

Mating Systems

1. Monogamy: A male and a female form a pair bond, either short or long term (a breeding season or even lifetime). Often both parents care for the eggs and young.
2. Polygyny: A male mates with several females, while females each mate with only one male. A male may associate with several females at once (simultaneous polygyny) or in succession (successive polygyny). With polygyny it is usually the female that provides the parental care.

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3. Polyandry: A female mates with several males, while males each mate with only one female. Can have simultaneous polyandry or successive polyandry. With polyandry it is usually the male that provides the parental care.
4. Promiscuity: Both male and female mate several times with different individuals, so there is a mixture of polygyny and polyandry. Either sex may care for the eggs or young.

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5. Lekking: One sex (usually males) provides only genes to their mate. No direct benefits are passed to the mate.
6. Cooperative: Some individuals forgo reproduction (generally for a breeding season) and instead provide care for another mated pairs' offspring. These "helpers" are usually relatives (e.g., sons or daughters) of the parents then help.

Mating Systems

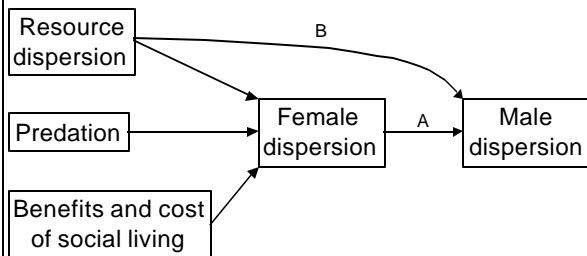
Polygamy is used as a general term for when a member of either sex has multiple mates. It covers polygyny, polyandry and promiscuity.

Mating Systems with No Parental Care

Two-step process:

1. Female reproductive success will be limited by access to resources such as food and breeding sites. The distribution of females should reflect resource dispersion, modified by predation and the costs and benefits of living with others.
2. Male reproductive success will be limited by access to females. Males should therefore compete for females directly, or indirectly by attempting to control the resources that females are after.

Mating Systems with No Parental Care



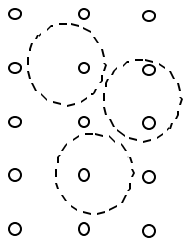
A: males can compete directly for access to females, or
B: males can compete indirectly for females by competing for resources

Opportunity for Polygamy

1. Variation in mating systems arises because of differences in resource or mate dispersion and hence their economic defensibility.
2. When mates or resources are more patchily distributed in space (or time) there will be greater opportunities for polygamy.
3. The key factor for temporal distribution is the operational sex ratio – the ratio of receptive females to sexually mature males at any one time.

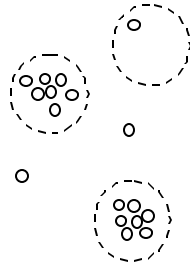
Opportunity for Polygamy

Even Distribution



Low polygamy potential

Patchy Distribution



High polygamy potential

Opportunity for Polygamy: Grey-sided Voles

(Imms 1987, 1988)



1. Female dispersion is influenced by food: when food was placed in abundance at particular sites, female ranges became smaller and overlapped in the resource-rich areas.
2. Males "homed" in on these sites and attempted to defend them from other males.

Opportunity for Polygamy: Grey-sided Voles

(Ims 1987, 1988)

- 3. Were males attempting to defend the females directly, or the resources and hence the females indirectly?
- 4. Ims introduced a small population of voles onto a small wooded island in south-east Norway.
- 5. In one experiment, females were kept individually in small cages and their positions were moved each day to simulate movement about their home range.

Opportunity for Polygamy: Grey-sided Voles

(Ims 1987, 1988)

- 6. When females were spaced out, free-ranging males became dispersed, overlapping their ranges with the female ranges.
- 7. When females were clumped, by placing cages close together, the males aggregated on the female clumps.

Opportunity for Polygamy: Grey-sided Voles

(Ims 1987, 1988)

- 8. When males were then kept in individual cages the dispersion of free-ranging females was not affected by experimental changes in male dispersion.
- 9. Thus, the causal links are from resources to female dispersion (#1, 8) and then from female dispersion to male dispersion (#6, 7).
