

“Poultry in Motion:”

Rural Development and Biodiversity Conservation in Zambia



Nshima + relish



Mosi-oa-Tunya

Outline

1.) Introduction to Zambia



2) Wildlife Conservation Society program in Zambia:
What is COMACO?

3) Poultry health project

4) Future plans



Introduction to Zambia...



ZAMBIA

CLICKABLE TOWNS & FEATURES



Geography and Climate

- plateau
- 3 seasons:
 - cool/dry – May-August
 - hot/dry – Sept.-Nov.
 - warm/wet – Dec. – April
- hot and humid in the river valleys
- temp – 6-35°C, 45-95°F
- savannah, woodlands

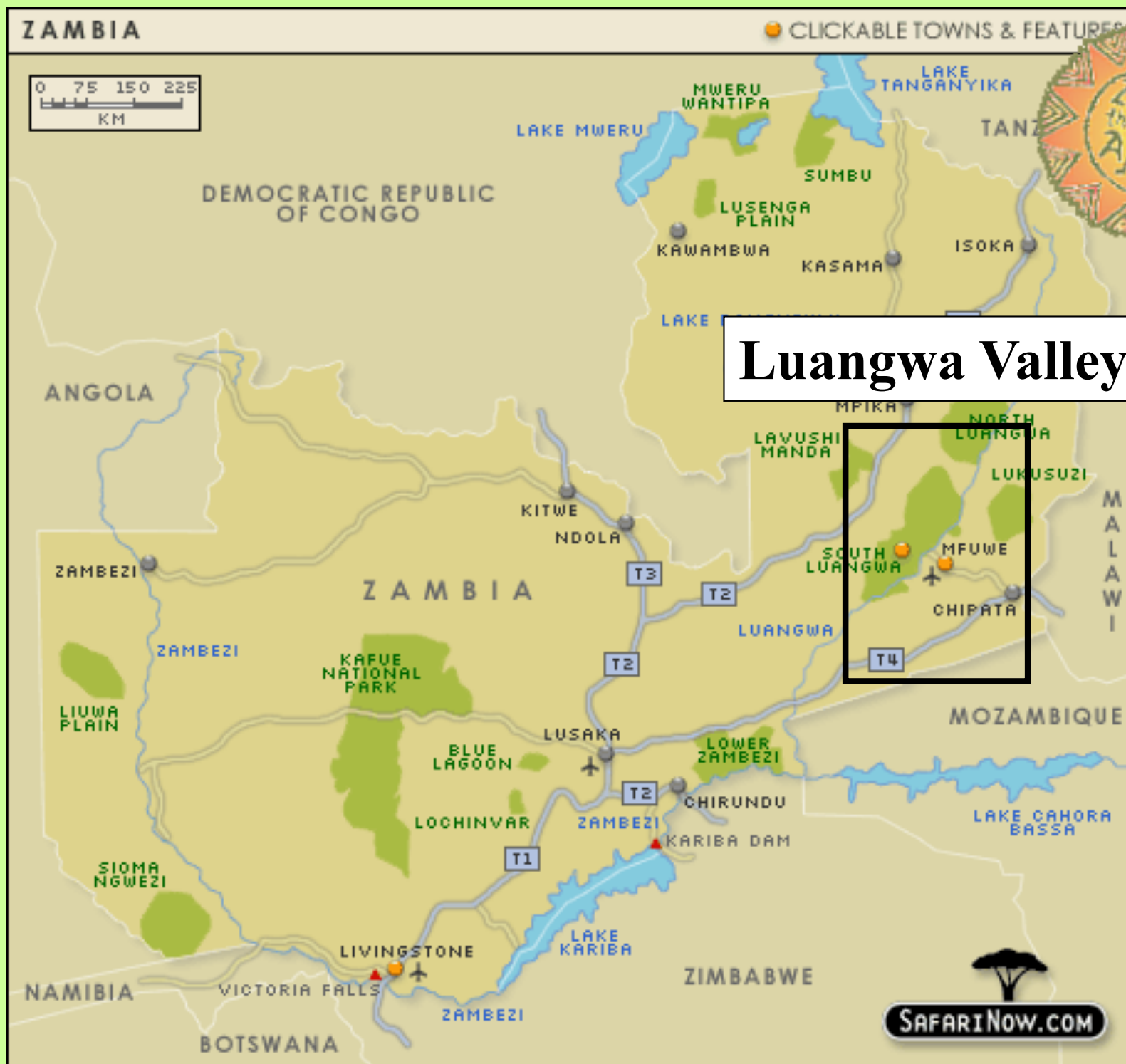


ZAMBIA

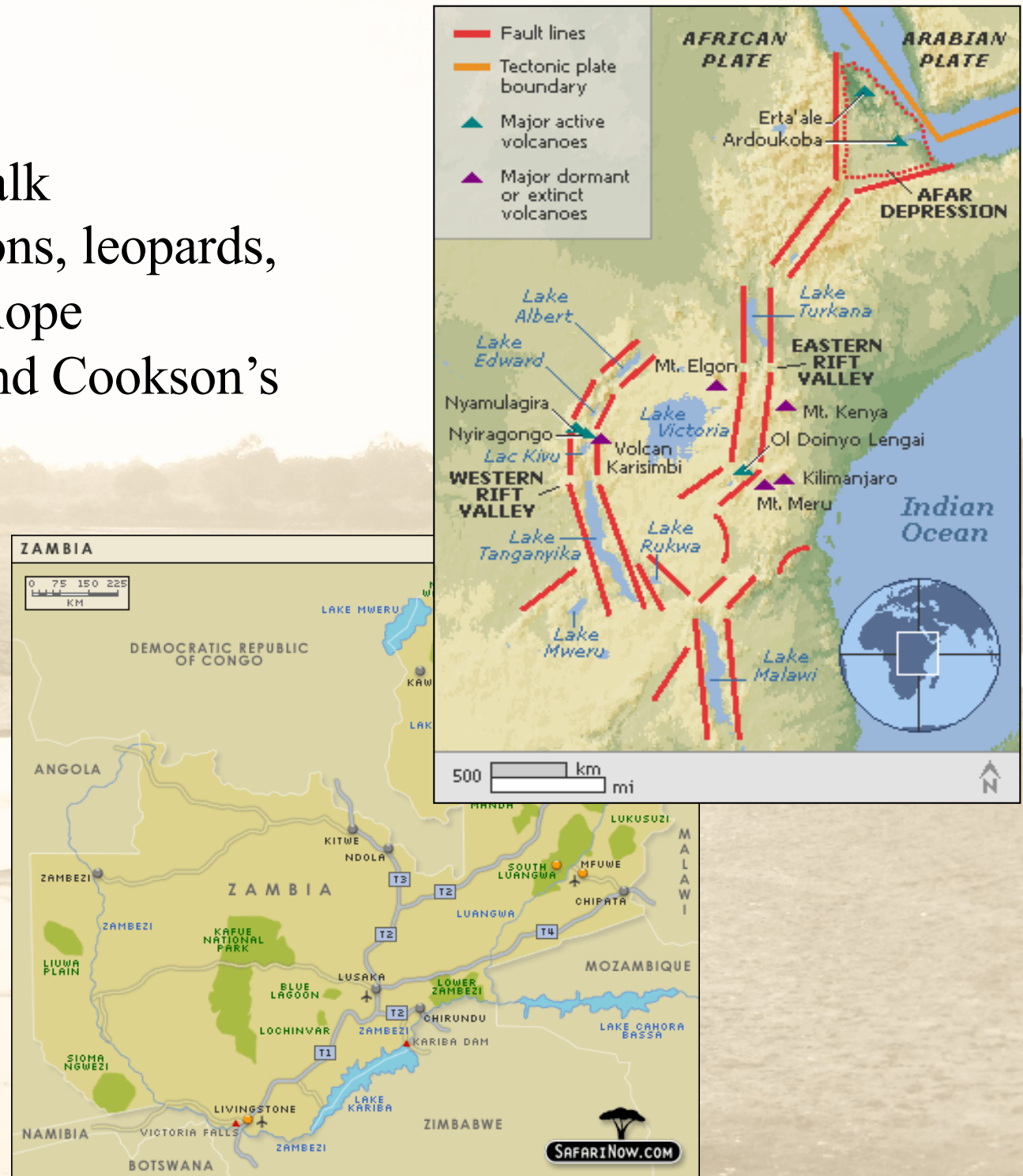
CLICKABLE TOWNS & FEATURES



Luangwa Valley



- remote and pristine
- pioneered the safari walk
- large populations of lions, leopards, elephants, buffalo, antelope
- Thornicroft's giraffe and Cookson's wildebeest
- over 400 bird species
- thousands of hippos and crocs
- severe poaching of elephants and rhinos



Human-wildlife conflict in the Luangwa Valley





What is COMACO?

www.itswild.org



Community Markets for Conservation

Mission: Provide marketing services, trade benefits, and extension support for farm-based and natural resource-based commodities as a basis for adopting improved land use practices that promote natural resource conservation.

