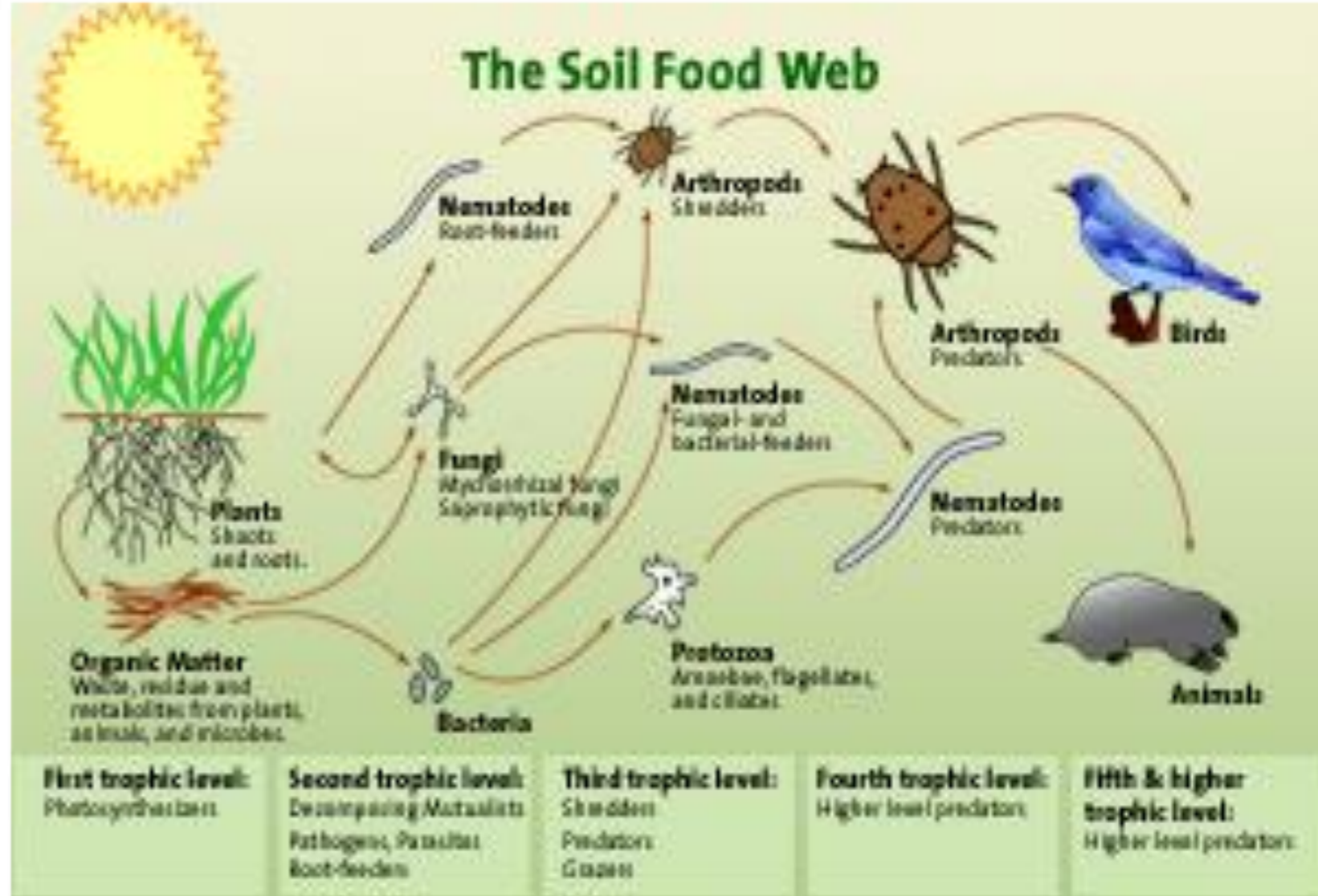


# LIVING SOIL

## THE FOUNDATION OF ECOLOGICAL, SOCIAL AND ECONOMIC RESILIENCY







Background: Test plots working with no-tillage, guild plantings, and biological fertility

Foreground: Test plots of regularly tilled, mono crop production with chemical fertilizers

