andree. “Using Coastal Wetlands Systems for Wastewater Treatment. *JEM*,p 290.

¹³⁹ Scully, Virginia. A Treasury of American Indian Herbs.p 25.

¹⁴⁰ Southern Medical Journal, Oct 96, Vol 89 Issue 10, p S135.

¹⁴¹ Roecklein, John C. and Leung, Ping Sun. A Profile of Economic Plants. p 210.

¹⁴² *ibid.* p 210.

fruit or beverage.¹⁴³ The cranberry is also one of the few native plants that the Narragansett tribe still uses today (mostly for cooking), due to its relative abundance.¹⁴⁴

¹⁴³ Ibid.

¹⁴⁴ Spears, Dinalyn. Environmental Specialist: Narragansett Tribe. Memo, March 12, 1997.

Table 1: Historic Edible, Craft and Medicinal Uses of the Plants

	Historic edible and craft uses	Historic medicinal uses	Contemporary uses
Acer rubrum red maple	bark- dye (3, p 81) bark- flour (3, p 82)	analgesic, anti- diarrheal, dermatological aid, gynological aid (10, p 653)	timber (6, p 100) sap (13, p 176)
Asclepias incarnata swamp milkweed	fiber- cords, belts, fish nets (9, p 215) seeds- moccasin insulation (5) shoots and flowers- food (5)	dermatological aid, diuretic, orthopedic aid, toothache remedy, urinary aid, witchcraft (10, p 665)	filling for life preservers, sleeping bags(6, p 49) comforters (7)
Impatiens pallida jewelweed	leaves and flowers- yellow dye (9, p 132)	medicine for poison ivy relief, gastrointestinal aid, eczema, part of Cherokee ceremonies (4, p 269)	poison ivy remedy (8)
Lindera benzoin spicebush	fruits- spice (14, p 7)	spring tonic, for blood disorders, analgesic, diaphoretic, emetic, venereal aid, for swellings (2, p 84)	primary food source for larval spicebush butterflies (11)
Prunus virginiana chokecherry		anti-diarrheal, dermatological aid, gastrointestinal aid, for tuberculosis, colds and cough, ceremonial (2, p 726, 768)	wood (1, p 485) food (13, p 78) cough medicine (12)
Quercus alba white oak	bark- dye (1, p 65) acorns- food (1, p 66) bark- tannins (2, p 124)	cancer remedy, for tuberculosis, rheumatism and used in witchcraft (3, p 153)	wood (6, p 102) acorns- food (13, p 204) agricultural preparations (18, p 5)
Sagittaria latifolia arrowhead	tubers- food (16, p 8)	laxative, for fevers (10, p 653)	tuber- food (13, p 24)
Thuja occidentalis white cedar	timber- boat masts, canoes (3, p 26) leaves- brooms (3, p 26) gum- incense (3, p 26)	for cancerous warts, swelling, analgesic, skin ailment, colds and fevers, rheumatism, diaphoretic (2, p 126)	Thuja oil - in shoe polish and perfumes (15, p 83) wood (6, p 89)
Typha latifolia cattail	shoots and flowers- food (15, p 25) root- flour (15, p 25) leaves- toys, mats, siding for wigwams (3, p 213, 14, p 25) pollen- stuffing (14, p 25)	diarrhea, boils, baby powder, for kidney stones, and ceremonies (3, p 161)	wastewater treatment (4) filling for life preservers and sleeping bags (6, p 49) shoots, stalk, pollen - food (13, p 158)

Vaccinium berries- food (3, p 81)
macrocarpon leaves- smoked (3, p 81)
cranberry

pleurisy, nausea, fevers, dropsy, scurvy
(2, p 162)

medicine- urinary tract
infections (17)
food, beverage (15, p 210)

