2009

A Citizen's Guide to Protecting Sandown's Wetlands and Water Resources

Sandown Conservation Commission

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This publication is brought to you by the Sandown Conservation Commission with a grant from the Piscataqua Region Estuaries Partnership

www.sandowncc.org 2009

Water water everywhere

Sandown's recent floods underscore the need for land management that minimizes flood damage

by Mark Traeger, Sandown Conservation Commission

In recent years, Sandown residents have had their share of flooding problems. During the Mother's Day flood in 2006 and the Patriots Day (April 16) flood in 2007, the Exeter River overran its banks and the fast moving water literally carried shoreline property down river to Great Bay and on to the Atlantic Ocean.

After the floods, the Town and residents looked for ways to prepare for the next flooding event, which many scientists say will become more frequent in the coming decades. Around Sandown damaged culverts were replaced and homeowners bought new sump pumps to keep up with invasive rainwater.

These quick fixes may help prevent some damage, but altering land development practices will have a greater effect on reducing flood damage on a larger scale.

Typically when land is developed, curbs, gutters, and storm drain pipes are installed to move water very quickly from buildings to the nearest river or stream. Moving water quickly from an area

M. Traeger

Flood waters in the 2006 Mother's Day Flood in the Exeter River.

comes at the expense of downstream property owners who have to deal with a surge of stormwater.

In a natural condition, rainwater and snow melt move to rivers at a slow rate. It either seeps into the ground or gradually flows past thick vegetation on its way to a stream. When buildings and roads are built that are essentially waterproof, the rainwater can not seep into the ground and instead enters rivers and streams at a faster rate and volume, leading to flooding.

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What can you do around the house to protect or enhance wetlands?

Find out on page 6

When size matters

Wetland buffers need to be different sizes to provide the desired resource protection

by Matt Tarr, Wildlife Specialist, UNH Cooperative Extension

Wetland buffers in Sandown help safeguard water quality, maintain wildlife habitat, and offer flood control protection. That's a big job description for a deceptively simple concept.

As our understanding of these natural areas has grown, so has our awareness of their importance and their individuality. One size does not fit all.

The size of an effective buffer varies depending on the body of water it is intended to protect and what it is intended to protect the water from. For example, the buffer required to protect a wetland from the temporary disturbance of a carefully planned timber harvest in the adjacent uplands

Lush native vegetation next to water, called wetland buffers, makes the water cleaner, reduces flooding, and provides habitat for wildlife.

may be significantly smaller than a buffer required to protect the same wetland from the permanent disturbance of a housing development or road.

When buffers are intended to protect water quality they act as a natural filter for runoff

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May and June is turtle time

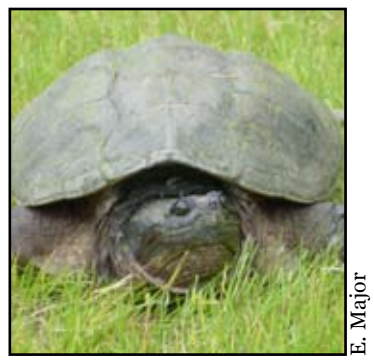
Give them a brake

by Kevin Major, Sandown Resident

Every spring in Sandown, particularly in May and June, a great turtle migration takes place. Turtles of all types begin to move from their spring habitats to look for appropriate nesting sites for laying eggs.

Female turtles can travel great distances to get to their special egg laying spots. Often the nesting site chosen by a female turtle has been utilized by her species for years. Turtles look for loose soil or sandy areas that are far above the seasonal water table and receive warming spring sunlight.

I have observed snapping turtles that have traveled hundreds of feet, climbing steep slopes near my home, to reach the sandy road sides of Snow Lane. These fearsome



E. Major

Female snapping turtle near Snow Lane in Sandown preparing to lay eggs.

looking ladies dig a nest in the broken ground with their clawed rear feet, deposit a clutch of eggs, and then cover them up. Sometimes they will return in a few days and build another nest near the first.

As the wetlands of Sandown become more and more fragmented by new development, the turtles must often cross roads and driveways to get to their

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Riparian Buffer: What it is and what it has done for you lately

by Sally Soule, Coastal Watershed Coordinator, NH Department of Environmental Services

Henry David Thoreau once said, "Rivers twist and turn in their beds until it feels comfortable beneath them." He poetically observed that New England rivers and streams are dynamic; they are always moving and changing.

Traditional patterns of land use and development on the river's edge can affect a waterway's natural tendency to move and adjust, which in turn can cause problems resulting from flooding, erosion, and loss of habitat. Additionally, our close proximity to rivers can lead to contamination problems from polluted runoff.

Rivers need breathing room. Vegetated areas next to rivers, called riparian buffers, are an important way to ensure that our rivers get the space they need to support good water quality, stable hydrology, and healthy aquatic wildlife.

The best riparian buffer is an area of lush native vegetation next to a stream, river, lake, or pond that is wide enough to filter pollutants and stabilize shorelines. Polluted runoff containing bacteria, nutrients, sediment, and other contaminants is cleansed by the biological actions of plant roots in the soil. A recent study conducted by the US Geological Survey in coastal New Hampshire showed that streams with a higher percentage of urban land use in the riparian buffer area generally had poorer water quality than those streams where the natural buffer area was left intact.

Rivers Need Breathing Room

Buffers also slow and dissipate the flow of water over land, which promotes flood storage and infiltration. This helps to reduce property damage from flooding and erosion from stormwater surges because water is retained and infiltrated in the riparian buffer. Buffer vegetation also provides shade that keeps temperatures cool and oxygen levels high - both are critical for many native fish and ecologically important aquatic insects.

Wider buffers provide the most services to the community: pollutant filtration, flood control, wildlife habitat, and groundwater recharge. Research indicates that a 100-foot buffer width is needed to reap buffer benefits. Buffers less than 35 feet have not been found to sustain long-term protection of aquatic communities. Of course wider buffers containing diverse, native vegetation provide the maximum benefit to our waterways and the community.

Riparian buffers have important environmental, economic and social benefits. As more land is developed in our region, it will become increasingly important to ensure that rivers and streams have adequate riparian buffers. Many resources exist to help communities establish shoreline buffer programs. Working with your local Conservation Commission is a great way to find resources to help promote riparian buffer protection.

Do you know a wetland when you see it?

