

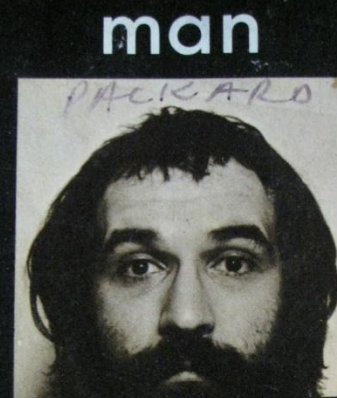
Ethological perspectives

MAN MEETS WOLF

Jane M. Packard, Texas A&M University
Canine Science Forum 2008



To understand our dogs,
we need to know
their ancestors,
the wolves



meets



dog

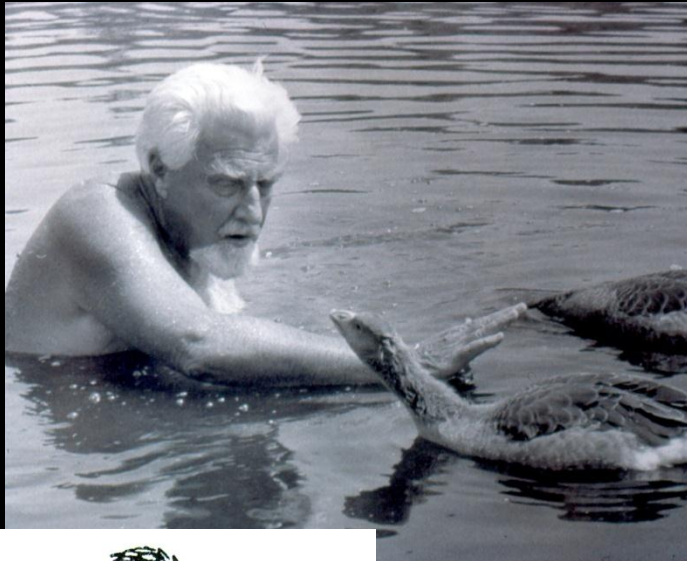
Lorenz (1953)

Thank you!

- **Graphics:** Lorenz (1953) Man Meets Dog; L.D. Mech (1991:54); Macdonald (19) Encyclopedia of Mammals
- **Photos:** Mech (1988, 1991, 1992); B. G. Packard
- **People:** Erich Klinghammer, Konrad Lorenz, Erik Zimen, Sybille Schafer Kalas, Luigi Boitani, Peter Colin, Dave Mech, Ulie Seal, Marc Bekoff, Don Siniff, Bob Ream, Jose Bernal Stoopen, Kristy Wicker, Linda Thurston, Doug Smith, Martin & Barbara Packard, E.T. Ash
- **Places:** Canine Science Forum at Eotvos Lorand University, Swarthmore College, Max Plank Institute fur Verhaltensphysiologie, University of Minnesota, University of Florida, Texas A&M University, Yellowstone National Park,



Dedication

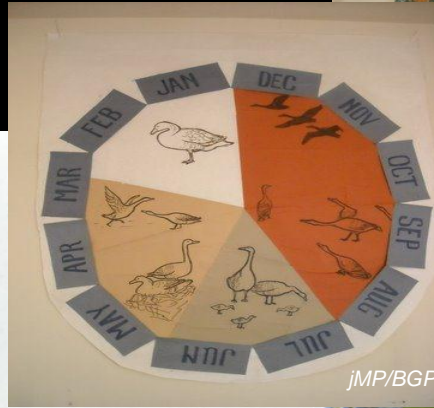


5. CANINE CUSTOMS



Lorenz (1953)