*** using economic incentives to improve rural livelihoods and promote natural resource and wildlife conservation ***

How COMACO works:

- identify poor, food-insecure farming families through surveys
- teach farmer groups practices that increase their food production (conservation farming, composting, improved seed varieties, etc) while conserving their natural resources



-provide education and inputs for other livelihood-improving skills such as: beekeeping, poultry farming, carpentry, organic vegetable farming

-all groups agree to abide by COMACO's land use policies and surrender snares and guns



-increased profits for participants through value-added products, reduced transportation costs, and access to larger markets





Rice processing

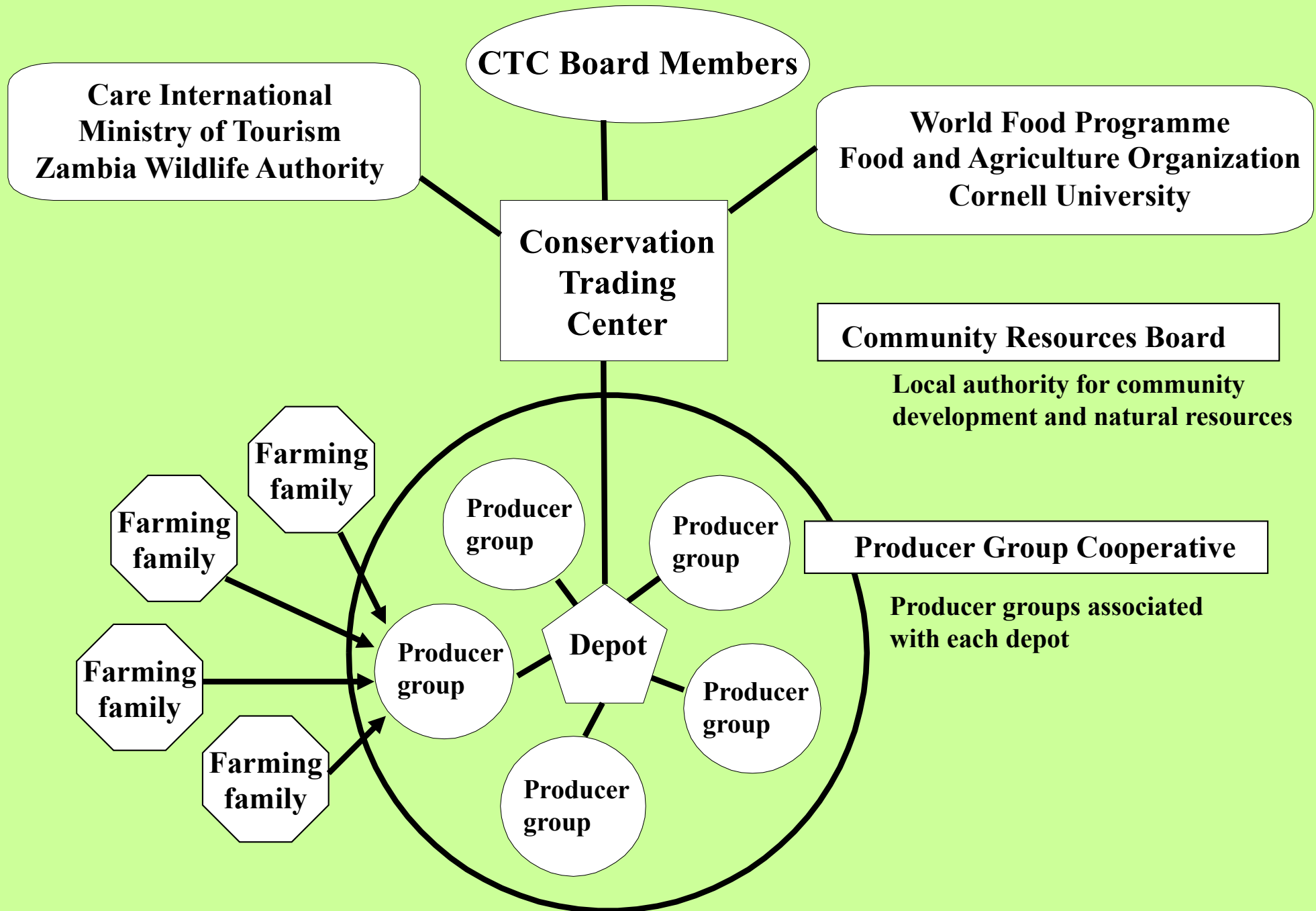


Honey processing

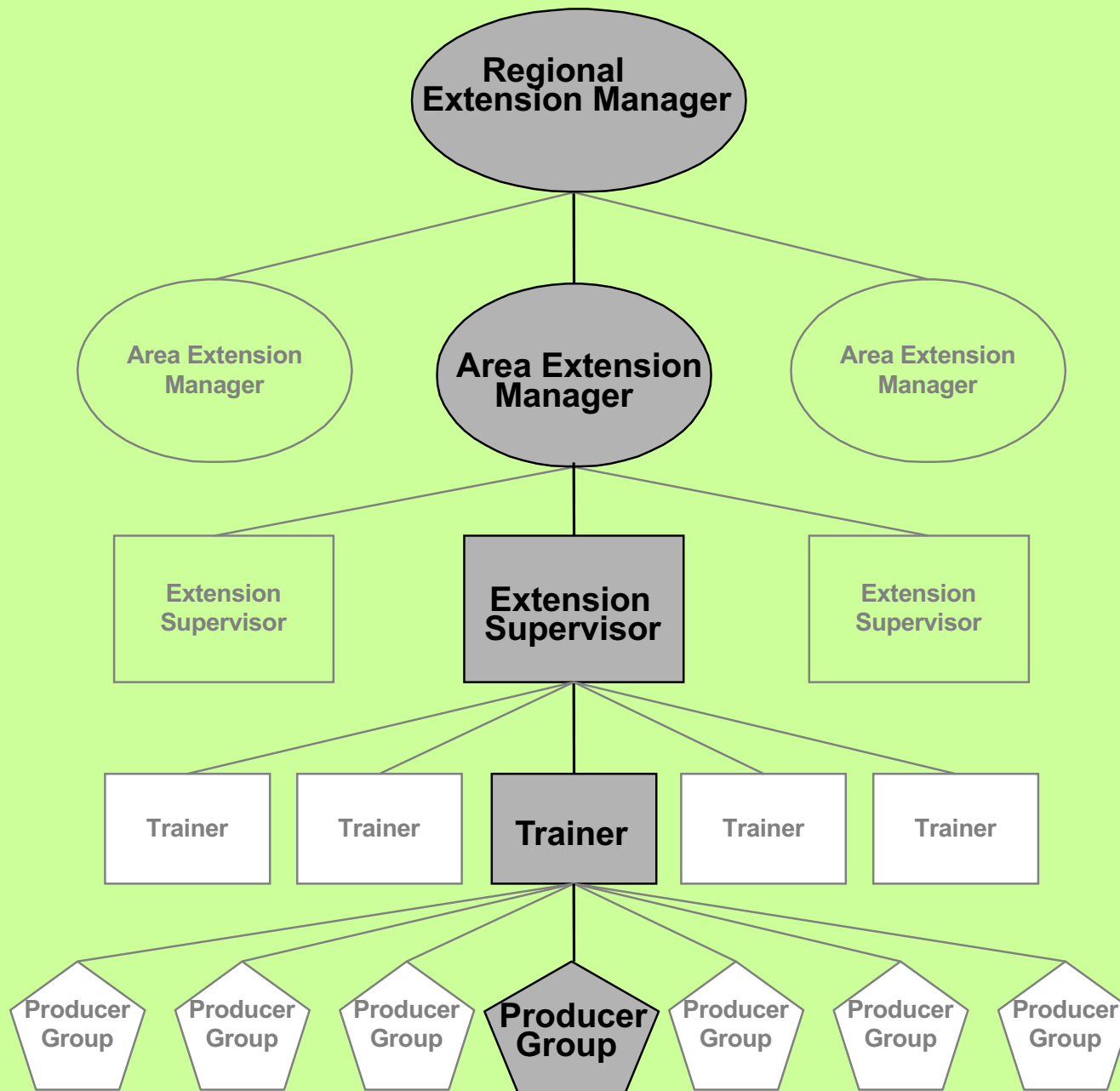




Organization of COMACO



Organization of COMACO



Continued compliance

COMACO

Certificate of Conservation Compliance

The Conservation Farmer Wildlife Producer Trading Centre of
Lundazi/Chama Districts

Acknowledges that Producer Group _____ of Chief _____
area, residing in Village Area Group _____, has complied with conditions for
receiving the COMACO Certificate of Conservation Compliance on this date of _____.
Inspected by Area Extension Manager, _____, signed _____.