- 1) Brown, H.P and Panshin, A J. Commercial Timbers of the United States. McGraw- Hill Book Company, Inc: New York, 1940. p 485.
- 2) Duke, James A. Handbook Of Northeastern Indian Medicinal Plants. Quaterman Publications, Inc: MA, 1986.
- 3) Erichesen-Brown, Charlotte. Medicinal and other uses of North American Plants. Dover Publications, Inc: New York, 1979. p79
- 4) Gillette, Becky. "The Green Revolution in Wastewater Treatment." *Biocycle* (12/92). p 44-48.
- 5) Haffenreffer museum exhibit, Bristol, Rhode Island.
- 6) Hill, Albert F. Economic Botany. McGraw-Hill Book Company, Inc: New York, 1952.
- 7) Kahn, E.M. All Natural Bedding: "Counting on sheep, cotton, even milkweed." *New York Times*, 3/28/91, Vol 140 Issue 48553, p C1.
- 8) Martin, Corinne. "Jewelweed and Gentian: Two new members of the natural medicine cabinet." *Mother Earth News*, Oct/ Nov 92 Issue 134, p71.
- 9) Moerman, Daniel E. Geraniums for the Iroquois. Reference Publications, Inc: Michigan, 1982.
- 10) Moerman, Daniel E. Medicinal Plants of Native America. University of Michigan Museum of Anthropology: Ann Arbor, 1986.
- 11) "New England Wetlands Plants," catalog.
- 12) Niese, Henry. Sioux elder. Lecture: June 2, 1997.
- 13) Peterson, Lee Allen. Peterson's Guide to Edible Plants. Houghton Mifflin Company: NY, 1977.
- 14) Prindle, Tara.
- 15) Roecklin, John C, and Leung, Ping Sun. A Profile of Economic Plants. Transaction Books: New Brunswick, 1987.
- 16) Scully, Virginia. A Treasury of American Indian Herbs. Crown Publishers, Inc: NY, 1982.
- 17) *Southern Medical Journal*, Oct 96, Vol 89 Issue 10, p S135.
- 18) Tompkins, Peter, and Bird, Christopher. Secrets of the Soil. Harper and Row: NY, 1989.

Contemporary Use Chapter 4 - Field Research

The previous chapter summarizing the library research showed that all of the plants but one (spicebush) had one or more contemporary human uses. In this chapter, I discuss my investigation of the availability of these plants in RI. My first task was to find markets in the area. I did this by visiting ethnic neighborhoods. I visited 13 ethnic markets in South Providence. I chose to look at ethnic markets because I had heard of Portuguese and Asian people who fish and gather plants. If this was true, then that is evidence that these people maintain some connection to the land. If they look to the water rather than *Bread and Circus* to get their fish, perhaps they also were gathering and using native plants. I thought that small markets catering to neighborhoods might not advertise in the yellow pages. So the best way to find these markets is to go to the neighborhood and see what you can find. My first goal was to represent the diversity of communities. Next I identified the neighborhoods of these people in South Providence. Among those that I visited were serving the Vietnamese, Chinese, Cambodian, Portuguese communities, and people from the Dominican Republic. The diversity I encountered matched what I found to be true about the diversity of ethnic populations in RI. These markets are listed in Table 2: "Ethnic Markets / Street Address"

Table 2: Ethnic Markets / Street Address

<u>Ethnic Markets</u>	<u>Street Address</u>
Almy St Market	165 Almy St
Asian American Market	472 Smith St
Asian City Market	744 Park Ave
Barney's	172 Chapin Av 644
Cesana	644 Elmwood Av
Jae Sung International Food Market	274 Webster Av
La Famosa Market	1035 Broad St
Lagos	20 Grand St
New England Market	Elmwood Ave
Portuguese American Market	65 Brookside Ave
Quisqueya	933 Broad St
Sanchez Market	676 Broad St
Woody's Take Out Grocery	Dudley St

At each of these places, I asked the following questions.

Do they carry any of the 10 plants?
 If so, in what form?
 Are the uses of these plants advertised?

First, I walked around the store, to observe whether any of the plants were present. Then I would try to talk to an employee, to see if I had missed anything. Occasionally, however, there were language barriers.