Many of Sandown's ordinances that protect our valuable water resources protect wetlands, however, most people can not correctly identify many of these areas. Wetlands are defined by a specific type of soil and the presence of a distinct group of wetland plants. Legally, the delineation can only be determined through a field survey by a wetlands scientist. The Sandown Planning Office has a map of the wetlands in town. This map should be consulted prior to conducting any work on a land parcel to ensure that ordinances are not being violated.

Wetland buffers are Nature's water treatment plants - cleaning rainwater of pollutants before harm is done to Sandown's rivers, streams, ponds, lakes, and groundwater.

Size

continued from page 1

and may need to be 50 to 100 feet wide to adequately filter pollutants.

However, buffers of this size are often inadequate for wildlife habitat. For example, amphibians such as wood frogs breed in the spring in vernal pools, but spend most of the year in the surrounding forest, often more than 300 feet away from the pool. Activities that convert forest into lawns, driveways, and/or buildings within 750 feet of wetlands have been shown to reduce the amount and quality of habitat for many wildlife species.

Negative impacts to wildlife can be minimized if development projects accommodate wildlife uses of both the wetlands and the surrounding habitats.

Unfortunately, one buffer size can not be recommended for all water bodies. Each situation should be assessed and landowners should maintain a buffer size that best accomplishes ecological objectives. Ensuring good water quality and wildlife habitat benefits everyone.

Landowners can contact New Hampshire Fish and Game Department biologists and/or UNH Cooperative Extension staff who are available to advise landowners on suitable buffer widths. For more information, contact Matt Tarr at 862-3594 or matt.tarr@unh.edu.

Turtle Time

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traditional nesting grounds. This makes vehicle traffic one of the most dangerous threats to the life cycle of southern New Hampshire turtles. This is why drivers should be aware of turtles on the move in early summer and take a few steps to help our reptilian neighbors.

What can you do?

Watch out and slow down for turtles crossing the road in May and June. ***If you can do so safely,*** help the turtle cross the road and move it along the same path she is headed, otherwise she will cross the road again.

When moving large turtles, try pushing them into a cardboard box or on to an old blanket and carry them across the road.

Do not move a turtle to a different place or take it home.

Take a picture and write down the date, time, location, and the type of habitat that the turtle was headed towards. Pass this information on to the Sandown Conservation Commission.

If you see an injured turtle you may want to contact wildlife rehabilitators to care for it. Call the NH Fish and Game's Wildlife Division at (603) 271-2461 for a current list.

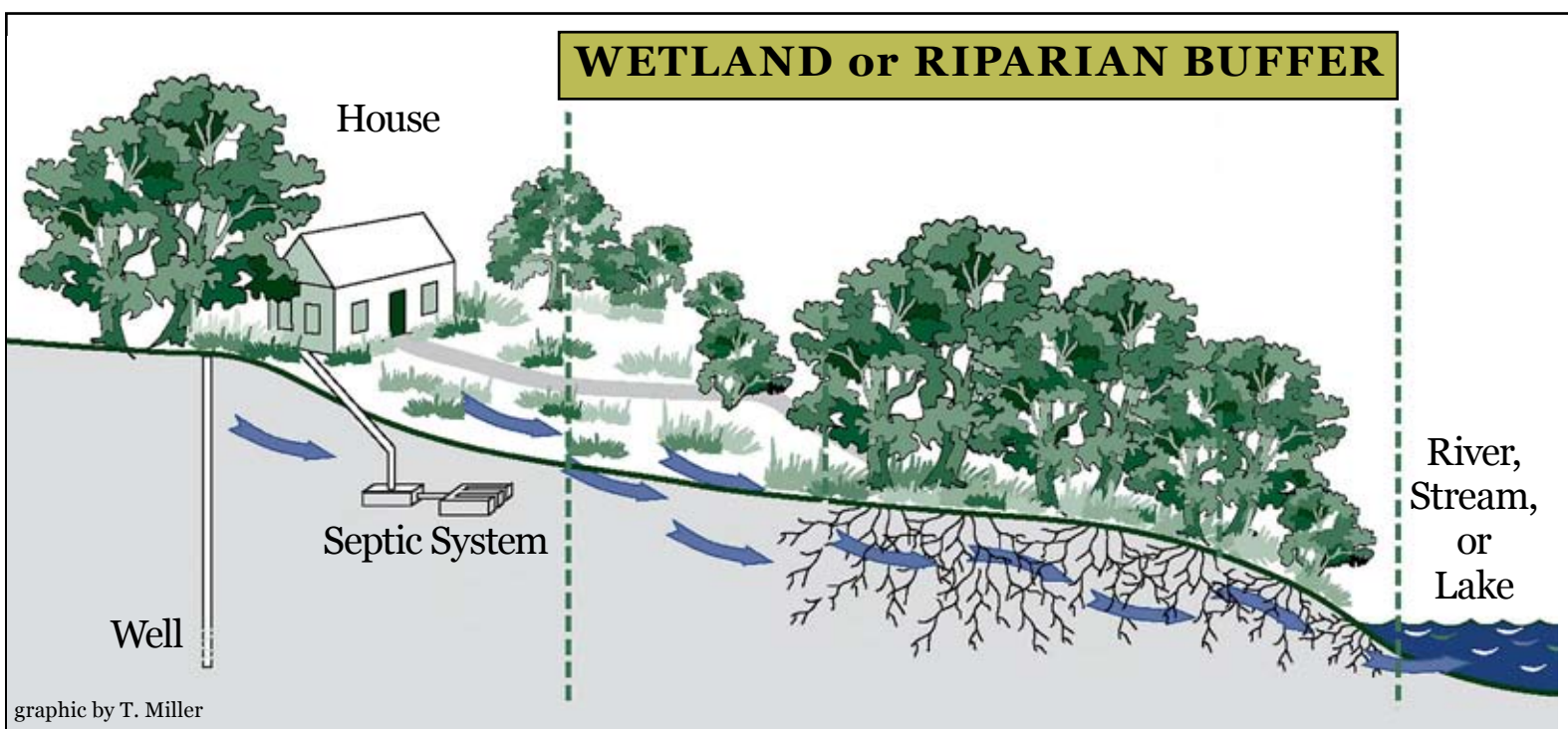


Diagram from Backyard Buffers that Work for People and Nature by Restoring Ecological Function, 2006. Copies of the brochure can be obtained by contacting the Portsmouth Environmental Planning Department or the Coastal Training Program at the Great Bay National Estuarine Research Reserve.

