

OUR GREEN PHILOSOPHY

We consider ourselves conservationists with this strong sentiment at heart: it is of the utmost importance that we act as stewards of the land. We have great respect for the natural world and attempt to live our lives in accordance with this deep love.

- ⌚ At Quackin' Grass Nursery we employ IPM (Integrated Pest Management) methods. Our cultural practices engender production of clean plants – balanced fertilizer, plenty of water and proper lighting help to make the difference. We also encourage beneficial insect populations. Usually we approach occasional marauding insects with light oil sprays during the growing season. We actually use chemical-based pesticides very rarely and only when absolutely necessary. We never broadcast spray, only specifically targeting an affected plant or group of plants which may have a persistent problem when benign efforts have failed. We also tend to carry plants that exhibit good disease resistance which eliminates many potential problems. And we do not mono-crop. One great incentive for us not to incorporate the use of treacherous chemicals is that we live above and drink from the aquifer that also serves the needs of the nursery!
- ⌚ We enthusiastically encourage our customers who live within driving distance of the nursery to return empty plastic pots which housed the plants that you have purchased from us. This is another instance of recycling at its best. One footnote: we do not accept annual six-packs or like containers as these items are not generated here. We do not use them as we do not as a rule sell annuals. We do not accept branded pots such as "Proven Winners" etc.
- ⌚ In the age of climate change and increasingly expensive energy we have conscientiously implemented frugal use of electricity and fossil fuels. In fact, we have always been "green"... having been born of frugal stock we learned at an early age to always turn lights off when leaving what was about to become an empty room, always turn off the tap while brushing teeth and like energy and water-saving methods. In my years here at Quackin' Grass we have never recycled paper or cardboard. Rather, it is used as weed suppression in the gardens then covered over with wood chip mulch – recycling at its most energy efficient, I think. We recommend this method to customers. Although inks have become more "green" it is perhaps not wise to line beds of herbs, medicinal plants, food plants/vegetables, indeed any plants which may be ingested or used topically with many of these materials, particularly glossy paper. We also recycle wood ash – yes, we use a wood stove in the basement to cut our dependence on fossil fuels. Wood ash is gently "sweet" and well-used on daffodils, clematis and any plants that prefer a higher or sweeter soil Ph.

- ⌚ We compost all kitchen waste as well. We “sheet compost” in an area that will become a future garden (actually an extension of an existing garden). The waste includes tea bags, coffee grounds, Kleenex and all vegetable matter. And though unconventional we do include animal fat and bones. The reason...

- ⌚ We have a vibrant small mammal population that forage these items. These animals include opossum, raccoon, and skunk. We do find birds in this area, too, some mornings when dumping yesterday’s scraps. Fox, coyotes and bobcat are not uncommon visitors to the nursery; in fact, we observe more bobcats than we do other predators. We have a perhaps *too* vibrant population of rodents of all stripes including both red and gray squirrels. Wood chucks are seen with regularity during the warmer months. And, of course, there are the gratuitous mice and voles! Deer can be problematic year round but especially in winter. Rabbits are often so profuse by late spring as to be a problem. We have occasionally seen shoaat (ermine) and fisher cat on the property. Many if not most bat species are in terrible straits in the northeast as many of you know; and the problem is spreading. We see fewer and fewer. Our hearts hang heavy with concern for these amazing mammals. Did you know that one healthy adult can potentially consume hundreds of mosquitoes in a single hour in the dusky skies? In a controlled study a single bat consumed 1,000 mosquitoes in 60 minutes time. But, in that study, the creature was presented with only mosquitoes and no other food source. So, that begs the question if provided with other sources of nourishment would a bat default to mosquitoes? In any scenario chances are good they will consume whatever they find satisfying and tasty in an insect-filled eve. Mosquitoes are on the menu. And with subtropical mosquito-borne illnesses moving north as the climate warms the loss of our bats will have direct negative consequences for we, the non-flying.

- ⌚ Also, on the environmental front, we continue to plant the display gardens with thought towards attracting native bird, native bee, honey bee, butterfly populations and various other pollinators. In that we have displaced some habitat as we developed the nursery we do attempt to give back to our winged friends in plantings, food and nesting opportunities. Many of the perennials planted in the gardens are both food and nectar sources for hummingbirds, caterpillars, butterflies and moths. We also do feed the birds during the winter months, both seed and with a corn meal, flour and lard mixture pressed into the holes of one of our “woodpecker feeder logs”. It is always great joy observing who arrives at the feast. Quackin’ Grass has become a virtual bird sanctuary reflected in vibrant populations of native birds. We are proud of our efforts in this regard.

