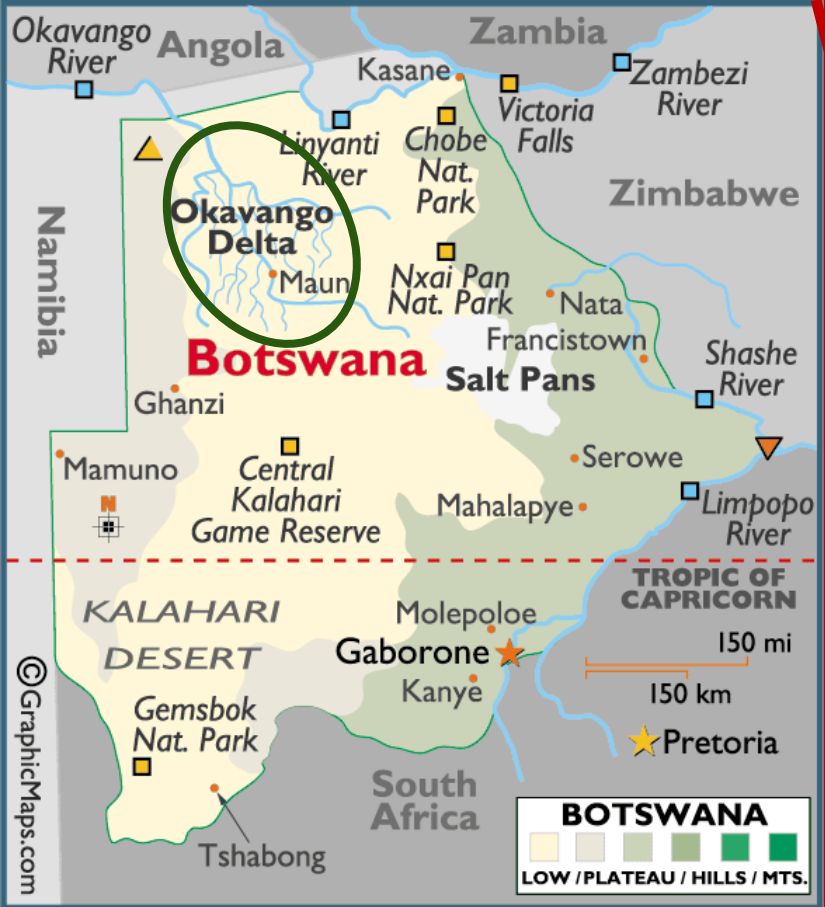


# Communication, Social Networks, and Perceptions of Water and Wildlife in the Okavango Delta, Botswana



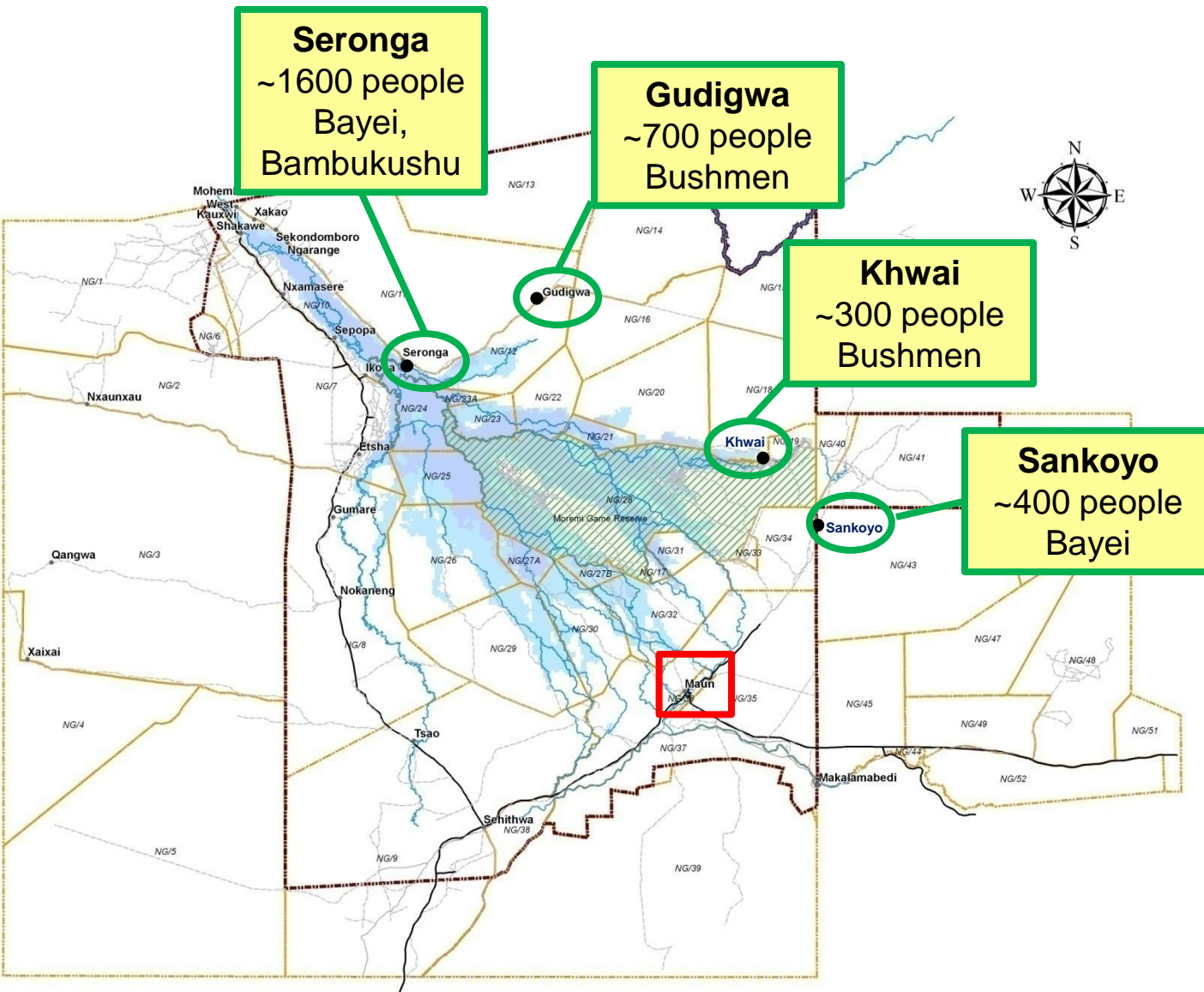
Deborah J. Wojcik, Ph.D.  
Stanford University

INTECOL  
Orlando, Florida  
June 4, 2012



© GraphicMaps.com

# THE OKAVANGO DELTA AND NORTH WEST DISTRICT



### Legend

- Village/Town
- River
- Tarred Road
- Gravel Road
- Track
- ▭ Ramsar site area
- ▭ Controlled Hunting Areas
- ▨ Moremi Game Reserve
- ▭ Delta low flood extent
- ▭ Delta high flood extent

Coordinate System: Geographic (GCS)  
Datum: WGS84

- Data Sources:
1. Okavango Delta Information System (ODIS)
  2. TAWANA LAND BOARD
  3. Consultancy for Tourism Related Sites Identification in the Okavango Delta Ramsar Site (ODRS)
  4. Department of Tourism (Maun)
- Prepared by: Masego Dhlwayo, HOORC



