

MARCH / APRIL 2012

IOWA OUTDOORS

THE DNR'S MAGAZINE OF CONSERVATION AND RECREATION



IN THIS ISSUE:

MADISON COUNTY MAGIC

SEE THE FAMED BRIDGES FROM IOWA'S NEWEST WATER TRAIL

STATE LIBRARY OF IOWA
1112 E. Grand Ave.
DES MOINES, IA 50319

travel
IOWA

good times. great outdoors.
**and everything*
in between**

Every trip boils down to getting away from it all and making memories
with the people who matter most. Plan a trip your whole family will love
— but that affords mom and dad a chance to kick back too.

traveliowa.com



**A little "we time."*

IOWA OUTDOORS

MARCH / APRIL 2012 • VOLUME 71 • ISSUE 2

STAFF

Brian Button - EDITOR-IN-CHIEF
Alan Foster - MANAGING EDITOR
Jacob Zweibohmer - ART DIRECTOR
Jessie Brown - COPY EDITOR
Mindy Kralicek, Mick Klemesrud - WRITERS
Clay Smith - PHOTOGRAPHER
Julie Tack - MARKETING AND PUBLICITY
Kevin Baskins - COMMUNICATIONS BUREAU CHIEF

STATE PRESERVES ADVISORY BOARD

Deborah Lewis - CHAIR, Ames
Wayne Phipps, Glenwood
Thomas Putnam, Boone
Inger Lamb, Polk City
Carl Kurtz, St. Anthony
Diane Ford, Des Moines
Lynn Alex, Iowa City

NATURAL RESOURCE COMMISSION

Gregory Drees, CHAIR, Arnolds Park
Margo Underwood, VICE-CHAIR, Clear Lake
Dennis Schemmel, SECRETARY, Grimes
Conrad Clement, Cresco
R. Kim Francisco, Lucas

Dr. Sally Prickett, Glenwood
Janelle Rettig, Iowa City

ENVIRONMENTAL PROTECTION COMMISSION

David Petty - CHAIR, Eldora
Lorna Puntillo - VICE-CHAIR, Sioux City
Mary Boote - SECRETARY, Des Moines
Dee Bruemmer, Davenport
Nancy Couser, Nevada
John Glenn, Centerville
Dolores Mertz, Ottosen
Brent Rastetter, Ames
Marty Stimson, Cedar Rapids

SUBSCRIBER SERVICES 800.361.8072

ADVERTISING OFFICE

Associations Inc, Natasha Kucherenko at 515-778-8720 or NATASHAKUCH@GMAIL.COM

DNR EXECUTIVE STAFF

Roger Lande - DIRECTOR
Chuck Gipp - DEPUTY DIRECTOR

DIVISION ADMINISTRATORS

Bill Ehm - ENVIRONMENTAL SERVICES • Chuck Corell - CONSERVATION AND RECREATION
Cindy Axne - MANAGEMENT SERVICES

DNR Central Office, 515.281.5918 • TTY users contact Relay Iowa, 800.735.2942

Iowa Outdoors (ISSN 0021-0471) is published bimonthly by the Iowa Department of Natural Resources, Des Moines, Iowa 50319-0034.
Periodicals postage paid Des Moines, IA. SUBSCRIPTION RATES: \$15 FOR ONE YEAR,
\$24 FOR TWO YEARS AND \$30 FOR THREE YEARS. PRICES SUBJECT TO CHANGE WITHOUT NOTICE. Include mailing label
for renewals and address changes. POSTMASTER: Send changes to Iowa Outdoors, P.O. Box 37831, Boone, IA 50037-0831.

Federal and state regulations prohibit discrimination on the basis of race, color, national origin, sex or disability. State law also prohibits
discrimination on the basis of creed, sexual orientation, gender identity, religion, pregnancy or public accommodation. If you believe that
you have been discriminated against in any program, activity, or facility as described above, or for more information, write: Director, DNR,
502 E. Ninth St., Des Moines, IA 50319-0034 or the Equal Employment Opportunity Commission, Washington, D.C. 20240.

DNR MISSION

To conserve and enhance our natural resources in cooperation
with individuals and organizations to improve the quality of life
for Iowans and ensure a legacy for future generations.

EDITORIAL MISSION

We strive to open the door to the beauty and uniqueness
of Iowa's natural resources, inspire people to get outside
and experience Iowa and to motivate outdoor-minded
citizens to understand and care for our natural resources.

MAKE A DIFFERENCE

The Keepers of the Land program matches volunteers
with natural resource service needs statewide.
Give back to Iowa's lands, waters and skies.
Call 515-281-0878 to match your interests with needs
or visit www.keepersoftheland.org.

HOW TO DONATE

Charitable giving of land, funds, and goods and
services greatly enhances Iowa's outdoor living.
Contact: Kim Rasler at 515-281-7122.

SHOW YOUR SUPPORT

The DNR Nature Store offers apparel and gifts
with profits for parks. Order online at
www.iowanaturestore.com or 1-866-410-0230.

SUBSCRIBER SERVICES

To subscribe, or for any subscription issues or
questions, call 1.800.361.8072 Monday through Friday
from 7 a.m. to 11 p.m. or weekends 8 a.m. to 6 p.m.
For ease in processing, please have an issue with
a mailing label available at time of call. To purchase
a single copy for \$5, call 515-281-5918.

LEARN MORE

Our website, www.iowadnr.gov, is loaded with
information for all ages and needs. Buy licenses, reserve
campsites or learn more about our environment online.
See our magazine television show at lptv.org.



Contributors

DAVID FITZSIMMONS

is a freelance
photographer
and professor. He
photographs and
writes for *Outdoor
Photographer*, *Popular
Photography* and
Shutterbug; newspapers, online publications
and calendars.

A former high school English teacher,
he is a professor at Ashland University in
Ohio. He holds a Ph.D. in English from Ohio
State University, with a specialty in narrative
theory—investigating the components of
storytelling—something that influences his
photography and writing. He is one of five
Sigma Pro photographers in North America.
www.fitzsimmonsphotography.com



After two frustrating
years, **MIKE KREBILL**
hopes this will be a
banner year for Iowa
morels. A retired
naturalist and science
teacher, he enjoys
hunting for wild foods
and mushrooms.
He is vice president
and newsletter editor of the Prairie States
Mushroom Club.



BILL KLEIN was born
and raised in Des
Moines, graduated
from Dowling
Catholic High School
and worked briefly for
Look magazine in Des
Moines. A life-long
hunter and angler, his
work has appeared
in *Outdoor America* magazine and many
hunting and conservation magazines. He
lives in Stillwater, Minn.



JEN WILSON is a travel
and features writer
based in Des Moines.
Her work appears in
*National Geographic
Traveler*, *Frommer's
Budget Travel*, *Midwest
Living* and *Esquire*. Her
first book, *Running
Away to Home*, is
available in bookstores and online at
www.jennifer-wilson.com.



Affordable 2-Day Mississippi River Cruises

ABOARD THE RIVERBOAT
TWILIGHT

Cruising the Heartland of America



- Departs & Returns to Quad Cities (LeClaire, IA)
- One Low Fare includes all Meals, Snacks, Entertainment, Shore Tours & Overnight Accommodations at Dubuque's Riverfront Grand Harbor Resort

Toll Free 1-800-331-1467
www.RiverboatTwilight.com

BORN FREE MOTORCOACH



- ★ **QUALITY**
BEST BUILT MOTORCOACH IN AMERICA
- ★ **SAFETY**
42 YEARS WITHOUT A FATALITY
- ★ **DRIVABILITY**
THE ULTIMATE TOURING VEHICLE
- ★ **SOLD FACTORY DIRECT**



800-247-1835
www.bornfreemotorcoach.com
Highway 169 North, Humboldt, IA 50548



As Iowans, we are proud of our great state. Consider getting involved to ensure that the beauty and quality of life in Iowa continuously improves for our children and grandchildren. April 2012 is Keep Iowa Beautiful month, why not plan to take action? Here are ways you can:

- ▶ Enroll in the Iowa Department of Transportation's Adopt a Highway program. It's easy and rewarding. Visit www.iowadot.gov/maintenance/adopt_a_highway.html for more information on how to get started.
- ▶ Do something about littering! Report littering at 1-888-NOLITTR (1-888-665-4887).

Visit the Keep Iowa Beautiful web site at www.KeepIowaBeautiful.com for additional information.

Lights Up!

NEARLY
2 FEET WIDE!



Budweiser® Clydesdales illuminating stained-glass panorama

In 1933, to celebrate the repeal of Prohibition, August A. Busch Jr. presented a very special gift to his father: a turn-of-the-century beer wagon hitched to a magnificent team of Clydesdales. Since then, the horses have come to symbolize the longstanding traditions of a true American original: Budweiser®. Now a classic eight-horse hitch steps lively once more, filling the nearly two-foot long expanse of a first-ever stained-glass panorama that *lights from within* at the touch of a switch, and features a sculpted, classic Budweiser® bow-tie logo on the front.

An exceptional value—with our unconditional guarantee

Lit or un-lit, the Budweiser® Clydesdales illuminating stained-glass panorama will become a statement piece in any decor, and arrives fully assembled. The edition is strictly limited, and strong demand is anticipated, so order yours now in four easy, interest-free installments of \$37.50, for a total of \$149.99*, backed by our 365-day guarantee. Send no money now. Just mail the Reservation Application today! www.bradfordexchange.com/budpano

©Anheuser Busch Inc. 2011. Adult product not intended for sale to persons under 21 years of age.



At the touch of a switch, long-lasting LED lights shine from within, adding a bold sense of color and life to the first-ever Budweiser® Clydesdales stained-glass panorama.

©2011 BGE 01-10450-001-BIR

Shown much smaller than actual size of 22" wide x 10 3/8" high, including frame. With hanging device.

RESERVATION APPLICATION SEND NO MONEY NOW

THE
BRADFORD EXCHANGE
—HOME DECOR—

9345 Milwaukee Avenue · Niles, IL 60714-1393

YES. Please reserve the Budweiser® Clydesdales illuminating stained-glass panorama for me as described in this announcement. Limit: one per order. Please Respond Promptly

Signature _____

Mrs. Mr. Ms. _____
Name (Please Print Clearly)

Address _____

City _____

State _____ Zip _____

01-10450-001-E51621

*Plus a total of \$15.99 shipping and service. This limited-edition is restricted to 95 firing days. Allow 4-8 weeks after initial payment for shipment. All sales are subject to product availability and order acceptance.



FEATURES

28 Get Kids Outside

Medical experts agree getting kids outside is essential to their happiness, development and overall well-being. Learn from naturalist Hannah Wiltamuth how to make those healthy trips fun and exciting.

BY HANNAH WILTAMUTH

30 Rearing a Record

Now is the time to wet your line as DNR advances in fisheries management have led to all-time high fish populations. The good ol' days of fishing are now.

BY MICK KLEMESRUD

38 Curious Critters

Open your eyes to the simple beauty in your backyard through this stunning picture book that teaches children about animals and the environment.

PHOTOS BY DAVID FITZSIMMONS

40 50 Tips for Finding Spring Morels

From using foveal vision to "the Groucho Marx stoop," noted food forager Mike Krebill of Keokuk offers unique tips for finding more morel mushrooms.

STORY AND PHOTOS BY MIKE KREBILL

Contents

MARCH / APRIL 2012



48 Why We Fish

From the first trip to the last catch, a day on the lake captivates the heart and soul. It's no wonder why the best fishing trip you'll ever take is the next one.

BY BILL KLEIN

52 Harmonious Living With Nature

A small Fairfield village is raising the eco-friendly bar, with ultra-efficient, comfortable living fueled by solar, wind and sustainable design.

BY MINDY KRALICEK PHOTOS BY CLAY SMITH

ABOUT THIS PHOTO

Finding a unique and eye-level view of creatures was a goal for photographer and book author David FitzSimmons. His desire to give viewers a fresh look at common creatures demanded new techniques, such as applying macro photography to his subjects—some just fingernail sized—while incorporating a tabletop light tent. The result is a detail-rich, focused view as this Virginia opossum illustrates.

ABOUT THE COVER

Madison County's Roseman Covered Bridge, built in 1883, stretches across the Middle Raccoon River. Just upriver from Pammel State Park, the bridge is an access site for a new 45-mile river trail.

Contents

MARCH / APRIL 2012

DEPARTMENTS

12 *Myth Busters*

Get the real dirt on using worms for composting and find out if sweat bees are really attracted to sweat.

13 *Together*

Learn to speak fluent frog for amphibian surveys, get a bird's-eye view of Iowa's newest eagle cam, discover why flowers smell and open the door to the secret of topping off your vitamin D storage tank.

16 *Outdoor Skills*

Gobble up these tips for safe spring turkey hunting.

17 *Lost In Iowa*

From viewing the bridges of Madison County while paddling a new water trail to sleeping in a yurt or catching man-sized flathead catfish, central Iowa's Pammel State Park packs diverse adventures.

ABOUT THIS PHOTO

On a warm, sunny spring day, editor Brian Button captured this image of one of hundreds of bees at work in a stand of crabapple trees at Pammel State Park in Madison County.

60 *My Backyard*

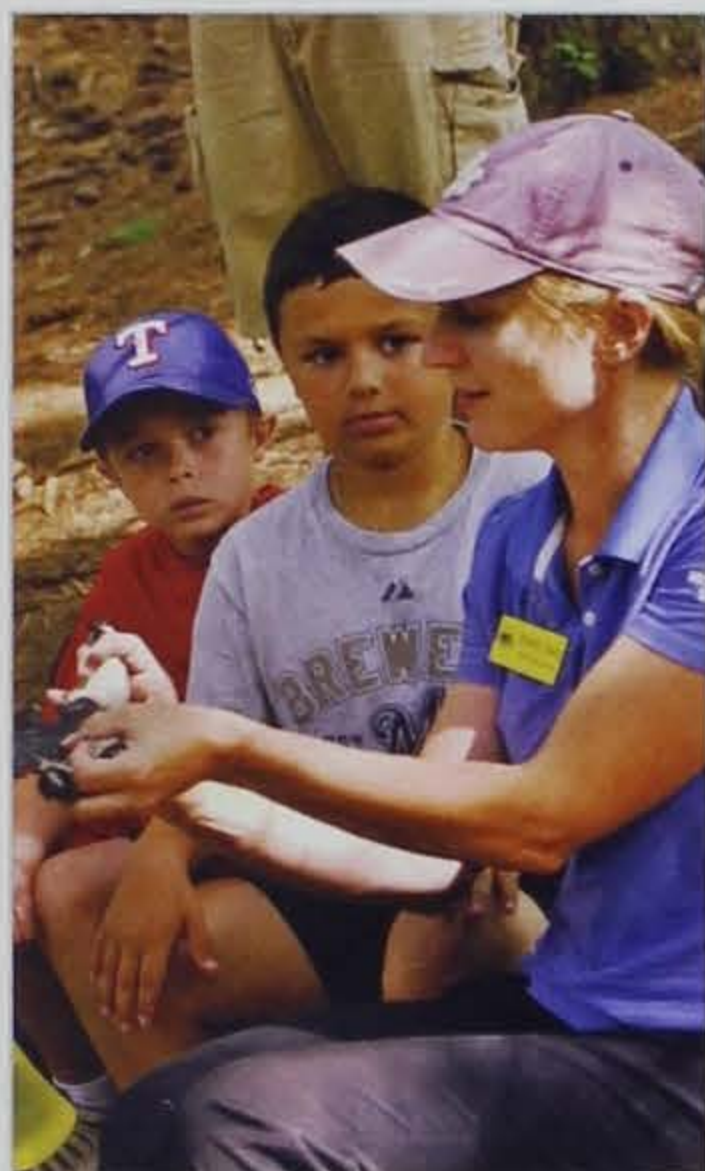
Building a better backyard is for the birds.

62 *Wild Cuisine*

Wake up the taste buds with rabbit like you never had it and sweet and savory catfish from chef Kammal Hammouda at Grinnell's Phoenix Café and Market.

66 *Flora & Fauna*

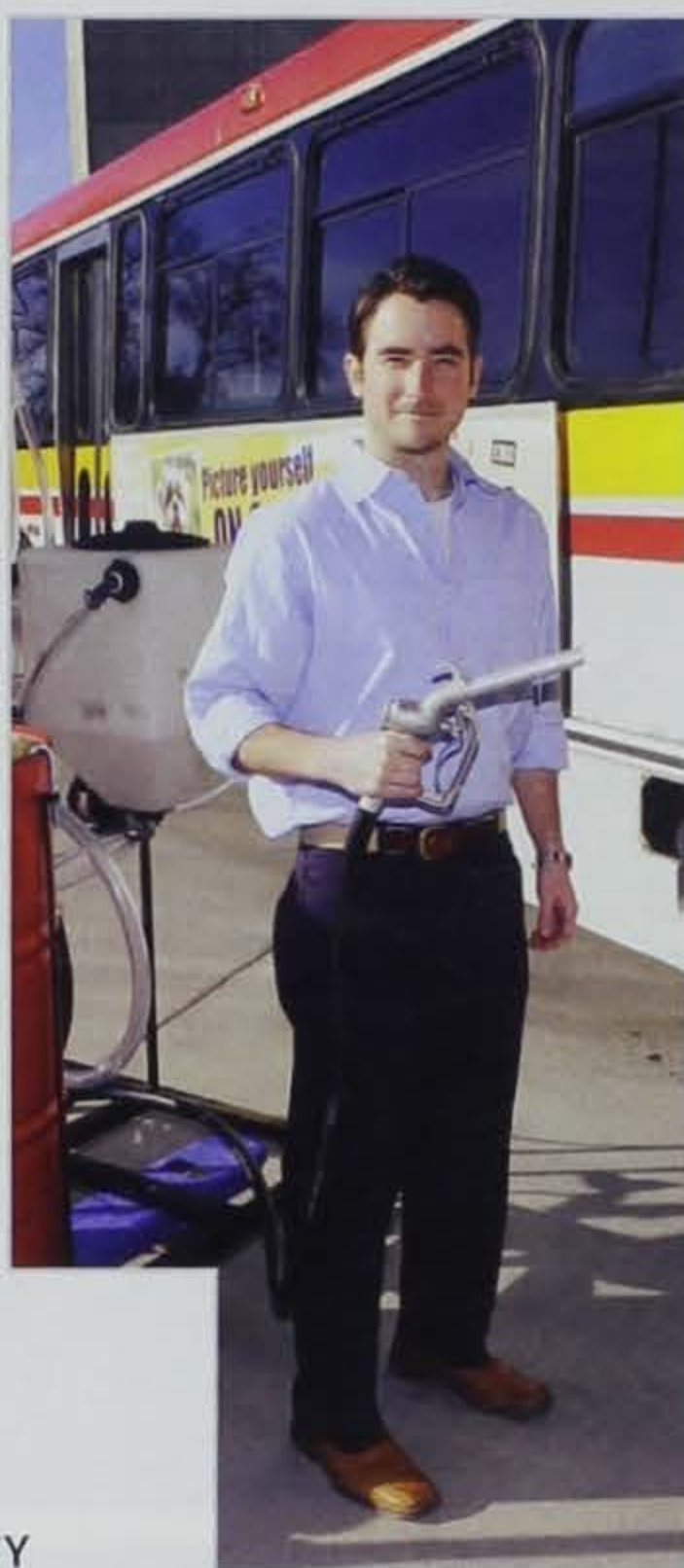
Lace up those hiking boots for science exploration—readers are asked to help discover if lungwort, a rare and threatened lichen, still exists in Iowa.



HEEDING THE CALL

MEREDITH CASKEY
SCHOOL OF THE WILD, IOWA CITY
Eastern Iowa woman changes careers
to teach children about birds, wildlife

A half day spent volunteering changed the course of Meredith Caskey's life. Caskey, who holds degrees in theater and art history, was working as a preschool teacher and studying for her teaching certification. As part of the certification process, she volunteered at the University of Iowa's wildlife camps and "fell in love with it," she says. She applied for a job, and now she's in her 15th year of teaching children about bird banding and Iowa ecosystems through the summer camps and School of the Wild, which focus on immersing students in the outdoors. While teaching preschool, "I saw that hands-on education made a lot of sense to me and that this is a really valuable way to learn," Caskey says. "It's really rewarding to get to teach this way, outdoors." At the summer camps and school-year School of the Wild program, about 2,400 students each year learn about prairies, outdoor survival, wetlands, insects, fossils, woodlands, birds, snow, canoeing, animal tracks and more. Caskey, who credits her dad for fostering her love of the outdoors, has learned a lot about birds during her time on the job. "I feel like I've learned a lot as I go," says Caskey, who's well-known at the camps for her bird calls. "It's fun to learn about birds, but what's really important is action. Our three As that I'm committed to teaching are awareness, appreciation and action."



BIOBUS CY-RIDE

SUSTAINABLE STUDENTS, AMES
Iowa State University Students Turn
Food Service Waste into Fuel

While there's a lot of carb-loading done in Iowa State University's dining halls to fuel students for late night cramming, one group of students takes the cafeteria's waste oil to fuel a CyRide bus. The 20- to 25-member BioBus group formed out of a sustainable agriculture student group in 2008 and began working with ISU's campus-wide Live Green initiative to get the project rolling. "We wanted to prove that it could be done. We were wondering why more people weren't doing this," says David Correll, a doctoral student who co-founded the group. "The first batch didn't come out perfect, but now we're making about 20 gallons at a time," he says. The group recycles used vegetable oil from one dining center into biodiesel, then delivers it to CyRide, which uses the fuel in a bus that already blends biodiesel. Anyone who wants to see the group make a batch of biodiesel can don a white coat and watch in the lab or observe through windows. BioBus has plans to continually expand production, taking in more waste oil to produce more biodiesel. The group is considering making soap from the fuel's main byproduct, glycerin, to raise funds. They also take the project into the community and Iowa schools with three portable production units that show how biodiesel is made. "They get kids excited about science and technology," says the group's faculty advisor, Dr. Tom Brumm. "This is really cool stuff and you can have a career in this."



HIKING FOR TRASH

JIM MILLENACKER AND LAJEAN OLSON, SAC COUNTY
Husband-wife duo scour drought-stricken lake to remove trash

An October walk along the lakeshore, quiet waves lapping the shore, autumn leaves rustling and... a guy with an overflowing garbage bag. It was a common sight last fall as Jim Millenacker walked, bent and hoisted his way around Black Hawk Lake. Now, with a small mountain of trash gone, he hopes his initiative will spur others to act. Living along the 957-acre lake in Sac County, Millenacker frequently bikes or hikes the area, often with wife Lajeau Olson. A dry 2011 dropped the water levels more than a foot, exposing 23 acres of shoreline. Millenacker saw a new, seven-mile hiking prospect. But it wasn't pretty. "I was disgusted with the beer cans and plastic water bottles on the beach or wedged into the shoreline rocks and grasses," says Millenacker. "If I'm going to hike, why not pick up trash on my way?" His walk became a 10-day garbage route, crawling over rocks, around trees and falling in a few times. "I'd hike till my 42-gallon garbage bag was full or too heavy, set it up by the road, walk back to my truck, drive to the bag and start over." He found thousands of cans and bottles, styrofoam bait boxes, plastic bags, food containers, oars, fishing gear, life jackets and float toys—even a gallon of milk. And the big stuff: 15 tires, hundreds of pounds of metal, an antique wheel rim. Next he'd like community-wide cleanups. "Just pick up one piece of litter, every time you go. That's how it got there in the first place!"

Drop Anchor & Play Awhile

With a variety of lodging options and great dining, shopping and legendary attractions, Clear Lake is clearly your choice for year-round recreation, relaxation and family fun.

Stay at the shore and go explore North Iowa.



800-285-5338

Plan your stay at
ClearLakeIowa.com

Use this code to explore Clear Lake!



facebook.com/ClearLakeIowa



@VisitClearLake



IOWA OUTDOORS

ADVERTISE IN IOWA OUTDOORS TODAY!
...reach over 40,000 subscribers each issue!

