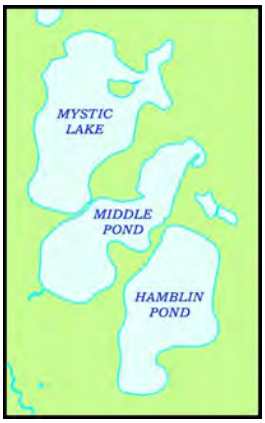
THE IPA NEWSLETTER

Mystic Lake, Middle Pond, and Hamblin Pond in Marstons Mills, MA

Winter 2015 **A quarterly publication of the Indian Ponds Association** **Vol. 15 No. 1**



PROCESSS, POLITICS, AND PONDS: STATUS REPORT ON POND PROJECTS

Mystic, Middle, and Hamblin Ponds all presently have issues requiring considerable effort and money to rectify. Mystic and Middle need continued attention to control the spread of invasive *Hydrilla*. Hamblin Pond needs another alum treatment to inactivate sedimentary phosphorus, which is causing cyanobacterial blooms. Conservation Administrator Rob Gatewood submitted requests for Determination for both *Hydrilla* control and the alum treatment to the Town of Barnstable Conservation Commission on March 3.

At that meeting Rob presented proposals for the work to be done and requested continuances for both projects. Productive discussion followed, and continuances until March 31 were granted to allow time for various questions to be answered and State agencies to respond. If the ConComm votes favorably on March 31, then the Town Council will take up the question of funding as part of the 2015 capital budget process..

We will keep you posted on www.indianponds.org as the process unfolds. The IPA would like to thank the Town of Barnstable for all the support and leadership it has provided through the years to protect the Indian Ponds.

--Alex Frazee

The fisher, captured at night on critter cam near Middle Pond.

WHAT IS THIS ANIMAL?

Gay and Larry Rhue installed a critter cam in their yard on the shore of Middle Pond. One night in early February, it snapped the photo at left, which has been identified as a fisher (*Martes pennanti*). Sometimes called a "fisher cat", this animal is actually a marten, a large member of the weasel family, and not any kind of feline. It's about the size of a large house cat, but wild, shy, and seldom seen.

A forest creature, the fisher is found across North America, most frequently in old-growth forest, which provides the large trees that females need for their dens. It is an omnivore and a fierce predator, eating nearly anything unfortunate enough to cross its path. It will even take on a porcupine. Despite the name, fishers rarely eat fish and tend to avoid water. They hunt and forage during the daytime as well as at night.

Fishers were nearly wiped out by trapping and loss of forest habitat in the 1700s and 1800s, particularly in the east. Their dense, soft coats of luscious fur were highly prized by the fur industry. Conservation laws, changes in fashion, and the reforestation of the northeast have helped their populations recover. The first of several recent sightings on Cape Cod occurred in Sandwich in 2006.

—Holly Hobart

IN THIS ISSUE

A fisher in the daytime.

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IPA'S HANDS-ON WORK IN 2014 AND PLAN FOR 2015

The boat and new equipment donated by many generous IPA members and purchased this past year was used frequently and for a number of useful purposes during the spring, summer, and fall of 2014.

Having unlimited access to Mystic Lake and Middle Pond proved critical to getting people out on the water, including new volunteers. Among the tasks undertaken were frequent surveying, mapping, and hand-pulling of *Hydrilla*, as well as placing and moving benthic barriers (see report on page 4). Water quality testing was completed frequently and on a regular schedule. All of these activities used data from the IPA's GPS unit to improve the reliability and precision of the work. Also, having the boat allowed us to assist consultants and scientists from various agencies to access the two ponds for various purposes, which included algae sampling, posting of signage at *Hydrilla* treatment sites, and an orientation tour for a new mussel specialist.

In Hamblin Pond, the IPA performed a benthic survey using Tamar Haspel and Kevin Flaherty's boat which produced a new chart of the pond as well as a data file of depth and location coordinates to be used in the proposed alum treatment. Bob Derderian kept up a frequent and consistent schedule of water quality testing in Hamblin, which provided valuable data about the cyanobacteria bloom and gave us a window on the pond's declining health.

The IPA has purchased a small boat for Hamblin Pond which will be launched in 2015. Lew and Nancy Solomon have kindly lent an outboard to power it, and Susan and Chuck Sawyer have offered the use of their dock. This will allow us to access Hamblin Pond with much greater frequency and begin surveying for invasive plants and animals.

