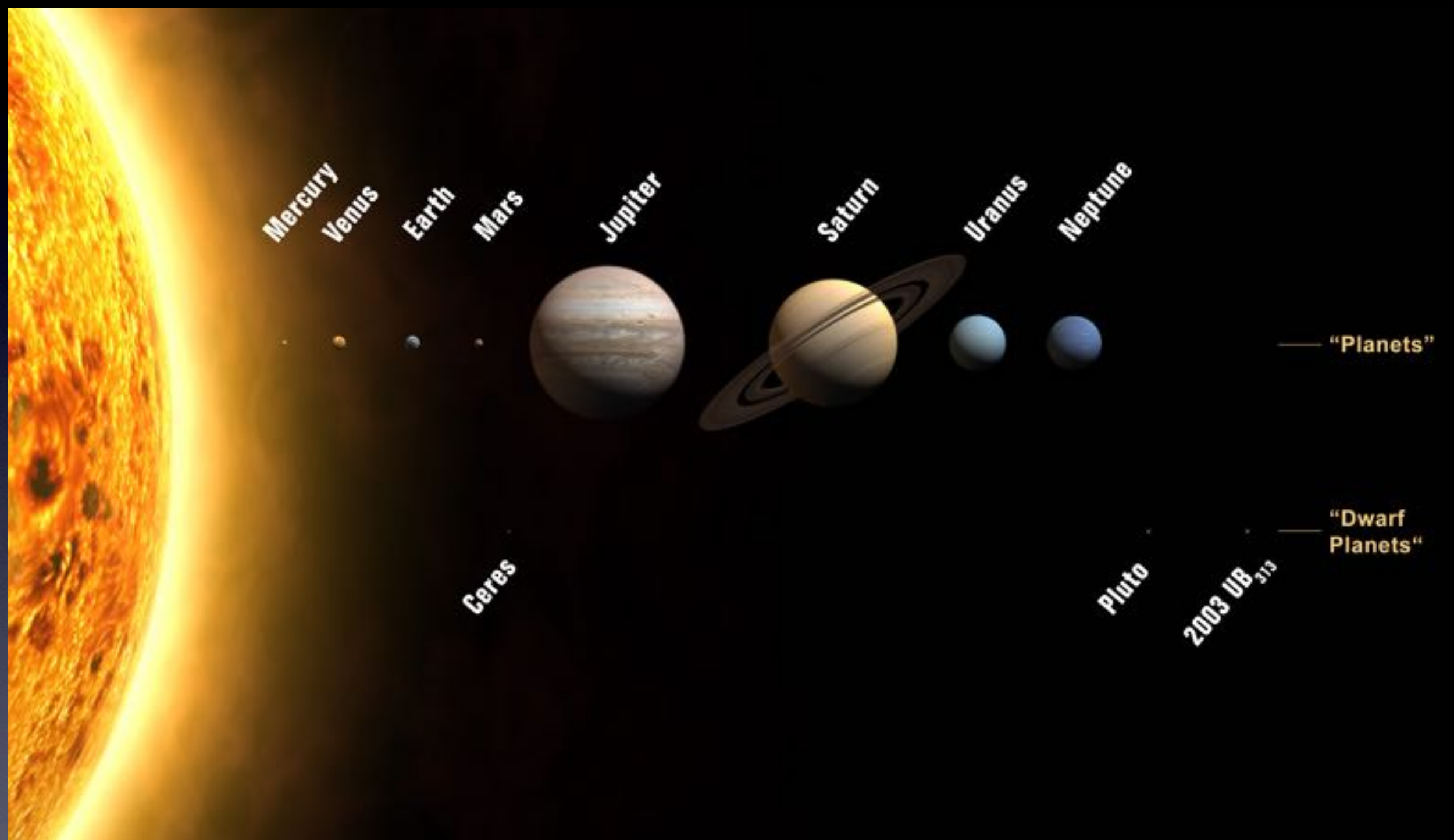




Bioregional Economies

Andrew Faust

www.permaculturenewyork.com



Well designed civilizations are
adapted to the earth and the sun.



Inspiration from ancient civilizations.



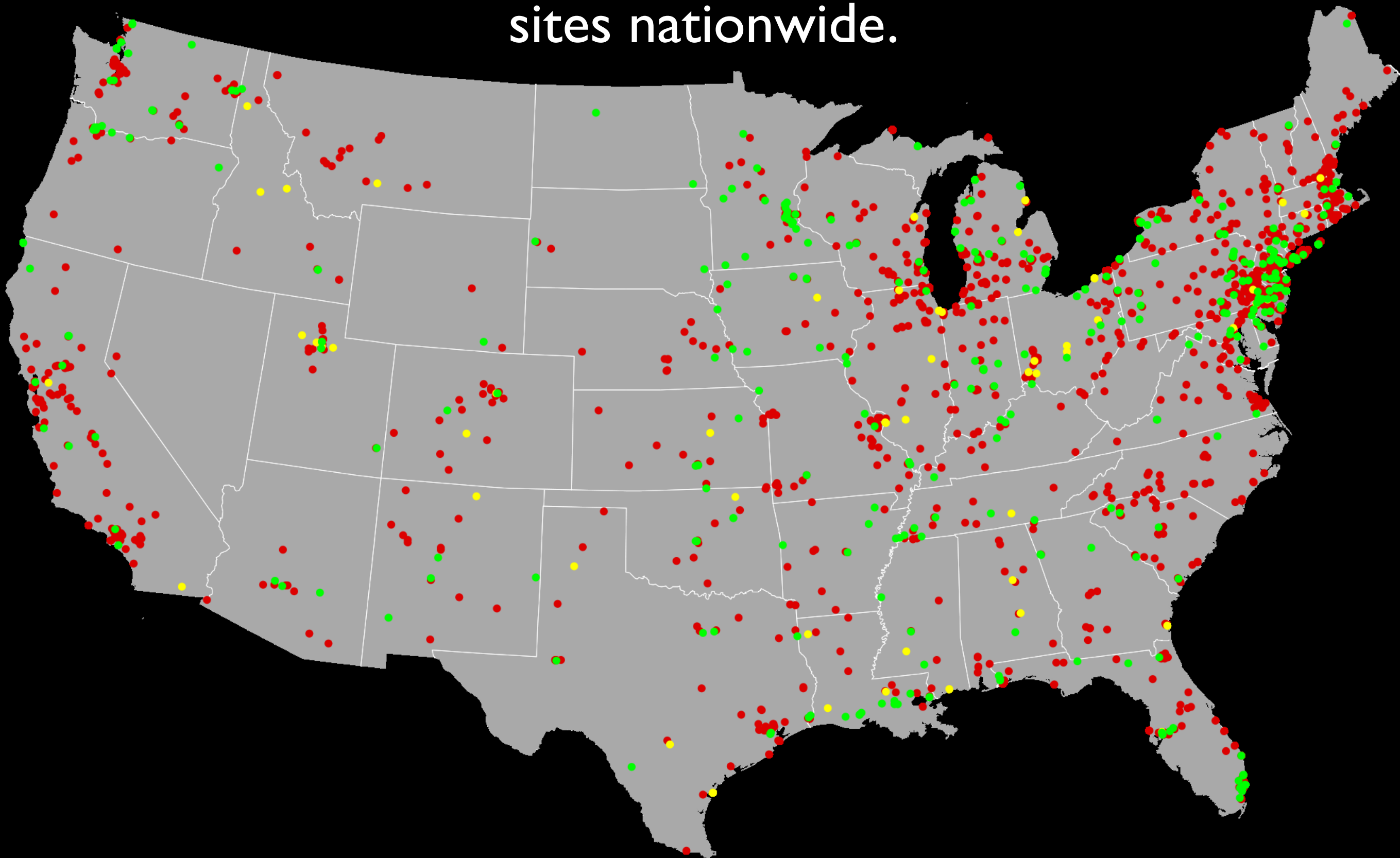
” The world needs a paradigm shift in agricultural development: from a “green revolution” to an “ecological intensification” approach.