Wetland buffers provide many benefits to a landowner as well as all citizens of Sandown.

Wetland buffers provide:

- Erosion and flood control
- Sediment and debris control
- Pollutant removal
- Stream flow regulation
- Shoreland stabilization
- Wildlife habitat enhancement
- Recreational opportunities
- Rural character

Minimizing Impervious Surfaces: The key to good water quality

Paving Paradise

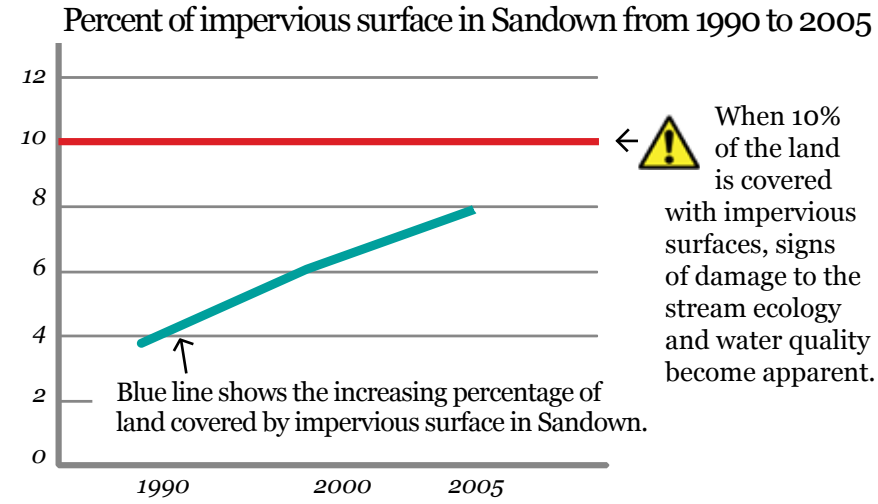
As Sandown grows, more roads and houses means more stress on our water resources

Various studies from around the country show that stream ecosystems and water quality become degraded as impervious surfaces increase. Damage to streams often occurs when more than 10% of the land within a watershed is covered with impervious surfaces. When the percentage of impervious cover exceeds 25%, most watersheds experience severe habitat and water quality degradation.

In 2005, a study in New Hampshire demonstrated that the percent of impervious surface and its proximity to streams can be used as indicators of stream quality.

As Sandown approaches the 10% threshold of impervious surface coverage, it becomes more important to minimize the building of impervious surfaces to protect the community's water quality.

Percent of impervious surface in Sandown from 1990 to 2005



How do impervious surfaces affect water resources?

M Traeger

Increases Flooding

Curbs, gutters, and storm drain pipes are typically designed to move water very quickly from buildings to the nearest river or stream. This is much faster than the way water naturally flows through a watershed. Before land is developed, rainwater slowly moves through wetlands and either seeps into the soil or gradually flows to the sea. Impervious surfaces increase the amount and speed of stormwater flowing into streams and thus increases flooding.

Bigdadventures

Adds to Thermal Pollution

The heat of the sun warms roads, roof tops, and parking lots. When rain water flows over warmed impervious surfaces, the heat is transferred to the water and into drainage streams. Increased temperatures lower the amount of oxygen in the water and often kill aquatic creatures, including native cool water fish species, like the brook trout.

EPA Smart Growth

Increases Water Pollution

Impervious surfaces accelerate the delivery of pollutants, such as bacteria and nitrogen, to rivers, lakes, and estuaries. Bacteria can make people and animals sick and nitrogen can cause algae blooms that block sunlight, deplete dissolved oxygen, and kill many forms of aquatic life. Other pollutants of concern are heavy metals and oil from vehicles.

PREP

Speeds Erosion

Impervious surfaces accelerate the speed at which water enters rivers and streams, causing a rush of water during a rain storm. The increased velocity of the water erodes banks quicker than normal and can result in loss of property. Furthermore, the mud from the eroded shores clouds the water and can block out much needed sunlight in the estuaries.

N Phillips

Smothers Stream Life

Rain water that rushes over parking lots and roads carries sand and other particles into streams. These materials float in the water until it slows, when they settle on the bottom. Called sediments, the sand and mud cover important habitat for mayflies, stoneflies, and other animals that are vital to the food chain. The result is a muddy stream that has low biodiversity.

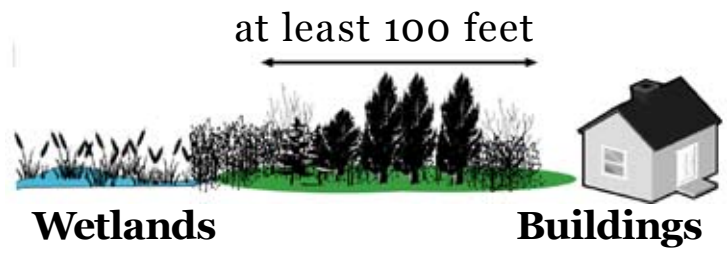
Homeowners Can Reduce the Impact of Impervious Surfaces

To help protect the quality of Sandown's water and to minimize the damaging effects of flooding and pollution, homeowners can do a variety of things that collectively make a big difference. Homeowners can:

- Minimize lawn areas by planting shrubs, ground covers, and trees at the border of their property. Lawns are less efficient than planted landscaped areas at recharging groundwater and maintaining water quality.
- Limit the amount of impervious surface on their properties, such as sidewalks, roofs, driveways, patios and even swimming pools.
- Direct rainwater runoff from gutter drains to areas that are landscaped. Known as rain gardens, these areas increase groundwater recharge.
- Sweep driveways and walkways instead of hosing them down, thus slowing the rate at which pollutants enter local waters.
- Support Town efforts to protect water quality and enhance the quality of life in Sandown.

Give Wetlands Some Elbow Room

Wetlands need undisturbed space around them to purify rainwater and to lessen the impacts of flooding



Impervious surfaces are areas covered by material that prevents water from soaking into the soil. Examples of impervious surfaces are buildings, pavement, concrete, and compacted soils.

Water in the Woods

Identifying vernal pools protect these important habitats and the creatures that live in them

by Kevin Major, Sandown Resident

Have you ever noticed a small pool of water in the woods that seems to come and go throughout the year? It may be a puddle or it might be a very special habitat that is vital to some of Sandown's most fascinating creatures.

