

Foreward: It was a pleasure to make the acquaintance of several of the AdvanceKnox staff and County Planning staff on September 25 at New Hopewell Elementary. Based on feedback heard there and in the Zoom meeting held on the same day, we have added to the following letter, please forgive the delay.

1. Introduction

Our organization, Wild Ones Natural Landscapers, Ltd., is a national non-profit organization started in 1977 in the upper Midwest, in response to the realization that "the prairie" no longer existed, and that habitat for native plants was rapidly dwindling, and that the combination of these two factors was leading to a severe decline in native insects, as the majority of insects in North America are native ones, and, just as Monarch butterfly caterpillars must host on Milkweed, most native insects must host on specific native plant families. Given that 95% of native bird species feed exclusively soft-bodied insects to their nestlings, it was also leading to a sharp decline in bird populations.

Simply put: No native plants = no native insects = nearly no native North American birds

Native pollinators, such as the hundreds of native solitary bee species found in North America, would also be devastated if the continent lost a critical mass of native plants, as these species are often much more wedded to certain native plants - in some cases, to a single species or genus of native plant. Native bees are pollinator powerhouses, and are responsible for a great amount of crop fertilization throughout North America. An example is the tomato production industry, which would collapse without them, as European honeybees (which are non-native livestock) cannot pollinate tomatoes; only our large native bumble bees and Carpenter bees can perform the "buzz pollination" required to produce tomatoes.

Sadly, a new threat to native plants became obvious in the years after Wild Ones was formed: invasive species creep. You are probably familiar with the ever-growing population of wild Bradford/Callery Pear trees appearing in the margins along nearly every highway in Knox County, and in fact, most of the Southeast. This is but one example of what happens when a foreign species - this one is from China - has no natural enemies of any kind; they seed prolifically, leaf out earlier in the spring, and keep their leaves longer in the fall, outcompeting our native plants. You may not realize that the extra-early greening of shrubs in East Tennessee is actually the result of catastrophic, lightning-quick expansion of non-native shrubs, mostly Chinese Privet and Amur Honeysuckle, both from Asia, which are decimating native plant populations in every parking lot edge and "maintained" roadside,

every backyard fence line, throughout most of North America. Our invasive plant problem is far worse than just drapes of Kudzu. Perhaps the saddest part of this is that most invasive species are still legal to sell in Knox County. We would welcome the opportunity to provide more education to your bodies on this issue if you wish it.

Public land management methods have exacerbated the problem. Mowing methods and schedules have given invasive species even more of an upper hand over native plants, and maintenance equipment often spreads invasive species, which hitch a ride on the equipment to a new location. We are certain that Knox County residents would prefer to see more Redbud and Dogwood trees, which are both native trees for our area, in the margins of our parks, schools, parking lots and roadsides, yet current management practices actually make this an impossibility. We would appreciate the opportunity to provide suggestions for alternate practices that would not only favor native plants, but also lead to cost savings through reduction of the need to mow and bush hog these areas at all. We have the knowledge to guide Knox County toward effective, sustainable, minimally invasive practices to encourage native plants to do their jobs and naturally prevent intrusion of invasive species into Knox County-controlled spaces. These practices would also prevent erosion and runoff, and result in far greater stormwater absorption, an important consideration, given the recent catastrophic rain event that narrowly missed Knox County last year. We have the ability to guide you to make Knox County much more robust in the face of severe weather events, simply by using practices that favor native plants, which are already adapted to North America's severe weather episodes.

2. We Support the Currently Adopted Definition of a Natural Landscaped Area.

We support the currently adopted definition of a "Natural Landscaped Area" found in Knox County Codes, Article V, Section 10-92 Amendments, 2018 International Property Maintenance Code, Chapter 9 LOT CLEANLINESS, Section 902, Number 2, Natural Landscaped Area, as follows: "Natural landscaping, also called native gardening, is the use of native plants, including trees, shrubs, ground cover, and grasses which are indigenous to the geographic area of the garden which is either naturally established or designed and cultivated that when established will sustain itself with minimal maintenance effort that do not contain noxious weeds or poisonous plants that cause a public nuisance." To this definition we would add "forbs of varying height", which is inclusive of nearly all herbaceous (non-woody) annual, biennial, and perennial native flowers.