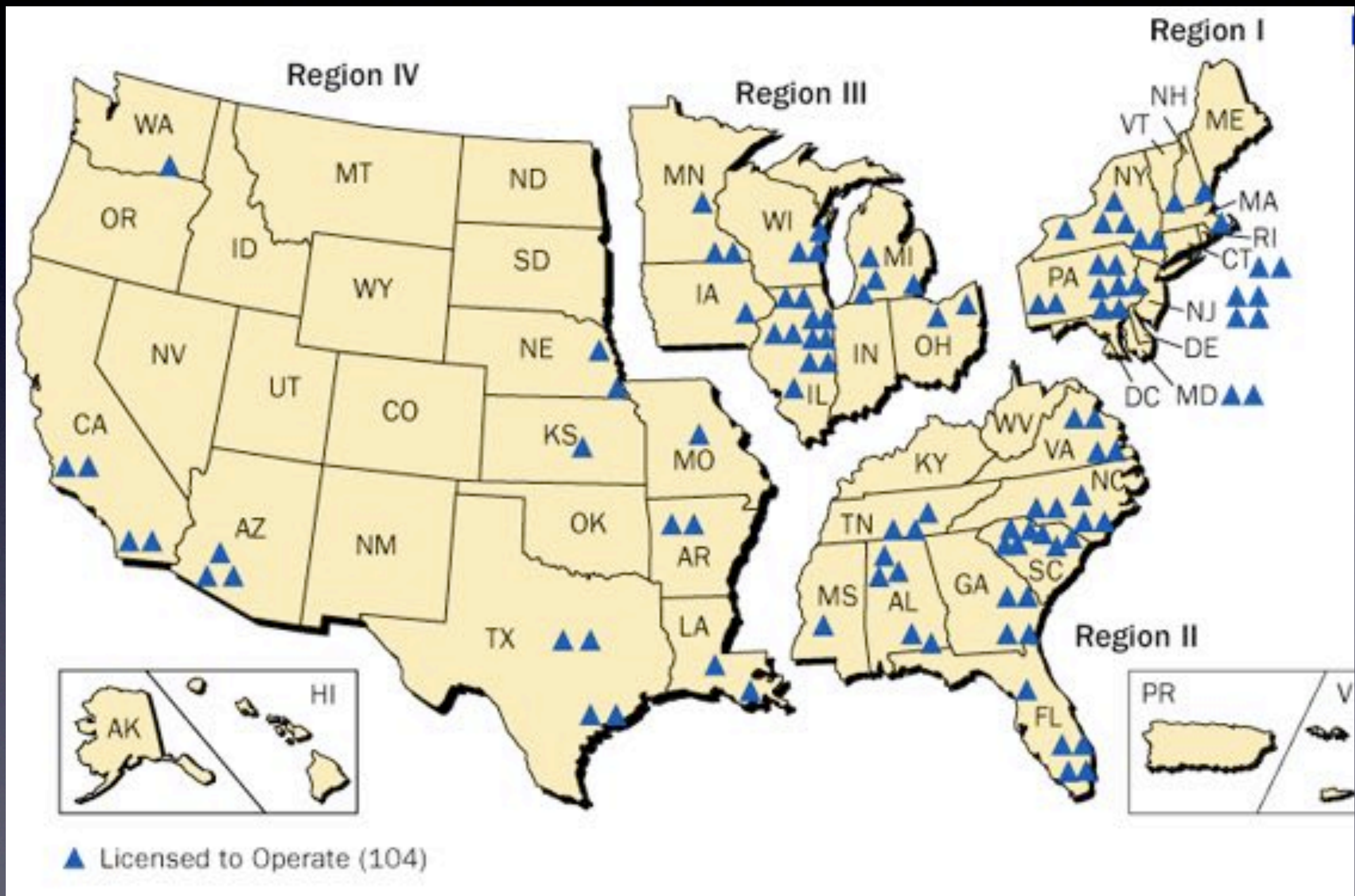
The required transformation is much more profound than simply tweaking the existing industrial agricultural system.



According to the E.P.A. there
are 12,226 toxic superfund
sites nationwide.



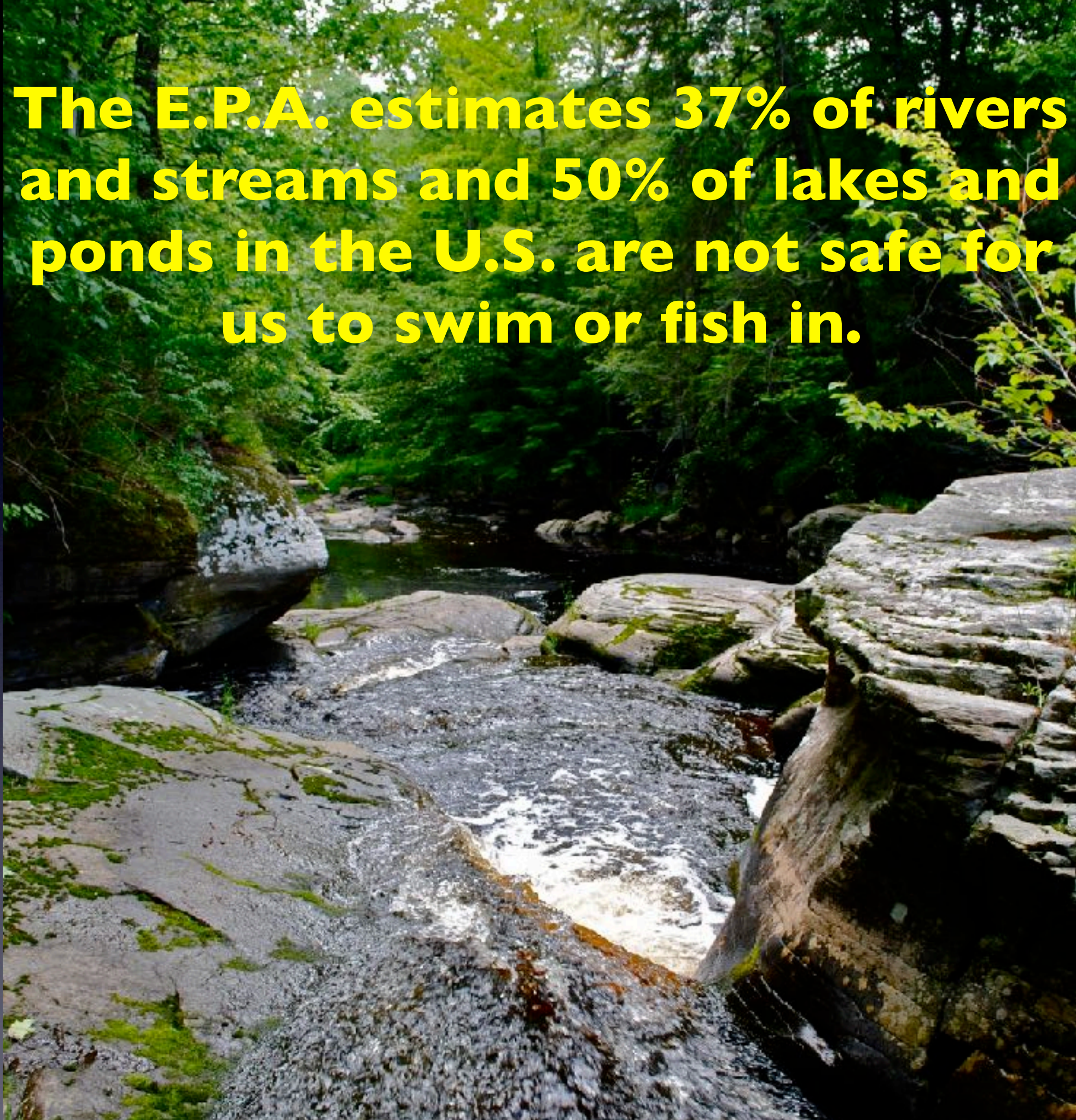
All the nuclear power plants in the U.S. are
at full capacity for waste storage with no
place to safely dispose of it.



Outdated behemoth's, relics
leftover from from the
nuclear weapons economy.