THE BIRDS at QUACKIN’ GRASS...

The Usual Suspects – *or* common sightings and/or residents:

Great Blue Heron
Mallard Duck
Turkey Vulture
Red-tailed Hawk
Mourning Dove
Tree Swallow
Barn Swallow
Downy Woodpecker
Hairy Woodpecker
Red-bellied Woodpecker
Northern “Yellow-shafted” Flicker
White-breasted Nuthatch
Pine Siskin
American Robin
American Redstart
Northern “Baltimore” Oriole
Junco
White-throated Sparrow
Song Sparrow
Chipping Sparrow
Cedar Waxwing
Rose-breasted Grosbeak
Colorado House Finch
Red-winged Blackbird
Rusty Blackbird (usually [but not always] when migrating)
Wood Thrush
Veery
Carolina Wren
House Wren
Northern Cardinal
American Goldfinch
*Yellow Warbler
*Black and White Warbler
*Golden-winged Warbler
Eastern Kingbird
Common Yellowbird
Great Crested Flycatcher
White-eyed Vireo
Red-eyed Vireo
Eastern Phoebe
Eastern Wood Pewee
Ruby-throated Hummingbird
Eastern Bluebird
Blue Jay

Indigo Bunting
Gray Catbird
Tufted Titmouse
Black-capped Chickadee
Northern Mockingbird
American Crow
Wild Turkey

*(regarding Warblers: I suspect we have many more here than we know.
Certainly many pass through during migration.)

Occasional Sightings:

American Woodcock
Sharp-shinned Hawk
Coopers Hawk
Pileated Woodpecker
American Kestrel (Sparrow Hawk)
Rufous-sided Towhee
Vesper Sparrow
Swamp Sparrow
Wood Thrasher
Purple Finch
Brown-headed Cowbird
Common Redpoll
Common Yellowthroat
Scarlet Tanager
Ruby-crowned Kinglet
Common Grackle
Canadian Geese
Raven
Yellow-rumped Warbler

Rare Sightings:

Ring-necked Pheasant (not native but welcome!)
Common Nighthawk
Yellow-bellied Sapsucker
Northern Goshawk
Bald Eagle
Bobolink
Ovenbird
Brown Creeper
Boat-tailed Grackle
*Great Gray Owl

*Regarding owls: we expect Quackin' Grass harbors more here than we know. Though we seldom see them we have certainly have heard owls "hoot" after dusk well into November. But our knowledge of their voices, the seasons in which they vocalize to find mates and our ability to distinguish among these sounds is fuzzy at best!

Unfortunate Suspects: Non-native invaders

English House Sparrow

European Starling

During the winter of 2014 unusual daily visitors among the host of annual regulars included

several Common Redpolls

2 Yellow-bellied Sapsuckers (at least 2, unsure if there might be 3)

3 Rufus-sided Towees

Pine Siskins

A curiosity: 1 plump Song Sparrow, as fully engaged and active as its brethren, has no tail – its silhouette is a rounded, obovate figure with barely a point where the tail should be. It is as cute as it is endearing.

OUR INVASIVE PHILOSOPHY

Connecticut now has an invasive law, a legal mandate on the books banning the sale of a number of species. We at Quackin' Grass Nursery have strongly felt that scientific research conjoined with education would have been the most efficacious and least expensive way to resolve any questions swirling around alleged invasives.

EUONYMUS

Any plants not presently on the Connecticut invasive list but those that we believe are a potential problem we no longer offer; for instance, we no longer sell *Euonymus alatus* cultivars.

NORWAY MAPLE

We also do not and never have offered any of the forms of Norway Maples. They are not yet outlawed and it is perfectly legal for nurseries to continue offering them. However, we feel Norway Maples may be a problematic species; the reasons: its fecundity, fast growth, enormous size and longevity of adult trees make it possibly a true threat to wooded areas. This coupled with the potential ability to adapt and possibly bridge succession forest communities are the reasons we will not offer them. Furthermore, large-growing native maples with even greater ornamental character in more seasons than the Norway Maples are abundantly available and make splendid alternatives.

BARBERRY

At this time it is also known that the genetic make-up of wild Barberry populations in Connecticut is largely composed of *Berberis thunbergii* (Japanese Barberry) with occasional stray *B. vulgaris* (Common Barberry). There have been natural hybrids between the two species as well known as *B. x ottawensis*. In light of this we have voluntarily stopped offering certain Japanese Barberry selections – those deemed to form profuse seed annually.

