

THE IPA NEWSLETTER

Mystic Lake, Middle Pond, and Hamblin Pond

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ZEBRA MUSSELS INVADE MASSACHUSETTS IS CAPE COD VULNERABLE?



The **invasive zebra mussel** has been found in Massachusetts waters. In early July, their presence was **confirmed in Laurel Lake near Lee, MA** in the Berkshire region. This was reported to the Indian Ponds Association at its Annual Meeting on July 19 by the guest speaker, Tim Simmons, of the Massachusetts Division of Fisheries and Wildlife's Natural Heritage & Endangered Species Program.



Zebra mussels on a stick.

Almost immediately after its discovery, **the Department of Fish and Game authorized local officials to enforce limited restrictions on the use of boat ramps** at other Berkshire County water bodies deemed at risk to infestation by this highly destructive species. The purpose of that action was to reduce the risk that boats recently on Laurel Lake would transport zebra mussels to other Berkshire County lakes, ponds, and rivers.

A few days later, **state officials closed Quabbin Reservoir**, the primary water supply for the Greater Boston area (about 2.5 million people), to private boats for a 45-day period as a precaution to prevent the further spread of the mussels. On the same day, several state legislators from Western Massachusetts filed **legislation to impose fines and possible jail terms** for people who launch boats contaminated with invasive species in order to help prevent the potential spread of zebra mussels. *(Continued on page 3)*

CURRENT STATUS OF PROPOSED ALUM TREATMENT

Representatives of the IPA and the Town of Barnstable met twice in May and June with personnel of the Massachusetts Natural Heritage & Endangered Species Program (NHESP) in an attempt to resolve issues that led to the refusal last fall by the NHESP to approve the Town's application for a permit to treat Mystic Lake with alum. An alum treatment is the method recommended to reduce the amount of excess phosphorus in the lake that has fueled the undesirable growth of algae and produced, in the summer, a virtual "dead zone" (i.e. no oxygen) in the bottom 15–18 ft of the lake. The NHESP denial of a permit was because of their concern for the welfare of three rare species of freshwater mussels found in the lake.

The concerns initially raised by the NHESP personnel were that (1) the alum treatment might reduce the phosphorus to the point where the amount of algae produced might be insufficient to provide an adequate food supply for the mussels, and (2) the alum treatment itself could be toxic to the mussels.

Significant progress has been made in addressing these concerns. The IPA and the Town are preparing a revised treatment plan for consideration by the NHESP that includes a reduced dosage of alum (half of the concentration originally proposed) coupled with deep injection (i.e. 10–15 ft below the surface) of the alum mixture to prevent possible drift. As originally proposed, alum would only be administered to about 30% of the lake's surface in water 30 ft and deeper (where mussels do not live), and would only be done on relatively calm days to minimize the likelihood of any wind-driven drift of the alum. According to available information, the floc created by the alum sinks at the rate of 6 ft per minute.

With respect to the first NHESP concern, the revised alum treatment would lower the concentration of phosphorus in Mystic Lake from 16 parts per billion (ppb) (average in the upper layers in summer) to about 10–11 ppb. This is the level deemed acceptable by the Cape Cod Commission for Cape ponds and lakes. Ironically, the 10 ppb concentration is the current level for Middle Pond, which is connected to Mystic Lake.

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The IPA is a 501(c)(3) organization and a registered public charity. All dues and contributions are tax deductible.

This newsletter, with a circulation of over 650, is a forum for the exchange of ideas on matters germane to the IPA mission and, as such, the views expressed by authors of articles do not necessarily represent official IPA policy.

TWO NEW BOARD MEMBERS

At the recent IPA Annual Meeting, two new Directors were elected to two-year terms on the Board of Directors: Betsey Godley and Tamar Haspel. In addition, three current Directors were re-elected to their second two-year terms: Robert Derderian, Lewis Solomon, and Carl Thut.



Betsey Godley

Betsey Godley and her husband John live on Race Lane at the northeast tip of Mystic Lake. Although a fairly recent resident of the lake area, Betsey was born and grew up in the Town of Barnstable. A lifelong Cape Codder, Betsey earned a degree in sociology and anthropology from North Adams State College, but returned to the Cape and her deep ties here. She is recently retired from the US Postal Service and can often be found in her garden, kayaking on the lakes, or walking the woods, while contemplating the next chapter in her life. She is committed to the preservation of the unique and lovely Indian Ponds.