The E.P.A. estimates 37% of rivers and streams and 50% of lakes and ponds in the U.S. are not safe for us to swim or fish in.



**Adapting agriculture to
topography and water.**



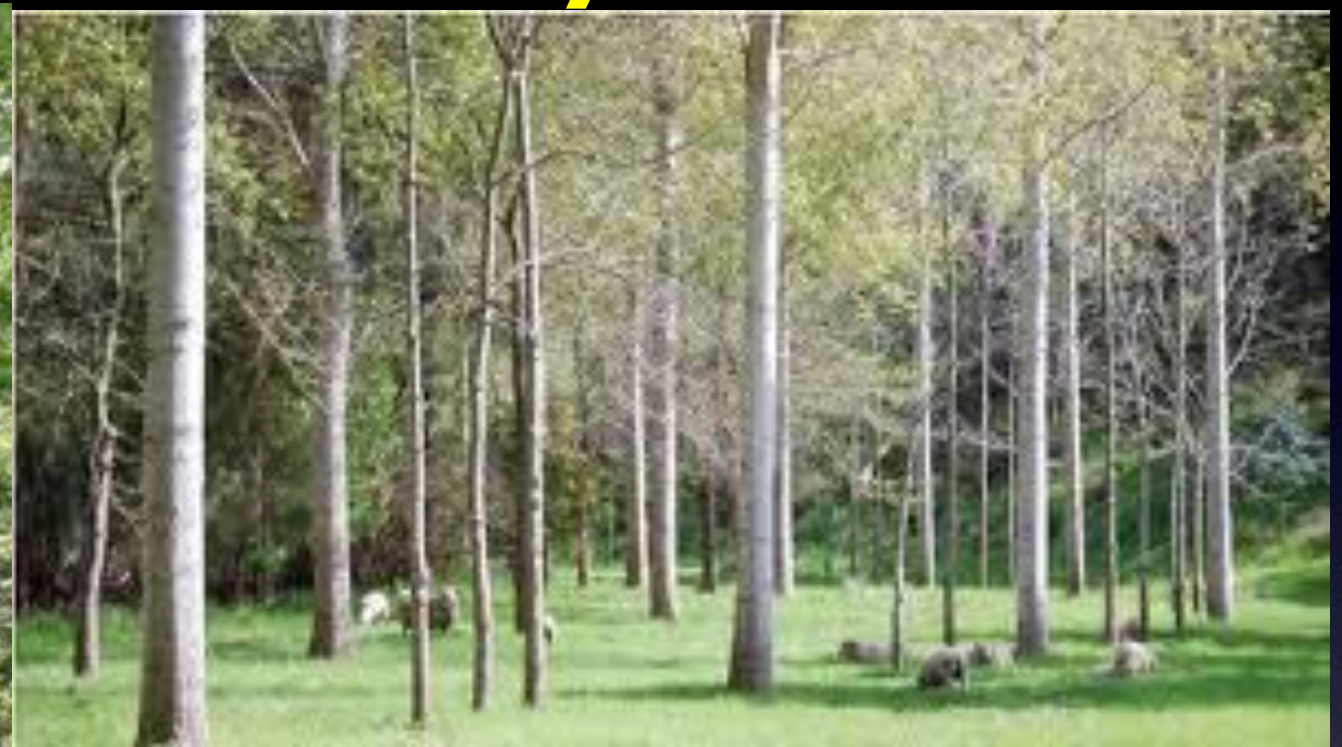
A photograph of a rural landscape. In the foreground, a green field with a wire fence contains several goats. A large tree with green leaves is on the right, and another tree is on the left. In the background, there are rolling green hills and a barn with a blue roof. The sky is overcast.

**Creating diverse productive farms for
a solid foundation of our civilization.**

We can use fossil fuel powered machines to increase biodiversity and food yields in ecologically restorative ways.



Combining livestock with nut trees in restored ecosystems.



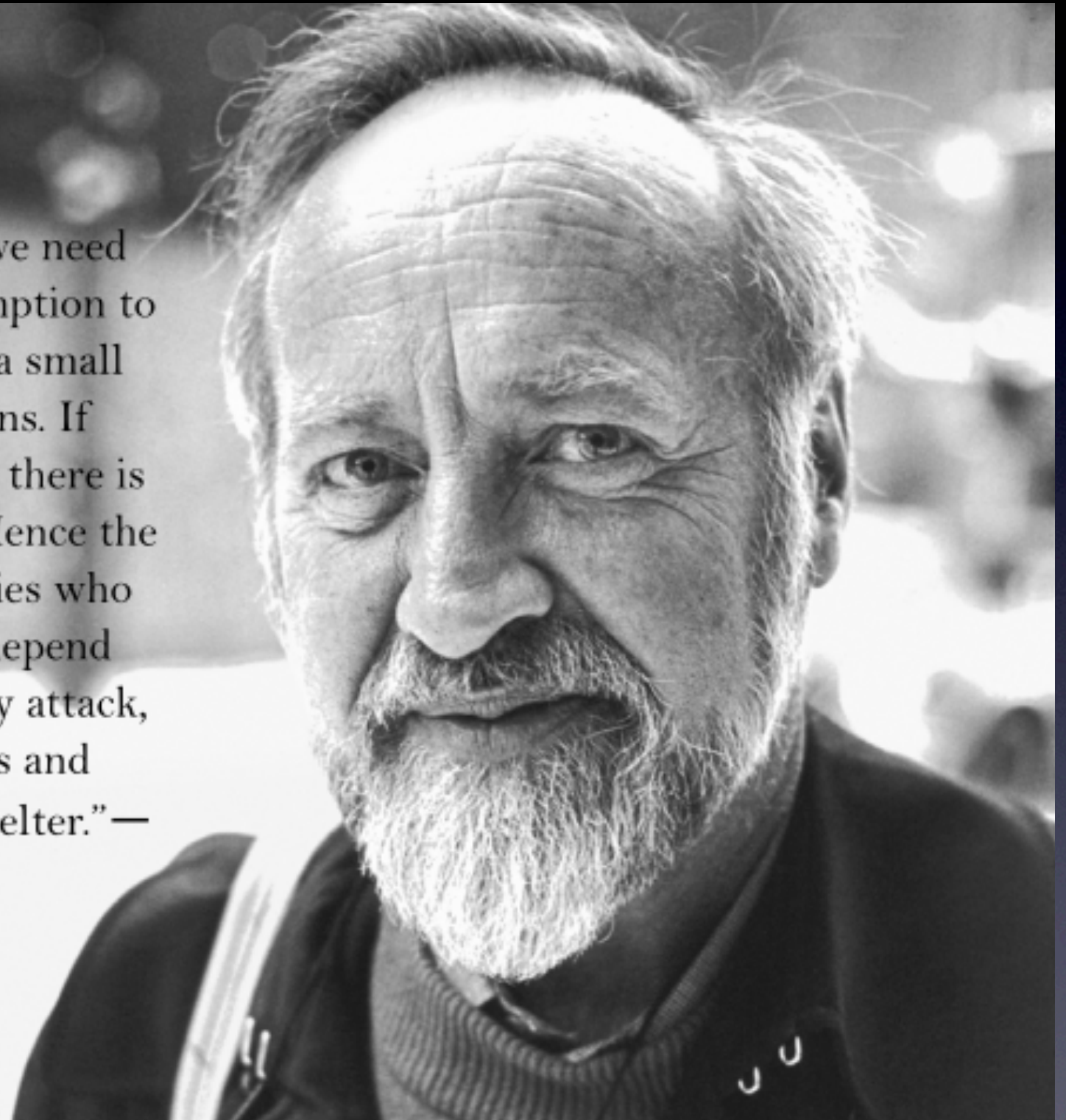
Each place on
the earth has
unique geologies
and geographies
that we need to
adapt to.