Only one market, Cesana Natural Health Center, carried any of the native plant species or their derivatives. *Thuja occidentalis*, the white cedar, was being sold as a naturopathic remedy in pill form. Excepting the occasional and unusual tuber from the

Dominican Republic, most of the markets did not carry fresh produce of any kind. One grocer had dried medicinal herbs, but none were the key plants.

Owing to the poverty of findings this far, I amended my search strategy. I expanded the survey's scope to include places that might be selling the plants themselves, rather than simply plant products. In addition to grocers, I investigated nurseries, herb gardens, and landscape architects. By looking through the local yellow pages, I identified a sample of places distributed throughout RI. They are identified in Table 3: "Nurseries, Herb Gardens and Landscape Architects".

Table 3 : Nurseries, Herb Gardens, and Landscape Architects

<u>Nurseries</u> Bald Hill Lincoln Garden Zuck's Brodeur's	<u>Location</u> Exeter Lincoln Central Falls Lincoln
<u>Herb Gardens</u> Meadowbrook Secret Garden Woodbridge	Wyoming Cumberland Scituate
<u>Landscape Architects</u> Andy's Lawn Beauticians Eastern Landscaping and Nurseries	Warwick Cranston Central Falls

I visited each supplier to see if they had any of the native plants. I also developed a short list of invasive plants that have been a problem in RI¹⁴⁵. The purpose for sampling invasive species available was to do a comparison of what types of plants vendors are selling.

<u>Latin name</u>	<u>Common name</u>
<i>Campsis radicans</i>	trumpet creeper
<i>Eichornia crapsisses</i>	water hyacinth
<i>Lonicera morrowi</i>	honeysuckle
<i>Lythrum salicaria</i>	purple loosestrife

¹⁴⁵ George, Gilbert G. Rhode Island Botanical Survey: Checklist of the Native and Naturalized

At the vendors I observed whether each of the native and invasive plants was carried. I noted how the each plant was labeled. Was the vendor identifying the plant by its Latin or common name, native or invasive classification? Are either human uses or ecological uses identified?

Chapter 5 - Data Analysis

The following data analysis is based solely on my field work in RI. The data is based on the following observations made at each vendor:

1. Distribution of and invasive plants carried by RI vendors.
2. Identification of human uses.
3. Labeling in stores: common or latin names, native or non native.

Graph 1: “Mean Percent of Native and Invasive Plants Carried by Various RI Plant Suppliers” is supported by Table 3: “Plants and Vendors”. Both are included due to the difference in numbers of the subsets of native and invasive species. The difference causes a ambiguity of the data shown in the graph. For example, 50% of the native species indicates 5 species carried, while 50% of the invasive species indicates 2 species carried.

