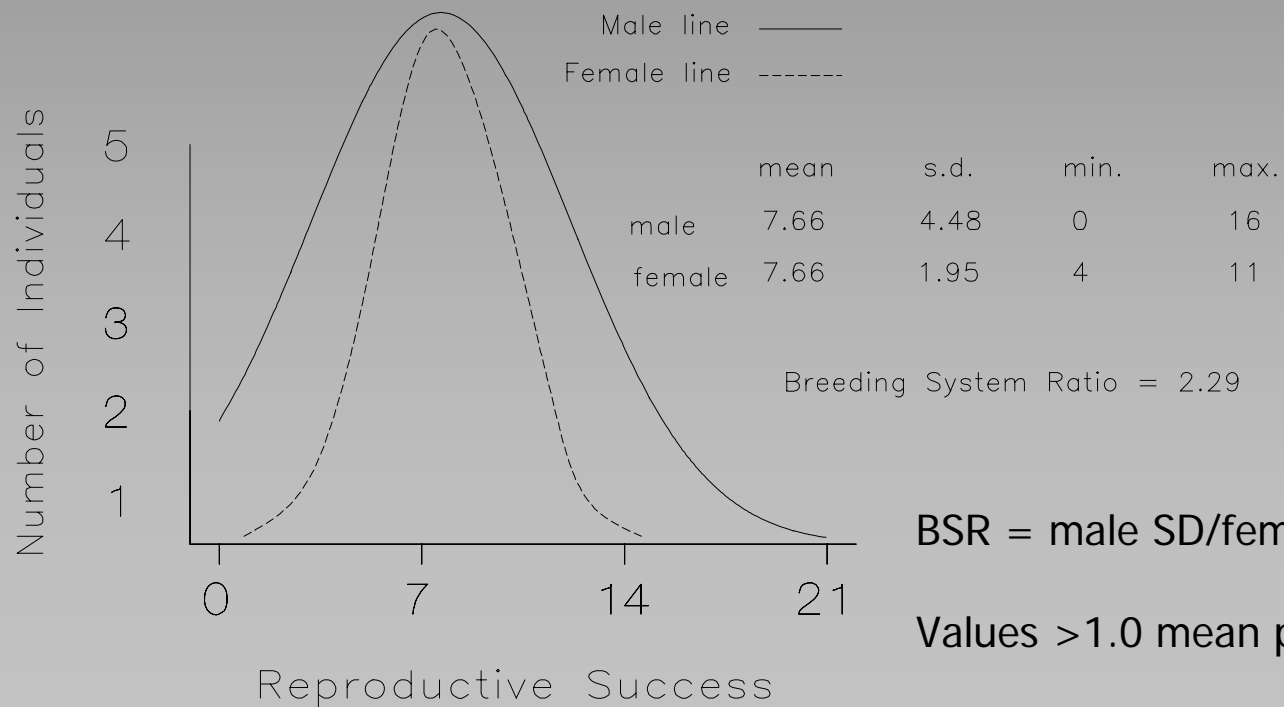


How to Detect Polygyny

- According to Bateson (1948), if male reproductive variance is greater than female reproductive variance then polygyny exists.
- For humans polygyny-like marriage can exist even if it is formally prohibited in the form of male **serial polygyny**. Some argue that polygyny frequently exists in nominally monogamous societies.
- The next slide shows how to measure of Brown's **breeding system ratio**: effective polygyny occurs when there is a significant difference between male and female reproductive variances.

