

Insects adapt to cold weather



TIM NOWICKI

Earlier this winter I enjoyed showing people on my trail walk springtails in the snow. These tiny (2-3 mm long) primitive insects can regularly be seen prodding themselves over the snow, you just have to look closely because they are so small.

It's surprising to many that insects can be seen in winter, since they are cold-blooded and cold temperatures typically precludes their activity. But some insects are cold hardy and cold adapted.

Just the other day I spotted a crane fly while out with a group on the trail. This mosquito-like looking insect was able to fly over the snow covered ground as quickly as it would in summer.

A species of stonefly emerges from its aquatic nymph stage in winter as an adaptation to avoid predators. No other insect predators have emerged and bird predators are not likely to find them either.

Their unseasonal emergence and their low numbers help them from becoming prey, because birds are not "tuned in" to eating flying insects this time of year. Even if they did consider eating insects, there numbers would be so low that

it would not be worth their while to search for them.

Some insects are very cold adapted and have been studied by scientists to determine the time of warming that resulted in the receding of the last glacier that covered Canada and the northern states. Just south of the glacier's leading edge the land was like a tundra. Mosses, lichens and small shrubs grew just like the tundra to the far north in Canada today. Climate near the glaciers' edge had a tremendous impact on the surrounding area.

Scientists know from studying the distribution of insect species today, what kind of habitat they prefer to survive in. Certain species require warm temperatures and cannot survive in cold temperatures. Others survive in just the opposite conditions.

By comparing the remains of insect parts found in lake sediments with those of living insects, they can compare when the cold adapted insects left the area and when the warm adapted insects moved into the area.

From these studies it was determined that about 15,000 years ago the climate had changed significantly enough to force the change in insect populations from cold hardy to those that survive under warmer conditions.

In the northern arctic regions of Canada a woolly caterpillar survives the long cold winters where tempera-

tures drop to 40 degrees below zero.

Like most insects that must winter over in cold temperate climates, they produce glycerol in their bodies which prevents the formation of ice crystals inside the body.

If ice crystals form, they do not have pointed tips to puncture the cell wall, which could kill the animal if enough cells were destroyed.

The woolly bear caterpillar seen while walking the trails in fall here in Michigan spends the winter as a caterpillar tucked safely in a crevice or hole.

They, too, must survive cold temperatures, but when they emerge in spring they eat a little and then pupate. A couple weeks after pupation they emerge as an adult feabella tiger moth. Adult moths then lay eggs which hatch and develop into large caterpillars before winter.

An arctic woolly caterpillar does not have much time to eat in summer because the season of warm temperatures is so short. One scientist determined that it takes 14 years for this caterpillar to mature and pupate into an adult moth. That is an extremely old age for an insect. Fortunately, it has developed adaptations that allow it to survive several winters of dormancy.

Keep your eyes open and look carefully for some of these winter insects as you hike the trails.

OUTDOOR CALENDAR

CLASSES

FLY TYING

Point Creek Outfitters in Rochester offers a variety of fly tying classes for beginners and advanced tyers. Call (248) 650-0440 for more information or to make a reservation for an upcoming class.

JUNIOR OLYMPICS

The Oakland County Sportsman Club in Clarkston offers a Junior Olympic Archery Development Program beginning at 1 p.m. on Sundays. Call (248) 623-0444 for more information.

ACTIVITIES

OAKLAND COUNTY SPORTSFISHING ASSOCIATION

The Oakland County Sportfishing Association meets at 7:30 p.m. the third Wednesday of every month at Santia Hall, 1985 Cass Lake Road, Keego Harbor. Call (248) 693-4389 or visit the club's web site at <http://go.to/ocsa> for more information.

DETROIT BOAT SHOW

The 43rd annual Detroit Boat Show concludes today at Cobo Center, featuring more than 6,000 square feet of boating excitement. Show hours today are 12 p.m.-6 p.m. Admission is \$9 for adults and child under the age of 12 get in free if accompanied by an adult.

DETROIT AREA STEELHEADERS

Detroit Area Steelheaders, Inc. membership meetings are held the last Tuesday of each month at Knights of Columbus, St. Pius X, 6177 Chicago Road, in Warren. The public is welcome. More

information can be obtained by calling Ed Wilczek at (810) 757-7365 or club President Ray Banbury at (810) 698-0310.

METRO-WEST STEELHEADERS

Metro-West Steelheaders meets at 7:30 p.m. on the first Tuesday of each month in the cafeteria at Garden City High School. Call Dominic Liparoto at (248) 476-5027 for more information.

MICHIGAN FLY FISHING

The Michigan Fly Fishing Club meets at 7:30 p.m. the first and third Wednesdays of each month at Livonia Clarenceville Middle School, located on Middlebelt Road between Seven and Eight Mile roads. Call (248) 478-1494 for more information.

FOUR SEASONS

The Four Seasons Fishing Club meets 7:30-9:30 p.m. the first Wednesday of each month at the Civic Park Senior Center, 15218 Farmington Road, in Livonia. Call Jim Kudaj at (734) 591-0843 for information.