In addition to joining the Board, Betsey (with the able assistance of her husband) recently assumed responsibility for managing and operating the IPA database. As a result, she is the one who manages all the names and addresses, logs in and sends receipts for all dues and contributions, and prints letters and envelopes for mass mailings of newsletters and notices to members.



Tamar Haspel

Tamar Haspel is a recent transplant to Cape Cod, from Manhattan. She and her husband Kevin Flaherty bought their house on Hamblin Pond last year, and Tamar, a food writer by trade, started a project that requires her to eat one item each day that's hunted or fished, gathered or grown. To that end, she's trying her hand at everything from ice fishing to gardening, clamming to wine making – and writing about it. To read some of her interesting and humorous writings, visit her website (<http://www.starvingofftheland.com>) entitled "Starving off the Land: Bumbling toward self-sufficiency in the wilds of Cape Cod". Tamar has been writing about food and health for over a decade. She's written for *Self*, *Glamour*, *Relish*, *Men's Health*, *Fitness*, *Prevention*, *Health*, *Cooking Light*, and other magazines of that ilk, as well as *USA Today* and *The*

Washington Post. She's co-authored two books – *Dreaded Broccoli* (Scribner, 1999) and *I've Got Your Back* (NAL, 2007) – and has a third in the works. After spending most of her career in Manhattan, she's adjusting well to Cape Cod.

MORE GRAY WILLOWS REMOVED

Staff from Bartlett Tree Experts were busy in late spring and early summer removing invasive gray willows from more waterfront properties on the three Indian Ponds. The largest number of willows, and some of the largest willows, were removed from Town property in the northeast corner of Mystic Lake (former Danforth property). This effort alone required four days. In addition, work was done on 7 properties on Middle Pond and one property on Hamblin Pond. As reported by President Holly Hobart at the Annual Meeting, roughly half of the waterfront properties on the three ponds still are in need of willow removal.

Bartlett staff will continue to check for and remove new sprouts on stumps, which is expected. If property owners

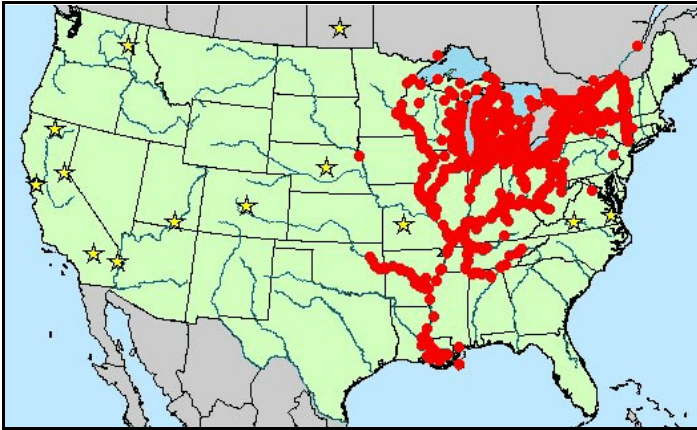
observe resprouting, they should contact Steve Heywood at Bartlett Tree Experts (508-428-2397).

Property owners have probably observed that relatively high stumps have been left. This is done so that when a stump resprouts, it will do so in the high stump, making retreatment easy and effective. If the stump is left low, the stump will resprout throughout the entire root system and cause hundreds or thousands of new sprouts and a very difficult retreatment process. Contracts with property owners did not include returning and cutting stumps to lower levels, but Bartlett could be contracted to perform this task once they are sure the stumps will no longer sprout.

ZEBRA MUSSELS INVADE MASSACHUSETTS *(Continued from page 1)*

First discovered in Lake St. Clair, MI in 1988, this invasive species, native to Russia, was carried to the Great Lakes in ballast water on cargo ships. Within a few years, it had been confirmed in all the Great Lakes, the Finger Lakes of New York, and the Mississippi River basin. Since its introduction to

Adult zebra mussels colonize all types of living and nonliving surfaces, including native freshwater mussels, docks, boat hulls, and even each other, forming layers up to 1 foot thick. It is estimated that this tiny mussel has caused billions of dollars of damage just in the Great Lakes alone.



