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An invasive paper wasp may be stymying the efforts of urban gardeners to rebuild monarch butterfly habitats, according to recent research by University of Kentucky entomologists.

Adam Baker, UK doctoral student, and Dr. Daniel Potter, UK entomology professor, found *Polistes dominula*, more commonly known as the European paper wasp, preying on monarch larvae on milkweed plants in urban pollinator gardens. The wasp was accidentally introduced in the U.S. in the 1970s and is well established throughout the country, particularly in urban areas.

"Only about 5% to 10% of monarchs make it from egg to adulthood. While some of their mortality is due to host plant defenses, far more is likely due to natural enemies preying on them,"

UK entomologists find invasive paper wasps are preying on the Monarch Butterfly larvae

Baker said. "In our study, *Polistes dominula* was the most common wasp seen hunting caterpillars in Central Kentucky gardens. We think it may be a game-changer for urban monarch conservation."

The UK College of Agriculture, Food and Environment entomologists observed the outcomes of 120 encounters between the paper wasps and various sizes of monarch larvae. The wasps killed most of the smaller larvae, carrying them off whole or cutting them into pieces before flying off to feed them to their developing young. In contrast, most large monarch caterpillars were able to escape the wasps by thrashing or dropping off the plant.

In the study, wasps were far more likely to prey on monarch larvae in urban gardens than in rural habitats bordered by woodlots. The entomologists suspect this is likely due to the urban gardens' close proximity to buildings. The wasp prefers to build its nests under eaves, in cavities or other sheltered places in or around human-built structures.

Their study also showed that ornamental butterfly boxes, which



Invasive paper wasps preying on Monarch Butterfly larvae. (UK College of Agriculture photo)

well-meaning gardeners put up in the hopes of providing shelter for butterflies and to add aesthetic interest to gardens, may be inadvertently attracting the wasps.

"We found active wasp nests in 16 of 22 boxes in the six urban gardens we surveyed, but we saw no signs of butterflies using the boxes," Baker said.

The entomologists also suspect that wasps could be attracted to other wooden structures commonly found in or near gardens, such as birdhouses.

According to UK entomologists, people interested in gardening for monarchs and other butterflies can reduce losses to wasp predation by repairing or securing any structures near gardens

that might be attractive nesting sites. If wasp nests are found, gardeners can spot treat them using wasp or hornet spray or have a professional do so.

The study was recently published in the academic journal, *Scientific Reports*. It is available for free, online at <https://www.nature.com/articles/s41598-020-66621-6>.

For more information, contact the Estill County Cooperative Extension at 76 Golden Court off Stacy Lane. Our telephone number is 723-4557.

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Wishing Well®

3	4	6	7	6	8	5	7	4	6	7	4	2
D	B	C	B	H	S	B	E	E	E	G	C	L
6	5	6	7	5	6	5	6	3	4	3	8	7
R	E	I	O	A	S	L	H	O	H	Y	O	O
4	6	5	7	3	7	8	2	8	7	3	6	4
O	Y	E	D	O	T	L	O	I	O	U	O	O
7	6	8	5	6	2	6	3	4	8	3	5	3
Y	U	T	R	R	V	F	R	S	U	V	T	E
2	8	3	2	6	8	7	3	2	6	4	6	7
E	D	R	O	R	E	O	Y	F	I	Y	E	U
8	7	6	3	8	2	3	6	8	2	3	6	3
I	R	N	B	S	R	E	D	O	E	S	S	T
8	2	8	2	8	7	2	7	2	7	2	7	2
K	S	A	E	Y	S	A	E	R	L	C	F	H

HERE IS A PLEASANT LITTLE GAME that will give you a message every day. It's a numerical puzzle designed to spell out your fortune. Count the letters in your first name. If the number of letters is 6 or more, subtract 4. If the number is less than 6, add 3. The result is your key number. Start at the upper left-hand corner and check one of your key numbers, left to right. Then read the message the letters under the checked figures give you.

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CryptoQuip

This is a simple substitution cipher in which each letter used stands for another. If you think that X equals O, it will equal O throughout the puzzle. Solution is accomplished by trial and error.

Clue: D equals O

KGT HNWFT DS CGWMQYTC GLC
TCFLYLKTP NLHWPYI. IDE FDEYP CLI
WK'C QDWMQ KGNDEQG KGT NDDS.

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CryptoQuote

AXYDLBAAXR
is LONGFELLOW

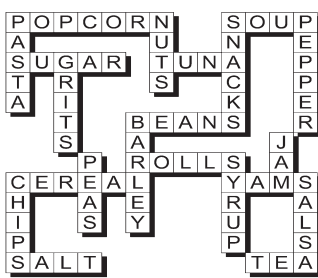
One letter stands for another. In this sample, A is used for the three L's, X for the two O's, etc. Single letters, apostrophes, the length and formation of the words are all hints. Each week the code letters are different.

