

Nature's Best Hope Listserv Posts 2025

A series of listserv posts by the Hartland Conservation Commission loosely based on the book *Nature's Best Hope*, by Doug Tallamy.

1. Nature's Best Hope

Last year, the Hartland Conservation Commission wrote a series of listserv posts celebrating our 35-years of conservation. If you missed it, the entire series is available on the Town website (Conservation Commission page). This year, we want to do a series loosely based on the best-selling book, *Nature's Best Hope*, by entomologist and author Doug Tallamy.

It's evident, even looking around Hartland, that the environment is under siege from invasive species, climate change, and increasingly violent storms and floods. While these problems are global, there are actions we can take locally to help, starting in your own backyard (or farm, or woodlot). Recognizing the importance of the interactions between plants and animals is key. Plants produce oxygen, clean the air and water, and hold topsoil in place, while providing food for all animals. Animals, particularly insects and birds, pollinate the plants so they can continue to thrive, as well as controlling pests that might damage or destroy the plants.

Tallamy's basic idea is that if you added up all the backyards (or farms, or woodlots) in the United States, you would have a huge land area, and if everyone did even small steps to help conserve biodiversity in their own backyard, it could be like having a "homegrown national park". The benefits for plants and animals would be staggering; and the backyards would become more interesting, more diverse, and better able to respond to extreme weather.

If you're not familiar with the book, I encourage you to give it a read (it's at the Hartland Public Library), or just sit back and we'll dole it out in little bits over the next few months. If you have read the book and have tried some of the ideas, send me your experiences to share with Hartland residents.

We can do this!

Nature's Best Hope 2. - Your Little Piece of Paradise

For thousands of years before Europeans arrived, northern New England, and much of the future United States, was a largely unbroken span of forest. If the indigenous inhabitants managed the forest at all, they did so with an eye toward remaining in balance with nature. Biodiversity was high and was supported by the huge expanse of contiguous forest. Over time, and with European colonization, more and more of the land was cleared and broken into smaller and smaller privately-owned parcels. Now, 86% of the land east of the Mississippi River is in private hands.

That subdivision has consequences for plant and animal life. Populations get cut off from one another by roads, expanses of lawn, and agricultural fields. As the space a population of animals occupies gets smaller, the animals are more susceptible to the whims of local conditions. A bad winter (too cold or too warm), a poor crop of whatever they eat, or a bout of some disease, can wipe out a population, and its genetic diversity, in that locale. Multiply this by all the tiny habitats and one can see the problem. The vital connectivity that species had with one another has been fragmented.

Whether you own 1/4 acre or 100 acres, whether you farm vast fields or plant a small garden in your dooryard, you can help to bring that connectivity back. Imagine if everyone converted 50% of their “yard” back to native plants. Even if your plot is too small to support breeding populations of small animals, it can provide food and shelter for them as they move between your yard and your neighbor’s yard, and your neighbor’s neighbor’s yard. Little corridors can be critically important in allowing populations to mingle, and to survive.

Vermont’s Act 171 now requires that town plans must include attention to forest blocks and connectors (corridors between blocks). It also encourages towns to reduce forest fragmentation, enhance forest health, and increase the vegetation along rivers and streams, so that these riparian corridors can serve to connect habitats. Watch for future posts to see how you can help.

Nature’s Best Hope 3. Why We Need Biodiversity

Imagine if you went to Price Chopper and all that was on the shelves was potatoes. And in all the other grocery stores in the area, all they had was potatoes. Even if you like potatoes (and I do), this is not a healthy situation. I might not get all my nutritional needs met by potatoes, or if some potato plague hit, I would be left with nothing at all to eat. I want a diverse selection of foods at my grocery store – the more diverse, the better.

Insects, birds, and other animals don’t go to Price Chopper, but they also need a diverse selection of food around them. If the things they normally eat are replaced by invasive Japanese knotweed (or monoculture lawn, or acres of corn), that can be a problem. Up and down the food web, it puts them at risk of not getting the nutrition they need to stay healthy. They are more vulnerable to onslaughts of pests or disease. And their ecosystem can’t respond to or recover from natural disasters. They need a diverse selection of foods – the more diverse, the better.