District Council Secretary

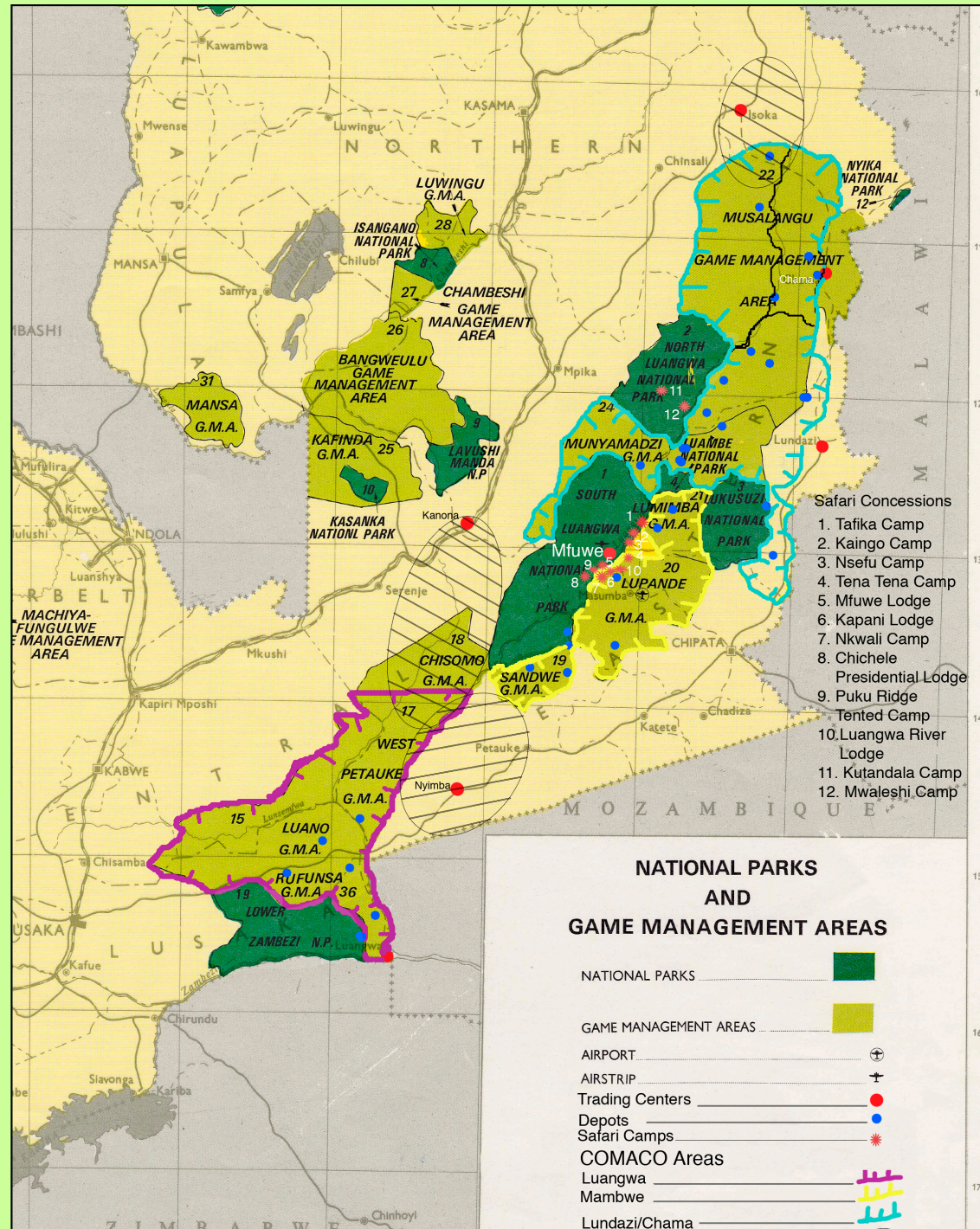
Wildlife Conservation Society
Country Director

Community Resources Board
Chairperson

Revalidations:

Date _____, Inspected by _____, signed _____ Date _____, Inspected by _____, signed _____

Area of operation



Pilot study results:

Increases in profits for producers:

-rice	30%
-honey	67%
-groundnuts	25%
-poultry	80%



The SANREM CRSP grant:

Sustainable Agriculture and Natural Resource Management

Collaborative Research Support Program

-sponsored by USAID, based at Virginia Tech



Developing A Participatory Socio-Economic Model For Food Security, Improved Rural Livelihoods, Watershed Management, & Biodiversity Conservation In Southern Africa

Components:

- natural resource economics
- business economics
- crop and soil sciences
- rural sociology
- *veterinary medicine*



My project:

Improving Poultry Health and Management

Goals:

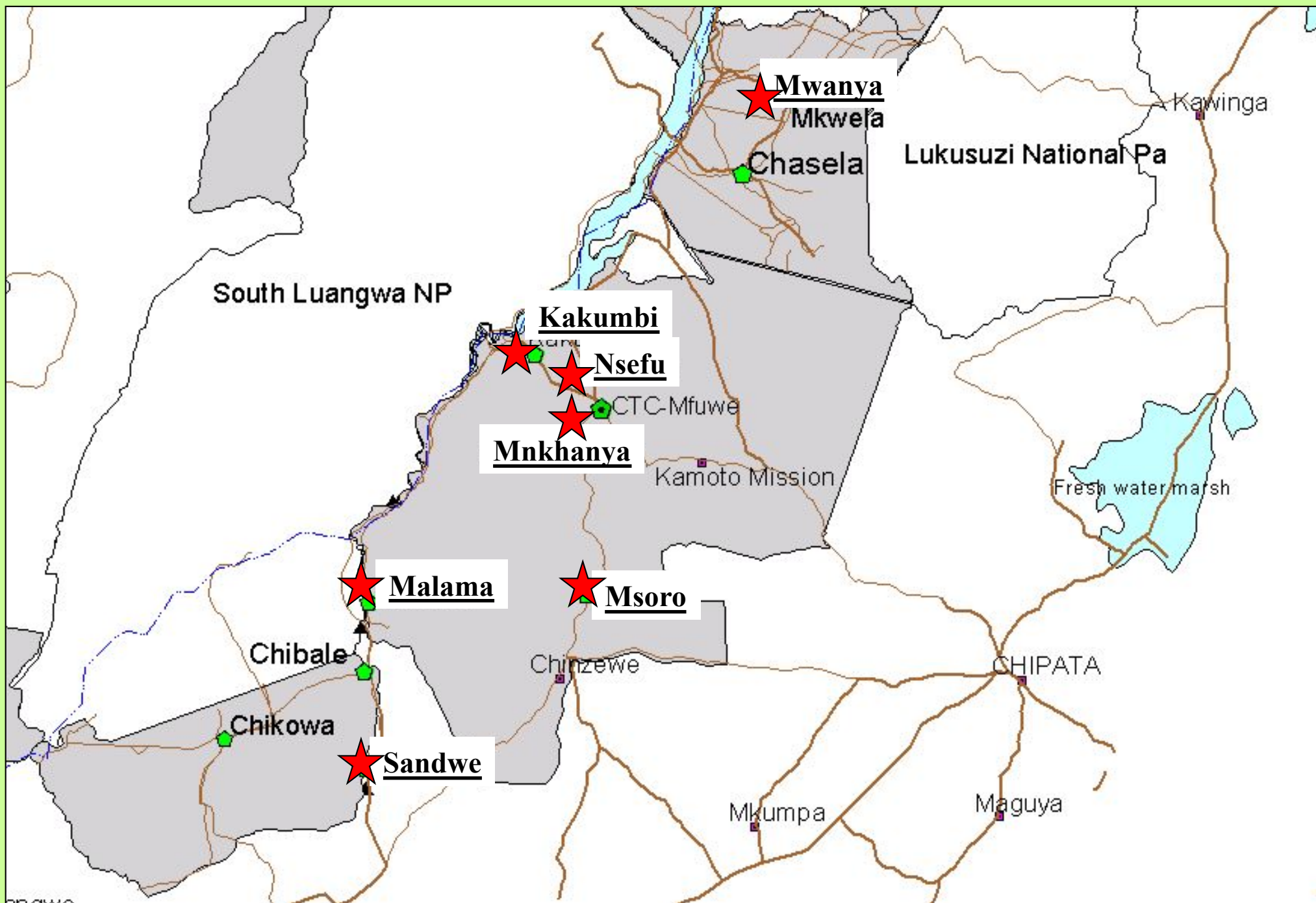
- 1) gather information on current feeding, housing, and management practices in the Mfuwe CTC COMACO area
- 2) investigate causes of high mortality
- 3) provide education to poultry farmers and extension officers



ZAMBIA

CLICKABLE TOWNS & FEATURES











ZAMBIA

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WIRE SNARE
PRODUCTS

HELP GET RID OF
THE SNARES BY
BUYING ONE OF THE
PRODUCTS
THANK YOU!









