

## Embracing Food Forests as One Solution to Climate Change

This in-for-med paper looks to opening conversations on ways to engage changes brought on by climate shift. The multipronged approach works in support local nature and to encourage human health and economic growth, while helping to ensure local biodiversity through sustainable forestry practices. Overall the ideas presented suggest *inviting a new narrative*, which often means reexamining recent past priorities and rewriting those, that fail to serve the broader humanity and ecosphere.

### Design Essentials

Native plant replanting efforts work to ease burdens on local ecologies through right choice making regarding species native to and thus appropriate, to native environs. A healthy synergistic effort admits that ecologically responsible wetlands forestry practices building sluices for example, can help clean up fouled water by mimicking beneficial preexisting natural structures. Working as complex channels sieving water through, combined with the strategic use of special plants, it is well accepted such green edifices are effective and capable of remediating some environmental toxins.

Tellingly, the previous statements for *native* plant enthusiasts and many ecologists amounts to preaching to the quire. Beyond those widely accepted specific or broad scale forestry wetlands remediations, its combined roles of reestablishing canopy, providing shade exerting soft green power, updated Ag platform cooperatives, minimal conversion' plantings offer the potential to offset public and environmental crises on several fronts. Forest farming for example decreasing food insecurity for poor folks, plus providing shade and contact with nature suggests improved socio economic outcomes, improved quality of life as well perhaps, ringing of innovation and wealth development in some other unsuspected ways, appears a future-present vision.



*Cithraxyllum spinosum* Florida fiddlewood' a source of anti cancer iridoid glycosides

Addressing several areas notably, improved conditions like environmental clean up and erasing food deserts when they occur together, can happen through instituting food forest corridors, occurring via robust citizen engagement. In light of recent gardening upsurges and neighborhood programs, it is well conceived enlightened land use strategies work through synergistic shared partnerships building awareness and thus in the long term, have the power of shoring up the public trust.

Further on into a complex milieu of nature, the use of some invasive plants as low toxicity insecticides offers one example of smart ideation, using otherwise 'worthless plants' (?) and turning them into viable tools. The soft utility approaches found here can work to remind of the great Vaclav Havel and his '*politics of everyday-ness*' and what various innovative strategies can actually mean to people and environments, in need.

#### The Issue of Management Vs Stewardship

For many conservationists and environmentalists alike forest management schemes often appear set up simply to provide future monetary gains for corporate stakeholders interested in timber, affording some 'canopy for cash' during their lifecycle. Here little thought is reserved towards ensuring a truly bio diverse ecologically sane landscapes, those positively reflecting previous times. Out of touch with present circumstance, in this, forest managers are often most interested in the bottom line and less interested in biodiversity and therein one could say, lie one root of diverse complex issues illustrating modern environmentally critical scenarios.

Land man-age-men-t' of the toxic types lurching monstrous eco-disastrous experimentations, toxic mines and industrial run off polluting aquifers, widespread



herbicide use, all suggest a profound lack of empathy for earth as well, lacking sensitivity as per the insightful use of resources, those that often seem to occur via seemingly pragmatic directives yet, negatively impacting the broader public health and welfare? Other examples of this include the unbridled use of toxic herbicides and pesticides leaching in our waterways, inquires after another way forwards.

Excerpted material...

*Looking beyond the green surface to some burgeoning yet often secretive plant chemistry universe, an environmental movement that fails to recognize the value of functional foods and or medicinal plant harvests cannot survive the scrutiny of best practices, which base their outcomes not only on preserving nature, but on social justice. Such efforts having the combined effects of creating millions of high to medium wage jobs, new industries and profit generation, better environmental outcomes anticipated, can only occur through a multifaceted approach that works towards improving public safety, by ensuring urban forest corridor, raising standards and eco IQ.*

Incredibly, the urge to constitutionalize our discussions of nature often do little to bring greater understanding to the common citizen, who nonetheless deserves to know all of what's in the environment and how it might benefit their families, health and income levels. Does any of this suggest the harvesting of protected native plants?' some ask. This well placed fear over loss of native plant populations however often occurs in concert with bland outdated horticultural descriptive's driving much of environmental policy, while the plants true gifts themselves, appear to be ignored?



#### **Discussion:**

Components of what many say is needed to help counter a complex web of increasing environmental hazards it is thought, can be contained under the umbrella of updated

forest recovery scenarios. Clean harvest foliage based eco entrepreneurial efforts where instituted, can simultaneously work in support helping keep canopy intact, nudging the offsetting of carbon and drought weather patterns, today emerge as kinds of national interest determinations. Inherently functioning through low maintenance sustainable Ag practices, bio char, edible or, medicinal plant landscapes, forest recovery efforts come with the provision of zero to low or maintenance tree cutting and so, more shade for a heating planet and more food and innovation engines for poor folks, as ultimate impacts. Many examples of potent plant successes are given in the following pages...