Called vernal pools, temporary ponds that support a unique group of animals are usually found in woodland depressions. They are crucial breeding areas for such interesting creatures as the fairy shrimp, spotted salamander, and wood frog.

Vernal pools tend to dry up during the summer making them incapable of supporting fish populations. In fact it is the lack of fish that makes them ideal breeding areas because vernal pool residents don't have to worry about getting eaten by fish.

During a wet year, a vernal pool might remain flooded, however, during a drought year, a vernal pool may never form. On average, a temporary pool must hold water for at least 2 continuous months after the ice has melted in the spring to be classified as a vernal pool. It must also support a population of vernal pool animals.

The New Hampshire Department of Environmental Services applies wetlands protection rules to documented vernal pools. Unfortunately, Sandown's vernal pools remain largely undocumented. This leaves them vulnerable to future development. You can help by identifying and reporting vernal pools to the Sandown Conservation Commission.

K. Major

Primary indicator species of vernal pools include marbled salamander, wood frog, spotted salamander, Jefferson-blue spotted salamander and the small fairy shrimp (pictured above). This fairy shrimp was found near Snow Lane in Sandown in April, 2008.

The Green Machine

Sandown's Town Forest serves residents in a variety of ways

by Mark Traeger, Conservation Commission

The newly expanded Fremont Road Town Forest is not just a green open space on the map of Sandown. It is a multi-functional Green Machine that serves us all in different ways and can be enjoyed by each of us in our own unique way.

When the people of Sandown voted to add another 138 acres to the old town forest on Fremont Road each voter had their reason for investing in our town and many of them are now reaping their rewards from that investment.

The new parking lot has cars in it almost every day. Whether it is a hunter who pulled in before sunrise or a family letting their children run off steam before dinner, the forest is being used and enjoyed by a good cross section of Sandownians. Some like the short blue trail for a quick walk, while others are exploring every nook and cranny, but that is not all the Green Machine is doing for us.

With only the parking lot being somewhat impervious, our Expanded Town Forest is acting as a giant buffer to a number of wetlands, small streams, and the Exeter River. On Fremont Road we have a 265-acre riparian buffer that is continually filtering and slowing down surface water and providing aquatic, amphibian, and land based wildlife room to eat and breed. The Exeter River now has protected riparian buffers on both sides for approximately half a mile on one side and approximately one mile on the other.

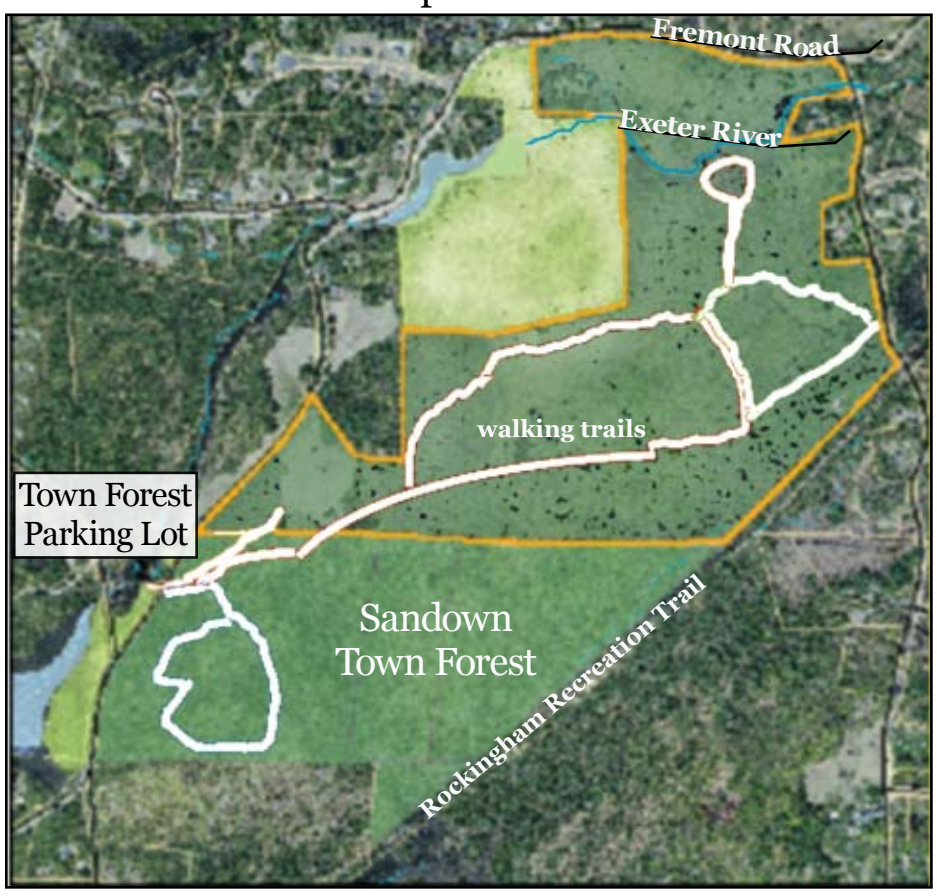
The Town Forest is a valuable resource for Sandown

The Green Machine is also refilling our aquifers with good clean water for our wells, it is supporting a food chain of wildlife that wander all over southern New Hampshire in their quest to live and procreate, it is scrubbing the air we breathe, it is putting food on the plates of hunters, it is providing us with exercise, it is giving us a place to explore and relax in our backyard, and it is giving our town one more feature that makes us unique.

Our man-made structures will ebb and flow as time goes by, but with a little care our Green Machine will breeze along long after the bonds are paid and our grandchildren have children.

Please take time to explore your Green Machine.

Sandown Town Forest Expands in 2008



Getting away from it all can be as simple as driving down Fremont Road and pulling into the parking lot by the intersection of Phillips and Fremont Roads. The Forest offers three miles of trails, river banks to fish from, animals to track, birds to view, bugs to count, and little treasures to find (geocaches).

Take a break, and enjoy your Town Forest.

Map Legend

- Sandown Town Forest
- Adjacent Conservation Land
- Boundary of the 2008 Expansion (Minton Property)
- Walking Trails

Buggy for Water Quality

Counting insects leads to a greater understanding of Exeter River health

Each September, members of the Exeter River Local Advisory Committee, along with other volunteers from along the 33 miles of the Exeter River, help the Department of Environmental Services (DES) go on a bug hunt. This is not recreation but part of a monitoring program aimed at understanding the river's health.