Contact **NATASHA KUCHERENKO**

515-778-8720 • NATASHAKUCH@GMAIL.COM

Concrete: Iowa's Natural Choice for Sustainability

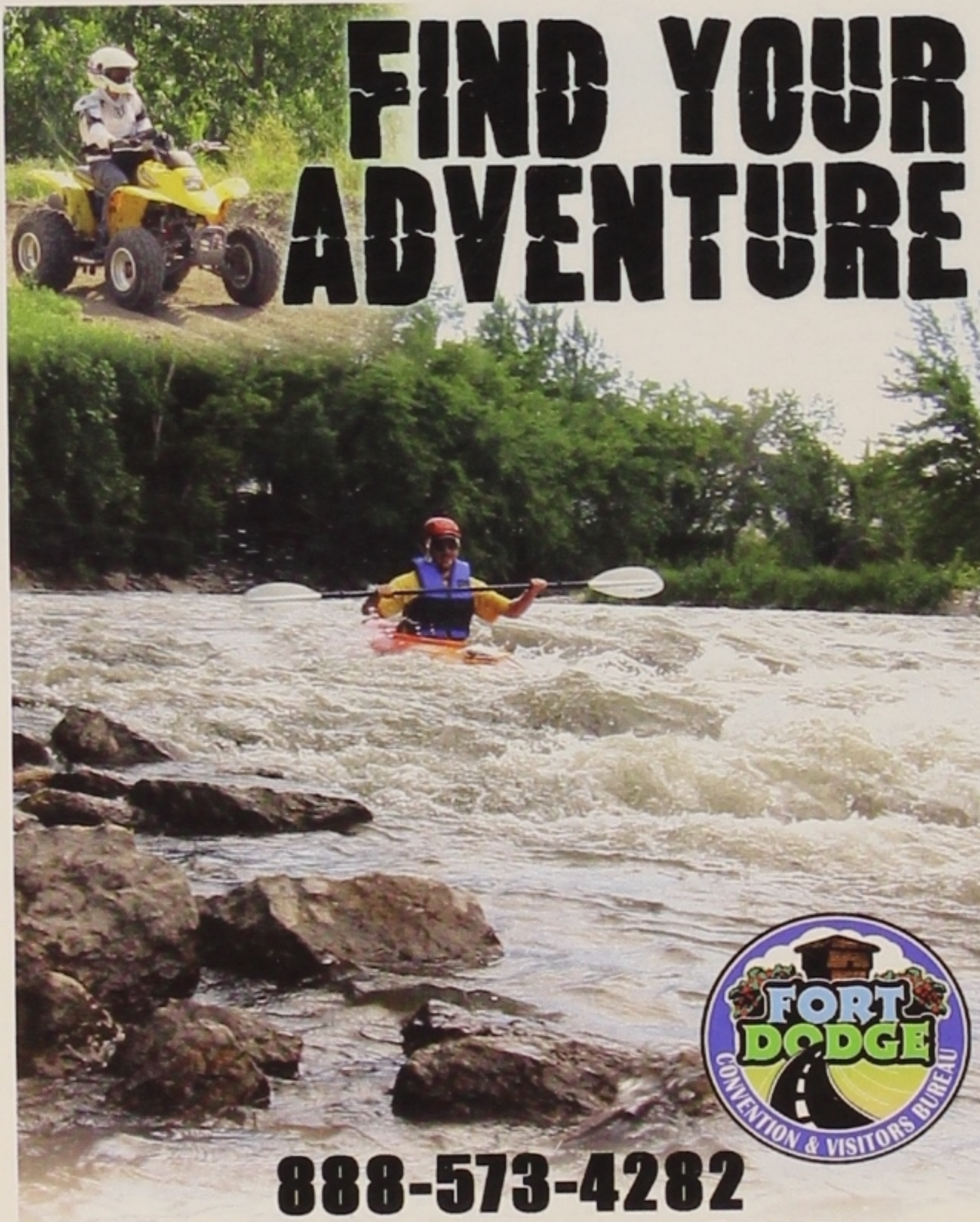


Trails and roads built with concrete offer unmatched durability and recyclability, with a low carbon footprint.

Iowa Concrete Paving Association
Iowa Ready Mixed Concrete Association

515-963-0606
www.iowaconcretepaving.org

515-965-4575
www.iowareadymix.org



FIND YOUR ADVENTURE



888-573-4282
www.fortdodgecvb.com

Start a new adventure
in Marshalltown

Marshalltown

make it your destination

CONVENTION & VISITORS BUREAU



Explore 160
acres of trails



Hike or bike
portions of the Heart
of Iowa Nature Trail



Work on your golf
game this season at
one of our six courses

www.visitmarshalltown.com
800.697.3155

Support the Original Green Movement

Contribute to the Fish and Wildlife Fund on your tax forms

It's so easy to help protect Iowa's diverse critters and their habitats. Simply donate to the Fish and Wildlife Check-Off on your Iowa state tax returns! **You'll support more than 800 wildlife species** in Iowa, and 100 percent of your donation goes to wildlife research, habitat development, education and more.



TEAMING WITH WILDLIFE
a natural investment



Make a difference this tax season. Check It and Protect It.

DNR

GRAY TREE FROG BY KRISTIN FANKHAUSER



Iowa Public Television

IOWA OUTDOORS

Watch Iowa Outdoors magazine
Come To Life
on Iowa Public Television!

Visit IPTV.org for air times or watch past and present episodes online.



**Oak, Redbud, Hackberry,
Sycamore, Birch, Dogwood,
and more.**

Germinated from hand-selected Iowa seed to ensure hardiness.

Grown in patented root-pruning containers to maximize root production and survivability.

Prices and inventory at
www.iowanativetreesandshrubs.com

Mike Bevins
515-975-3158



Located just 45 minutes
northwest of Des Moines

Do specialty worms used for composting threaten Iowa's outdoors?

A rumor has been wiggling around that while red worms used for composting are beneficial in reducing solid waste and speeding up decomposition, they pose a threat when introduced to Iowa's ecosystems.

The basis of this concern stems from the fact that red worms, *Eisenia fetida* (also known as manure worms, tiger worms, red wigglers or trout worms), feed on plant materials but are not indigenous to Iowa. When nutrient-rich humus (worm compost) is harvested and used in gardens and flower beds to repair and maintain soils, it contains worm eggs. These eggs could hatch and theoretically pose a threat to native plants and species that rely on these plants for food.

With little research done with regard to these composting worms disturbing native habitats, several studies show that other non-native earthworms are invading hardwood forests, causing the loss of tree seedlings, wildflowers and ferns. However, composters will attest and studies have shown that red worms are not able to survive extremely cold temperatures found in Iowa winters.

While it is unlikely that eggs will hatch and survive, freezing the harvested humus for a week or longer is recommended before using it in garden and landscaping applications to reduce propagation risks. In addition, vermicomposting, the term used for worm-composting operations, should take place in a captured environment such as a bin system. Adequately maintaining the system will reduce worm escape. If red worms in a captured environment receive adequate food and water, they will not attempt to stray and will have no need to find food elsewhere.

Learn more about composting, vermicomposting or reducing solid waste at www.iowadnr.gov.

Ask The Expert

Scott in Carroll County asks:

Are sweat bees really attracted to sweat?

The discovery of 11 new sweat bee species east of the Mississippi River (four in the New York area) has spurred a buzz revolving around the name origins of these persistent pollinators. Sweat bees, as their name implies, are attracted to human sweat—or more accurately—the salt in human sweat. Salt is a nutrient desired by sweat bees and assists them in providing their much-needed pollination services.

Sweat bees primarily participate in a form of pollination known as sonication, or “buzz pollination.” The bees place a flower’s anther in its jaws while vibrating with its flight muscles. This causes pollen to dislodge and creates the resonating vibration we recognize as a “buzz.” Blueberries, alfalfa and watermelon are just a few crops that rely on buzz pollination.

Sweat bees are nonaggressive but will sting if provoked. Sweat bees are solitary bees and do not live in colonies, but nest in existing holes, rotten wood or ground burrows. They are very small and because of their size and metallic-looking bodies, are easily distinguishable from their colonizing cousins—honeybees and bumblebees. Because sweat bees are attracted to human sweat they are often seen as a nuisance. However, control is not recommended because they play a vital role

in pollination, visiting upwards of eight flowers per minute.

For more regarding the newly discovered Big Apple Bees, visit Cornell University's website www.news.cornell.edu/stories/Nov11/NewBees.html



ACTIVITIES, TIPS AND EVENTS FOR THE WHOLE FAMILY

Become Fluent in Frog and Toad

Volunteering for Amphibian Science Adds Wildlife to Your Night Life

Frog & Toad Call Survey

Every year in late March to early April, the calling begins. The western chorus frog is usually first to find its voice with an ascending, constantly repeating "ccrrreeek." It is quickly joined by the soprano chirp of spring peepers or the rumbling, snoring bass of the leopard frog. The singers are all males, trying to attract a female. For those listening, the loud chorus is a welcome sign of spring.

And since 1991, at wetlands across Iowa, dedicated volunteers have been listening and collecting data on what's singing as part of the DNR's Frog and Toad Call Survey, one of the longest running in the country. More than 13,000 surveys have been done on more than 1,200 wetland sites in 82 counties.

The value of the survey is multifaceted. The DNR wildlife diversity program is small, and without the dedication of these volunteers, it would be impossible to collect data statewide during such a short time period. The survey helps determine frog distribution and range, monitor population trends and index water quality.

The survey came from serious concerns over a precipitous decline of many amphibians worldwide, most often attributed to water pollution. Amphibians spend at least part of their life in water and have highly permeable skin sensitive to pollutants. Declines can also be due to habitat loss (Iowa has drained nearly 95 percent of its wetlands), or invasive species such as the bullfrog, which has been expanding its range in Iowa and is an aggressive predator of other frogs and toads.

Volunteers can also assist in the North American Amphibian Monitoring Program (NAAMP), which runs in 23 states and has about 80 survey routes in Iowa. Each route needs a volunteer surveyor to drive the route three times each spring and summer. The night surveys stop at 10 wetland spots where the volunteer records what frogs and toads are singing after five minutes of listening. It's a really fun way to explore the outdoors at night and the data is used not only in Iowa but regionally and nationally to monitor amphibian populations.

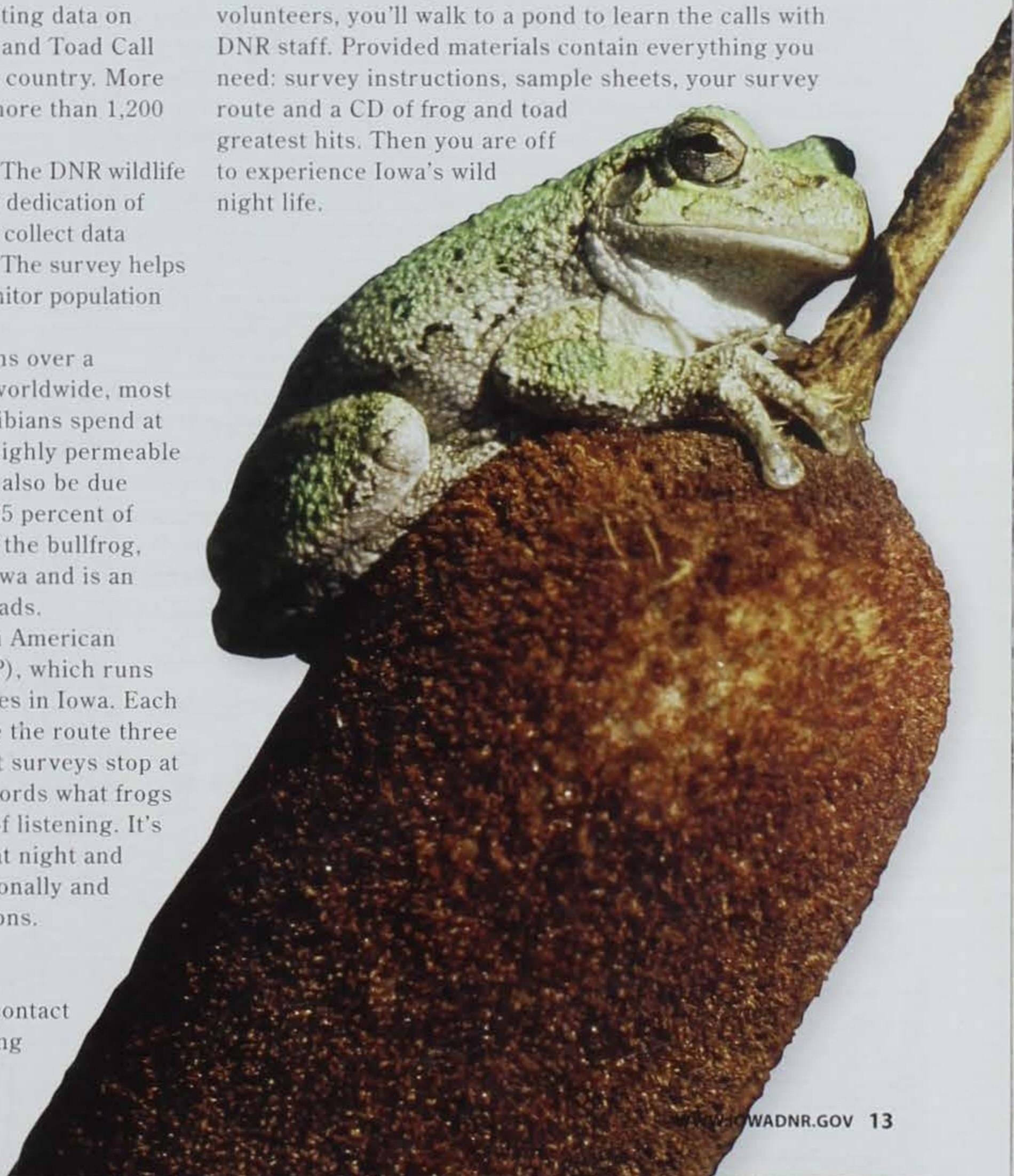
GET INVOLVED

Check the map of available routes, then contact the state coordinator to volunteer. Training

workshops are held every spring around Iowa as a part of the DNR Volunteer Wildlife Monitoring Program. To learn more about the program and find classes near you, visit iowadnr.gov and search "frog and toad survey" or contact DNR coordinator Stephanie Shepherd at 515-432-2823 extension 102. For a map of available routes visit www.pwrc.usgs.gov/naamp.

BUT I DON'T KNOW THE CALLS

After an interesting three-hour class with other volunteers, you'll walk to a pond to learn the calls with DNR staff. Provided materials contain everything you need: survey instructions, sample sheets, your survey route and a CD of frog and toad greatest hits. Then you are off to experience Iowa's wild night life.



Together

BY ALAN FOSTER PHOTOS BY RON HUELSE

New Camera Puts Viewers in the Nest

Riding the tail of the soaring success of the Decorah bald eagle camera, a second camera is making its debut in central Iowa, giving eagle lovers another opportunity to track the life and times of the national symbol.

Spearheaded by a partnership between the Red Rock Lake Association and Central College in Pella, and backed by numerous sponsors and partners, the Gladys Black Eagle Cam keeps a watchful eye on a pair of resident bald eagles that has called Red Rock Reservoir their home for more than six years and produced two chicks last year. Much like the Decorah cam, the Red Rock cam is streaming live audio and video, capturing nest building, courtship, egg laying, chick development and fledging. The camera, like Decorah's, is capable of filming in infrared for nighttime viewing.

The impetus behind the camera, according to Ron Huelse of the lake association, is education. Footage from the site is used for educational videos promoting a better understanding of the environment and conservation. Video clips from other sources related to not only eagles, but the environment and conservation in general, will also be available on the website. Scholars from kindergarten through college will play a big role in the videos, Huelse says. Researchers can also go back in time and watch recorded activity at various stages.

Huelse notes the camera is free of obstructions, such as leaves and branches, for a clear view. The lenses can defrost in colder temperatures and snow, and volunteers can pan in or out from remote locations, offering more flexible viewing.

The camera is named after noted Pleasantville ornithologist and naturalist Gladys Black, affectionately referred to as "Iowa's Bird Lady" and described as a "tireless defender of the environment." She passed away in 1998 after contributing more than 35 years of volunteer work, identifying species around Lake Red Rock and penning news columns and books on Iowa birds. The camera is made possible through public and private donations, including a \$10,000 anonymous donation and an \$8,000 Resource Enhancement and Protection grant.

View the camera and educational videos at www.gladysblackeagle.org.



But Why?

Helping adults answer children's nature questions

BY A. JAY WINTER

A. Jay Winter educates up to 20,000 Iowa children each year as the DNR's training specialist at the Springbrook Conservation Education Center.

JENNY, AGE 9, IN JASPER COUNTY ASKS:
Why do flowers smell?

As spring approaches, the sweet aroma of Iowa flowers will once again permeate the air. Undoubtedly a question raised by curious children is why flowers smell so good.

While both children and adults enjoy the smell of flowers, the sweet fragrances are not for our benefit but for the benefit of insects and birds that help with pollination. Explain to kids that pollen is a dusty, powdery substance produced by flowers that helps them reproduce or make more flowering plants.

While some flowers rely on the wind to carry pollen, others rely on insects and birds. The smell we enjoy is primarily produced from essential oils (concentrated liquids) in the petal of the flower, which is why the scent is strongest when in bloom with petals exposed. These fragrances attract pollinators who move from flower to flower. Insects and birds have a limited time frame for pollinating flowers because essential oils evaporate or change from a liquid to a gas quickly in warm weather. Plus, some flowers bloom for a very short time. Most species of daylily, for example, bloom for one day only.

While most flowers smell sweet, children find it interesting that this is not so with all flowers. Some pollinators are attracted to scents people dislike. For example, the titan arum—a tropical flower native to Indonesia and a cousin to the calla lily, smells like rotting meat. This stench attracts pollinators such as flies, carrion beetles and other insects who must work quickly as this flower only blooms for 24 to 36 hours.

Outdoor Fit Together



VITAMIN D

BY TIM LANE

I recently had the pleasure of hearing a speech by Dr. Sally J. Studer of West Des Moines. The talk shared new research from the Mayo Clinic that indicated additional benefits from an old ally. Those benefits include reduction of hypertension (high blood pressure), cancer and diabetes. Based on that research and the motivation from Studer, I wish to "D-program" you. In that process I will "D-note" the value of good nutrition and sunshine. That is, I wish to dwell on the value of vitamin D.

Vitamin D is essential for calcium absorption and bone health. Research suggests most people need at least 1,000 international units per day. Those with chronic back pain should double the dose.

We have been aware of vitamin D deficiency since the 17th century. The focus in that era was rickets, and in 1645, both Dr. Daniel Whistler and Francis Glisson published accounts associating rickets with an absence of various foods.

First, the bad news. One of the best vitamin D sources is cod liver oil—perhaps the worst healthy option imaginable. I doubt if cod, liver or oil would rank high on anyone's list of appetizing entrées, but together they are daunting, given it tastes as good as it sounds.

The good news is there are other good vitamin D sources, one just *outside* your door. In 1923 two scientists (Goldblatt and Soames) identified that a precursor of vitamin D (7-dehydrocholesterol) existed in the skin. They documented when irradiated with sunlight or ultraviolet light, a substance equivalent to the fat-soluble vitamin was created. That's like having a pharmacy in your arm. In other words you can take cod liver oil or "just add sunlight!"

We all know that too much sun is a bad thing, but as little as 10 minutes of exposure is thought to be enough to prevent deficiencies. So a 10 minute outdoor walk can be part of your daily physical activity that also tops off your vitamin D storage tank.

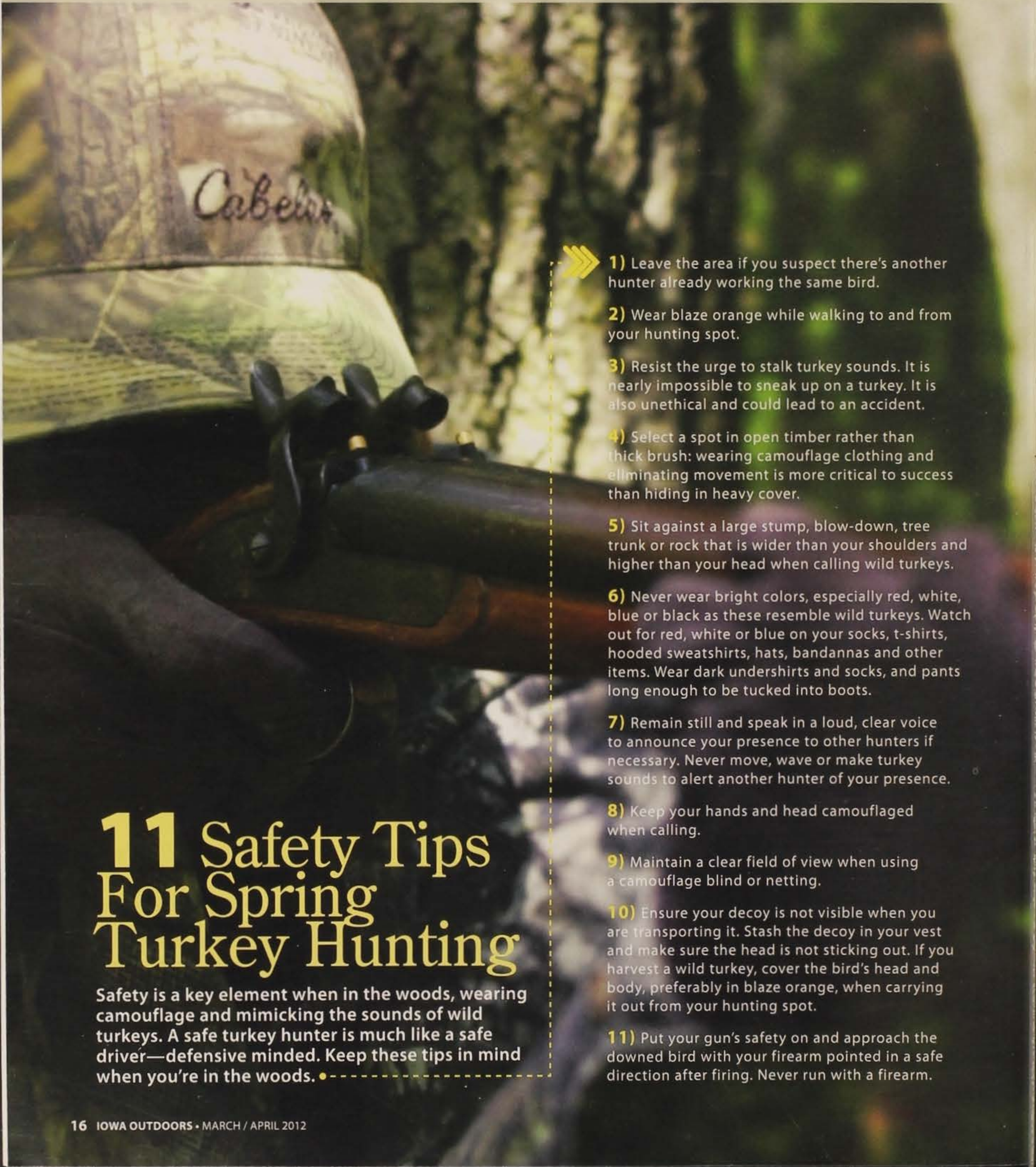
To be technical, I am talking about D-3. While all Ds are good, the solar-created variety is D-3. The two primary divisions are ergocalciferol (vitamin D-2) and cholecalciferol (vitamin D-3). You can be fortified with either by including fish, eggs, fortified milk or cod liver oil in your diet. The primary benefit is an increased ability to absorb and distribute calcium. In other words it helps build strong bones and address those other health benefits mentioned above. Get outside and get a dose.

TIM LANE is a nationally recognized authority on public health and physical activity. In 2010, he and his buddies rode bicycles across Iowa, river to river, in 21 straight hours.