The importance of recognizing the many elements already present in the local environment, in ones own backyard, strongly ask after present concrete answers to pressing problems and so, those diverse possibilities explored, various green edifices that meet vital needs. A major focus here, the smart use of invasive plants offers several vibrant examples where so called “problematic plants” can be put to good use.

In reaction, the marketing of numerous products coming from upstarts keying into the ‘invasive species / useful plant’ ambiance has taken hold in places like Sylvia NC experiencing a new gold rush, exposing a common thread energetic nature based upstart companies share. At Kudzu Camp volunteers and workers gather the stubborn roots from inundated hillsides (1). Creative enterprise units create tinctures from the various parts of the plant, the flower tincture is for hangover, the root tincture for problem drinking.

Opposite droll non approaches, innovative paths can occur via embracing a biodiversity that can in turn, spawn vibrant new business meeting GMP requirements yet, failing to compete with existing industries in any meaningful way, in the scale of things pharma. Looking carefully, Kudzu *Pueraria montana* is a GABA-ergic plant its extracts wresting some anxiety from the nervous alcoholics core being (2). A cautionary tale: the two tinctures should not be used simultaneously, thereby cinching up the volume on a ‘*Plant science itself presenting a confusion of species*’, one that requires we stay awake to all the new information that’s out there, coming from the world of nature.



Kudzu *Pueraria lobata*

*Nature spawning complexity* always reminds of diverse challenge. Apart from potential for herb drug interactions, a related facet is that, wherever money is involved so too can environmental exploitation extend its ugly threat. Sensitive harvesting of plants ('invasive' or not) therefore must be carried out with careful consideration of preserving important stands of medicinal species / foliar crops engagement's, as not bringing any action that would lead to wiping out those plants. In conjunction and where possible, promoting and instituting replantation of natives on a massive scale acts as a concomitant strategy towards preserving environmental, and human DNA, animal health as nature intended. Thus appears a set of well rounded strategies that takes clean ecology approaches into full account.

Following this general lead of invasive's capture and spawning innovation zones, another plant our now native' "invasive", insecticidal, non-edible *Cinnamom camphora* science informs us, can work to repel insects. The leaf oil contains ribosomal inactivating proteins acting against some bug infestations and so, its presence seemingly in effect saying: How, through recapture efforts such species can be used, not just as mulch but as natural less toxic agents employed in combatting pressing public health challenges?

Add to the expanded biocide equation various other resilient drought tolerant plant species ability to offset food insecurities, or through theyre resource capture the creation of nutraceuticals are at present, topics of intense interest expanding the point of functional food science inquiry, yet in some cases evoking a growing green plant toxicities' mongering, risk aversive social norm?

Examining nature via its only true route means, discovery via a *natures complexity* milieu. In many instances this illustrates the fact that numerous edible plants are also *medicinal* innately suggesting, people acknowledge the timeless supportive nature of so called 'super foods'. Disaster relief to medicinal foraging, to dis-ease prevention, being ignorant of nature need not be an outcome of living in a highly technological society, but it often is... Owing many exigent factors some modern Floridians are confronted with at present, more knowledge of local nature simply suggests a deeper inquiry that asks for strong moves in the direction of, just a little compassionate self-interest as well, planetary awareness?

Softly supplementing on several fronts it is recognized increasing tree canopy and employing forest farming can function as ways to facilitate further cooling measures, aimed at rebalancing earth's heats waves. This important realization however may be poorly translated as the usual industrialized form of monoculture 'tree farms' that look nothing like a complex nature was intended to as well perhaps, carrying little in the way offering answers to diverse peoples needs. To no ones surprise such tactics are often seen as shocking by a general public that feels threatened by green gene manipulations, poison pollen drift, soils acidification and other unknown future consequences.

Predicate (s) To:...

Explore what we don't know

Work to promote a knowledge economy

Asks how can a new moral economy fit into models of clean adaptation

Addresses the needs of the most vulnerable

Draws upon multiple institutional and NGO pathways

Looks to diverse data streams

Asks questions of governance issues re:...

Examining the need for renewed land use strategies

Climate science informing on how methods of production would be affected

*The future present thought experiment draws practical examples from permaculture, forest farming / updated herbalism - pharmacognocny focuses and looks at ways to build strong economies in support local nature, with a goal of ensuring forest corridor, inviting knowledge through eco responsible partnerships.*

Idioms Exercise: A Paradoxical Equestrian?