Bugs (called nymphs or larvae by scientists), along with aquatic worms, clams, and mussels, are collected, identified, and counted by the volunteers. The different types and numbers of living creatures found gives experts an idea of the quality of the river water.

Too many of one bug and not enough of another living on the river bed is a sign that the river is out of balance. Some nymphs and larvae are extremely tough and can survive in poor quality water. Others are very sensitive and require good water conditions to live.

Some examples of bugs that can only be found in clean water include mayflies, stoneflies, hellgrammites, and caddisflies. These insects are very familiar to fly fishermen who tie flies to mimic these favored food of trout. It is no coincidence that trout thrive on a diet of these insects that live in clean water. Good water for bugs is good for fish and for people.

If you would like to be a Volunteer Biological Assessment Bug Counter, please contact the Sandown Conservation Commission at information@sandowncc.org.

(above) Volunteers search the Exeter River for aquatic insects to assess water quality. Insects like the stonefly nymph (below) are indicators of clean water.

Prime Wetlands in Sandown

In 2007, the Town of Sandown hired Mark West, a wetland scientist, with funding assistance from the Piscataqua Region Estuaries Partnership to evaluate the wetlands in the town and determine which ones were high quality areas worthy of being designated as Prime Wetlands by the New Hampshire Department of Environmental Services (NHDES). West mapped the wetlands and conducted extensive field evaluations to create a report that identified Sandown wetlands "of significant value... because of their uniqueness, fragility and unspoiled character."

What makes a wetland Prime?

Prime Wetlands are determined based on a number of criteria including soil type, plant community and a comparative evaluation of the benefits that the wetlands provide, such as flood control, water storage, wildlife habitat, education potential, and recreation. Of the 118 wetlands in Sandown over 2 acres in size, 23 were determined to be of a high enough value to warrant Prime designation.

The wetlands identified by the study provide a number of benefits to Sandown residents, including: groundwater recharge, flood control, erosion control, pollution (nutrient) removal and wildlife habitat.

How are Prime Wetlands protected?

When a wetland is designated as a Prime Wetland by the NHDES, a number of regulations are put in place to protect the resource. Proposed construction projects, such as a subdivision, within 100 feet of Prime Wetlands will require a Dredge and Fill permit, a site inspection by NHDES staff, and a public hearing to inform the community of the proposed wetlands impact and to gather citizens' comments. These comments, as well as a site assessment by the NHDES, will be needed before a permit is issued. This ensures a fair consideration of public needs when evaluating the impacts of development on our natural resources.

Is the Prime Wetlands designation complete in Sandown?

No. The Conservation Commission must submit the report to the Planning Board for approval and then propose a warrant article to must be voted on at a Town Vote to designate the 23 Prime Wetland candidates. If the warrant passes, the report and other documents are submitted to NHDES for acceptance.

Do other towns have Prime Wetlands?

Yes. Across the state 26 communities have Prime Wetlands designations, including the Seacoast towns of Exeter, Brentwood, Fremont and Newmarket.

Can someone dispute the designation?

If a landowner believes the delineation is not correct, or if the wetland boundary shifts over time, landowners can petition the NHDES to review and possibly revise the Prime Wetland boundary.

Which landowners are impacted?

Landowners who abut all or part of the 23 wetland candidates who wish to alter terrain through excavation or building within 100' of the wetland edge or in the wetland would be affected. Those with land covered by Comprehensive Shoreland Protection Act are already affected (see story below). Landowners with existing approved sub-division plans, sub-division plans in the approval process, and existing building permits that are in place or were started before the DES acceptance date, will not be affected by the Prime Wetland designation. Prime Wetland Designation is not retroactive and only impacts terrain alteration that takes place after a town vote and DES acceptance of the application.

New rule changes for landowners adjacent to Exeter River, Angle Pond, Cub Pond, Phillips Pond, and Showell Pond

On July 1, 2008, changes to the NH Comprehensive Shoreland Protection Act (CSPA) were adopted and Sandown landowners within 250' of Phillips Pond, Showell Pond, Angle Pond, Cub Pond, and the Exeter River were affected. The CSPA addresses activities within three zones or buffers from the eligible water body. The three zones are Waterfront Buffer, Natural Woodland Buffer, and Protected Shoreland Buffer. Reference complete rules are at http://des.nh.gov/organization/commissioner/legal/rules/documents/env-wq1400.pdf

Buffer Rules

0-50 ft. from Reference Line - Waterfront Buffer

All new primary structures must be set back 50' from the reference line. Towns may have a greater set back – but not a lesser one.

A 50' waterfront buffer must be maintained. Within the waterfront buffer, tree coverage is managed with a 50'x 50' grid and points system (definition at right). Cutting trees and saplings is allowed as long as the sum of points for remaining trees and saplings equals 50 points or more per 50'x 50'grid (see table at right).

Natural ground cover (lawns excluded), including the leaf litter, shall not be removed. No cutting or removal of vegetation below 3' in height (excluding lawns) except for an allowable footpath to the water (up to 6' wide) that does not concentrate stormwater or cause erosion.

Stumps, roots and rocks must remain intact in and on the ground.

Pesticide use by a licensed applicator only.

Low phosphorus, slow release nitrogen fertilizer may be used for the area that is beyond 25 feet from the reference line. No fertilizer, except limestone, shall be used between the reference line and 25 feet.

0-150 ft. from Reference Line - Natural Woodland Buffer

Within this buffer, from 50 to 150', for lots over ½ acre, fifty percent of the area not covered by impervious surfaces shall remain in an unaltered state (definition at right).

For lots 1/2 acre or less, 25% of the area shall remain in an unaltered state.

Fertilizer restrictions

0-250 ft. from Reference Line - The Protected Shoreland

Permits are required for many construction, excavation, and filling activities. However, certain maintenance and low impact activities have been exempted, such as installation of fencing using hand tools, or use of listed in Env Wq 1406.

The general allowance for impervious surfaces is 20% and up to 30% with runoff protections (definition at right).

New lots must have subdivision approval by DES.

For new lots, there are density restrictions.