3. Codify a formal right of Knox County residents to establish and maintain residential "Natural Landscaped Areas"

In general, the wording of Article V, Section 10-92 Amendments, 2018 International Property Maintenance Code, Chapter 9 LOT CLEANLINESS, as currently written in Knox County Code, in its entirety, is not written with Natural Landscaped Areas in mind, or at least, there is no section that creates a pathway for Knox County residents to achieve sanctioned Natural Landscaped Areas status.

The most problematic existing Knox County Code on this topic is:

302.4 Weeds.

Premises and exterior property shall be maintained free from weeds or plant growth in excess of twelve inches. Noxious weeds shall be prohibited. Weeds shall be defined as all grasses, annual plants and vegetation, other than trees or shrubs provided; however, this term shall not include cultivated flowers and gardens.

We find the above passage to be antithetical to the purposeful keeping of a Natural Landscaped Area on residential property. In the past two years it has been cited in "courtesy notices" and citations to a number of Knox Countians who have made, or are in the process of making, the conversion back to a truly native landscape, one of whom won the Native Plant Rescue Squad's "Sassafras Award" for best native residential yard conversion in 2023. This code makes no exception for Natural Landscaped Areas - but it should. We have the ability to guide Knox County to make codes requirements that meet current best fire-wise practices as well as its practical needs, such as an unimpeded right-of-way along Knox County streets and roadways. We would welcome the opportunity to make clear guidelines and rules about the keeping of native landscapes so that Knox Countians who wish to keep all-native or substantially native landscapes may do so without visits from Codes Enforcement. We can go into more detail at a later time, but we suggest that a simple way to do this that does not require Codes Enforcement to have plant identification skills is to have the landowner provide proof of a formal designation from any of a number of reputable non-profit entities, including Wild Ones, World Wildlife Federation, Homegrown National Park, Xerces, and several others. This could be submitted to Knox County in order for the address to be placed on a Natural Landscaped Area registry, and the registrant would be required to post their designation or proof of registry with Knox

County (or both) in the landscape, visible from the street. Over time, this could become a way for Knox County to differentiate itself from other communities in that it could advertise the growing number of Natural Landscaped Areas in the County, and attract national and perhaps even international attention for its proactive stance on native plants and ecosystems support.

Section 904. Prohibited Acts.

It shall be unlawful for any person owning, leasing, occupying or having control of property to:

1. Allow trees, vines, grass, weeds, underbrush or any other vegetation to grow or debris, trash, litter, garbage, refuse or other materials, a vacant dilapidated building or structure, or any combination of such elements to accumulate on such property to such an extent that a nuisance is created injurious to the health, safety, and welfare of the inhabitants of the county, or that infestation by rats or other harmful animals is encouraged;

Once again, we find that this language is vague and outdated, and does not allow for Natural Landscaped Areas, which should, in fact, have "trees, vines, grass, weeds, underbrush, or any other vegetation" growing upon it, all at once. A note on the term "weeds": Many ecologically important, common native annuals traditionally have been considered weeds, but are not, within a Natural Landscaped Area context. In fact, they are critical to its success. It will take adjustment for Knox Countians to begin to accept the "look" of a Natural Landscaped Area, because it is so different from the scalped, green Sahara of the typical Knox County yard, but it is a necessary adjustment in order to handle the challenges of increasing severe weather events and longer and longer periods of drought.

2. Allow trees, vines, grass, weeds, or any plant that is not cultivated to grow in rank profusion or otherwise in, along, upon or across the sidewalk or street adjacent to the premises in the area between the property line and the curb line, or within the area ten (10) feet beyond the property line, to a height greater than twelve (12) inches on an average.