Seewiesen



jMP/BGP



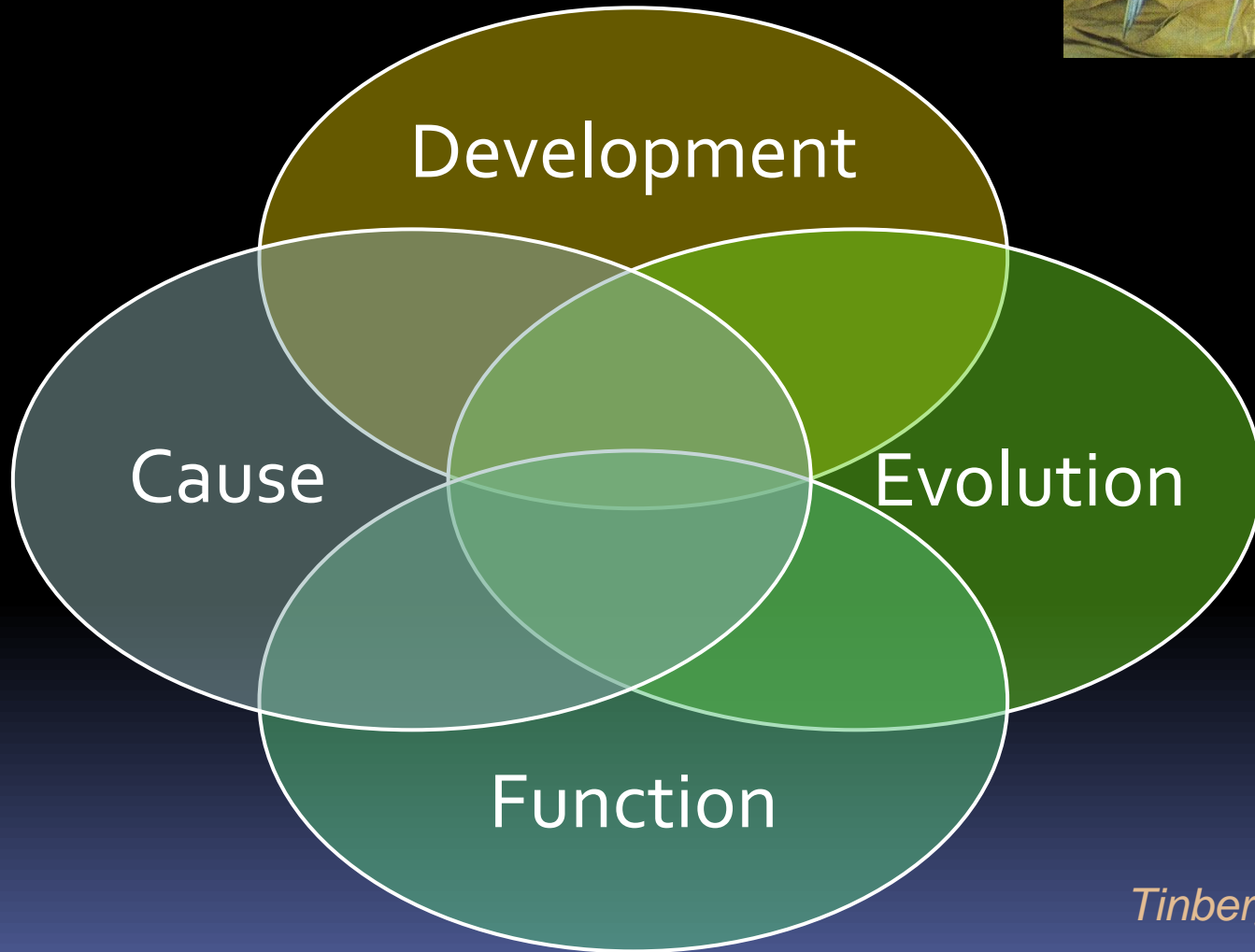
jMP/BGP



JMP