Zebra mussel distribution in the US in 2008. Red dots are confirmed collections or observations; yellow stars are the discovery of their overland transport on trailered boats. Source:

http://fi.biology.usgs.gov/Nonindigenous_Species/ZM_Progression/zm_progression.html.

the Great Lakes, where it has no natural predators, it has wreaked ecological and economic havoc. Zebra mussels are easily spread. Juveniles and adults can attach to and be transported by waterfowl and aquatic organisms. Eggs and swimming larvae can be transported by water flow or in bait buckets, live wells, engine cooling water, scuba diving equipment, and by any transfer of water from an infested body of water.

Since zebra mussels are now in western Massachusetts, there is the potential for their spread to Cape Cod. Although, as indicated above, they can be transported in various ways, the most serious threat is by **trailered boats that have been in waters already contaminated by zebra mussels**. State regulations currently stipulate that such boats **must undergo specific cleaning and disinfection**. These measures include thoroughly draining, flushing, cleaning, and drying the boat – including the engine, bilge, ballast water, recreational equipment, and anything else that has come in contact with lake water; using a bleach solution and high pressure hot water; and allowing the boat to dry for at least one week in dry weather and up to 30 days in cool, wet weather.

The zebra mussel problem should serve to reinforce existing concerns about the spread of any type of invasive plant or animal. Some Cape ponds are already contaminated with invasive plants, such as hydrilla, milfoil, fanwort, purple loosestrife, and *Phragmites*. **The local boating public is urged to cooperate fully to prevent the spread of invasive plants and animals, including zebra mussels, by exercising care and complying with safe practices of thoroughly cleaning boats, trailers, and other equipment before transporting them from one pond to another.**

Emory D. Anderson

GREAT JULY FOURTH PARADE

A nice day with no rain resulted in a great turnout for the Second Annual Mystic Lake and Middle Pond Fourth of July Boat Parade. Coordinated by Don and Judy Houghton, a



Some of the boats in the July Fourth Parade.

flotilla of five pontoon boats, four smaller boats, and a handful of kayaks, all decked out in festive bunting and flags, joined in a colorful tour around the two ponds in mid-afternoon. Led

by the pontoon boat of Joe Arena and Ron Palumbo, and with patriotic music playing from their sound system, the group pulled in close to each beach and swimming area and presented each child with a small US flag. The high water level this year allowed all boats to pass from Mystic Lake into Middle Pond via the cut; this was not possible last year. A big thanks to everyone who joined in the parade. See you next year!!

DERELICT BOAT AND DEBRIS CLEANUP

On Saturday May 23, nine dedicated volunteers braved rain and wind to participate in the annual cleanup of derelict boats and debris from the shores of Mystic Lake and Middle Pond. The amount of material collected continues to be less each year, which is a good sign. However, common items found each year include floating rafts or dock parts that have either broken away or been abandoned. Waterfront owners are urged to be more watchful of their property.

Volunteers included Don and Judy Houghton, Betsey and John Godley, Holly Hobart and Ken Creighton, Carl and Patrick Thut, and Jim McGuire.

IPA ANNUAL MEETING REPORT

The 52nd Annual Meeting of the Indian Ponds Association was held July 19 and gave our members an opportunity to get together, learn about recent IPA news and activities, and elect new Directors. Jon and Debby Halpert and Janis and Michael Maloney provided the idyllic setting; a wide lawn overlooking Middle Pond, under a giant shade tree. The weatherman gave us a beautiful afternoon.



President Holly Hobart calls the IPA Annual Meeting to order.

IPA President Holly Hobart kicked the business meeting off with a round of thanks to the Halpert family and appreciation for all who had worked on the arrangements and to the many people who had contributed to the work of the IPA in the past year. She introduced the Board of Directors, the Newsletter Editor,

previous Presidents, and special guests, and asked everybody who worked on IPA projects during the year to stand up and be applauded. After approving the minutes and accepting the financial report, the members unanimously elected Tamar Haspel and Betsey Godley to new terms on the Board and re-elected three incumbent Directors (Robert Derderian, Lewis Solomon, and Carl Thut).