Breeding System Ratio

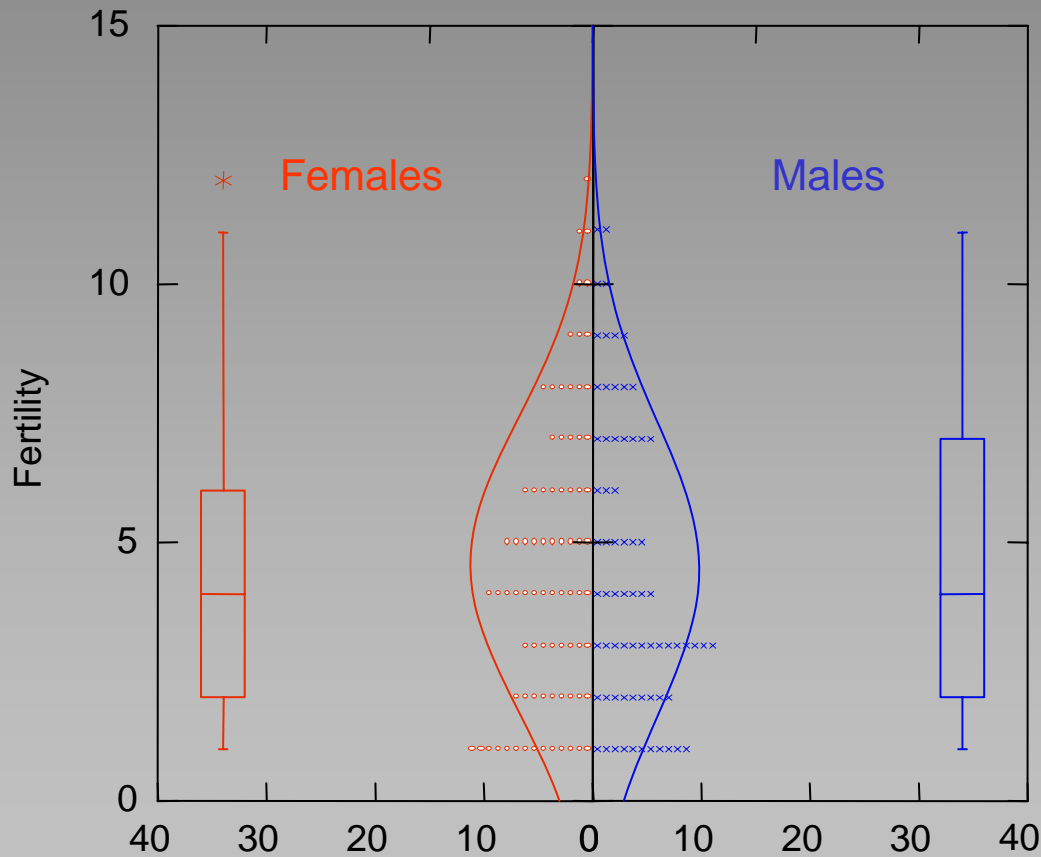
Female and Male Reproductive Variance



Can Effective Monogamy Exist in Human Societies?

- To test the proposition that polygyny may functionally exist in a society that is nominally monogamous Brown created a measure known as the breeding system ratio (BSR) shown in the previous slide. When the ratio exceeds 1.0 then polygyny exists because male reproductive variance is greater than female reproductive variance something found in all polygynous systems. Brown's research on genealogies of survivors of the Bounty mutiny on Pitcairn Island demonstrated that true monogamy can exist.
- In addition unpublished research on male and female reproductive variance among the San also shows that true monogamy exists for these people also (from Draper and Hames, n.d., in the next slide).

Reproductive Variance among !Kung Males and Females



Sex	N	Mean	S.D.
Females	80	4.57	2.83
Males	70	4.48	2.85

BSR 0.98

Marriage Forms

General polygyny means that more than 20% of all married men are married polygynously while slight polygyny is below that threshold

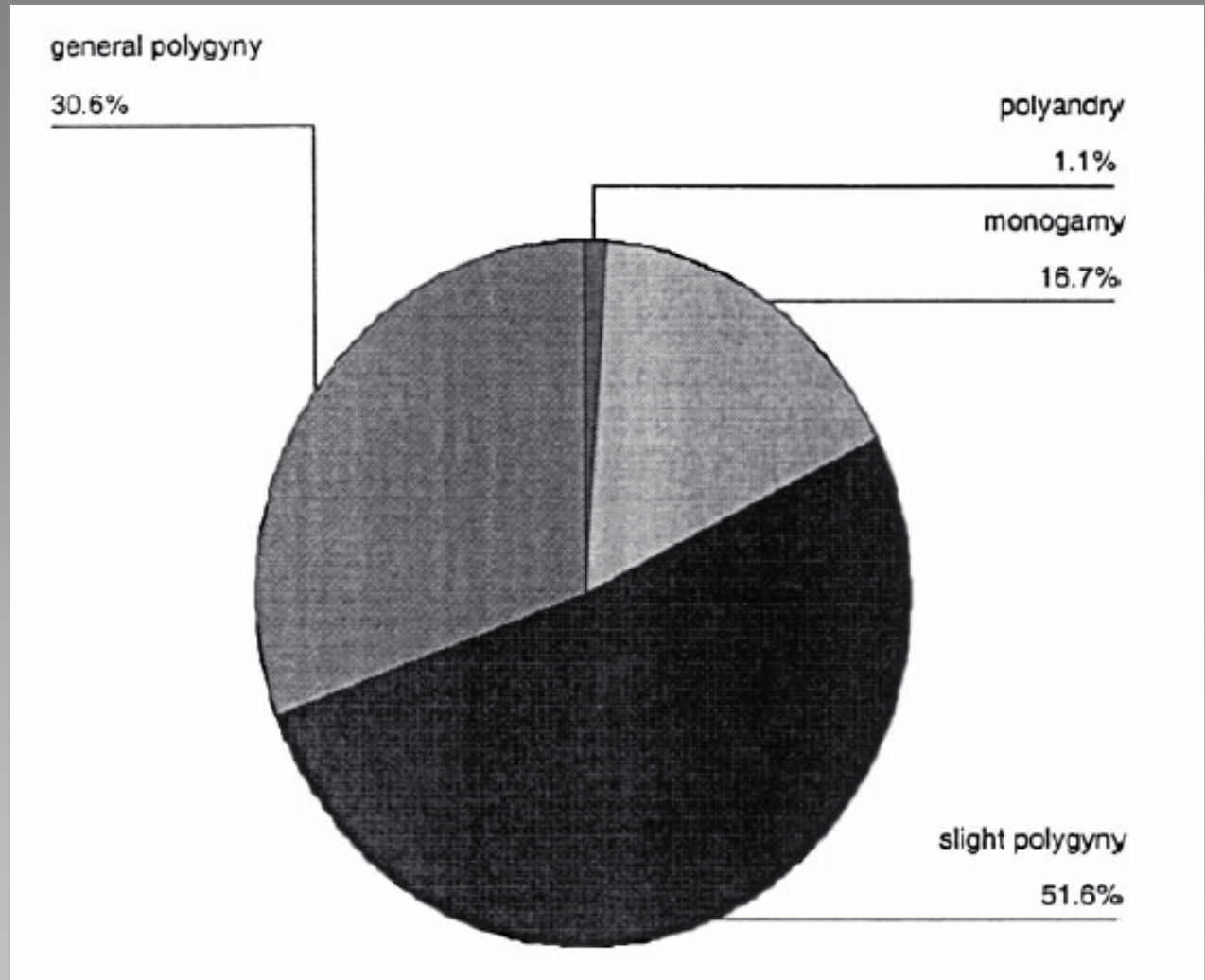


Fig. 5. The human mating system in the Standard Cross-cultural Sample ($n = 186$).