Graph 1

Mean Percent of Native and Invasive Plants Carried by various RI plant suppliers

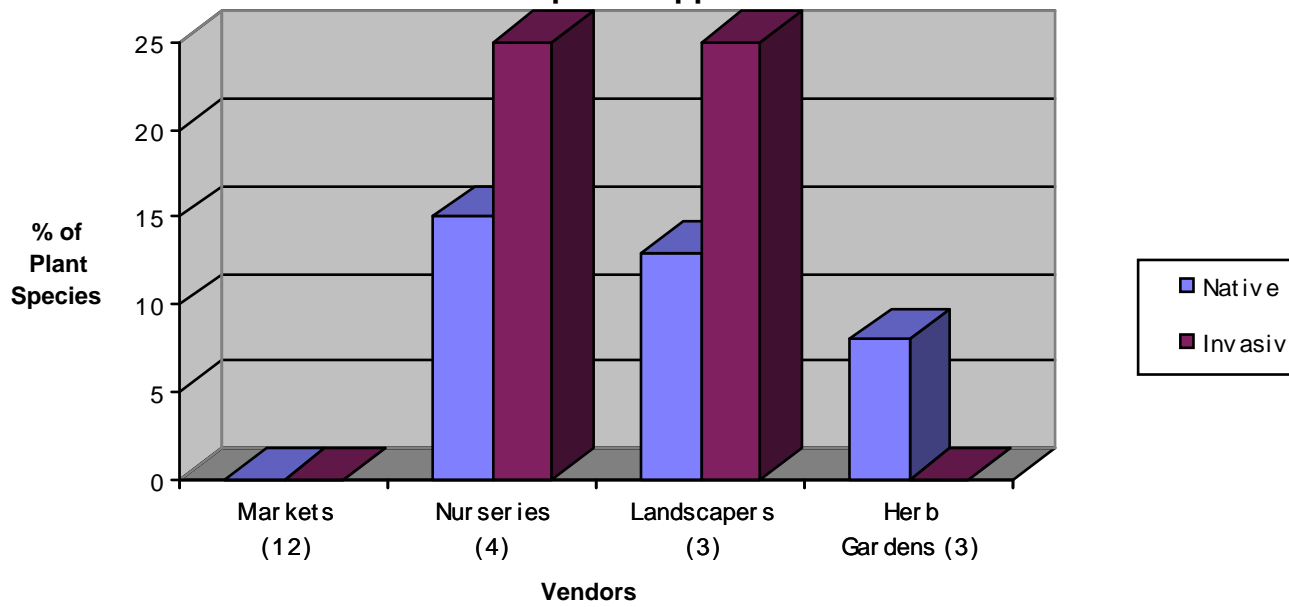


Table 4: Plants and Vendors

	Andy's L.A.	Bald Hill Nurseries	Brodeur's Nurseries	Eastern Landscapers	Lawn Beauticians L.A.	Lincoln (Herb) Garden	Meadowbrook Herb Garden	Secret (Herb) Garden	Woodbridg e Nursery	Zuck's Nursery
NATIVE										
Acer rubrum red maple		not labeled		Latin, common						
Asclepias incarnata swamp milkweed										
Impatiens pallida jewelweed							common identified			
Lindera benzoin spicebush								common identified		
Prunus virginiana chokecherry										
Quercus alba white oak										
Sagittaria latifolia arrowhead		Latin, common								
Thuja occidentalis white cedar				Latin, common	not labeled					
Typha latifolia cattail	not labeled									
Vaccinium macrocarpon cranberry		Latin, common, native, habitat function stated								
INVASIVE										
honeysuckle							Latin			
trumpet vine				Latin, common		Latin				
purple loosestrife				Latin, common						
water hyacinth										

1. Distribution of native and invasive plants carried by RI vendors.

Markets

As mentioned earlier in Chapter 4, I found only one plant at the markets.

Thuja occidentalis was in pill form as a naturopathic remedy at Cesana market on Elmwood Ave. I broadened the survey to include invasive species after the visits to markets, so cannot make a comparison between the distribution of native and invasive species carried.

Herb Gardens

In early spring, I surveyed three herb gardens. Two of the three herb gardens carried one native species each and no invasive species. Two invasive species were found at the remaining herb garden and no native species. Two native and two invasive species were found. Due to the discrepancy between the size of the subsets this is a higher percentage of invasive species than native species found in Graph 1. This could be due to the size of my selection of plants, or the timing of the survey. If truly represented, however, this data is a bit disturbing. Although not more widely available, in terms of number of vendors, the invasive species are well accounted for. Perhaps the place carrying these species is not aware that they are invasive. Hopefully species that are known invasives would not be carried.

Nurseries

One of the four nurseries carried three native species and no invasive species. No native or invasive species were found at the other nurseries. Although I was surprised to not find more native species, I was glad not to find invasive species at

these places. The owner of Woodbridge Nursery told me that she does not carry any of the plants that I was looking for because they are too common.

An interesting comparison can be made, based on a “Descriptive Catalog of Fruit and Ornamental Trees Flowering Shrubs, and Plants, vines and creepers, hardy roses, bulbous roots, &c. Cultivated and for sale at the Eagle Nursery, Cranston, RI 1854.” This Cranston Nursery sold three of the native plants that I focused on. Red, or ‘scarlet’ maple, and white oak sold for \$.50.¹⁴⁶ The arrowhead sold for \$.37.¹⁴⁷ They also have 17 kinds of honeysuckle, four kinds of trumpet vines, and purple loosestrife for sale¹⁴⁸! It seems that contemporary markets are following suit selling more invasive species than native ones.