Educating about preservation of local nature, the overall effort inquires after eco sensible planning methods and so, the imperative need to further develop regional standards in regards alternative crop models 'functional food' focuses and subsequent nutraceuticals production, occurring in relation planet cooling forest farming scenarios and measures. Offering some respite an ailing nature, the intent of the larger work-study is to bring diverse disciplines and partners together, show examples of successes as defined by updated standards. Defunct horse farms becoming bio diverse tree farms then turning into mature productive, carbon offsetting, groundwater fostering food forests? All it takes is time...Some ask in earnest, how much time do we have?

Owing the need to provide more habitat for migrating and native animals living in a complex web of an encroached upon nature, the idea of forest farming may alarm some environmentalists. Though well meaning folks, the failure to recognize the needs of the poor, hungry and landless disenfranchised masses, not just birds and or, a nations need for tools potentially useful in offsetting disaster scenarios, through the use of anti

microbial plants for example, how citizens might benefit from land restrictions easing, all simply point to a democratizing of our open spaces.

*We need to re-conceptualize the idea that earth is not here simply to fulfill our productive capacities only'... Nastasha Iskander*

Some Observations:

A biodiversity ecosystem services approach to forest landscape restoration is a place where harvesting operations mean increased access to forest environments. The problem with the idea of 'tapping into resources' then, often suggests anything in the environment is up for grabs, not limited by scale or classifications'?

Our story proceeds to one of the main topics of this paper entering the broader discussion on climate change, one proposing and reflecting eco responsible stewardship: The importance of recognizing the need for deep ecology studies programming, pharmacognocny inclusions as part of special forestry certifications, fostering both better environmental awareness and protections as well, product development strategies, what role citizens can play.

### New Old World Narratives

In many countries intensive foliar agriculture is in place offering ways to live with nature rather than attempting to control her, through toxic methods. Such actions that do not work by poisoning water and wildlife happen in particular, by avoiding herbicide application and toxic soil degrading products. Its important in our efforts here to support schemes that can function by sensitively exploiting useful species via actions that simultaneously help keep nature free of pollutants *and* imported plants, while supporting canopy, thus keeping earth cooler offsetting icepack melting heat signatures.

Reiterating one of the premises of the paper re, the man made toxins issue, awareness is spreading to both farmers and health conscious consumers; we cant spray and poison our way out of the biodiversity sprawl, only somehow learn how to live with our new plant friends seeing them whenever possible as allies, not invaders to be sought out and destroyed. Here the up side however is sometimes, upside down. Some Florida invasive's *Cinnamon camphora* already mentioned and Epazote for example, possess insecticidal properties making the point, various plants as being potentially useful natural biocides, that can effectively be wielded against crop pests.

In this some say the present drive to "eradicate all non native plants" looks a little like the witch hunts and racial pogroms of the past, only now its our mute plant partners

that suffer, from regulated 'species eradication / species xenophobia' onslaughts? With few humans there to speak on their behalf and unchecked development having the effect of continually upsetting nature, creating species and habitat loss, this feeds an inverse dystopian equation of 'environment as quagmire', rather than simply being the complex answer to all of humankind's needs?

To be fair, while Epazote *Dysphania ambrosioides* leaf can be used internally against human parasites (3) as well, applying the juice to the stinging egg laying wasp trails on infected papaya killing the fruit infecting larvae, experts note, Epazote may carry the tomato leaf curl virus attacking weakened clone tomato strains and thus, is hated by commercial growers. In such narrow industry friendly places few feel sorry for cited invasive's, Epazote, Brazilian pepper or paper bark *Melaleuca* for their potential touted effects. 'Better discarded, poisoned, chopped to pieces, written off as 'worthless' remains the normative account? Some reports on Epazote focused on ascaridole levels differing in various specimens and so reports of sensitivities related to its ingestion?

If there is one thing experts can agree upon it is this: Neither fears over arriving plants nor love of a timeless nature can in any way justify unlimited mindless spraying regimes, or for that matter importing new or 'engineered' bugs to eat invasive's like Air potato. Such efforts derail the point of securing clean harvests as well, teach by unintended example an assault style relationship with nature, speaking a lacking insight into what eco-stewardship can really mean.

Getting to the place of recognizing plants for their true worth, one might have surmised it need not an exercise that exclusively consists of new native plantings fulfilling their timeless legacy, as that of reinstalling keystone species. Important as this may be a fecund nature horticultural approach, it may be one that fails to see the deeper chemistry thereby ignoring new info-logs or, herbalism remedies from times past, now translated into modern molecular understanding, bringing new knowledge of powerful tropical healers? Inclusive studies the open inquiry that looks across data streams strongly works to bring not only natives but so called '*beneficial invasives*' out of the shadows and into the light of day.