Vice President Carl Thut reporting on the Mystic Lake alum issue.

Hobart divided the President's report into three sections, each representing a major IPA priority during the past year. Vice President Carl Thut reported on the progress of the Mystic Lake alum treatment. The application for a permit was denied by the Massachusetts Natural Heritage &

Endangered Species Program because of their concern for three species of rare mussel in the lake. The IPA has been working with Natural Heritage to arrive at some kind of mutually acceptable solution. The IPA's position is that the lake's water quality is deteriorating and will eventually worsen to the point where it will no longer support mussels or any other animals, and that the mussels will be better off if action is taken than if no action is taken. To date, there have been two meetings with Natural Heritage, and progress is being made (see article on page 1).



Activity at the Annual Meeting registration table.

Progress on the second priority, the gray willow eradication program, was reported by Hobart, who described how the program works and how much has been accomplished after two years of work. In 2008, 66 out of 138 properties had their gray willows removed. This year, only 8 property owners signed up, including the Town of Barnstable, which had many of the largest specimens of gray willow growing on its waterfronts. This leaves a total of 64 properties still to be done, about half of the total.

Director Rick Wheeler described an important effort that he spearheaded this past year to develop future leaders for the IPA, the new Associate Director program (see article on page 6).

Hobart then mentioned the Derelict Boat Clean-Up and the 4th of July Boat Parade, and asked participants to stand up to be recognized. She said that the IPA had a current total of 170 paid household members, a slight increase from this time last year. The IPA Newsletter was cited as another vital IPA activity. Each quarter, about 650 copies go out to households in the IPA area and to the desks of local and state officials, other pond organizations, water scientists, and interested individuals.

Director Gay Rhue, Chair of the Scholarship Committee, presented the Edward Schwarm Memorial Scholarship to Ariel Walcutt, a college-bound, 2009 graduate of Barnstable High School whose home is Marstons Mills. Ariel received a \$1000 check to



Director Gay Rhue presents the Edward Schwarm Scholarship to Ariel Walcutt.



Retiring Director Rick Wheeler expressing thanks for his Distinguished Service Award.

help with her expenses at UMass Amherst, where she plans to major in Natural Resource Studies.

On behalf of the IPA, Hobart thanked outgoing Directors Jim McGuire and Rick Wheeler, who had both served the

maximum six years. She presented Wheeler with a Distinguished Service Award created for the occasion. McGuire, who was not at the meeting, received his award later.

given the IPA during the past few years. This had included initially identifying the invasive gray willows around the Indian Ponds, assisting with the granting of an NHESP exemption for the removal project for the gray willows, and, most recently, facilitating a meeting between NHESP and IPA and Town representatives to seek a resolution on the initial NHESP denial of an alum treatment for Mystic Lake.



Emory Anderson presents the Order of the Turtle award to Tim Simmons.



Guest speaker Tim Simmons.

The guest speaker was Tim Simmons, a restoration ecologist with the Massachusetts Division of Fisheries and Wildlife Natural Heritage & Endangered Species Program (NHESP). Tim is a respected scientist and a friend of the IPA. The title of Tim's talk was "Twenty-Five Years of Habitat Management in New England (And Still Trying To Get It Right)". His talk focused on some of his

efforts in the restoration of plant and animal species, and their habitats, around the state and his conservation philosophy, which, at times, has run counter to the old, established ideas and policies of government agencies. He pointed out that attempting to restore a population such as quail by stocking birds from elsewhere or introducing a similar species would be unsuccessful. Instead, repairing or restoring the habitat required by the species in question is the appropriate and successful way forward. As an example and in response to a question from the audience, he said that controlled burning of the traditional habitat of the bobwhite quail would be the most effective way to bring that bird back to Cape Cod ([see article on page 8](#)).

The business meeting was then adjourned and everyone enjoyed the fine refreshments, good conversation, and beautiful setting of the social hour.

Special thanks are warmly extended to Rev. Ernest Ryden for the sound system; Cotuit Liquors for providing wine; Trader Joe's for donating food; IPA Board members for helping with chairs, tables, and other logistics; and Nancy Wong, Jane Smith, and Gay Rhue for coordinating the acquisition and preparation of the refreshments.