Fertilizer restrictions

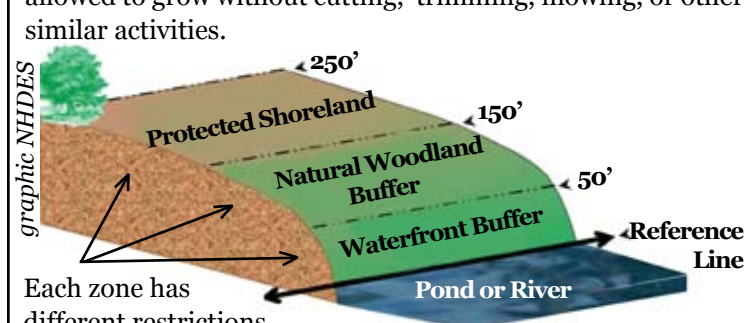
For new septic systems there are setback requirements at 75', 100' and 125'.

CSPA Definitions

Impervious Surfaces - Human-created areas that cannot absorb water, such as roofs, decks, patios, paved and gravel driveways.

Non-Conforming Structures - Structures that do not conform to the provisions of the CSPA may be repaired, renovated, or replaced in kind, as long as the repairs or replacements result in no expansion of the footprint.

Unaltered State - Condition where native vegetation is allowed to grow without cutting, trimming, mowing, or other similar activities.



Each zone has different restrictions

Determining extent of tree cutting in the Waterfront Buffer: Grid and Points System

To determine tree cutting practices the waterfront buffer is divided into 50'x50' segments to form a grid. The trees in each segment are given points according to their diameter (see points system below).

Fifty points must be maintained in each segment.

If your property did not have 50 points in each segment as of July 1, 2008, you are not required to plant trees to achieve 50 points. However you may not cut any existing trees or saplings unless the grid segment exceeds 50 points.

Assigning Points

Points are based on the diameter of a tree at 4½ feet off the ground. Point assignments are as follows:

1 to 6 inches = 1 point

6 to 12 inches = 5 points

>12 inches = 10 points

Landscaping, Lawn Care, and Household Maintenance

Top 10 ways to improve and protect water quality around the house

When it comes to keeping Sandown's water clean, it is often the individual homeowner who can make the biggest contributions. The following 10 things can be done around the outside of your house to maintain healthy water quality.

#10 Plant Rain Gardens

Direct downspouts and sump pump discharges to areas planted with water-loving plants. Water filters through the soil and recharges groundwater.

Beau Owens

Rain gardens are an attractive way to manage stormwater around the house.

#9 Landscape with Native Plants

Planting native plants reduces need for chemical pesticides and fertilizers and provides food and habitat for many wildlife species.

#8 Mow High

Mowing your lawn higher than 3 inches will produce a lush turf that holds water, is weed-resistant, and requires less fertilizer.

Evan Lane

Mowing your grass to 3" makes for a healthy lawn and environment.

#7 Minimize Erosion

Maintain lush plant growth in areas with steep slopes to hold soil in place. Minimize soil loss on seeded areas by using straw mulch.

#6 Manage Stormwater Runoff

Slope driveways and patios to direct rainwater to vegetated areas that recharge groundwater.

Roseen

Using pervious pavement for walkways allows rain water to soak into the ground.

#5 Prevent Chemical Spills

Secure stored oil, gasoline, fertilizer, and pesticides in leak-proof containers and never near wetlands.

#4 Maintain Your Septic System

NH Department of Environmental Services recommends that septic systems be inspected annually and pumped every three to five years.

Friends of Celery Bog

Never cut all of the vegetation along the shore of a pond or wetland.

#3 Minimize Impervious Surfaces

Build the smallest buildings, patios, and driveways as possible and use water-permeable materials.

#2 Reduce Fertilizer Use

Grow and maintain plants that require no fertilization. Reduce lawn area and use only slow release fertilizers.

#1. Maintain Healthy Buffers to Wetlands

Maintaining 100 feet of lush, vegetated areas adjacent to wetlands will filter stormwater runoff, reduce erosion, lessen impacts of flooding, and provide adequate habitat for many wildlife species.

Maintaining your septic system will protect your drinking water

Because septic systems are buried and out of sight, it is easy to take them for granted. However, ignoring them is expensive, messy, and may pose a health risk to you, your family, and your surrounding environment.

There are a few things septic system users should never do. Never flush non-biodegradable materials like grease, cigarette butts, cat litter, tampon applicators, or paint down the drain. These materials will clog your system and may cause it to back up into the house or spill out sewage in the yard.

Expired pharmaceuticals are a no-no too for septic systems (a bottle of antibiotics can kill the good bacteria in your tank).

Adding a garbage disposal in an old home is usually a bad idea without upgrading the septic system.

Leach fields should be protected from damage from driving cars over them or planting a tree on top of them.

Do-it-yourselfers can inspect their own systems, but it is probably best to hire a professional. To find a qualified septic system inspector or pumper, call Granite State Designers and Installers, New Hampshire's Association of Septic System Professionals, at 603-228-1231.

I. Haycox

NHDES recommends yearly septic systems inspections and a pump out every three to five years.

Nice and easy way to make your garden grow

Slow-release fertilizers and those with low phosphorus amounts are recommended to protect water resources

We all know that nutrients are needed for plants and animals to grow, but too much of a good thing can become a problem.

This is true for many of the water quality problems in Sandown and the Seacoast. Excessive nutrients in the water are contributing to low dissolved oxygen levels in rivers, poor eelgrass growth in the estuaries, and cyanobacteria blooms in Sandown (read more on page 8).

Fertilizers that are spread on lawns and gardens are contributors to the nutrient problems in water, especially the nutrients nitrogen and phosphorus. Before you apply fertilizers you should determine if you need them. Ask local garden centers to help you with soil testing to determine your nutrient needs. In many cases, fertilizer is not needed.

If fertilizer is needed, reduce the amount of nitrogen that pollutes water by purchasing fertilizer that has nitrogen that is at least 33% insoluble in water, also called slow-release nitrogen. The amount of slow-release nitrogen is usually noted under the NPK analysis.

Fertilizer containing slow-release nitrogen is better for the environment because the nutrient stays in the soil longer instead of being washed downstream.

Another nutrient that causes problems when it reaches water is phosphorus. Homeowners should ask for fertilizers with low phosphate amounts, like NPK 3-1-1.

For more information, read the UNH Cooperative Extension fact sheet "Slow-Release Fertilizers for Home and Gardens and Landscapes" (simply search for this title in Google).

Caring for the water beneath your feet

Helpful tips you can do inside your home to conserve and protect Sandown's goundwater resources

Repair leaky faucets and toilets

Leaky sinks and toilets can waste 50 gallons of water in one day. Toilet leaks aren't always obvious. Try pouring colored liquid into the tank. If after 15 minutes you see dye in the bowl, you may need to replace the flapper.