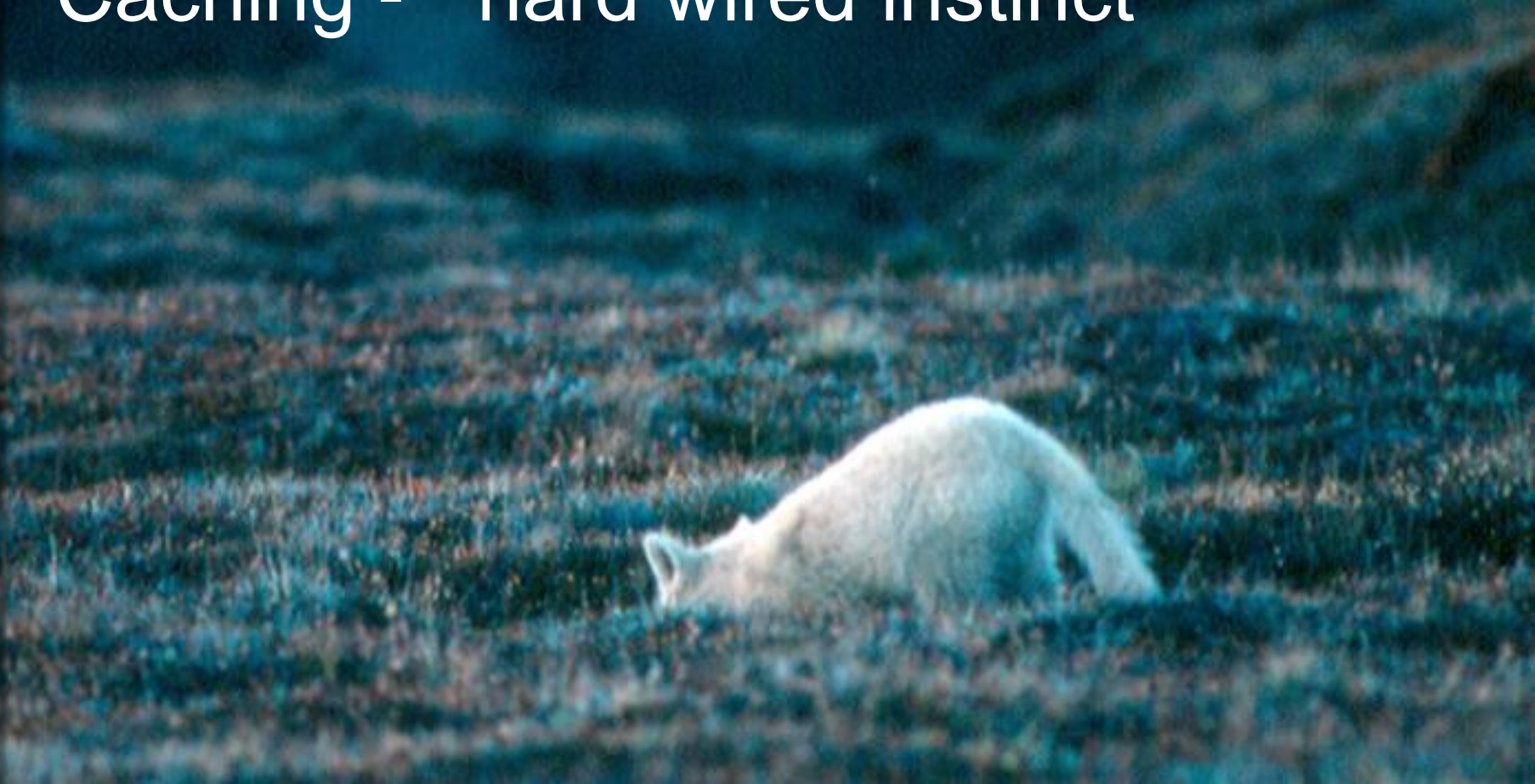


Ethological questions



Tinbergen 1952

Caching - “hard wired instinct”