An extra special thank you to Michael Maloney for his photos of the occasion, some of which are included in this article.



Attendees mingling and chatting before the start of the Annual Meeting.

President Emeritus Emory Anderson presented Tim with the IPA's highest honor, the Order of the Turtle, with warm words recounting the help that Tim had

CURRENT STATUS OF PROPOSED ALUM TREATMENT *(Continued from page 1)*

A 2008 technical report prepared by Ethan Nedeau, Biodiversity LLC, Amherst, MA, for the NHESP on the "Status, Habitat, and Conservation of Freshwater Mussels in Nine Coastal Plain Ponds of Southeastern Massachusetts" indicated that mussels were most abundant in Middle Pond, followed by Mystic Lake. These results would argue that water with 10 ppb phosphorus is quite sufficient to fuel the production of algae needed to adequately support mussels. This same report indicates that, of the nine ponds surveyed, Middle Pond has the highest percentage of young mussels and the lowest percentage of old mussels while Mystic Lake has the highest percentage of old mussels and the lowest percentage of young mussels. If the mussel population in Mystic Lake is skewed toward older animals, this could be a symptom of problems associated with a deteriorating lake.

Relative to the second NHESP concern, IPA representatives have also stressed that changes in pH during alum application, not alum itself, could cause mortality to mussels. If alum (aluminum sulfate) is accompanied by a chemical buffer (e.g. sodium aluminate) to prevent shifts in pH and properly applied, there should be no harm to aquatic animals, including mussels.

We have also learned that some, and possibly all species of, mussels respond to toxic materials in the water by closing their valves. This enables them to avoid the toxic effects of chemicals for weeks or longer. This would suggest that the mussels in Mystic Lake, if inadvertently exposed to any alum during an alum treatment, would simply close their valves to avoid being affected. Hence, the most likely problem for mussels, or other aquatic animals, during an alum treatment would

be a change in pH, not the alum itself. And, the careful application of a properly buffered alum solution, as noted above, should avoid any critical shift in pH. Although we are unaware of any such studies, it may be possible that mussels also close their valves if they sense a shift in pH.

In summary, IPA and Town officials strongly believe that a revised treatment plan, as briefly outlined above, should defuse the original concerns raised by the NHESP for the welfare of the rare mussels. It is hoped that this plan will be submitted in the near future and that the NHESP will reverse its earlier decision. Alternatively, **if an alum treatment is denied**, we are concerned that **conditions in Mystic Lake will worsen and endanger the very welfare of the mussels that NHESP is trying to protect.**

Residents living around the lake are keenly aware of the large amounts of algae and water weed, whose growth has been fueled by the excess phosphorus, that have plagued the northern shoreline this summer. Local anglers earlier reported fewer fish nests this spring and early summer, and more recently have complained of poorer-than-average catches. In mid-August, many dead mussels and a few dead fish were seen floating on the surface. **The water is literally comparable to "pea soup"**. A Secchi disk reading was only 4.5 ft, the worst on record. By comparison, the water in adjacent Middle Pond is very clear, and a Secchi disk reading there was 15 ft. All of these observations add up to the conclusion that the lake is dying. **An approved alum treatment can reverse these conditions.**

ASSOCIATE DIRECTORS: A NEW FUNCTION ON THE IPA BOARD

Since its inception over 51 years ago, the Indian Ponds Association has broadened its expertise, its presence in our communities, and has gained respected influence within the Town of Barnstable. We have been magnificently led and served by an increasingly knowledgeable Board of Directors who have been able to successfully address current issues.

Cognizant of the increasingly complex nature of our priorities, the Board, under the leadership of Holly Hobart, introduced a new Board position earlier this year called "Associate Director". The purpose and goal of the new role is twofold.

The first is to offer to our Associate Directors an opportunity to gain a greater understanding of the many challenges that confront us and, secondly, to provide them with the opportunity to share their individual recommendations and comments during the decision-making process at our regular Board meetings. While they can express their opinions, they cannot vote on the various agenda issues. Associate Directors will be eligible, however, to join our IPA committees and participate in proposed projects and events.