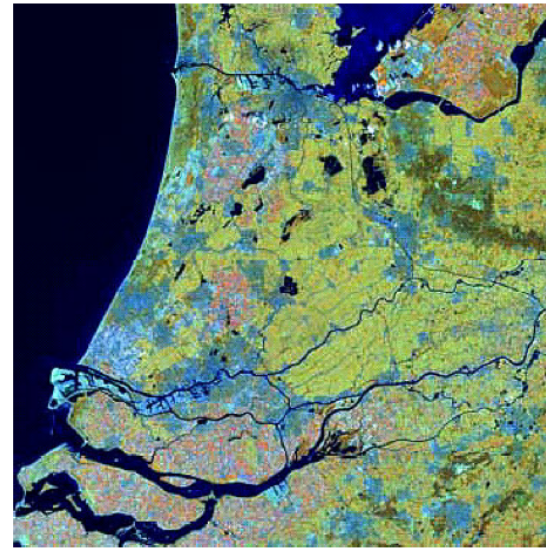
“The greatest change we need to make is from consumption to production, even if on a small scale, in our own gardens. If only 10% of us do this, there is enough for everyone. Hence the futility of revolutionaries who have no gardens, who depend on the very system they attack, and who produce words and bullets, not food and shelter.”—

Bill Mollison

creator of Permaculture

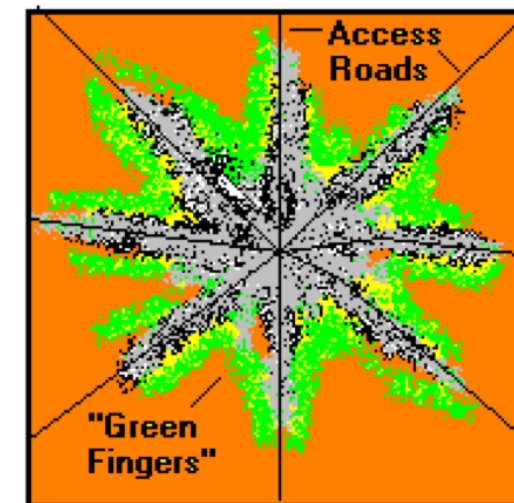


We need to retrofit the industrial infrastructure to be more natural and more regionally self reliant for energy and food needs.



Denmark – Copenhagen

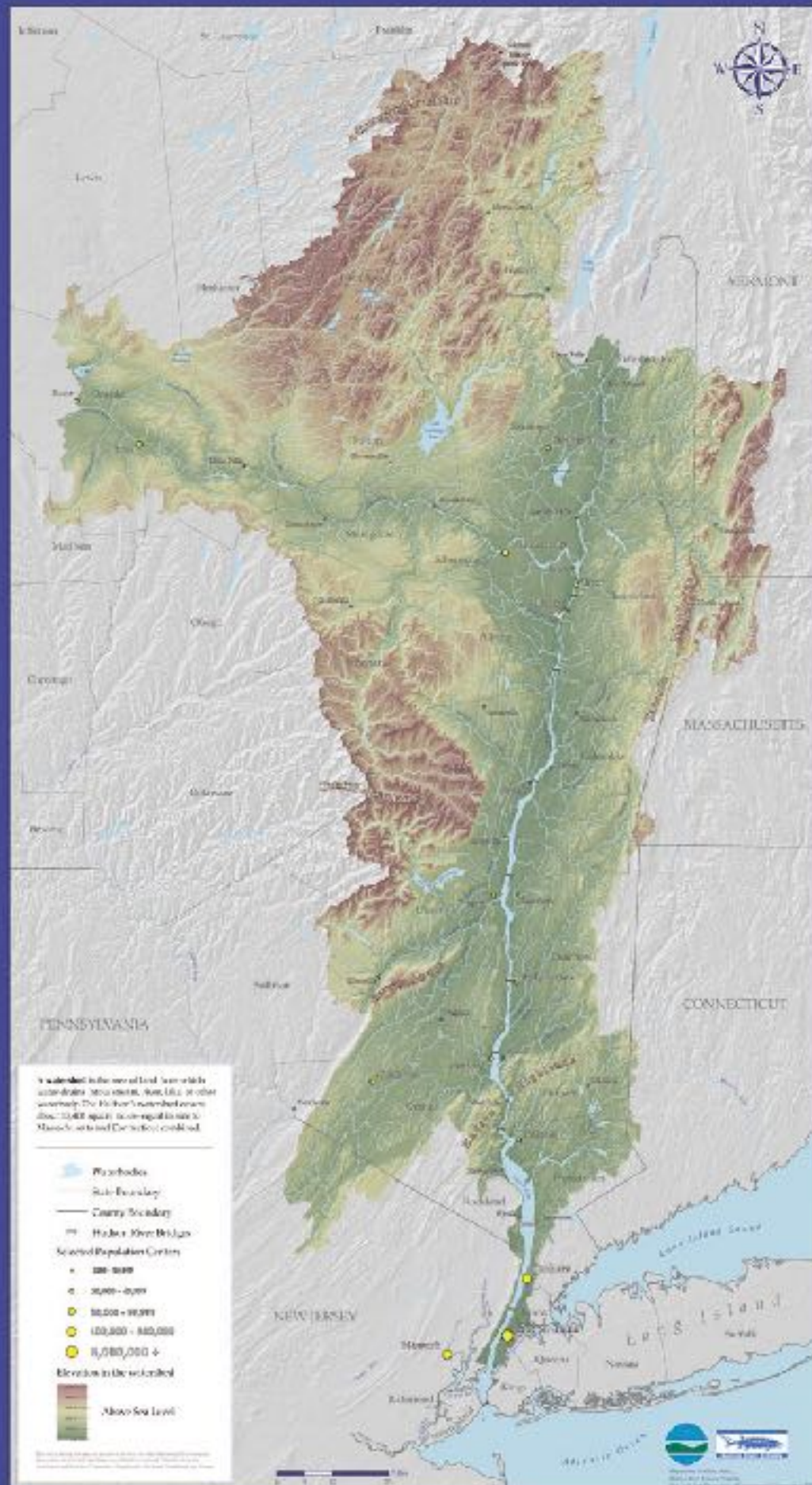
The five finger plan or starfish model was drawn up in 1947 to facilitate growth along radial suburban train lines travelling into central Copenhagen, “the palm of the hand”, where growth had historically been concentric. Large service and production centres were planned in the junctions between the “fingers”, with housing built around suburban railway stations, whilst the rest of the space between the fingers was to remain undeveloped in favour of green space.



Sweden - Stockholm

The urban settlement has mainly been developed in a star-like pattern. From the beginning the undeveloped wedges to a great extent were royal parks, land belonging to noble families, or military exercise fields. The star-shaped urban development has formed a sort of structure with green wedges between the settlement and traffic zones providing good access to public transport as well as green areas.

The Hudson River Watershed



Demand for Organic & Local Food Increasing

Organic & Local Foods are the Fastest Growing Segment of the Food Market, Growing at Over 15% Annually