Turn off the water when brushing your teeth or washing dishes

You can save 3-5 gallons a day taking this simple step.

Run washers only when full

Doing this can save nearly 300-800 gallons of water each month.

Dispose of household products safely

Anything labeled "Poison" or "Danger" should be taken to your the transfer station. Never send toxic chemicals down the drain to your septic system. Wipe off excess paint with a paper towel before rinsing your brush.

Install low-flow showerheads and water-saving toilets

An average family of four can save 14,000-17,000 gallons of water a year by installing high-efficiency showerheads.

Strive to use non-toxic products

Choose safer, multi-purpose cleaners labeled "environmentally friendly". Avoid chlorine, phosphate products, and solvents like paint thinner.

RiverSmart

These indoor tips to conserve and protect water resources are from the Riversmart program, which is an educational campaign by the U.S. Environmental Protection Agency.

Investing in a business?

A word from Sandown Board of Selectmen

The Town of Sandown is a business that is run to protect the quality of life of its citizens while helping to preserve the resale values of its homeowners. While some of us plan to spend the rest of our lives in Sandown, most of us will eventually sell our homes as our jobs and lives change. Investing in our town makes Sandown a more pleasant place to live and can make us more attractive than our neighboring, competitive towns.

As your Selectmen, it is our job to help balance the ongoing investment in our town with an affordable and fair tax rate. Those investments range from having enough money to plow and maintain our roads, to having adequately funded Public Safety organizations, to protecting our natural resources and quality of life. Investing in protecting buffers and open space in Sandown follows our Master Plan in maintaining the reason many of us moved to a somewhat rural suburb of Boston. Ensuring that our wells have clean water, that the Exeter River and our ponds are clean, that we can still see that occasional deer or fox, and that we have free recreational space in our town are all part of investing in Sandown and keeping us competitive in the housing market with our neighboring towns.

While we would all like to pay lower taxes, we do have a business to run. If you would like to help manage this business each department is looking for people with an interest in running the Town of Sandown. Please stop in at the Town Hall to learn about our different groups and what might be interesting to you.

The Board of Selectmen

Quality of life, resale value, current use penalties

A word from Sandown Conservation Commission

"It is hereby declared to be in the public interest to encourage preservation of open space, thus providing a healthful and attractive outdoor environment for work and recreation of the state's citizens, maintaining the character of the state's landscape, and conserving the land, water, forest, agricultural and wildlife resources." - NH Current Use law RSA 79-A(enacted July 1, 1973)

In 1973 the State Legislature passed a law creating the Land Use Change Tax (LUCT) in order to protect Open Space in New Hampshire. The idea was to allow landowners with over 10 acres of undeveloped land to pay a very low tax rate on that open space in order to encourage landowners to keep their land undeveloped. As a further incentive to keep land from being developed, the Legislature imposed a tax penalty of 10% of the land value at the time the land is developed by the owner as a financial discouragement. Funds collected from the LUCT could go to the general fund as they are collected, or they could be put into a Conservation Fund to allow a town to purchase and/or protect open space from being developed and, in turn, protect the rural character of a town and, in turn, New Hampshire.

Percentage wise, Sandown has seen one the highest growth of homes in Rockingham County over the last 10 years. Not growth in businesses that bring jobs, but a growth in homes and children who go to school and incur additional taxes. LUCT revenue is not revenue paid by the taxpayers of Sandown, but by people who chose to make business decisions to develop open space in return for revenue. The amount of LUCT collected is not under the town's control, but under the control of individual landowners. While we can apply any LUCT to one year's tax, we have no control what that amount would be and will not have any long term benefit from that money in reducing our tax rate by keeping open space undeveloped.

Open space purchased with current use monies, does not come from your tax bill. Investing in our town using developer money will keep our long term rates low while improving the quality of our town with wildlife corridors, riparian buffers to protect our water, and recreational areas in our town.

The Sandown Conservation Commission

"Exeter River Local Advisory Committee commends Sandown's good stewardship of the Exeter River Watershed. As home of the river's headwaters, Sandown's efforts have an impact on towns downriver and Great Bay." - Don Clement, Chairman

Sandown's first open space development buffers the Exeter River

A word from Sandown Planning Board

Sandown's First Open Space Development Buffers the Exeter River

In the 2008 town election, Sandown residents adopted an innovative land use ordinance that has already protected part of the Exeter River.

Sandown's first development under the Open Space Development Ordinance (OSD) is a subdivision on Wells Village Road designed by Rob Hoover, a landscape architect with HBLA Inc. of Portsmouth, NH. His plan, which was enthusiastically received by Sandown's Planning Board and Sandown's Conservation Commission, preserves 34 acres of the 54 acre site as open space and protects the banks of the Exeter River which runs through the site.

In traditional developments, Hoover explained, a developer builds the longest road possible into the site and then divides the lots based on the town's road frontage requirements. This practice, he said, "chews up a big chunk of land." Since all the land on the site is parceled, it is possible that all the land would get cleared by individual lot owners. Deed restrictions on the land are hard to enforce and often make the lots harder to sell. By having smaller frontage requirements of just 150 feet, the OSD allows houses to be built closer together, "minimizing the roads and disturbance to the land and still getting the same number of lots," he said, "and ... the space is forever preserved."

Steven Keach, Sandown's consulting land use engineer who drafted the new ordinance, believes the majority of major subdivisions in Sandown's future will be advanced as OSD designs. "There are financial incentives for the developer community by creating efficiencies in reducing infrastructure costs per dwelling," he noted.

Apart from savings on infrastructure, developers can also command premium prices for lots adjacent to protected open space, making the total financial incentives for OSD development very attractive.

Keach said he would also like Sandown to "Rethink the wetlands conservation ordinance and possibly augment it with a prime wetlands ordinance."

In the ongoing effort to preserve Sandown's open space and protect the integrity of the town's wetlands and rivers, the planning board would welcome the opportunity to explain the details of the OSD ordinance to potential developers and their agents.