Speaking strong potential for reconnect, take another "bad" plant *Melaleuca teribinthefolius quequenerva* Paper bark has over 25 terpenoids chemicals known for being anti microbial and anti bacterial. (4) This tree has been said to "threaten water supplies" as it was first planted to soak up excess water and now has multiplied and "taken over", but only because we have failed collectively as a culture, to see its value?

Here is a plant that might be used against Anopheles malarial vector mosquitos yet the public seems to know nothing of its abilities, in this regards? This occurs while Congress is being lobbied to provide money for the spraying of toxic insecticides, over whole neighborhoods, as happened recently to residents of south Dade and western Palm Beach counties. The question then arises, when such green advances remain ignored, or



appearing as 'unknown yet beneficial' elements (?), does it serve the public trust, or is ignorance itself working via a kind of instituted regimen for thoughtless condemnation of special plants and so, the willful use of harmful herbicides and insecticides?

In the case of broadly distributed toxic agents and their long term effects on the environment, if little is done to build upon the sphere of public knowledge in regards alternatives, this in turn describes the failure of public policy at registering special plants true value where instead, they could be processed for that value and used to combat dangerous bugs as newly redesigned 'least toxic' public health strategies?

*'Invasive plants here, are called medicinal species elsewhere' ...?*

In part, the drive towards mechanization which has been of great benefit to mankind, can easily be overshadowed by its excesses often, acting as providing a shield for lack of recognition, natures goodness and or the toxicities that may be inherent in technologies. In light of this fact over 85,000 chemicals have been artificially created over the last 60 years, in many cases making our world a more dangerous place to live. To be fair many toxics can be present in local natural occurring environments is well known yet strangely, the knowledge of some naturally occurring antidotes remain, severely lacking?

Allowing for a revisit cultural leanings and the way we teach, in such complexity rich scenarios one can begin to imagine how study of everything via didactic reasoning (which works by separating things into segmented areas of priority) tends to exclude human qualities like compassion and thus, contributing to pollutions, if it doesn't take into account some inevitable damage from all humankinds incessant inventing. The most extreme example today is machine learning, where instead of suspending its operations, tends to look more to new technologies to clean up problems?

Some social scientists wonder if our approach itself (one of distanced high tech separateness), what would it look like and what kind of different outcomes would occur, if more philosophy was being taught as part of graduate programs. Expressly, taking into account insofar as the sensitive reasoning needed to maintain a complex ordered yet pollution free world could ever exist beyond 60 years ago), where introspection and considering the effects on environment for example, is not encouraged by speculative reasoning but more, empathic common sense?

Learning About What We Don't Know.

Maybe its better to start at the beginning. An aging shaman in a quiet village deep in some jungle anywhere on Earth, freely instructs on the healing power of some plant. Culture vultures to the fore, the following scenario then occurs speaking a strange disconnect. The origin of the knowledge is deftly forgotten, translated in modern molecular understanding. From there the illogic of profligate university studies being shuttled away to private locations off campus, once a new molecule has been ascertained literally means, public money discreetly going into private hands.

Here one might ask oneself how is it possible that all of our (Humanities) collective knowledge on medicinal plants be so locked up or ignored so as to render it practically invisible? Maybe a deep pocketed cynics reply; 'Its easy, if it were profitable to shed light of herbal ingredients in order to sell a new product, the creative consumer might simply create their own brand thereby circumventing the maker'?

Perhaps an overstated amplification, the story seems to widen gapingly exposing the lack of insightful application of compassionate right action, when plants like *Moringa oleifera* Drumstick tree', having fifty other names around the world, are mindlessly targeted for destruction by clean up crews. Known for quick replication *Moringa* will develop seed pods within three years of the trees own life cycle beginning and from there, many birds and wildlife who thrive on the seed act to spread the plant via droppings.

Beyond its simple branding as a 'pesky plant' however, *Moringa* is a tree that is now protected via WHO (World Health Organization) bylaws, which recognize it as a valuable species in addressing the needs of the poor, allaying famine. The whole tree is edible and detoxifying, its seeds can be eaten in soups, or used to clean up dirty water, is drought tolerant, loaded with vitamins and anti cancer compounds. Planted as living fences, while its harder for Ag directives to openly target *Moringa* for character assassination today, until very recently this little understood nutritious tree had been a major target by south Florida clean up efforts bent on eradicating all non natives. Offering anti cancer as well, nutritive effects a complex chemistry, *Moringa* may not be for everyone as it can reduce thyroxine in women suffering from thyroid condition.