In 2015, in addition to *Hydrilla* monitoring in Mystic and Middle and water quality testing in all the ponds, we will begin collecting algae and zooplankton in the three ponds on a regular basis and developing the capability to identify and quantify populations of planktonic organisms as they change through the seasons (see article on page 6).

The IPA is grateful to its many loyal supporters and is looking forward to a productive year.

—Holly Hobart

RECEIVE CYANOBACTERIA WARNINGS BY E-MAIL

The Town of Barnstable Health Division is initiating a new warning system for keeping the public aware of threats from toxic algae in ponds. They will continue posting warning and advisory notices at beaches when cyanobacteria reach potentially dangerous levels. They will also send e-mail warnings and notices to residents who would like to receive them. To receive e-mails warnings from the Health Division, please send a request to: karen.malkus@town.barnstable.ma.us.

This is important! Cyanobacteria can produce toxins that are harmful to both pets and people!

LET'S COUNT HERRING AGAIN!

It's hard to believe but it's almost time for the herring to return. We may have 3 feet of snow on the ground, but those fish are eager and ready to make their way back up the river to spawn. They've been spending the winter out to sea, just waiting to come back. You may have noticed that we had a rather dry summer so some of the herring were "stuck" up in Middle Pond and Mystic Lake and were not able to make it back out due to low water levels. We hope they were able to survive the bone-chilling temperatures of this past winter, and have found enough to eat.

Last year we had another really good run. It was a shorter run than normal, only 5 weeks, begun on April 9th and finished on May 18th. The numbers were down a little, but still very respectable. I remember reading that of all the runs in Massachusetts, we were the only one that had totals lower than the prior year. That's good news for the fish. Even though we were down, everyone else was up! It means that the population may be stabilizing. Here is a rundown on the totals for the past nine years:

MARSTONS MILLS HERRING COUNT TOTALS BY YEAR

YEAR	COUNT
2006	719
2007	1,714
2008	5,232
2009	1,332
2010	478
2011	494
2012	87,308
2013	56,987
2014	47,006

There is a theory that the fish only return to the pond of their birth after they reach sexual maturity, which can take 3 or 4 years. If that is the case, 3 years ago was our banner year, with over 87,000 fish passing through. We hope to see terrific numbers of fish this year as well.

One other factor we noticed last year that may have affected our numbers was the presence of the old fish ladder situated farther up the street, to the north of the current ladder at the Mill Pond. This wooden fish ladder used to be the main herring run, but is now derelict. We had a look at it last year and noticed quite a few fish milling around at the bottom. We notified the Department of Natural Resources at the Town and they are going to make sure that this leg of the river is blocked off so that the fish can only go up the ladder that we use for the counting program. This wooden ladder is not in great shape, so we're not even sure how many fish actually made it into the pond from there!

Once again we will be conducting the counting program, so if you are available and would like to sign up, please send an email to herringcount@yahoo.com and let us know. We maintain a blog with the schedule, counting instructions, and the available counting times. Just check the schedule, determine what hours would work for you, and send us an email to sign-up! It requires very little time and effort to make a tremendous difference in the river herring population. The blog address is: www.marstonsmillsherringcounts.blogspot.com.

—Judy Heller, Three Bays Preservation

CALLING ALL HIGH SCHOOL SENIORS

Time to Apply for an IPA Schwarm Scholarship

Do you possess an interest and a track record of helping preserve our environment?

Are you a graduating senior with a strong academic achievement?

Are you planning on a future career that will help preserve and protect environmental and ecological systems?

If the answer is yes, then apply for the IPA Schwarm Memorial Scholarship!

The Indian Ponds Association (IPA) will offer a $1000.00 scholarship again this spring to a graduating senior from Marstons Mills who plans to balance a professional career with a continuing effort to preserve and protect our environment.

The scholarship is available to any graduating senior residing in Marstons Mills and attending either public or private high school. Applications are available at the Barnstable High School Guidance Office, Sturgis Charter School, or on the IPA website at www.indianponds.org.

Deadline for submission is April 1. **We encourage seniors to apply early!**

HYDRILLA MANAGEMENT: REPORT FOR 2014 AND PLAN FOR 2015

Aquatic Control Technology (ACT), the firm hired by the Town of Barnstable to manage the *Hydrilla* infestation in Mystic Lake and Middle Pond, released a project completion report in January. The report summarizes their efforts and findings during the 2014 growing season and concludes with recommendations for future management.