We find this code to need rewording for many of the same reasons just discussed, but we agree that Knox County right-of-ways need to be kept clear of woody plants, even if the property is a registered Natural Landscaped Area, and should have shorter plants within the 10 foot areas outlined in this section. We suggest that "fourteen (14) inches on an average" is a more appropriate height, because it would allow for a much greater selection of native plants in the right of way, but we can help Knox County share a list of very low growing native plants if it wishes to stay with 12 inches in the right-of-way.

We feel that perhaps this section is, in part, aimed at properties covered in tall turf grasses with even taller seed heads; we suggest a section that specifically states that "non-native turf grasses must be kept shorter than 12 inches" would perform well; we feel certain that Codes Enforcement employees already know what these seed heads look like, and would easily be taught that they are non-native turf grasses.

4. Ban use of all plants on the Tennessee Invasive Plant List via ordinances or codes, and, ideally, ban the sale of these plants in Knox County.

As stated above, in the Introduction, invasive plants are our most serious ecological problem. East Tennessee is one of the most ecologically-diverse areas in North America, and this could be a strength and selling point if we can regain control of our lands from them, and support our native diversity going forward. This begins by prohibiting the sale and use of invasive species in landscaping. Find the Tennessee Invasive Plant List here: <https://www.tnipc.org/invasive-plants/>

5. Future Development Should Require All-Native Landscaping, Proper Invasive Removals, Much Larger Buffers, and Soft Landings

Our comments below shall refer to this existing Ordinance, which has the planting requirements for a typical commercial development:

2018 Ordinance No. O-18-10-102 E:

When the storage facility property abuts a residential zoning district, a landscaped buffer with a minimum width of twenty (20) feet shall be provided between the proposed development, including buildings, parking areas, and access drives, and the abutting residentially zoned property. This landscaped buffer shall be planted with a minimum of:

- One (1) shrub per three (3) linear feet,*
- One (1) evergreen tree per twenty (20) linear feet, and*
- One (1) shade tree per thirty (30) linear feet.*

Sixty percent (60%) of the landscape area outside of shrub and tree masses must be planted in live groundcover, perennials, or ornamental grasses. Stone, mulch, or other permeable landscape materials may be used for the remaining area. Where the buffer yard incorporates a wall, solid fence {minimum height 6'}, or berm, or a combination of these, the buffer yard width may be reduced to twelve (12) feet.

2018 Ordinance No. O-18-10-102 F.

The development, including buildings and parking areas, shall be separated from the street or road by a planting strip located adjacent to the street or road. The planting strip shall have a minimum width of six (6) feet, unless otherwise required by this ordinance, measured from the edge of the street/road right-of-way or, if there is no right-of-way, from the edge of the pavement. The planting strip shall be planted with one tree per thirty (30) feet of street frontage.

We believe that, rather than specify only "shrub, evergreen and shade trees" in development ordinances, Knox County would directly benefit by requiring natural landscaping in all future development. Native plants grow quickly, are drought tolerant, and do not require extra watering. They do not require mowing; in fact, mowing even once a month is devastating to most native plants. As stated previously, their capacity to absorb storm water cannot be overstated; it is far, far greater than that of lawn grasses (all of which are from Eurasia, South Africa, and South America) and that of ornamental non-native shrubs and plants. While not seen in our example, we suggest references to grass as "natural groundcover" should be removed. Non-native turf grasses require maintenance and use up natural resources, and they do a poor job of absorbing heavy rain. There is a locally native true grass that does not exceed a 12" height and thus does not need mowing, has a remarkable capacity to manage stormwater events, resists having other plants seed into it, can take walking on, can take dog urine, and grows in nearly every condition

including hot, dry hellstrips - *Muhlenbergia schreberi*. We suggest that this be the required "natural groundcover" in all instances where it is specified. Seed for this native grass is commercially available from Roundstone Native Seed in Kentucky.