Donna Green, Matt Russell - Sandown Planning Board

"The Department of Environmental Services applauds the Town of Sandown for its efforts to preserve open space and provide stewardship of New Hampshire's natural resources. Protected buffers and good land management practices are vitally important to the protection and enhancement of wildlife habitat and water quality all across our beautiful state."
Thomas S. Burack, Commissioner of the New Hampshire Department of Environmental Services

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PISCATAQUA REGION Estuaries Partnership

The Sandown Conservation Commission applied to the Piscataqua Region Estuaries Partnership (PREP) Community Technical Assistance Program to produce this publication. PREP is not responsible for the content or views and opinions expressed in this publication. PREP is a U.S. EPA—funded program at the University of New Hampshire with the mission to protect, enhance, and monitor the environmental health of the region's estuaries. printed on recycled paper

Angle Pond, Phillips Pond, and Showell Pond Lake Associations Promote Buffers and Good Lawn Care Practices


Phillips Pond

Kim

A kaleidoscope of brightly colored kayaks and canoes blanketed Seeley Beach and circled near the shore of Phillips Pond in July 2008. They were there for a canoe and kayak tour of the pond with the Sandown Conservation Commission and the Exeter River Local Advisory Commission (ERLAC). The event was part of an ongoing effort by both groups to educate residents about the pond's condition and what they can do to ensure its continued health.

"I think we need to do more of this sort of thing in our town and in other towns," said Matt Russell, a member of the Sandown Conservation Commission, Planning Board, and ERLAC. "We need to know more about the wonderful resources we have so we can better protect them."

Barbara Cameron, then president of the Phillips Pond Association, said the town is fortunate to have citizens who know how important the water quality of Phillips Pond is to the town, the Exeter River and even Great Bay.

In 2006, Sandown residents voted to finance a $40,000 milfoil eradication project at Phillips Pond. Milfoil is an invasive aquatic plant. That same year, the pond tested positive for cyanobacteria (see story below).

At that point, Cameron said, "We joined the Volunteer Lake Assessment Program to learn how to do water testing in hopes of finding the source of the phosphorus that causes the cyanobacteria blooms."

Cameron and her husband do most of the testing, with help from Al and Marion Lake. Since the testing began, cyanobacteria blooms have only shown up once.

Cyanobacteria is one of the reasons for practicing good lawn care management. Runoff from lawn fertilizers add nutrients like phosphorus and nitrogen to Showell and Phillips Ponds, which in turn, flow into the Exeter River, the Squamsott River, Great Bay, and the Atlantic Ocean. How people manage their crabgrass in Sandown affects the drinking water, fishing, and wildlife in the river in all the towns downstream.

If you live on our lakes, the river, a stream or a wetland please minimize your fertilization.

Sandown's Endangered and Threatened Reptiles


K. Major


Sophro


V. DeLoach

A state endangered Blandings turtle (above) was documented in Sandown on Snow Lane in 2008 and another was found along Hersey Road. Both sightings were reported to NH Fish & Game. Reports of a spotted turtle and black racer (middle and below) are still needed for Sandown. See RAARP description below for reporting details.

The wetlands in your own backyard may be home to some of our state's endangered or threatened species of reptiles.

Currently, there are three reptiles listed as endangered in New Hampshire and Sandown has documented sightings of one them: the Blandings turtle. This reclusive, wetland turtle with a bright yellow throat was last seen in Sandown in 2008.

The spotted turtle and black racer (snake) are two animals listed on the state's "threatened" species list that have not been documented in Sandown, however, they have been seen in neighboring towns.

All three of these rare animals rely on healthy habitats to survive. The way to protect these creatures is to maintain wetlands and surrounding land in a natural state, keeping houses, roads, and landscaping far away from reptile habitat.

Water

continued from page 1

There are things we can do on our properties that will slow down rainwater and lessen flood surges.

The most important action to take is maintaining wide vegetated buffers to streams, rivers, ponds, and wetlands. If you have a stream running through your property, don't mow to its banks. Allow native plants to flourish instead. This buffer will absorb water like a sponge and prevent a surge of water from entering streams. Wide wetland buffers also prevent erosion that could rob you of property.

Other actions include diverting sump pump discharges and gutters to rain gardens and using pervious building materials that enable rainwater to seep into the ground and recharge drinking water resources. (See page 6 for more information).

Its not easy being bluegreen

Cyanobacteria, also called bluegreen algae, is toxic to humans and animals. In recent years, it has prevented swimming in Showell and Phillips Ponds - affecting the ability of all residents to use the Town Beach.

In 2008 the NH Department of Environmental Services (NHDES) issued warnings for cyanbacteria, also called bluegreen algae, for Phillips Pond and Showell Pond. The warnings were put in place from late summer until the end of the year and asked for people and pets to avoid contacting water in areas with a green algae scum.

The presence of cyanbacteria blooms, or population explosions, indicates that the pond ecology is out of balance. Below is a summary of the risks and what can be done.


Tomi Flinck

Cyanobacteria blooms may look like green paint floating on the surface of the water or very green, slimy water. Report these conditions to the NHDES Cyanobacteria Hotline at 603-419-9229.

What's the Hazard?	What's the Cause?	What Can I Do?
Many cyanobacteria release toxins during a bloom. The toxins can cause skin irritations, nausea, vomiting, diarrhea, and even liver and central nervous system damage. The toxins affect both humans and animals.	Cyanobacteria need nutrients and sunlight to bloom. The primary nutrient is phosphorus which can come from fertilizers, septic systems, and rainwater as it runs over land and into the water.	• Do not use fertilizer • Have your septic system pumped yearly • Plant wide vegetated buffers around ponds and streams • Divert rainwater to gardens

The NHDES Beach Program routinely monitors lakes and ponds for cyanobacteria. To learn more go to http://des.nh.gov/organization/divisions/water/wmb/beaches/cyano_bacteria.htm

Be a RAARP Volunteer

NH Reptile And Amphibian Reporting Program (RAARP) wants you to report the reptiles and amphibians you see in Sandown. Report every turtle, salamander, frog, and snake because the information they receive will help make land planning decisions and protect sensitive habitats.

Reporting is quick, easy, and free. Some of your Sandown neighbors have already submitted RAARP reports. Kids are encouraged to submit RAARP reports because it is a fun, educational way to help Sandown's wildlife.

Put Sandown on the map by submitting RAARP reports.

Reports should be accompanied by a clear photograph and information on when and where the reptile was found. To learn more go to http://www.wildlife.state.nh.us/Wildlife/Nongame/reptiles_amphibians.htm


K. Major

RAARP is managed by the NH Fish & Game Non-game and Endangered Wildlife Program.