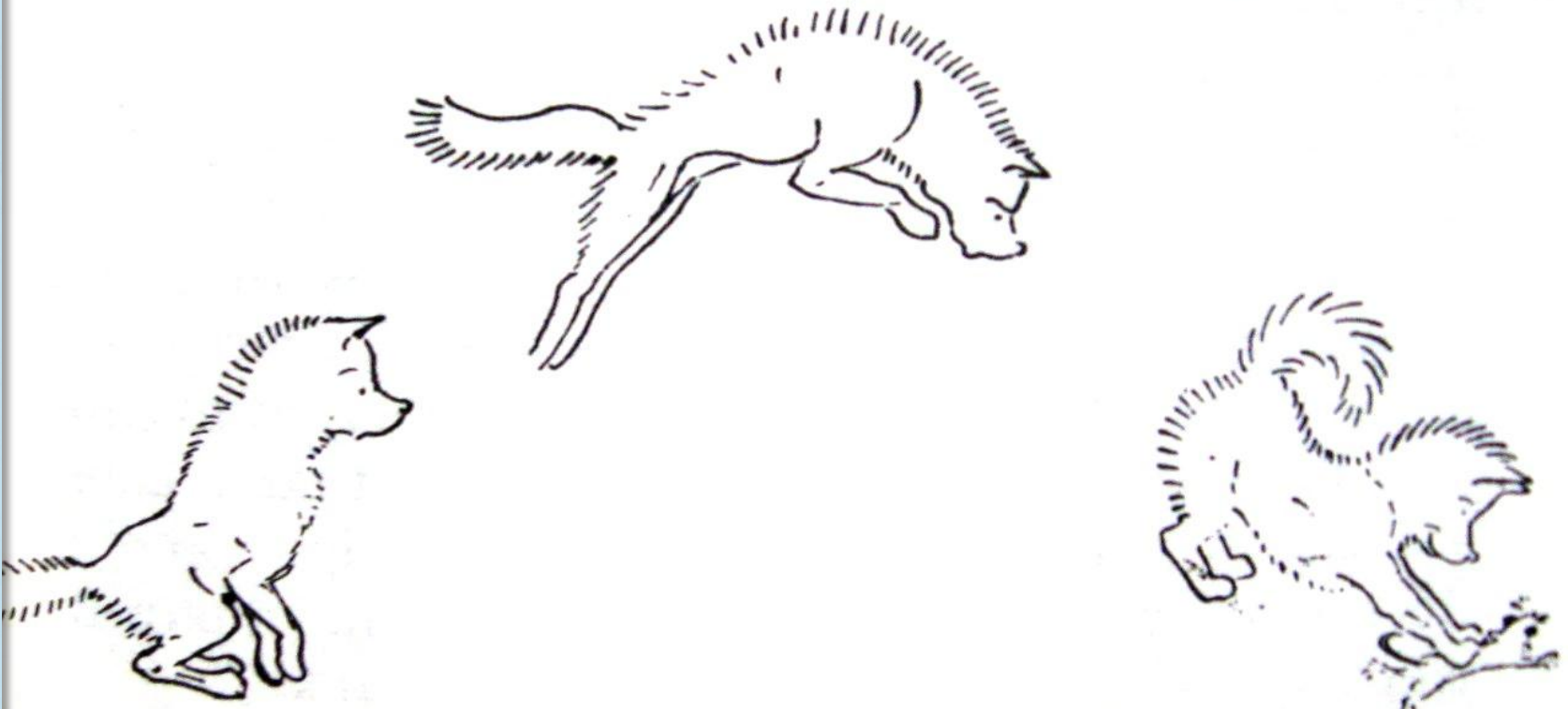


CACHING- ethological perspectives

- **CAUSE?** extra meat & full belly
- **DEVELOPMENT?**
 - action fully formed when it first occurs;
 - details are fine-tuned with experience
- **FUNCTION?**
 - Those that cached had a “full pantry”
 - when prey scarcity varied in short term
- **EVOLUTION?**
 - Ancestral trait
 - Similar in all canid species



Mouse pounce - “hard wired instinct”



Lorenz (1953)



POUNCING- ethological perspectives

- **CAUSE?** rustling sound in the grass
- **DEVELOPMENT?**
 - action fully formed when it first occurs;
 - details are fine-tuned with experience
- **FUNCTION?**
 - those that pounced, learn to catch
 - those that learned, ate well on their own
- **EVOLUTION?**
 - Ancestral trait
 - Similar in all canid species



EVOLUTION? Comparative method

“more ancestral”



pairs



nuclear
family



extended
family

“more derived”