CONSERVATION FARMER WILDLIFE PRODUCER TRADING CENTER
Conserving our natural resources for our future
MAMBWE BRANCH









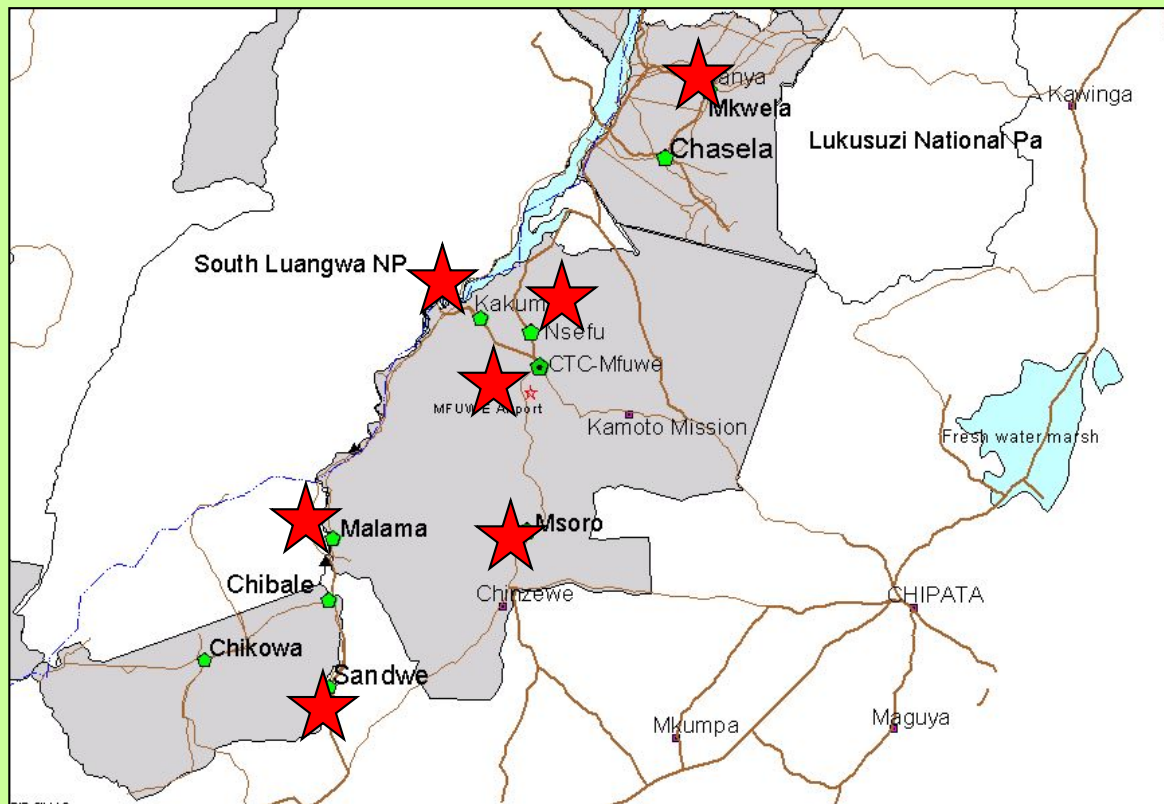






The plan:

- develop a manual for poultry farmers
- conduct “training sessions” in each chiefdom of the Mambwe district



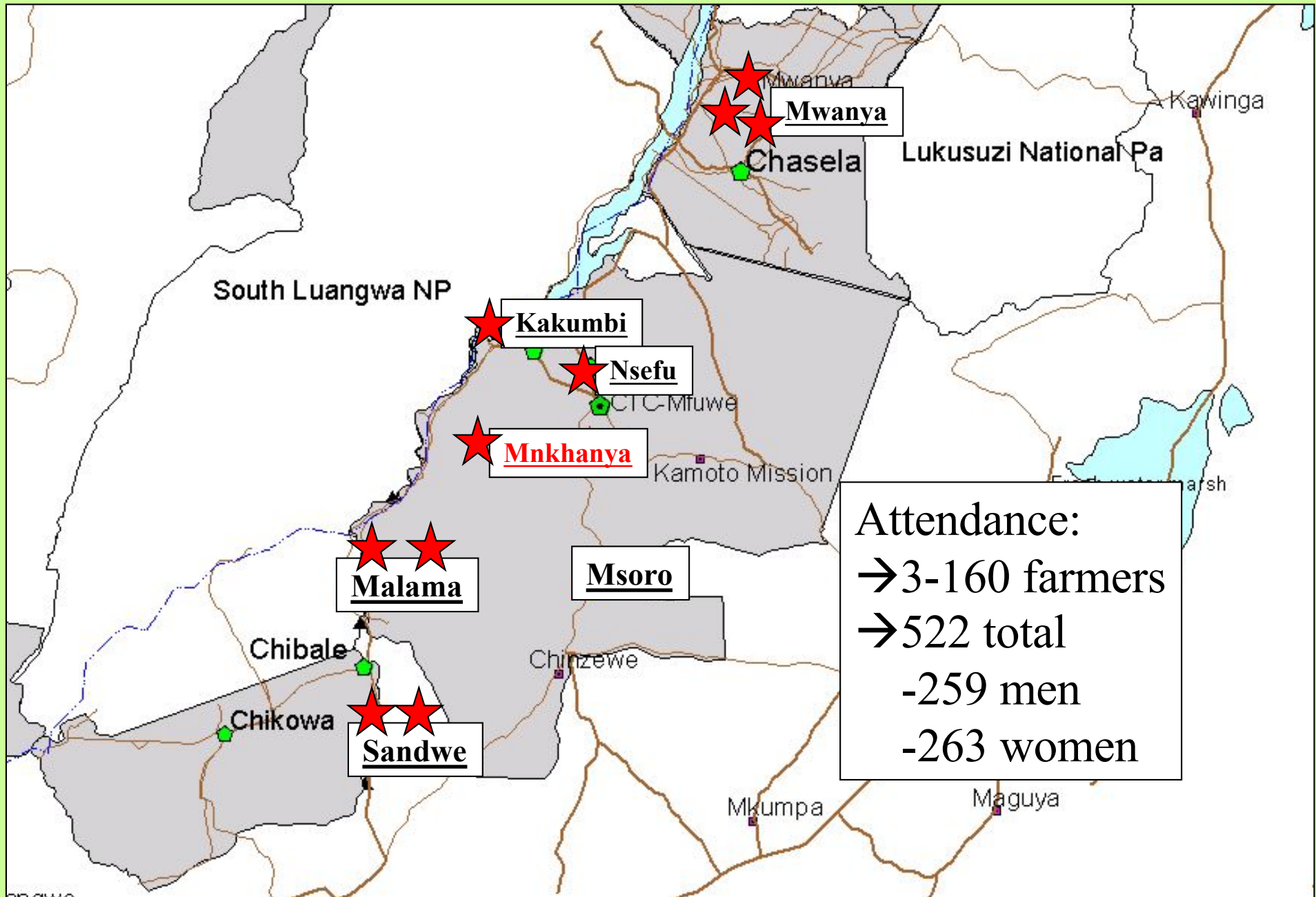
Training sessions

- farmer questionnaire
 - 9 questions
 - basic health and husbandry parameters
- information manual
 - nutrition
 - housing
 - common diseases and disease prevention
- necropsies on sick birds
- fecal samples



Training sessions

★ Chifunda (Lundazi district)



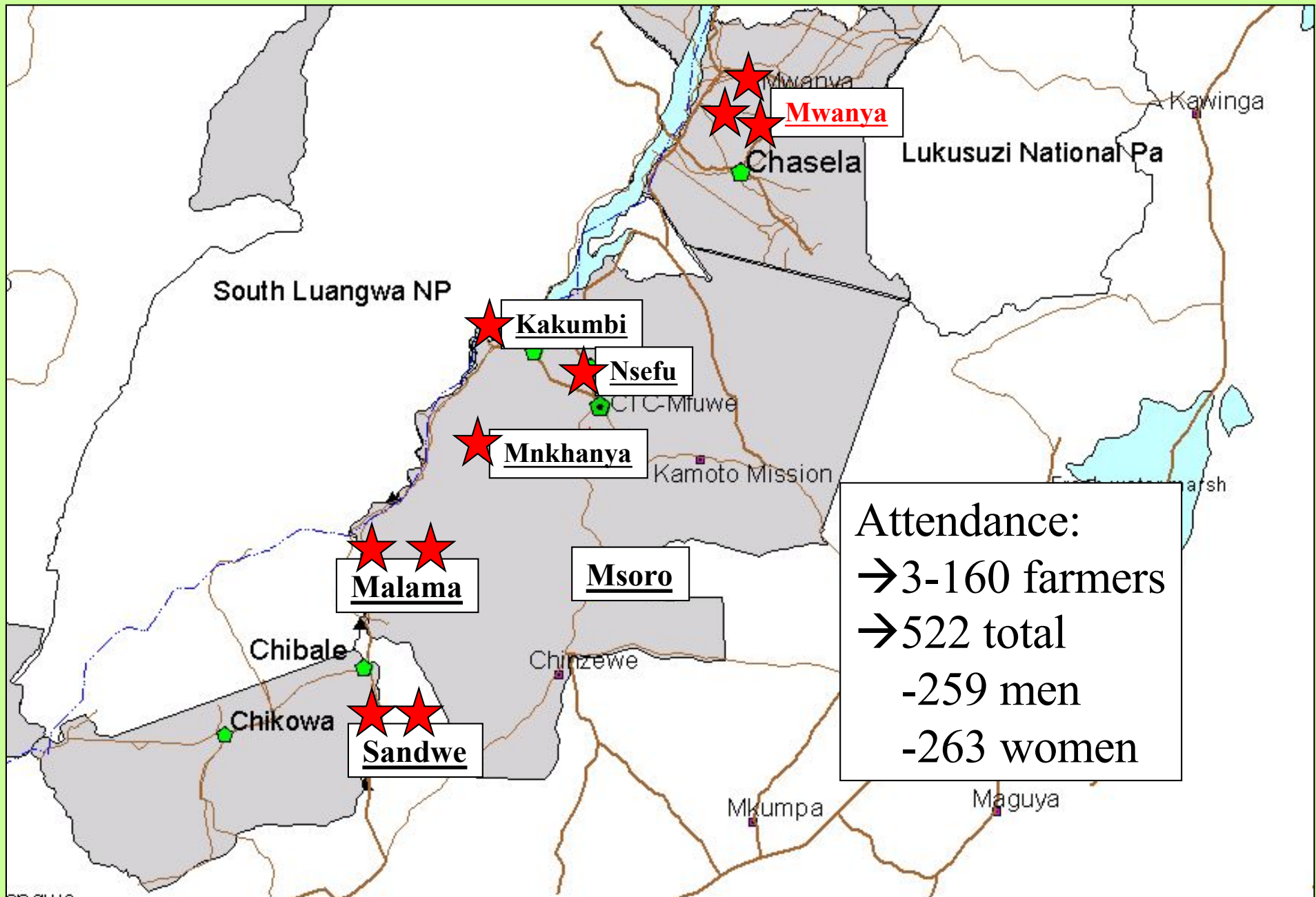






Training sessions

★ Chifunda (Lundazi district)























Video!