FISHING BUDDIES

Fishing Buddies Fishing Club meets the third Tuesday of each month in Rochester Hills. Meetings are open to all anglers (boaters and non-boaters). Call (248) 856-0556 for more information.

HURON VALLEY STEELHEADERS

The Huron Valley Steelheaders meets the third Thursday of each month at the Knights of Columbus Hall, 27600 Hall Road, Flat Rock. Call Carroll White at (734) 285-0843 for more information.

BASS ASSOCIATION

The Downriver Bass Association, a non-tournament bass club, meets at 6:30 p.m. the fourth Tuesday of every month at the Gander Mountain in Taylor. Call

(734) 676-2863 for more information.

SOLAR

The School for Outdoor Leadership, Adventure and Recreation (SOLAR), a non-profit organization interested in promoting the appreciation of outdoor activities, meets at 7:30 p.m. on the first Tuesday of each month at the Colony Hall in Southfield. Call (248) 988-8668 for more information.

METROPARKS

METROPARK REQUIREMENTS
Most Metropark programs are free while some require a nominal fee. Advanced registration and a motor vehicle permit are required for all programs. Call the respective parks toll free at the following numbers: Stony Creek, 1-800-477-7768; Indian Springs, 1-800-477-3192; Kensington, 1-800-477-3178; Hudson Mills, 1-800-477-3191.

STAYIN' ALIVE

Learn to be prepared for a wilderness emergency at this class scheduled for Sunday, Feb. 25 at 1 p.m. at the Nature Center of Kensington Metropark near Milford/Brighton. Several aspects of outdoor survival will be covered to make you unexpected stay in the woods more comfortable. For more information or to register, call 1-800-477-3178.

OAKLAND COUNTY

COUNTY PARK REQUIREMENTS
Advanced registration and a motor vehicle permit are required for all nature programs at Oakland County Parks. Call (810) 625-6473 to register or for more information.

PERMITS

The 2001 Oakland County parks motor vehicle permits are now on sale at all county park offices and many parks and recreation and township offices. Cost is \$20 through April 30, 2001. After May 1, 2001, the permit cost will be \$25. All senior citizens (ages 62 and older) can purchase the permit for \$16 at all times. Call (248) 856-0906 or TTY (248) 858-1864.

STATE PARKS

STATE PARK REQUIREMENTS
Maybury State Park, Proud Lake Recreation Area, Bald Mountain Recreation Area, Highland Recreation Area, and Island Lake Recreation Area offer nature interpretive programs throughout the year. A state park motor vehicle permit is required for entry into all state parks and state recreation areas. For registration and additional information on the programs at Maybury call (248) 548-8390. For programs at Bald Mountain call (810) 693-8787. For programs at Proud Lake and Highland call (810) 686-2187. For programs at Island Lake call (810) 229-7087.

WAYNE COUNTY

COUNTY PARK REQUIREMENTS
Wayne County Parks offers nature interpretive programs throughout the year. Advanced registration is requested. Call (734) 261-1990 to register and for more information.

SPORTS SIGNUPS

ADULT HOCKEY SIGNUP

The Farmington Hills Adult Hockey Association is registering teams for its spring season, which begins Sunday, March 25. Teams entries are being accepted for the over-18 and over-30 age groups. The fee is \$2,600 per team, which is reduced to \$2,500 if received by Feb. 20.

Players must register individually for the over-40 division. There will be a player draft. The fee is \$275 per player.

Checks or money orders should be payable to the Farmington Hills Adult Hockey Association and mailed to P.O. Box 3367, Farmington Hills, MI 48335.

To register call the FHAAH at (248) 471-8004, leave a message and wait for a return call.

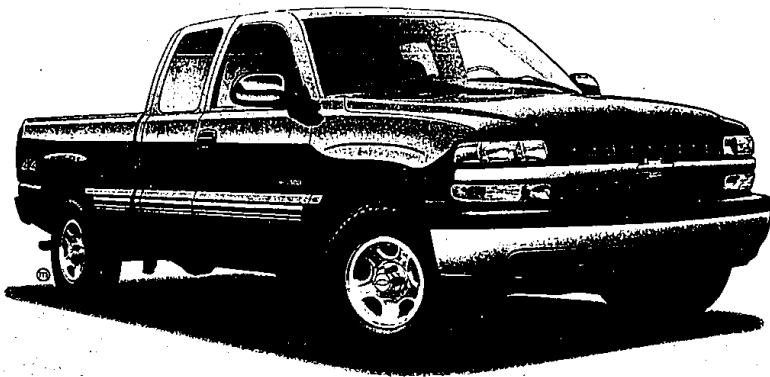
ADULT SOFTBALL SIGNUP

The City of Farmington Hills is accepting new adult team registration for men's, women's and coed softball.

Registration is based on a first-come, first-served basis. Leagues will play one night per week. For fees and information call the recreation department at (248) 473-9670.

Your First Job Is To Haul Away The Cash.

(Right now, buy or lease a 2001 Chevy Silverado 1/2-ton Extended Cab pickup, and you can haul away \$1,000 Cash Back. But hurry, this offer ends February 28.)



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