We strongly urge Knox County to require site, soil and moisture-appropriate native trees and shrubs, planted together, with the shrubs directly beneath the trees, in its requirements for commercial and residential development, as well as on County-maintained property, because, simply put, in nature, trees always have shrubs beneath them; it is an expected partnership, from a tree's perspective. The benefits are numerous. Many trees are frequently shallowly rooted and can blow over in extreme wind events. By contrast, native shrubs are very deeply rooted and their presence prevents blowdowns; thus, shrubs firmly anchor trees to the earth. This benefits Knox Countians through avoidance of costly structural repair claims on homeowners' insurance from blowdown events, which could possibly keep insurance rates lower in the face of greater frequency of extreme weather events, and benefit Knox County through avoidance of the cost of clearing County roadways of would-be blowdowns. Native shrubs acting as trunk buffers beneath trees make it difficult for vandals to remove or otherwise sabotage a newly-planted tree, and difficult for maintenance crews to harm trees by mowing near trunks and roots, which frequently kills trees. "Soft landings" are created as leaves fall into the buffer zone, and the native insects, including butterfly larvae, fall with them for the winter, protecting the entire life cycle of the insects that host on that native tree and the shrubs. Another strong benefit is that shrubs with natural leaf litter accumulation beneath them provide the tree both with proper nourishment (its own leaves,) and also a cooler, more evenly moist root system in summer. The combination of tree and shrubs results in young trees establishing well rather than dying of stress, requiring less care during their establishment period. No leaf removal and reduced mowing and maintenance area would provide Knox County, commercial developers, and residential developers and homeowners with additional cost savings. Overall, it would mean less County maintenance of the tree canopy, and result in a faster-growing, more robust tree canopy throughout the County, which would have the effect of lowering utility usage that much faster, reducing expected future stress on the County's electrical service grids.

Regarding the tree categories specified in the example, please note that most pine-like evergreen shrubs are not native to Knox County; we suggest that this requirement be stricken in favor of requiring developers to choose shrubs from an approved list of native shrubs, which we would be happy to develop with you, some of which are evergreen but

within the Holly and Laurel shrub families. There exist very appropriate lower-growing (for sight lines) and also view-screening native shrubs appropriate for various site conditions as well, many of which have the added benefit of having lipid-rich berries that will sustain bird populations in winter.

We further suggest that residential developers, in particular, frequently make inappropriate native tree selections, such as the planting of maple trees in dry residential settings, due to the inexpensiveness of the tree. Maples prevent the growth of other native plants; there are many native trees we could suggest that developers plant instead that would be of greater benefit to the ecosystem and each residential yard, allowing homeowners to grow a greater number and diversity of native plants should they be so moved. Maples are an excellent choice for sites with excessive moisture, as are rain gardens, which would also suggest that Knox County formally codify the use of in its bid to become more stormwater-resilient. A guide to choosing the appropriate native plant material for the site conditions is something that we could work with Tennessee SmartYards to develop.

Regarding buffer distances, as strong advocates for the natural landscape, we would prefer to see a moratorium on wholesale land clearing when performing development in rural areas of Knox County, where our greatest diversity of native plants still occur. At the very least, we urge Knox County require to protect wide swathes of natural landscapes, much more than the 20 feet wide specified in this example, around all future development but even wider in rural areas, so that the character and feel of our rural areas is preserved, which at the same time provides natural wildlife corridors and prevents further isolation of populations of all manner of native species from each other. Wildlife typically will not use a 10-foot wide wildlife corridor; the Zone of Influence from light, noise, and domestic pets (in residential areas) overwhelms such a narrow buffer. Ecologists suggest that a 50-foot width is the minimum size of a functional wildlife corridor, and that longer corridors must be wider to have utility to wildlife. This also protects woodland spring ephemeral plants and the insects that require them, and preserves important nesting habitat for native birds.