TIPS, TRICKS AND MUST-KNOWS TO ENHANCE YOUR OUTDOOR FUN

11 Safety Tips For Spring Turkey Hunting

Safety is a key element when in the woods, wearing camouflage and mimicking the sounds of wild turkeys. A safe turkey hunter is much like a safe driver—defensive minded. Keep these tips in mind when you're in the woods. •

- 
- 1) Leave the area if you suspect there's another hunter already working the same bird.
 - 2) Wear blaze orange while walking to and from your hunting spot.
 - 3) Resist the urge to stalk turkey sounds. It is nearly impossible to sneak up on a turkey. It is also unethical and could lead to an accident.
 - 4) Select a spot in open timber rather than thick brush: wearing camouflage clothing and eliminating movement is more critical to success than hiding in heavy cover.
 - 5) Sit against a large stump, blow-down, tree trunk or rock that is wider than your shoulders and higher than your head when calling wild turkeys.
 - 6) Never wear bright colors, especially red, white, blue or black as these resemble wild turkeys. Watch out for red, white or blue on your socks, t-shirts, hooded sweatshirts, hats, bandannas and other items. Wear dark undershirts and socks, and pants long enough to be tucked into boots.
 - 7) Remain still and speak in a loud, clear voice to announce your presence to other hunters if necessary. Never move, wave or make turkey sounds to alert another hunter of your presence.
 - 8) Keep your hands and head camouflaged when calling.
 - 9) Maintain a clear field of view when using a camouflage blind or netting.
 - 10) Ensure your decoy is not visible when you are transporting it. Stash the decoy in your vest and make sure the head is not sticking out. If you harvest a wild turkey, cover the bird's head and body, preferably in blaze orange, when carrying it out from your hunting spot.
 - 11) Put your gun's safety on and approach the downed bird with your firearm pointed in a safe direction after firing. Never run with a firearm.

PHOTOS BY CLAY SMITH

HIT THE CREEKS IN SEARCH OF RENOWNED **GEODES**

Famous Keokuk Geodes Sought by Collectors Worldwide

Iowa geodes have long been objects of curiosity, their sparkling interiors containing some of the most beautiful crystals found anywhere in the Midwest. One of the world's most productive and famous collecting regions is near Keokuk, attracting rockhounds from as far away as Japan. Good specimens are readily sought after by museums and collectors across the globe.

Most Iowa geode exteriors are roughly spherical, lumpy or cauliflower-like, ranging from walnut to basketball size. Prized geodes have hollow interiors, although many are solid after crystal growth has filled in the interior. Most geodes are found in the strata of the lower Warsaw Formation, a widespread rock unit of Mississippian age. Muds deposited in a shallow sea about 340 million years ago were primarily calcium carbonate and clay, and formed the shales, shaley dolomites and limestones seen today where geodes are found. Fun for kids and adults, get started this spring.

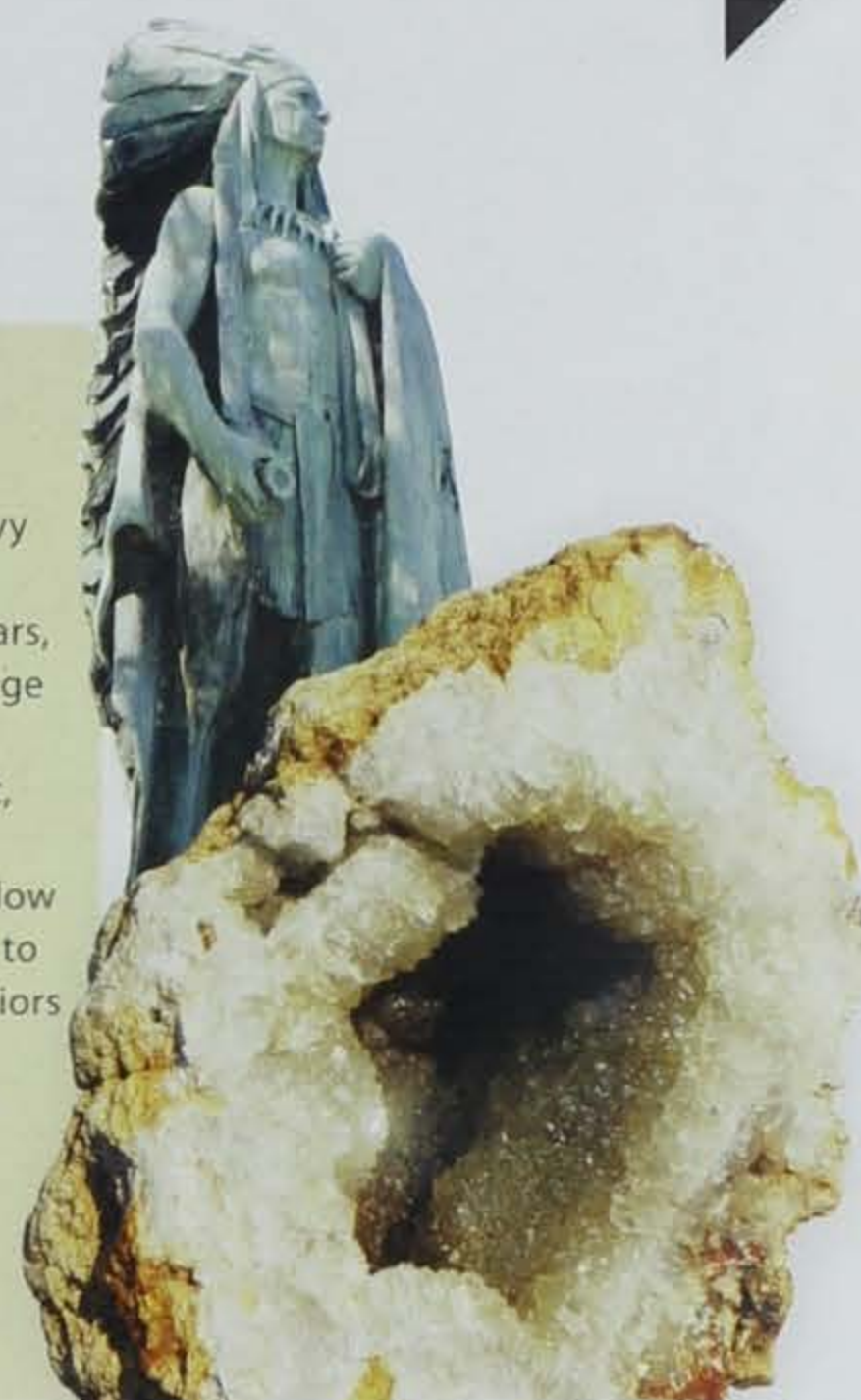
Geode Hunting Tips

Search anywhere along river and creek beds where water has cut into the earth.

Hunting is best after heavy rains wash away soil. Bring tools such as trowels, crowbars, chisels or hammers to dislodge geodes from limestone.

Once you've found a spot, all that's required is a little patience. A sharp hammer blow usually cracks open a geode to expose their crystalline interiors to daylight for the first time.

Most collecting locations are on private land, so ask permission. Collecting at Geode State Park is not allowed.



PHOTOS BY CLAY SMITH

Come See for Yourself

Keokuk, Iowa

GEODE HUNTING

Keokuk Geodes are the most beautiful and sought after of all geodes. The most productive and famous collecting area is within a 35 mile radius of Keokuk.



Fun for
the entire
Family!

Contact us for a list of Geode-hunting sites!

KEOKUK AREA CONVENTION & TOURISM BUREAU

www.keokukiowatourism.org • 800.383.1219



Iowa Outdoors Magazine, Dept. of Natural Resources, Clay Smith, photographer

A QUIETER KIND OF PARK

Pammel State Park, one of Iowa's oldest, hits all the high notes—backbone trail, river ford, yurts—while maintaining a peaceful river vibe.





OPPOSITE: The new Middle River Water Trail passes several Madison County parks and famous covered bridges. Below: angler Harold Wilson of Colfax casts for fish below the river ford at Pammel State Park, shown at right. The ford is full of fish, and it's just plain fun to drive across. **RIGHT:** County Conservation Board Director Jim Liechty's vigilance over the river ensures its recreational value for travelers who can sense its cared-for feeling.



There is a difference between a lake area and a river park. Lake destinations exude energy. The motorized crowd buzzes about, and the noise can go on all night, long after the last boat has docked, but the cooler isn't yet empty.

A river park is a quieter thing. Its energy burbles and flows like the water that lends the area its finest feature.

Pammel State Park is just such a place. Located an hour southwest of Des Moines just outside Winterset, this 350-acre park dedicated in 1930 has the slow-flowing Middle River as its centerpiece. It's surrounded by natural woodland that peaks with a limestone ridge of a backbone, with ancient oak trees and some of the only yurt lodging in Iowa.

A RIDE ON THE RIVER

Though spare of build, County Conservation Board Director Jim Liechty has the sure, strong stroke of someone who paddles a lot. The faint smile beneath his bucket cap confirms it: the Middle River is his happy place.

"The river is the draw in this park. The quiet," says Liechty, adjusting gold-rimmed spectacles on his tanned

face. "Without having a lake and boating recreation features, this park attracts a different type of clientele."

Liechty trolls the Middle River a few times a week. An active local river group lends a hand, too. Madison County River Alliance (MCRA) promotes recreation and water quality needs of the many waterways in Madison County. Combined, their vigilance gives the Middle River a cared-for feeling. It's clean, as rivers go. Regular testing, says Liechty, shows low phosphorus and nitrates, even though this is farm country.

In terms of recreation, it's accessible, too. The put-ins every 7 or 8 miles are easy and new—just a gentle slide into the water in most places. It averages 24 inches deep with some deeper holes throughout, and about 6 inches at its shallow points. Hawks ride the thermals above. The channel is narrow and meandering, and that provides a challenge. It's lazy in midsummer, rowdier in spring. Rock walls enclose the paddler in sections, low bluffs above mud so undisturbed it looks like concrete.

It's got an official moniker now, too: the Middle River Water Trail opened in October 2011, spanning the several

Lost In Iowa

Middle River is Pammel State Park's centerpiece. "One of the things I like about this river is that it's not necessarily deep," says Jim Liechty. "It challenges you to be a good canoeist, to find a channel." With work from a local river alliance, the water is clean, as rivers go. Regular testing, says Liechty, shows low phosphorus and nitrates, even though this is farm country. In terms of recreation, it's accessible, with a new and well-marked water trail. With this 45-mile stretch, Iowa has nearly 900 miles of designated water trails and 600 miles under development.



Lost In Iowa



Come spring, flathead catfish stack up below the river ford at Pammel Park as angler Steve Cooper of Winterset attests with a man-sized catch. **RIGHT:** Harmon Tunnel was dug in 1858 to divert river water to power a sawmill and grist mill. An old burr, or grinder, from the mill is set in stone nearby. After the mill closed, workers widened the tunnel in 1925 to offer vehicles easy access to the rest of the park. It remains Iowa's only highway tunnel. **BELOW:** The Roseman Bridge access is along the 45-mile Middle River water trail, which offers moderately challenging paddling with scenic chutes and ledges.

What was the Veterans Conservation Corps?

In 1933, due to protests from veterans hit hard during the Great Depression, President Roosevelt added veteran companies to the Civilian Conservation Corps, enrolling 25,000 veterans of the Spanish-American War and World War I. Nearly 250,000 veterans served in the Corps, completing public works projects like those of the CCC. This "Bonus Army" paved the way for the G.I. Bill of Rights. Some states still use a VCC for natural resource projects. One of the missions is to provide volunteer opportunities on natural resources projects.



parks and scenic points in Madison County (passing a few of those famous bridges).

LIVING HISTORY

Because of the river, there is the ford.

The Middle River Ford is one of Iowa's largest vehicle crossings. But no matter what size the ford, it's just plain cool to drive across a body of water. Maybe it's our leftover pioneer instinct, or just the big awesome splash it makes.

Below the chutes of the ford, beyond the rip-rap, lurk some of the biggest catfish you'll ever catch. We're talking 40 to 50 pound flatheads in mid-May to mid-June, and stringers full of 15 pounders. A little chub, a little cut bait, and you can fill your freezer for months.

"It's beautiful fishing down here," says angler Mike Wren. He's shirtless and carefree, eased back in a lawn chair with a camouflage do-rag protecting his head.

"You know what's neat about this place? You can have a bunch of kids swimming out here and guys catching fish right next to them. It's unreal, man."

It's the flatheads that bring him here each spring. "They're monsters," Wren laughs. "They take your bait quick—they love it live, like sunfish or chubs—but they'll eat about anything. If you're patient, and you get here on the right day at the right time, you'll have the time of your life."

Beyond the ford is Harmon Tunnel, the only highway tunnel in Iowa, hand-dug directly into the base of a limestone backbone where the park peaks above. You can find that limestone backbone among the park's five miles of trails—it's a faint one beyond the Backbone Shelter, constructed in the 1930s by Depression-era conservation corps. The wide yard in front of the shelter was once used

for weekend picnic visitors in old times. It's home to some of the oldest oak and walnut stands in the state.

Madison County is unique for the many river systems running through it—the North River and its North Branch, Middle River, Jones Creek, Clanton Creek, Cedar Creek—and if you stand on that backbone when the trees are bare, you can see the Middle River flowing in all four directions from a single vantage point.

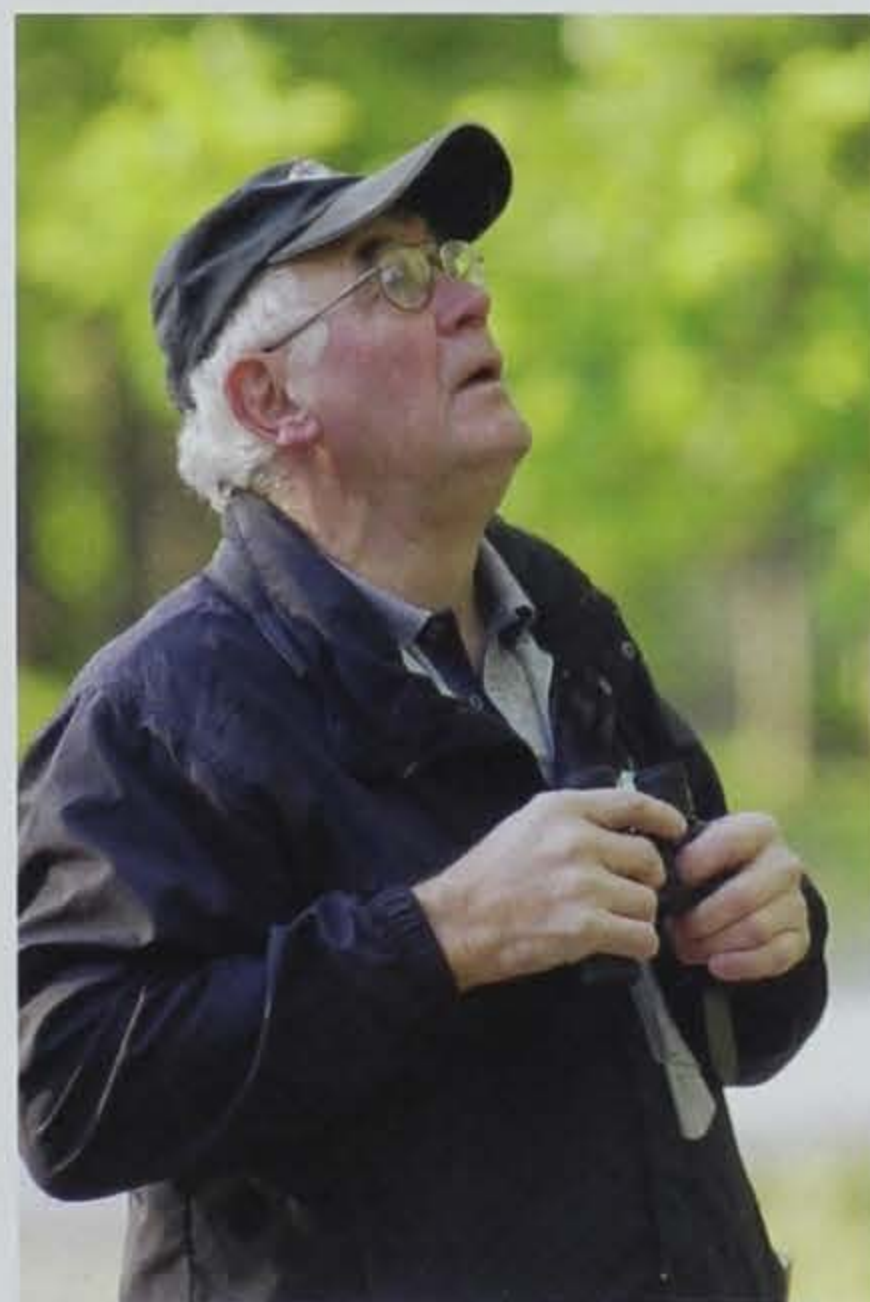
HISTORY AND ECOLOGY

Like many great parks, the area served as home for encampments of New Deal-era citizen work groups known as the Civilian Conservation Corps. But the area was also base for a special branch of that group, the Veterans Conservation Corps (*see sidebar*). Veterans helped build this park and its limestone structures, such as the historic picnic lodge with monolithic oak logs harvested on site.

Dean Schantz of the Madison County Conservation Board has lived near the park for more than two decades. His property once housed the VCC camp, with the old freestanding fireplace in his front yard marking where the main lodge stood. In his gardens, the footings of the old building lie buried under wild lilies.

"I'm still finding things," he chuckles, noting the remains of fairly lush officers' quarters in his timber. "I'll always be finding things."

Area resident Dean Schantz birds near the park, a popular flyway. His property once housed the Veterans Conservation Corps, where the VCC camp fireplace ruins still remain. Schantz and others flock to the park and the Makoke Birding Trail, which passes through Madison County. The name means "bird" or "owl" in Ioway. Walking trails along the river during early May migration offers the widest variety of birding opportunities.



Lost In Iowa





The lodge's large limestone fireplace warms reunions, weddings and other large gatherings, including one family who returns each year for Thanksgiving. Built in the 1920s, Civilian Conservation Corps workers used oak logs harvested on-site and native stone created by a carboniferous sea that was here millions of years ago.

Lost In Iowa

He makes a lot of discoveries of the avian type, too. With all its timber and waterways, the park area is fertile birding ground. The Makoke Birding Trail passes through the park (the name means "bird" or "owl" in Ioway; www.iowabirds.org/places/documents/Makoke_Trail.pdf).

Schantz ticks off a list of the birds that he's seen. "American redstart, scarlet tanager, neotropical migrants in May, the occasional eagle and pelican," he says. "I had a yellow warbler three days ago."

It's easiest to catch sight of the rare birds in Pammel State Park in spring. Madison County also has a small population of timber rattlesnakes—they're nocturnal. To get the full array of animal action here, overnighing is best. That's where the park hosts another rarity: campers can stay in a tent or RV, but the on-site yurts are particularly fun.

A yurt is somewhere between cabin and tent—sans the mouse or mildew smells—with the softness of canvas walls, the warmth of structure, the convenience of electricity, a softer footprint than an RV. Pammel's are air-conditioned and heated, with kitchenettes and a fridge. An exterior deck holds a grill with a fire ring and water hydrant nearby (you'll have to walk a short distance to the full-service bath house).

The yurts sleep eight with bunks, and somehow feel more connected to the woods they sit near. You can still hear the owl hooting in the tree, the pack of coonhounds baying all night at the neighboring property. It's simple and spare. Open.

Like the river, like the birds, like driving across that ford to get to the giant catfish, it's another of Pammel State Park's simple pleasures.

PARK INFORMATION:

Pammel Park is located 4 miles southwest of Winterset. 2273 Clark Tower Road, Winterset, IA 50273. GPS Coordinates (UTM @ park entrance): X:410250 Y:4572325, UTM Zone 15. www.madisoncountyparks.org

YURT RENTAL:

- \$50 per night (two-night minimum on weekends, 3 to 4 night minimum on holidays and Covered Bridge Festival). Weekly rate: \$325.
- Standard Iowa camping rates apply for 36 modern campsites with electrical and water hookups, as well as five elevated tent-only sites.

IF YOU GO:

- **Ben Franklin:** A particularly good one on town square. 515-462-2062.
- **B. Shannon Designs:** Original art and artisan-made jewelry on town square. 515-462-6749.
- **Madison County Historical Society:** A 14-building complex on 18 acres, including a train depot, old church, mansion, mercantile, stone barn and more. 515-462-2134.
- **Mi Pueblito:** Good Mexican food on town square. 515-462-1640.
- **Espresso Yourself:** Get a hot coffee and baked treats on town square. 515-462-5962.



Hand-made canoes

Retired veterinarian Bob LaFollett lives on a small in-town farm on the outskirts of Winterset, across the road from the county fairgrounds. In his barn he handcrafts canoes and kayaks, borrowing techniques from old Native American styles to meld with modern technology. He uses poplar wood, fiberglass fabric and epoxy for standards such as a 16-foot Prospector and a camp canoe.

Prices average about \$100 per foot, plus materials. Canoe Builders, Ltd. 515-462-2606 for inquiries.





TOP: Comfortable yurt cabins sleep up to eight and feature heating and cooling and kitchenettes, decks, grills and fire rings. **LEFT:** Park naturalist Jessica Lancial operates the nature center (right), and introduces children to the native amphibians and reptiles that are under pressure from pollution, climate change and habitat loss. **FACING:** Zadie Hoff uses a GPS to find hidden geocaches. It's like a nature hide-and-seek that enthralls kids.

Growing Outside

BY HANNAH WILTAMUTH, NATURALIST AT HONEY CREEK RESORT STATE PARK



AS A CHILD, MY OUTDOOR activities varied greatly; one day I could be collecting rain from downspouts into buckets, the next I might be found cracking walnuts from our tree. I didn't know it at the time, but these moments were not only fun, they were also important for my development.

Recently, "nature deficit disorder" has become a key phrase when discussing the disconnect between children and nature. Many health professionals and developmental specialists argue that getting children back into nature is essential for their development, happiness and overall well-being. Following is a partial list of outdoor activities and how they aid a child's growth.

Sensory Learning. Nature can be a great way for children to explore their senses. How does the tree bark feel? Does the flower smell sweet? What does the raspberry taste like? (Make sure you know the edible berries in your area before trying that one.) What songs are the birds singing? What colors do you see? Through sensory investigation kids not only learn about the world around

them, but it's a great opportunity to work on vocabulary.

Learning to Care. Nature teaches children empathy. Consider the child who discovers a woolly bear caterpillar crawling on the sidewalk. Parents may take the opportunity to teach the science of the caterpillar and tell how it will form a cocoon and emerge as a moth. But typically, the bond formed between child and caterpillar is beyond science. The child may want to hold the caterpillar, feed, watch and protect it. In short, they learn to care about other living beings.

Immune Booster. Rainy days can be exciting! Not only do kids have fun playing in the rain, they love playing in puddles and mud after a rain. Many have heard that a little dirt can boost immune systems. But researchers at the University of Bristol and University College London found another benefit. Their studies suggest the bacterium *M. vaccae*, found in soil, activates the production of serotonin, a natural antidepressant. (www.medicalnewstoday.com/articles/66838.php)

Watching it Grow. Gardening with children is beneficial on many levels. On the surface, kids learn about the lifecycle of a plant. They understand that when they put a seed into the soil and give it water (perhaps with some fertilizer) it grows into a plant. Depending on the type of garden, these plants may produce food or can be used to make decorative arrangements. When plants don't look healthy, they learn to problem solve—are they giving it too much water or not enough? Is there a pest in the garden? (Admittedly, I loved it when tomato worms came into my garden—looking for them camouflaged amongst the plants was one of the best hide-and-seek games.)

Energy Release. Many outdoor activities such as nature walks, playing outside games and jumping into piles of leaves help children develop their motor skills. These actions are also a great way for children to exercise and release pent-up energy.

Mental Break. Children (and adults) lead busy lives.

Getting out into nature is a great way to take some time to relax. Frequently, urban and household settings bombard people with stimuli which require an effort to tune out (flashing lights, traffic, loud music or televisions, etc.). Natural settings also have stimulation which attracts attention automatically, but it does so softly. It grabs your attention but allows you to think about other things at the same time, thereby allowing for reflection. In other words, your mind can engage in a sort of beneficial “active rest;” free to attend to things of interest, reflect and wander, but without simultaneously working to tune out unwanted distractions.

Need another reason to play outside? Research has shown that kids who play outside demonstrate more self-motivation, become more adventurous, and can better understand and assess risk.

This spring, think about some of your favorite outdoor activities and share them with your children. 🐸



Get out and GO!

At Honey Creek Resort State Park in Appanoose County, parents have it made for getting kids outdoors. Simply check out a field pack from the activity center for free, tailor-made family fun. With four pack types to choose, each contains instructions for outdoor activities and the necessary equipment, plus a journal for kids to record their experiences. Each has bingo cards for kids to search outdoors to find things.

Packs are limited and can be reserved on a first-come-first-served basis. To reserve, contact Hannah Wiltamuth, interpretive programs director with Honey Creek Resort State Park at hannahw@honeycreekresort.com or call 641-724-1490.