Grown with  
Biology

Grown Conventionally  
with Chemical Fertilizers

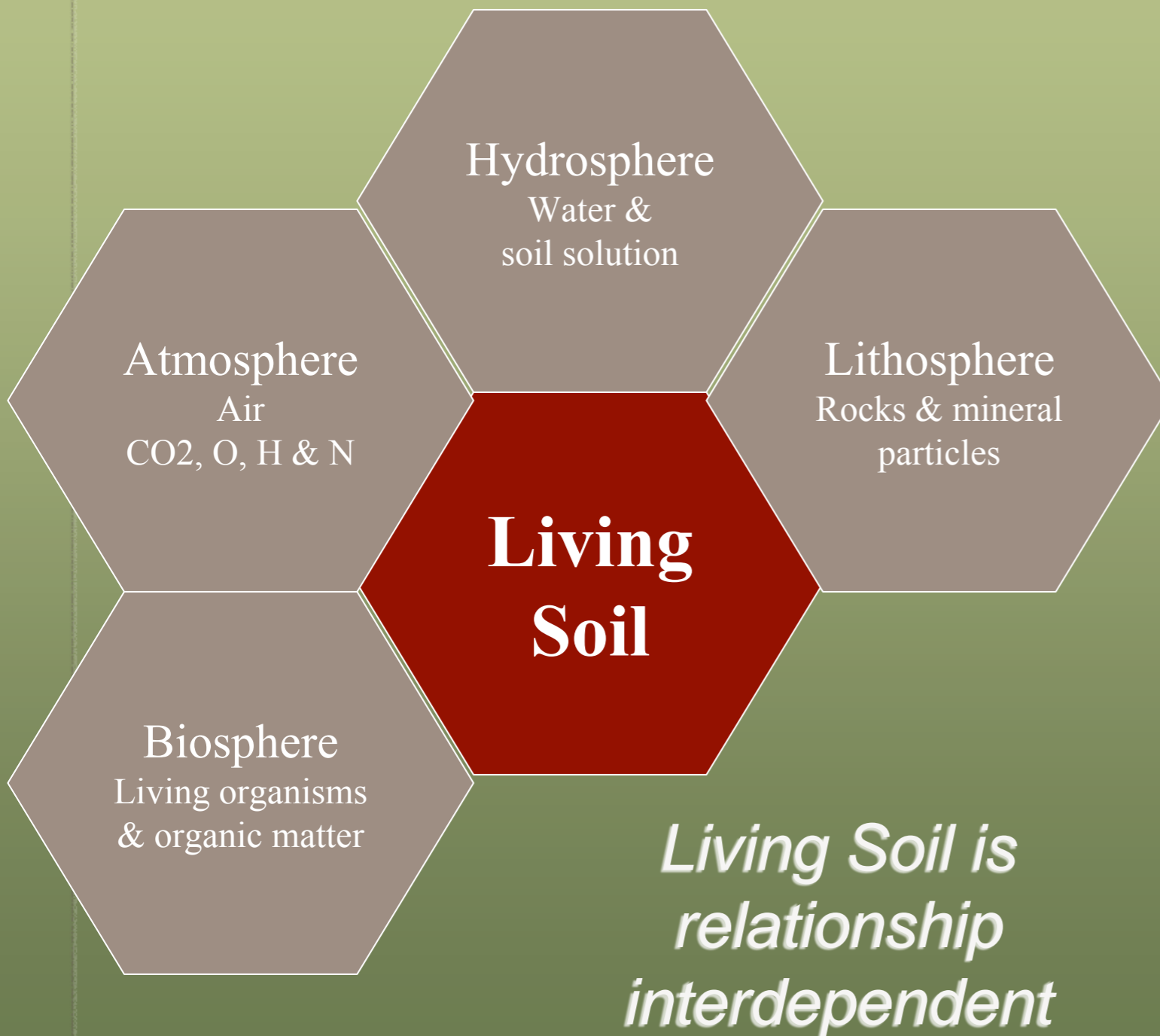
**WITHOUT LIFE  
IN THE SOILS  
DAMAGE WILL  
OCCUR**

- Plants are not healthy
- Animals are not healthy
- Humans are not healthy





# WITH LIFE IN THE SOILS:



- Soil structure improved
- Nutrients retention and carbon sequestration increased
- Water is kept in the soil/up to 70% reduction in water use
- Diseases have no where to grow
- Insect pests are eaten as eggs and larvae
- Nutrients are cycled at the exact rates the plants need as plants control exudates
- With healthy biology you don't have to worry about the chemistry



# DEFORESTATION AND LONG TERM SOIL DEGRADATION

*Chikukwa Village, Zimbabwe*



*SPRINGS DRIED-UP, INCREASED CHOLERA, LACK OF NUTRITION, EROSION, ECONOMIC COLLAPSE, SOCIAL BREAK-DOWN*

*ECOLOGICAL DEGRADATION CYCLE*



# PERMACULTURE DESIGNED SOIL BUILDING AGROFORESTRY SYSTEM



- EARTHWORKS FOR NUTRIENT AND WATER RETENTION AND CYCLING (EROSION MITIGATION)
- INCREASED THERMAL MASS (SHOCK ABSORPTION)
- ANIMAL INTEGRATION
- HUMUS DEVELOPMENT WITH LIVING MULCHES AND DECAYING ORGANIC MATTER
- BENEFICIAL DIVERSITY
- NO TILLAGE
- PERENNIAL NUTRITION AND FERTILITY
- INTEGRATED PEST MANAGEMENT
- HARMONIZING WITH SUCCESSION PROCESS
- WASTE CYCLING
- EXTENDS GROWING SEASON



# SITE RELEVANT DESIGN AND APPLICATION

*COMMUNITY  
INTEGRATION AND  
LABOR SHARING*



*SIMPLE  
SURVEYING TO  
FIND CONTOUR*



*MICRO  
CLIMATE  
CREATION*



# SPRING REJUVENATION



*ELIMINATED  
EROSION*

*WATER AND NUTRIENT  
SLOWED, SPREAD AND  
INFILTRATED*





# BENEFICIAL DIVERSITY



*AS IN NATURE,  
MULTI  
LAYERED  
GROWING  
SYSTEMS ARE  
HIGHLY  
RESISTANT TO  
SHOCKS*

*EARTHWORKS, NO-TILLAGE, HEAVILY MULCHED,  
SUCCESSION PROCESS HARMONIZATION, COMPANION  
PLANTING, MINIMAL COMPACTION, ANIMAL INTEGRATION*





*SOIL BUILDING  
OFFERS  
INCREASED  
RESILIENCY,  
STABILITY,  
ECOLOGICALLY  
SOCIAL &  
ECONOMICALL  
Y*







*“No problem can be solved from the same level of consciousness that created it.”*

*-Albert Einstein*



THANK YOU

*WARREN BRUSH*

[www.permaculturedesign.us](http://www.permaculturedesign.us)

[warrenbrush@mac.com](mailto:warrenbrush@mac.com)

805-729-8131

[casitasvalley.com](http://casitasvalley.com) [pri-kenya.com](http://pri-kenya.com) [quailsprings.org](http://quailsprings.org)