### Playing A Game of Catch On

Getting up close a wily nature, our own native thorny vining tropical *Caesalpinia bonduc* so thoroughly will tangle a person with hundreds of tiny thorns covering, yet its hairy spiky seed pods contain an analgesic compound capable of soothing irritations, inflammations. What other secrets does nature hold in its complex way by appearance is a query as old as humanity itself, one that today is experiencing a huge resurgence.



*Caesalpinia bonduc*

On the positive side where nature's power is invited to flourish, fungus like *Trametes versicolor*, *Pleurotus* oyster mushroom and several others bioremediate chemical toxins. In other tropical scenarios special plants' leaves dropping into waterways, their molecules exert anti-tumor formation properties upon animals that live there. Manatees and other creatures in such waters fare better than in sea wall lined pavilion style architecturally correct watery enclosures, where more concrete means less exchange, of these important biological factors. In answer to our ever more concretized, walled off world, a few 'invasive' plants in fact have been named to aid in fish farming and animal health through their antimicrobial actions. See my book series [Healthylivingtropics.org/plant-books](http://Healthylivingtropics.org/plant-books)



*Antigonon leptopus* Pink polygala vine

One of the most difficult challenges looking on at a tangled mess of invasives covering over natives, maybe is to witness the importance of the point of recognizing the value of

(almost?) all species of plants, both native and those that have arrived from outside of our region as having some purpose, perhaps not any that we mere mortals had perceived before?

The fun though often transporting part of this simply means, tapping into knowledge bases that work towards rounding off ones own experience, as in grasping the importance of plants we have previously been solidly convinced, are “completely evil”? Indeed, psychological studies prove that once people are convinced of something, they oftentimes will defend their assumptions, even if their notions turn out to be built on falsity, ignoring the truth rather than risk embarrassment? (Dunning Kreuger Effect et al)

Conflation of cofactors the “no non-natives” imprimatur rant suggests, as there are many plants here in Florida that are non native, the vetting of plants for inclusion or exclusion useless or useful plant” often falls on their projected suitability or, its perceived state as useful *and* self contained. Neem for example isn’t typically thought of as invasive and natural biocides made into Neem based products have ingredients that dont leave a lasting toxic signature in the environment, employed as a hedge against some insect species.

It is felt as more non native species Like Neem and others are recognized for their value, one would hope more energy goes towards recognizing their goodness through education. Rather than their imminent mindless destruction, inviting the creation of effective products, avoids the low return actions of cutting and making into mulch.

### Partners in Clime

Allaying fears in what some might call an over-protectionist audience, It is well conceived the natural world can be preserved with less harvesting of threatened species. Dovetailing nicely in answer the call of protecting biodiversity, the harvesting of unwanted plants from endangered forested areas remains an attractive advantage in the effort at protecting natives, as well boosting the chances for new product development and new jobs creation coming from those harvested species. Even so, land access and restriction can be at issue where partnering opportunities are scarce and or, competitions are felt, between pharma and homeopathics production, for example?

In some cases such partnerships are welcome though, seen as giving something back to the local community. In such places does over-harvesting of invasives from wild stands at some point, becomes an issue? Yes if they seen as viable income generators necessary to human and animal health. In this how to guarantee healthy plants for harvest depends upon what measures we use to ‘control’ nature. If the use of herbicides occurs, such harvests would be worthless or worse yet, dangerous.

While the useful plant' story will always be one that includes examining a plants chemistries for beneficial components, the difference is in the approach: One of making clean harvests or the felt need to design molecules created in the lab, maybe based on those found in nature? The latter offers the modern sequestering move that selects or creates molecular chemistry rather than working within a foliar complex recipe, formulaic approach. In this, molecular creating employs far fewer people and so often, seems to work at through disenfranchisement, as it fails to broadly share in the profits made on important stories.

But wait some ask: *Are Americans really that interested in plants as medicines' or plants environs and or, 'shouldn't we just leave that to the 'plant experts' themselves'?*

There is some common sense speaking truth to the well meaning 'leave it to the experts dog and cat – ma' especially in regards the toxicities issue and yet, evidence for example of certain plants often thought of as 'annoying, yet having helpful properties' emerge on a regular basis. *Schinis molle* Brazilian pepper inner bark may be useful, even as its over growing branches hover, its sap is a known allergen, reviled, repudiated, spat upon, kicked and mindlessly cut, ring on, though often silently its benefits going unheard?

Openly examining the info below or, perhaps considering the viewpoints from a died in the flax South Floridians vantage, one might feel a certain absurdity or entertain disgust or joy, at the larger suggestion, the impacts of recognizing the power of 'a irritatingly familiar now local nature? See below (5. a,b,c,d,e,f)

(5.a) Synergistic Antibacterial Activity of the Essential Oil of Aguaribay (*Schinus molle* L.).