Pack Options:

- **GPS FIELD PACK:** Use this pack to play GPS Bingo or to search for the nine permanent geocaches at the resort.
- **TRACK PACK:** Use this pack to learn about tracking, visit animal hot spots, and play tracking bingo.
- **INVERTEBRATE INVESTIGATION PACK:** Become familiar with invertebrates and their habitat, learn how to identify them or play Invertebrate Bingo.
- **BIRDING PACK:** Never gone birding? No problem. With complete instructions on birding tips, check out this pack complete with binoculars, field guides, birding bingo, bird call and a device to play and identify bird songs.



Was fishing better decades ago or now? Scientific advances made by DNR fisheries management staff have revolutionized how fish are raised and stocked. The result? Fish populations are at all-time highs, providing the best fishing lowans have ever seen.



Rearing a Record

BY MICK KLEMESRUD PHOTOS FROM DNR ARCHIVES

Record numbers of fish prowl our waters. Iowa's streams, lakes and impoundments are full of walleyes, rivers teem with catfish and muskie numbers are at all-time highs. With exceptional panfishing at renovated lakes, urban trout stocking and growing hybrid striped bass fisheries, the good ol' days of fishing in Iowa are *now*. But it wasn't always like that.

The evolution to better fishing in Iowa traces back to the 1980s when fisheries personnel took a hard look at the way they did business. Over the previous 35 years, the Iowa

Conservation Commission released thousands of newly hatched walleyes into Iowa rivers each spring, and for 35 years, walleye fishing stayed about the same—poor.

Then a simple question—"Why?"—began a 15-year study.

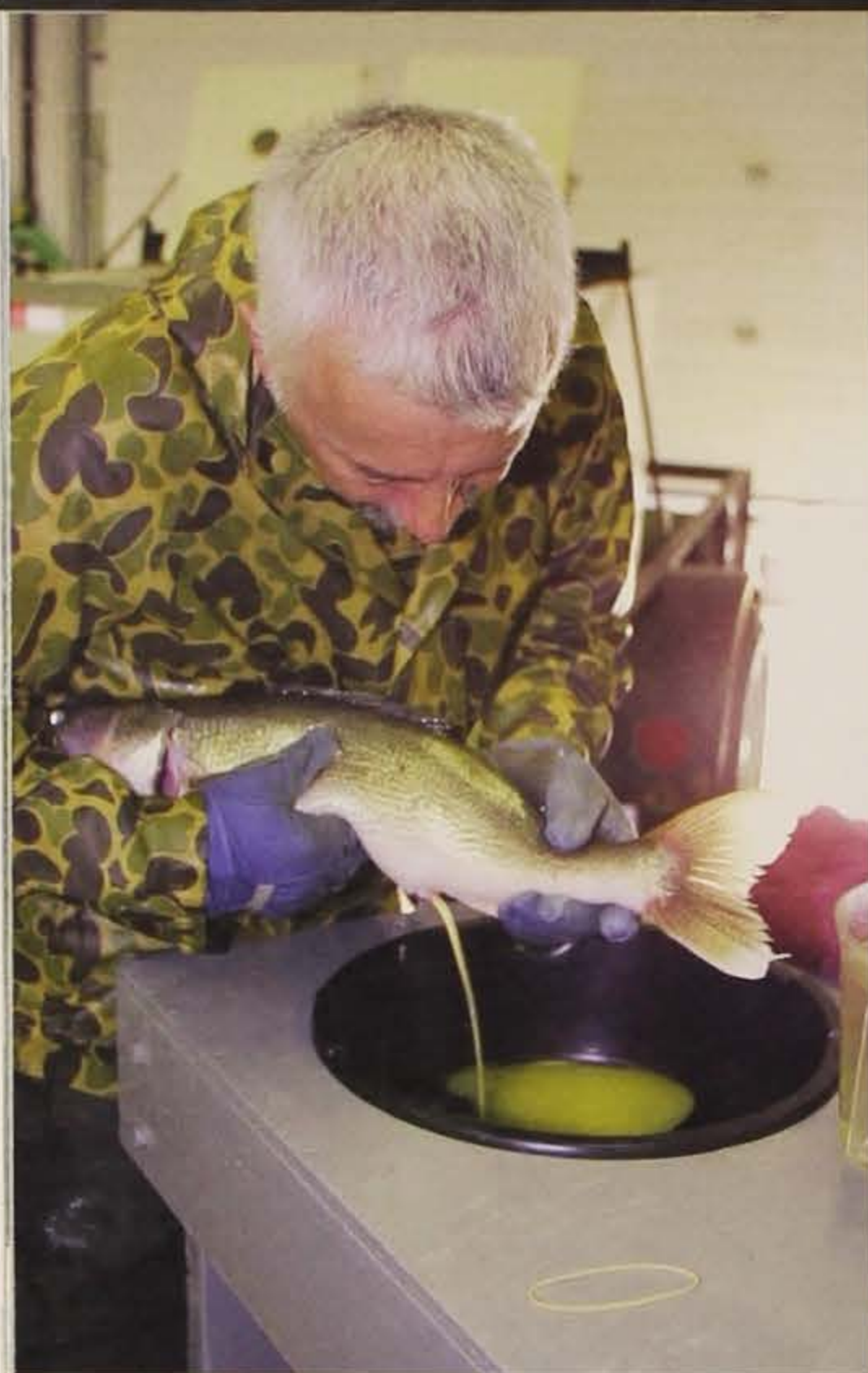
Research concluded walleyes in the stream were genetically different from the fry being stocked. Consequently, they were not surviving and contributing to the river walleye population. Fisheries biologists also found that streams were lacking zooplankton, the main food source for walleye fry.

Armed with new data, biologists began using walleyes collected from the Mississippi River to produce fry for stocking in zooplankton-rich ponds at the Fairport Hatchery near Muscatine. The fish remained in the ponds until they grew to 2 inches, then were stocked in June to better use the food available in rivers.

As stocking success increased, walleye populations grew and today, Iowa streams produce trophy-size fish that rival those from the best walleye waters worldwide.

"The success of the fingerling stocking created a





highly desirable fishery that really didn't exist before," says Greg Gelwicks, interior research fisheries biologist for the DNR. "We have people all the time say that they didn't know we stocked walleyes in the rivers. Well, this fishery didn't happen by accident."

Today, Iowa lakes and streams have more walleyes, channel catfish, northern pike and muskellunge than any other time on record, thanks to efforts to improve water quality, fish production and stocking survival.

"Once researchers learned that fingerlings survived and increased the walleye population, they began to fine-tune the process," says Gelwicks.

They explored what conditions were best for walleye survival and found fingerlings do not like flood events. High water levels equate to low survival.

"We used all that information to develop a management strategy to provide anglers the best fishing opportunities at the lowest cost," Gelwicks says.

Early stocking success thrilled anglers, which increased demand on the hatchery to increase supply. With river walleyes quickly growing to trophy size due to food availability and less predation, anglers now target walleyes and pass on other species, like smallmouth bass. That makes smallmouth bass angler and *Cedar Rapids Gazette* outdoor writer Orlan Love very happy.

Love, who lives in Quasqueton, fishes three or four times a week, frequently on the Wapsipinicon River. He says fingerling stocking impacts the smallmouth fishery

by reducing angler competition.

That lack of competition allows Love to catch dozens of smallmouth bass 19 inches and longer during July and August—prime time for smallies. Since smallmouth bass and walleyes frequent similar habitats, Love catches his fair share of walleyes, too.

He caught the biggest walleye of his life in the Wapsi in early November. Unfortunately, he didn't have his camera along but estimates the fish was 10 pounds and 30 inches long. He's fished the same location since—camera in tow—and caught lots of big fish trying to find that trophy, but so far, no luck.

"I can't say enough about that fingerling stocking," Love says.

Gelwicks hears similar stories and sees many of those trophy walleyes firsthand.

"We have a lot of 10-plus pounders caught out of the rivers now," Gelwicks says. He says anglers should expect good numbers of 15- to 18-inch walleyes in many rivers in 2012, due to favorable river conditions when fish were stocked in 2009.

"We have a lot of rivers with walleyes in them and since Iowa towns were centered on rivers, you won't have to travel far to catch trophy fish," Gelwicks says. Rivers have certain areas that are fished heavily, like below a dam or an easily accessible hole with good habitat. But rivers also offer anglers the opportunity to get away from crowds and explore less heavily used areas.



Research findings led to better fish rearing methods and survival, meaning less time between bites and more fish in the creel. One key finding—stocking larger fish to ensure better survival and quicker growth rates—helped shape fisheries management. Iowa's river walleye population, for example, is at an all-time high due primarily to stocking 2-inch fish rather than fry.



Building a Better Fish

Leading the way in fish culture research is the DNR hatchery at Lake Rathbun. A national leader in walleye production, Lake Rathbun is the only program in the U.S. raising 8- to 10-inch walleye fingerlings on a pellet diet.

"Larger fish do well when they're stocked," says Jay Rudacille, fish culture research supervisor at the Rathbun fish hatchery. "We can't produce enough big fish. Our management biologists have a lot of confidence in those fish and request more than we can produce."

The success of producing 10-inch walleyes can be traced to a research project on walleye survival at their various life stages and the percentage of fish that are trained to accept dry feed. Raising walleyes to 10 inches does come at a cost, but that, too, is being refined.

"We're satisfied with the culture techniques and survivability, and now we are looking at efficiencies to reduce labor and costs," Rudacille says.

It costs \$1.14 to produce each 10-inch walleye fingerling. There are less costly methods to produce walleyes, but survival rates fall as the fish get smaller. Walleye fry newly hatched from the egg sac cost 68 cents to produce 1,000. The average survival rate for fry is less than 1 percent.

Huge walleye year classes come from fry stockings, but it's the 10-inch fingerlings and their high survival rate that provide good fishing in years when fry stockings do not do well.

Larger fingerlings are sent to lakes greater than 500

acres in size. In 2011, those walleyes were stocked in Lake Icaria, Lake Rathbun, Storm Lake, Clear Lake, East Okoboji Lake, Big Creek Lake, Lake Manawa, Black Hawk Lake, Three Mile Lake, Twelve Mile Lake in Union County and Lake Sugema.

"It's Like a Zoo Around Here"

Donna Muhm coordinates the collection of walleyes, northern pike and muskies for the Spirit Lake fish hatchery, the primary supplier for the rest of the state.

The spawning season begins the third week of March when northern pike are netted under the ice from sloughs connected to Spirit Lake. A few weeks later, walleyes, muskies and female northern pike are captured in gill nets. Hatchery operations run 24 hours during the collection, spawning and incubating process that lasts until early to mid-May.

Muhm brought her research background to the role of hatchery manager, allowing her to use science to determine what works and what has not, to document what they have done and to base decisions on data.

One issue Muhm cannot control is the water quality entering the hatchery. Water flows directly from Spirit Lake, so whatever is in the lake—fungus, virus or any organic matter—flows over the eggs.

Muhm says they began chemically treating eggs within the last decade to aid survival. Cooler springs, like 2010 and 2011, increase the time it takes for eggs to hatch.

Primarily a northeast Iowa resident, trout are stocked in certain lakes across the state in the fall and winter to bring the fun and excitement of trout fishing to new locations.





Capture a young one's first fishing trip, or ratchet up your own efforts with the new DNR's new **FIRST FISH AND MASTER ANGLER AWARDS PROGRAM**. Memorialize that first catch or monster walleye with a photo-inlaid certificate, and if you are really good, earn a silver or gold medallion. Visit iowadnr.gov/fish/masterangler.html for details.



The longer the eggs are in the hatchery, the more likely a fungus or algae can coat them to prevent a hatch.

Once hatched, most are stocked as fry, but some go to small nursery lakes to become 2-, 4- and 6-inch fingerlings before heading to their new home.

Muhm says the data suggests that paying more attention to water quality in nursery lakes means they could raise more fish. Nursery lakes have a much higher pH value than surrounding lakes, so they now temper the fish to reduce shock-induced mortality. She says they now focus on other factors to maximize survival and stocking success.

Recently, Spirit Lake is stocking more fish in more places due to zebra mussels in Lake Rathbun and Clear Lake. Brood walleyes from those two waters are not used to limit the spread of zebra mussels to other areas.

"Everybody wants more," Muhm says. "We got into spawning northern pike because the previous management biologist came in one day and said he would like a few thousand to put in a certain lake. Now demand tops 300,000 and our current facility caps our production at 250,000."

Fortunately, Spirit Lake boasts a huge population of 17- and 22-inch walleyes—the preferred hatchery size. The previous two years, it took only four nights of netting to fill the hatchery.

"That short of a netting season was previously unheard of," Muhm says.

While crews collect walleyes, they also bring in muskies entangled in the nets. Research into improving muskie survival allows them to spawn as few as 10 to 12 female muskies and 30 or so males to meet stocking requests.

Muskies are raised on dry feed until they reach about 5 inches, then a minnow diet to improve their immune system and survivability. In the fall, the muskies are sent to Rathbun to overwinter until being stocked as 11-inch fish in the spring. Finishing muskies on minnows and stocking them in the spring has proven highly successful.

Muskies are more than highly sought-after trophy fish. They are in demand from other state fishery programs.

Iowa trades muskies for Nebraska yellow perch, South Dakota smallmouth bass and Missouri catfish. Of 50,000 muskies produced, Iowa keeps 6,000 to 8,000 each year.

Channel Catfish

Rudacille says hatcheries set a goal to consistently produce channel catfish 7 inches or greater, and they've done so for seven years. Once catfish reach that size they avoid predation by largemouth bass.

Fish sampling found tremendous populations of channel catfish in all public lakes, so stocking schedules were changed to every other year.

Obstacles

Fish are getting more expensive to produce. The cost to feed, treat for disease and transport has increased. In 2006, the cost to raise one 10-inch walleye fingerling was 80 cents. In 2011, it was \$1.14. "We are now looking at efficiencies in production to reduce our costs," Rudacille says.

Muhm says facility restrictions and budgets are the biggest obstacles they face.

"We simply do not have the facility capable of handling our requests. The operations budget has not been increased in 12 years and we are constantly being asked to do more with less," she says.





Tremendous populations of channel catfish—arguably Iowa's most popular fish—exist in virtually every public waterway. Strong populations have reduced the need to stock from every year to every other year. It proves again that today's fishing exceeds those bygone days memorialized by tattered black and white photos.

Curious Critters

Leaping and Flying Off the Pages!



Unique picture book teaches children about animals and the environment

BY BRIAN BUTTON PHOTOS BY DAVID FITZSIMMONS



American Bullfrog: This voracious predator eats anything that fits into its mouth. When cold, they darken up to absorb more sun. The tympanum, or disk shape behind the eyes, is the eardrum. Males have tympanums larger than their eyes. Males defend 10-foot territories by wrestling invading males.

Eastern Screech Owl: Iowa's second smallest owl, usually 6 to 10 inches tall and common statewide. Although nocturnal, they will return your call in the daytime. Pairs usually mate for life and use nest boxes and holes in trees to raise young. Eats insects, rodents and birds, including starlings. Despite this, starlings often kick screech owls out from nest sites and use the hole to raise their own young.





Cedar Waxwing: One of the few North American birds that specializes in eating fruit. It can survive on fruit alone for several months. They feed on serviceberry, strawberry, mulberry, dogwood and raspberries, and enjoy cedar berries in winter. In summer, waxwings fly with remarkable agility over rivers to catch protein-rich mayflies, dragonflies and stoneflies.

Southern Flying Squirrel: With legs outstretched, a skin flap acts as a wing, allowing for gliding as much as 80 yards from a treetop to another tree. They require mature forests with rotting logs that produce a fungus food source. They are dependent upon oak/hickory forests and favor white oak acorns. Help the population by leaving rotting material and dead trees for habitat. Construct and place artificial nest boxes and keep housecats, a predator, inside.

CURIOUS CRITTERS



David FitzSimmons

Publisher: Wild Iris Publishing
ISBN: 978-193660769-3
Format: Hardcover, 11 x 9.5, 32 pp.
\$19.95 Children's Books (Ages 4 to 8)
www.fitzsimmonsphotography.com



IN HIS CHILDREN'S HARDCOVER PICTURE BOOK,

Curious Critters, photographer

David FitzSimmons turns his camera on a variety of animals common throughout North America. It is the extraordinary, unique presentation that sets this book apart. His portraiture of familiar animals—many found in your own backyard—is set against plain, white backgrounds. The resulting images are striking.

His unconventional approach allows animals' colors, textures, shapes and personalities to shine through providing a strong focal point for kids. That's when the learning begins. "White backgrounds eliminate distractions and help young readers notice clues about animals' behaviors, diets, life cycles and habitats," says FitzSimmons.

Along with stunning images of everyday animals, including a spotted salamander, an Eastern softshell turtle, a flying squirrel and other intriguing creatures, is an educational and entertaining vignette told from the critter's perspective. For example, a poetic opossum opines upon her often-shortened name, and a far-from-modest black swallowtail butterfly lets readers in on her secret for avoiding predators.

When parents read *Curious Critters* with their kids, not only will they have fun reading, but they will also inspire a lifelong interest in nature. Kids will want to swap TV and video games for a trip to the park or more time in the backyard. So, get ready

to have a budding biologist on your hands.

Before writing, the author reviewed science education standards. As such, *Curious Critters* meets the National Research Council's life science standards for grades K to 5.

The picture book features additional natural history information for each animal and a two-page spread of life-size silhouettes—where readers are asked to identify critters, find one whose shape has changed, test geometry skills in looking for reversed silhouettes, and figure out what the various colors represent. The book also includes a glossary.

FitzSimmons hopes *Curious Critters* will inspire children and adults to conserve nature. "To protect our natural world, we first have to care about it. I hope that my animal pictures allow readers to see common animals—from frogs and squirrels to caterpillars and katydids—in a whole new and meaningful way. I hope the photography captivates even the most reluctant readers."

Just some of what kids will learn: What turtles and humans have in common; why black swallowtail butterflies impersonate their toxic cousins; how Eastern box turtles can live longer than humans (150 years); if squirrels can fly; why crayfish grow new legs; how bats find food; why frogs sing and how jumping spiders jump without ever having to look over their shoulders. 🐹

50 TIPS TO SPOT MORELS

As a former science teacher, I taught students the concept of a “variable”—anything that might influence the outcome of an investigation. Unfortunately, dozens of variables collide when finding morels. Here’s how to put more in your basket.

STORY AND PHOTOS BY MIKE KREBILL

In
On
th
ph
In
pa
wi
qu
Pu
re
at
hi
im
th

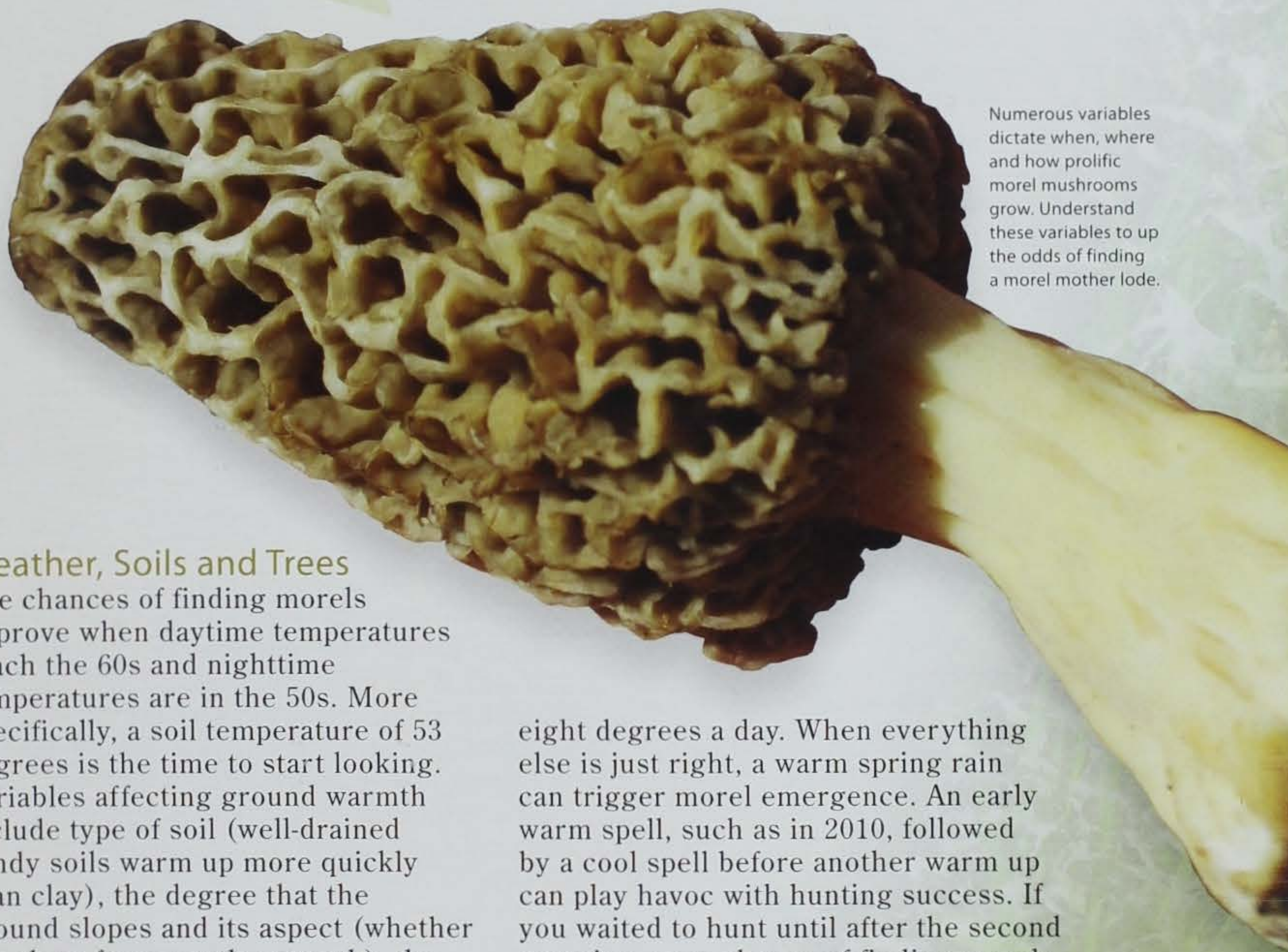
We
The
impr
reac
temp
spec
degr
Vari
incl
sand
than
grou
the
amo
and
at or

Imprinting

One way to prepare for the season is to look at photos of morels daily. Imprinting the morel pattern in your brain will help spot them quickly and more often. Put a photo on your refrigerator. Stick one at your desk or other high visibility area. Find images online and print the best photos.

When to Look

Wait for nature's signs of spring before searching for morels: oak leaves the size of squirrel ears; lilacs budding and ready to flower; mayapple leaves opened up like umbrellas; and flowering trilliums, bloodroot, trout lily, Virginia bluebells, dandelion, spring beauty and columbine. Track the progression of morels from Mexico to Canada at <http://thegreatmorel.com/sightings.html> and www.morelmushroomhunting.com/morel_progression_sightings_map.htm. Whether you want to follow morels north with spring, or wait until they reach your location, this is a great way to be in the know.



Numerous variables dictate when, where and how prolific morel mushrooms grow. Understand these variables to up the odds of finding a morel mother lode.

Weather, Soils and Trees

The chances of finding morels improve when daytime temperatures reach the 60s and nighttime temperatures are in the 50s. More specifically, a soil temperature of 53 degrees is the time to start looking. Variables affecting ground warmth include type of soil (well-drained sandy soils warm up more quickly than clay), the degree that the ground slopes and its aspect (whether the slope faces north or south), the amount of sun or shade, soil moisture and the time of day. Soil temperature at one location can vary as much as

eight degrees a day. When everything else is just right, a warm spring rain can trigger morel emergence. An early warm spell, such as in 2010, followed by a cool spell before another warm up can play havoc with hunting success. If you waited to hunt until after the second warming, your chance of finding morels diminished. As a general rule in Iowa, it is best to start looking in early April, and then continue to hunt through mid-May.



63°
HIGH



50°
LOW

Morel foraging improves when daytime temperatures reach the 60s and nights are in the 50s.

Where to Look

Dead elms are often morel magnets. Dutch elm disease hit all 99 Iowa counties in the 1950s, killing approximately 95 percent of urban elms. Remaining elms produce a prodigious amount of winged seeds every spring in a battle to survive, and dying and dead elms are still encountered in the woods.