We had continued to carry gold selections. Why, you ask? Because the golden selections it seemed set many fewer seeds. ‘Golden Devine’ in a three year period at the planting fields of UConn produced no seed at all. And gold-leafed seedlings that actually do sprout from the cultivars, fewer than the more robust green and purple-leaved selections, have proven time and again to be weaklings; they do not harbor the strength to settle into surrounding woodlands and recently disturbed ground. These golden *Berberis thunbergii* selections are probably not the purported “invasive threat” that some would have you believe.

Though it took a much longer period of time 'Golden Devine' did eventually begin to produce seed at the UCONN Agronomy Station. As to the viability and strength of those which may have sprouted it is doubtful that they will have been genetically strong.

The issue of wild, escaped barberry in Connecticut woodlands is large and great. Unless a biological control can be found and directed it is at the time of this writing, frankly, too late. But as Quackin' Grass Nursery continues to step deeper into the realm of rare and unusual plants we move farther away from the mainstream plants that one might find at local garden centers. Except for rare and unusual cultivars we have opted to discontinue offering *Berberis thunbergii* cultivars. Remember: it is still legal to sell *B. thunbergii* cultivars in Connecticut. And for many of the regions to which we ship Japanese Barberry is in no way a threat – perceived or otherwise. We will not deny those gardeners and landscapers who desire Japanese Barberry in places where it is not an issue.

BEACH ROSE - ROSA RUGOSA

We also continue to offer a small list of *Rosa rugosa*. Not outlawed in Connecticut we believe reason thus far has intervened. Beach rose has only self-sown along the ribbon of land at shore's edge; never have I seen a seedling arise inland. *Rosa rugosa* tenaciously holds dunes together; its thorny branches keep people at bay barring anyone from trampling and degrading fragile dune ecosystems.

Its flowers provide nectar to native bees, honey bees, butterflies and other beneficial insects. Late season rose hips provide forage in fall and winter to browsing mammals and birds. Ornamental attributes are remarkable: large, exceptionally fragrant flowers, bright butter yellow autumn foliage often manifests acting as a foil for the weighty orange to red-orange rose hips which can be used for jelly or tea. Beach rose has been used extensively as a breeding parent for numerous cultivars of ornamental roses.

Thus far not a single study has been funded and conducted which may or may not prove that wild beach rose is an allelopathic threat to dune grasses or, indeed, this

extraordinary ecosystem. The benefits of wild *Rosa rugosa* if and when actually studied may actually outweigh any presumed threat to native dune grasses. Just because it has settled into the dune community doesn't automatically make it a menace. Indeed, the possibility exists that wild beach rose actually enhances this habitat - perhaps a controversial stance; but one which to date no one has convinced us otherwise.

There is a pending list of plants that are in question but have not yet been banned. Those that in our experience we do not believe are "invasive" we continue to make available to customers who demand them. Any we believe to be potentially problematic we have pulled from inventory. We hope that common sense, science and education will eventually answer outstanding invasive debate questions and potentially debunk some of the hysteria surrounding this issue.

Now, get a cup of coffee...

NATIVE VS. NON-NATIVE

First, please let me please humbly postulate a definition of what constitutes a native plant: "A native plant is an indigenous plant, one originating in a given geographical area, a naturally occurring regional or endemic wild species, one component in the mix of an evolving localized wild habitat devoid of man's influence."

The issue of native versus non-native is a very complicated one. It is a prism composed of many differently colored rays of light. Each ray is an aspect of this many-layered issue. I cannot attempt to scribe a treatise on the myriad complicated aspects, some of which require pushing against contrived politically correct pseudoscience. And to all – and especially to those who believe they know all - might I suggest there is much to learn, discern and grasp. Take a deep breath and step back. We, at Quackin' Grass, certainly do not know all and probably neither do any among those who might read this narrative.

"Native" is intrinsically centric to where you live. But the manner in which the word has been applied deepens the murk and noise around this issue. I will cite but three examples from the centric point of northeastern Connecticut. Three examples of oft cited native plants which are not are Oakleaf Hydrangea (*Hydrangea quercifolia*), Redbud (*Cercis canadensis*) and Smooth Hydrangea (*Hydrangea arborescens*). These plants hail from more southerly regions than our own; though hardy for us these three are, nevertheless, not components of our native woodland mix in Connecticut. Therefore, they cannot be construed or characterized as "native". We consider these among many others to be "near native". By honing definitions we can achieve better communication and, perhaps, pragmatic understanding in hopes of interjecting some small foothold upon the quagmire of this debate.