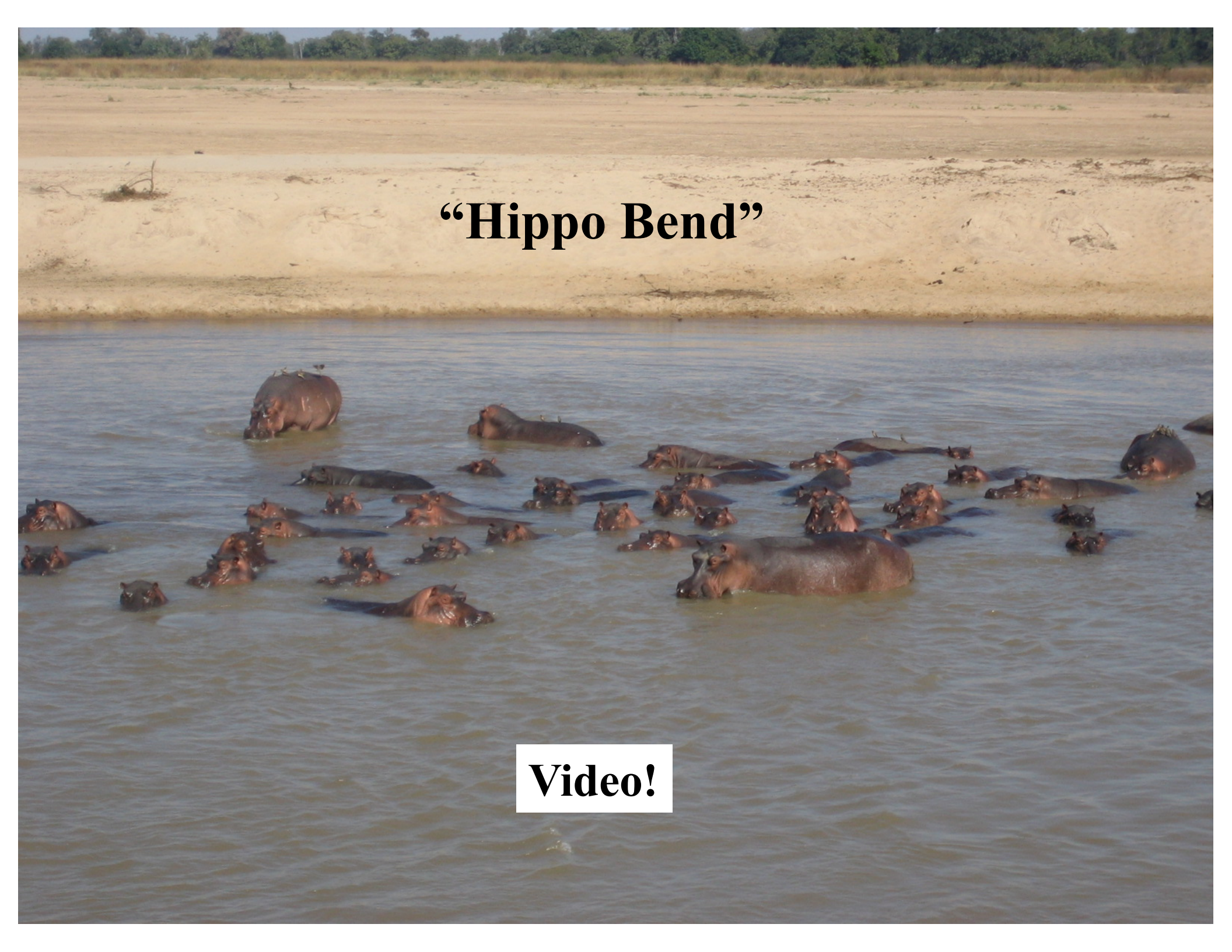










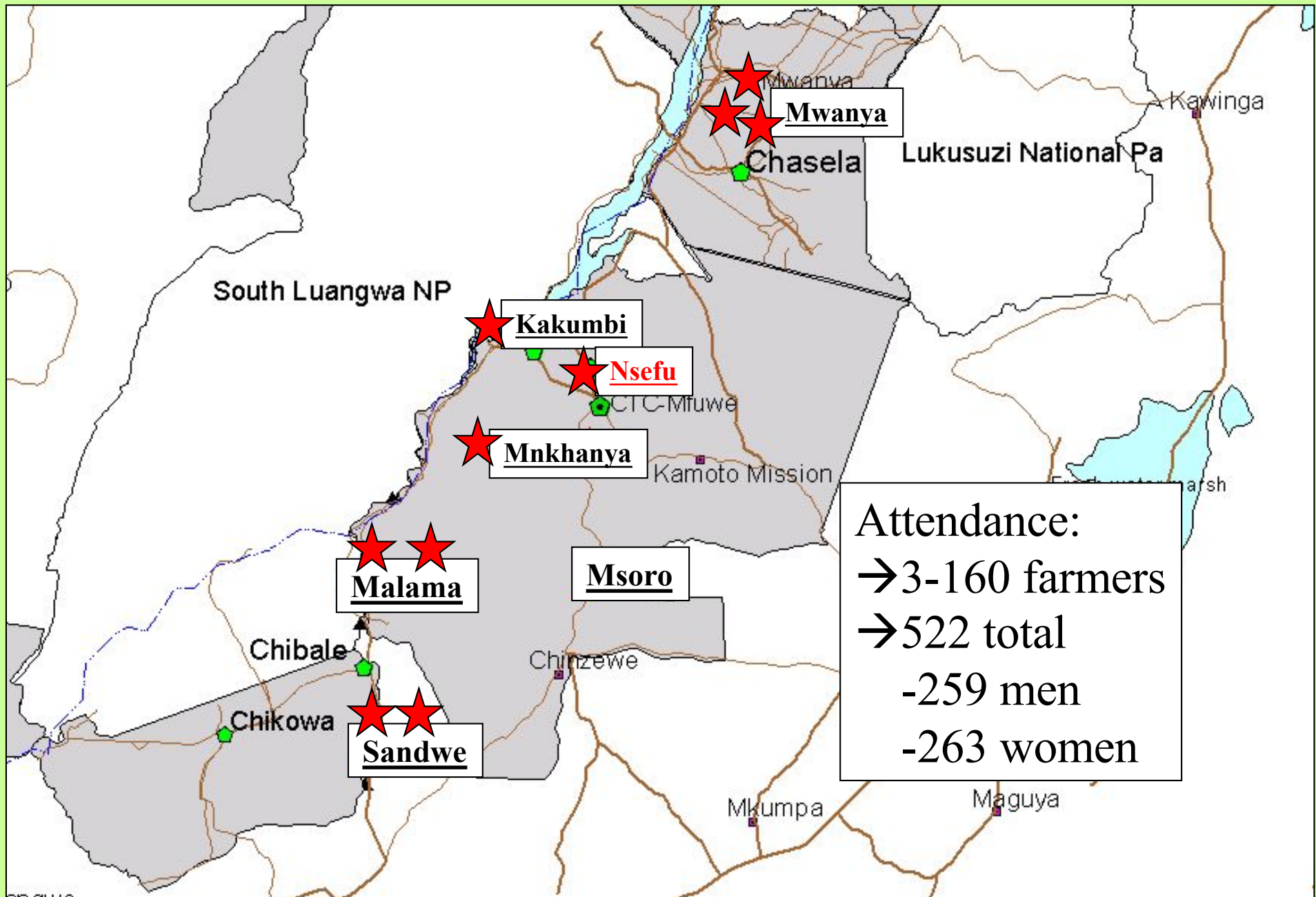
A large herd of hippos is gathered in a river. The hippos are of various sizes, including adults and young calves. They are mostly submerged in the water, with only their heads and backs visible. The water is a murky, brownish-green color. In the background, there is a wide, sandy riverbank that slopes down from the top of the frame. The bank is mostly bare, with some sparse, dry vegetation. A line of green trees is visible on the far side of the bank. The sky is not clearly visible, appearing as a pale blue at the top edge.

“Hippo Bend”

Video!