Map courtesy of Masego Dhlwayo, Okavango Research Institute, Maun, Botswana

Variability of rainfall and  
seasonable flooding  
has increased

Models vary but predict that water  
resources could decrease by 25% over  
the next several decades (IPCC 2007)







Community-based natural resource management (CBNRM) implemented to pursue joint conservation and development goals



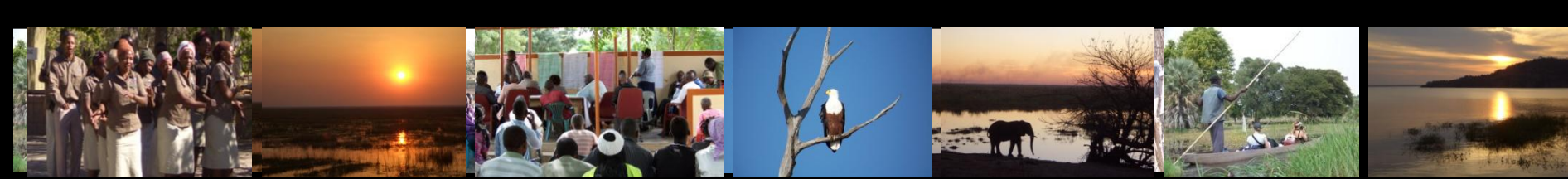


# Problem Statement

- For people to adapt to changing and uncertain environmental and social conditions, new information must be accessed, integrated and acted upon

(Kaplan & Kaplan 1982)





# Problem Statement

- Information in natural resource governance is important:
  - Transparency
  - Accountability
  - Participatory decision-making (Mandondo 2000)
- Participation paradigm
  - Participation as development orthodoxy (Cornwall 2003:1325)
  - Integration and empowerment of local people in natural resource decision making





## Many variables can affect communication, learning, and perceptions of natural resources

(Kaplan & Kaplan 1982; Dunbar 2003, 2008)

- Group size and structure impacts communication, learning, trust, sharing of ideas, and capacity to adapt

(Millar and Curtis 1999)

- Gender
- Ethnicity





# Social networks approach

- Quantitative analysis of connections and group characteristics (Borgatti et al. 2009)
- Relationships among actors are key (Wasserman and Faust 1994)
- Social structures affect communication and access to information (Belaire et al. 2011)
- Social networks affect natural resource management and can build socio-ecological resilience and aid adaptation (Tompkins and Adger 2004)



# Research Questions

Q1. How do social network characteristics related to information flow vary with community size?

Q2a. To what extent do people tend to communicate more with people of their own gender or ethnicity?

Q2b. How might these social dynamics affect communication and participation in natural resource decision making?



# Research Questions

Q3a. Are there differences in the ways rural community members perceive water and wildlife?

Q3b. What factors help explain these differences?



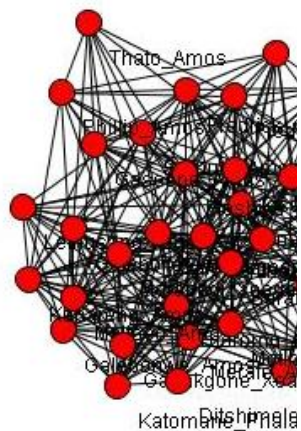
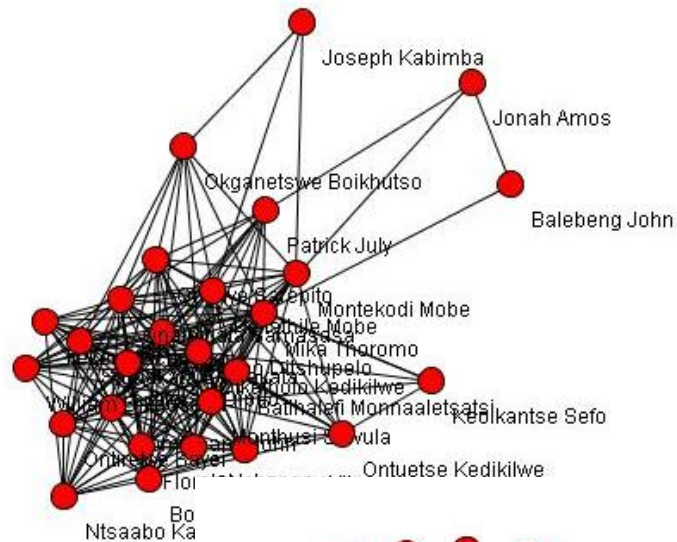
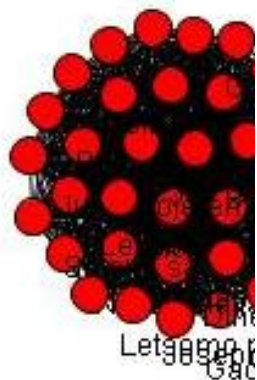
Conducted  
personal  
network  
interviews

Overlapped  
personal  
networks

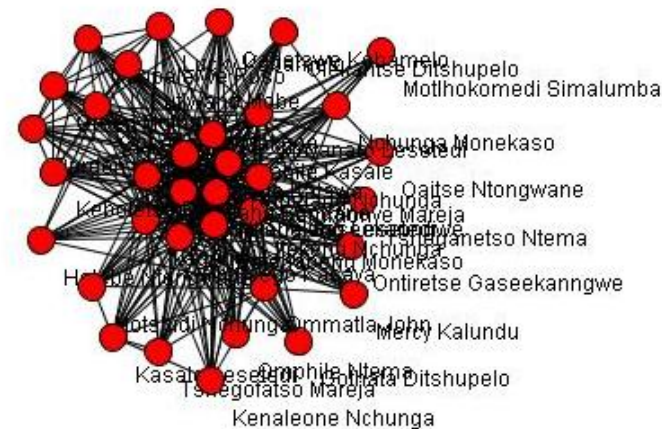
Analyzed  
whole  
networks for  
each village