In May 2014 ACT contracted with the Town to conduct underwater surveys, apply the herbicide Aquathol K in a small area of Mystic, and employ additional control measures as needed in other areas of the two ponds. Pre-treatment surveys were conducted on June 19 July 2 and 8. Aquathol K, a contact herbicide, was applied on July 8 directly to the subsurface using a weighted hose over the 5.5 acre section of Mystic known as "Area A." This area, in the northwest section of Mystic Lake, is where *Hydrilla* was first discovered in 2010 and has proven to be most resistant to control efforts. A total dose of 3 parts per million was administered in two applications, spaced 12 hours apart. This is the same herbicide that was used in 2013, but the results were dramatically improved in 2014, possibly because of the reduction in time between applications. In a survey conducted less than a month after the treatment, none of the *Hydrilla* in the target area appeared viable. Native plant growth was minimally impacted—there was a clear reduction in one common native species, clasping-leaf pondweed, but it appeared to bounce back by the end of the summer. Another common native plant, *Elodea*, was observed in more abundance after the treatment. Subsequent surveys later in the summer indicated no damage to the native aquatic vegetation in other parts of Mystic Lake.

ACT technicians returned for several days in early September to conduct additional surveys and treat other areas of the two ponds with "DASH" (Diver Assisted Suction Harvesting) and opaque benthic barriers. Their findings confirmed what IPA volunteers had found during the mid to late summer—a handful of widely scattered patches of *Hydrilla*, with a particularly troublesome proliferation along the eastern shore. ACT relocated four benthic barriers in the southern part of the pond and conducted some suction harvesting in the eastern area.

Several dense *Hydrilla* patches were discovered by IPA volunteers in Middle Pond in early September. ACT installed four barriers there and IPA volunteers installed three more. These patches were clustered in a small area near the "cut" where Mystic Lake flows into Middle Pond. This represented a worrisome development because only one patch had been previously encountered in Middle Pond.

The ACT report concludes that while Aquathol K has provided good control over the targeted area, that strategy, along with non-chemical measures, does not hold any promise of eradication. Plants are so widely scattered in the large littoral zone that it is impossible to identify every plant. Citing their successful experience in Long Pond (Centerville) and elsewhere, ACT is recommending the ***systemic*** herbicide fluridone (sold under the trade name Sonar). The cost of Sonar, while initially higher, will be "less volatile and potentially more sustainable" than the continued use of DASH and contact herbicide.

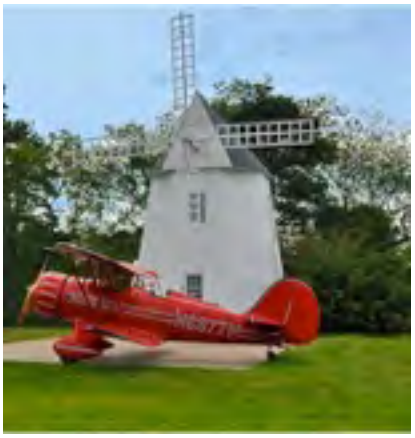
Treatment with a slow-acting systemic herbicide represents a significant change in approach. Fluridone is effective in killing *Hydrilla* at an extremely low concentration, 4 parts per billion, but this concentration must be maintained for at least 30 days throughout the targeted volume of water. ACT anticipates three treatments, beginning in late June or early July, with the timing of subsequent applications determined by residue testing. There are additional challenges involved in treating a small area of a larger pond, as is the case with Middle Pond, because of the diffusion of the herbicide into the surrounding untreated water.

Fluridone is absorbed from the water by the plant shoots and from the soil by the roots and inhibits the formation of carotene, a plant pigment, resulting in the breakdown of chlorophyll by sunlight and the death of the plant. Proposed concentration levels are far below established thresholds for swimming, fishing, and drinking water, so use of the ponds for recreation will not be impacted. Fluridone is currently being used in an attempt to eradicate *Hydrilla* in the Cayuga Inlet in Ithaca, NY. A good general primer on the herbicide and its use there is on the Cornell Cooperative Extension website.

There are regulatory hurdles that must be cleared before initiating fluridone treatment. As the applicant, the Town of Barnstable Conservation Division has released a Notice of Intent to all abutters. A preliminary hearing was held on March 3, with a final hearing before the Conservation Commission scheduled for March 31. The Massachusetts Department of Environmental Protection must issue a file number and the Massachusetts Division of Fisheries and Wildlife and Division of Marine Fisheries must be notified because Middle Pond and Mystic Lake host a herring run. The Massachusetts Natural Heritage and Endangered Species Program must review the project proposal. To assess any impact the treatment might have on nearby cranberry bogs, which use pond water in harvesting and irrigation, the Conservation Division has reached out to the UMass Cranberry Experiment Station in East Wareham. The Barnstable Town Council must approve funding as part of the Town Manager's recommended budget for Capital Projects. The Conservation Division will then issue a Request for Proposal and select a contractor (almost certainly ACT). Conservation Administrator Rob Gatewood expects to have everything in place so that work can begin on schedule in late June.

