

a voice
for the natural
landscaping
movement



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The Grapevine

By Maryann Whitman

Welcome to the Anthropocene

The classic presentation of the biomes of the Earth, as seen in all our current ecology texts, has been based on abiotic environmental conditions, like climate, and the productivity of the dominant vegetation. The eight major biomes have been: Tropical Rainforest, Tropical Savanna, Desert, Chaparral, Grassland, Temperate Deciduous Forest, Temperate Boreal Forest, and Arctic and Alpine Tundra.

In the December 13, 2007, issue of *Frontiers in Ecology and the Environment*, the peer-reviewed publication of the Ecological Society of America, a new way of looking at our planet was presented. Global data from satellites and land management statistics were used to map a new system of "anthropogenic biomes," "anthromes," or "human biomes" that describe the biosphere as it exists today, the result of human reshaping of ecosystems.

Anthropogenic biomes are not simple vegetation or climatic categories, and are best characterized as heterogeneous landscape mosaics combining a variety of different land uses and land covers. The major anthropogenic biomes suggested are: Dense Settlements, built environments, very high populations; Villages, agricultural settlements (>100 persons km²); Croplands, Crops Mixed With Other Uses, Rangelands, grazing, minimal crops & forests; Forested, forests with humans & agriculture; Wildlands, without humans or agriculture.

This publication may well spur a paradigm shift in approaches to conservation, restoration of "natural areas" and concerns for biodiversity. The Wild Ones' approach to natural landscaping will surely find a comfortable niche. (See the article in *Frontiers in Ecology and the Environment*, available at www.ecotope.org/people/ellis/papers/ellis_2008.pdf.)

Population

Consider this: Last year a human-like fossil was found in the mountains of northern Spain that is thought to represent the last common ancestor of Neanderthals and modern man. The new fossil, tentatively classified as *Homo antecessor* (Pioneer Man), was determined to be 1.3 million years old. By the year 500 BCE, the population of genus *Homo* was estimated to be 100 million. Around 1835 there were 1 billion of us. In 1960 there were 3 billion. And in January, 2008, the population of the planet was estimated at 6.778 billion.

Bugging bees

Scientists at Queen Mary, University of London, are bugging bees – with minuscule tracking gear to better understand these brainy bugs.

Biologist Nigel Raine said, "Bumblebees have a relatively small brain – they have about 950,000 brain cells, humans have 100 billion – but they can achieve rather impressive feats of learning and memory given what they have got."

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Recent research has revealed that bees are able to recognize individual human faces, which, according to Dr. Raine, is not that surprising given the daily challenges they face while foraging.

He explained, "When you think about your average park or meadow, there might be dozens of species of flowers which are all different in terms of color and shape and scent, and they are all differing in the rewards they are providing.

"Ultimately, the bees' job is to go and find the best rewards from these flowers, and they have to be flexible and learn and remember information, all the while making and breaking associations. This is all really quite complicated."

Their navigational skills are impressive, too. "These tiny animals leave their nests, fly back and forth between flowers, then they are somehow able to add all of these vectors together and fly back to their nest in a straight line," said Dr. Raine.

In the wild, bees will often visit flowers in a sequence that they repeat time and time again.

This makes sense biologically," explained Dr. Raine. "If you take the nectar out of the flowers, they will begin to refill, so you do not want to visit that flower again until it is as full up as possible." But what is really clever, he adds, is that the bees will work out shortcuts so that they can create the shortest, most efficient journey possible.

"We are really interested to see how they form these routes – we call them "traplines" – and we are using technology to help us to understand how the bees are performing these feats of spatial learning."

Bees around Europe have suffered a huge drop in numbers in recent years: three species in the UK have recently become extinct; another eight are in serious decline.

Scientists believe that habitat degradation around their nesting and foraging sites could be to blame.

Dr. Raine said, "In terms of biodiversity, bumblebees are hugely important pollinators, yet most species are becoming increasingly rare.

"Understanding the differences in how they actually forage is very important for aiding conservation."

It's a weird and wonderful world

Scientists at Georgetown University have demonstrated that learning and memory in butterfly caterpillars is not only possible, but that these memories are retained by the butterfly after metamorphosis. Metamorphosis is that poorly understood period of life when a caterpillar enters into a pupa or chrysalis phase and emerges a winged butterfly. What happens in the chrysalis is even more mysterious than what happens to Superman in the phone booth. That memories survive this "molecular soup" stage is just as stunning.

Conservation applications of this discovery easily progress into the arena of science fiction.

Maryann is Editor of the Wild Ones Journal, and comes to the position with an extensive background in environmental matters of all kinds.