Polygyny and Social Complexity

The following slides show the distribution of polygyny in relation to social organization:

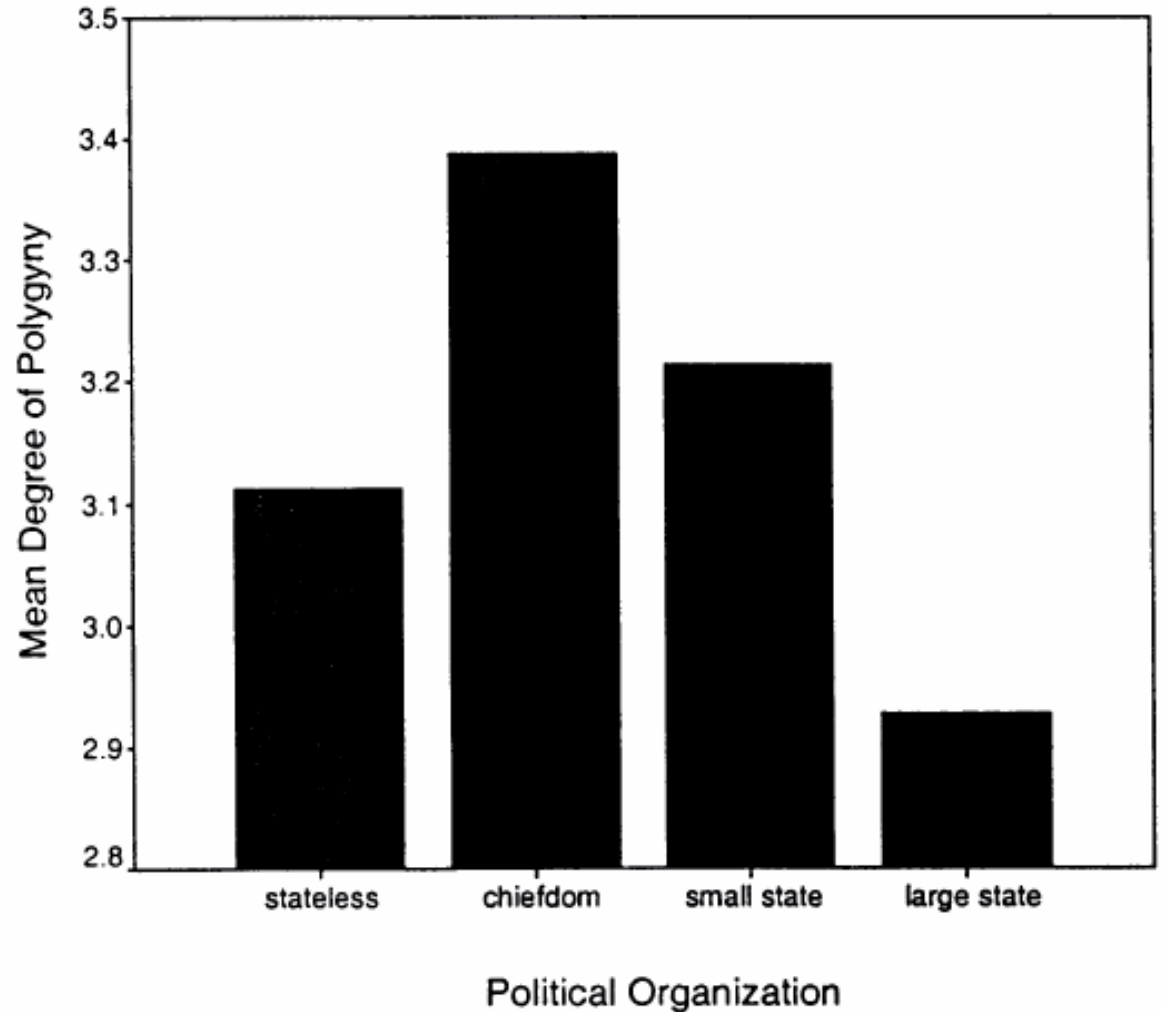


Fig. 6. Degree of polygyny by political organization ($n = 184$).

