Restoration Agriculture: From Permaculture to Agroforestry, the ecological systems design approach

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Restoration Agriculture Development
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TREE CROPS
A PERMANENT AGRICULTURE

by
J. Russell Smith

Introduction by
Wendell Berry
Permaculture

Wrote the book:

A Designers Manual

Bill Mollison
“Permaculture is an ecological design methodology where we create relationships between materials, plants, animals and humans in order to optimize function and yield...

The aim is to create systems that are ecologically sound and economically viable. …which provide for their own needs, do not exploit or pollute and are therefore sustainable in the long term. Much of the design is taken from nature.

It can be as simple or as sophisticated as you like.”

- Bill Mollison
Restoration Agriculture: Redesigning Agriculture in Nature’s Image
Agricultural Biomimicry
A fascinating vision for recasting our relationship to nature and the land.

Anna Lappé

“...explains how to sustainably grow perennial food crops that are not dependent on a single growing season. It's a game-changer!”

Mark Shepard

Restoration Agriculture
Real-World Permaculture for Farmers

An Amazon Bestseller!
Agriculture de régénération

- Conversion de 42 ha, conçue en permaculture
- Un système hautement productif et rentable
- Des analyses chiffrées
- Les outils et techniques pour pratiquer une agroforesterie haute en couleurs
The Restoration Agriculture process:

1) Identify your biome and dominant plant communities
2) Optimize rainfall distribution pattern and prevent runoff
3) Establish woody polycultures using Agroforestry practices (Build fences & roads, utilities, pipelines following water management pattern)
4) Manage for complexity
1. Identify biome and plant communities.
   Substitute improved cultivars when possible
Fagaceae:
Oak, Chestnut, Beech

Apples

Hazelnut

Prunus:
plum, cherry, peach

Raspberry, grape, currant

Pasture, animals, fungi
2) Optimize rainfall distribution pattern and prevent runoff
Current Practice:
Water held low in landscape
Large dams and ponds
- Expensive earthmoving requires precise engineering
- Potential for **catastrophic** system failure
- **Fails** to address the problem of upslope runoff
- **Ignores** agronomic practices
The Master Line System:

Begin high in the landscape
Excavate “surge capacity” dugouts
Change farming pattern to slightly downhill from contour
Create parallel field edges, swales or terraces
Repeat parallel field edges
The Master Line System:
- **Inexpensive** earthmoving requires little engineering & uses common farm equip.
- **Eliminates** potential for catastrophic failure
- Upslope rainfall **evenly** distributed and infiltrated
- Agronomic practices redesigned to **match site conditions**
20 years of site development

New Forest Farm
Wisconsin, USA
AFTER

Water movement after Master Line Patterning & Terraces
Carbon sequestration?
3) Establish woody polycultures using Agroforestry practices
Silvoarable – Alley Cropping

Acorn Squash alleys between Hazelnut rows
Asparagus between multi-species rows
Sunflowers for fuel between multi-species tree rows
The “disturbed” apple orchard:
Grapes on Chestnut over Hazelnut next to Rose behind Apple over Daffodil, Iris and Comfrey and more…
Silvopasture

Walnut, mulberry, cherry

cattle, hogs & more
managed integration of livestock and woody crops...
4) Manage for complexity
Is this applicable in Europe?

Fagacea:
- Oak, Chestnut, Beech
- Apples
- Hazelnut
- Prunus:
  - plum, cherry, peach
- Raspberry
- Grape
- Currant
- Forage Animals
- Fungi

Juglandaceae Family

Pinus Family
Silvoarable “Standard”
immediately harvestable crops
Restoration Agriculture:

Ecological & Economic Solutions of

Global Significance
The “Primate Conservation & Food Sovereignty through Restoration Agriculture” Project

Mark Shepard
Restoration Agriculture

Dear Mark:

I am writing to follow-up on my conversation with you and on the synopsis of work prepared by Dr. Peter Appel of our Uganda office, the Jane Goodall Institute (JGI) is keenly interested in exploring how we might work together to protect the vital habitats of the Albertine Rift. JGI works with a range of partners in the region and there is great potential to leverage those relationships with this approach to create near-term and long-term systems of sustainability for the people who call the region home.

Specifically, we are interested in exploring work that:

1. Improves and restores important habitat
2. Improves livelihoods
3. Lessens human and wildlife conflict
4. Uses agroforestry to create corridors for chimpanzees and other primates
5. Buttresses small-holder farming
6. Models sustainability and conservation approaches that may be replicated in other landscapes and with other species
7. Demonstrates the power of people working together

I look forward to our continued exploration of and planning for this work. It has the potential to move the bar on our conservation work across all the critical chimpanzee corridors we seek to protect.

Best regards,

Anna Gibson
Vice President
The Jane Goodall Institute
School farms & plant nursery

Timbered buffer zone

Riparian zone
Start with schools:

- Education
- Healthy food
- Nodes of diffusion

Jane Goodall Institute has over 130,000 Roots and Shoots school programs worldwide.
Establishment Year
Year 5
Nutritional Diversity
Year 5
Economic Surplus
Year 5 Carbon Sequestration?
RESTORATION

AGRICULTURE
“A fascinating vision for recasting our relationship to nature and the land.”

ANNA LAPPÉ

An Amazon Bestseller!