Things that we do affect biodiversity. We can increase biodiversity by the choices we make; or we can decrease biodiversity. It’s up to us to make good choices. How? We can start by looking at what was here before humans came along. The plants and animals that were here are “native”; they evolved to be here, along with all the other native species. They are well adapted to this area, interconnected to each other, and they can form a balanced, resilient ecosystem.

When you have a choice of what to plant in the flower garden, choose native plants. In the vegetable garden, look for heirloom species. While heirloom plants are not always “native”, they do preserve a genetic diversity in food plants. Plant a pollinator garden to support native bees. Try to keep invasive species out so that the natives can flourish. You will start to see a difference very quickly, starting with more numbers and types of insects, then more birds.

One word of caution: as the climate shifts, what was native here before may move further north; and what was native to the south of us will creep into our area. Plants and animals have always expanded their range when they can, but climate change is forcing those changes more quickly than ever before. Plan, and plant, accordingly.

Make it a goal this year to plant at least one native plant.

Nature’s Best Hope 4. A Homegrown National Park

Here in the US, we are blessed with an amazing system of national parks. Over 80 million acres of land is protected, including our own Marsh-Billing-Rockefeller National Historic Park in Woodstock. Unique habitats like the Everglades, the Redwoods, or Death Valley have been preserved. But isolated parcels of land, even large ones, can’t preserve biodiversity. We need connectivity between parcels.

Similarly, we can’t focus attention solely on one species, like whales or polar bears, because an entire ecosystem must work together or it will collapse.

In *Nature’s Best Hope*, author Doug Tallamy proposes thinking of all our private lands as a “homegrown national park”. We can add as much as 20 million acres of “national park” solely by deciding to do it. It is actually better than a single large park because it is made up of thousands of little connected pieces. It requires no new infrastructure. It can be done quickly by citizens with no special training and very little cash investment. We manage it. We take care of it.

It is a remarkable shift in perspective if you begin to think of your yard as a part of a national park. You can create the habitat that you want. You can protect and encourage birds and animals to want to spend time in your space. Do you have special places (e.g., a vernal pool, a stream, a big patch of ferns) that you'd like to nurture? To provide ideas, Tallamy and others have started a website: <https://homegrownnationalpark.org/>. It is filled with suggestions for how to get started, where to get native plants (and which plants to get), and lots of good information.

As we come out of winter, it’s a great time to begin to think about the new growing season and what we want to do in it. Let’s get to work!

Nature's Best Hope 5. Lose Some Lawn

Here's a surprising statistic: A study in 2005 in Maryland determined that the state had 1.1 million acres of lawn – more than the area it had in state parks, state forests, and wildlife management areas combined. “But that’s Maryland,” you say. Next time you’re out driving, take a look around Hartland. We have a lot of lawn, too. While we’ve been taught to think it looks “neat” and “attractive”; for most insects and animals, it’s a desert. There is virtually nothing there for most of them to eat. And then there’s the water, pesticides, fertilizers, and hours of mowing people spend to keep the lawn looking like that. Lawns also produce less oxygen and store less carbon than other types of vegetation.

One of the easiest steps in moving to a landscape that supports more biodiversity is to reduce the size of your lawn. You don’t have to eliminate it (unless you want to), just make it smaller. We have a hill on our property that was a beast to mow. It was steep and rough, and it seemed like it was uphill in all directions. Then my wife said’ “Stop mowing it,” and I did. Now it has an abundance of native wildflowers –including lupine, black-eyed susans, asters, goldenrod - and small trees; and on June evenings it is filled with fireflies. I still mow a path through it, so that we can walk there without getting too many ticks; but it’s moving in the right direction. This year, we’re hoping to plant conifers in another place that previously was lawn.

You don’t have to just let things go wild, although that’s an option. Plant a pollinator garden or a hedge of native shrubs. Even if you just raise the mower blade a notch or two, low-growing flowering plants (a.k.a. “weeds”) can flourish and provide pollen and nectar for native bees and other pollinators.

