

Getting Started with Nature-Based Landscaping

A Primer for Professionals

What is Nature Based About and Why is it Important?

Call it organic, holistic, nature based, nature friendly, it is all about caring for landscapes without chemicals that harm us and our environment, and with practices that keep plants naturally healthy.

Principals	Conventional	Nature Based/Organic
<p><i>It is the practices not the products...</i>Reduce/eliminate inputs that are harmful to people, pets and the planet. Replace them with practices that keep plants healthy without chemicals. Replace them with an attitude of life giving care.</p>	<p>Synthetic Fertilizers and Pesticides inputs (products) treat symptoms but not causes, so the same problems keep occurring and needing more products in a never-ending cycle. Products pollute the environment and are harmful to people. Nonrenewable resources are used to manufacture, package and deliver products, compounding the damage.</p>	<p>People say that organic is more expensive and it doesn't work. Partly true..but it doesn't have to be. Switching to organic products without changing practices does cost more and does not work as "well" as chemicals. Organic products have to be used with nature based practices. And if you get it all right, you probably won't even need the organic products. It does work and over time it keeps working better.</p>
<p>Do no harm: stimulate life cycles, instead of suppressing them.</p>	<p>As land care professionals, shouldn't it be a fundamental part of our job to care for land in a way that is healthy? Current maintenance practices are designed to forcefully control a property rather than to promote its life forms. Working against the nature of a place depletes its resources and requires increasing amounts of harmful inputs to maintain the image of health. Pesticides kill microbes and insects indiscriminately, leaving both soil and plants weakened and defenseless. . A cycle of chemical dependency is created that has negative effects on us, our children, our pets, and our wildlife.</p>	<p>Use life-promoting, not life-suppressing, techniques. Promote and assist the health of the soil microbiome; microscopic organisms and fungi; which support plant immune systems and nutrient pathways. Encourage beneficial insect populations. Plant native plants, they provide habitat for butterflies and birds, and require little care.</p>
<p>Focus on healthy soil</p>	<p>Pesticides and fertilizers kill soil microbes which deprives plants of their digestive, immune and defense systems and leaves</p>	<p>Healthy soil is full of microbes-the soil biome. It is a huge community of</p>

	them dependent on chemicals to stay alive.	microscopic bacteria, insects and fungi devoted to plant health. They feed the plants and the plants feed them.
Save our soils	Unprotected and overwatered soils are prone to erosion and to polluting water bodies.	Landscapes packed full of plants with deep healthy roots hold on to their soil.
Save energy and natural resources reduce pollution. Reduce Eco-Anxiety	Large lawns and plantings on a conventional chemical diet consume large amounts of resources: fertilizers and pesticides made from petroleum products; lawn and landscape machinery that burn fossil fuels and pollute the air; massive amounts of irrigation water wasted by inefficient and incorrect irrigation management ; imported mulches and bagged products that require fossil fuels for manufacture, packaging (seldom recyclable) and transportation.	Nature based watering, pest management, nutrient cycling and electric equipment can significantly reduce the impact of a property on the environment and human health. In fact they (you) can turn it from a negative to a positive.
Treat a landscape as one whole being--a living system.	Landscapes that never change, require constant pruning and suppression and represent a contest of wills and domination are not very peaceful, and usually toxic. Every part of a landscape is part of a living matrix and damage done to any is damage done to all. It is not possible to kill or suppress one part of a landscape without affecting the others.	Approach a landscape as a partner and work with, not against it. Every action has important consequences: Mowing, watering, fertilizing, pest management, pruning - all need to be carefully considered for their impact on the health of the place and all its occupants. A nature-based landscape engages all involved in a positive, and healthy environmental action. It looks good, it feels good.
Provide Habitat	Highly managed landscapes are food deserts for birds and butterflies. Non native plants that "nothing will eat", insect sprays and sterile flowers provide no food or shelter for declining populations of songbirds and pollinators.	Native plants, no pesticides and a tolerance for a bit of nibbling will invite nature back in. Every property can make a difference.

How is it done? The Basic Practices.

Nature Based practices are logical and quite obvious once you get in the practice of looking at a landscape from the perspective of the lives (plants, insects, birds, yours) involved. Careful observation and mindful care are your most important tools.