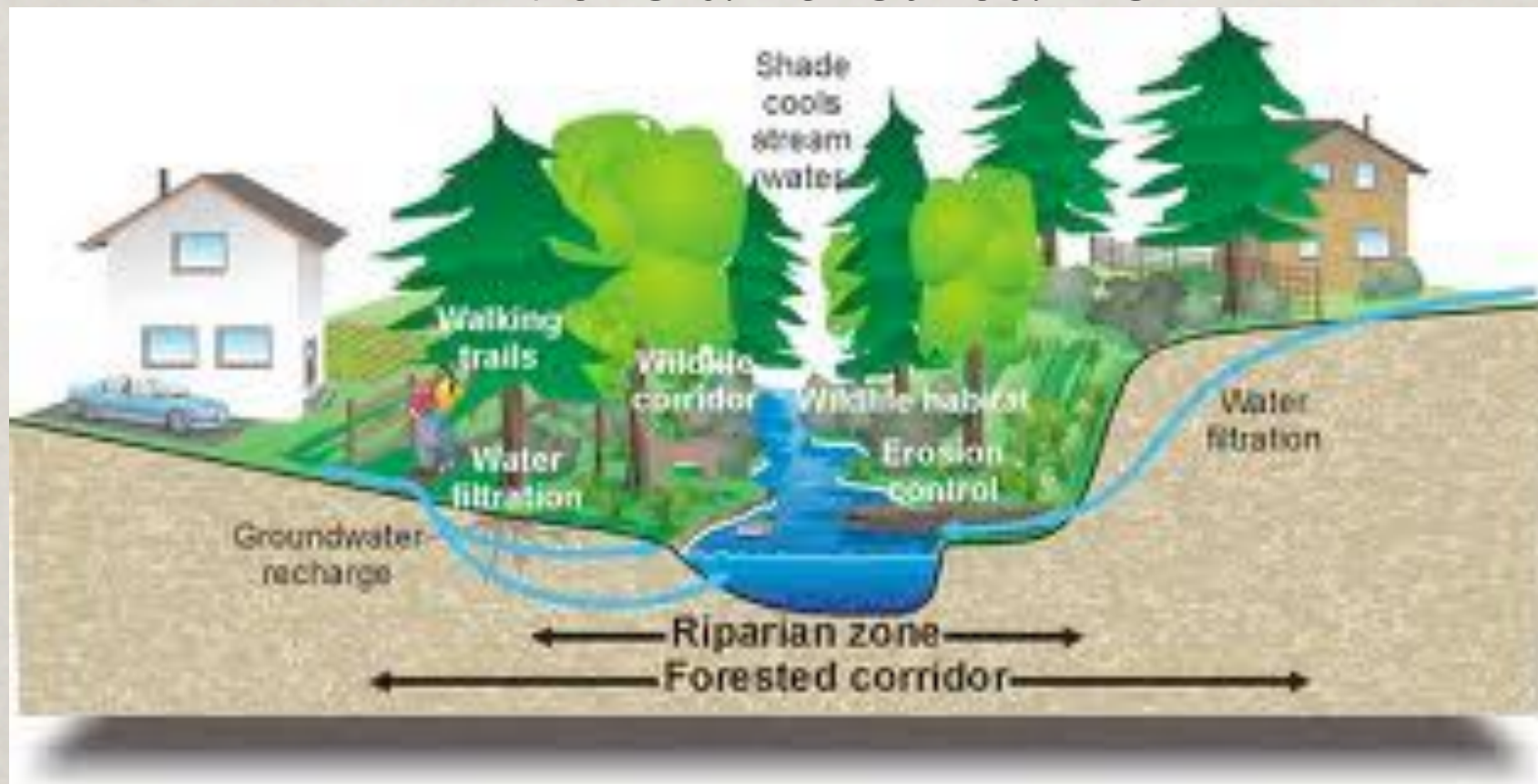
- Nationally, sales of “local foods ”grew from \$4.8 billion in 2008 to \$7 billion in 2011
- The organic food market has grown from \$3.7 billion in 1997 to nearly \$29 billion in 2010*
- In 2010 Glynwood Farms estimated that the **potential demand** for fresh local produce **in NYC alone was more than \$860 million**, dramatically higher than the level of supply coming from tri-state area of only \$149 million
- Increasing concern with the health risks of conventional food and food security contribute to the value of local & organic food

Source: Organic Trade Association 2011 Organic Survey

Economy Education
Enterprise Environment



Create city to country
connections along
rivers and streams.



Create cities we all want to live in.





The best way to cool cities and
alleviate polluted rivers in them.

Photovoltaics perform better on a green roof because they keep them from getting too hot in the summer in NYC.



Creating habitat for songbirds on rooftops
is another goal of retrofitting cities.



Planning wildlife corridors across our rooftops and over the entire continent.



There is over 20,000 acres of rooftop space owned by NYU alone.

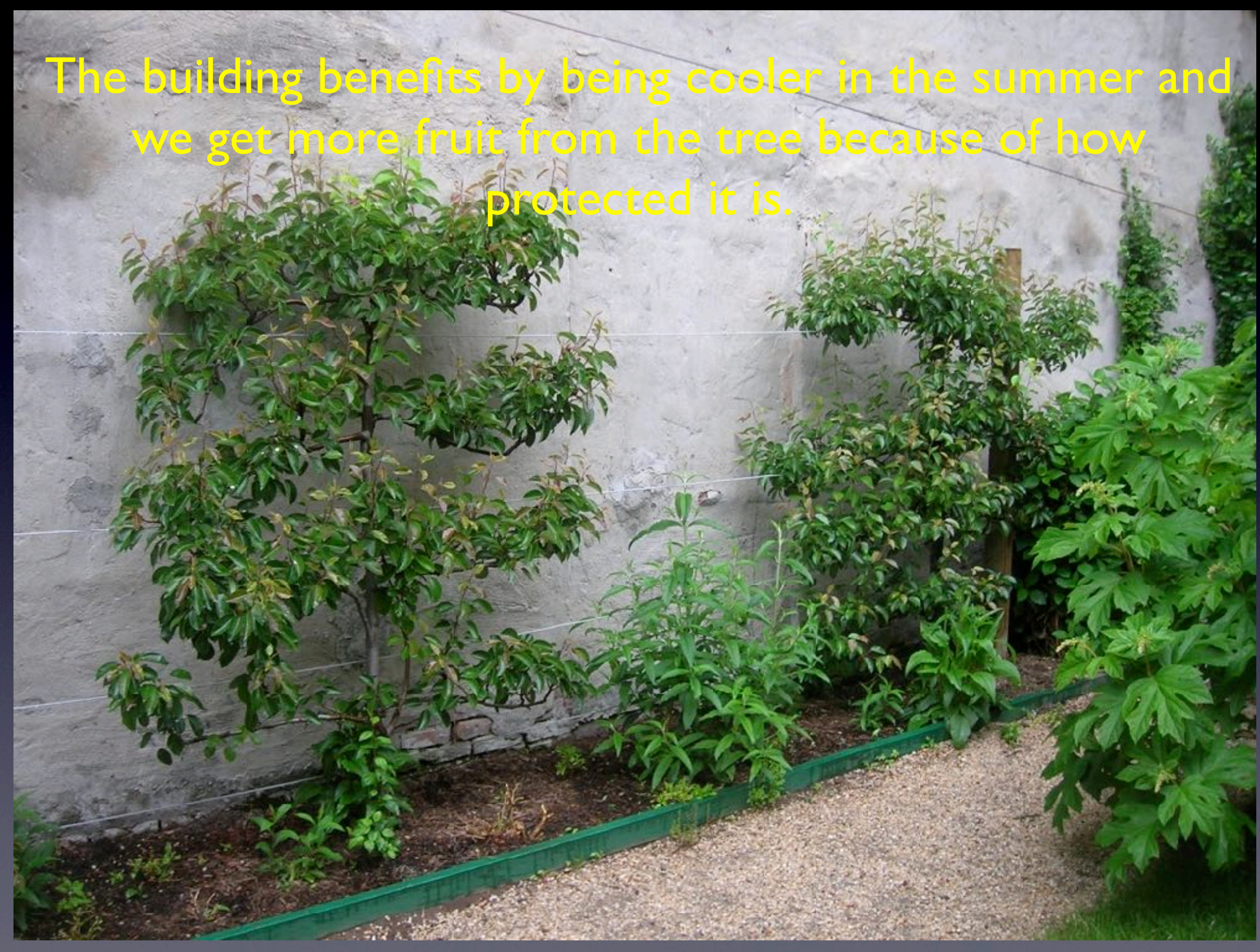


Shanghai is China's most important industrial city with over 15 million people.

15% of them work in farming. They produce 4000 tons a day! Over 60% of the city's vegetable needs. xt



The building benefits by being cooler in the summer and we get more fruit from the tree because of how protected it is.



According to the E.P.A. there are over 600 VOC's polluting indoor air, making it one of the top 5 causes of illness in the U.S.





According to NASA
Polluted indoor air can be
cleaned with indoor
plants.

Benefits: These types of houseplants are said to be a good overall air purifier, removing most air pollutants.

Notes: Prefers partial sun all day and shade in the winter, with more frequent water in hotter months, but never allow to sit in water or be overwatered.