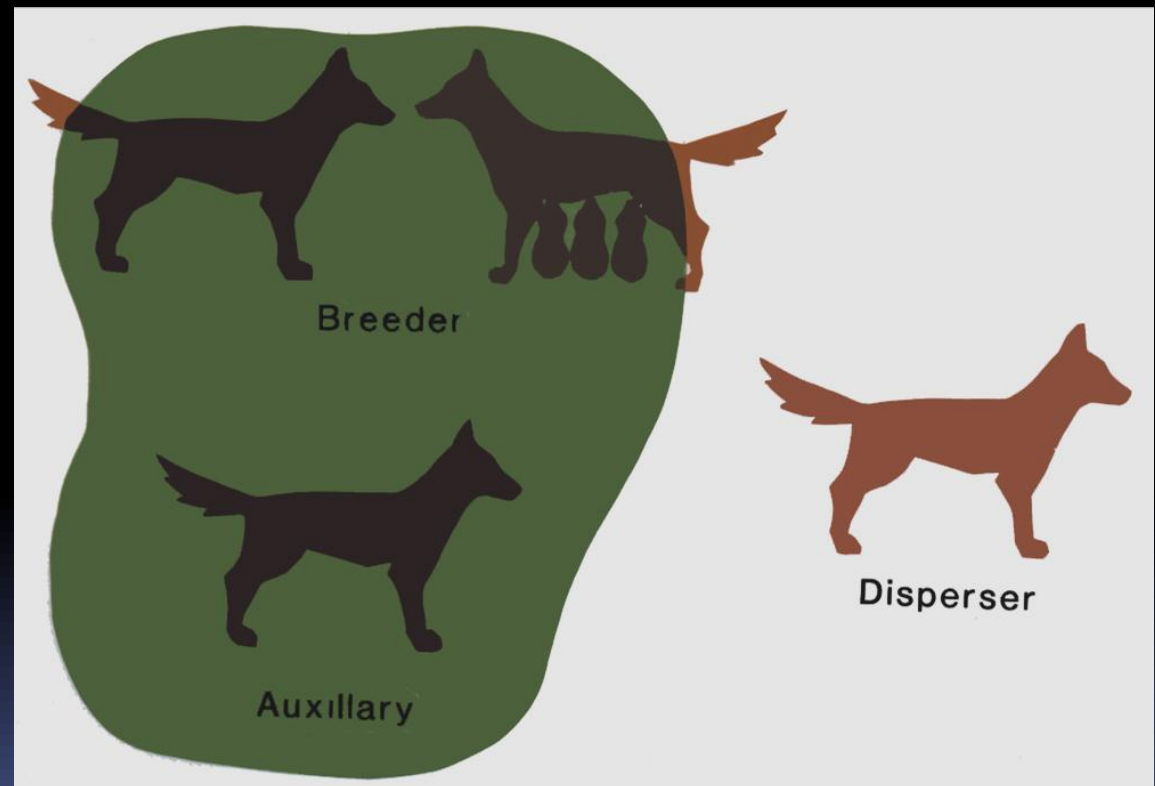




CAUSE: dispersal threshold- wolves likely to stay home longer

Across species,
age of dispersal
correlated with:

- *body size*
- *maturation*
- *play profiles*
- *conflict profiles*
- *clumped food*
- *competitors*



Why were wolves pre-adapted for life with humans?

- was it their family life...
- or our family life....
- ...or both?