Practices	Conventional	Nature Based/Organic
Avoid the “-cides” as in <i>Pesticides</i> (cide means “...a killer of...”)	Synthetic Pesticides kill pests-- weeds (herbicides), insects (insecticides), fungi (fungicides), and so on. They seldom kill just the target organism (ie. only one kind of weed or insect) and most often have additional unintended consequences (ie: polluted waters and pets who eat poisoned voles). They are dangerous for humans too. (cancer, asthma, autism, endocrine disruption, nervous system disorders)	You can have a great landscape without synthetic pesticides and fertilizers. Maintain for life.
Avoid synthetic fertilizers	High nitrogen quick release fertilizers artificially overstimulate plants which leads to disease, insect infestations and constant pruning/depletion of energy. They run off and pollute waterbodies, promoting growth of harmful algae.	Good practices, great soil, the right plants, and balanced expectations are all that is needed for great results.
Support Soil Health: build the biome	Synthetic fertilizers and pesticides, improper watering, imported mulches, and leaf blowing are common practices that damage the soil biome and soil structure and prevent it from supporting healthy, insect and disease resistant plants.	Soil is the key to everything. Replace fertilizers, pesticides, and heavy mulches with composted organic matter that feeds a thriving soil biome. Keep the biome happy with correct moisture levels (deep down but not wet) and plenty of air, but disturb as little as possible.
Protect Soil	Bare soil exposed to sun, weather and erosion cannot support soil microbes and does a poor job of growing healthy plants.	Instead of blowing leaves away, mulch mow and/or compost them and use for covering soil in the winter and provide habitat for beneficial insects.
Start with a soil test- for organic matter and microbes	Fertilizer and weed management programs are most often formulaic. One size fits all. How can all soils need the same thing?	A professional soil and plant health care program should always start with a soil test if the client is going to be exacting about results. A good lab will help you design the right responses for the needs of the property.
Feed the soil, not the plants.	Synthetic fertilizers are more like stimulants than food, disrupting natural cycles to produce unnatural results. They promote fast, weak	Applying nitrogen in early spring to wake up a lawn before it is ready causes stress and fungal problems

	growth that is an easy target for fungus and insects.	later in the season. Plants cannot process nitrogen well when they are still dormant so most of your application will probably wash away and pollute local water bodies. Instead, rely on healthy soil with great organic matter and a thriving microbiome.
Keep all biomass on the property: the best plant food-Free	Conventional maintenance removes all biomass (organic matter-- grass clippings, leaves and twigs) to our overfull landfills where it releases nutrient into water tables and greenhouse gasses into the atmosphere. Blowers leave soil blasted, bare, and barren of microbes. The removed materials are then replaced with synthetic fertilizers and unfamiliar mulches.	Biomass is the food that plants make for themselves. It is a valuable resource. Instead of dumping it, repurpose/compost/return it all to the soil. It is free, it is the best food for your plants.
Composting In Place Saves Resources	Landscape biomass that is sent to the landfill is a wasted resource. It is the food that a property made for itself. Trees in the forest are fed by their own leaves. Imported mulches and composts are wasteful and can contain foreign weed seeds and toxins, which suppresses life, instead of supporting it.	Encourage clients to let you make a composting area-- reuse their landscape and kitchen "waste" and provide plants with exactly what they need-food and microbes. Use home made compost as mulch instead of purchased products: save money, carbon and fossil fuels.
Compost Teas: Spray Life not Death	There is a lot of talk about compost teas and ready made products that provide microbes and mycorrhizae. It isn't likely that a packaged product from somewhere else can provide a living community of microbes that are just right for every place and every plant. All compost tea mixes, even the fresh made ones, have to be made with the right ingredients for the particular need and used while fresh. Just because it is local, does not mean it is good.	Soil Microbes need our help to recover from fertilizers and pesticides as well as regular replenishment in landscapes with high demands. Compost tea is a way to add microbes in liquid form. It is not magic but it can do wonders if just the right combination of bacteria and fungi is correctly applied to your project. It can be expensive. Do your homework-choose the right supplier. Lawns and flowers generally respond best to bacterial based teas; woodies like fungal teas.
Free Lawn Food	Mulch mow grass and leaves and leave them on the lawns and in beds. They will satisfy most of your nutrient needs for free.	If you mow when the grass is dry, grass clippings will disappear quickly. The mulched leaves will also feed and protect the roots of trees and shrubs.
Learn to Love Clover-more free food	Clover fixes nitrogen in the soil and can supply 30% of a lawn's needs. The only bad thing about clover is its marketing campaign. We have been taught to hate clover, which makes us purchase herbicides to kill the clover and	Clover grows faster than grass in the spring and sticks out, which is not pleasing to lawn fanatics. Very quickly the grasses catch up. . Mow