Common Name: Marginata or Dragon tree

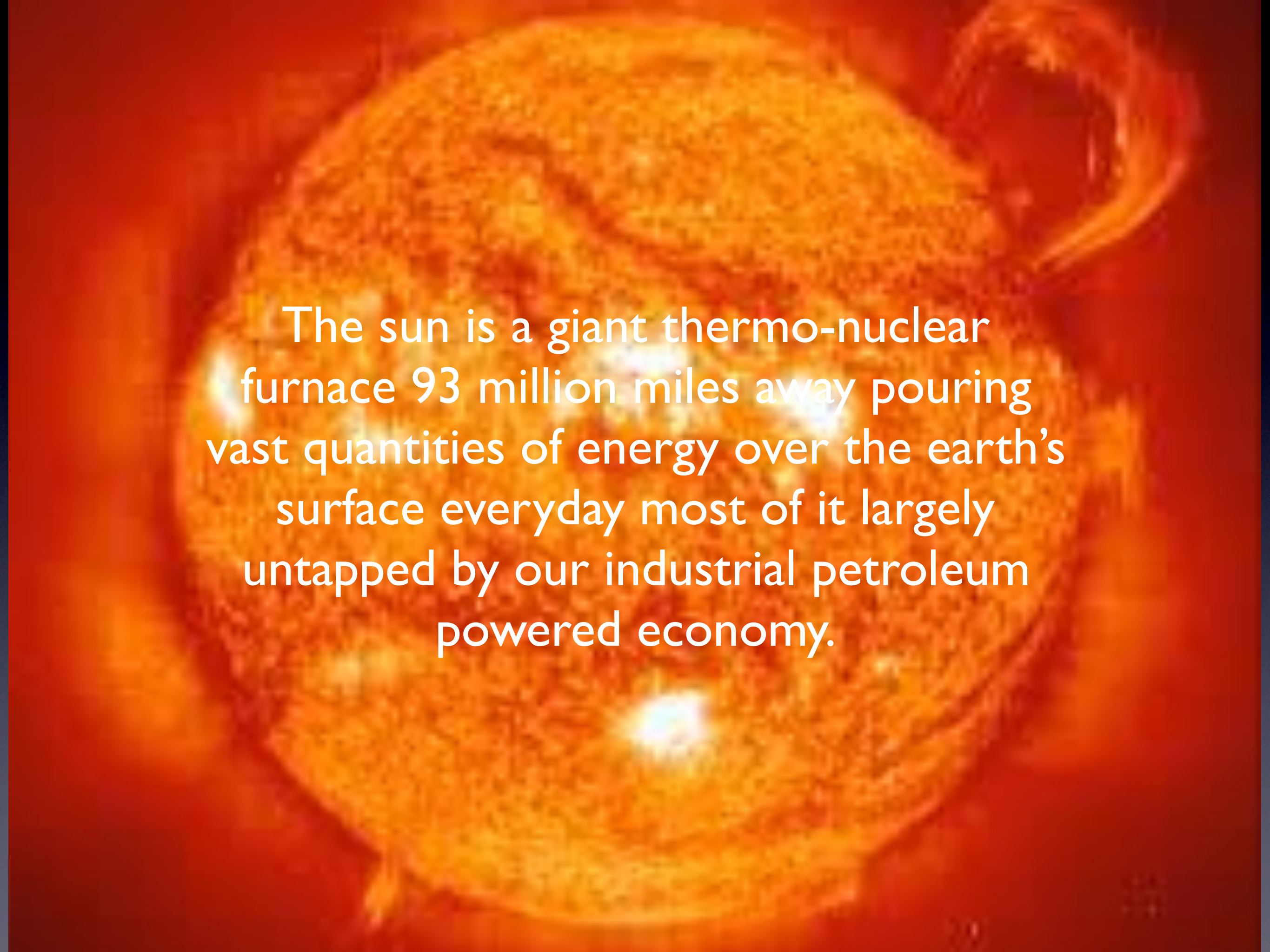
Botanical Name: *Dracaena marginata*



[Photo Credit](#)

Benefits: Known for purifying the air of the carcinogen, benzene, commonly found in the off-gassing of synthetic materials, cigarette smoke and other household chemicals. Also known for removing formaldehyde, xylene (found in varnishes, paints and paint thinners) and trichloroethylene (found in solvents) from the air.

Notes: It requires little attention, tolerates dry soil and irregular watering and prefers no direct sunlight. It is, however, susceptible to fluoride toxicity (so fluoridated water sources may need to be avoided).



The sun is a giant thermo-nuclear furnace 93 million miles away pouring vast quantities of energy over the earth's surface everyday most of it largely untapped by our industrial petroleum powered economy.

In China over
600,000 people work
building solar thermal
units.

1/3 of all homes in
China get all their hot
water from solar
thermal. More power
than 40 nuclear
power plants!



**In Calcutta 26,000
people are employed
processing compost.**





We need many different
locations and ways to
compost in high density
urban areas.

3380 tons a day! of
organics hauled out of
NYC





People in cities enjoy conviviality and good beer. The byproducts of these natural activities can become our source for clean energy and for fertilizing our farms.

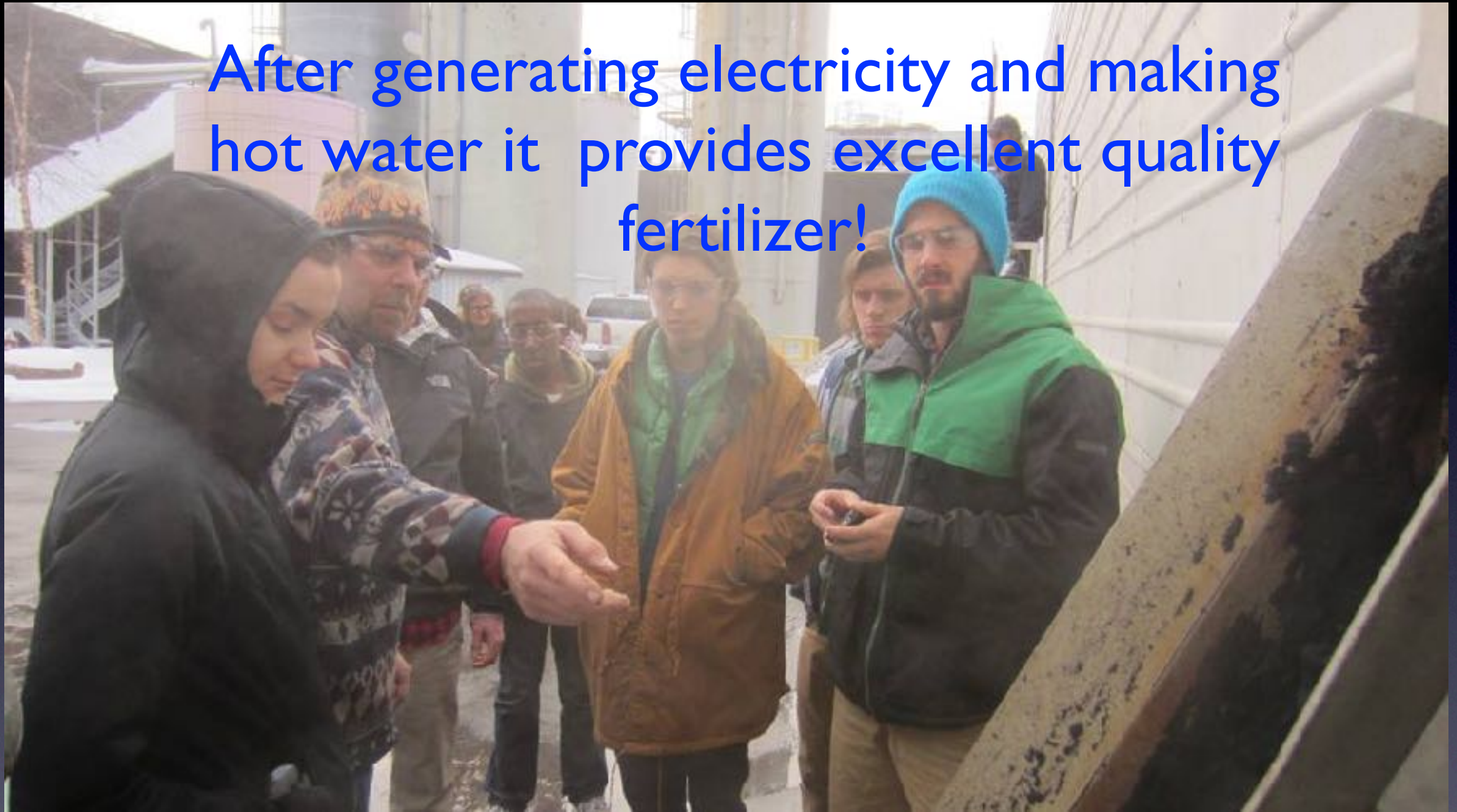


Magic Hat brewery in Vermont makes good beer and provides energy and compost from their wastewater.