Closer to my New England home is *Vaccinium macrocarpum*, Cranberry. This is a great plant found on Cape Cod. It is not native to we who live in the northeastern Connecticut hills and woodlands. It will grow for us in a well-chosen cultivated habitation. If Quackin' Grass was situated on Cape Cod then I could refer to Cranberry as authentically native. More broadly, *Vaccinium macrocarpum* is native in New England

but perhaps not in every New England state and certainly not in every distinct habitat. But even here the definition of “native” erodes becoming opaque and increasingly meaningless in the broader context. The application of the term “native” can be a mind-boggling tyranny.

To sum up: if one designates a particular plant as native but that species does not grow naturally, wildly in an evolving habitat in the espousing individual's section of the world then that species is not native. If that plant originates in an adjacent region then near native or naming the specific region as in the case of Oakleaf Hydrangea from southeastern U.S. would better hone specificity. But even with increasing generality North American or even New World would be more intellectually honest in describing origination in this example than a claim from someone who resides in Connecticut that plants originating in the southeastern U.S. are native to Connecticut.

Suffice it to say that we, at Quackin' Grass Nursery, do not accept the precept that only native plants are good - all others bad. The living natural world is not this simply black and white. Clearly most non-native plants are in no way an invasive threat; in actuality it is but a handful of bad characters that could be considered problematic in any given region of North America. And though controversial, even heretical by the standards of some, when one shoves aside the searing spotlight of zealous purism accompanying puritanical presupposition some non-natives may actually enhance a habitat. Once again, the example of the previously cited *Rosa rugosa*, Beach Tomato or Beach Rose (not to be confused with Multiflora Rose) comes to mind as a potential candidate. Also, some exotics that are a perceived problem in northeastern North America are not at issue elsewhere; the list of problem plants changes as one moves from one environment to a different region in this large, complex land mass. And each area, sustaining multiple, differing habitats and life communities, may not be equally impacted.

Because of our take on nativity we have opted to relegate our catalog offerings to the actual regions and continents from which they originate. Or in the case of hybrids, etc. - those created and / or selected by man as being of Garden Origin. We feel this serves our customers in a clean, truthful fashion. Though, at Quackin' Grass, our system of plant designation may not be perfect after careful consideration we believe it to be an honest attempt to apply reason, truth and integrity and allow customers to make the choices that best suit them.

On a related topic the seemingly sane on-the-surface "logic" that only native plants support native insect, bird and animal populations is one of the more mind-numbing presuppositions masquerading as scientific fact we have yet heard. If only native plants support native insect, animal and bird populations then how is it that the seed of Japanese Barberry, Oriental Bittersweet, Russian Olive and Multiflora Rose spread far and wide so quickly in invasive fashion in southern New England and beyond? The answer: simply because birds and mammals forage the fruit of these plants for food whose flowers had been previously pollinated in most instances by various insects and native bees plus honeybees.

Anecdotally, in our plantings at Quackin' Grass we have multitudinous populations of flourishing native bees, bee flies, butterflies, ants, wasps, some beetles (those that forage for nectar) and all manner of insect feasting on nectar produced by both

native, near native and non-native plants, herbaceous and woody - most, if not all of these produce seed, berries or fruit. As Professor Jonathan Lehrer rhetorically stipulated: "Have you ever seen *Aralia elata* buzzing with multitudes of pollinating insects when it flowers?" And it is a fact that one can hear the cacophony from many feet away on a warm summer day. *Aralia elata* is not native to eastern Connecticut but does lend support to a wide variety of native insect populations. Excepting the handful of species which have evolved in specified and extremely precarious "mutualism" it is as if all insects, birds and mammals are so rigidly adapted that they cannot, will not or do not adapt to new dinner opportunities, native or otherwise. We live close to the earth at Quackin' Grass; I merely report our experience.

Even if there were at the time of this writing specific controlled studies researching native insects', birds' and mammals' rejections of non-native plants (again excepting "mutualism") the results would likely illuminate lighter rather than darker opaque shades of gray – not the sharp black-white outlines of presupposition touted and promoted by some as settled science.