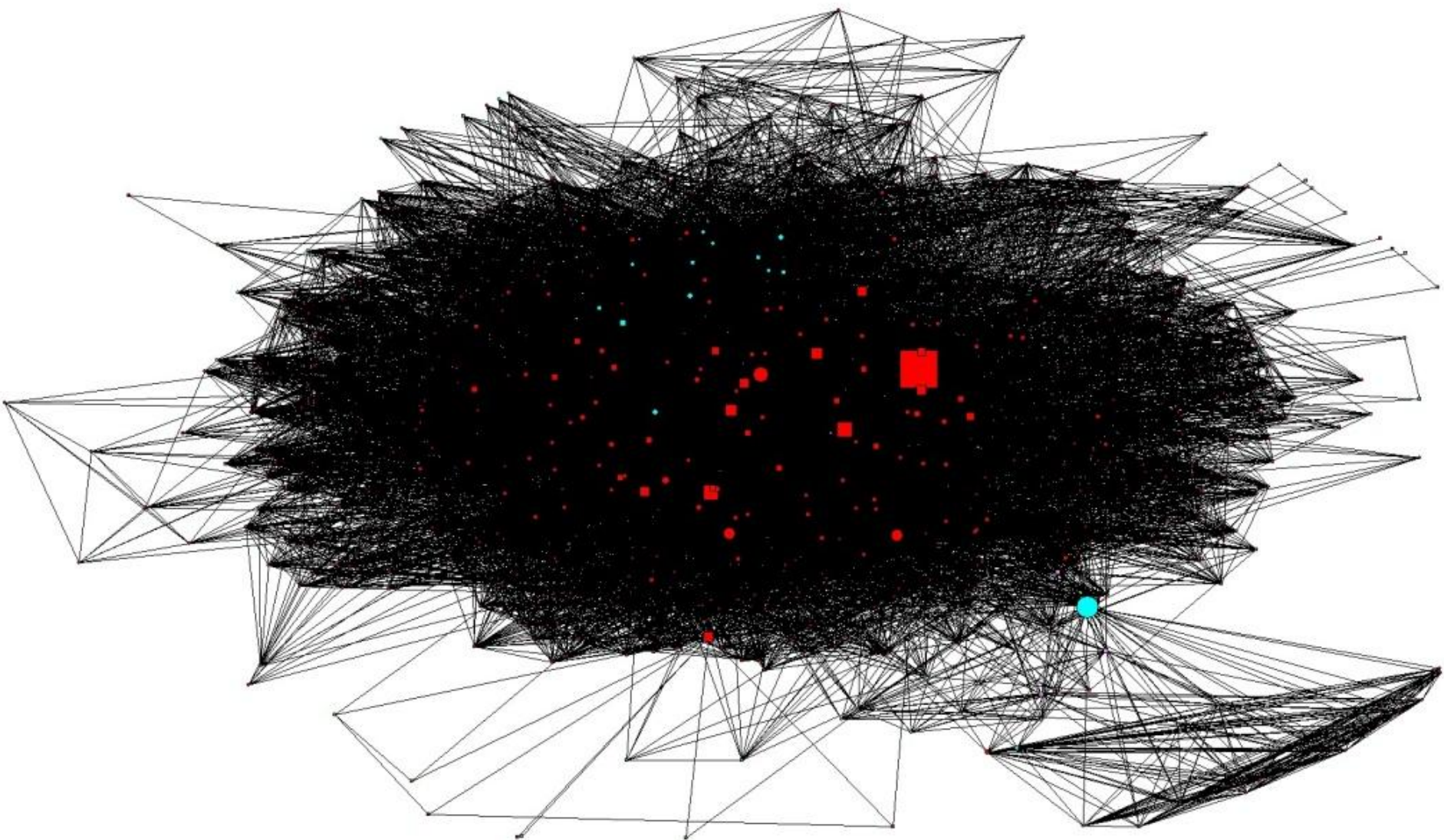


- Isaac Jane
- Onkemetse Mothibi
- Tshotlego Fulata
- Motshwantshi Bakhai



- Thatayaone Manoko
- Onkamile Tihogo



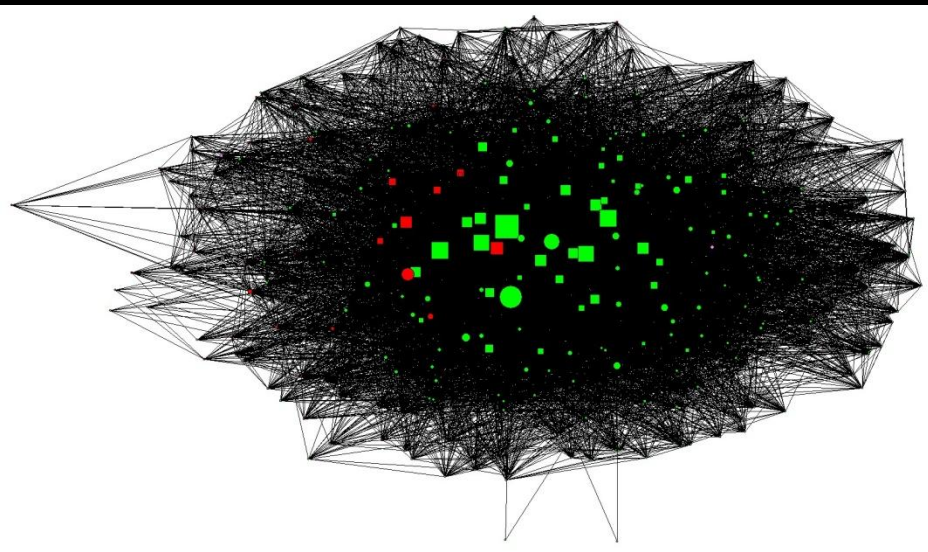


□ = Male ○ = Female

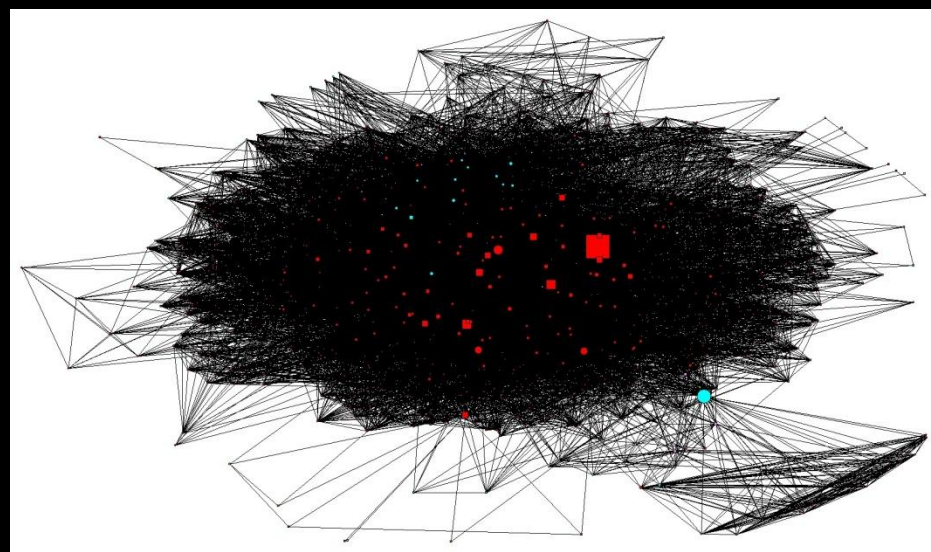
Green=Bushmen Red=Bayeyi Orange=Bambukushu Blue=Basubiya



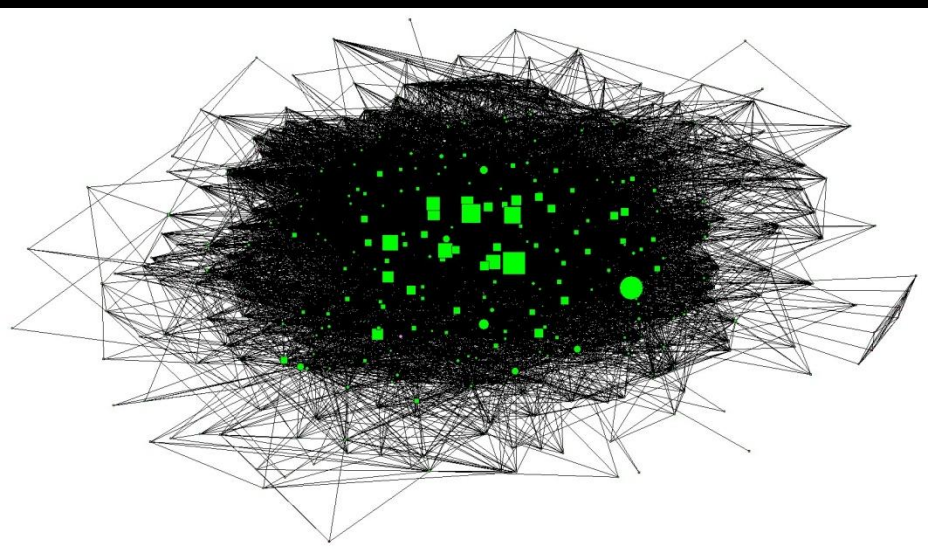
□ = Male ○ = Female    Green=Bushmen    Red=Bayeyi    Orange=Bambukushu    Blue=Basubiya