We have tons of wild strawberries in the lawn that the mower misses because they’re close to the ground. In the spring, many types of insects, especially native bees, feed on the nectar of the strawberries. In the summer, other insects and birds (and the occasional human) feast on the berries. On occasion I have seen a flock of cedar waxwings gorging on the berries while I am mowing. When I come by with the mower, they fly up and circle around behind me, and then land and continue eating.

Take a look at your lawn. Could the borders of your gardens be expanded? Could a section be converted to a garden for pollinators? What about more trees? If you get to spend less time on lawn care and you also get a more animal-friendly habitat, that counts as a double win!

Nature's Best Hope 6. No Mow May

People sometimes say, "I don't have a lot of money to spend on helping to increase biodiversity. What can I do that won't cost a lot?" Here's an idea.

Each year, the Vermont Agency of Agriculture encourages homeowners to consider not mowing their yards for most or all of the month of May – the "No Mow May" initiative. Why? Early in the spring is a critical time in the life cycle of many pollinating insects. Flowers can be scarce and food hard to find. Dandelions, clover, and other early-blooming wildflowers in your yard can make a huge difference. By letting them grow without mowing the lawn, you can provide a diverse smorgasbord for native bees, moths, and flies. The longer grass can be a habitat for insects just emerging from whatever stage they overwinter in. Later in the season, enough flowers are blooming everywhere to provide for insect survival; but May is a lean month for pollinators.

Yes, if you stop mowing, the grass gets longer and can look "unkempt". And there may be dandelions. But come June, you can trim it down again. The lawn won't suffer any lasting ill effects, especially if you set the mower on a higher setting for the first cut. If you worry about an increase in ticks lurking in the taller grass, you can mow some paths, or only mow part of the lawn and let some of it grow. (There is research that suggests that if your lawn is not near woody shrubs and underbrush, it's probably not great habitat for disease-carrying deer ticks; and stopping mowing for a time probably makes little difference in the tick population.)

There is a compromise. If you mow in May, just raise the mower blade. Three inches is good; four inches is better. (You could call this "No Low Mow May".) And avoid mowing at dusk, when insects start to settle into the grass for the night.

Over the past several years, we have stopped mowing our lawn for most or all of the month of May; and we have noticed a marked increase in insect life that persists throughout the summer and fall. If we could speak insect, I think the increased buzzing, chirping, and humming would turn out to be the insects saying, "Thank you!"

Nature's Best Hope 7. The Problem with Invasives

Many of what we consider "invasive" plants started out as beautiful ornamentals in someone's garden. They can be beautiful, but they were brought here from somewhere else. It's helpful to distinguish between "native" plants, "non-native plants", and "invasive plants". Native plants, as we have said before, are plants that have been here for thousands of years. They have evolved to this soil, this climate, and these insects and animals. Non-native plants evolved somewhere else and were brought here, accidentally or on purpose. Invasive plants are non-native plants that are particularly aggressive in out-competing native plants.

Why are invasives such a nuisance? In the place where they evolved, there were things that held them in check – insects or animals that ate them; diseases that reined them in; other plants that competed with them. When the invasives show up here, all the checks and balances are gone. The plants reproduce wildly and soon choke out everything else, leading to a loss of biodiversity.

You might think, “Well, just let our insects and birds eat the invasives instead of the native plants that used to be here.” That doesn’t work. Many insects are very host-specific; they eat one type of plant and nothing else. If invasives replace their host plant, the insects die. Even when insects and animals try to eat the invasive plants, the nutritional value just isn’t enough to support them. The invasives are junk food.

So, what can we do about invasives? Pull them out! It seems a never-ending task, but we can win if we’re persistent. Some of the worst offenders around here are garlic mustard (blooming now), Japanese knotweed, black swallow-wort, Japanese barberry, honeysuckle, bishop’s weed, buckthorn, and burning bush. Get to know these invaders. Vermont Invasives (<https://www.vtinvasives.org/>) has a website with good information on identification and management of invasive plants and animals.

Take the first step. Go fill up a bag with invasive plants you pull from your yard or along your road; but be careful how you dispose of them, so they don’t spread and make the problem worse. The woody invasives can often be hung upside down so that the roots don’t touch the ground. More herbaceous plants can be put in a black plastic bag and set in the sun until they turn to mush (solarize).