YT LJHOJ UL NO SGKKD
LTOREOP YU YR TOQORRGJD
UL FGVO GU EGRU LTO
LUSOJ KOJRLT SGKKD.
— USOLHLJ JOYV

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Puzzle Answers June 24, 2020

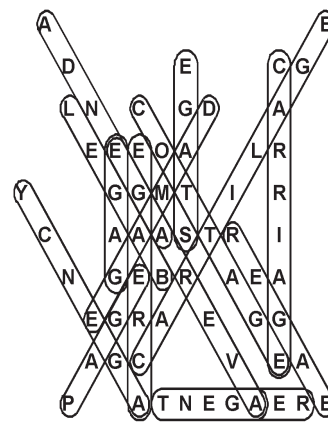
Puzzles4Kids



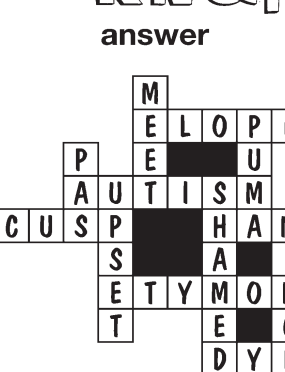
Weekly SUDOKU

3	9	8	2	4	1	7	5	6
2	7	6	9	3	5	8	1	4
1	4	5	7	8	6	2	9	3
7	6	9	4	1	3	5	8	2
8	2	3	5	6	7	9	4	1
4	5	1	8	9	2	6	3	7
6	8	7	3	5	4	1	2	9
5	1	4	6	2	9	3	7	8
9	3	2	1	7	8	4	6	5

WELL-AGED WORDS



FEAR & KNIGHT



Even Exchange

- answers
- Adom, Acom
 - Listen, Liston
 - Baker, Biker
 - Tiber, Tibet
 - Humble, Hubble
 - Tower, Towel
 - Cairo, Caim
 - Inland, Island
 - Wizard, Lizard
 - Broad, Bread

King Crossword



Letter Box

Solution

R	T	H	F	A	C	U	B	E
C	E	A	H	U	B	F	T	R
B	U	F	T	E	R	C	A	H
T	H	E	A	C	F	B	R	U
U	F	R	B	T	H	E	C	A
A	B	C	E	R	U	H	F	T
H	C	U	R	B	T	A	E	F
F	A	T	C	H	E	R	U	B
E	R	B	U	F	A	T	H	C

CryptoQuip

answer
The price of shingles has escalated rapidly. You could say it's going through the roof.

CryptoQuote

answer
In order to be happy oneself it is necessary to make at least one other person happy.
— Theodor Reik

Bible Trivia Answers

"Test Your Bible Knowledge," with 1,206 multiple-choice questions by columnist Wilson Casey, is available in bookstores and online.

ANSWERS (1) New; (2) Jacob; (3) Aaron; (4) Shechem; (5) Pharaoh; (6) Tent door

June 22-28, 2020

pollinator WEEK

www.pollinator.org

Celebrate Pollinator Week

Pollinator Partnership is proud to announce that June 22-28, 2020, has been designated National Pollinator Week!

National Pollinator Week is a time to celebrate pollinators and spread the word about what you can do to protect them.

Thirteen years ago, the US Senate's unanimous approval and designation of a week in June as "National Pollinator Week" marked a necessary step toward addressing the urgent issue of declining pollinator populations. Pollinator Week has grown into an international celebration of the valuable ecosystem services provided by bees, birds, butterflies, bats, and beetles.

Pollinator Week was initiated and is managed by Pollinator Partnership. See <www.pollinator.org/pollinator-week> for more information.

The Garden Bug

Evaluate whether the plantings on your property are in good **balance** with all the structures and surrounding features. Prune back where it's needed. Keep windows and doorways clear; accent your walkways and doors.

BEFORE

AFTER

— Brenda Weaver

Birding BITS

BY Cindy Brook

Bird Observation

A brown thrasher pair comes to my tray feeder. They toss sunflower chips on the ground, which is where they prefer to eat, and are very bossy, chasing off all the doves. They sometimes use all three of my birdbaths for a single bath!

E-mail: birdingbits@cfl.rr.com
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TIGER

by BUD BLAKE

HERE IT COMES, TIGER
HERE COMES MY FASTBALL
POW
HERE COMES MY CURVE
POW
HERE COMES MY KNUCKLER
POW
HERE COMES MY RESIGNATION!