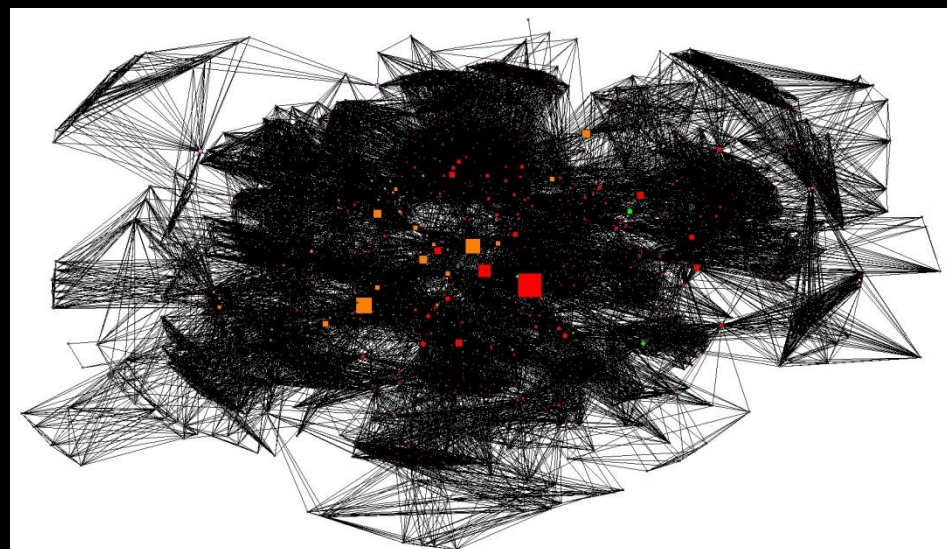
Khwai



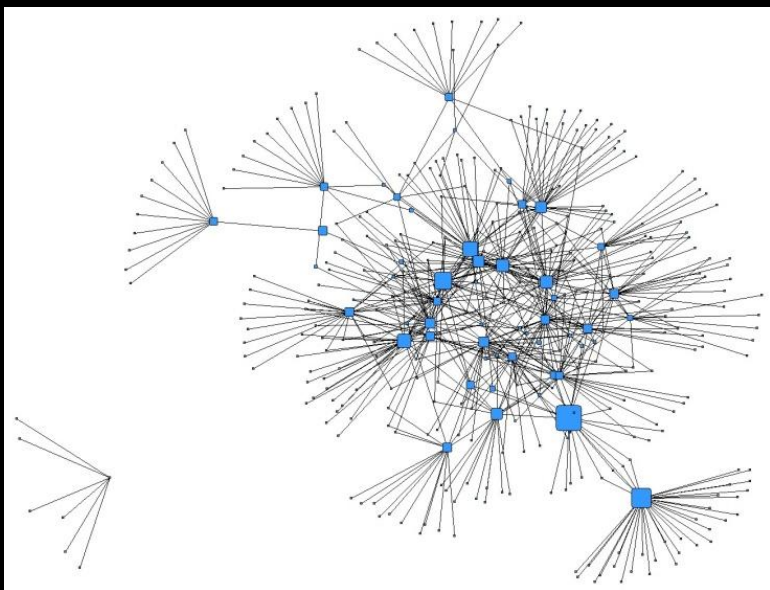
Sankoyo



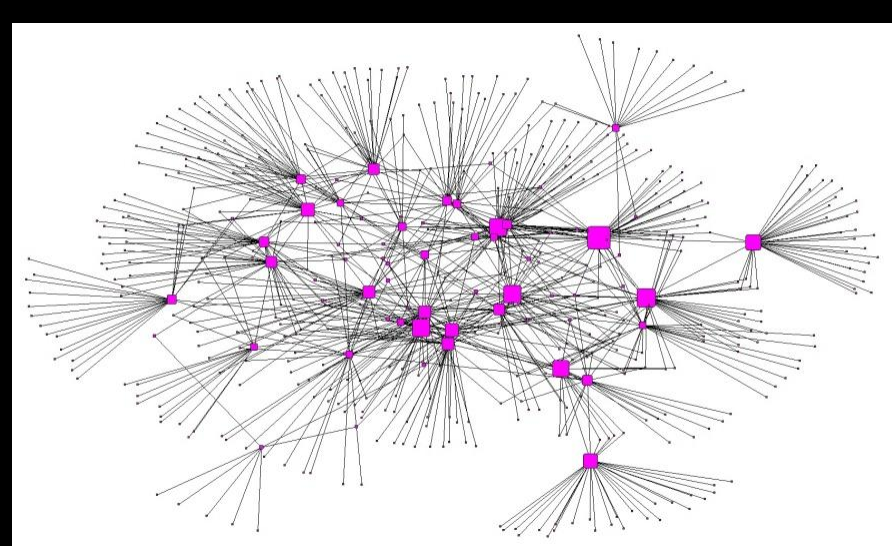
Gudigwa