Landscape Architects

Each landscape architect carried one native species. One also carried two of the invasive species. The native species are represented at a larger proportion of the vendors, although a larger percentage of the invasive species are carried. One of the landscape architects that I visited reported that people do not like the native plants, because they are “too big, people like the hybrid, smaller plants.”¹⁴⁹

2. Identification of human uses.

Markets

¹⁴⁶ “Descriptive Catalog of Fruit and Ornamental Trees Flowering Shrubs, and Plants, vines and creepers, hardy roses, bulbous roots, &c. Cultivated and for sale at the Eagle Nursery, Cranston RI” Providence: Benjamin T Albro, 1854. [Available at the RI Historical Society, 121 Hope St, Providence]

¹⁴⁷ Ibid.

¹⁴⁸ Ibid

¹⁴⁹ Andy, Andy’s Landscape Architecture.

The one plant found, *Thuja occidentalis* was marketed in pill form as a naturopathic remedy. Since this was the only evidence, I cannot make any generalizations about trends in markets.

Herb Gardens

Human medicinal and edible uses were identified for each of the native species found at the herb gardens. Because people tend to shop here for plants to use for cooking or medicine, herb gardens give more information on what the plants are used for than the other types of vendors. The invasive species present were meant for decoration, and were not labeled with human uses.

Nurseries

None of the plants found at the nurseries were labeled with human uses. This is probably because the plants are meant for decoration, not to be used as food or medicine. Bald Hill identified cranberry as a food for wildlife.

Landscape Architects

None of the plants found at the landscape architects were labeled with human uses. Again, this is probably because the plants are meant for decoration, not to be used as food or medicine.

3. Labeling in stores: common or Latin name, native or non native classification.

Markets

The sole plant found, *Thuja occidentalis* was marketed in pill form as a naturopathic remedy. The bottle was clearly marked as a naturopathic remedy. The

remedy was prepared in New Jersey, and there was no indication of where the plant itself had come from. There would have been no motivation for the maker of this pill to label the preparation as made from a plant that is native to Rhode Island.

Herb Gardens

The native plants found at the herb garden were labeled with their common names along with their uses. None were identified as native. Plants used in cooking and well-known plant medicines are known by their common name by most people. Is *Ocimum* or basil more familiar? *Hypericum* or St. John's Wort? The employee with whom I spoke told me that when present, the decorative vines are labeled both with Latin and common names. I am not sure why one would be more specific labeling a decorative than an edible or medicinal plant, but perhaps this anomaly can be explained by human error. Those invasive species carried were not actually present when I visited the Secret Garden. I received the information from memory about what is carried at other times.

Nurseries

Every plant in this section was found at one single nursery. All but one of the plants was labeled with both its Latin and common name. *Acer rubrum* the red maple was not labeled at all. This seemed an anomaly, because most of the other trees at that vendor were labeled. One plant, *Vaccinium macrocarpon* was identified as a native plant. This information was included with the description of the role that the cranberry plays in its habitat.

Landscape Architects

The landscape architects identified plants either by both Latin and common names, or not at all, depending on what type of place it was: some were shops where customers walked through to select items. Other places were more like storage facilities or suppliers for plants to industry. These were not set up for customer perusal. This latter type of landscape architect did not have labels on the plants at all. There was no distinction made between native and non native species at either type of landscape architect.

Chapter 6 - Synthesis

In this section, I discuss a variety of issues that I have thought about in response to my findings regarding historic and contemporary uses of plants, based on Table 1 (p 27).

Not only do plants perform many necessary functions in their habitats, but they also provide many services for humans as well. However, we can wipe out plant populations with heavy industrial usage and overharvesting. It is ironic that plants are considered important when they have economic value, yet it can be that same thing that can threaten or extinguish a species¹⁵⁰.

