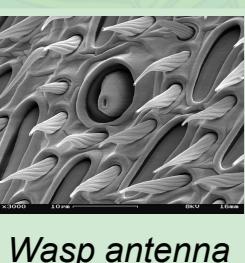
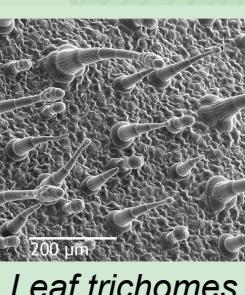
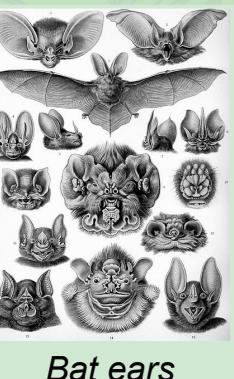


**Antennas**, to simplify one definition, transmit by converting electrical currents into electromagnetic waves. They receive by converting electromagnetic waves back into electrical currents. They can function in air, space, under water or other liquid, and even through solid matter for limited distances. Every antenna has specific characteristics that determine the signal's range and radiation pattern or shape.

(Paraphrased from Banner Engineering)

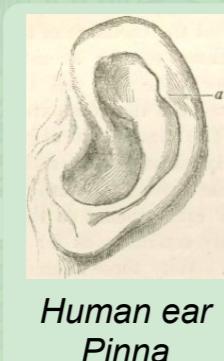
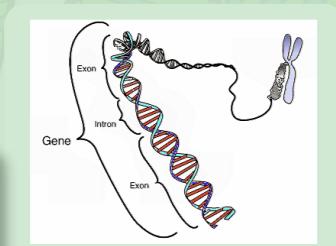
Nature has evolved wonderful antenna systems on many scales, throughout her biodiverse kingdom, from entire organisms down to molecular structures.

This map can only introduce the topic of natural, living antennas. There is so much yet to learn about them, and yet we have jumped ahead of ourselves by developing powerful technologies which may well disrupt them.



## LIVING ANTENNAS:

**Photosensitive molecules**  
Nucleic acids, proteins  
**Interfacial water of living systems**  
**Cellular organelles**  
Single cells  
Hairs, cilia, trichomes  
Sensory organs  
Structures: head, spine  
Heart, nervous system, brain  
Entire organism, animal, plant