"Your best luck," says Dave Layton of the Prairie States Mushroom Club, "will be where the elm is still dying, or has died within the last year." Such an elm will have most of its bark on it, but few if any leaves.

Morels are mycorrhizal mushrooms that form a symbiotic relationship with many types of trees, including elms. In a symbiotic relationship, both life forms benefit from the partnership. The underground, unseen part of the mushroom (the mycelium, a matted network of fine, threadlike hyphae) connects with the root hairs of the tree. The tree provides food as sugar manufactured in its leaves, and water. In return, the mycelium supplies nitrogen, phosphorus, potassium and other minerals that improves tree growth.

Symbiotic Relationship Loss Theory

I have a theory of why morels are found around diseased and dying elms, but not

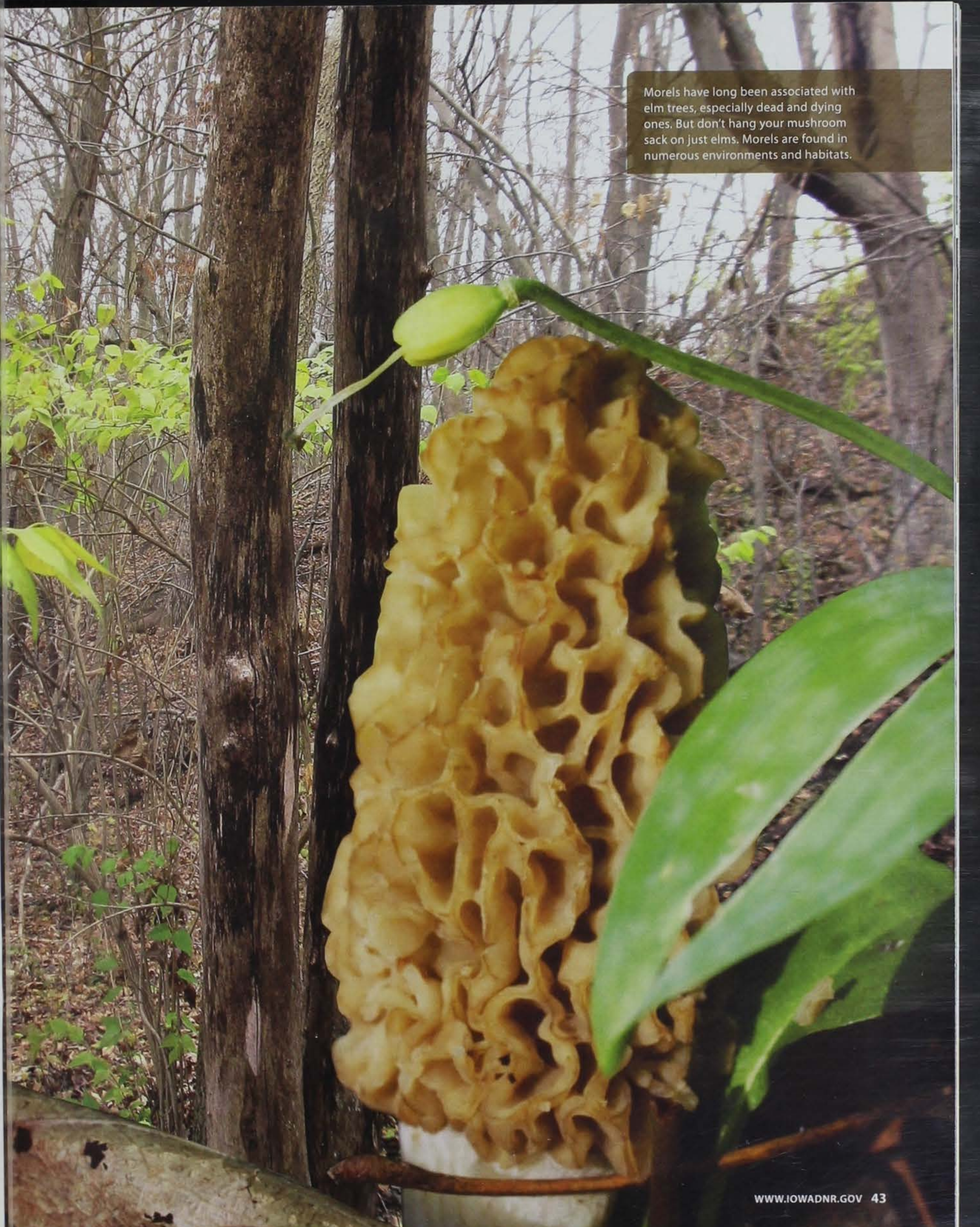
those dead for more than two years. I believe morel mycelia are responding to the dwindling health of diseased elms, and the consequent death of their own connected tissue, by fruiting or sending up the above-ground part we call a morel. In its pits, morels produce spores that are carried by wind, rain and critters to a new host, enabling it to survive. An elm devoid of bark or that has toppled to the ground does not retain the symbiotic relationship that attracts morels and is an unproductive place to look.

Old apple orchards are another great area to hunt. It may be that morels push up above the soil as the tree declines in health, just as with elms. However, apple trees take longer to die than diseased elms, so old orchards may remain productive for a longer time. Morels have been found in cider processing piles. Old peach orchards may be worth exploring as well.

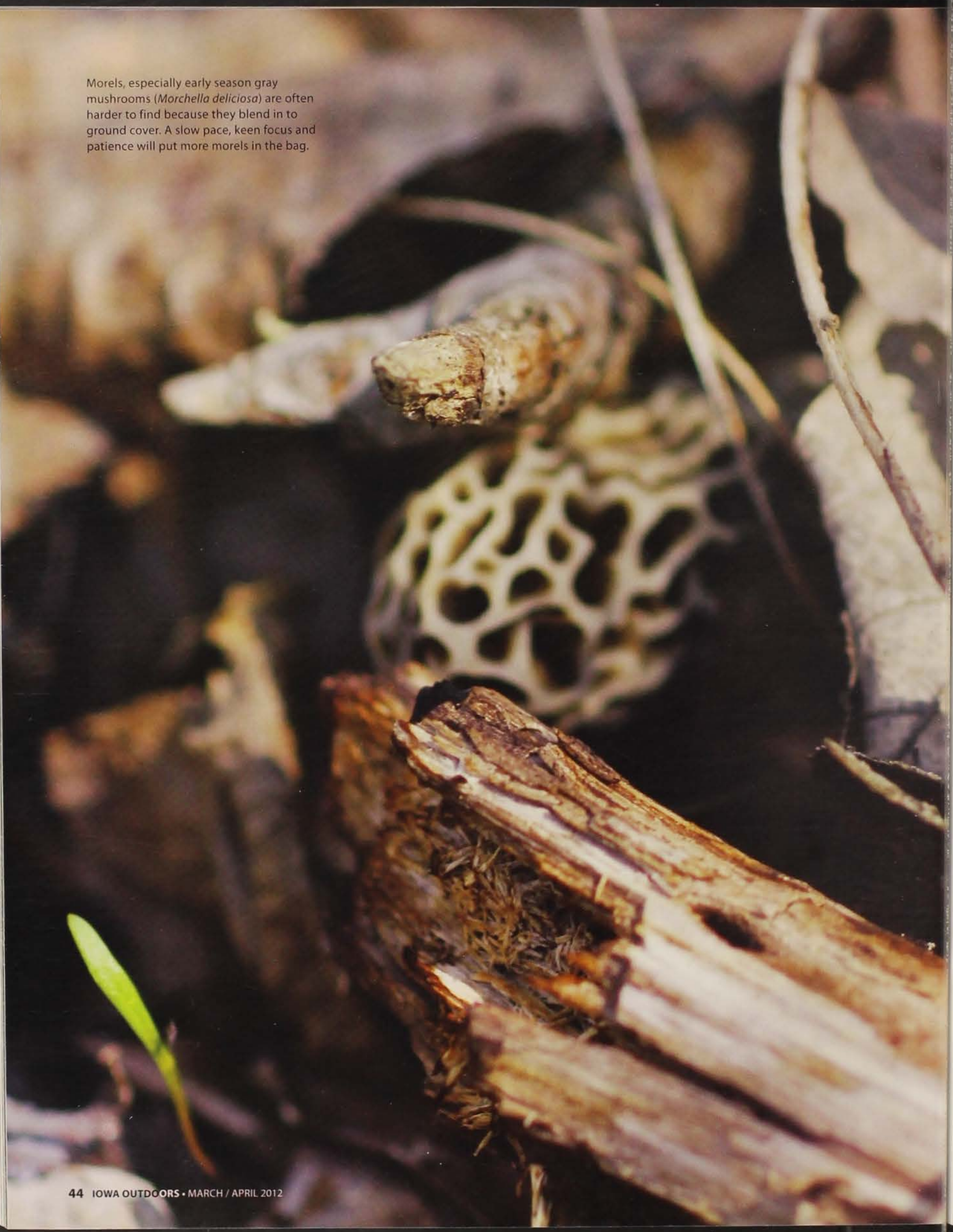
Morels can also be found near ash trees; the black ash of Iowa swamps, and the green and white ash of floodplains, valleys, hillsides and uplands. With the emergence of the destructive and exotic emerald ash borer, we can expect devastation similar to Dutch elm disease, only faster once it takes hold. Ash borers loosen the bark on the tree, which quickly falls off as the tree dies. If my "loss of the symbiotic relationship" theory is correct, this should boost the number of morels seen in years to come, so ensure you learn how to identify ash trees.

Black locust groves should also not be overlooked. Don't bypass white pine plantations. Morels also grow there.

Not to confuse the issue, but morels have been found near aspen groves, wild black cherry trees, shagbark hickories and oaks, in river and stream bottoms with cottonwood and silver maple and sycamore, near wild grape vines and even



Morels have long been associated with elm trees, especially dead and dying ones. But don't hang your mushroom sack on just elms. Morels are found in numerous environments and habitats.



Morels, especially early season gray mushrooms (*Morchella deliciosa*) are often harder to find because they blend in to ground cover. A slow pace, keen focus and patience will put more morels in the bag.

beneath Osage orange (hedge ball) trees. They are also found in disturbed areas with limestone and shale.

When times are dry, head downhill. Check mossy ground, search the base of slopes and thoroughly investigate areas with heavy to moderate ground cover. It is much harder to see morels when ground cover is abundant, but such cover can indicate rich, moist soil that can be productive for mushroom hunters.

Former Keokuk High School student Elliot Vandenberg, a past student of mine, has a knack for finding morels. He favors foraging creek and river bottoms with sandy soil, seeking areas where sunlight hits. He finds morels at the edge of woods or fields, sometimes around stumps where more light reaches the ground, but never deep in the woods. Sunlight is a key to finding morels, Vandenberg believes. Perhaps its role in raising soil temperature makes the difference. Islands are also extremely productive, he adds. If an area floods, he says it takes two to three years before it recovers, so don't waste time searching recently flooded areas.

How to Look: Use the Foveal Groucho Marx Stoop

Michigan mushroom forager and noted morel aficionado Garrett Todd believes that we cannot see and recognize morels with our peripheral vision. Foveal vision, where the view of both eyes overlap, is the sharpest, most focused, highest resolution part of our gaze. That means we will identify more morels, he claims, if we concentrate on slowly sweeping for them using foveal vision.

Todd says the time spent looking is much more important than the distance covered. He is a staunch advocate of the 1-6 ratio. For every minute of walking, we ought to be spend six minutes carefully looking. Morels may be hidden under fallen leaves or pieces of bark, or obscured by

vegetation. Use a hiking stick to flip over raised leaves or large pieces of elm bark, or to move mayapple leaves to one side. Remember, morels occur singly, but they also occur in groups.

Before his untimely death from injuries when a four-wheeler tipped over on him in 2003, Michigan's Larry Lonik was widely regarded as the world's most knowledgeable morel mushroom expert. Here's some of his advice on how to look, from his book, *MORELS: True or False, The Essential Field Guide and More*. (RKT Publishing, Hazel Park, MI, 1999.)

"If you are not seeing any, change locations. Keep moving. Look 10 to 20 feet away, not directly down. Look for the "Christmas tree" shape, particularly with black morels.

Lonik was famous for his eccentric walking style as he hunted mushrooms. Crouched down as he took long strides forward, this helped in seeing the outline of the morel cap against the background. He described his "mushroom walk" as a Groucho Marx imitation. Nicknamed "Tree" because he stood 6 feet 7 inches tall, Lonik found Marx's walking style very helpful when searching for morels. He also recommended bringing children and grandchildren along to join in the hunt. Being closer to the ground, once they get a feel for finding morels, they are likely to spot more than taller adults.

While Lonik advocated shape recognition, other productive and fast-paced hunters scan for patterns. Even when morels seem camouflaged by the background, their pockmarked natural-sponge pattern distinguishes them from the background if you search for it.





A Little Mushroom Humor

When you hunt morels, take along a chain saw. Start it up and leave it running, but set it down on the ground. The mushrooms think you are just cutting wood and don't bother to hide. When you spot the first one, sneak up on it, tap it with your finger and yell, "Tag you're it!" This startles the mushroom and it then leads you to another one that it tags. Grab them both before they realize they have been tricked.

— Dr. Mike Tansey, Professor of mycology, Indiana University

The use of chainsaws is prohibited in Iowa state parks. So you cannot use a chainsaw to harvest big fungi. Bring your axe and happy hunting.

— Email from Dean Abel
Biology Department, University of Iowa

I'm often asked two questions: where can you find morels, and how can you grow your own? The answer to the first gives the answer to the second: morels are most often found near dead elm trees. So, to grow your own morels, plant dead elm trees.

— Dr. Mike Tansey

A dog's sense of smell is about 200,000 times greater than a human's. Dogs can be trained to find morels. Some folks say you can train a dog to hunt mushrooms. That's true, and I did it. But he got so rich from selling the morels he ran away to the city, bought a big house and never hunted mushrooms again. So I think it's a waste of time to train a dog.

— Dr. Mike Tansey

A good mushroom dog doesn't need to answer to very many commands but it does take some time to get the dog to work well with its trainer. The dog needs to hunt and find the mushrooms and then "lock on" the patch. This means that the head will be low and pointing at the mushrooms, the tail will be straight out, and the right hind leg will be raised up off of the ground. I call that "pointing the patch." Another command is "release." This is for the dog to come off this patch and start hunting again. Another very important command is "peruse," used early in the season for hunting mushrooms. I load the dogs into the truck and head to one of my favorite spots, let the dogs out, and command the dogs to peruse the woods for mushrooms. This way I can stay in the truck while the dogs check out the woods for the mushrooms. My point dog Herman will come back to the truck and let me know if the woods are worth hunting. It is fun to work with a group of well-trained mushroom dogs.

<http://olddavespo-farm.blogspot.com/2009/01/training-mushroom-dogs.html> 🐕

How To Avoid Morel Food Poisoning by Mike Krebill

Like any food, mushrooms can spoil and become contaminated by bacteria and molds. Cooking or freezing does not render spoiled mushrooms harmless. If spoiled mushrooms are frozen raw, bacteria will continue to grow.

People do get sick from eating morels. Symptoms are largely similar to other types of food poisoning: gastrointestinal distress, fever, nausea, headache, cramps, sweating, bloating, flushing, chills and weakness.

When morels grow in lawns, flowerbeds, along roads and on golf courses, there is a risk that they have soaked up pesticides or heavy metals. In a few poisoning cases, people recalled recent sprayings of insecticides.

Staying Safe

- 1) Collect morels only from areas away from pesticides or heavy metals sources.
- 2) Do not mix other mushroom species with morels when collecting.

3) Don't collect morels that look bad such as old, discolored or decayed parts.

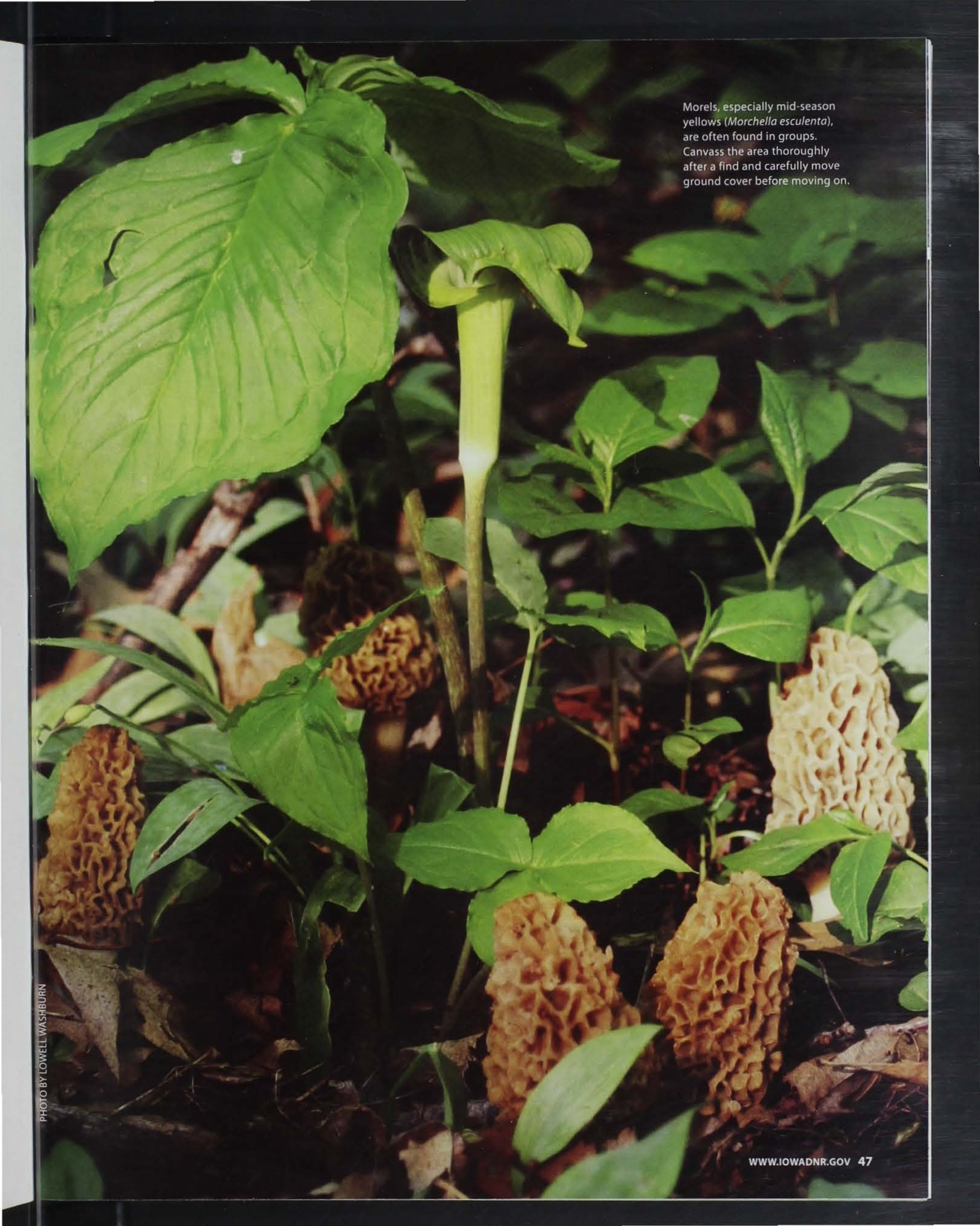
4) Do not collect or store morels in plastic bags. Morels spoil rapidly in plastic. Baskets or mesh bags are best for collecting; paper sacks are best for storing in a refrigerator.

5) If you plan to freeze morels, first cook them a couple of minutes. Cooking will stop bacteria growth.

6) Always cook morels. They are not safe to eat raw.

LEARN MORE

NAMA—the North American Mycological Association—created a "Mushroom Poisoning Case Registry" in 1982, and keeps track of cases. Learn more at www.namyco.org/toxicology.

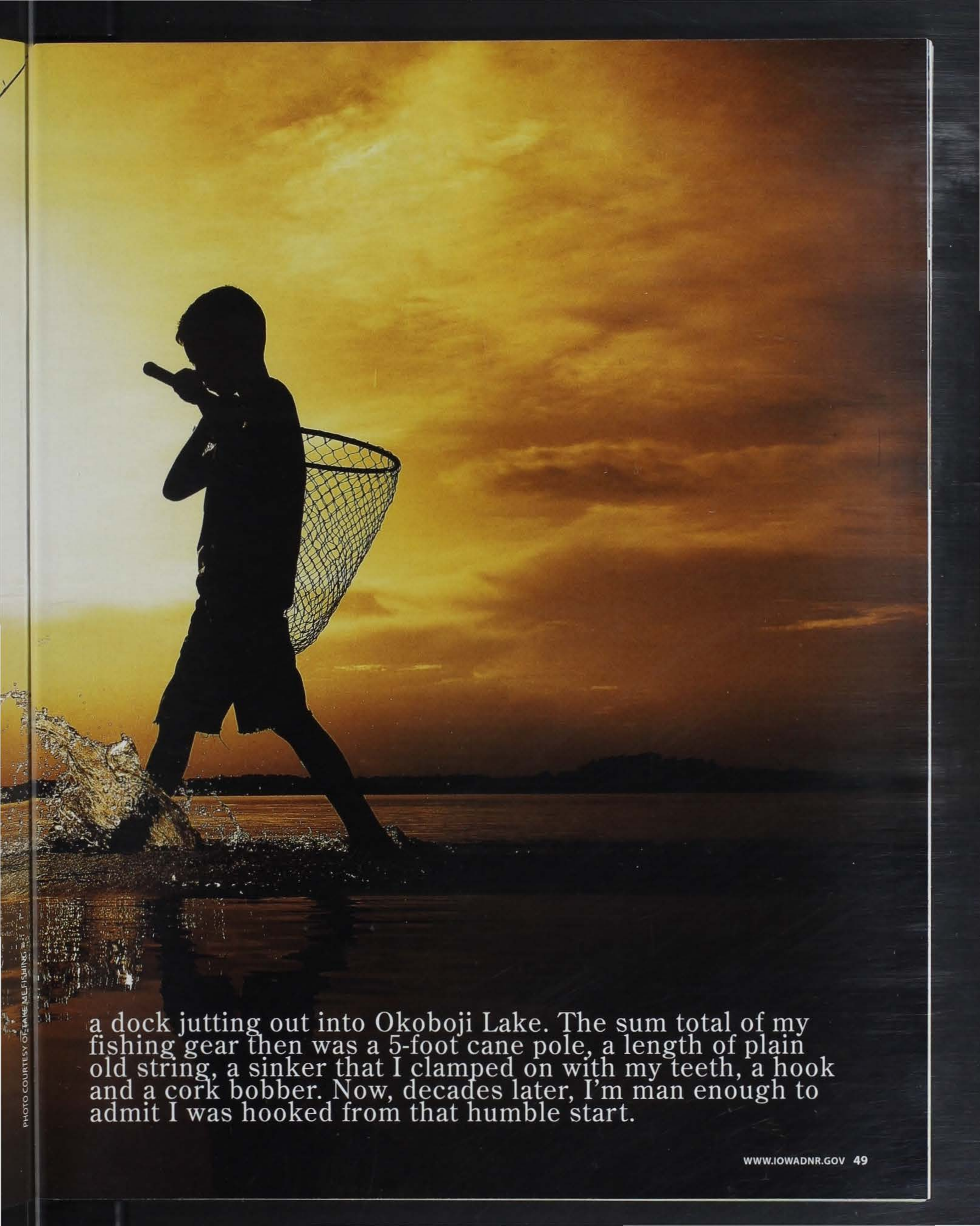


Morels, especially mid-season yellows (*Morchella esculenta*), are often found in groups. Canvass the area thoroughly after a find and carefully move ground cover before moving on.

Why we Fish

BY BILL KLEIN

WHAT IS IT ABOUT FISHING that possesses our hearts and minds the very first time we wet a line and then can't be exorcized during an entire lifetime? I was just a young innocent, maybe 4 or 5 years old, when my dad introduced me to the sport on



a dock jutting out into Okoboji Lake. The sum total of my fishing gear then was a 5-foot cane pole, a length of plain old string, a sinker that I clamped on with my teeth, a hook and a cork bobber. Now, decades later, I'm man enough to admit I was hooked from that humble start.

Between bites, fishing allows plenty of time for thinking. My contemplations on the sport, looking for its most addictive quality, focus on the sights and sounds we experience when we've got a pole in our hands. All of that is part of the joy. But just being around a body of water can deliver those visual and aural pleasures. What's added when our eyes are riveted on a rod tip or bobber? Here's my thinking. See if you agree.