Historic and Contemporary Uses of Plants

Constructing a chart to compare the historic and contemporary uses of the plants made it easy to see some trends. In recent history only a few new ways to use plants have been developed. Although some uses of these plants are the same today as those in earlier times, more have been lost than have been gained. The plants are useful, but they are not used. Why might this be? There could be several reasons for this trend: we no longer have the need which the plant met, or we do have the need but we have a synthetic substitute which is equivalent or preferred to the plant material. Each of these explanations is represented in my collection of plants.

Swamp milkweed, *Asclepias incarnata* was historically used for witchcraft medicine. I am not familiar with any witchcraft that goes on today, although I could be mistaken. The cuisine of today has been enriched by cultivated plants which usually have more flavor than wild plants. Wild plants are no longer appealing to most people's palate though they are not necessarily more nutritional or tastier. Each plant that I chose to study was used historically for medicine, but none are widely accepted as medicines today. The

¹⁵⁰ Goldenseal, for example is considered rare, threatened or endangered in more than 25 states. More than 60 million roots are being harvested from the wild each year, without being replaced. Hopefully the preservation effort of the United Plant Savers will not come too late.

Liebmann, Richard, Executive Director. *United Plant Savers Newsletter*. Volume I Number I, Winter 1997.

cranberry does have strong data to support its clinical use.¹⁵¹ Plant dyes that were used exclusively until the 1860's had been completely replaced by synthetic dyes by 1900¹⁵². The synthetic dyes provide two advantages. The land that would have been used to provide plant dye material is freed up for other things. Also, people do not have to be exposed to the toxic chemicals that are sometimes required with plant dyes.

Industrial Uses of Plants and their Alternatives

Some of the evidence I found for plant use today is in industry. Milkweed pods are coming back into style as filling: yesterday as insulation for moccasins, today as filling for comforters. It is exciting for me to see plants being used for almost anything, although sometimes industrial usage can be so large scale that harvesting for materials can cause destruction of the habitat. A study in Wisconsin of the *Vaccinium macrocarpon* links the commercial cultivation of this plant to disturbance in wetlands¹⁵³. Also, clearcutting of trees does happen and no matter what the purpose, it is devastating to the land.

In some cases, however industry seems to work towards preserving land by creating synthetic replacements for plant materials. A good example of this is with respect to plant dyes. They were used exclusively until the 1860's, and by 1900 had been completely replaced by chemical dyes¹⁵⁴. Plant dyes do not yield a color that can be exactly duplicated¹⁵⁵. Also plants so not dye fast to cotton, one of the primary textiles. Today's demand for dye plants alone would consume over one third of the agricultural

¹⁵¹ Kincheloe, Larry, M.D. "Herbal Medicines Can Reduce Costs in HMO." Herbal Gram No 41, p 49.

¹⁵² Enander, Richard. URI Textile Chemist. Phone conversation.

¹⁵³ Jorgensen, Eric E: Nauman, Lyle E. "Disturbance in wetlands associated with commercial cranberry." *American Midland Naturalist*, July 94, Vol 132, Issue 1, p152.

¹⁵⁴ Enander, Richard. URI Textile Chemist. Phone conversation.

¹⁵⁵ Ibid

land¹⁵⁶!! Plant dyes are obviously not suited for industry, but for the craftsperson, collection of materials, and a unique color each time could be an exciting part of the process. Harvesting plants can be a hassle, and the synthetic materials are less expensive. Buying products at the store is often more convenient for the modern person than going to the woods to collect plants to make it. Also if land is not providing plant material for dyes then perhaps more people are being fed, and habitats are staying intact.

At the same time as the trends is headed toward synthetic products, there is another trend headed in the opposite direction. The trend back to natural products comes when people realize that the synthetic products have associated costs, on the body and the earth. Also, the production of synthetic products causes pollution. Chemicals can overload a person's system to the point where they become hypersensitive. Some people choose to use natural products as much as possible, to avoid these types of problems. This is not to say that natural products don't ever have side effects.

Plants as Medicine

Plant medicines do have their own share of side effects. All medicines have dosages at which they are poisonous. People have allergies to natural as well as synthetic things. But plants have been a part of human healthcare for thousands of years¹⁵⁷. Nearly 88% of the global population turns to plant medicine for their first line of defense. In the US and China, sale of plant drugs is estimated at 1.5 billion dollars EACH¹⁵⁸.