Nature’s Best Hope 8. The Case for Caterpillars

You may have heard that “Love makes the world go ‘round.” Actually, it’s insects. Eighty-seven percent of all plants need insects to pollinate them. While plants capture the sun’s energy and make it available to animals, insects are the primary way that the energy is transferred up the food chain. Insects also decompose dead stuff and recycle nutrients, as well as keeping many pests under control. Ecologist E.O. Wilson estimated that without insects, humans would only last a few months. So, if we’re trying to make our yard a better place for Nature, start with insects. For our purposes, let’s focus on two of the jobs insects do: pollination and providing food for other animals. We’ll take up pollinators in a future post, so let’s talk caterpillars.

Baby birds eat a lot. In about a two-week span, they have to go from egg to almost full-grown. Each chick eats 30 – 40 meals a day. Caterpillars, the larva stage of butterflies, moths, and sawflies, provide an excellent solution. They are large soft bags of nutrition for young birds. It takes 200 aphids to equal the weight of one caterpillar. Scientists watching a nest in 1973 reported that the adult male bird made 241 trips to the nest to feed the young birds in a single day; the female made 571 trips. Over the course of 5 days, the pair made over 4,000 feeding trips! And that was just one pair of one species

of bird. If you want lots of different birds in your yard, they will need LOTS of caterpillars.

How to make your yard friendly for caterpillars? Give them the plants they like to eat. Audubon has a database of wildlife-friendly native plants at: <https://www.audubon.org/native-plants>. Just enter your zip code and find a list of native plants that grow here and support caterpillars (spoiler alert: oaks are best, but even flowers like goldenrod are good).

Another way to encourage caterpillars is to provide a place where they can pupate to complete their life cycle. Usually this is under or near the plant where the caterpillar was feeding. Leave some leaf litter under trees in your yard, and don't mow the grass too short. Avoid using pesticides, which often cause harm to non-target species. Put out the welcome mat for caterpillars and enjoy the side benefit of more birds, butterflies, and moths!

Nature's Best Hope 9. Bees and Other Insect Pollinators

We talked in an earlier post about the importance of insects in the natural world. Caterpillars provide a ready food source for many birds, spiders, other insects, and even small mammals. Another major role insects play is in the pollination of plants. Bees are critically important for pollination. There are over 4,000 species of native bees (the honeybee is not one of them.) Wasps, butterflies, moths, flies, and beetles also do their share.

Many people fear that bees will sting them. This is rarely the case. Most native bees don't sting at all; and even honeybees only sting to defend their hive or themselves from attack. A foraging bee will almost never sting. (Wasps, on the other hand, may sting just because they're ornery.) Bees' needs are simple – food, water, and a place to live. Seventy percent of native bees live in holes in the ground; many of the rest live in hollow stems of flowers or shrubs. Most native bees are solitary.

You can make your yard more bee-friendly. As you plant more native plants, think about when they will bloom. Larval bees eat nothing but pollen, so they need a continuous supply of flowering plants. Try to make sure something is blooming at all times. Don't get carried away with cleaning up dead flower stems – the bees can use them for nesting. You can buy or make a bee-hotel using short lengths of hollow stems of bamboo or other plants. It's better to make several small bee-hotels (Air Bee & Bees?), rather than one large one. If a bee predator finds the one large hotel, they can wipe out all the bees in one feast.

As always, minimize the use of herbicides in your yard. There is one class of pesticide that deserves special mention. Neonicotinoids (neonics) are chemicals that are similar in structure to nicotine, and they are very toxic to bees and other pollinators. If seeds are treated with neonics, the residue will appear in the flowers and pollen, poisoning insects

that visit. The European Union has banned the use of several neonics, and Vermont is phasing in a similar ban. You have no way of knowing if the plants at the hardware store or nursery came from seeds that were treated with neonics, except by asking. So, ask.

The Vermont Center for Ecostudies has a guide to help recognize and identify native bees here: <https://val.vtecostudies.org/projects/vtbees/all-genera/>. Set yourself a goal to find five non-honeybee bees. The more you look, the more you see!