A bio-gas electric generator. In Staten Island Con-Ed. installed one that powers 2000 homes with methane from the fresh kills landfill.

After generating electricity and making hot water it provides excellent quality fertilizer!



In Sweden biogas is 25% cheaper
at the pump than gasoline.




In china 30,000 biogas plants
power 40 million homes
the goal is 300 million homes.



Vermont Compost processes thousands of tons of food scraps from the capital city of Montpelier Vermont.





Nationwide the E.P.A. estimates we are
needing to divert 60% of what ends up in
landfills to the tune of 41 million tons
annually!

Karl Hammer the owner /operator of Vermont Compost runs a multi-million dollar business from his integrated system.



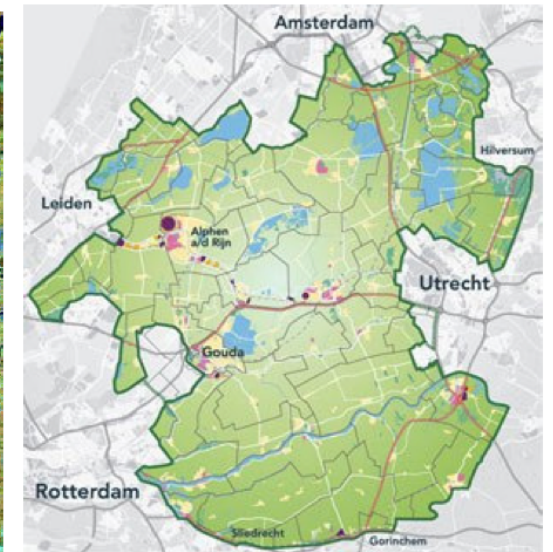
**Karl has 1200 free range
heritage breed chickens
laying 900 dozen eggs a
month feeding them no grain
and only giving them the
food scraps from Monpelier**



Reimagine the city to include
nature in our design.

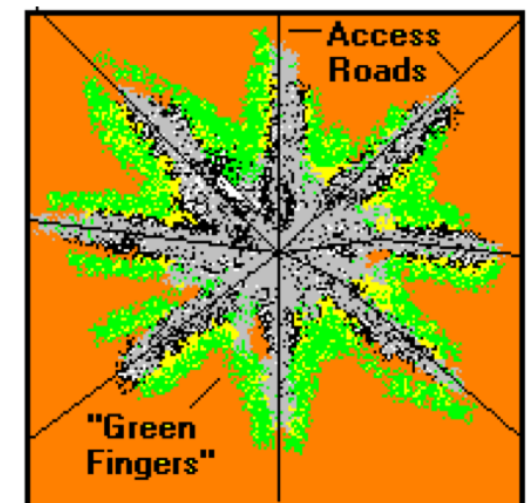


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Bring the vitality of nature
connection back to city living.



Michael Baumann

Bringing nature into the city while generating power ,hot water and making honey!





**Living machines
wastewater
treatment that is
natural**



**Providing beauty, cut
flowers and nature
connection in the winter.**

Big rain tanks are one of the best ways to solve the 24 billion gallons annually, according to the DEP, of untreated sewage being released into the water around NYC.



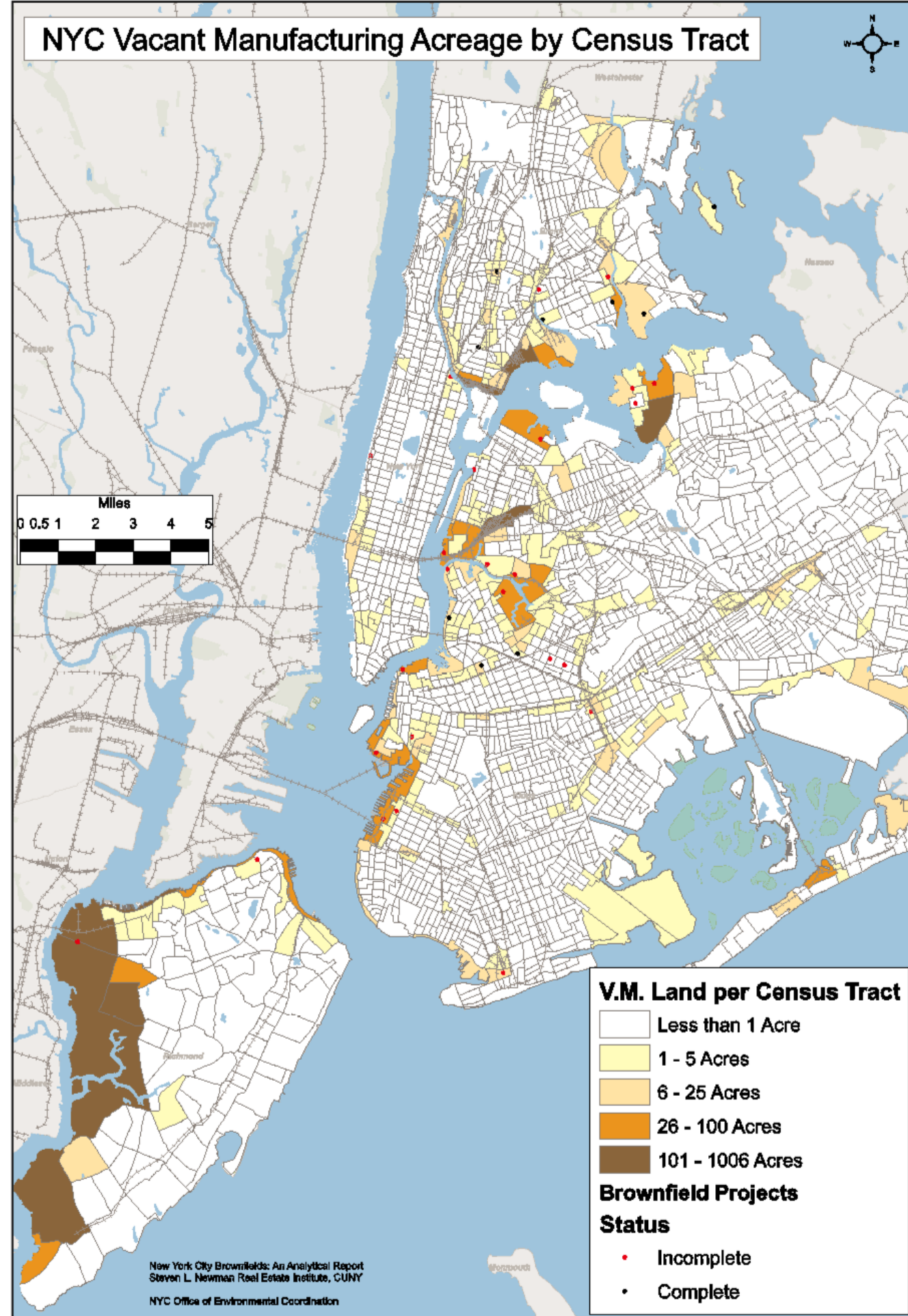
Of the 12,000 publicly owned vacant lot's
which ones to daylight a river in.



Reclaiming beauty and
recreational water
experiences in NYC.