Stratification and polygyny among foragers and horticulturalists

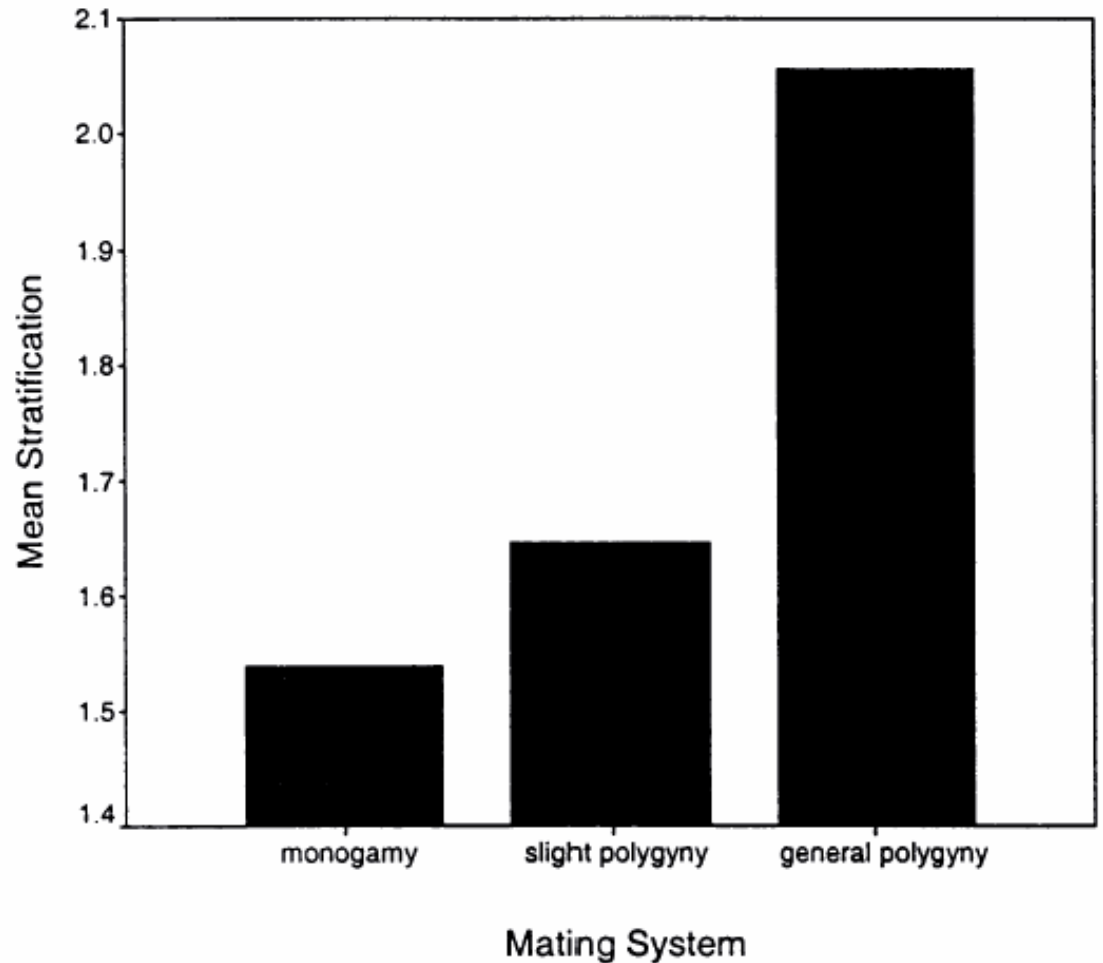
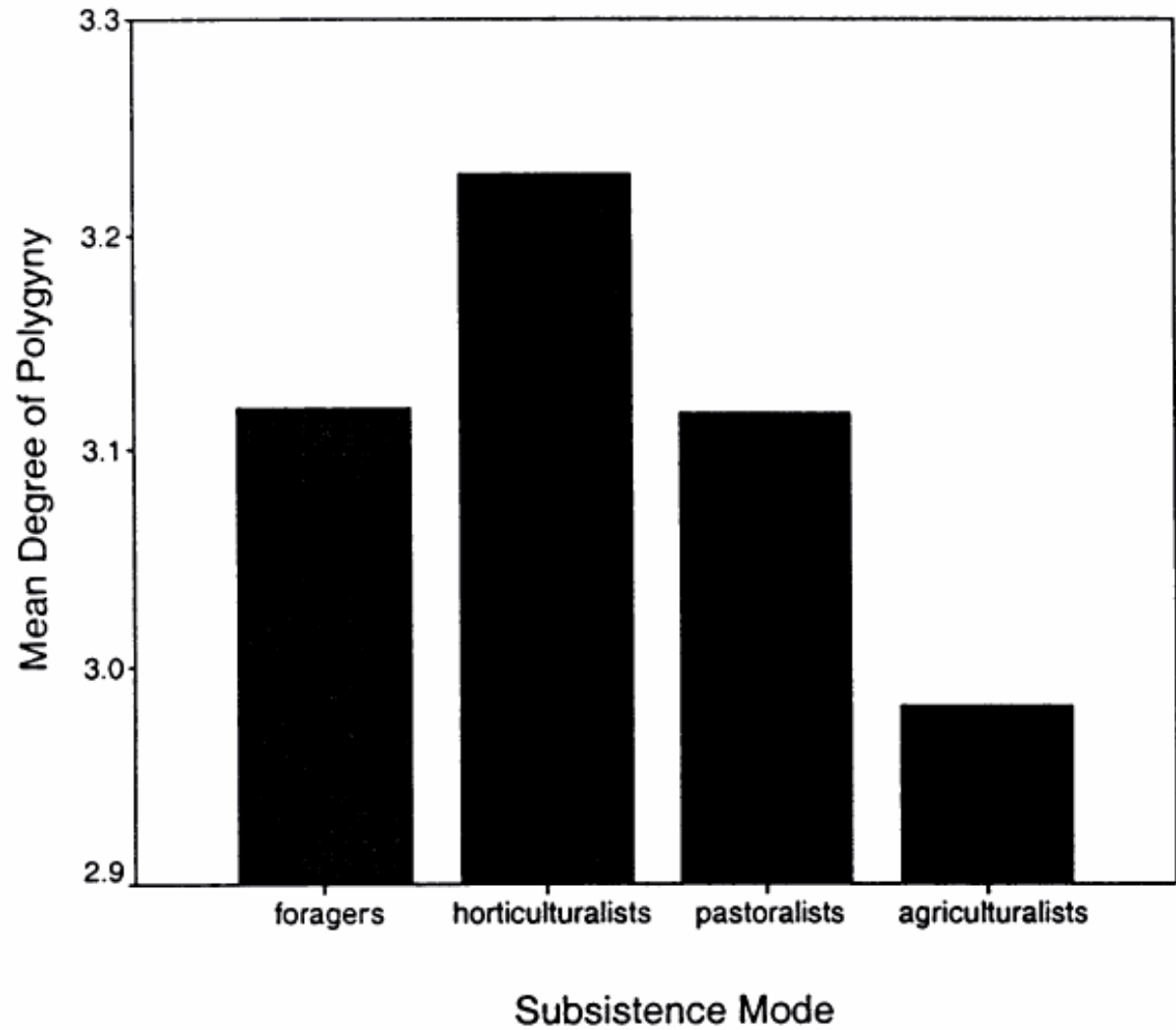


Fig. 7. Social stratification by mating system for foragers and horticulturalists ($n = 111$).