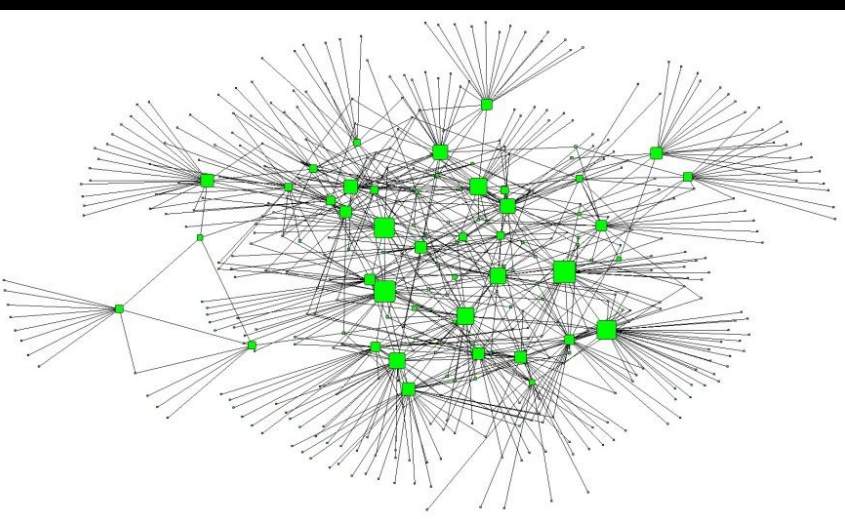
Seronga



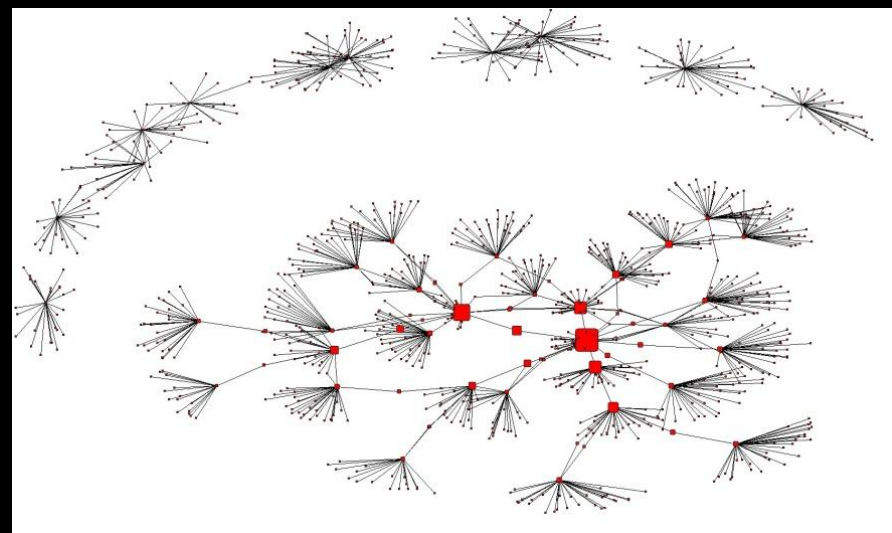
**Khwai**



**Sankoyo**

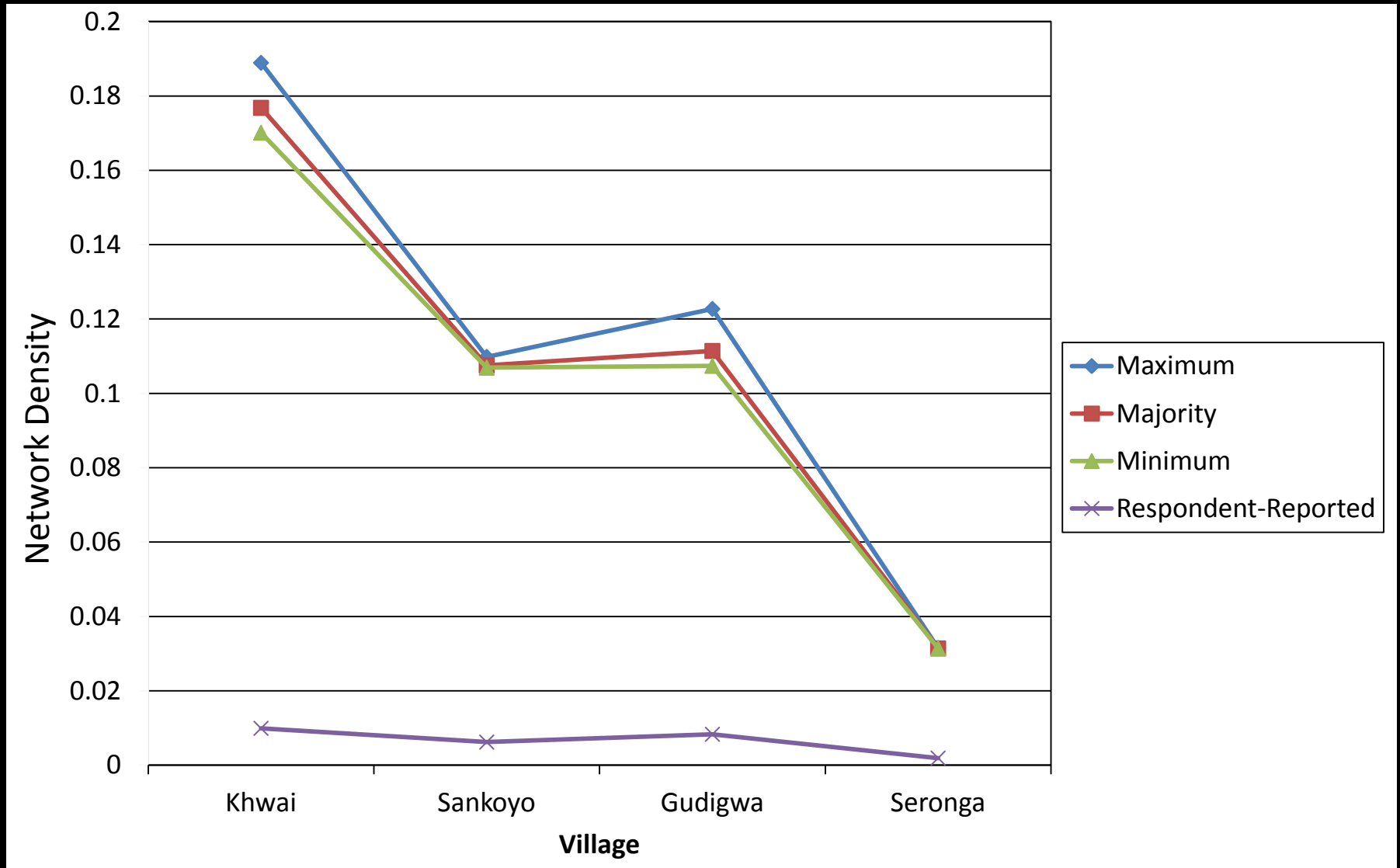