	fertilizer to replace its nutrient reward. Save your money. Save the clover.	high and you hardly see the clover, although it is a proud indicator of a smart, safe and healthy lawn.
Mulch Much Less	Heavy mulching covers soil and suppresses weeds, but it also suppresses healthy desirable growth. Excessive mulching can smother root systems (tree volcanos) or encourage girdling roots or fungus problems.	Fill bare areas with plants you like to out-compete weeds. Mulch mow leaves and put them back under trees and shrubs.
Promote Healthy roots for healthiest and resilient plants	Poor watering and soil care practices keep roots on the surface where they are vulnerable to drying, compaction, and insects.	Roots, and the microbes that care for them, like it down deep away from heat, sun, foot traffic and insects. As good practices improve soil health, roots will grow deeper and deeper.
Mow high	Mowing short, the old fashioned way, allows sun to hit the soil and dry it out faster. Roots don't like light or heat, but weed seeds do.	Grow to 4", cut to 3" (size of a credit card). Longer grass means more photosynthetic surface and shade on the soil, meaning deeper healthier roots and more disease and drought resistant lawns. Taller grass out competes weeds and looks more up to date.
Water Seldom and Water Deep	Watering too often and too little keeps leaves wet (fungus!) and deeper soils dry leading to short, stressed roots. Roots near the surface dry out fast, requiring more frequent watering, and more fungus problems. Weak grass gives weeds an advantage too.	Water like the ideal rain: once or twice a week for a good long time (45 min +/- depending on soil). Get the moisture down a good 6-8" into the soil and wait until it is dry to water again. Don't start watering in spring until the soil is dry to 6" or more (mid – late June) so roots grow deep. Deep roots are less susceptible to drought and grubs. How deep, how often? Use a moisture meter.
Keep irrigation systems in synch with growing plants.	Irrigation is not needed for properly selected trees and shrubs once they are established. Drip tubes can waste water on plants that don't need it, are hard to monitor for efficiency and really don't look good. Spray heads that hit leaves and tree trunks cause disease problems. Over watering causes weak growth and makes plants susceptible to fungus and insect predation.	Remove drip tubes on established (+ 2yrs) trees and shrubs. Monitor and adjust irrigation systems regularly as plants grow and change.
Design for independence	Landscapes designed to look clipped and controlled and never changing are in a state of suppression. Constant pruning and cutting and spraying is exhausting for plants.	Gardens that are designed to be relaxed and natural do not need to be incessantly clipped, raked and blown. Designs that allow plants to grow in their natural forms, to

	Conforming to an ideal that is not natural is, well, not natural.	their full capacities require far less in labor and products to maintain.
Reduce lawn-save resources	Lawns are the most resource intensive part of a landscape, and generally the largest. They use 2-4X more chemicals per sq ft than agriculture and provide little to no ecosystem services.	Reducing lawn to just the amount that actually gets used can save water quality, air quality, biodiversity, and money.
Plant more plants, make them natives	The typical home landscape in the US has very few native plants and provides little to no habitat. Exotics are not always well suited to the conditions and require regular feeding and spraying. Others have escaped into the wild as invasives.	Native plants have evolved to thrive. Plant the in place they evolved and they will thrive for you without additional water/fertilizer/pesticides, They will also provide the right food and housing for beneficial insects and birds who evolved along with them. A landscape with 2/3 natives helps to restore plummeting bird and insect populations.
Right plant, right place	Most of the time a plant is chosen for reasons that don't have much to do with its own preferences and planted in a place it may not be well suited to enjoy. Plants chosen only for the human aesthetic and not their natural requirements, will require lots more help to thrive.	Put the time in up front. Get to know a property and the plants that prefer the conditions there. Give plants the soil, light, moisture, wind and temperatures that they evolved with, and they will thrive without long term fuss.
Overseed lawns	Lawn grass doesn't get to go to seed and replenish itself because mowing removes the flowers before they can make seed. No new seed means an aging and weakening.	Overseed the entire lawn in fall, when grass seed germinates best. Persistent weedy or bare patches mean that there is a soil problem, fix that first.
Use resilient turfgrass varieties	The wrong choice of turf grass can make a lawn difficult and product dependent.	Seed with a blend of resilient turf grass varieties that is right for the place (moisture, traffic, sunlight). Ask a specialist at your local seed vendor. Buy good quality seed. It matters.
Avoid monocultures-Promote biodiversity	Nature prefers complex systems - if one thing fails, there are backups.	Plants are healthier in mixed company. Use small groupings of repeating plant mixes. Increase resilience and provide habitat for more pollinator and bird species.
Build Habitat-share the space	The massive bird decline (3 billion lost in North America since the 1970's) is attributed to loss of habitat and use of pesticides. Most carefully maintained landscapes have little space for habitat and no tolerance for event slight insect nibbling.	Habitat is food, shelter and water. Choose plants that feed insects and birds. Welcome the signs of feeding caterpillars-Birds will feed them to their young.