But there exist zealots on the “native only” bandwagon with blaring bullhorns espousing counterfeit facts. Too often these assumptions arise with a veneer of logic. But they are entirely unsubstantiated, not methodically proven or dis-proven by scientific method. These overly eager zealots parading such fabricated claims are impostors who approach the issue of nativity with earnest prejudice in their hearts. But they do us all disservice. Beware of those who would disregard fact for opinion arrogantly masquerading it about as settled science. This noise fomented by biased believers is unfortunately rampant in the arena of native vs. non-native. It stymies and clouds a deepening polarized debate making the search for truth difficult. It is one thing to set forth an hypothesis; it is entirely another when that hypothesis is announced to be proven science when it is not. Facts must be determined by scientific method not by presumption.

Now, add to the complexity another layer in this debate accept that all environments change through time. Natural habitats remain static for no man even in the most stable of climate periods. And with climate change thrown into the mix the complications and speed at which altered states may occur is mind boggling. Already, as an example, our emblematic Sugar Maples at the southern end of their natural range in Connecticut are trending northward as they find it increasingly difficult to live well and healthfully in southern New England.

Add yet another dimension to the extraordinary complexity: the role of changing hydrology as humans pressure more and more this fundamental natural resource. Inherently, climate change also loops into this layer, the impacts upon water supplies we are only beginning to unfortunately experience. Consider with each passing year the fire season lengthens out west which implies a condition of greater, searing drought. And there are regions in our Bread Basket where droughts have and will continue to negatively impact food production. Wild habitats are being affected in ways that only those viscerally immersed in their daily complexities are coming to realize. None other than the astute Russell Stafford intimated the crucial aspect of hydrology recently relating it to a broad lack of recognition which is often completely ignored by those invested in the native vs. non-native debate.

As such, the issue of native vs. non-native is too often shallowly understood, or should I say misunderstood, through the myopic viewing of a single fragmented ray of colored light rather than viewing all the colored rays integrally connected one to the other in the complete spectrum. Red, for instance, comes into close-up focus without taking note of orange, yellow, green, blue and violet - all integral components in the makeup of the ray's totality. Take a deep breath. Step back. It is necessary to understand the entire prism, its collection of rays and their relationships to each other in the totality of ray. And there must be some sense of projection of ray through time before anything approaching hard judgment can be fairly applied. And any hard judgment must be based in actual fact derived through the rigor of science whenever possible.

We, at Quackin' Grass Nursery, have no desire to add to the politically correct trumped-up noise surrounding the issue of nativity. Nor do we blindly accept the premises of the imposed pseudoscience which is a hierarchy of hot ether obfuscating the search for truth. We strive for light and reason though this frequently places us at odds with those harboring biased personal agendas. When we are proven incorrect we admit it, make a course adjustment and move forward. As stated at the beginning of this discussion we certainly do not know all and probably neither do any among those who might read this narrative. Take a deeper breath...

CLIMATE CHANGE - GLOBAL WARMING

This is an issue finally gaining traction, growing less controversial each and every day. Acceptance is timely. Agreement to alter use of carbon-based energies and to better control methane grows short... As with the issue of plant nativity we strongly believe in and defer to the science surrounding the issue of climate change. We believe that this is the predominant threat to the continuance of life as we know it on planet Earth. Its urgency supersedes by light years the issue of invasive plants. Climate change is on a course that, if not stopped dead in its tracks, is destined to alter all. And in terms of geologic time these changes will occur in a flash.

We all must consider carefully and objectively the increasing roster of anecdotes, the numbers having collected into alarming trends. It is voluminous and an increasing body of scientific facts surrounding this looming threat upon the threshold of our time. If one does so objectively then you must agree that climate change is of the greatest import. We, as a group - we, the people, must demand of our leaders that they sincerely and in a straightforward manner address this fast approaching disaster.

Enacting legislation and policies that will enable the decrease of CO₂ and methane emissions thereby replacing them with clean, green technologies is of tantamount importance. We must pressure our leaders. It can and must be done. And our leaders must engage the political entities of all sovereign nations in finding sensible and real consensus in lowering emissions. We must work globally to embrace policies and strategies that are best for all of life in the long term.

We implore native-only advocates to adopt a more universal approach, to please pluck your heads out of warming soils, so to speak, and take the larger, longer view. If one agrees that global warming aka climate change is the greatest environmental threat then it makes sense to table for the present the myopic rhetoric surrounding invasive plants (except for the handful of species considered most extreme in negative impact such

as kudzu in the south, spotted knapweed in Montana grasslands or Norway maples in northeastern woodlands for example) and instead turn our collective attention and energy towards active involvement in the issue of climate change. It is folly to think that a quickly changing climate will not affect and alter the woodlands and, indeed, all habitats as we have historically known them to be. In the most stable of climate periods the woodlands stand still for no one. Climate change will modify all and in some cases drastically. If we do not grapple with the looming issue of climate change the quick destruction of the web of life in its miraculous complexity will be our doing. The unraveling has already begun. And we will have done it to ourselves and our children.