**Gudigwa**

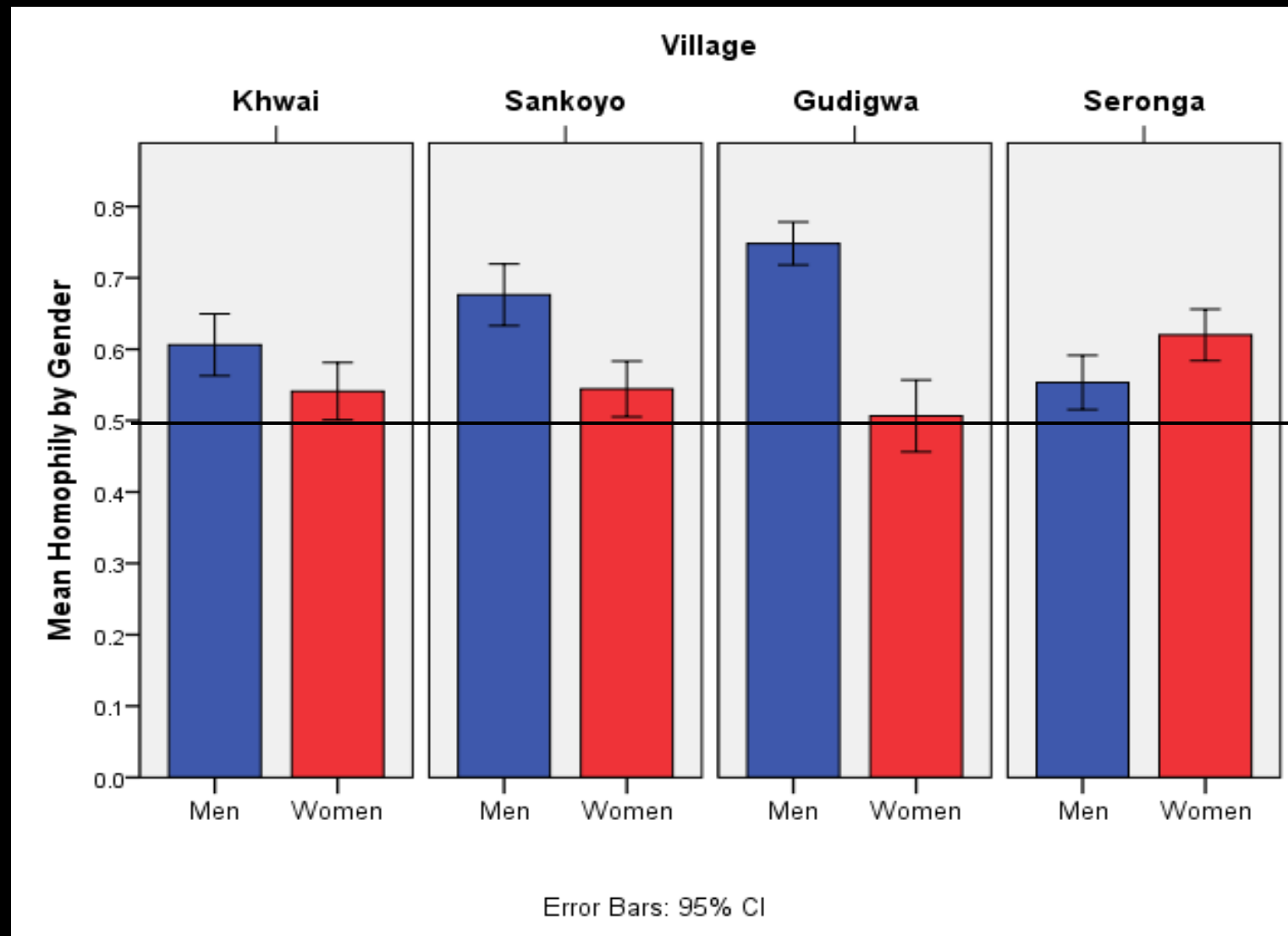


**Seronga**

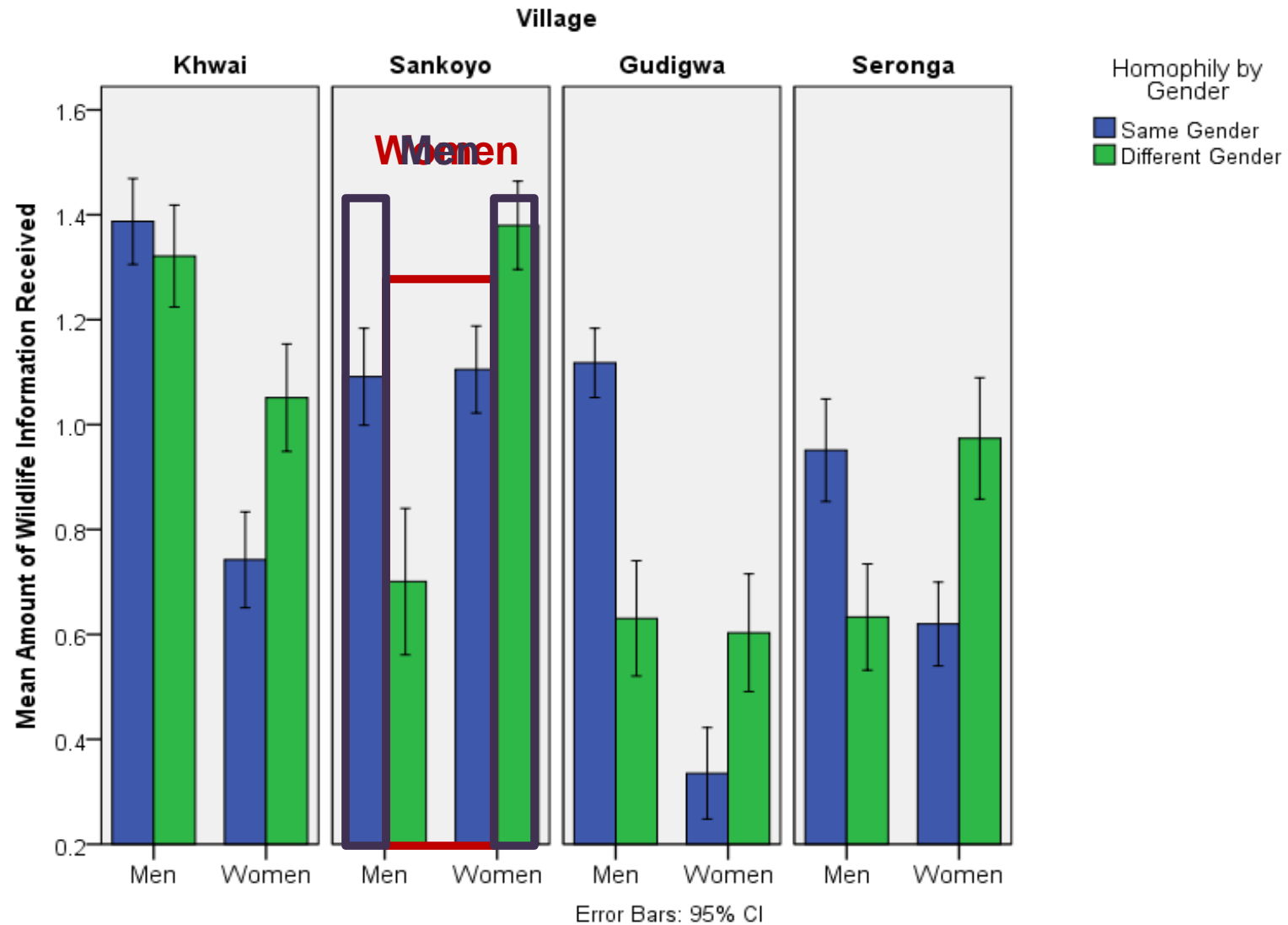
# Network density decreased with increased village size