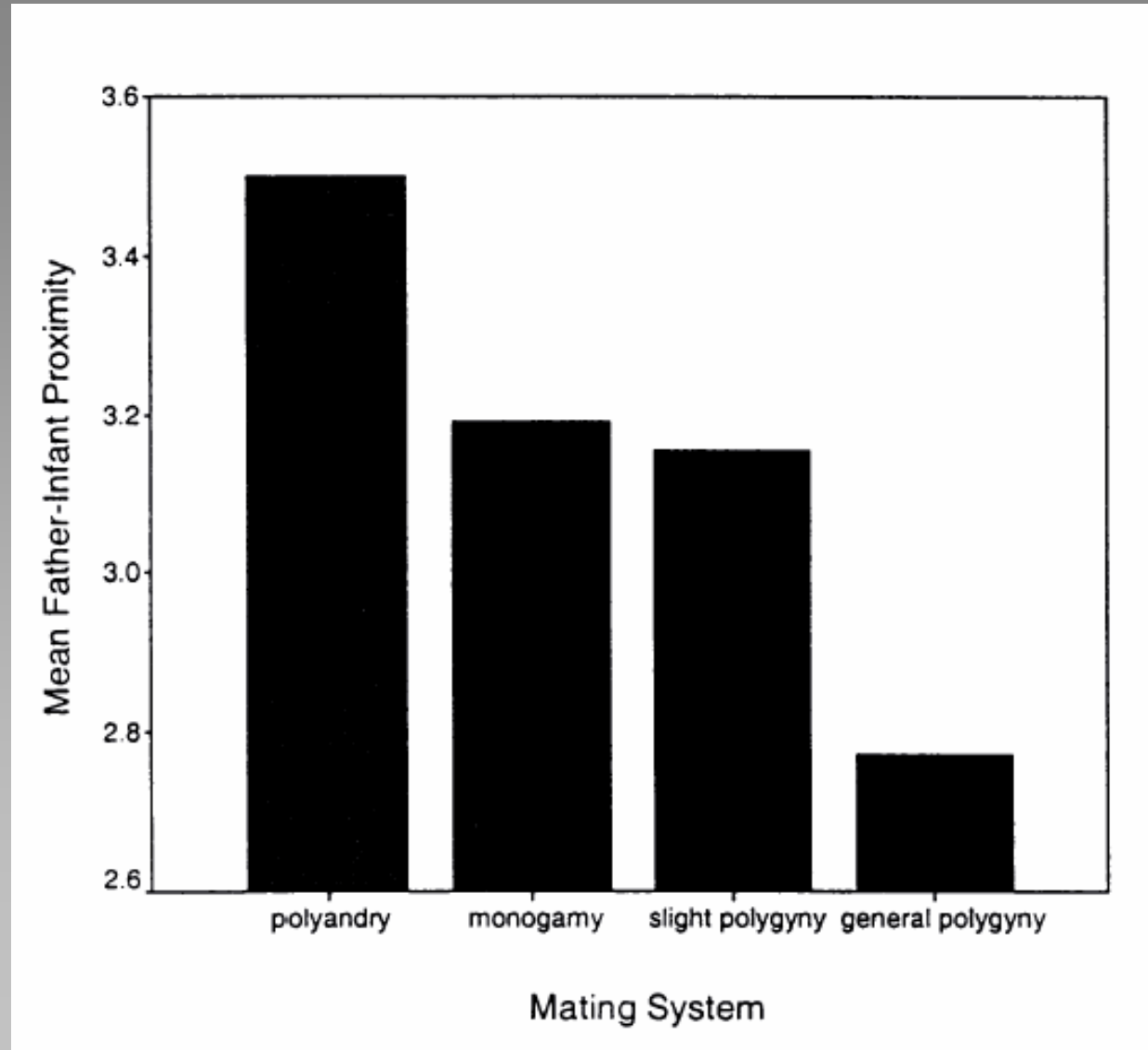
Polygyny and Subsistence



Marriage and Father-Infant Interaction:

Interaction:

polygyny is associated with lower rates of direct care by males. This fact suggests that males invest more in mating effort than parental effort as polygyny rates increase



Male contribution and marriage: the more males contribute to subsistence the less likely they are to be polygynists