The swarthy bee is a buccaneer,
A burly, velveteed rover,
Who loves the booming wind in his ear
As he sails the seas of clover.

-- Bliss Carman

Nature's Best Hope 10. Biodiversity Research in Hartland

You may have noticed a special garden in Hartland near the library. The Vermont Center for Ecostudies (VCE) is studying plant-insect interactions, and this garden is part of a giant experiment.

Because of the high demand for native plants, a lot of the stock at garden supply stores comes from nurseries hundreds of miles away. Plant "provenance" refers to the geographic source of plant material used for propagation. If plants are adapted to the area where they come from, they may have slightly different flower traits, timing of blooming, and resilience. How do our local insects respond to differences in plant provenance? Nobody knows - yet.

In the first such experiments in North America, provenance gardens in Hartland and elsewhere in the Upper Valley will provide some answers. VCE's Desiree Narango (who worked with Doug Tallamy) and Ryan Rebozo have planted twelve species of native plants from three widely separated sources (Northeast, Southeast, and Midwest), and will watch how the plants grow and mature, and how our local insects interact with them. If your ideas of science come from Dr. Bunsen Honeydew, stop by the library and check out the provenance garden.

The Hartland Conservation Commission will have a booth at Old Home Days on July 4. Come and talk to commissioners, see our displays, and hear about the cool projects we are working on. We will have a free raffle to give away a copy of *Nature's Best Hope*, by Doug Tallamy!

Nature's Best Hope 11. Observing Biodiversity Your Own Yard

In an increasingly electronic world, it can be easy to get disconnected from Nature. We feel like we're 'here' and Nature is somewhere else. Yet study after study shows that people get health and emotional benefits from contact with Nature. This is especially true for children.

Here is an exercise to reconnect, and to be a scientist in the process. Go outside on a nice day, sit by a patch of flowers (especially native flowers), and see what insects visit them. Take the kids along. Draw a flower, or an insect, or keep a journal. There are many electronic tools to help identify the insects (and the flowers), if you want to. We use iNaturalist, which is a free app and feeds into a worldwide database, but there are several others that work just fine. Just take a picture and upload it. Don't worry about bees – they won't hurt you if you don't bother them. Look for feeding signs on leaves. Count how many different insect and spider species you can see in your yard, even if you don't know what they all are – you can stop at 100.

Then go to a patch of mown grass and count the insects that you find there.

Go out with a flashlight at night and do the same exercise. (The light from a flashlight can be disorienting to night-time insects so please use it sparingly. Moonlight or a headlamp with a red setting is less disruptive.) White flowers that smell good (e.g. milkweed, lilacs, honeysuckle) are good candidates. Moths are busy nighttime pollinators, and they use their sense of smell more than their sense of sight to locate flowers.

As you start to make changes in your yard – planting more native plants, leaving fallen leaves on the ground, mowing higher and less often, stopping pesticide use – you will see changes in the number and types of insects. Their life cycles are short, and they can, and will, respond quickly to the changes. It can be exciting and very gratifying to see the impact you can make.

Nature's Best Hope 12. It Takes a Village

One of the barriers to adding native plants to your yard is the initial cost. A single serviceberry bush can cost \$25 or more. How can we add plants without breaking the bank? You may have more resources than you think.

In Thetford, a group of interested gardeners got together to form the Community Rewilding Group. Twenty-six people kicked in \$20 each to buy native plant seeds and potting soil. The seeds are relatively cheap. A packet of 200 *Echinacea* seeds (purple coneflower) might cost \$6 (about 3 cents a seed). The volunteers then planted the seeds in big trays and nurtured them along until they were big enough plant in the garden. They then sold them for \$0.50 per plant.

The volunteers each got 40 free plants to repay their initial \$20 investment. The remaining plants were available to anyone who wanted to add more native plants to their yard. The money from the sales covered the cost of the potting soil and seeds. This year, the group grew and sold thousands of plants of sixty different species, all native. We might try to do something like that in Hartland. All it takes is someone or a group of someones to make it happen. For more on what's happening in Thetford, see <https://www.awildgarden.com/>.