Consider that the Permian Age lasted approximately 20,000 years. In two waves over the course of these years the Earth's temperatures rose about 9.5 degrees Fahrenheit. This change in temperature and the ensuing drying, hotter climate extinguished 95% of life on the planet, one of the major global extinctions. Consider the time in which we now live, that in 140 years running parallel with the increasing usage of fossil fuels the Earth's temperature has increased more than 1 degree Fahrenheit. At this rate we will raise the Earth's temperature by 10 degrees Fahrenheit in a mere 1,000 to at most 1,500 years. If native plant zealots think for a hot moment that nitpicking native germplasm is somehow visionary or that these would likely survive a coming catastrophe either or both in temperature and changing hydrology... well, figure it out, people. It might be wiser to weigh the option of germplasm whose provenance is derived from warmer regions for more northerly siting. But even then all bets are off. These plants will probably not have the opportunity to adapt that quickly if we remain on the present course of change. It's biologically unlikely and more likely impossible.

And for the deniers who repeatedly use the ruse that the climate has modified all through the eons consider the following. The rate of change during Permian Age in terms of geologic time was exceptionally quick, 9.5 degrees Fahrenheit in about 20,000 years. The Earth's temperature is presently rising at approximately twenty times the rate of speed as compared with the Permian Age. Twenty times faster. It is a fool's denial to disregard man's role in this mess. Man is responsible. It is our culpability. It is our responsibility. And science indicates this is so. If nature takes the course upon which we have set Her we will pay but it will be all of life, your children included, and their children who will suffer the brunt. And if we don't grapple with this problem and confront headlong our progeny will look back upon us with disdain. There is little doubt we shall be seen as despicable, our inaction incomprehensible and irresponsible.

Climate change is the tantamount issue. If there is a bandwagon to climb aboard it is this one. Sad though it may be to consider there may be a day coming too soon when the general feeling among our progeny and especially the wildlife that would require them as food are grateful for any mix of tough plants – both native and naturalized - in a wild setting. It may very well be these, the toughest, that survive and determine a way forward, a bridge to the future, the new normal, in the wildest places least impacted by man.

I apologize for the "preachy", strong and sometimes alarming character of the above texts. Then again the trends are clear. And there is much obfuscation on this issue. Though to some I am both heretic and pariah I can tell you that Quackin' Grass is a green

entity, conservation-minded and very concerned, even worried that a global catastrophe is in the making. We like life more or less as it is. And we would prefer a green field with a few invasives peppered in among the native mix demonstrating the meddlesome hand of man than all of life in a downward spiral with no chance of remission. As a dear friend recently queried, "Would you rather have a disturbed field with some invasives growing in the mix alongside the natives or another asphalt parking lot?"

Please don't send us hate mail. We are entitled to opinions and projections based in and extrapolated from science, trend and fact. Rather, send your letters to your politicians who may be overly-invested in all manner of fossil fuels: coal (Remember the deaths of ponds and lakes in the northeast from acid rain?), fracking (Do you realize how much methane is released into the atmosphere from the fracking process? And methane is 100's of times worse than CO₂ in the warming equation), shale and tar sands oil (a dozen times filthier than classically harvested oil), deep water drilling (remember BP in the Gulf of Mexico? Remember the near disasters of Shell Oil in the Arctic – even before drilling could commence? Exxon Valdez? The Texas spill of 2014? etc, etc, etc...) And add to the mix as byproduct the negative consequences on human health in the short term from factory emissions, coal ash disposal and vehicular air pollution. Send your letters to the fossil fuel industries. Send your letters to editors, social media and those who have voice, power and bully pulpit – they must be convinced to do what is right and visionary for the most of us, indeed, all life... and soon. The fossil fuel industries are rich, powerful and selfish interests foisting lies, denials and confusion into the discourse just the cigarette manufacturers did for decades. At the present increase in the rates of global warming gases to the atmosphere we don't have decades in which to laze. An objective look at the science will tell you so. We must organize, remain focused and by sheer numbers convince those who allegedly represent us in the political realm to change course. That is our, we the people's power. Renewable energies are clean, green and the technologies are improving quickly. Send your mail to those who hold the power to make a difference. Thank you for your kind indulgence.