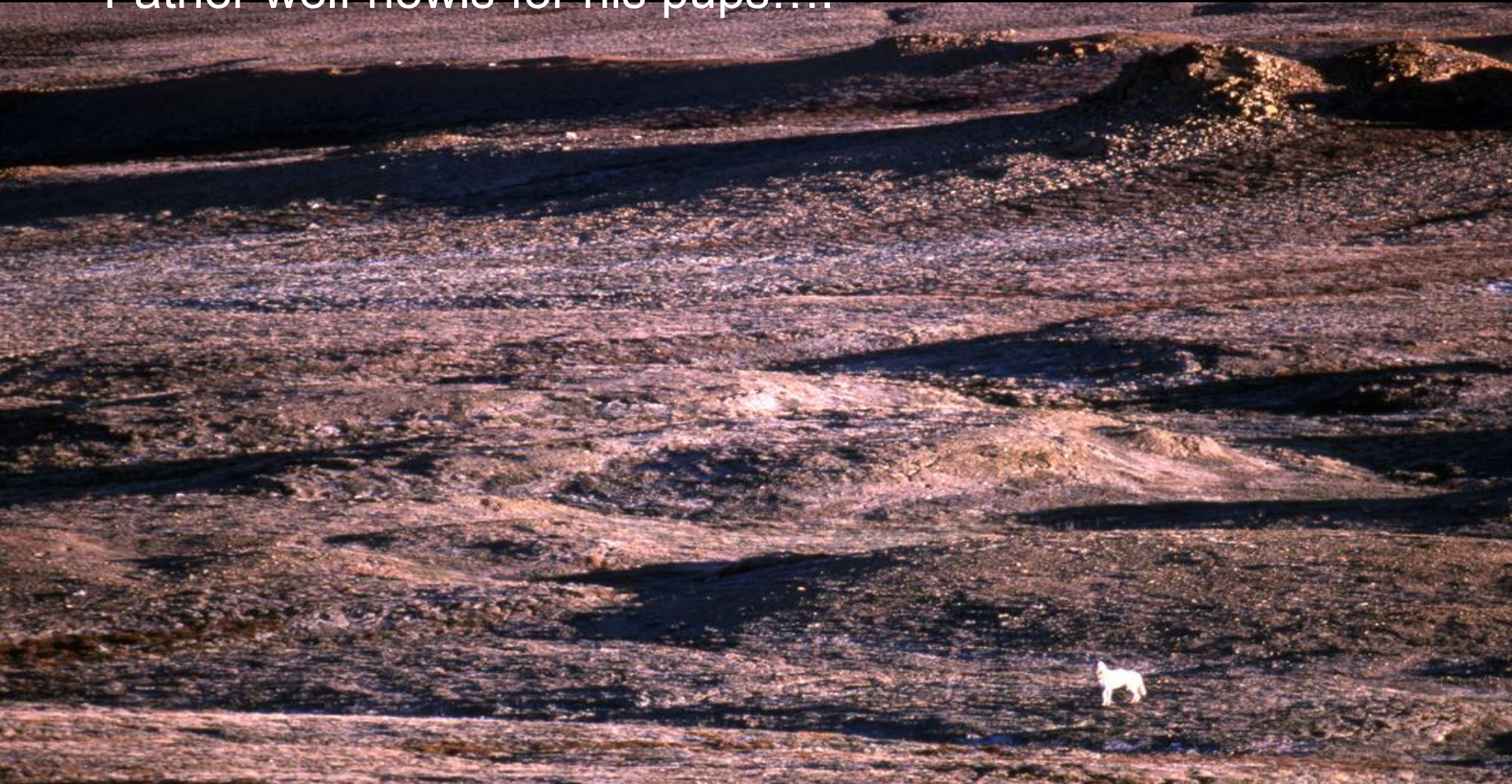


Ellesmere Family

- Parents
- Older siblings
- Pups



Father wolf howls for his pups....



....tracks them, then “cuts the corner” back to the den...

Packard (2004)