Training sessions

★ Chifunda (Lundazi district)



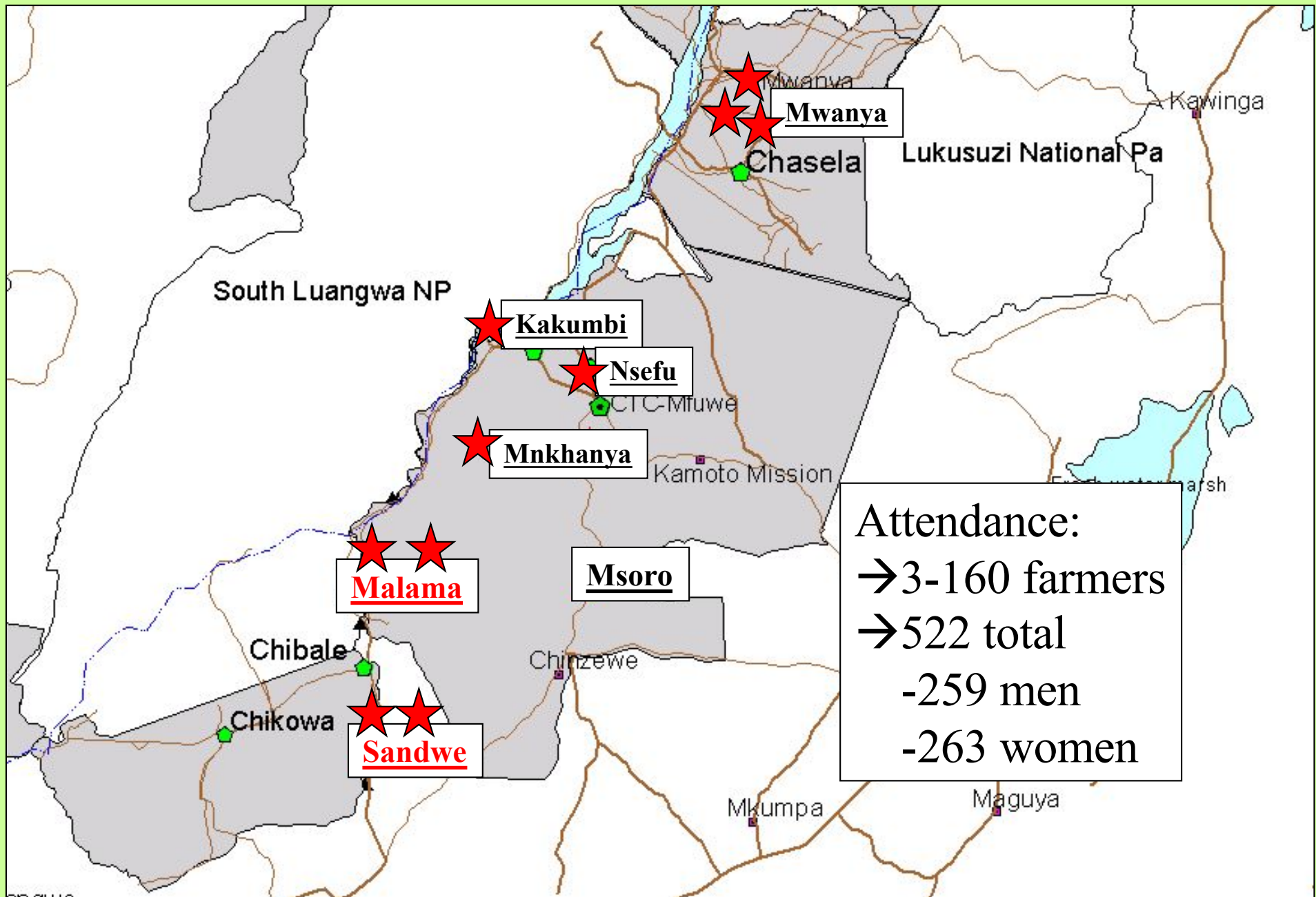






Training sessions

★ Chifunda (Lundazi district)









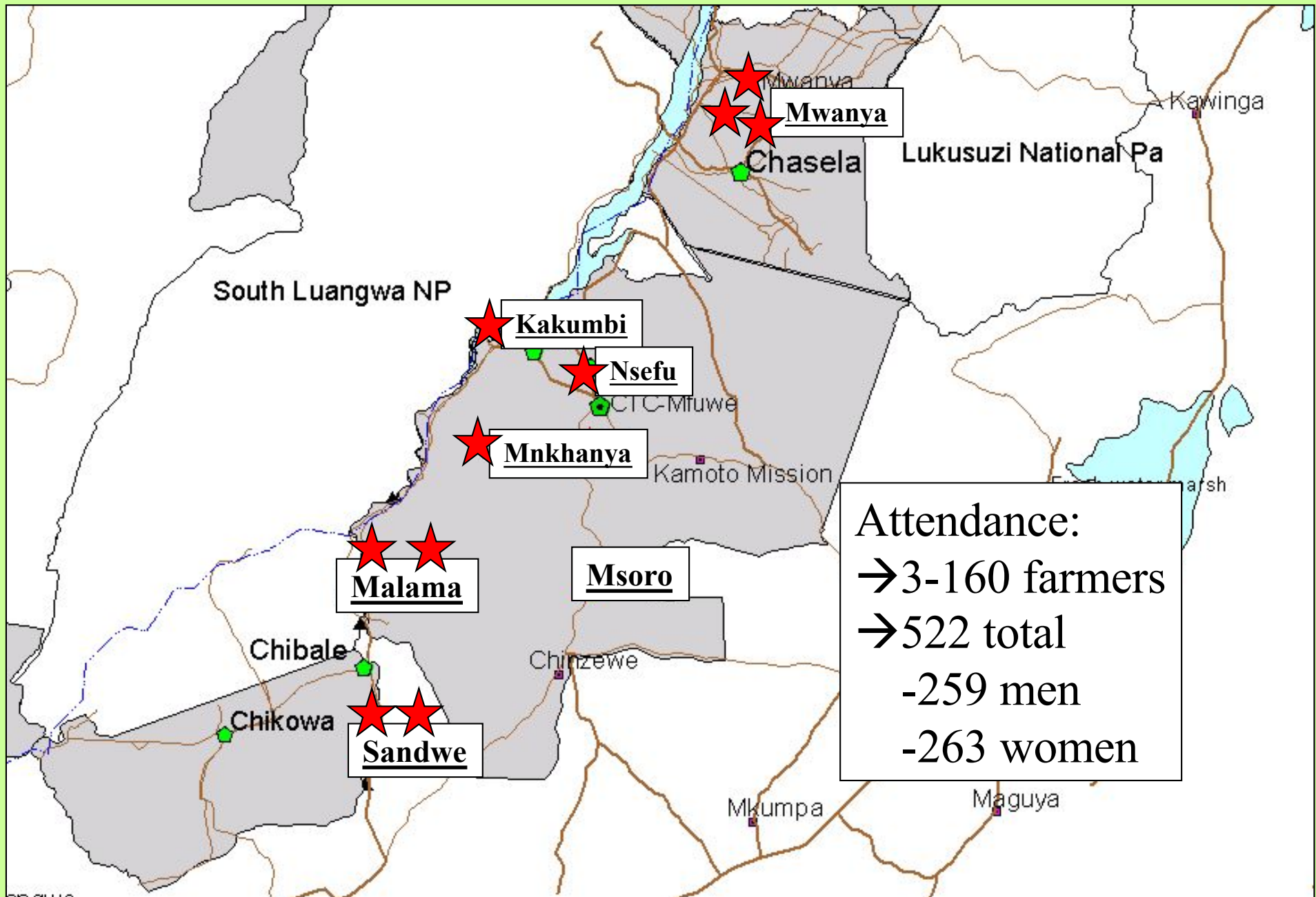






Training sessions

★ Chifunda (Lundazi district)







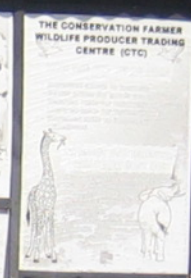


DEPOT MANAGER.

HOW TO SALE THROUGH COMACO

- You have to be a member of a producer group
- Practice Conservation farming.
- Follow the by-laws of the farmer groups
- Support your community in Resource Management:
- By not causing bush fires and cutting down of trees
- Stop being involved in any poaching activities

COMACO:
STANDS FOR:
COMMUNITY MARKETING FOR
CONSERVATION AND RURAL
LIVELIHOOD SKILLS.
WHAT IT IS:
IT IS YOUR COMPANY
FIGHTING POVERTY AND
POACHING WITH MARKET
THAT SUPPORT YOUR
NEEDS.



Farmer questionnaire

1) Average number of chickens owned by individual/family:

-20 (10-45)

2) When chickens lay eggs:

-63% of groups → year round, 4x/year

-37% of groups → seasonal, not in hot/rainy season

3) Number of eggs per clutch:

-14

4) Hatchability of eggs:

-78% during dry season, 22% during hot/rainy season

Farmer questionnaire...