My favorite T-shirt features a line drawing of an iconic row boat, two people fishing, a low, red sun in the background and these words:

"The hours spent fishing are not deducted from your lifetime." I believe that and so did people in Mesopotamia four thousand years ago. It's a Babylonian proverb.

Sitting on a glassy lake, it's hard to match the uncommon tranquility that settles into us with mare's-tail clouds high overhead and summer air thickening into a classic Iowa summer day. Then a breeze shatters the watery mirror into a million shards of sun. It warms us delightfully after months of low-angle winter light. The water now mesmerizes us with its constant motion, like the flames of a fire.

A fishing boat affords a 360-degree view of high-definition sights. Far across the lake, the oars of a rowboat appear to be winking at us as they dip into the water. An early-rising sailor hoists a distant white banner honoring the promise of the freshening breeze. A power boat, trailing a tail of white froth, struggles to achieve level plane. A clearwing dragonfly alights on our rod tip, resting momentarily on its watery flight.

Sounds heard fishing, so different from land-locked city neighborhoods, are also part of the appeal. Conversations that skidder across a half-mile of water, still distinguishable, would be well-kept secrets beyond the backyard fence at home. Franklin gulls bicker raucously over dead minnows that succumbed from a hard winter. And yes, with luck, there is the whir of line stripped off a reel by the lunker of the day.

Beyond the sights and sounds, the fish—of course—draw us to the lakes and streams. It's a fair-chase competition with both predator and prey looking for the

same thing: food. And because the fish always have home-field advantage in this game, they often win. My dad used to say—especially after I had been skunked—you have to be smarter than the fish.

Clever marketers offer a dizzying array of high-tech tools guaranteed to help us outsmart fish. We can choose from digital electronic boxes that see structure and fish fathoms below us; multi-fibered, polyethylene, bionic fishing lines and lighted baits that emit tempting odors. It's enough to make the cane pole rig of my youth seem

almost Babylonian in its primitiveness.

But I don't think reeling in a fish, exciting as it may be, is the prime motivator for rising before the sun on a summer morning. If you did a time/motion study of your last fishing outing, the total minutes you actually had a fish on the line would be a less-than-one-percent factor.


I propose we are lured to the water by the *anticipation* of catching fish, which starts when we pack that first piece of gear and ends only after our last cast. I remember crawling around on my hands and knees after dark on dew-wet grass, flashlight in hand, catching bait. Every crawler I caught was destined to convince a channel cat on a certain Des Moines River inside bend. No doubt in my mind.

Admit it, when you rearrange the tiny jigs in

your tackle box you have visions of slab Rathbun crappies flopping in your head. And before the ice is even out you can picture that hidden inlet at Spirit Lake where the walleyes will be stacked up and waiting come spring. You don't need an electronic box to see them. The image of the fish is crystal clear in your mind's eye. This same magic works with your nose and taste buds too. When you're creeping up on your favorite Bloody Run Creek pool you can smell the rainbows sizzling in the pan before your first cast.

Even if the fish are smarter than us on a given day, we sure have fun anticipating, participating and remembering the time spent on the water. This much we know: the best fishing trip we'll ever take is the next one. 🐟

...we sure have
fun anticipating,
participating and
remembering
the time spent
on the water.
This much we
know: *the best
fishing trip we'll
ever take is the
next one.*



Are you jazzed for fishing? Weekly trout stocking begins the first of April. Walleye season opens on the Iowa Great Lakes May 5. Muskie season opens on those same lakes on May 21. Buy your licenses, find the latest fishing reports and learn more about Iowa fisheries at www.iowadnr.gov.



FAIRFIELD'S ABUNDANCE ECOVILLAGE

Harmonious Living With Nature

BY MINDY KRALICEK PHOTOS BY CLAY SMITH

What is most remarkable about this 15-acre village development is not what you see. It's what's built under, into, above and shared by the homes and inhabitants: *an abundant lifestyle that does not impact the environment.*

Situated on what was once a cornfield turned pasture, 14 attractive homes built in three clusters are cuddled by a medley of gardens, orchards, young shade trees and native prairie. A row of rural mail boxes stands at attention where the private drive enters Abundance EcoVillage.

Winding walkways of crushed limestone and pebbles and mowed trails connect the homes with a public orchard of hazelnut trees, kolomikta kiwis, persimmons, Asian pears and hardy sweet cherries. Another path meanders to two ponds, a small pavilion and a cedar structure that frames tranquility from any direction. Two wind turbines project into the blue sky, their blades turning slowly enough today to cut angel food cake. Collected on parking garage roofs, sapphire-hued solar panels absorb the sun's energy.

Principled Construction

"Whatever you do, do it the best that you can because that's the way to get along in the world," says the mother pig to her three children as they leave home to enter the world in the well-known fairy tale.

Essentially that is what the developers of Abundance EcoVillage demand. Homes are built way above construction standards and use 60 to 80 percent less energy than traditional homes.

Healthier, renewable materials are specified. Design uses passive solar energy. Walls and ceilings are well-insulated and airtight. The U.S. Department of Energy recommends a wall R-value of 18, but an ecovillage home has 10-inch walls on a double stud frame with a wall R-value of 30.4.

All homes feature southern-facing windows with overhangs that block direct sun in the summer, yet allow



for day lighting. During winter, the southern side of the house acts as a passive heating unit. Windows on the north and west are minimized. Windows and appliances meet Energy Star requirements or better.

Maharishi Sthāpatya Veda Architecture

Another aspect of the homes at Abundance EcoVillage is the alignment of homes to Sthāpatya Veda architecture from India. The central tenant is that the orientation, placement and proportion of the built environment have dramatic effects on occupants and should be built in harmony with nature. Therefore homes are designed to maximize positive natural effects and eliminate negative ones. As the sun moves across the sky, it radiates different qualities of energy at different times of the day. Amy Greenfield, designer of two homes in the village and

a resident, explains:

“By properly dimensioning rooms and allowing for the appropriate quality of sunlight according to each room’s purpose, we are able to enhance health, mental clarity and creativity.”

Examples include placing the door of the home east or north, never south. The rooflines of the homes run north-south. Yards are surrounded by a protective fence and considered part of the living space.

Permaculture Systems

“Living off the grid” is one way to describe it, but the primary reason for permaculture systems at Abundance EcoVillage is to live a quality lifestyle without damaging the earth’s systems.

Power for homes is collected from both wind turbines and solar systems. Energy is stored in batteries and inverted to alternating current (AC) for use in homes.



"Wind primarily blows during the winter and solar energy is primarily collected in the summer," says Michael Havelka, a village founder and overseer of the energy systems. "Used together, Abundance EcoVillage has reliable energy year-round for all residents."

Most homes in the village have solar hot water systems. Two thermal solar collectors are installed on the roof of the home. Heat collected from the sun is stored in the solar hot water tank. When the hot water faucet is turned on, water from the solar tank flows into the secondary tank where the temperature is regulated.

Heating and cooling of homes is accomplished with Earth Air Tubes. Each home has 400 to 600 feet of tubing buried 8 feet deep where the ground's stable temperature hovers around 56 degrees F. An air intake is attached to the west side of each home and four to six, 8-inch tubes travel underground 100 to 150 feet, then enter the home through the equipment room to the furnace fan. The furnace fan then distributes the air throughout the whole house.

During the winter the air comes in preheated, so the furnace only has to heat the air an additional 10 to 20 degrees. In the summer, the warm air from the intake is cooled as it passes through the tubes. Moisture from Iowa's high humidity condenses and drains away from the air tubes through a drainage system. The air comes into the house cooled and dehumidified.

Water supplies for the village come from collected rain water. There are three systems for collecting and storing water. Drinking, cooking and bathing water is collected from roofs and stored underground. Water in the storage tanks pass through a three-step purification process: charcoal and sediment filters and UV light purification. This system has received DNR drinking grade water approval and is monitored. No chemicals are used to treat the water.

The second system is water collected from a pond that is also used for swimming and is stocked with catfish, bluegill, and grass carp. The pond water goes through a gravel bed filtration system. This water is used for toilets

and watering yards and gardens.

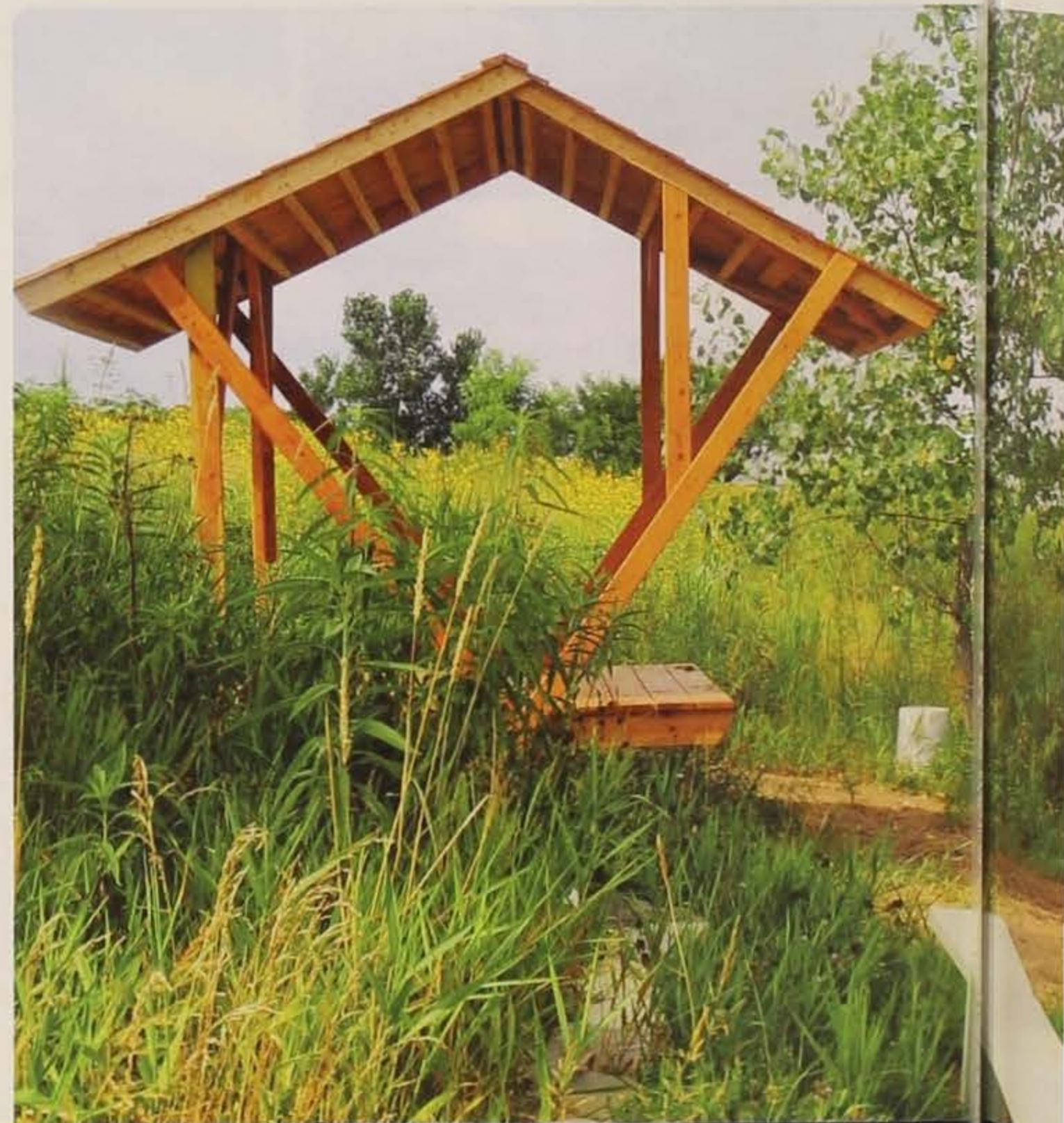
The third system is water stored in wetlands on the property. During dry times, this water is available to trees and other deep-rooted plants. To date, the village has not run out of water.

Waste is managed onsite, held in a septic tank. Organic materials break down into sludge and scum which decompose slowly. The liquid material (effluent) is pumped from the septic tank into a gravel bed numerous times, where microorganisms break down the

pollutants, cleaning the water. It then flows to a wetland, which acts as a biofilter, removing sediments and other pollutants from the water. In the future an irrigation system will be set up to deliver this water with its additional nutrients to non-edible plants and the landscape.

Paying for the permaculture systems

The cost to help pay for the energy, water and waste systems is built into the purchase price of the 70-foot by 70-foot lots. There is no pay-for-use structure for energy and water. The only additional cost is a \$100 per month homeowners' association fee to pay for road maintenance, snow removal and grounds keeping.



The Sprouting of Abundance EcoVillage

Lonnie Gamble, an electrical engineer and sustainable living professor, conceived, created and founded Abundance EcoVillage with Michael Havelka, a biologist with interests in sustainable agriculture. They experimented with their own homes and sustainable technologies and word got around. People told them they wanted to live more sustainably, but lacked the knowledge or time to develop the systems to make it possible. "If you develop the systems, we'll live there," they heard frequently. In 2001 the first home in Abundance EcoVillage was built.

Havelka says the goal of the development has been to provide a neighborhood where energy, water, wastes recycling and landscaping work in tune with nature, rather than against it. The homes would be aesthetically appealing and comfortable so people of all walks of life would enjoy living there.

Changes in the village

The neighborhood changes with ideas and features that residents desire. Support for a community food co-op has faded, but the tool-equipment co-op is highly functional. A hothouse for raising plants is seeing less usage, but a nearby organic farm is a source of vegetables for residents who don't grow their own.

Using biodiesel as a backup energy source proved to be burdensome, so the village hooked up to Fairfield's electricity system. During periods when there is no wind

or sun, the village buys energy from the utility company, and when there is more power than can be stored, the village sells it back to the utility.

Original solar panels were stationery and placed on garages. Newer, additional solar panels are on a structure built so panels follow the sun. Costs of original solar panels were \$5 a watt, but those have dropped to \$2 to \$2.50 a watt.

Room for more

Abundance EcoVillage came to fruition about the same time the economy took its downward trend. Nevertheless, 14 homes have been built. All of the houses are occupied and two are rented. Although amenities have been slower to develop than expected (for instance the community building has yet to be constructed), the development is economically solid. Six lots are available for those interested in new home construction.

No particular lifestyle is required to live in the development, but "The commonality residents experience in the village is a greater awareness of nature and its daily changes," says Greenfield. "Because our water and power depend on the weather, we're constantly remarking about it."

Interested in experiencing off-the-grid living?

The Sweetwater Luxury Bunkhouse at Abundance EcoVillage, Fairfield, is available for a minimum two-night

Residents built a small stage near the pond for entertainers. Picnics, speaking events, concerts and classes are a part of EcoVillage living for those who wish to participate. The community pond is used for fishing, swimming and a source of partially treated water used for watering lawns, gardens and flushing toilets.





From her home in EcoVillage, Amy Greenfield says designing a home for the weather extremes in Iowa was a challenge, but the result are homes that will be energy efficient for generations. Windows on the south warm homes in the winter. Fences surround the homes and yards are considered part of the living space. The original wind turbine satisfied the energy needs of the first few residents; a second was added as more people joined the village. Several of the residents grow vegetables, nut and fruit trees in the public areas of the village.



Eco-building designer and resident Amy Greenfield

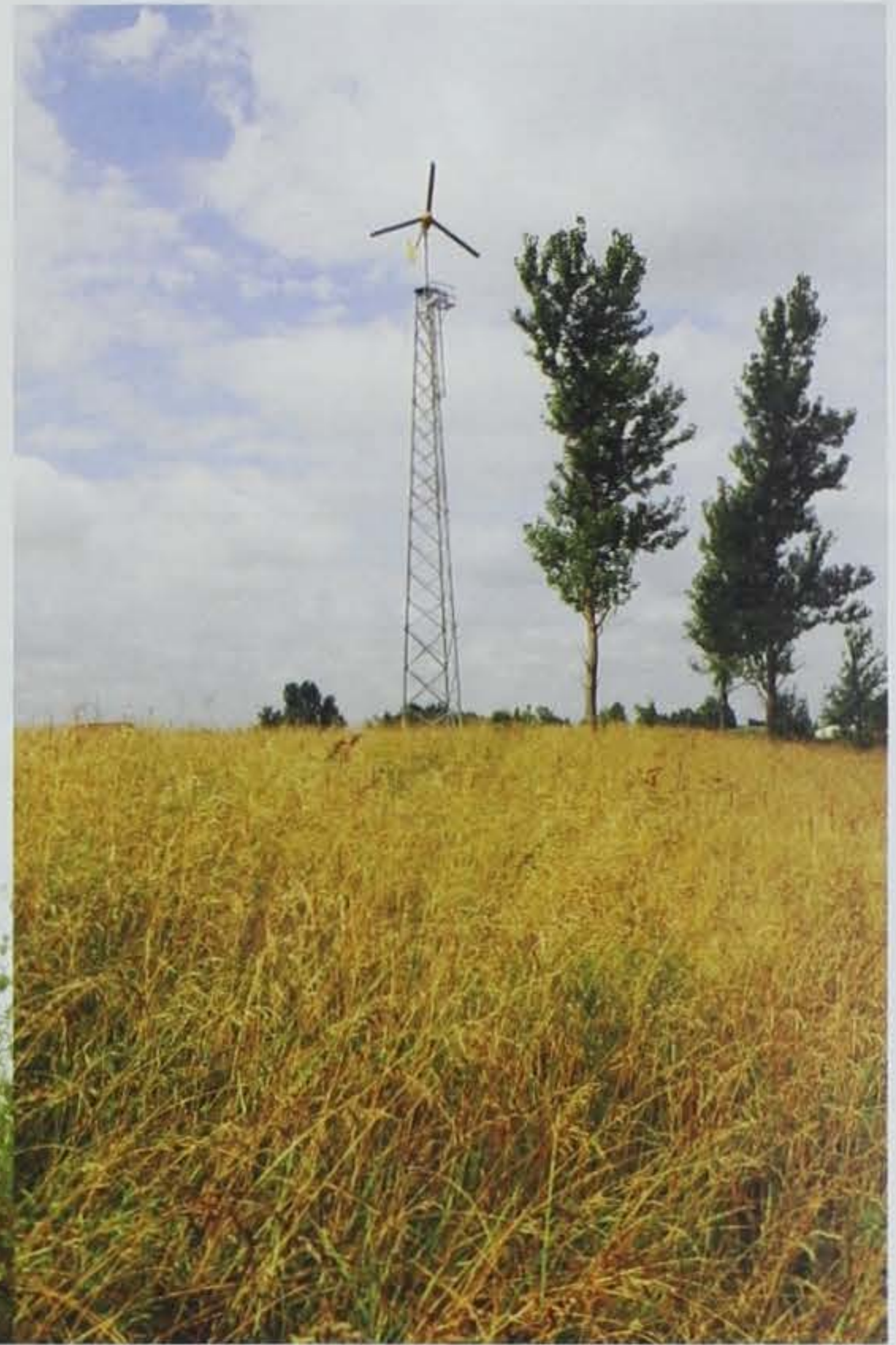


Outside of the ecovillage community, sits an older straw bale home, showing the area's historical interest in eco-design.



Solar-powered path lights





Solar panels are placed on community garage structures.

Definition of permaculture: the practice of producing food and energy in ways that do not deplete the earth's natural resources.



Abundance EcoVillage co-founder
Michael Havelka



stay up to a 30-night stay. Rent a room, floor or the whole house (up to 10 guests). Prepare your own breakfast in the full kitchen. For more information, call **641-472-7484** or email info@sweetwaterfairfield.com or visit the website at www.sweetwaterfairfield.com.

How to get there

Follow Highway 1 (N Fourth St) out of Fairfield's city center to 185th St. Turn right (east) and drive until you see an attractive stone welcome sign to Abundance EcoVillage on the north side. Follow the gravel road (not Leach Ave.) to the village.

Are homes in Abundance EcoVillage more expensive than what is typical?

"It depends on how you look at it," says Michael Havelka, one of the development's founders. "When you buy a lot in the village, you're basically paying for your water, power and waste management upfront in the \$40,000 cost. You also enjoy access to the community spaces like the orchard, pond, walking trails and pavilion."

"It depends on your focus," points out Amy Greenfield, building designer. "The homes are built using materials that are renewable and release fewer toxic chemicals and particles which affect people's health. Also, high standards are met in the methods, materials selection and construction of the homes. These will last longer and need fewer repairs than typical homes."

"In other words, if you want to get in a home cheaply, this home won't be for you," adds Havelka. "If you want to live with less expense over the long term, a village home is an economical choice."

Ecovillages in America

The ecovillage concept has been popular since the 1970s, but many projects, then and now, disperse after several years due to personality and interest conflicts, lack of technical expertise among residents to operate off-the-grid energy systems, changing values and lack of sustainable financial resources. However, many ecovillages are thriving in the United States and around the world. Each one operates according to common goals. Domestic examples include:

Bay View Ecovillage in Milwaukee, Wisc.

10 members living in two duplexes focus on social connections and environmental action.

Berea College Ecovillage in Berea, Ky.

College students in family housing have performance goals to reduce their ecological footprint.

Dancing Rabbit Ecovillage in northeastern Missouri

Fifty people live ecologically sustainable and socially rewarding lives.

Earthaven near Asheville, N.C.

Located on 320 acres 40 minutes southeast of Asheville, N.C. Fifty residents live on the land. They are dedicated to caring for people and the earth by learning and demonstrating a holistic, sustainable culture. Earthaven provides workshops on starting and designing an ecovillage.

Ecovillage at Ithaca, upstate New York

Located in the Finger Lakes region, two 30-home duplex neighborhoods are an alternative model for suburban living while minimizing ecological impacts.

The Sweetwater Luxury Bunkhouse, where guests can try out Abundance EcoVillage living. **RIGHT:** Michael Havelka points out the water system used for watering yards and gardens, and in toilets. This minimally treated water supply comes from the pond.





The average southeast Iowa home uses about 1,500 kilowatts of energy a month, while the typical home at Abundance EcoVillage uses about 250 kilowatts per month. This electrical savings comes from high performance design implemented into the home prior to construction.



Larry Larson, in an attic, shows how air from the lower floor is vented to the attic.

CLOSE-UP: Earth Air Tubes

An environmental-friendly way to heat and cool homes

Earth air tubes have been in use for more than 25 years, but not so much in Iowa. Larry Larson of Fairfield has worked with the systems and developed an almost foolproof installation system. His system has worked extremely well for Abundance EcoVillage residents and other Fairfield homeowners. He also helps with earth air tube system installations around the country.

Larson installs a one-way open-air system. The high density, polyethylene corrugated air tubes range in size from 6 inches to 12 inches in diameter, depending on the size of the home. The tubes are placed at least 8 feet below ground level in a snake-like fashion with 2 feet of space between them. Down there, the ground temperature hovers 12 degrees above or below the average Iowa ground temperature of 56 degrees. The furnace fan delivers the air through the underground air tube system. The winding tubes create enough air turbulence so the air has every opportunity to take on the temperature of the surrounding earth.

Iowa's high humidity requires that a drainage system be in place. As water condenses in the air tubes, it drips out of a slit on the bottom of each tube. This requires a special trench profile that carries the water by gravity to either daylight, or a less preferred destination: a sump pump.

Installation

Four earth air tubes 100 feet to 150 feet long, depending on the size of the home, are placed with 2 feet between them on filter cloth covering a bed of 4 inches to 6 inches of pea gravel. Sand is poured to lock the tubes in position. Then the trench is backfilled.

The area of excavation to install the earth air tubes is large and probably only practical for new construction. Installation typically occurs at the same time as the home's foundation. Soil types can cause a wide variance in tube performance, so an expert is needed for the installation.

Once installed, residents can drive over the buried tubes or plant gardens above them.

Interior Ventilation

The interior ventilation system should only be designed and installed by a contractor familiar with interfacing with an earth air tube system. A forced-air duct system is required with earth air tubes. Air duct delivery to rooms should be placed low and air duct returns should be placed high. Passive exhaust to the outside is required in a central area high in the home, such as an attic. The system is designed to operate continuously. Adjustments only need to be made seasonally.

A switch marked for summer or winter ventilation changes the operation. In summer, return ducting is closed off and the

hottest air is released outside. In winter, the warmest air should be returned and mixed with fresh air coming in from the tubes.