Rocha PM, Rodilla JM, Díez D, Elder H, Guala MS, Silva LA, Pombo EB.

(5.b) Cytotoxic effect of Argentine medicinal plant extracts on human hepatocellular carcinoma cell line.

Author: Ruffa MJ, Ferraro G, Wagner ML, Calcagno ML, Campos RH, Cavallaro L Source: J Ethnopharmacol, 79(3): 335-9 2002

(5.c) Chemical composition and anticancer and antioxidant activities of *Schinus molle* L. and *Schinus terebinthifolius* Raddi berries essential oils.

Bendaoud H, Romdhane M, Souchard JP, Cazaux S, Bouajila J.

(5.d) Chemical composition of *Schinus molle* essential oil and its cytotoxic activity on tumour cell lines. Díaz C, Quesada S, Brenes O, Aguilar G, Cicció JF.

(5.e) Tunisian *Salvia officinalis* L. and *Schinus molle* L. essential oils: their chemical compositions and their preservative effects against *Salmonella* inoculated in minced beef meat.

Hayouni el A, Chraief I, Abedrabba M, Bouix M, Leveau JY, Mohammed H, Hamdi M.

(5.f) Acetylcholinesterase inhibition and antioxidant activity of essential oils from *Schinus areira* L. and *Schinus longifolia* (Lindl.) Speg.

Murray AP, Gurovic MS, Rodriguez SA, Murray MG, Ferrero AA.

Looking carefully at the confounding set of circumstances forming green issues and in fact representative of all of science at present, there are no international standards exerting power over what is 'good science' and therefore, what approaches that qualification. In such murky places its easy for limiting metrics, patenting issues, gene manipulation and resource capture methods themselves to collectively act as a blind, suggesting plant invisibility / plant eradication. Perhaps too owing competitive interests and an implicit modern molecular biological approach to drug discovery as well, food science?

Plant Blindness = The Common Use of Common Names

From such data streams seen above one can collectively begin to get an expanding picture of the great opportunity that lives in the outdoors waiting to be captured by tropical eco-entrepreneurs. *Schnis molle`*s anti cancer, anti salmonella effects and in one of the genera, an anticholinesterase effect, suggesting some use at quelling brain fog in the very least and or perhaps helping with insidious ills, Alzheimer`s? In this "takeover" plants species resinous turpentine innards, selected parts harvested for sale' bites back at whats wholly considered a destructive 'invasive tree' species status, if its various members are now known to be potential healers?

As for the general landscape of expanding eco responsible action-ing locally, 'oh yes *Melaleuca* is made into mulch, a success story" many a self-satisfied eco aware person offers assurance, but there is more here than mere mulch, it seems. Being anti larval the trees leaf oils can be used against mosquito vectors that carry malaria and dengue fever. Once again perhaps the grand fallacy of writing this and other trees off as simplistically stated "invasive", if it can keep dangerous pathogens down, the previous line of reasoning fails to make any sense?

*'Melaleuca quequenerva Paper bark describes a heavily underutilized resource' ..*

Bradley Bennett FIU Botany professor

What all this suggests admits a new (or old) way to look at local nature, today, either through the lens of expanding scientific databases or its opposite, one built upon limiting horticultural edifices and or, in a synergistic wholistic way, reverberating with



and drawing from folk uses of plants, arrayed against impressive new science discoveries.

### (More) Eco Partners in Action

Avoiding turning a blind eye to nature, there are limitless vibrant examples of partnering with nature success stories, some already mentioned, many other nascent ones that could benefit large portions of a society. In India a large dairy concern partnered with low paid workers who were already collecting mangoes for street vendor sales, now instead going into new yoghurt product creation, incomes rose through recognizing the value of expanding partnerships.

Adding in, food feeds the belly while knowledge feeds the mind' it is said. In this information is power and so, maybe one can surmise after reading hundreds of (of thousands?) double blind study reports describing the cytotoxic, (cancer killing), antihelminthic (worms killing), anti bacterial, anti microbial, anti acetylcholinesterase (anti brain food destroyer) on and on and on ...effects from numerous plants, many have come to realize, a cover up of monumental proportions is afoot?

In partnership with nature one can imagine how stories of foods and medicines found for free' work to inform public policy, an inclusive move forwards beyond limited notions of what we think we know about plants or, the green space they occupy. Increasingly its recognized such notions work towards creating canopy from whats already there, by the wayside, in a tangle unseen, neglected, 'unsuccessfully eradicated" yet so often, put there by nature as a hedge against dis-ease and disaster...