5) Where chickens are sheltered:

- chicken houses
- people's houses



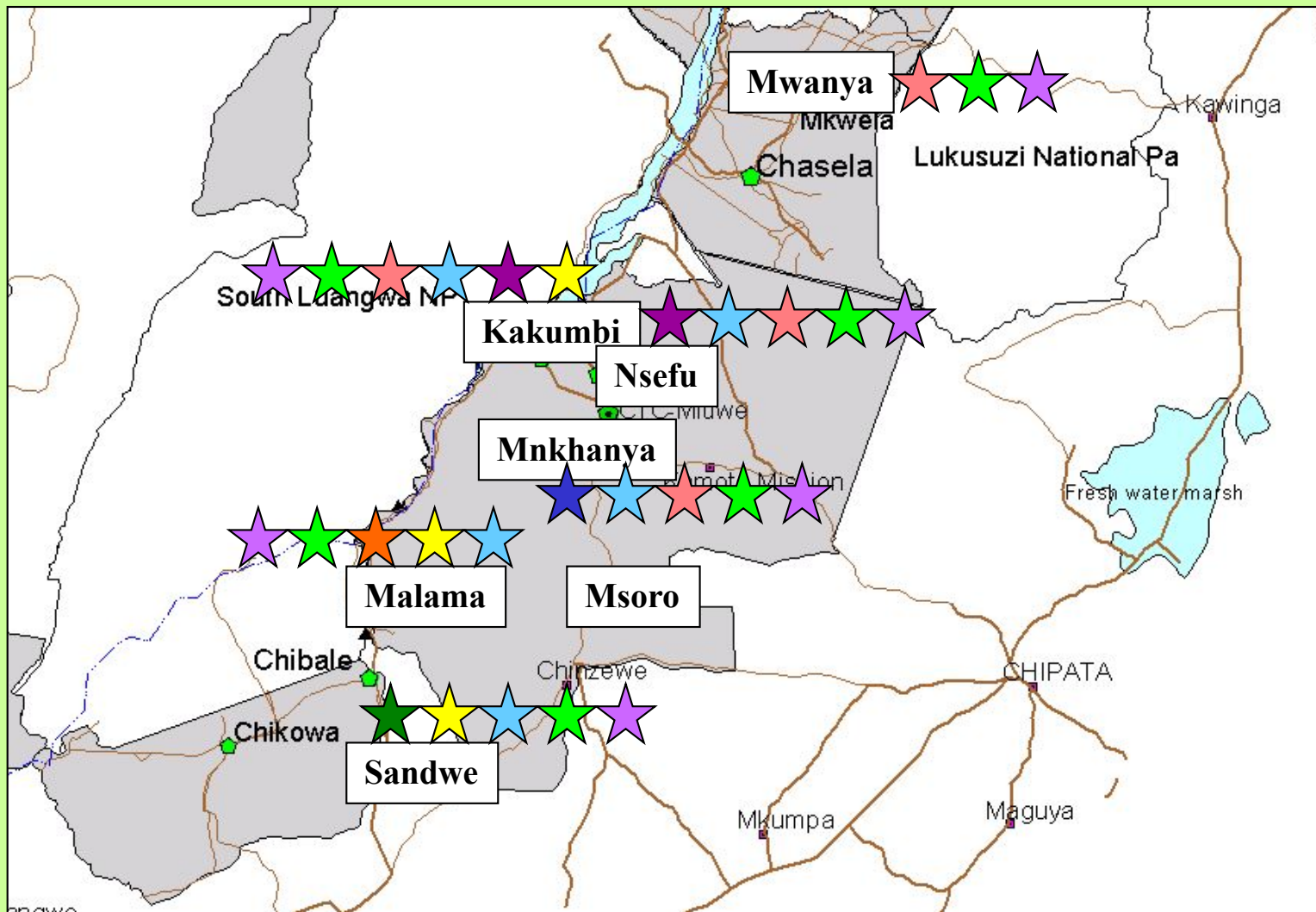
6) Predators:

Wildcats	91%
Snakes	63%
Birds	54%
Monitor Lizard	45%
Hyaena	36%
Baboon	18%
Honey Badger	18%
Cheetah	9%
Lion	9%



Farmer questionnaire... predation

Chifunda



- ★ = lion
- ★ = cheetah
- ★ = honey badger
- ★ = baboon
- ★ = hyaena
- ★ = monitor lizard
- ★ = birds
- ★ = wildcats
- ★ = snakes

Farmer questionnaire...

7) Is disease seasonal?

- hot/rainy season (October-January)

8) What are common clinical signs?

- Diarrhea (white >> green)

- Hypersalivation

- Nervous system signs

- Coughing

- Sneezing

- Depression

- Inappetance

- Ruffled feathers

- Hyperemia

Newcastle Disease

- Gastrointestinal – green diarrhea
- Respiratory
- Nervous system

- Widespread hemorrhage/necrosis
 - Proventriculus
 - Ceca
 - Small intestines
 - Lungs
 - Heart
 - Liver
 - spleen

Salmonella

- Gastrointestinal – white diarrhea
- Respiratory
- Nervous system

- White focal hepatic necrosis
- Whitish nodules in lungs, myocardium, pancreas
- Caseous material in ceca
- Swollen joints, yellowish fluid
- No abnormalities

Poultry Health and Management

A guide to raising healthy village poultry

Compiled by: Erin McDonald

Special thanks for illustrations:

Network for Smallholder Poultry Development, Denmark

Supported by:

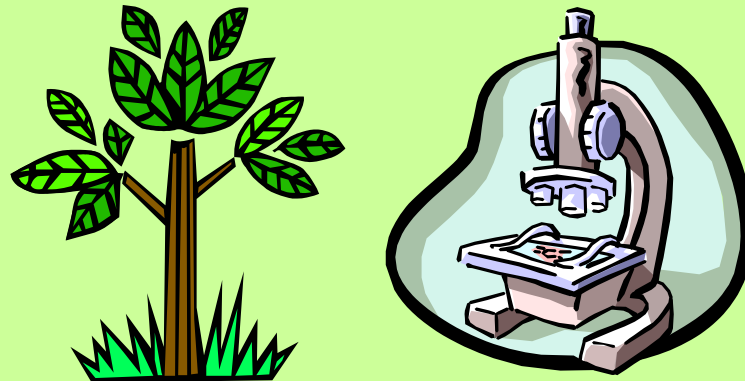
Wildlife Conservation Society

Cornell University

USAID

SANREM CRSP

VirginiaTech



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Nutrition...

Housing...

Health and disease...

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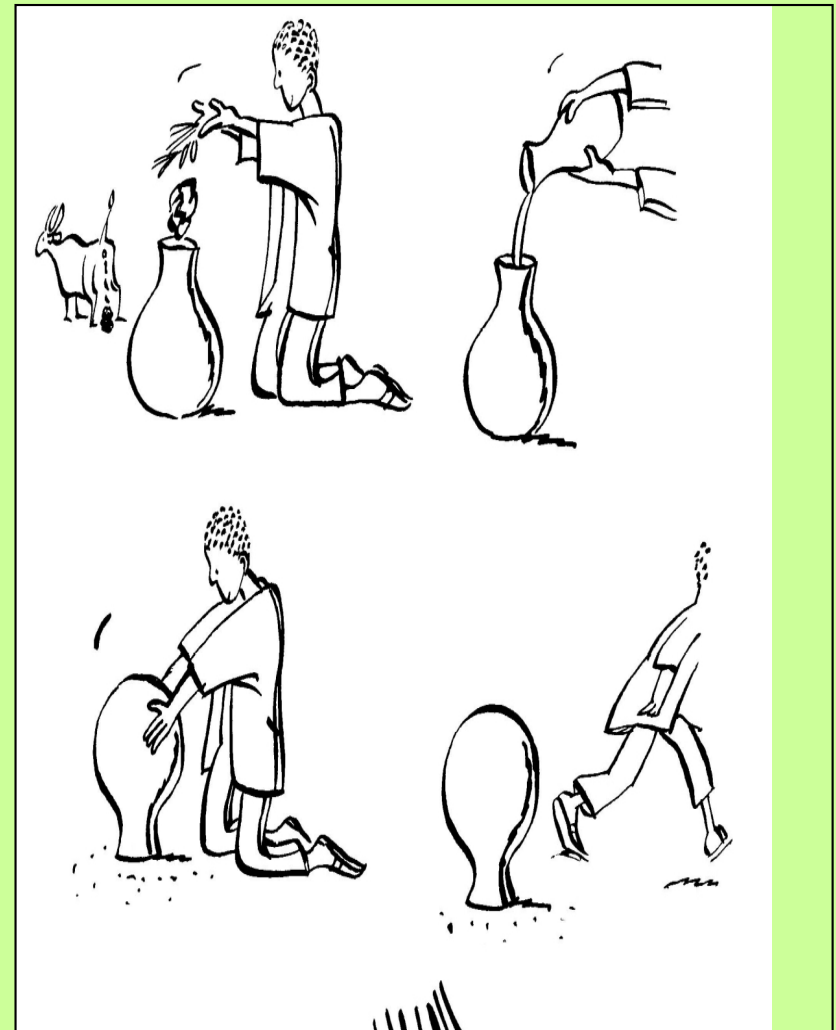
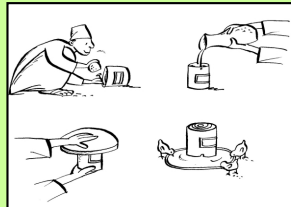
Nutrition:

Local sources of:

- protein – maggots and termites→
- vitamins and minerals
- carbohydrates

Feeding chicks vs. adults

Providing water!!