		Leave undisturbed places for them to overwinter. Add bird feeders and a bird bath.
Use the Ten Step Insect Management Approach	Most people immediately call for a spray if they see a little bit of insect damage on a leaf. But if they spray at the first sign of damage, the good bugs never get a chance to eat the “bad” bugs, as they get sprayed too.	Plants are food. Food for us and food for insects that are food for birds. If you see some nibbles on a leaf, before you spray take ten steps back, problem solved.
Minimize pruning	The natural shape of a plant is an important part of how it functions. Forcing plants to grow in unnatural shapes requires constant pruning and fertilizing to replace the constant extraction of the plant’s twigs and leaves.	Every pruning cut is a wound and an invitation for disease. Removing leaf surface reduces photosynthesis and encourages panicky weak fast growth, which means more pruning, more spraying, more feeding. Design plantings that allow plants to grow to their natural size and shape.
Deadwood and Snags: unrecognized value.	No “proper” landscape allows for any deadwood. It is meticulously removed from every tree and shrub. Dying trees are removed instantly. Insects that rely on dead wood, the birds that eat them and the cavity nesters that live in them are displaced. Deadwood is an endangered habitat.	Leave dead wood in trees and shrubs that is not visually intrusive. Leave a dead tree (away from buildings, cars or walkways) for chickadees and owls. Call it a totem, it’s real name is a snag.
It is All in How You See It	What is the real reason people risk the health of their families, pets and environment to kill a dandelion or insect? Perception and peer pressure drives damaging behavior.	The more the perception of the ‘perfect landscape’ can relax, the better nature based can work. Allow nature to make some of the decisions. Why not allow for the surprise of a milkweed that seeded in and the monarchs found it.

How To Begin?

1. Clarify with the owner that they understand and are open to changes that will make the process work better. Have them read the principles and practices so they understand the process. They should be well informed and enthusiastic about the benefits.
 They must confirm that they are willing to accept (in writing?) these basics of the basics.
 - Phase out of synthetic fertilizers and pesticides
 - Later greenup of lawn
 - Longer grass (3.5-4')
 - Grass Clippings (high traffic areas optional)
 - Clover
 - Compost?

- Open to the possibility of less lawn, and buffer zones if waterfront.
 - A one-three year transition period depending on current conditions.
 - Patience and support of team.
2. Call a meeting for all who have any role in the garden or landscape. (owner/manager, designer, lawn cut and care, pest control, plant health, flowers beds and pots, vegetables, trees and shrubs, irrigation. Everyone. Explain the program and get their enthusiastic buy in. Everyone has a role to play. Everyone will benefit from a successful transition.
 - Distribute these materials for all to read and understand, encourage conversation about challenges and concerns and plan ahead for dealing with them.
 - Discuss and confirm compliance with new practices: Design, irrigation, mowing schedule, mowing height, Mulch mowing, leaving clippings, leaving leaves, reduced pruning, keeping biomass, composting, reduced use of blowers, etc.
 - Review owners concerns and preferences (ie where clippings can NOT be left) and focus on attending to them.
 - Make a plan for coordinating and implementing new irrigation schedules. Who is best to be in charge of clock? (the person responsible for plant health)
 - Coordinate irrigation schedules with mowing so grass is dry when cut.
 3. Communication is Critical
 - Make an easy reporting system for all vendors to stay in touch so problems can be caught and fixed asap by the appropriate person. Never leave a problem unattended.
 - Report progress regularly (weekly?) to client so they know what is happening and are not unduly concerned about transitional changes. Be up front about problems. An engaged client will be much more supportive.
 4. Make a 3 year Transition Plan
 - a. Year one – begin using nature based practices and read the changes in the landscape. Try different approaches and learn what works best. Every place is different, and every season too.
 - b. Year two – focus on the areas of weakness and pay attention to causes. Do you need to change the irrigation? Is the soil compacted?
 - c. Year three – fine tuning. You are in conversation with the landscape. You know it by now. Do not hide the imperfections, learn from them and heal them – then they will be fixed permanently.
 - d. Have faith, and don't cheat. Resorting to toxic chemicals will only set you back and prolong the process. If you have a serious problem that is overwhelming you, low toxicity treatments may well be the right response. Ask for help from someone who is not invested in toxics.

Nature Based is a constant process. We all learn as we go. It is more interesting. Healthier. Happier.

