



Earn your degree online

LEARN MORE



The Washington Times

Advertise [Subscribe](#)

Search

- Site Map
- Front Page
- Nation/Politics
- World
- Commentary
- Editorials/Op-Ed
- Metropolitan
- Sports
- Business
- Special Reports
- Special Series
- Technology
- Entertainment
- Books
- Food
- Wash. Weekend
- Travel
- Family Times
- Culture, etc.
- Civil War
- Weather
- Corrections
- Photo Gallery
- TWT Insider
- Stock Quotes
- Enter Symbol
- Symbol Lookup
- Classifieds
- Home Guide
- Auto Weekend
- Employment
- Health
- Services Directory
- Market Place
- Tourist Guide
- Holiday Gift Guide
- International Reports
- Archive
- Subscription Services
- Advertise

United Press International

Nation/Politics World Commentary Classifieds

January 27, 2005

Washington
D.C. **CLOUDY 89°**
F

Advertising ▾

Blue Planet: The 'Age of Insects'

By Dan Whipple
UNITED PRESS INTERNATIONAL

Boulder, CO, Jan. 26 (UPI) -- The modern era of animals usually is called the Age of Mammals, but any objective tallying of the score would have to change that designation to the Age of Insects.

Only £14.99 a month
when you take a phone line

Altogether better value

Insects are among the most numerous and successful of creatures. According to the 1995 paper, "Assessing Extinction Rates," by Oxford University zoologist Robert May and colleagues, despite the onslaught waged against them almost since there have been humans, insects have managed to avoid the disappearing fate that has befallen so many other fauna.

There are perhaps a million different species of taxonomic Class Insecta. Only 61 of them have been declared extinct since 1600 -- which approximately is how far back modern science can track such things -- a rate of 0.006 percent. A little less than 900 insect species are even currently threatened, according to the Red Book by the IUCN -- the World Conservation Union -- for a rate of 0.09 percent.

Compared to the IUCN "threatened" rate of about 11 percent for mammals and birds and

UPI PERSPECTIVES

- Bad day for U.S. forces in Iraq
- Bankers: Some home prices may fall
- Digital divide shortchanged, advocates say
- Brazil appealing for abuction assistance
- Has U.S. given enough tsunami aid?
- Israeli-Palestinian talks resume
- U.N.: Tsunami operations move to recovery
- ACLU supports Sibel Edmonds in FBI case
- Cat and mouse game over Iran
- Lanka still suffers a month after Tsunami
- Some Iraq troops responsible but not ready
- Commentary: Auschwitz and grace
- China commutes monk's death sentence
- UPI Energy Watch
- Blue Planet: The 'Age of Insects'
- Commentary: Bush as King Canute
- Analysis: Perry draws fire on schools
- Analysis: Dem opposition impact minimal
- Analysis: U.S. ready for OPEC's next move
- Analysis: Bush clarifies vision of liberty

BUY it

Harry Potter
the Half Blood Prince

\$15.99

shop2deal

BUY it • BID it • GRAB it

FREE MINUTES

Low Cost Lending is
FREE and you have no obligation

DEBT RELIEF SAFE

cut your debt by upto
50% tomorrow

FEATURE
MARKETPLACE

For The Home

Electronics / Computers

Education

Health

Entertainment

Today's Newspaper Ad

About TWT
Contact Us
TWT Gift Shop
Insight Magazine
The World & I
National Weekly
Middle East Times
Tiempos del Mundo
Segye Ilbo
Segye Times USA
Chongyohak Shinmun
Sekai Nippo
Wash. Golf Monthly
World Peace Herald
Times Color Graphics

33 percent for some kinds of plants, it seems clear insect will be able to withstand the threats of extinction for much, much longer.

One reason for this success is they have developed virtually every method of evolutionary adaptation to insure their survival, including some that eerily echo human behavior -- especially ants.

Ants have been around for 100 million years and their species number more than 10,000. They inhabit almost every livable corner of the planet. They also take slaves, fight wars, build highways, practice agriculture and police their societies.

A recent study of harvester ants, by biologist Sara Helms Cahan and colleagues at the University of Vermont, has shown a remarkable blurring of the lines of what makes a species. Two different harvester varieties have been shown to interbreed to create sterile hybrid workers for both species. They have developed such a hard-wired genetic mechanism that "pure-lineage eggs failed to develop into workers even when interlineage brood were not present," they wrote in the Dec. 31 issue of Current Biology.

Helms Cahan's group discovered that both of the species involved have effectively given up the ability to produce pure-species workers in favor of the hybrids, thereby becoming completely dependent on one another for survival.

One of the first things they teach you in Evolution 101 is hybrids are usually deleterious to a species. Despite the introduction of "hybrid vigor" in managed species such as dogs, cats and cattle, when genes mutate in nature, those mutations almost always are fatal, whether in the short-term or long-term. It is the occasional successful mutation, acted upon by natural selection, that allows evolution.

"Any genetic change for random mutation -- that's overwhelmingly negative," Helms Cahan told UPI's Blue Planet. "Something that's never been tested by nature, but here we have two complexes of genes that have encountered the environment before."

The genetic assortment is not random, she continued. "They are combining genes that might add up together. They are adapted to work within their own community of genes. Here we have two separate gene pools that interbreed to produce workers. In every

generation, the genes meet each other, but never get a chance to recombine."

The only other such case known is a species of fire ant in Texas, Helms Cahan said. There may be other cases of successful hybridization in nature, but what this means is hybridization between species is much more important than we would have thought.

"We've always thought of evolution (as) being species dividing from one another," she said, "but they often come back together. This can produce incredible novelty. It's been known in plants, but in animals it's been discounted as an important force."

In addition to this anomalous hybridization behavior, ants and other eusocial insects, as they are called -- primarily bees and wasps -- recently have offered their advice on policing in human societies.

One way eusocial insects ensure order in their colonies is by making certain only one of their number grows up to be the reproducing queen.

"Social insects have several methods of policing," said Francis Ratnieks and Tom Wenseleers -- at the University of Sheffield in England and the Institute of Advanced Study in Berlin, respectively -- in the Jan. 7 issue of the journal *Science*.

"The best known is 'worker policing,' whereby workers kill eggs laid by other workers."

Ratnieks and Wenseleers say the lessons from social insects may have applications to human societies. "By showing that individuals are less likely to exploit society when policing is more effective," they wrote, "studies of insects indicate that effective policing can induce individuals to act in ways there are better for society."

In insect societies, Ratnieks and Wenseleers continued, this means policing consolidates the basic inequality between queens and workers, while policing in human societies has been used by repressive regimes to sustain inequalities -- and has generated the negative connotation of the phrase, police state.

"A human police state, in which policing is used to promote greater equality and justice, is not an unattractive prospect," they said.

--

Blue Planet is a weekly series examining the relationship of humans to the environment, by

veteran environmental reporter Dan Whipple.
E-mail sciencemail@upi.com



[Want to use this article? Click here for options!](#)
Copyright 2005 United Press International

All site contents copyright © 2005 News World Communications, Inc.
[Privacy Policy](#)