Illustrations: Network for Smallholder Poultry Development, Denmark

Housing:

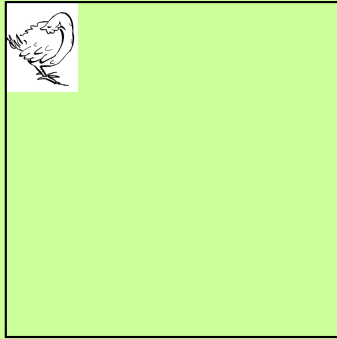
- advantages and disadvantages
- cleaning, predation, temperature



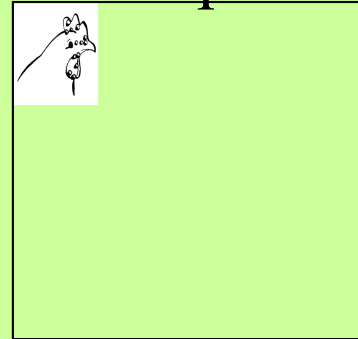
-people's houses!

Common Poultry Diseases:

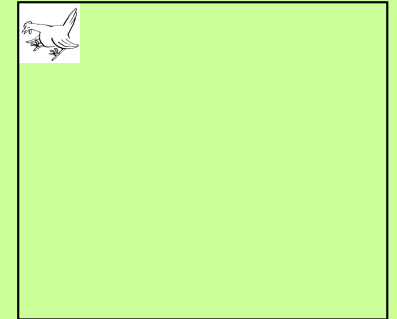
-Newcastle Disease Virus



-Fowlpox



-Marek's Disease



-Internal parasites
(coccidiosis, tapeworms, ascarids)



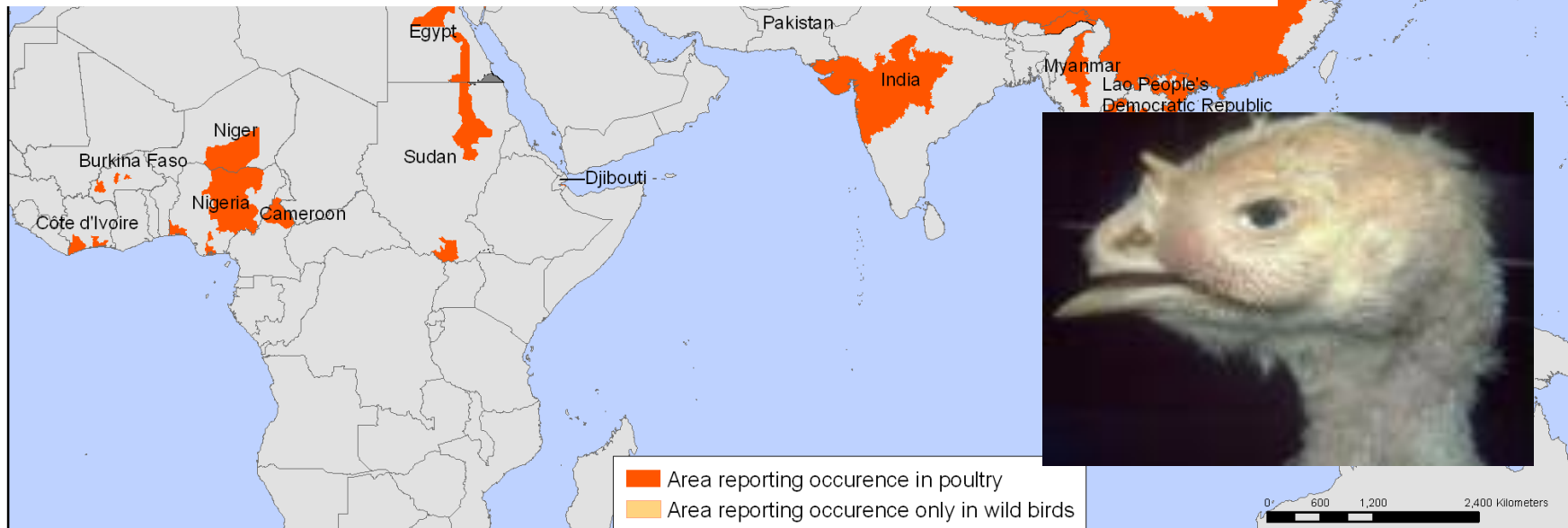
-reduction of incidence and spread

Highly Pathogenic Avian Influenza Awareness

Areas reporting confirmed occurrence of H5N1 avian influenza in poultry and wild birds since 2003

Status as of 01 December 2006
Latest available update

- recognizing clinical signs in poultry
- differentiation from Newcastle Disease
- protocols in case of disease
- disease transmission → wild birds, ducks, humans
- recognizing clinical signs in humans



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The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

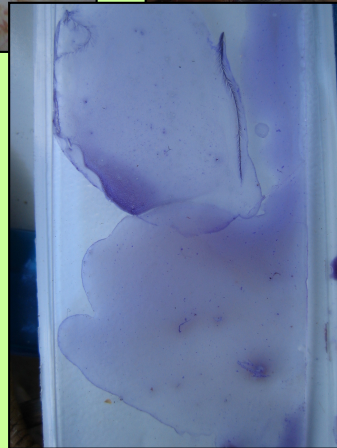
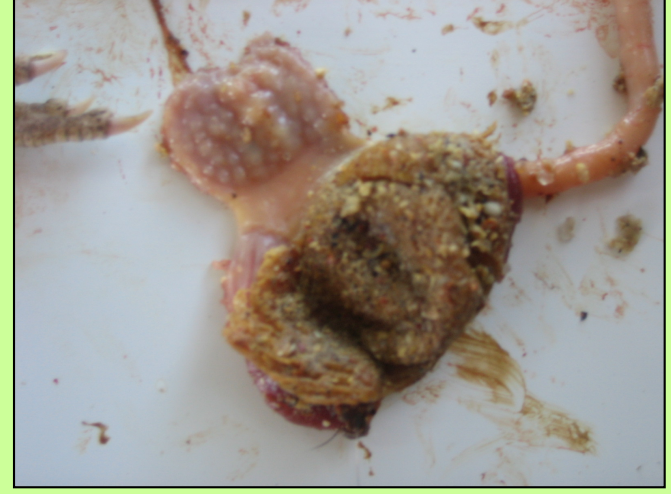
Data Source: World Organisation for Animal Health (OIE) and national governments

Map Production: Public Health Mapping and GIS
Communicable Diseases (CDS) World Health Organization

<http://gamapserver.who.int/mapLibrary/app/searchResults.aspx>

Necropsy Results

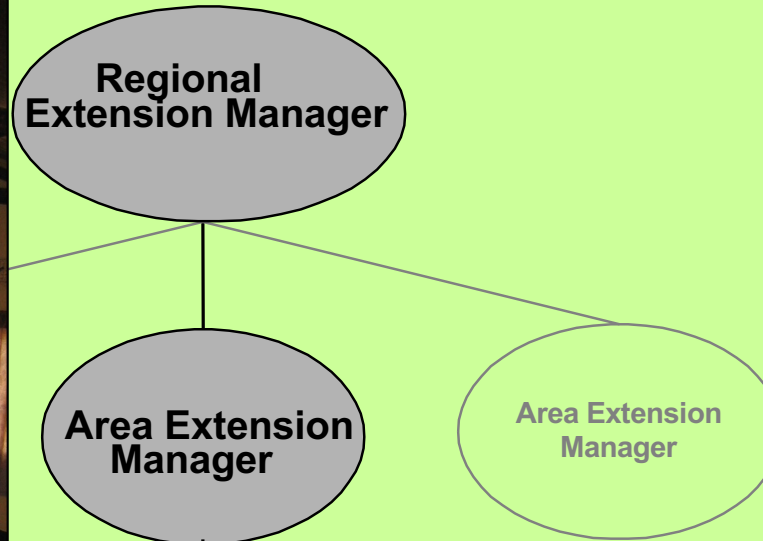




Fecal Flotation Results

...to be continued...

Extension Officer Training



Extens
Superv

Train

Producer
Group

Producer
Group

Producer
Group

Produ
Grou



- Poultry diseases** – nutritional, bacterial, viral, fungal, parasites
- Avian influenza preparedness**
- Necropsies** – method, technique, normal vs. abnormal
- Fecal flotation analysis** – method, technique, use of equipment, identifying parasite eggs
- Digital camera use and technique**

Resources at Mfuwe CTC:

- CD's
- textbooks
- lab equipment
- digital camera



Conclusions

-major threats to poultry are:

- poor management
- poor nutrition
- predation
- diseases:

- external and internal parasites
- Newcastle Disease Virus
- Salmonella
- Poxvirus



Next steps...

-GOOD NEWS!!!

-50% more chickens in October 2006 than in October 2005
in areas where training occurred (anecdotaly)

-Drug Trials?

-heat-stable Newcastle Disease Virus vaccination
-antibiotics, de-wormers

-Improved housing

-reduce predation
-easy, thorough cleaning

Final thoughts...



Check out COMACO at www.itswild.org for more information

Thank You...

- Expanding Horizons committee**
- Ellsworth Foundation**
- Dr. Alex Travis**
- Dr. Steve Osofsky**
- Dr. Benjamin Lucio**
- Dr. Dwight Bowman**
- Dr. Marguerite Frongillo**
- Dr. Elizabeth Buckles/Pathology department**
- Dr. Karen Trotter**
- my family**



Questions?