—Greg Cronin

THERE'S A LOT GOING ON AT THE AIRFIELD



The Cape Cod Airfield windmill, a 1930s replica of the one at Oyster Harbors in Osterville, is being restored with assistance from the Town of Barnstable DPW. A red WACO biplane is in front.

Originally opened in 1929 and for many years operated as "Cape Cod Airport", the name of the field was modified to "Cape Cod Airfield" in 2003 to reflect its new status when the Town of Barnstable purchased it and the surrounding land.

The IPA strongly supported that purchase, and felt that preservation of the operational Airfield, a relatively low-impact use of the land, was key to protecting the quality of our local environment and the adjacent Indian Ponds. The organization was enthusiastically joined by local neighborhood associations, and by the Marstons Mills Village Association; and it is no accident that again in 2014 these same entities pressed for the extension of the Town of Barnstable's management contract for the field from a 3-year to a 10-year period. That was approved by the Town Council last fall. The stability this change provides to both the Airfield Manager and the whole community is tremendous and appreciated.

Although the snow was still deep during a recent visit there, a lot was going on inside the big warm hangar. First, "Sadie", the field mascot – a very friendly black Lab mix rescue dog – extended an enthusiastic greeting. In the well-lit main hangar, the young Airfield Manager, Chris Siderwicz, and his dad, also Chris (but helpfully known as "Sid"), were found working on projects of impressive scale. This time of year their aim is to perform all the maintenance and improvements necessary to assure safe, reliable operations during the busy summer.

Chris is building new wings from scratch for a vintage 1946 Piper PA12 used to tow banners and gliders. It is a powerful, very maneuverable light aircraft, but the new wings will be stronger than the originals and are designed to provide much greater lift. They have two of these planes there, one of which Chris restored from just the bare airframe over the past several years before putting it into service last summer. He had the pleasure of using it to fly banners over Gillette Stadium for each of the New England Patriots' Home Games this past year!

Meanwhile Sid has stripped down the big radial engine on the nose of the red Waco biplane that they use for recreational sightseeing rides. A strikingly elegant aircraft, it is easily the most recognized symbol of this historic grass airfield. The engine is an original from the late 1930s. These things are incredibly valuable pieces of machinery. Over the winter Sid is replacing one cylinder and installing a new exhaust manifold. The aircraft itself is a replica built in 1987 to modern FAA standards that honors the appearance and design of its pre-WWII ancestors. This model is large for its type, and was selected for use here because of its wide forward seat, which easily accommodates two passengers.

Other vintage planes on the field include two early Cessnas and a 1940s SeaBee. Those familiar with the area know that in some seasons they may also see a big DC-3 here. Sid at one time flew DC-3s for Provincetown Boston & Naples Airways (aka "PBA"), an important early commuter airline founded by John Van Arsdale, initially right here at Cape Cod Airfield, just before he moved to the larger commercial field at Provincetown. Although not a certainty, it is quite possible one of those pioneering PBA DC-3s will return this season. DC3 N137PB was taken out of service in 1988, is owned by the Northern Illinois Aircraft Museum in Gilberts, IL, and is slated for restoration–hopefully right here at Cape Cod Airfield. For

DC3 N137PB landing in Florida in the 1970s for PBA.

those in-the-know about such things, the word is that she will arrive still in her last paint job, which was Eastern Express; but that her interior furnishings are still "classic PBA".

We are incredibly fortunate that our town, village, and especially these two devoted individuals, are all committed to appreciating, enjoying and preserving this wonderful airfield for decades to come.