# Men and women generally communicated more with their own gender

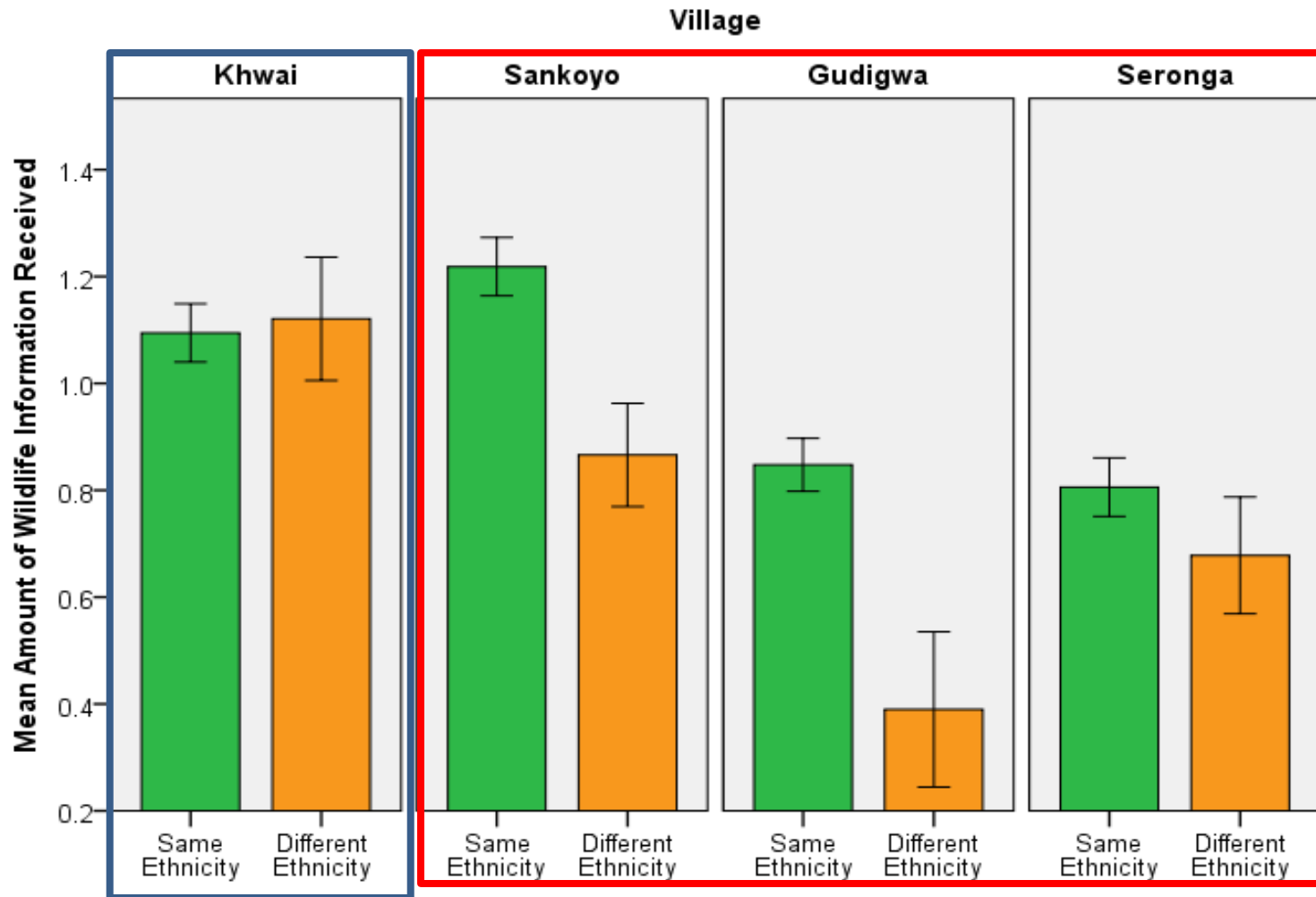


# Both men and women reported getting more information from men about wildlife





# People reported receiving more information about wildlife from people of the same ethnic group



Error Bars: 95% CI



# Research Questions

Q3a. Are there differences in the ways rural community members perceive water and wildlife?

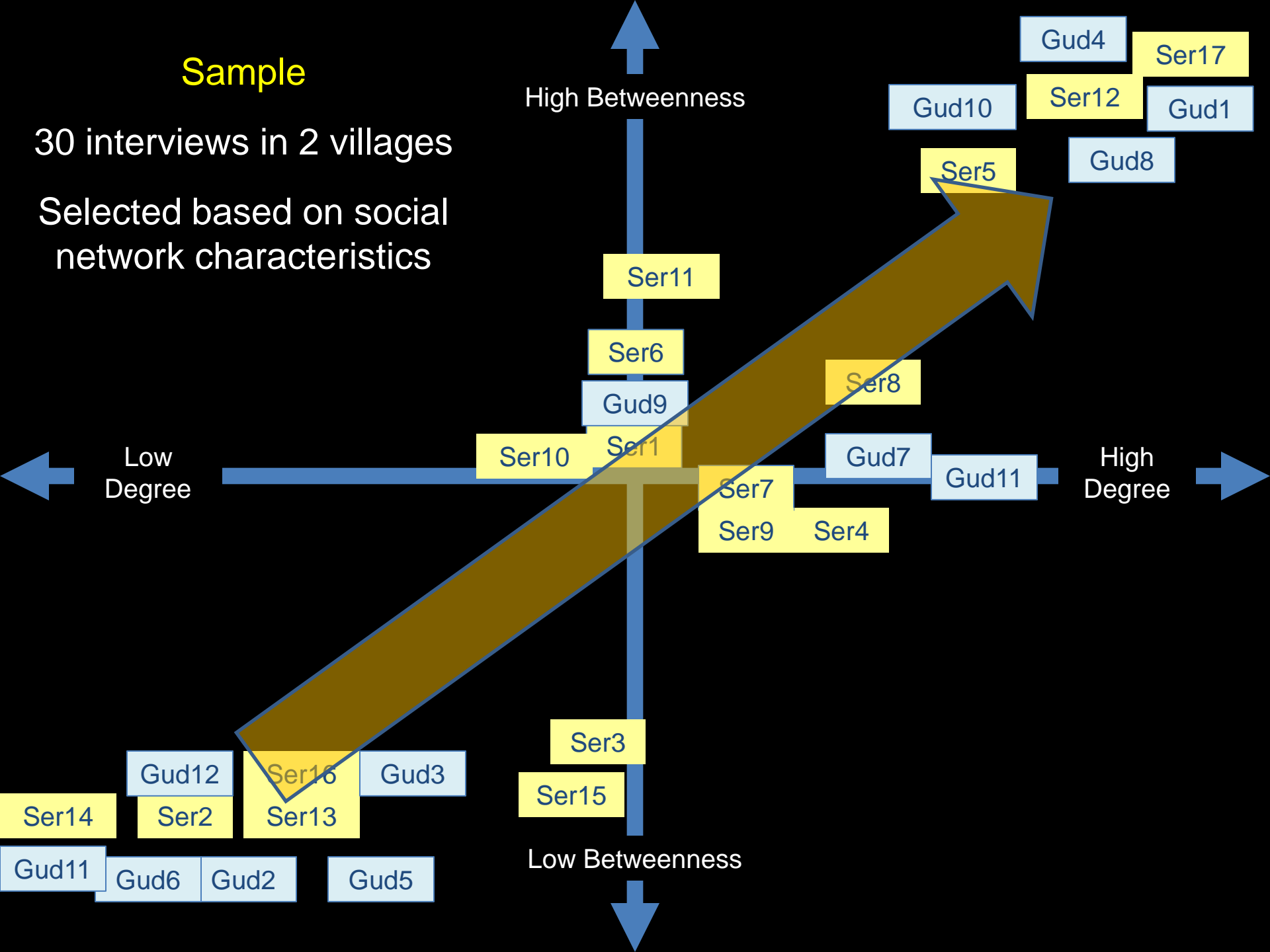
Q3b. What factors help explain these differences?