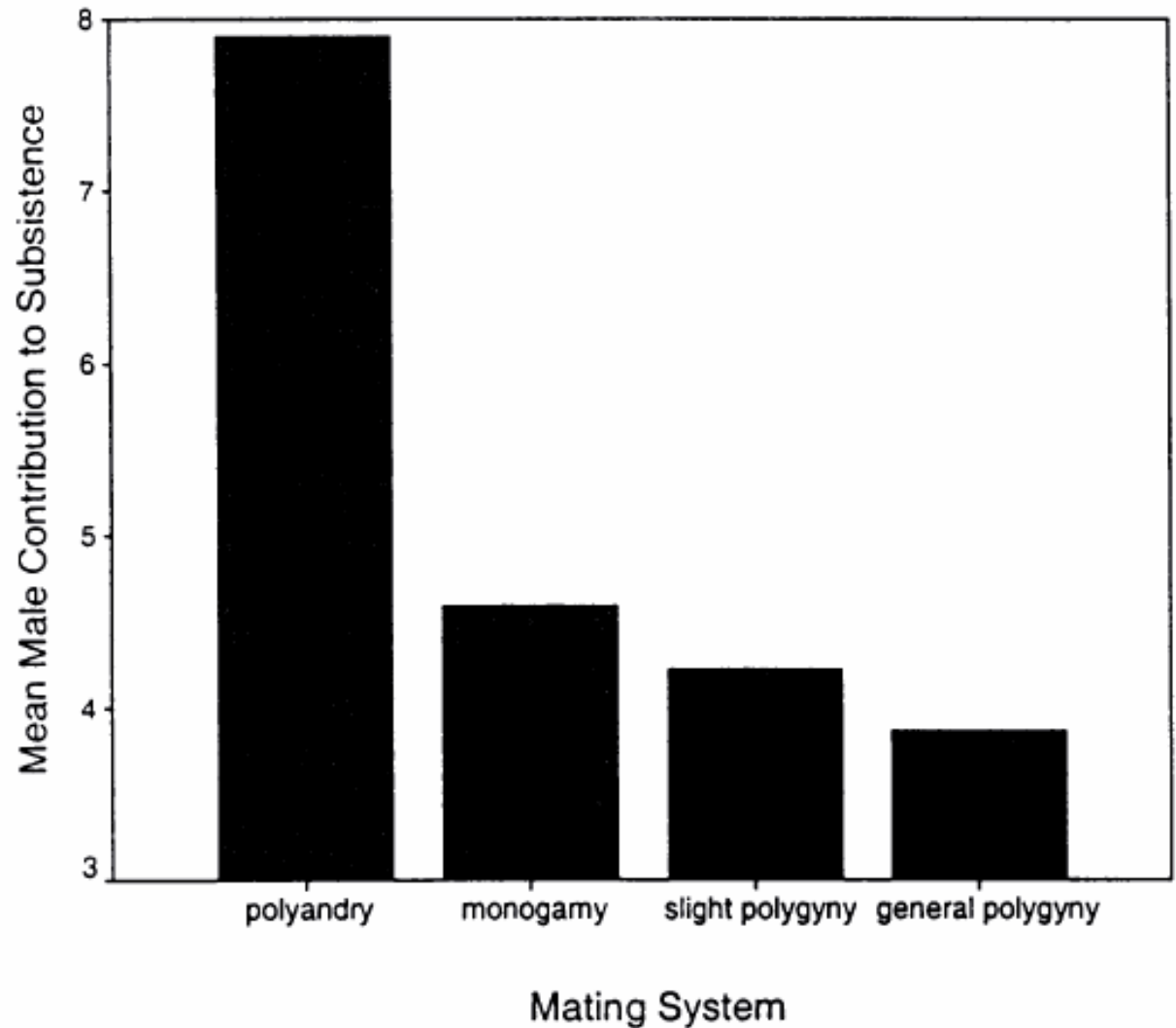
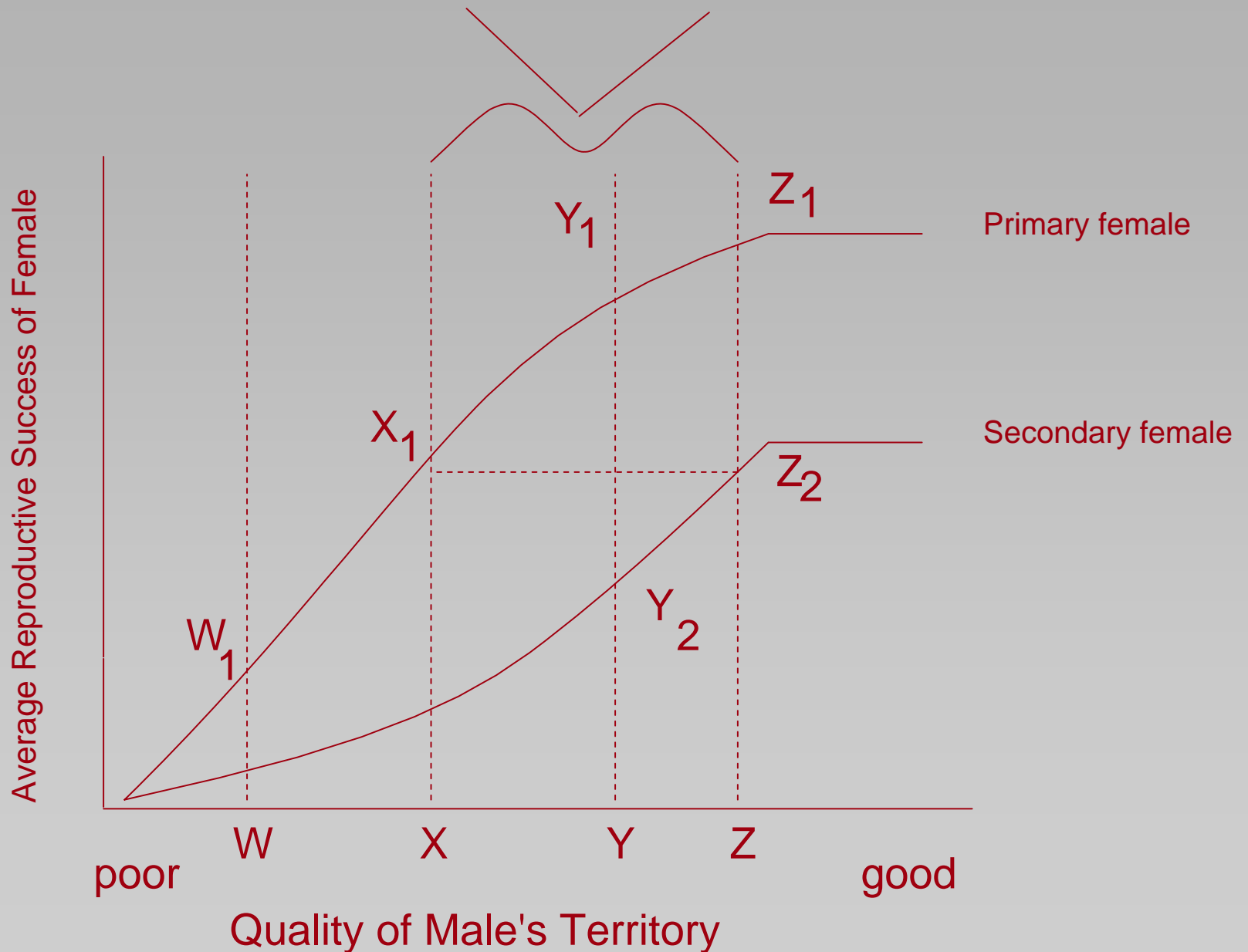