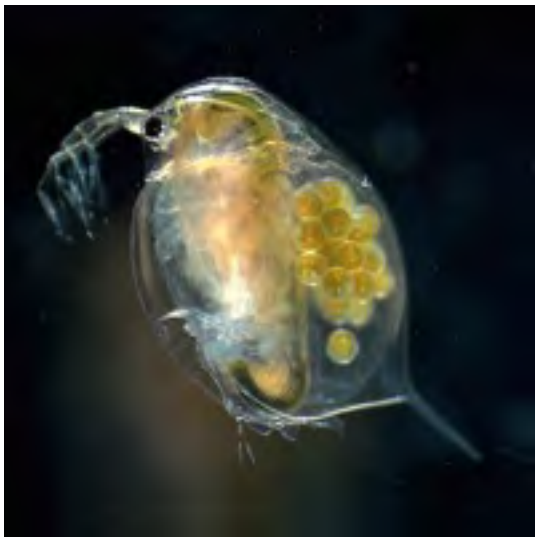
—Bob Frazee

MEET THE PLANKTON: *Daphnia*

Over the past several years, Dr. Ken Wagner has collected and analyzed samples of plankton from the Indian Ponds and produced three reports identifying the kinds and relative quantities of these organisms present at various times of year. These reports introduce the fascinating assemblage of minuscule plants and animals that forms the foundation of the ponds' food webs.

Plankton are tiny organisms that live in the water column. Phytoplankton are plants, loosely referred to as "algae", including the cyanobacteria. Using sunlight for energy and chemicals such as carbon, nitrogen, and phosphorus, which they extract from the water, phytoplankton manufacture and store carbohydrates and proteins, providing food for themselves and for the many creatures that eat them. Zooplankton are animals, mostly microscopic but a few big enough to see with the naked eye. They consume phytoplankton (and often each other) and are in turn consumed by larger predators, such as worms, mussels, crayfish, insect larvae, and young fish. Also found in the zooplankton "soup" are many larval forms of pond-dwelling invertebrates.

Interactions between phyto- and zooplankton, though invisible to us, are critical to the health of the pond. Algae and cyanobacteria circulate nutrients and energy as they develop in the spring from dormant cells that have overwintered in the sediment and are carried into the water column by the spring overturn, wind-driven currents, and sometimes by internally-generated gases that help them rise. In the presence of sunlight, they manufacture food, grow, reproduce, and are snapped up by the hordes of swimming zooplankton, and also by filter-feeders such as mussels. In this way, nutrients are carried from the sediments up through the food web, ending up in not only fish, but in birds and land animals as well. The remains of the feast sink to the the bottom, where they are converted back to molecular nutrients by bacteria, thus completing the cycle.



***Daphnia,* a Cladoceran, with eggs visible inside her back.**

Daphnia, shown at left, and its close relatives *Bosmina* and *Chydorus,* are little crustaceans of the order Cladocera that are found among the zooplankton in the Indian Ponds. Two to three millimeters in length, they are called "water fleas" because of their jumping or somersaulting mode of locomotion, but, while they are voracious consumers of algae, they are harmless to people. Cladocerans are characterized by a single eye, a turned-down head ending in a "beak", two pairs of antennae, a tail, and a transparent body clad in a two-part carapace. Normally, they reproduce asexually, resulting in a population consisting entirely of females, but when conditions deteriorate, they can switch to producing males, which mate with the females to produce "resting eggs", which can survive harsh situations. In the Indian Ponds, *Daphnia is* a star performer in the springtime zooplankton show, appearing in great multitudes.

According to Dr. Wagner, the presence of large populations of grazers is an important factor in keeping the growth of algae in check. In Mystic Lake and Middle Pond, baby alewife, born in early summer, decimate the *Daphnia* by midsummer, which allows algae to bloom unimpeded, thereby reducing water clarity. In Hamblin Pond, young-of-the-year yellow perch may perform a similar function. Biological control of algae by maintaining healthy populations of grazers is highly desirable, though not always achievable in the presence of swarms of voracious fish, which may also be highly desirable.

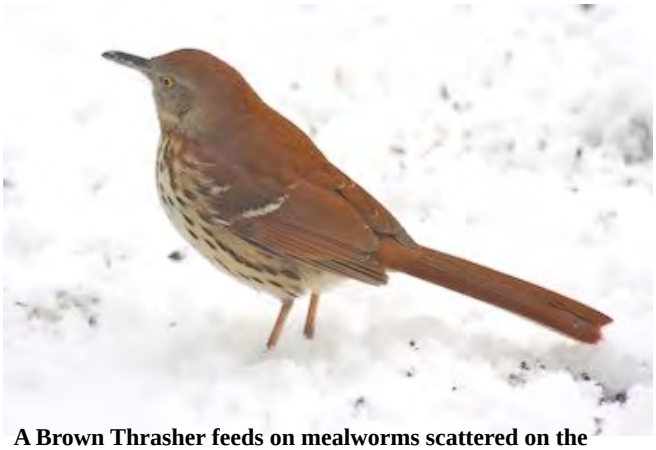
Learning more about plankton can increase our understanding of how ponds work and thereby our ability to become better pond stewards. This is the first of a series of articles introducing these important, but mostly invisible, organisms.