Modern western medicine still is largely based on plant medicine. The human body has coevolved with plant medicines. Man-made drugs are so new in comparison that

¹⁵⁶ Ibid.

¹⁵⁷ King, Steven R. The past, present, future importance of plant derived medicines. Economic Botany, Abstracts, 188.

side effects of long term use may be undiscovered. The 25% of synthetic drugs that are derived or synthesized from plants are based on the bioactive agent(s) that are found in the largest proportion in the plant. However, there many bioactive agents in each plant, and they work synergistically.

An estimated 50% of folk remedies that are studied show results of reveal plant bioactivity. In the past century, 121 new drugs have been developed from about 90 plant species¹⁵⁹. And almost 75% of those drugs were discovered by looking at traditional medicine¹⁶⁰. The search for new medicines seems to be an instance where it pays to look backwards in order to move forwards.

Future Research

Perhaps, had I chosen the plants differently, I might have found even more evidence for contemporary uses. Were I to continue this study, I might identify plants in use today for medicinal and craft purposes, and work backwards to choose the plants. This might be a good way of identifying plants that can provide a basis for land conservation.

Availability of plants in RI

Assuming that the results of my survey are accurate, I wonder why RI vendors are making more invasive than native plants available? Obviously, they are aiming to meet customer demands. But do customers actually want invasive plants, or do they buy them because they are the only thing available? If consumers were informed, my guess is that they would not choose to buy plants that have the capability to wipe out many other plants.

¹⁵⁸ Duke, James A. Handbook Of Northeastern Indian Medicinal Plants. Quaterman Publications, Inc: MA, 1986. p vi.

¹⁵⁹ Ibid

¹⁶⁰ Ibid

Exotic species do not have the same natural predators and competitors that native plants have. There is a possibility that these plants will go unchecked and get out of control. If vendors took on more of a role educating consumers about native plants, that would create more of a demand for them.

People look for several things when shopping for plants. Depending on whether they are shopping at an herb garden, nursery or landscaper, they might have different needs. Nurseries and landscapers cater to people looking for outside plants to be used in landscaping. Herb gardens cater to both an inside and outside market. Here shoppers are looking for plants either for kitchen or garden. At each place, people are likely to shop for beauty, price, a plant that will last, and in some cases certain properties.

Carrying native plants could be advantageous for vendors. First of all, if plants are native, there is no question about whether the climate is suitable for them. They might be cheaper and easier to acquire, if readily abundant in the area. If not, perhaps cultivation and propagation of rare plants would be a way to reintroduce them to a state of abundance. Many native plants have properties that people might desire, if only they knew about them. For example, cattails are good for cleaning and filtering water. Also, many plants are food for wildlife. Native plants have the advantage of providing food for native species of animals. Some people might enjoy having milkweed in their gardens, because although it is considered a weed, it attracts butterflies. But people may not know about these advantages if they are not informed.

Labeling is a way to educate the consumer about their purchasing choices. An indication of whether a plant is a native species could have the power to influence a consumer. Some people might already be interested in native plants, but not know which

species are native. If someone has never considered the issue, perhaps a label would cause reflection on the advantages of both native and non-native plants, yielding a more informed decision.

There already exists a niche in the markets for native plants, shown by the fact that there is a vendor of “New England Wetlands Plants” in Amherst, Massachusetts. Eight of my key plants were found in this catalog. The data was not included because of the vendor’s location outside of RI. This distributor sells exclusively native plants, used mostly in restoration of wetlands. There are legal restrictions on disturbing and developing wetland areas unless a newly constructed or restored wetland is created in its place. These restrictions will create an increasing demand due to the development of land that is to come in the future.

I got the impression from one landscape architect that people do not want native plants, particularly native trees, because they are too big. This landscaper did not carry any of the native plants I looked for. From my personal experience this does not make sense. I have never heard anyone complain about trees that are too big. Especially in cities and suburbs larger trees provide more privacy from the neighbors. I did not ask whether the landscaper had ever even offered native plants, but again this raises the question of whether people do not buy the native plants because they do not want them, or because they are not available.