An alternative is to try to propagate plants on your own. Several great native plants can be propagated from cuttings or from suckers, at virtually no cost except the care needed to make them grow. Red-stem dogwood and willows can be propagated from cuttings, as described here: <https://www.uvm.edu/extension/news/propagating-dogwoods-and-willows>. Elderberry can be grown from cuttings: <https://www.gardeningknowhow.com/edible/fruits/elderberry/rooting-elderberry-cuttings.htm>. Serviceberry can grow from suckers.

Find someone who has plants like this in their yard and see if they would be willing to give you a few cuttings. Try the listserv. Root your own plants from the cuttings. Once your plants get established, you can return the favor by providing cuttings to someone else.

When I started talking to people about this, two of my friends immediately offered me red-stem dogwood and elderberry cuttings. In fact, they tried a variety of rooting methods to find the best way to propagate them. I now have a couple of red-stem dogwoods and a half-dozen elderberry plants growing in pots, and I'll give them to the first people who tell me they want one.

Another approach is to just stop mowing an area and see what comes up. Lots of native wildflowers will find their way to you, including black-eyed Susans, Joe-Pye weed, asters, and yarrow. But beware. Invasive species will also try to take advantage of the opening. Watch out for (and remove) garlic mustard, wall lettuce, goutweed, chervil, and poison parsnip.

If you know a master gardener or someone on the Hartland Garden Club, ask them for advice. You don't have to do this on your own. It will be more fun and less expensive if you share ideas and experiences with other people trying to do the same things.

Nature's Best Hope 13. Summary – Ten Things You Can Do

If you've stayed with us through all of these listserv posts, thank you! I hope you'll try some of the suggestions in your own yard. If you don't have a yard of your own, maybe we can work together on a piece of town-owned land, like the area around the library.

Doug Tallamy finished his *Nature's Best Hope* book with a list of ten things you can do to make a difference. Most of these have been covered in other posts, but here is a good summary.

1. Shrink your lawn and encourage more native plants to replace it - You can deliberately plant more native species, or just let it go wild and see what comes up. Also, if you mow what lawn you do have less frequently, you'll allow more flowers like clover and dandelion to bloom between cuttings.
2. Get rid of invasives - This requires a long-term effort, but it's worth it. VTInvasives website is a fantastic resource for identifying and managing invasive plants (and insects). <https://www.vtinvasives.org/>
3. Plant keystone species – native oaks, willows, birches, cherries, goldenrod, asters, sunflowers – to help as many insect species as possible. Today's birds are yesterday's caterpillars.
4. Be generous with your plantings - You're trying to make a native ecosystem. Think about a variety of plants - different heights, different blooming times, different microhabitats.
5. Plant for specialists - Many insects prefer one particular plant species in order to thrive. Asters, goldenrod, blueberries, willows, and perennial sunflowers are good choices, appealing to many insect specialists.
6. Network with neighbors – Making an island of biodiversity is a good start, but it will be much more effective if your neighbors are doing it to. Apps such as YardMap help you find like-minded neighbors.
7. Build a conservation hardscape – As you start to attract new species to your yard, make sure it's safe for them. Avoid pots of water where small animals might drown, use outdoor lights sparingly, set your mower blade to no less than three inches (four is better), put window-well covers over window-wells to keep small animals from getting trapped, and add stencils to your windows to reduce bird-window collisions. (Lots of small stencils spread out over the window surface seem to work better than a few large stencils.)
8. Create caterpillar pupation site under trees – Leave leaf litter under your trees or put in a native ground cover so that caterpillars have a place to pupate. Large rocks or pieces of decaying wood also make good pupation sites.
9. No spraying or fertilizing – Insecticides and herbicides are not specific. They kill good plants and insects along with the bad. Even fertilizers are unnecessary. Native plants evolved in low-nitrogen soils and are quite happy with no additional boost.
10. Educate neighborhood civic associations - We don't have a lot of homeowners' associations around here, but we have municipal officials, selectboard members, and road crews. Make sure they know you put a priority on encouraging biodiversity.

Each of us can make a difference by the choices we make. Hartland is blessed with a lot of wonderful natural areas. Our yards can become part of that mosaic, and part of a homegrown national park. Let's do it!