—Holly Hobart

Photo Credits: Cover: Three Bays Preservation; Page 1, Critter cam, Larry and Gay Rhue; Page 5, Windmill, Mills Air Service; DC3, Ken Stoltzful of Kidron, OH, by permission; Page 7, Brown thrasher, Betsey Godley.

BIRDS OF WINTER

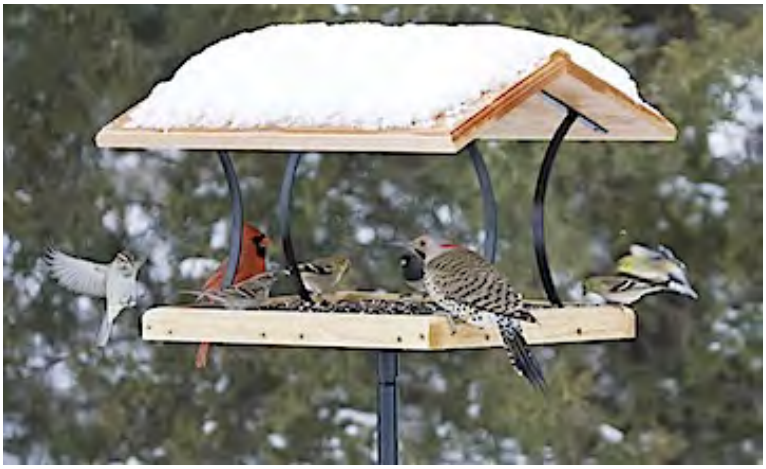
This article would probably have been better back in November or December but as late as two weeks ago I was still getting questions. First, how do birds stay warm during the winter and second, what can we do to help them?



A Brown Thrasher feeds on mealworms scattered on the snow.

First, birds, like us, are warmblooded and must maintain a body temperature within a certain range, usually around 100–107°F. Some birds do this by leaving for the winter; going south to Florida, Texas, or Mexico, just like some of us. Other birds used to migrate, but now, due to the large number of winter residents of the human variety who are willing to put out feed for them, no longer migrate at all. Among these are the Cardinal, the Chickadee, Titmouse, and, surprisingly, the Robin, although no one is truly certain if that Chickadee or Titmouse is "ours" or if "our" population has moved farther south and a population from Montreal has moved in. While you are putting out sunflower seeds for all of these, don't forget to put out a suet block for the four Woodpeckers that don't migrate, the Downy, Hairy, Red-bellied, and Flicker. It is important to fill feeders late in the afternoon so that the smaller birds may find enough to eat and burn (metabolize) during the night.

In addition to food, birds also need shelter and water. Shelter, on Cape Cod, is not a particular problem. You can get specifications off the internet to build roosting boxes for those species that prefer this method of spending the night. There are also instructions on the internet for how to grow bird-friendly yards to help provide food for birds. This would include growing sunflowers and thistle and leaving the seeds for the birds. Water can be a problem. Birds are capable of turning snow into water but that takes energy. On the other hand, if you put out water in the morning, it has turned to ice by noon unless you splurge and buy a heated bird-bath.



Now, if we could only keep the squirrels away!

In answer to the question of how birds stay warm during the winter, bird metabolism is very high and they spend all day either eating or looking for food. Their metabolism becomes even higher in the winter when they are trying to keep warm. They also have a faster heart rate, higher blood pressure, and a faster respiratory system.

Some birds, like the chickadee, go into a state of hypothermia at night where their body just shuts down to save energy. But the single most important tool that birds have going for them is exactly the same thing that we do to keep warm in the winter. We put on a down coat before we go out. Birds live in a down coat and may put on 25–30% more feathers for the cold weather. There are tiny air spaces over and under the overlapping feathers. You may even see them fluff up their feathers to conserve heat within these air spaces. You may also see them standing first on one leg and then the other while they draw the opposite leg up to their chest, or tucking their bills under their wings while they nap. Some birds huddle and cuddle together to keep warm. Others roost together in groups to share heat.

Keep warm.

—Dave Reid

" To preserve and protect the natural environment and ecological systems of the Indian Ponds and surrounding parcels of land and watershed and to participate in studies and work with other agencies, individuals, and groups to educate the public, serve the community, and promote and preserve the Indian Ponds and surrounding areas."

INDIAN PONDS ASSOCIATION
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FORWARDING SERVICE REQUESTED