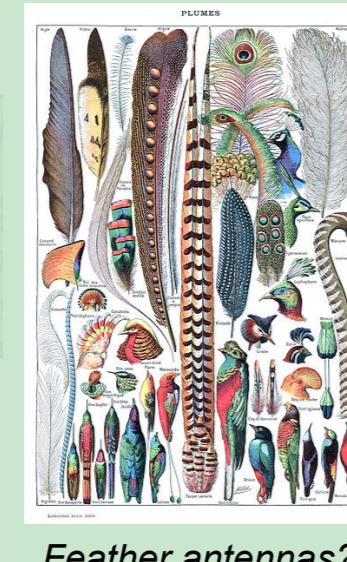


**PHIL CALLAHAN (P. 27):  
INSECTS AND THE  
BATTLE OF THE BEAMS**

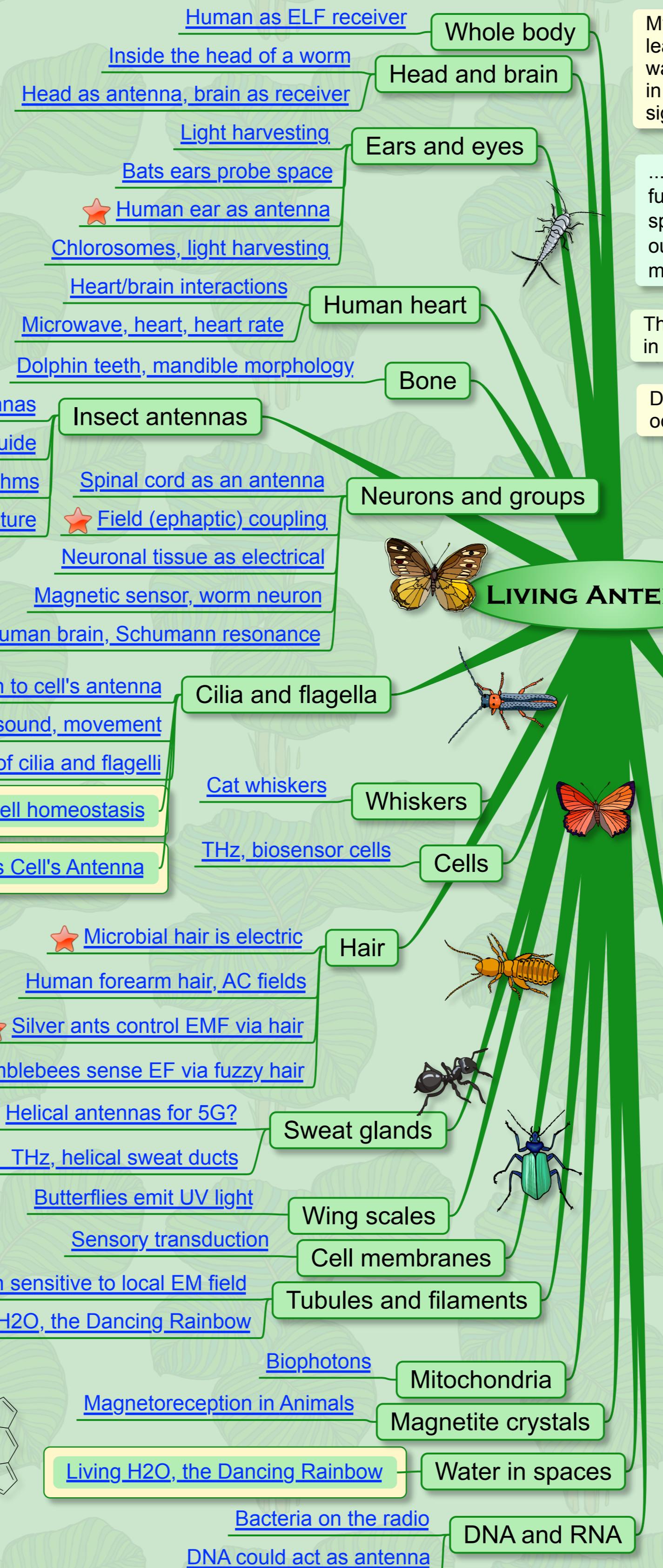
**RADIOBIO:  
DARPA TO RESEARCH  
NATURAL ANTENNAS**

**RELATED MAPS:  
NATURAL AND UNNATURAL  
EMF**

Magnetite  
Cryptochrome  
Environment  
EMF and Birds  
Living Systems  
EMF, Trees, Plants  
DNA is a Fractal Antenna  
Marine and Freshwater Life



Feather antennas?



My experiments indicate the hairs on the leaves of plants are really dielectric waveguide-antennae for collecting energy in the form of infrared or microwave signals from the Sun. [Philip Callahan](#)

It is not a joke nor a scientific curiosity, this strange discovery of Gen. George O. Squire, Chief Signal Officer, that trees --- all trees, of all kinds and all heights, growing anywhere --- are nature's own wireless towers and antenna combined. [Tree Antennas](#)

...water provides the electrons and protons to fuel the photosynthesis-respiration dynamo that spins inanimate molecules into living organisms out of pure sunlight. Water is truly the medium, message and means of life. [Mae-Wan Ho](#)

The sun has millions of narrowband radiating emissions in all portions of the spectrum. [Philip Callahan](#)

DNA signaling is stimulated by 7 Hz naturally occurring waves on earth. [L. Montagnier](#)

Home: [Oscillatorium](#)  
Newest version [this map](#)  
Date of this update: 08-04-19

Plants  
Deep sea sponge  
Electro-horticulture



Trees  
Tree Magic  
Tree Antennas  
Trees as antennas  
The "Tree Antenna"  
Tree emissions, nearby source

Leaf pigments: Molecular antennas  
Why the forests are green  
Geometric shape as antenna  
Natural antenna complexes

Patterns in Nature  
Insects and Infrared  
Secret EM Life of Plants  
Books by Philip Callahan  
Radio signals of natural origin  
Bioelectricity, healing in nature  
Electrostatic forces in insect world  
Arrange solar panels like tree leaves  
Nature's Nonlinear Optical Antennas  
Similarities, plant antenna, animal proteins