The availability of native plants in RI markets has the ability to influence the future landscape of RI. Native plants are important for a number of reasons. They contribute to the overall biodiversity of the planet, and they also provide food and shelter for species of native wildlife. They also can offer food and a source of medicine for adventurous people.

If vendors would carry a more diverse selection of plants, that would at least give people the opportunity to decide whether native plants are important enough to preserve, and purchase. But without the options, there is no choice.

Role of Plants in Biodiversity

Although none of the plants that I have studied provide humans with a unique function, each is as important as every other in the web of biodiversity. All have unique function in their own habitat. The swamp milkweed and the cattail both provide exclusive nesting sites for wildlife. Swamp milkweed provides the only source for food and shelter for the monarch butterfly¹⁶¹. The ring necked pheasant, which was introduced from China, chooses to nest exclusively in the reeds of the cattail¹⁶². Although I do think that it is important to utilize plants for what they can offer, it is even more important to respect their functions in their habitat, and not overharvest them to the point where they cannot survive.

Chapter 7 - Recommendations for Plant Retailers

Encourage xeriscaping, landscaping with native plants. Offer native plants alongside, if not in place of non- native plants. Consumers cannot chose to buy native plants unless they are available.

¹⁶¹ “New England Wetlands Plants,” catalog.

Consider labelling techniques: Exotic, Invasive, or Non- native? Word choice in advertising can make a big difference. A vendor would probably not choose to label a plant invasive, as it has negative connotations. On the other hand, exotic might sound enticing to the consumer. But that description does not include the information about the possibility that the plant could grow out of control. Consider describing plants as non native, which is more of an objective label than the others.

Display the ecological functions of the plants. This will inform the consumer of the relationships between the plant and the wildlife. The fact that a plant will attract certain kinds of animals might be influential in the decision making process.

Do not sell plants that are invasive, even if not prohibited by law. Plants that are fine in their natural habitat can get out of control when unchecked by predators and competitors. An example is the kudzu vine which was brought to America as an ornamental plant from Asia. It is growing rampantly throughout the southeast United States.

Replace wildcrafted plants, either by replanting or cultivating. Not only is this important to you as a vendor for preventing depletion of your stock, but also is important for the habitat which is being disturbed.

¹⁶² Ibid.

Glossary

analgesic - pain reliever

anthelmintic - expelling or destroying parasitic worm

antiseptic - preventing growth of microorganisms

astringent - toner

carminative - expelling gas from the alimentary canal so as to relieve the colic or gripping

cathartic - a purification that brings about spiritual renewal or release from tension

colic - acute abdominal pain caused by spasm, obstruction or twisting

dedoction - preparation by boiling

dermatological aid - healing for the skin

diaphoretic - having the power to increase perspiration

diuretic - tending to increase the flow of urine

dropsy - edema, an accumulation of serous fluid in the connective tissue

dysentery - severe diarrhea with a passage of mucous and blood

emetic - an agent that induces vomiting

expectorant - an agent that promotes discharge of mucous from the respiratory tract

humus - rich soil created from decomposition of plant and animal matter

gynological aid - helps a woman's reproductive system

hemostat - stops bleeding

jaundice - yellowish pigmentation of skin caused by deposition of bile pigments

liniment - an anti irritant

orthopedic aid - helping skeletal deformities

panacea - cure all

pediatrics - branch of medicine dealing with the development, care and diseases of children

tetter - any of various vesicular skin diseases; ringworm, eczema, herpes

tincture - a preparation of plant material, mixed with alcohol

tuberculosis - an infection of mycobacterium that mainly affects the lungs

rheumatism - inflammation or pain in muscles, joints, or fibrous tissue
pleurisy - a lung disease caused by exudation of fluid into the pleural cavity
puerperium - the period between childbirth and the return of the uterus to its normal size
scurvy - spongy gums, loosening of the teeth caused by a lack of vitamin C

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