### *The herbs are for the healing of the nations'* Revelations 222

Here the need to witness whats really at work sheds light on the over regulation of so many aspects of peoples lives. For example favoring the institutionalization of harmful pesticide use without considering less harmful alternatives. Add in the incessant creep of nano bite technology, its pervasive presence, in strange scifi inventories automated distributions, triny drones, listening posts at every thought our world is being monitored, but what data is useful and how is it used? Interestingly, the plants are eavesdropping too having complex nuanced relationships, some allelopathy that's even healthy, not always hurtful to their plant neighbors, an unseen world of reciprocal innovation in itself.

A woven together fabric, climate science shows the gradual loss of canopy as one hot element feeding weird weather, occurring through effects of planet heating. While such assessments seem to work by documenting the disappearing', they offer few solutions.

This being the unsettling case there nonetheless exists little in the way of impetus to move US back to a more near normal. Planting corridors of trees wide enough to encourage life forms to return, into what's previously been heavily farmed areas barren of anything, but intensive monocultures, instituted dry savannahs dead soils inheritances, offers a beginning?

It is recognized even intensive tree planting measures might not create enough CO<sub>2</sub> absorbing tree canopy to offset the damage that's already been done, but it's a start. Forest farming provides a link back to that flowering shaded nature as it encourages animals and native pollinators and can thus act as a (medicinal / edible) hedge, to both climate shifts and economic woes, human and animal health concerns, simultaneously.

Demonstrating wide diversity of species and so complexity as the norm, to be fair part of the original move away from farm-a-ecology towards molecular biological science occurred owing the fact, many species were found to share similar chemistry. In light of many such discoveries, the old notion of beneficial chemicals coming from a single species could no longer be counted on as proving accurate. Another way of saying it is, nature's own complexity drove research away from nature, briefly.

Anthraquinones for example, can be found in many species, Aloes, philodendron, etc. Mahonia species was once thought the lone source for Berberine and then about 20 more species were discovered to possess it as well. Berberine also found in Goldenseal *Hydrastis sp.*, is anti-microbial but also affects bilirubin excretion, modulates expression of MDR gene product responses of digestive tract cancer cells to plaxitil and causes immune modulation of macrophage pro inflammation response'. (Ellen Khami RN)

Into a complex web of understanding, does the casual overt dismissal of some plants as "too complex" afford a perceived loftiness as in being put on a pedestal for viewing only, 'no touching of natives allowed', speaking some cultural cognitive dissonance? In reflection, how does the apparent lack of information on natives reflect on their status, if found to be healing plants? The initial reaction it would seem is to protect these plants, ostensibly owing anticipated poaching, wild harvesting devastating already lean stands of special plants. But what if instead millions of collected seeds were planted by groups of citizens competing for prizes by kids groups etc, boosting their presence? At present such activity might be considered illegal, unless it's done on private lands?

In answer, many groups have emerged which solidly work to defy the patently materialistic approach of 'nature as factory' instead looking to more wholesome ways nature and humans can interact (6). These gardening neighbors' often functions to provide foods as well, protect valuable species from over exploitation and destruction, while simultaneously working to advance understanding of the natural world, through ecological study, advocacy, forest farming, engagement and protections.

See Food Park Project..

<https://www.youtube.com/watch?v=kkv7VG5u-SA>

## Health and Human-istic Ecologies

Humankind's relationship with plants in many cases being positive in other ways remains tenuous, with so many insensitive onslaughts to nature occurring on an almost constant basis. Knowing it is from a multitude of diverse sets of environmental circumstances, weather, species competition through the ages, exposure, temperature ranges, soil status determining a plant's chemistry that people and animals may then benefit, timely discovery rages on.

In answer cries for awakened sensibility, potent plant allies appear and show their strength at resisting all manner of insult. In the tropics tropical soils underground rhizosphere microbes never take a break, having yearlong life cycles. Tropical plants must work extra hard to resist the broad range of soil pathogens and attacking microbes plus, the intense heat of the tropical sun and or poor soil, which incessantly act to drive invading nematodes towards root systems. Tropical *Yuca manihot* a root crop harbors in its underground parts cyanide compounds which afford it protection to insect invasion, making the case for extra washing and throwing away boil water before further cooking and eating. As for medicinal plants similar energies makes them thrive.

In response intensely warm surroundings plants flex their powerful capacities. Some tropical plants have been studied for an effect called anti-quorum sensing where plant metabolites turn off bacterial and viral signaling in themselves and or, in those who consume their goodness. Recent focuses look to anti quorum sensing capabilities of plant extracts to quell dangerous emergent pathogens that threaten human and animal health.