This example shows that current Knox County Codes focus only on adding plants to the built landscape. We urge Knox County to add a requirement for developers to have invasive trees and shrubs properly eradicated from building sites and margins under their control, to prevent the spread of invasive species, which, even when a site has been cleared, often recur from root systems left in the soil. For example, Tree of Heaven, which is from China,

and Japanese Knotweed, both increase exponentially from their very extensive root systems if the main plant is cut or bulldozed; very carefully timed and performed eradication is required for success. Tree of Heaven is the host plant for the Spotted Lanternfly, which is arriving in Knox County now and threatens what remains of Knox County's agricultural economy, so correct eradication of this tree is particularly critical now. There are best practices for invasive species removal, which we can help Knox County to access so such an ordinance may be properly written. Ijams Nature Center has a rigorous "Weed Warrior" program; its graduates would be well-versed in best practices for each invasive species found on any site. The Tennessee Invasive Plant Council and other state agencies, as well as Trees Knoxville are also excellent resources. We are ready to work with them to develop this ordinance for and with Knox County.

6. Knox County-controlled Landscapes Should Encourage and Support Native Plants Through Specific Management Practices

Importantly, we wish for all Knox County-controlled lands, no matter the department with jurisdiction over that land, to prioritize eradication of invasive plants from those lands, and to prioritize management practices that protect and foster regrowth of native species from the seedbank of said land. In particular we are greatly concerned about the 24 acre parcel at Cedar Bluff, but this applies to all Knox County-held lands. We would appreciate the opportunity to walk the Cedar Bluff parcel with you and the appropriate Knox County departments, and to use that parcel as an example of how Knox County has reimagined its maintenance and landscape modification practices to fulfill its intended stormwater functions, to support the rare native plants found on site as well as its ecosystems, and to create a space that also serves as a recreational opportunity for Knox County's residents and visitors. Thoughtful development of this site to achieve these goals could garner national attention and be a Case Study for other municipalities.

7. We support the creation of native-lined greenways throughout Knox County

In the public meetings you have held so far, Knox Countians expressed a strong preference for the creation of more walking paths and greenways throughout Knox County. Wild Ones Smoky Mountains believes greenways are important for mental health, physical health, and general well-being, and thus supports this desire. However, we find that current greenways are often lined with almost nothing except non-native, invasive species,

making them non-contributors to our local ecosystems' health. Thus we advocate for a requirement in the UDO to create native-lined greenways as part of new development or parks projects expansion. We would welcome the chance to work with you and Knox County Maintenance, as applicable, to develop sound plans based on best practices for fostering and protecting native species along greenways, leading to self-sustaining landscapes that need minimal care throughout all four seasons, thus providing the public with ample opportunities to see native insects such as butterflies in their natural habitats. Such attention to our native showstopping floral displays could get Knox County on the map as a destination location for nature vacations, not just the Great Smoky Mountains. The methods we would suggest will cut maintenance requirements drastically and require minimal retraining of staff to be able to execute the new management plans.

8. Prohibit HOAs from banning the creation of Natural Landscaped Areas by property owners

All neighborhoods and landowners must be equally responsible for mitigating stormwater runoff, going forward. Thus we find it not fair or equitable for HOAs to prohibit interested landowners from creating Natural Landscaped Areas, and strongly suggest that HOAs be prohibited from preventing them via By-Laws, Rules & Regulations, etc. As mentioned above, we believe it is in Knox County's interest to require new HOAs to have only Natural Landscaped Areas, inclusive of areas designated for grass coverage.

In summary, we believe that the targeted yet substantive changes we have outlined above will greatly increase the diversity of Knox County's ecology and benefit all residents in the doing. We look forward to working with you to develop a UDO that revitalizes our natural landscape and bolsters our Knox County ecosystems.

Sincerely,

Wild Ones Smoky Mountains Board of Directors

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