Fig. 10. Male contribution to subsistence by mating system ($n = 92$).

Orians-Verner-Willson "polygyny threshold" or "resource defense polygyny"



Polygyny Threshold Model

- In many avian breeding systems, males depending on their competitive abilities, defend feeding territories of various sizes.
- When females arrive they select males depending on the size of their territories and number of mates they may have.
- This should lead to a situation where female fertility is equal and variance small while male fertility will show greater variance with the highest male fertility is associated with number of mates in their territory.

Marital Forms

- *Socially imposed monogamy.* That is, polygyny is illegal in *state level societies.*
- *Ecologically imposed monogamy* where males are unable to support more than one spouse
- *Resource Defense Polygyny*
 - *Associated with economic stratification among men (Dogon, Mende, & Datoga reading examples). Rich men are polygynous and poor men monogamous*
 - *Derives from the avian model presented previously*
- *Male coercion or male achievement polygyny*
 - *In these situations it appears that males with high status (e.g., successful hunters, warriors, or shamans) are more likely to be polygynous or*
 - *Males are able to coerce females into marriage (similar to harem defense polygyny in other species)*
 - *It may be the case that male coercion and achievement are different sides of the same coin in that males who have coercive power are those who have achieved high social status.*
- *Pathogen stress and polygyny*
 - *We know that polygyny is associated with parasite load but it is unclear whether it is a subtype of resource defense or male coercion/achievement*

The problem with polygyny

- The resource defense model predicts that there should be no differences in fertility between monogamous and polygynous women.
- In many cases, polygyny tends to decrease the fertility of women and the survivorship of her children. See following slides on Dogon and Kipsigis. This should not be the case for resource defense polygyny. At this point, we have no general explanation for this phenomenon.
- Obviously, this is not true of polygynous men. The more wives a man has, the higher his fertility.

The Problem with Dogon Polygyny

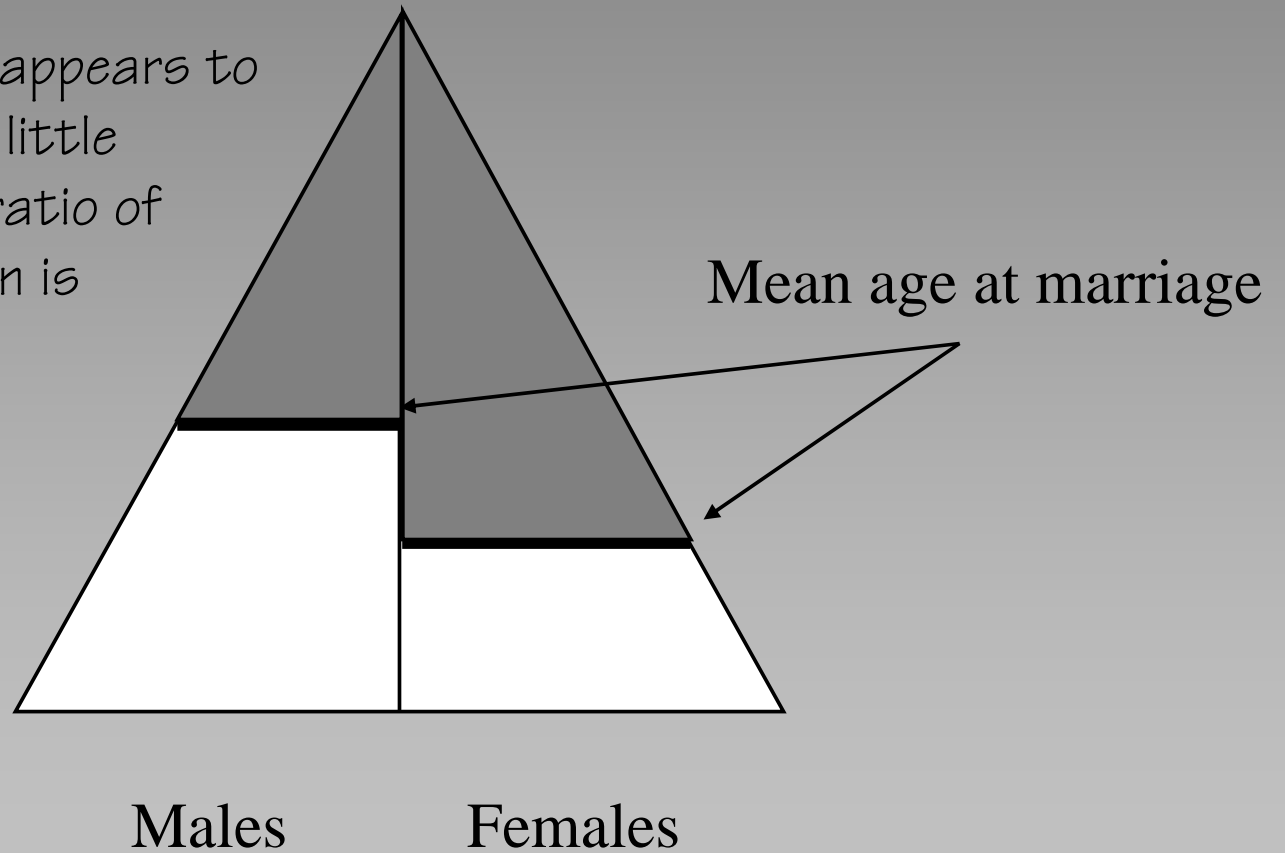
- ❑ Marital status and probability of a child dieing before age 10
 - First wife= 61% mortality
 - Second and third=30% mortality
 - Sole=10% mortality
- ❑ Fertility of polygynous women is only 80% of monogamous women.
- ❑ The odds of a polygynous child dying before reaching age 10 is 7 times greater than a monogamous child.