Some Common problems and their Nature Based Solutions

A few examples using common problems

Place	Problem	Causes/conventional approach	Nature Based Solutions
Lawn	Grubs	Fungicides and grubicides kill nematodes-natural grub predators	Stop using synthetic fungicides and insecticides. Introduce Nematodes

		Shallow roots (caused by shallow watering and mowing short) are easier for grubs to eat.	(requires careful timing), water properly, and build healthy soil
	Dollar Spot	Wet weather, over watering, wrong seed types	Patience (it is temporary); overseed with more resistant turf types, wait to irrigate.
	Weeds	Weeds grow where they have access to soil, ample space, sun, and water. Weak and/or very short turf grass with bare spaces allows weed seeds to reach the soil, germinate and get plenty of sun. bare patches are often in wet, dry, poor, hot, or compacted soil.	Fix the soil, mow high, water seldom and deep---grow deep roots and strong tall blades to outcompete weeds.
Trees Shrubs	Prunicola Scale in Privet	Excess stimulation from fertilizers, over watering and irrigation hitting leaves causes weak growth that sucking insects can more easily attack.	Privet needs tough love. Remove irrigation-never let lawn heads hit leaves. Stop fertilizing. Keep lawn at a distance, replace with light cover of leaf mold and native ground covers. Prune no more than 2X per year. Carefully Power ash infected leaves with horticultural soap until plants have built the resources to defend themselves.
	Aphids	Fast, weak growth due to overstimulation by fertilization, pruning and excess water. Lack of predators due to pesticides. Too much shade.	Same as above: change practices, wash frequently Introduce predators such as lady bugs but not at same time as using the wash approach.
	Tent Caterpillars	Scattered populations are typical. High populations occur occasionally, also typical.	Do nothing. Leave them for the birds...poke open the nests to make it easier for them. Even trees that are totally defoliated will recover. In big infestation years predator populations will increase, and caterpillars decrease the following year
	Fall Webworm	Normal end of summer occurrence. Looks bad, but isn't.	Do nothing. They do no harm. Late in the season, the leaves they eat are no longer doing anything important. Webworms provide important food for birds bulking up for winter or migration.
	Gypsy moth	An introduced species with insufficient natural predators. Populations vary from year to year.	Do nothing unless they defoliate a tree you like for more than two years in a row. Consult with organic tree care specialists and discuss options and consequences before considering any spray. All sprays kill beneficial organisms as well as the target.
	Beech Phytophthora	Insufficient soil biome made worse by the use of fungicides, Soil Compaction. Watering. Infected tools.	Mimic Beeches' native forest soil conditions by mulching under canopy with 2" of their own

			chopped up leaves . Sterilize tools before and after pruning.
	Rust in Cherries, shads, apples:	Wrong plant, wrong place: fruit trees are naturally susceptible to fungus diseases, growing them in humid coastal environments is a challenge Wrong soil biome: fruit trees are far less resilient without the right compliment of organisms.	Many of the native fruit trees, like Shads, lose their leaves in mid/late summer. In the wild, this is normal and does not stress them. It does stress people who expect them to look unblemished in their gardens. You can improve practices to maximize resiliency, but best is to. Plant them where the late-summer look is not important.
	Boxwood Blight	Methods of Fertilization, watering, mulching, pruning, overplanting (monocultures), and varietal selections all contribute to susceptibility to blight.	Boxwoods like their roots a bit high out of the soil with good air circulation Avoid heavy mulching, watering, and clipping Use only sterile tools Use only resistant varieties. Better yet, consider alternate native plant choices.

More Info:

Ecological Landscape Alliance www.ecolandscaping.org

[Metro Hort Group](#)

PRFCT Earth Project www.perfectearthproject.org/resources/publicationsresearchlinks

NOFA Organic Land Care Standards www.ctnofa.org/Documents/book_FINAL_OPT.pdf

Rutgers Soil Profile Newsletter www.njaes.rutgers.edu/soil-profile/

Soil Food Web: <https://www.soilfoodweb.com/>

Long Island Soil food web lab <http://www.soilfoodwebnewyork.com/>

Peconic Estuary Program Native Plants Database <https://www.peconicestuary.org/plant/>

Audubon Native Plant Finder <https://www.audubon.org/native-plants>

Further Education:

Ct NOFA Organic Land Care Certification Courses www.nofa.organiclandcare.net

Organic Lawn Care Classes (Free) Bridge Gardens Tuesdays <https://peconiclandtrust.org/our-work/projects/bridge-gardens>

Rutgers Organic Land Care Courses www.njaes.rutgers.edu/organiclandcare/

New Hampshire Courses www.organiclawninstitute.com

Soil Food Web Workshops and Courses <https://www.soilfoodweb.com/workshops/>

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For The Lake Agawam Conservancy

February 2020