Associate Directors will receive a file folder containing all of the primary information regarding the IPA. The file consists

of an introduction; a copy of the *Resident's Guide*, the IPA By-Laws and Articles of Organization; and minutes of previous Board meetings, including current and annual financial reports. In addition, they will receive all mailings circulated to the regular Directors.

With their accumulated experience, Associate Directors will also, depending on their willingness, be prospective candidates for elected positions as Directors in subsequent years. As you can well understand, having new Board members who are very familiar with the operations of the organization's Board can be a great benefit all around.

Our goal is to have six Associate Directors each representing one of the six neighborhood associations within the IPA area. We currently have two Associate Directors: Bob Nichols from the Regency Drive Homeowners Association and Emily Wheeler from the Wheeler Road Association. We are looking for representatives from the four remaining neighborhood communities. If you are interested, please contact Holly Hobart (508-428-0235).

Rick Wheeler

OTTER FAMILY IN MYSTIC LAKE

A small group of as many as three **river otters** was observed swimming and fishing in Mystic Lake this spring. The sleek animals dived, surfaced, and played frequently in the early mornings of June. They disappeared when approached too closely, but on one occasion, an otter challenged a kayaker that had gotten close. The cat-sized animal showed a dark handsome face with a grey muzzle and throat, and hissed repeatedly before making it's underwater escape.



"Ollie the otter" sticking his head out of the water in Mystic Lake long enough to be photographed by Betsey Godley.

River otters are distributed throughout Canada and the US, except for areas of southern California, New Mexico, and Texas, and the Mojave Desert of Nevada and Colorado. They can be found wherever there is a permanent food supply and easy access to water. They can exist in both freshwater and

coastal marine habitats, including rivers, lakes, marshes, swamps, and estuaries. Otters build dens in the burrows of other mammals, in natural hollows, such as under a log, or in river banks. Their dens have underwater entrances and a tunnel leading to a nest chamber lined with leaves, grass, moss, bark, and hair.

River otters are semi-aquatic mammals, with long, streamlined bodies, thick tapered tails, and short legs with webbed, clawed feet. They have wide, rounded heads, small ears, and nostrils that can be closed underwater. Their fur ranges from dark brown to almost black above and a lighter color below. Mature otters are 3–4 ft in length and weigh 10–30 lbs. River otters eat mainly amphibians, fish, turtles, crayfish, crabs, and other invertebrates, as well as occasional birds, bird eggs, small terrestrial mammals, and aquatic plants. Given the reportedly below-average angling rate of success this year in Mystic Lake, it raises the question whether this family of otters is having a localized impact on fish populations. The otters in Mystic Lake have also been observed, both visibly and audibly, eating freshwater mussels.

Otter populations were once depleted throughout many parts of their range, especially around heavily populated areas in the Midwest and in the eastern US. Population trends have stabilized in recent years and reintroduction and conservation efforts have resulted in otters recolonizing areas where they were previously eliminated. However, populations are still considered vulnerable or imperiled throughout much of their range in the Midwest and in the Appalachian mountains.

Editor's note: Much of the above information was accessed from Dewey, T. and E. Ellis. 2003. "Lontra canadensis" (On-line), Animal Diversity Web. http://animaldiversity.ummz.umich.edu/site/accounts/information/Lontra_canadensis.html.

THANK YOU JIM AND RICK

The IPA membership extends its profound gratitude to two outgoing Directors, Jim McGuire and Rick Wheeler, who recently completed their third and final two-year terms on the Board.

Both of these gentlemen brought unique talents, inspiration, a willingness and eagerness to learn and participate, and time-tested wisdom to the Board. Rick, the "senior statesman", faithfully drove down and back from his home in Concord for meetings, rarely failing to attend. His family's long attachment to the Indian Ponds area enabled Rick to provide wise counsel on delicate issues.

Jim, a practicing physician, also rarely missed a Board meeting, often arriving directly from a long day at his office. He willingly volunteered for virtually every IPA activity from pond sampling to debris cleanup. Jim's knack for calming and consensus-building advice matched well with his passion for writing poetry.