# Sample

30 interviews in 2 villages

Selected based on social network characteristics

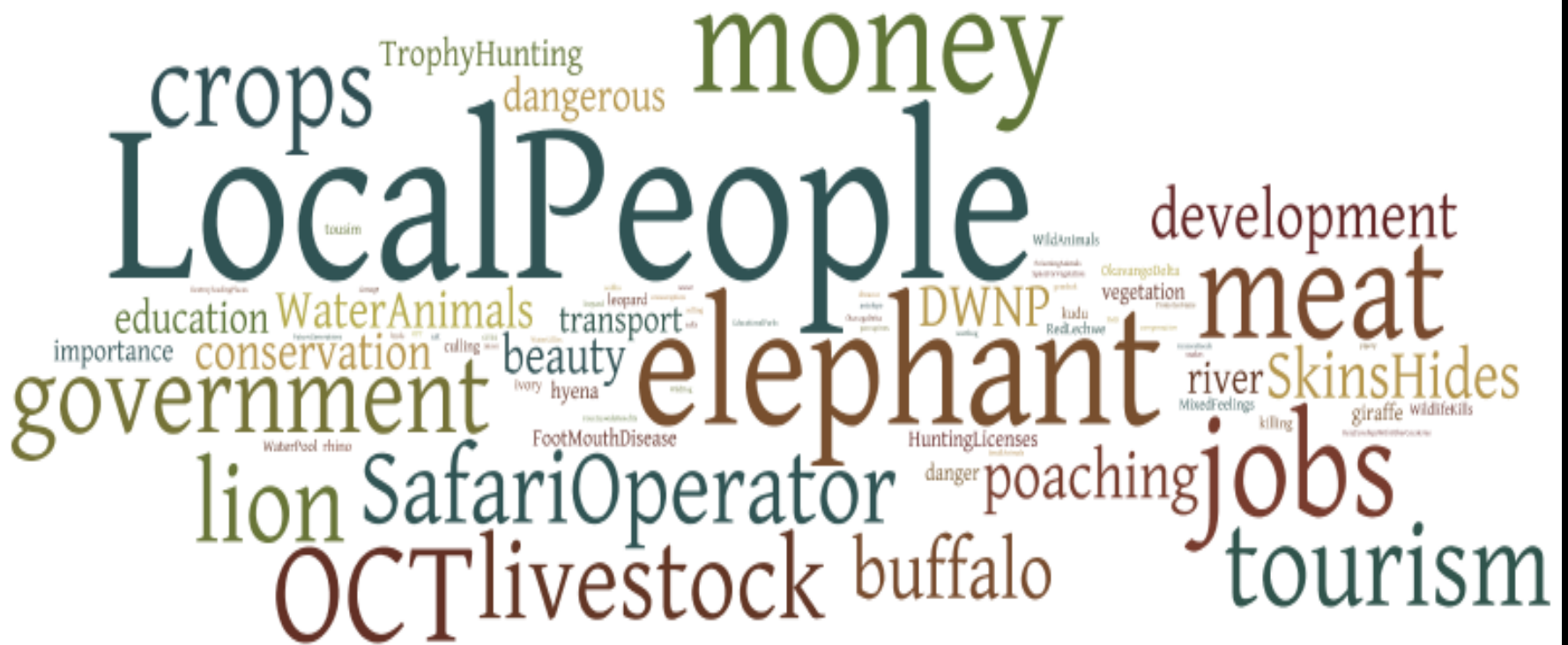


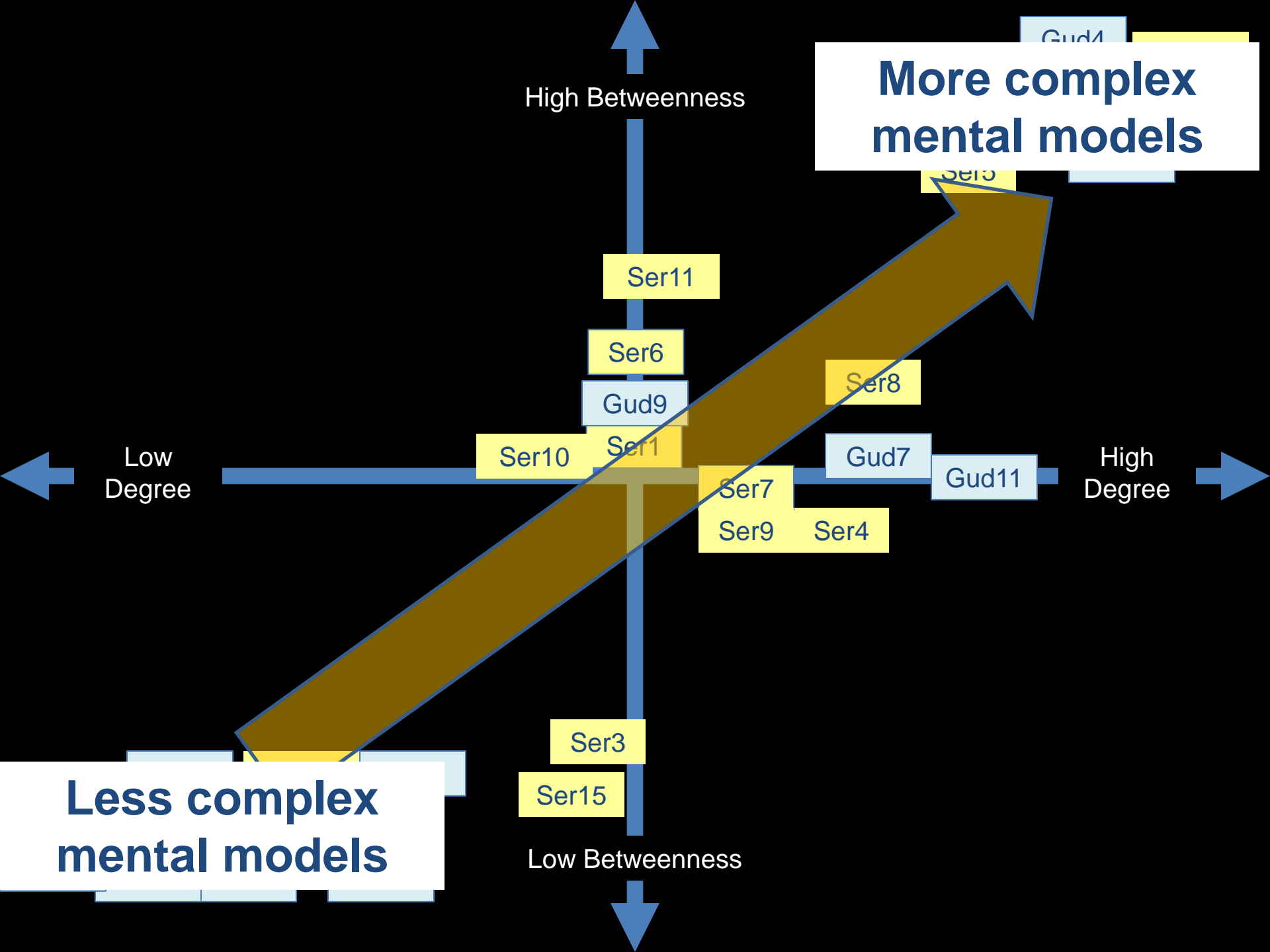


# Water Concepts



# Wildlife Concepts







# Summary

- If we want to engage *all* people in local decisions – and if people want to be engaged – then we need to know more about how people access and exchange information
- Community size, gender and ethnicity affect social dynamics, communication and integration of information



# Implications

**It is important to recognize existing social dynamics when communicating with communities.**

- Understand who already has information, who is likely to be able to help disseminate information, and who needs to be targeted specifically
- Balance benefits of small and large group size
- Create opportunities that actively and deliberately engage women and minority groups in information exchanges

## Acknowledgements

Dr. Mark Brown and the NSF IGERT Adaptive Management: Wise Use of Water, Wetlands and Watersheds Program

Drs. Monroe, Child, Cohen, McCarty and Schmink, University of Florida

Drs. Cassidy, Murray-Hudson, and Thakaduu & Mr. Masego Dhiwayo, ORC, Univ. of Botswana

Tribal Authorities, Research Assistants and Residents of Khwai, Sankoyo, Seronga and Gudigwa Villages and their associated Trusts

University of Florida Tropical Conservation and Development Program





A hippopotamus is shown in a pond, with its mouth wide open, revealing its large, yellowish teeth and pink tongue. The hippo is partially submerged in the water, which is surrounded by lily pads and tall reeds. The scene is captured in a natural, outdoor setting.

**Questions?**