Energy Efficiency

Customers say their heating and cooling bills are less than \$200 per year, but other factors are at play with these claims. Engineering for maximum energy efficiency of walls, floors, the roof and basement or crawl space are critical for air tube performance.

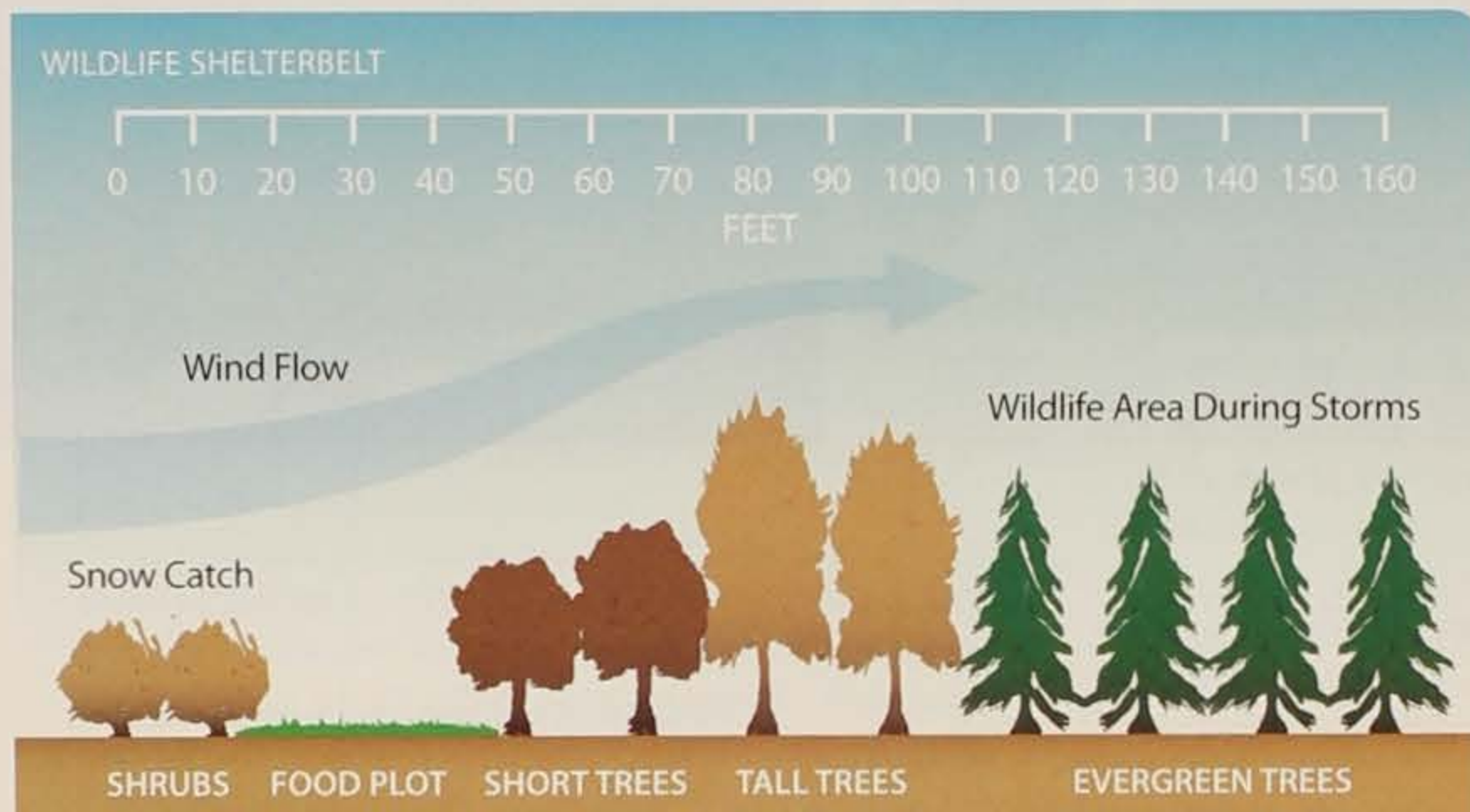
"A concrete basement is a big energy drain on a house," says Larson. "Standard Portland concrete has virtually no R-value and it will wick ground moisture. As much as 23 percent of the heat loss of a house can occur through an uninsulated concrete basement.

"I recommend pressure-treated wood for basements, footings and floors. The treatment is not a petroleum-based material, and the end product doesn't give off gas or leach into the environment. Wooden foundations are warm, easy to finish and insulate, and they sequester carbon.

"Another concern is vapor," says Larson. "I recommend that a house using air tubes vapor barrier all the home's walls, floors and ceilings shared with the outside. The earth air tube system removes the need for humidifiers and dehumidifiers, the air is always fresh, and there are no problems with radon or mold."

Make Your Own 10-Row Shelterbelt

Pheasants and wildlife need good habitat to survive Iowa's snowy winters. Planting a well designed shelterbelt and food plot can help. Shelterbelts not only cut cold winter winds, but heating bills and wind erosion, too. They also act as a snow fence, reduce noise, create privacy and clean the air.



THINK NUTS

Those concerned about losing productive land can consider adding nut trees to shelterbelts. Once nut trees start producing, the harvest can provide added income. There are markets for Chinese chestnuts, black walnuts, hazel nuts, pecans and hickory nuts. English walnuts and paw paw trees (a native fruit) grow in zone 5 in southern Iowa. For details go to northernnutgrowers.org.

OPTIONS TO KEEP COSTS DOWN

If the land is eligible for the Conservation Reserve Program, there is potential cost-share opportunities for material and planting expenses as well as annual payments. Check with the local Natural Resource Conservation Service office to see if your land is eligible. Another money saving tip is to contact the local Pheasants Forever chapter as some provide funding.

Bareroot tree and shrub seedlings for shelterbelts are available from the DNR's State Forest Nursery. A minimum of 500 deciduous trees and shrubs cost between \$37 and \$55 per 100 trees, depending on species and size. Evergreens are \$25 to \$40 per 100.

The DNR nursery also offers a "Create-a-Packet;" choose up to four tree or shrub species for a total of 200 seedlings for \$110.

FOR DETAILS, VISIT

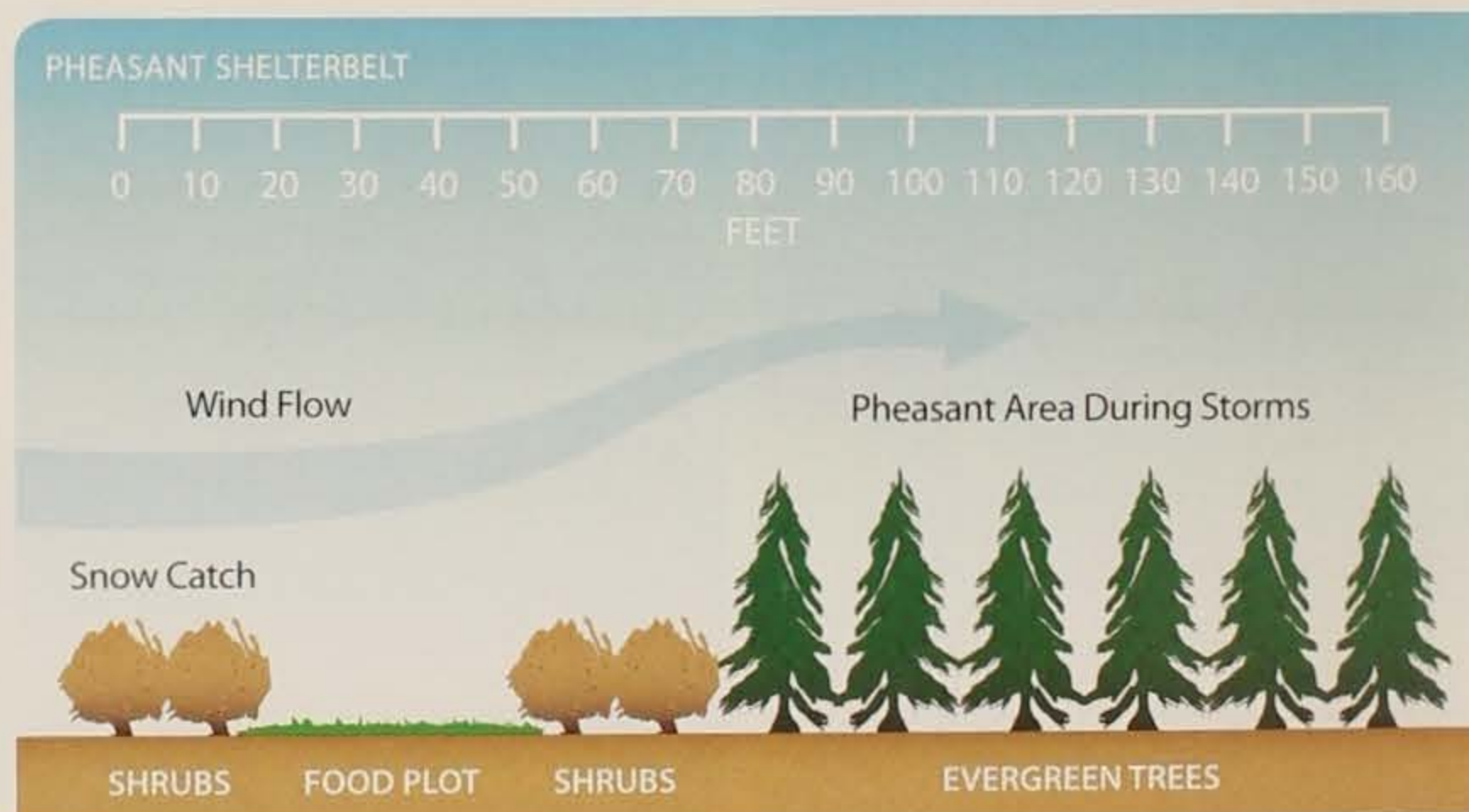
www.iowatreeplanting.com or 1-800-865-2477. Order forms are also in the 2012 Iowa Outdoors Calendar. Free shipping or available for pick up at the DNR nursery in Ames at 2404 South Duff Avenue.

Get Started on Your Own Wildlife Sanctuary

WILDLIFE SHELTER: 160 FEET WIDE, 200 FEET LONG

On windward side, plant two rows of native shrubs 12 feet apart, plant shrubs four feet apart in each row, and stagger each row. Best plants are dogwoods, common ninebark, serviceberry, chokeberry and elderberry. Plant rows in groups of at least five of each species to enhance wildlife values. **About 100 shrubs are needed.**

Between the second and third rows is a 36-foot food



plot. Plant at least two choices: corn and sorghum are preferable as they stand well in winter weather and are high-energy foods; other good choices are barley, rye, millet or sunflowers. **About 1 pound of seed**

Next, plant two rows of short or medium deciduous trees 16 feet apart with rows 16 feet apart. Plant red bud or gray dogwood for beauty, or wild plum, willow or chokecherry for wildlife. Medium trees include aspen and silver maple. Place the shortest trees on the windward side to lift the wind. **25 small or medium trees**

The next two rows of deciduous trees are tall trees; again plant trees 16 feet apart with rows 16 feet apart. Plant oaks, walnuts, black cherry, hackberry, hickories or Kentucky coffee. **25 tall trees**

The last four rows are evergreens planted 16 feet apart with rows 16 feet apart. Plant Black Hills spruce, white spruce, Norway spruce, red pine, white pine, jack pine, Scotch pine, concolor fir or Eastern red cedar. **50 evergreens**

PHEASANT SHELTERBELT:

150 FEET TO 170 FEET WIDE BY 200 FEET LONG

Because leafless trees may become winter lookouts for predators such as hawks and owls, omit deciduous trees in pheasant shelterbelts. Plant two rows of short native shrubs four feet apart in rows spaced 12 feet apart on each side of a 30-foot by 50-foot food plot. Stagger the plants to help cut the wind. The last six rows are evergreens planted 16 feet apart with rows 16 feet apart. Use evergreen species listed earlier.

200 shrubs and 75 evergreens

PLANNING TIPS

The shelterbelt inner row should be 50 to 75 feet from the home or other buildings for windbreak benefits. Species with the shortest 20-year height and slower growing species should be planted in outer rows so they are not overtopped by faster growing species. Plant at least two species each of shrubs, deciduous trees and evergreens to provide diversity and protection from plant diseases.

Avoid underground utilities or septic lines. Follow local codes for planting near property lines. If planting near road intersections, make sure plantings will not create visibility issues for drivers.

Make a five-year commitment to keep a four-foot, weed-free zone around the plants, and to water weekly.

For planning help, contact your local private lands biologist listed at www.iowadnr.gov/Environment/LandStewardship/WildlifeLandownerAssistance.aspx or 515-281-5918.

160-foot by 200-foot = 32,000 square feet or .72 acres

160-foot by 272-foot = 43,560 square feet or 1 acre

IOWA STATE FOREST NURSERY

Our nursery is the state's largest nursery in Iowa, providing quality, affordable trees and shrubs to homeowners, businesses, schools, churches, and municipalities. We have a wide variety of trees and shrubs to choose from, including native species and popular landscape plants. We also offer a variety of services, including site visits, tree removal, and stump grinding.

STANDARD PRICES PER TREE

Species	Height	Caliper	Price
Red Maple	8-10"	1.5"	\$15.00
White Pine	8-10"	1.5"	\$25.00
Black Hills Spruce	8-10"	1.5"	\$20.00
Scotch Pine	8-10"	1.5"	\$18.00
Concolor Fir	8-10"	1.5"	\$22.00
Jack Pine	8-10"	1.5"	\$16.00
White Spruce	8-10"	1.5"	\$24.00
Norway Spruce	8-10"	1.5"	\$21.00
Red Pine	8-10"	1.5"	\$19.00
White Pine	8-10"	1.5"	\$26.00
Black Hills Spruce	8-10"	1.5"	\$23.00
Scotch Pine	8-10"	1.5"	\$20.00
Concolor Fir	8-10"	1.5"	\$25.00
Jack Pine	8-10"	1.5"	\$17.00
White Spruce	8-10"	1.5"	\$27.00
Norway Spruce	8-10"	1.5"	\$22.00
Red Pine	8-10"	1.5"	\$20.00
White Pine	8-10"	1.5"	\$28.00
Black Hills Spruce	8-10"	1.5"	\$24.00
Scotch Pine	8-10"	1.5"	\$21.00
Concolor Fir	8-10"	1.5"	\$26.00
Jack Pine	8-10"	1.5"	\$18.00
White Spruce	8-10"	1.5"	\$29.00
Norway Spruce	8-10"	1.5"	\$23.00
Red Pine	8-10"	1.5"	\$21.00
White Pine	8-10"	1.5"	\$30.00
Black Hills Spruce	8-10"	1.5"	\$25.00
Scotch Pine	8-10"	1.5"	\$22.00
Concolor Fir	8-10"	1.5"	\$27.00
Jack Pine	8-10"	1.5"	\$19.00
White Spruce	8-10"	1.5"	\$31.00
Norway Spruce	8-10"	1.5"	\$24.00
Red Pine	8-10"	1.5"	\$22.00
White Pine	8-10"	1.5"	\$32.00
Black Hills Spruce	8-10"	1.5"	\$26.00
Scotch Pine	8-10"	1.5"	\$23.00
Concolor Fir	8-10"	1.5"	\$28.00
Jack Pine	8-10"	1.5"	\$20.00
White Spruce	8-10"	1.5"	\$33.00
Norway Spruce	8-10"	1.5"	\$25.00
Red Pine	8-10"	1.5"	\$23.00
White Pine	8-10"	1.5"	\$34.00
Black Hills Spruce	8-10"	1.5"	\$27.00
Scotch Pine	8-10"	1.5"	\$24.00
Concolor Fir	8-10"	1.5"	\$29.00
Jack Pine	8-10"	1.5"	\$21.00
White Spruce	8-10"	1.5"	\$35.00
Norway Spruce	8-10"	1.5"	\$26.00
Red Pine	8-10"	1.5"	\$24.00
White Pine	8-10"	1.5"	\$36.00
Black Hills Spruce	8-10"	1.5"	\$28.00
Scotch Pine	8-10"	1.5"	\$25.00
Concolor Fir	8-10"	1.5"	\$30.00
Jack Pine	8-10"	1.5"	\$22.00
White Spruce	8-10"	1.5"	\$37.00
Norway Spruce	8-10"	1.5"	\$27.00
Red Pine	8-10"	1.5"	\$25.00
White Pine	8-10"	1.5"	\$38.00
Black Hills Spruce	8-10"	1.5"	\$29.00
Scotch Pine	8-10"	1.5"	\$26.00
Concolor Fir	8-10"	1.5"	\$31.00
Jack Pine	8-10"	1.5"	\$23.00
White Spruce	8-10"	1.5"	\$39.00
Norway Spruce	8-10"	1.5"	\$28.00
Red Pine	8-10"	1.5"	\$26.00
White Pine	8-10"	1.5"	\$40.00
Black Hills Spruce	8-10"	1.5"	\$30.00
Scotch Pine	8-10"	1.5"	\$27.00
Concolor Fir	8-10"	1.5"	\$32.00
Jack Pine	8-10"	1.5"	\$24.00
White Spruce	8-10"	1.5"	\$41.00
Norway Spruce	8-10"	1.5"	\$29.00
Red Pine	8-10"	1.5"	\$27.00
White Pine	8-10"	1.5"	\$42.00
Black Hills Spruce	8-10"	1.5"	\$31.00
Scotch Pine	8-10"	1.5"	\$28.00
Concolor Fir	8-10"	1.5"	\$33.00
Jack Pine	8-10"	1.5"	\$25.00
White Spruce	8-10"	1.5"	\$43.00
Norway Spruce	8-10"	1.5"	\$30.00
Red Pine	8-10"	1.5"	\$28.00
White Pine	8-10"	1.5"	\$44.00
Black Hills Spruce	8-10"	1.5"	\$32.00
Scotch Pine	8-10"	1.5"	\$29.00
Concolor Fir	8-10"	1.5"	\$34.00
Jack Pine	8-10"	1.5"	\$26.00
White Spruce	8-10"	1.5"	\$45.00
Norway Spruce	8-10"	1.5"	\$31.00
Red Pine	8-10"	1.5"	\$29.00
White Pine	8-10"	1.5"	\$46.00
Black Hills Spruce	8-10"	1.5"	\$33.00
Scotch Pine	8-10"	1.5"	\$30.00
Concolor Fir	8-10"	1.5"	\$35.00
Jack Pine	8-10"	1.5"	\$27.00
White Spruce	8-10"	1.5"	\$47.00
Norway Spruce	8-10"	1.5"	\$32.00
Red Pine	8-10"	1.5"	\$30.00
White Pine	8-10"	1.5"	\$48.00
Black Hills Spruce	8-10"	1.5"	\$34.00
Scotch Pine	8-10"	1.5"	\$31.00
Concolor Fir	8-10"	1.5"	\$36.00
Jack Pine	8-10"	1.5"	\$28.00
White Spruce	8-10"	1.5"	\$49.00
Norway Spruce	8-10"	1.5"	\$33.00
Red Pine	8-10"	1.5"	\$31.00
White Pine	8-10"	1.5"	\$50.00
Black Hills Spruce	8-10"	1.5"	\$35.00
Scotch Pine	8-10"	1.5"	\$32.00
Concolor Fir	8-10"	1.5"	\$37.00
Jack Pine	8-10"	1.5"	\$29.00
White Spruce	8-10"	1.5"	\$51.00
Norway Spruce	8-10"	1.5"	\$34.00
Red Pine	8-10"	1.5"	\$32.00
White Pine	8-10"	1.5"	\$52.00
Black Hills Spruce	8-10"	1.5"	\$36.00
Scotch Pine	8-10"	1.5"	\$33.00
Concolor Fir	8-10"	1.5"	\$38.00
Jack Pine	8-10"	1.5"	\$30.00
White Spruce	8-10"	1.5"	\$53.00
Norway Spruce	8-10"	1.5"	\$35.00
Red Pine	8-10"	1.5"	\$33.00
White Pine	8-10"	1.5"	\$54.00
Black Hills Spruce	8-10"	1.5"	\$37.00
Scotch Pine	8-10"	1.5"	\$34.00
Concolor Fir	8-10"	1.5"	\$39.00
Jack Pine	8-10"	1.5"	\$31.00
White Spruce	8-10"	1.5"	\$55.00
Norway Spruce	8-10"	1.5"	\$36.00
Red Pine	8-10"	1.5"	\$34.00
White Pine	8-10"	1.5"	\$56.00
Black Hills Spruce	8-10"	1.5"	\$38.00
Scotch Pine	8-10"	1.5"	\$35.00
Concolor Fir	8-10"	1.5"	\$40.00
Jack Pine	8-10"	1.5"	\$32.00
White Spruce	8-10"	1.5"	\$57.00
Norway Spruce	8-10"	1.5"	\$37.00
Red Pine	8-10"	1.5"	\$35.00
White Pine	8-10"	1.5"	\$58.00
Black Hills Spruce	8-10"	1.5"	\$39.00
Scotch Pine	8-10"	1.5"	\$36.00
Concolor Fir	8-10"	1.5"	\$41.00
Jack Pine	8-10"	1.5"	\$33.00
White Spruce	8-10"	1.5"	\$59.00
Norway Spruce	8-10"	1.5"	\$38.00
Red Pine	8-10"	1.5"	\$36.00
White Pine	8-10"	1.5"	\$60.00
Black Hills Spruce	8-10"	1.5"	\$40.00
Scotch Pine	8-10"	1.5"	\$37.00
Concolor Fir	8-10"	1.5"	\$42.00
Jack Pine	8-10"	1.5"	\$34.00
White Spruce	8-10"	1.5"	\$61.00
Norway Spruce	8-10"	1.5"	\$39.00
Red Pine	8-10"	1.5"	\$37.00
White Pine	8-10"	1.5"	\$62.00
Black Hills Spruce	8-10"	1.5"	\$41.00
Scotch Pine	8-10"	1.5"	\$38.00
Concolor Fir	8-10"	1.5"	\$43.00
Jack Pine	8-10"	1.5"	\$35.00
White Spruce	8-10"	1.5"	\$63.00
Norway Spruce	8-10"	1.5"	\$40.00
Red Pine	8-10"	1.5"	\$38.00
White Pine	8-10"	1.5"	\$64.00
Black Hills Spruce	8-10"	1.5"	\$42.00
Scotch Pine	8-10"	1.5"	\$39.00
Concolor Fir	8-10"	1.5"	\$44.00
Jack Pine	8-10"	1.5"	\$36.00
White Spruce	8-10"	1.5"	\$65.00
Norway Spruce	8-10"	1.5"	\$41.00
Red Pine	8-10"	1.5"	\$39.00
White Pine	8-10"	1.5"	\$66.00
Black Hills Spruce	8-10"	1.5"	\$43.00
Scotch Pine	8-10"	1.5"	\$40.00
Concolor Fir	8-10"	1.5"	\$45.00
Jack Pine	8-10"	1.5"	\$37.00
White Spruce	8-10"	1.5"	\$67.00
Norway Spruce	8-10"	1.5"	\$42.00
Red Pine	8-10"	1.5"	\$40.00
White Pine	8-10"	1.5"	\$68.00
Black Hills Spruce	8-10"	1.5"	\$44.00
Scotch Pine	8-10"	1.5"	\$41.00
Concolor Fir	8-10"	1.5"	\$46.00
Jack Pine	8-10"	1.5"	\$38.00
White Spruce	8-10"	1.5"	\$69.00
Norway Spruce	8-10"	1.5"	\$43.00
Red Pine	8-10"	1.5"	\$41.00
White Pine	8-10"	1.5"	\$70.00
Black Hills Spruce	8-10"	1.5"	\$45.00
Scotch Pine	8-10"	1.5"	\$42.00
Concolor Fir	8-10"	1.5"	\$47.00
Jack Pine	8-10"	1.5"	\$39.00
White Spruce	8-10"	1.5"	\$71.00
Norway Spruce	8-10"	1.5"	\$44.00
Red Pine	8-10"	1.5"	\$42.00
White Pine	8-10"	1.5"	\$72.00
Black Hills Spruce	8-10"	1.5"	\$46.00
Scotch Pine	8-10"	1.5"	\$43.00
Concolor Fir	8-10"	1.5"	\$48.00
Jack Pine	8-10"	1.5"	\$40.00
White Spruce	8-10"	1.5"	\$73.00
Norway Spruce	8-10"	1.5"	\$45.00
Red Pine	8-10"	1.5"	\$43.00
White Pine	8-10"	1.5"	\$74.00
Black Hills Spruce	8-10"	1.5"	\$47.00
Scotch Pine	8-10"	1.5"	\$44.00
Concolor Fir	8-10"	1.5"	\$49.00
Jack Pine	8-10"	1.5"	\$41.00
White Spruce	8-10"	1.5"	\$75.00
Norway Spruce	8-10"	1.5"	\$46.00
Red Pine	8-10"	1.5"	\$44.00
White Pine	8-10"	1.5"	\$76.00
Black Hills Spruce	8-10"	1.5"	\$48.00
Scotch Pine	8-10"	1.5"	\$45.00
Concolor Fir	8-10"	1.5"	\$50.00
Jack Pine	8-10"	1.5"	\$42.00
White Spruce	8-10"	1.5"	\$77.00
Norway Spruce	8-10"	1.5"	\$47.00
Red Pine	8-10"	1.5"	\$45.00
White Pine	8-10"	1.5"	\$78.00
Black Hills Spruce	8-10"	1.5"	\$49.00
Scotch Pine	8-10"	1.5"	\$46.00
Concolor Fir	8-10"	1.5"	\$51.00
Jack Pine	8-10"	1.5"	\$43.00
White Spruce	8-10"	1.5"	\$79.00
Norway Spruce	8-10"	1.5"	\$48.00
Red Pine	8-10"	1.5"	\$46.00
White Pine	8-10"	1.5"	\$80.00
Black Hills Spruce	8-10"	1.5"	\$50.00
Scotch Pine	8-10"	1.5"	\$47.00
Concolor Fir	8-10"	1.5"	\$52.00
Jack Pine	8-10"	1.5"	\$44.00
White Spruce	8-10"	1.5"	\$81.00
Norway Spruce	8-10"	1.5"	\$49.00
Red Pine	8-10"	1.5"	\$47.00
White Pine	8-10"	1.5"	\$82.00
Black Hills Spruce	8-10"	1.5"	\$51.00
Scotch Pine	8-10"	1.5"	\$48.00
Concolor Fir	8-10"	1.5"	\$53.00
Jack Pine	8-10"	1.5"	\$45.00
White Spruce	8-10"	1.5"	\$83.00