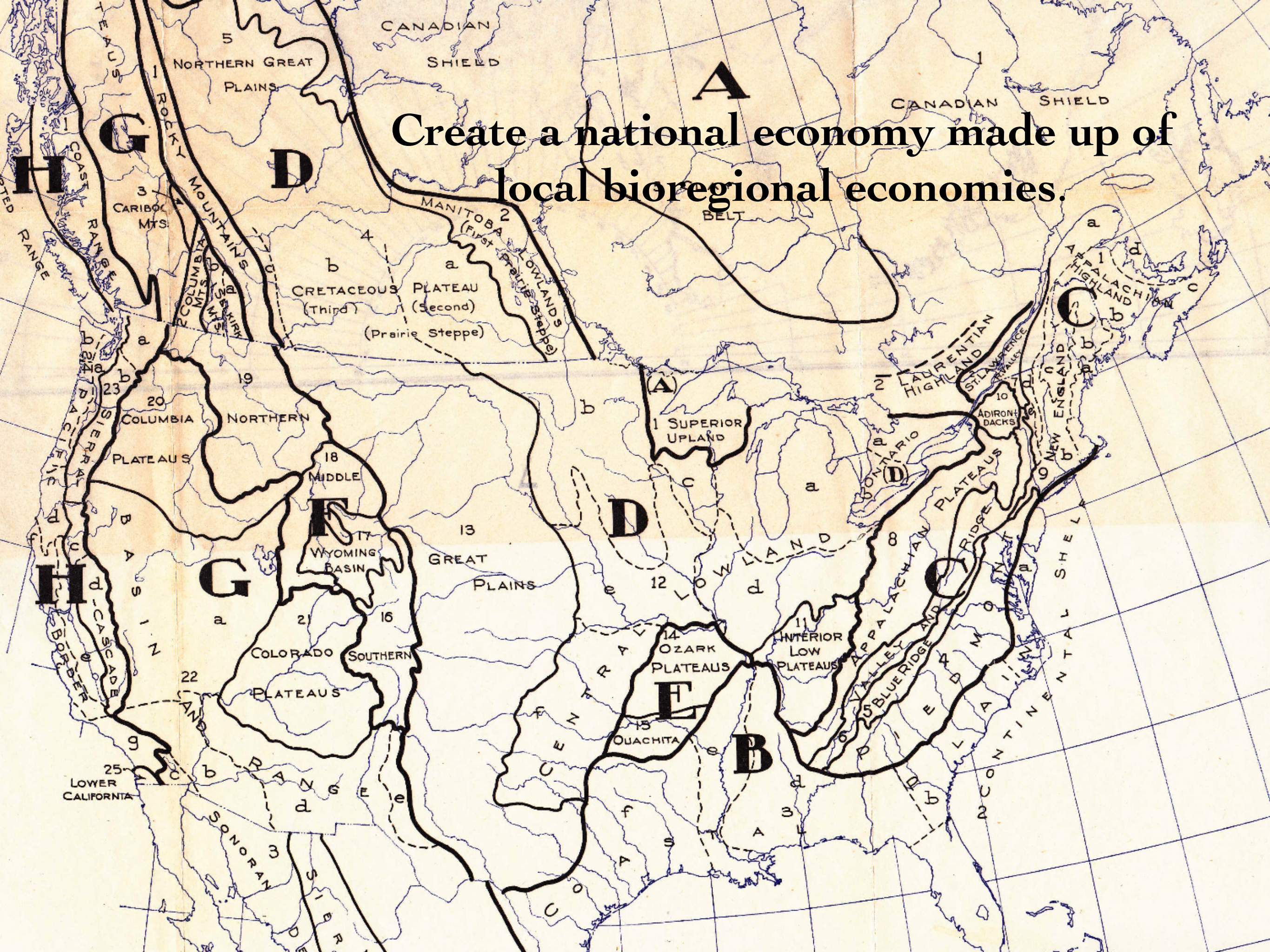


Over 4000
acres on 6000
parcels of
brownfields in
NYC. The
perfect place
for our new
green
infrastructure
to be located!



We need to reforest along rivers.

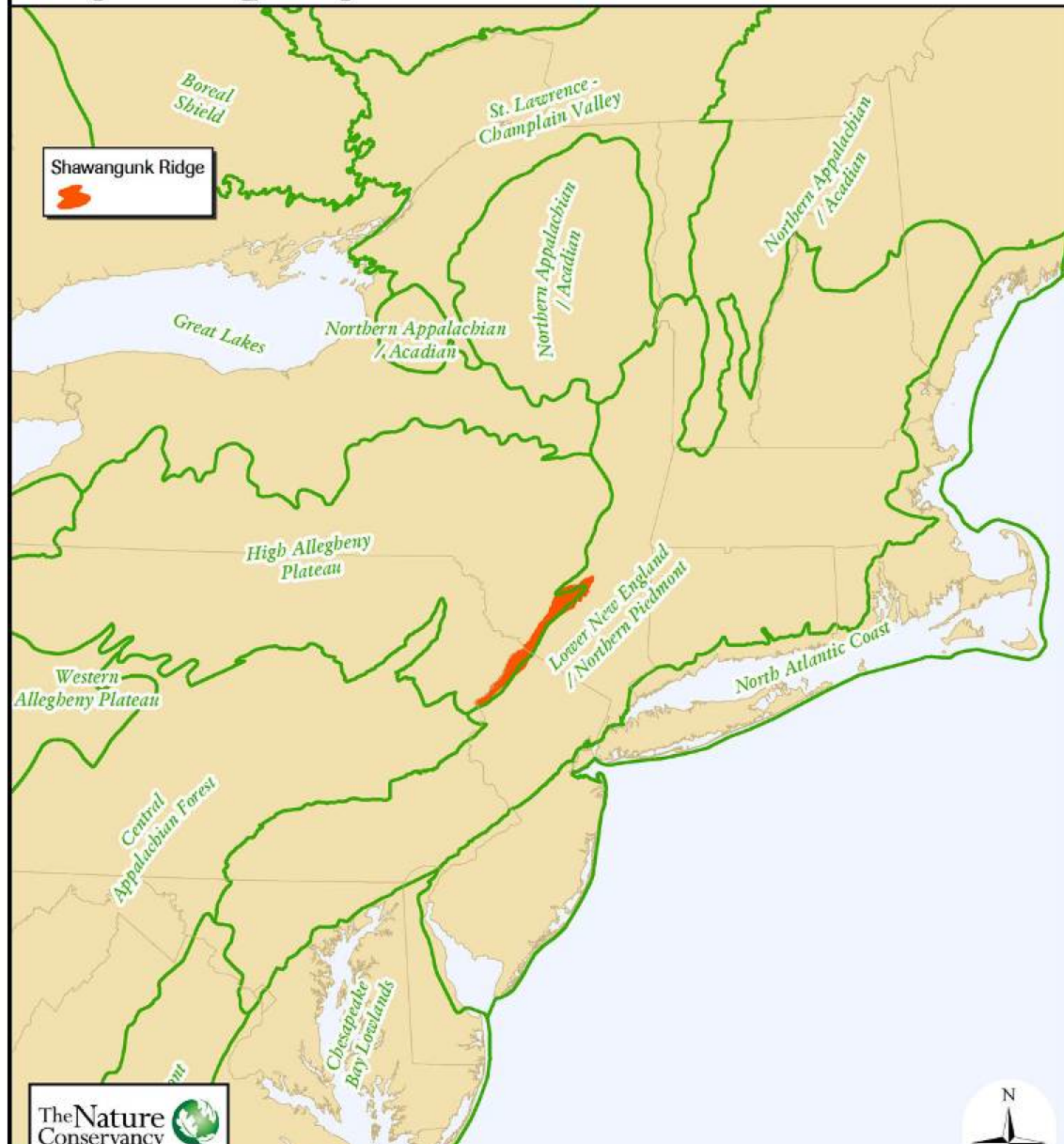




Create a national economy made up of local bioregional economies.

Each region will have unique crops, buildings and energy systems that are designed and engineered to be well adapted to each geographic area of the country.

Map 1. Ecoregions of the Northeast



Redesign our infrastructure to be regionally adapted, self-reliant providing a diversity of green jobs.