A Mystic Summer Day

The lake shimmers with the rising sun
Splashes and children's laughter
ease me into the day

At lunch on the deck
reflected clouds sail across the water
on a light summer breeze

As the sun sets
the great blue heron swoops overhead
Skipjacks dance and sparkle
along the moonlit surface of the lake

Evening enfolds the day

*James McGuire, MD
IPA Poet Laureate*

WHAT ABOUT BOBWHITE QUAIL?

A request for information about the **northern bobwhite quail** arrived this morning and it made me realize, once again, that the three coveys of quail that used to work their way through my backyard are a thing of the past.

There are six species of quail that inhabit some part of the United States, but only one of them lives east of the Mississippi River and only one of them is in decline. That one is, obviously, the northern bobwhite, which gets its name from its distinct, whistled "bobwhite" call.

There are 22 subspecies of the northern bobwhite. The females show little difference among the subspecies, but the males can be dramatically different. Male bobwhites have a white throat and a white stripe extending from the bill over the eye to the base of the neck. The region below the eye stripe is colored black and expands under the throat to form a black collar. Females lack this black collar, and their throats and eye stripes are buff, rather than white. The subspecies occur as the distribution of the breed proceeds south. By the time you get down to northern Mexico, the males may not have any black and white banding at all.



Female (left) and male (right) bobwhite quail.

Found from slightly west of the Mississippi to the Atlantic and from Massachusetts to Florida, Texas, and Northern Mexico, this little bird is the #1 bird in decline in the United States. Its numbers have decreased 82% in 40 years, from approximately 31 million to about 5.5 million.

As with most things, the reasons for its decline are varied, depending on location. They live, breed, and nest on the ground in open grasslands with sparse tree cover. The greatest reason for their decline is the increase in industrial farming in the area between the Appalachians and the Mississippi. In the East, the clearing of land for expanding housing has reduced their habitat. Here on Cape Cod, at least in my 25-year-old neighborhood, we had coyotes move in. We lost every cat in the neighborhood, all the squirrels, and, I'm afraid, all the



quail. With no more food in the area, the coyotes have left, and all we've gotten back are the squirrels.

Another reason for its decline is that it is extensively hunted because, unfortunately, it is really nice tasting. Growing up in East Texas, we teenagers did a lot of quail hunting. Extensive pine forest farming and production may be the greatest threat to the life of the quail. Fire ants hurt them twofold: first, they pillage quail nests and secondly, when man finds the ants, he sprays them with chemicals.

Quail feed on fruits, leafy vegetation, and insects, with seeds making up the bulk of their diet during most of the year. Acorns are preferred over all other foods from fall through early spring. Food must be exposed on relatively bare soil and in open-structured vegetation. Quail scratch and forage poorly in extremely dense vegetation. Seeds buried beneath deep piles of leaf litter are basically unavailable to quail.

Where quail are absent or scarce, it is because either food or cover is inadequate. If protective cover is available, populations usually respond favorably to management practices that provide plenty of food in the fall and winter. If increases in food supply fail to improve quail numbers, landowners can manipulate the habitat.

Several habitat management methods are available to landowners interested in improving quail numbers on their land. These methods involve manipulating native vegetation and supplementing native food.

Controlled burning is often the most economical and effective method of creating and maintaining quail habitat in old fields and woodlands. Regular fire use during late winter months increases the amount and availability of quail food. Annual burning stimulates coverage and seed production of most grasses and legumes. Lush, rapid-growing vegetation that follows such burning attracts and holds large numbers of insects, and discourages plant growth from becoming too dense. Quail find it easier to feed in burned areas, where food items are more abundant.

There are things we can do to preserve the birds that remain. We can support state and local initiatives that promote the purchase and protection of open land. We can advocate controlled burning of selected areas. We can support the federal farm bill which pays farmers to keep marginal farmlands out of production, thus providing millions of acres of perfect habitat. And, of course, we can always volunteer at conservation areas such as the Wellfleet Audubon Center.

Quail are prolific breeders, having up to three hatches a year with 10–12 eggs per clutch. Given a fighting chance, they may make a comeback.

Dave Reid

Editor's note: Some of the above information was taken from http://www.nw.ttu.edu/sp_accounts/bobwhite/default.htm.