The importance of this cannot be overstated as the overuse of antibiotics has created the potential for superbugs, which invite the rising scale of threats to humanity and animals alike. It is a staunch reminder 100,000 people die each year from antibiotic resistant bacteria's and this is apparently, a very conservative number?

Anti quorum sensing strategies borrowed from plants have shown some success at quelling viral pathogens, *Pseudomonas aeruginosa* and others. The N A-cyl homoserine lactones are a class of signaling molecules involved in the chain of command of bacterial and viral cell intercommunications. Certain plants extracts tropical black olives *Bucedá buceras*, garlic and others promote a shutting down effect on infective agents through such viral gene segment manipulations, slowing or completely stopping the production of pathogenic viruses and their by-products, also addressing some cancers and toxemias (7). Some studies point to this same plants' extracts helping support the retina (8).



*Buceda buceras* Tropical black olive

In bacterial populations so called 'auto-inducers' are gene specific agents known to turn on when their numbers rise as in overcrowding or overload, stimulating signals relaying mechanisms of attack on vital tissues. Today anti-quorum sensing plants are seen as giving medicine a powerful new edge in combatting weird some say, man made diseases plus perhaps, a host of illnesses that might occur, in relation living life on a changing shifting globe?

Nowadays in South Florida these looming great trees appear nearing local swale - front yard abundance, having been planted as part of early restoration practices first initiated during the 1970, 80s. Many species that were once on the threatened list are now returning, bearing their deeper promise. Being that they are relatively slow growing are not considered 'invasive', this diminishing verbiage itself however, demonstrating the fact even a native plant with tremendous healing potential can be labeled as such? Apart from breathless shortsighted assessments previously placed on so many species, so often seemingly offering itself up as surreptitious underrepresentation in so many horticultural edifice, their real value and make up, often lies hidden away?

In a wider perspective elucidated, what potent backyard discoveries mean to man made antibiotic resistance and various malady ultimately powerfully drives the new science of immuno therapy, where science at present describes 'an end to disease as we know it', through the elucidation of complex anti inflammatory, tumor shutting down qualities of various plants select compounds as well, engineered molecules. This says a lot about nature underlying our true existence, as inheritors of earths marvels, but only if we decidedly recognize natures unsuspected hidden value, the birthright of people everywhere to engage in meaningful discourse and perhaps, conscious consumption?

## It's 'Bout Money'?

Examining the unspoken effects of ignoring or passing over new medicines development owing any number of factors, for example, costs, as in a billion + dollars to bring a single drug to market, the necessity for years of clinical trials, today these are occasionally offset by fast tracking of new medicines and less restrictive 'compassionate relief' trials targeting patients, for whom there are no other known ways to treat difficult diseases.

In relation new medicines development based in herbal science approaches, things usually work differently, yet in all cases come with no less stringent guidelines for proving efficacy, but not insofar as one single ingredient being responsible for effects. The recent new malaria vaccine offers one such example coming from complex herbal medicine formulations storehouse of cross-cultural knowledge sharing.

### *Tropical plants as genius chemists'*

In contrast, single molecule medicines offer either more powerful or targeted therapies, those that fit neatly into clinical trial requirements. In modern societies these discoveries work to serve rich and poor alike excepting perhaps, if one lives in a relatively affluent country, where the cost of medicines can be much more. Yet in some places pharma companies have in effect 'done the right thing', by offering drugs at little or no cost to poor people in so called third world countries who can't afford to pay.

In reaction a world in need, this boosts a company's compassionate relief status greatly and so, adds to the public's confidence as to what big business can effectively do, when the money is seen as second to the larger issue, that of providing new medicines to healthcare's patients in need. Still some wonder in a world of regulatory snarl: Where is the Jonas Salk of 21st century herbal medicine? India?

*"Glaxo Smith Klein (GSK) has donated more than 4.5 billion tablets of anti-parasitic medicine, albendazole, to prevent lymphatic filariasis (LF) transmission in 56 countries and has committed to donating as much albendazole as needed to the World Health Organization each year until LF is eliminated globally, GSK has also provided grants and other support for the Alliance's fundraising, advocacy, communications and technical assistance efforts."*

All such partnerships in health and healing are possible however and historically have only occurred, as a result of at some point in time uncovering the vast findings that lie secluded away in steamy forests and hot unforgiving environments, (or maybe at the bottom of the ocean), then synthesizing stronger compounds that show potent efficacy.

Hidden away in warm places where pests are many and the plants are tough beyond measure and while facing an uncertain future, potent future green medicine makers are often masked in plain sight, growing everywhere yet possessing a striking invisibility.

## References

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