Wild Cuisine Kitchenside

BY ALAN FOSTER PHOTOS BY CLAY SMITH



Catfish with orange cranberry sauce over scalloped potatoes



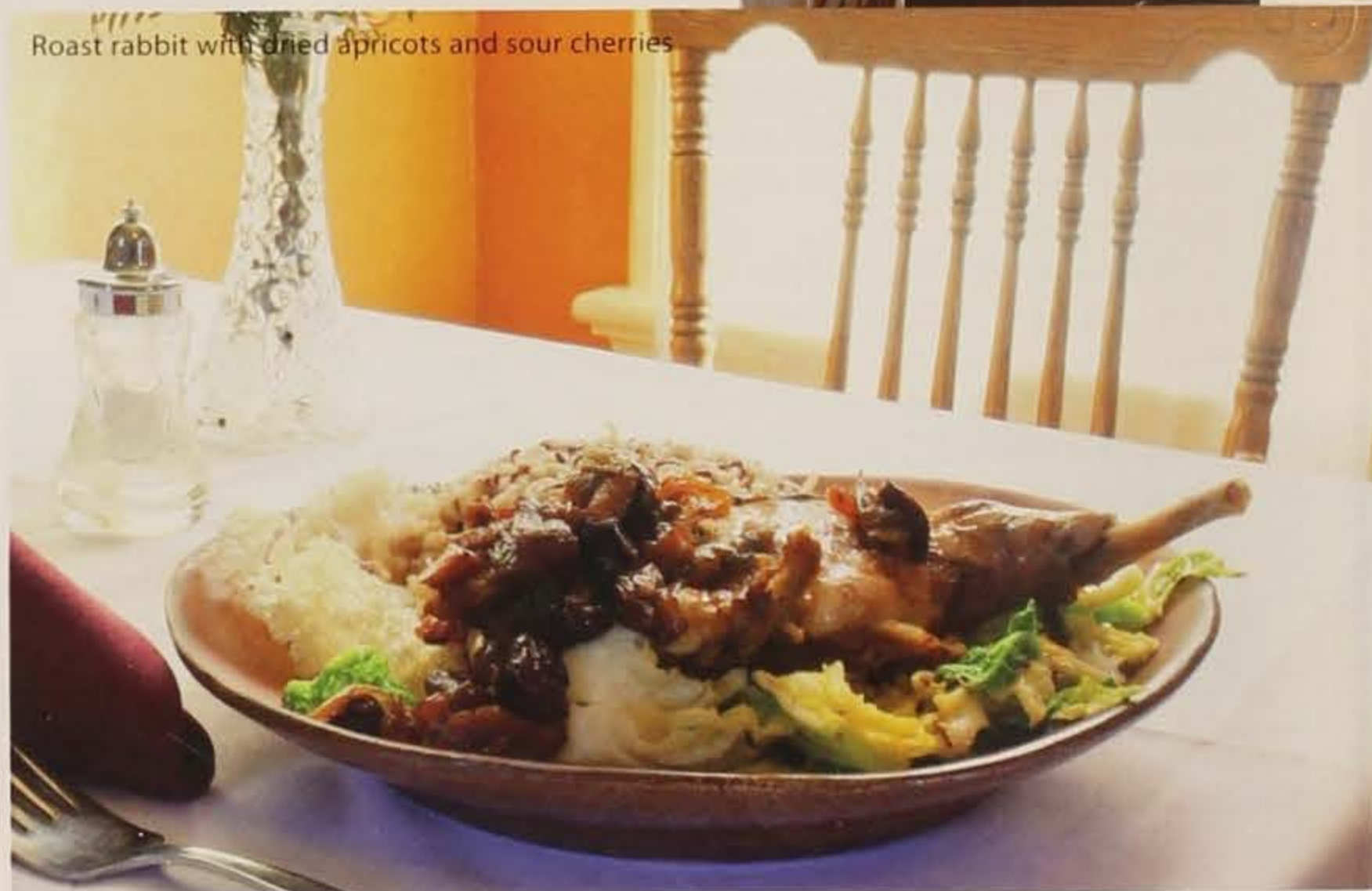
Kamal Hammouda and Laura Fendt with son Rasheed



Fans of Phoenix Café and Market will be sad to know the quaint, little eatery tucked inside a beautiful Victorian house closed its doors in mid-December. The good news? Hammouda and his family are opening a new restaurant just a couple blocks away that will accommodate more than twice the diners and serve many of the same favorites along with several new items.



Roast rabbit with dried apricots and sour cherries



A Sweet Spin On Two Iowa Standbys

GRINNELL CHEF AND RESTAURANT OWNER ADDS HIS EGYPTIAN FLARE TO CENTRAL IOWA CUISINE

*H*oused in a quaint Victorian house in downtown Grinnell, the Phoenix Café and Market was a favorite among locals looking for a quiet, relaxing meal. The small, always busy dining area offered an experience reminiscent of an intimate dinner party. And the food, according to locals, never disappointed. Co-owner and chef Kammal Hammouda blends eastern Mediterranean cuisine with his Egyptian upbringings into plates that are original and elegant, yet fresh and simple. The distinctly Middle Eastern baba ghanoush, a flavorful mashed mix of roasted eggplant, tahini, garlic, olive oil and herbs, is a favorite. Beef or vegetable Wellington is a house specialty, and fresh seafood is prepared "however you like it." But after 16 years, the cafe closed its doors in mid-December. Fine food fans don't fear, as the Phoenix "reincarnated" just a couple blocks from the original restaurant, in a more spacious setting that offers a similar romantic setting in a more traditional atmosphere. Hammouda says the dining experience remains the same, only taken to a new level. The expanded menu leans toward small plate offerings.

CATFISH WITH ORANGE CRANBERRY SAUCE OVER SCALLOPED POTATOES

Catfish fillets, one per diner

1 medium potato (Yukon gold works best) per diner

1 bag fresh cranberries

1 orange

3 medium shallots, chopped

1 tablespoon butter

½ cup dry white wine

Salt, pepper and Old Bay seasoning

Tabasco sauce

Slice potatoes about 1/4-inch thick and boil in salted water for no more than four minutes. Drain and set aside. Peel orange, saving skin and

separating flesh from membrane. Place butter, shallots and orange peel in pan and sauté until tender. Add wine and reduce to one-quarter volume. Add cranberries and orange segments and cook until tender. Add one tablespoon honey, salt to taste and 2 to 4 dashes of hot sauce. Cool and purée, adding water to achieve desired consistency.

Preheat oven to 400°. Brush cookie sheet with olive oil, layer potato in grouping of 5 to 6 slices and cover with catfish fillet. Brush with olive oil and season with salt and Old Bay seasoning. Bake for 10 to 20 minutes, depending on thickness of fillet, until meat is white and flaky. Serve with 2 ounces of the sauce.

ROAST RABBIT WITH DRIED APRICOTS AND SOUR CHERRIES

1 rabbit, cut into 6-8 pieces

1 onion, quartered and sliced

4-6 carrots, halved and sliced

½ cup dry white wine

½ cup chopped, dried apricots

½ cup dried sour cherries

Rosemary sprigs

Seasoned salt and pepper

Wash and dry rabbit, sprinkling with seasoned salt. Heat olive oil in cast iron pan and brown both sides of rabbit. Transfer to roasting pan. In cast iron pan, add onion and carrots with a little more olive oil and cook until tender. Add wine, apricots and cherries and reduce by half. Season to taste. Top rabbit with rosemary sprigs, fruit mix and bake at 350° for 90 minutes. Serve over braised cabbage and a side of hearty rice pilaf.

CHEF'S NOTES: Hammouda uses only pomace olive oil, the oil remaining in the

olive pulp after first press. Like so many other independent chefs and restaurant owners, he prefers to buy fresh and local whenever possible, from lamb and beef to herbs and dairy products.

924 Main Street
Grinnell, IA
641-236-3657
thephoenixcafe.com

HOURS:

LUNCH: Monday-Friday 11:30 a.m.-1:30 p.m.

DINNER: Tuesday-Saturday 5 p.m. until done

CATERING: "Anytime, your place or mine."

 **Phoenix**
Café & Market





What a Line

“He actually told you that?” I exclaimed. I was on the phone with Aric Sloterdijk, my neighboring officer, listening to him relate a story about checking some anglers the previous afternoon. Conservation officers hear quite a few lies in the course of a year, but only a select few cause them to ask themselves, “Did he actually just tell me that?” The one Aric was telling me about definitely fit that category.

Aric was on his way home for the day when he spotted a group of three anglers fishing along the riverbank. The fishermen were slouched in lawn chairs next to each other under the hot sun, gazing dully at their submerged lines and waiting for a bite. Aric noticed all three anglers had their limit of two lines cast into the water in front of them. After taking a closer look, he recognized two of the men from previous encounters. Aric knew the man seated on the left as Paul, and, seated next to him in the middle was Andy. The third individual was a youngster clearly under the age of 16, and therefore exempted from the fishing license requirement.

It is usually our habit to watch a suspected angler for a



The youngster on the right just looked up at Aric without saying a word.

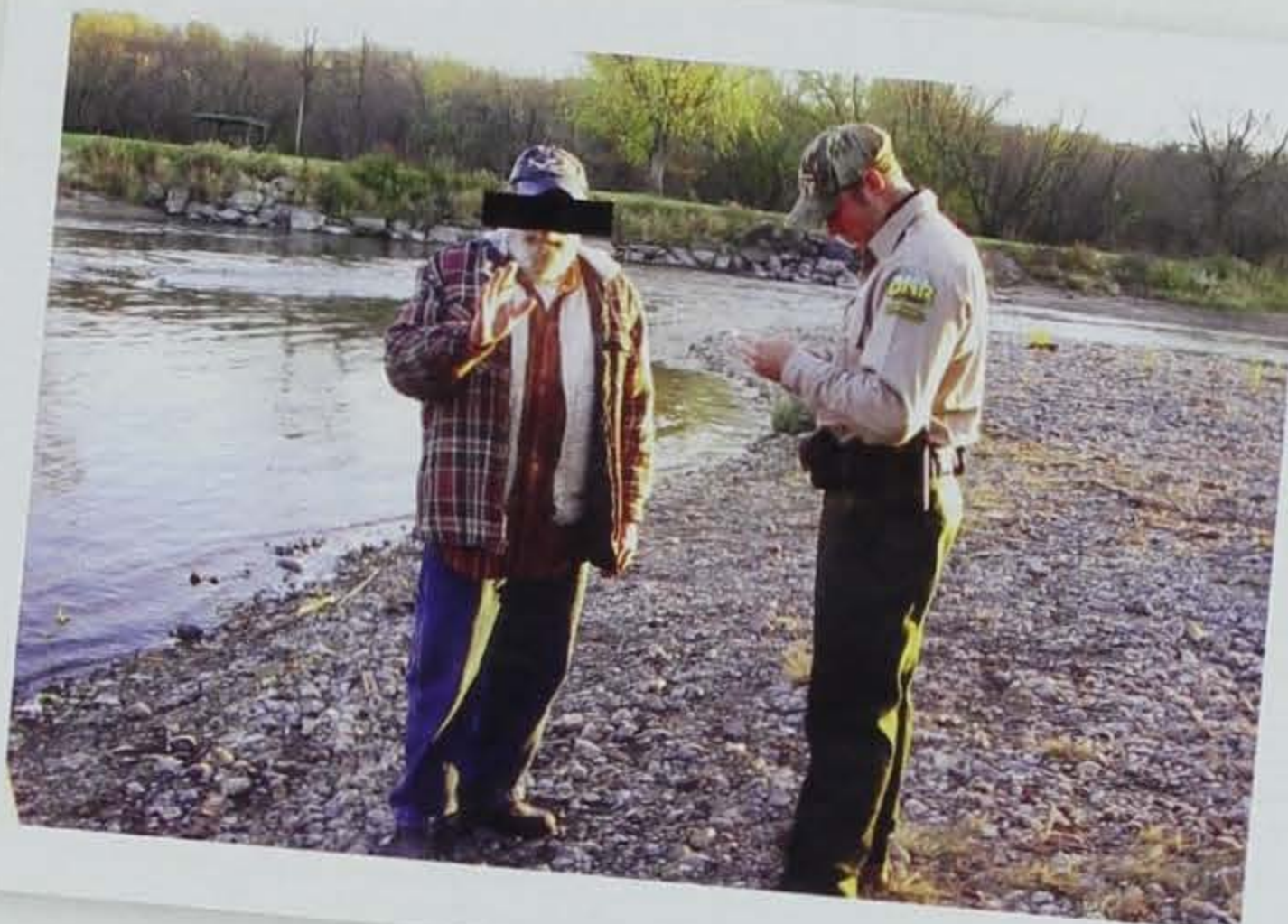
Then, without preamble, Andy replied in a gravelly voice, “I’m 12 years old. Prove it otherwise.”

And there it was.

while before approaching. By watching them reel or cast their lines we’re able to establish that they are indeed fishing, making a potential court case stronger. However, Aric had somewhere to be later that afternoon, so he was in a bit of a hurry to get home. He decided since each person had their limit of lines in the water, that it would probably be a quick license check and he’d be on his way. What could their excuse possibly be if they didn’t have a license?

“Any luck today?” Aric asked as he walked up behind the anglers.

The three turned in unison and Paul answered, “Not really.”



Either Andy's knowledge of the age requirement law for licenses was a bit murky (likely the case) or he was just playing it safe by claiming to be well under the age of the requirement. Aric didn't need to deploy too many of his detective skills to evaluate the clues before him. Andy was a balding fellow, with gray hair rimming the sides of his head. Three-day stubble covered his chin and neck working its way south to meet with chest hair sprouting from the top of his Marlboro t-shirt. And finally, a Playboy bunny tattoo graced his right forearm. This was one frightening 12-year-old. Aric is father to a 6-foot, 7-inch 16-year-old son, so he is pretty experienced with kids who appear older than they actually are, but even he wasn't fooled by this one. This guy was not 12. And Aric was going to be late getting home.

No doubt thinking to himself, "Did he actually just tell me that?" Aric said, "Excuse me, what did you say?"

Andy replied, slightly more hesitantly this time, "I said, I'm 12 years old and you'll just have to prove it otherwise."

I'm only guessing that it must have been the look in Aric's eye as he peered down at Andy that prompted him to squeak out, "But I'm not fishing anyway."

This statement left one obvious question that needed answering: "Whose lines were those propped in front of his chair?"

Realizing that he needed to come up with a solution to the ownership question, Andy glanced to his right and looked at the young kid. The boy's eyes were glued to his own lines, not wanting to risk looking at either Andy or Aric.

Amazingly, Andy decided to leave the boy alone, and instead turned to Paul, saying, "These are your lines aren't they?" indicating the two poles. Silence. "Aren't they?" Andy repeated with a threatening glint in his eye.

Paul stared straight ahead and muttered, "Yeah, they're mine."

Aric's job suddenly became much easier. Since he had never actually witnessed Andy touch either of the lines, without a confession, he wouldn't be able to testify that he was actually fishing. But now Aric had something to

work with.

"Why don't you come back to my truck for a little bit," Aric said to Paul.

Back at the truck, Aric laid out the scenario. "Here is the deal. Either you are fishing with too many lines, or Andy is fishing without a license. Which is it?"

Paul sat in silent contemplation for a while, staring at the floorboard of the truck before asking, "Which fine is more expensive?"

Aric, expecting this common question, replied, "That shouldn't matter. Either they are your lines or they aren't."

Paul let out a frustrated sigh, weighed his decision a while longer, then asked, "Would this affect my probation?"

This was not an expected question. "Well, I doubt it will help much," Aric answered.

Aric was beginning to wonder why this decision was so difficult for Paul to make, especially in light of the fact that he was on probation. In the hopes of clearing some of the confusion, Aric left Paul to debate with himself and stepped out of his truck to phone dispatch. Things quickly fell into place when he learned from dispatch that both Paul and Andy (who, by the way, was 56 years old—not 12), were both on probation for assault. Aric was starting to understand Paul's indecision as he noted that Andy was about twice the size of Paul. So he was not surprised when he got back into the truck and Paul spit out his final answer, "Yeah. They're my poles."

"You're kidding me," I said to Aric when he finished telling me the story. Presented with the classic dilemma of saving yourself or your friend, this individual chose his friend even at the risk of worsening his own probationary status. Either he was very loyal, very scared or seriously lacks some reasoning skills (or of course, they actually were his poles). Whatever the case may be, I just wish Aric had waited for Andy to cast the lines before checking his license that day. I would have made the trip north on the court date just to watch the reaction when Andy would present the judge with the same challenge that he did Aric by proclaiming, "I'm 12 years old. Prove it otherwise." 🐾

HAVE YOU SEEN THIS LICHEN?

Lungwort (*Lobaria pulmonaria*) is a strong indicator of old growth forests, and has a long history of use in traditional medicines. Sensitive to air pollution, habitat loss and changing forestry practices, this unique lichen has been relegated to the status of rare and threatened. Biologists are asking for help discovering if it still exists in Iowa.

BIG, BEAUTIFUL SPECIES

Many lichen species are small and easy to overlook, but others are prominent. *Lobaria pulmonaria*, or lungwort, is a large, beautiful lichen species. Lungworts are most common in the Appalachians, the Great Lakes and the Pacific Northwest and was found in northeast Iowa in the past.

EARLY LUNGWORT COLLECTORS

Two biologists collected lungwort between 1894 and 1901 from three sites in Iowa. These biological pioneers were Bruce Fink and Bohumil Shimek, both of whom, amongst many other accomplishments, served as president of the Iowa Academy of Science during their careers. Shimek State Forest in southeast Iowa was named in Bohumil's honor.

IOWA'S LOST LICHEN

Shimek collected the last known records of Iowa lungwort in 1901 from Clayton and Dubuque counties. These lungwort specimens currently reside in the Bell Museum Herbarium at the University of Minnesota.

HELP FIND IT

Is lungwort still part of Iowa's biological diversity? Has it avoided notice for 110 years, or is it a victim of human changes brought to Iowa's landscape? The authors have logged more than 40 miles of hiking northeast Iowa looking for lungwort, thus far to no avail. Take a hike and see if you are luckier. If so, let us know at jtcolber@iastate.edu or 515-294-9330. Please provide as precise geographic information as you can and, if possible, a picture. Please do not collect any of the lichen—it could be the last lungwort in Iowa.

WHERE TO LOOK

A somewhat similar looking species of liverworts grow on damp rock or soil, but lungwort very rarely grows on rock and not limestone. To find lungwort, search tree bark in northeastern Iowa.

Lichens aren't plants, but they do make their food through the process of photosynthesis. Most lichens consist of a partnership between an ascomycete fungus (like morels) and a green algae. Some biologists refer to lichens as "fungi that have learned agriculture" because they "farm" the algae for their food.

"Treetop Majesty"

Inspired by the
Internet Sensation!

Meticulously
Hand-Cast Sculpture
Hand-Painted For
Thrilling Lifelike Detail



Evokes the thrill of live
"eagle cams" that have
captivated
millions



Five Sculpted Eagles,
Intricate Sculpted Nest,
Wood-tone Base, and
Golden Name Plaque

Rare Views of the Eagles' High-rise Home

Once listed as endangered in all lower 48 states, the American Eagle has made a remarkable recovery. This dramatic turnaround has made eagles an internet sensation, with millions viewing them daily on popular "eagle cams." Now "Treetop Majesty" from the Bradford Exchange lets you explore an eagle family's lofty treetop home any time. The limited-edition sculpture is meticulously hand-cast and hand-painted for true-to-life detail. Don't miss this fascinating tribute to an enduring symbol of freedom and its timeless family values.

A Superb Value ... Satisfaction Guaranteed

Act now to reserve your limited edition at just \$59.99*, payable in three installments of \$19.99, the first due before shipment. There's no risk with our 365-day satisfaction guarantee. Send no money now, just return the Reservation Application now!

Shown smaller
than actual height
of 10 inches



Hand-cast and
hand-painted eaglets
are fascinating
from any angle

RESERVATION APPLICATION SEND NO MONEY NOW

THE
BRADFORD EXCHANGE
- COLLECTIBLES -

9345 Milwaukee Avenue · Niles, IL 60714-1393

YES. Please reserve the "Treetop Majesty"
collectible for me as described in this announcement.
Limit: one per order. Please Respond Promptly

Mrs. Mr. Ms.

Name (Please Print Clearly)

Address

City

State

Zip

01-14218-001-E51621

www.bradfordexchange.com/nest

©2011 BGE 01-14218-001-BIR

*Plus a total of \$8.99 shipping and service. Limited-edition presentation restricted to 295 casting days. Please allow 2-4 weeks after initial payment for shipment. Sales subject to product availability and order acceptance.

STATE LIBRARY OF IOWA
1112 E. Grand Ave.
DES MOINES, IA 50319

POLLUTION PREVENTION SERVICES

Iowa Department of Natural Resources



WORKING TOGETHER TO ACHIEVE ECONOMIC AND ENVIRONMENTAL RESULTS



Pollution Prevention Services maintains complete confidentiality while providing non-regulatory assistance at no cost to our clients. For over 20 years, Pollution Prevention Services' team of technical engineers has assisted Iowa businesses and industries by working with facility staff to identify and implement environmental improvement projects, leading to more efficient use of resources and generate cost savings.

YOUR COMPANY IS ELIGIBLE TO WORK WITH POLLUTION PREVENTION SERVICES IF YOU FALL INTO THE FOLLOWING CRITERIA:

Your company employs 100 employees or more. This could include:

- Iowa businesses and industries
- Institutions – hospitals, schools, universities, etc.
- Governmental agencies

Your company employs less than 100 employees, but falls into at least one of the following categories:

- Toxic Release Inventory (TRI) reporter
- Resource Conservation and Recovery Act (RCRA) Large Quantity Generator of hazardous waste
- Large Energy User (greater than \$1 million in energy usage per year)

FOR MORE INFORMATION on Pollution Prevention Services and how we can work together to achieve both company cost savings and pollution prevention improvements call (515) 281-8941 or visit: www.iowaP2services.com