Low fertility among polygynous Dogon women: some hypotheses

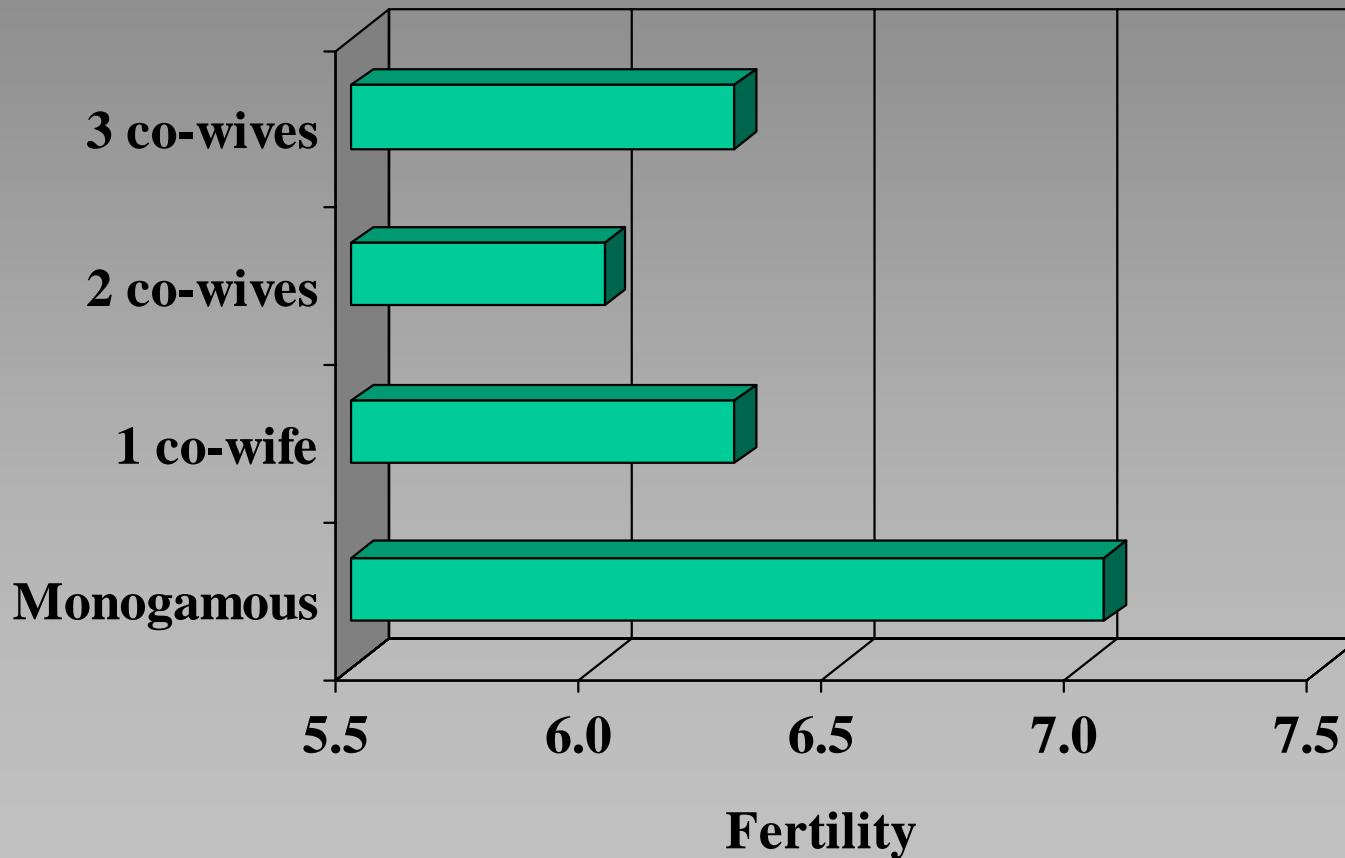
- Resource dilution (lower per capita household wealth, not true)
- Cowife competition (poisoning, commonly brought to court). True, but probably not sufficient.
- Low paternal investment (husbands divert wealth into more wives, true)
- Nepotistic investment (less kin support in such marriages, probably not true)

Dogon Population Distribution

Part of the problem appears to be that women have little choice because the ratio of eligible men to women is low.



Kipsigis Women's Fertility and Marital Status: another example of negative effects of polygyny on female fertility



Monogamous and Polygynous Women's Fertility and Male Wealth among the Kipsigis