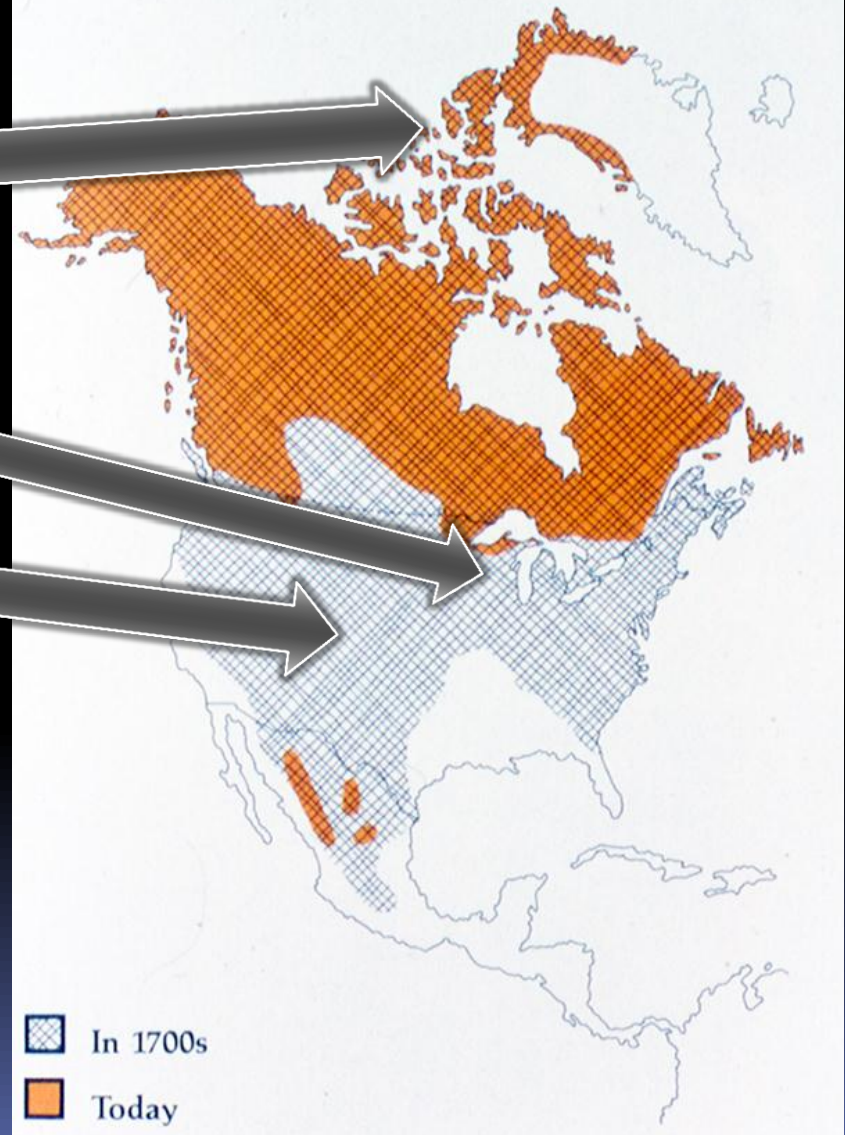


Territory Occupied by Wolves in North America

Ellesmere Island

Minnesota

Yellowstone





Yellowstone National Park



Thurston (1982), Smith (2007)



Who cares more, Mom or Dad?

- Depends on the family, pup age & the year
- Dad feeds nursing Mom up to 3 wks, then
- Both hunt & deliver food

Internal: prolactin

Stimulus : pups

Context: prey varies

In space & time

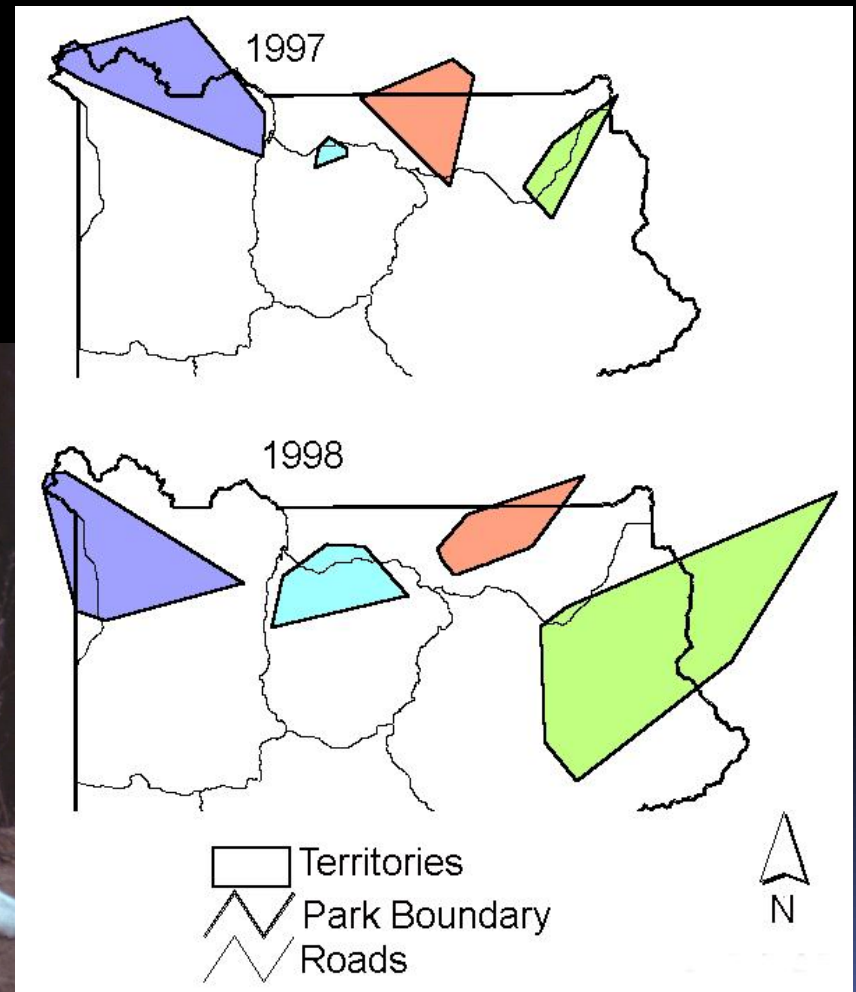
(Thurston 2001)





Wolf families live separated

- Families defend territories
- Hundred(s) of square km
- Changes from year to year influenced by prey & dens

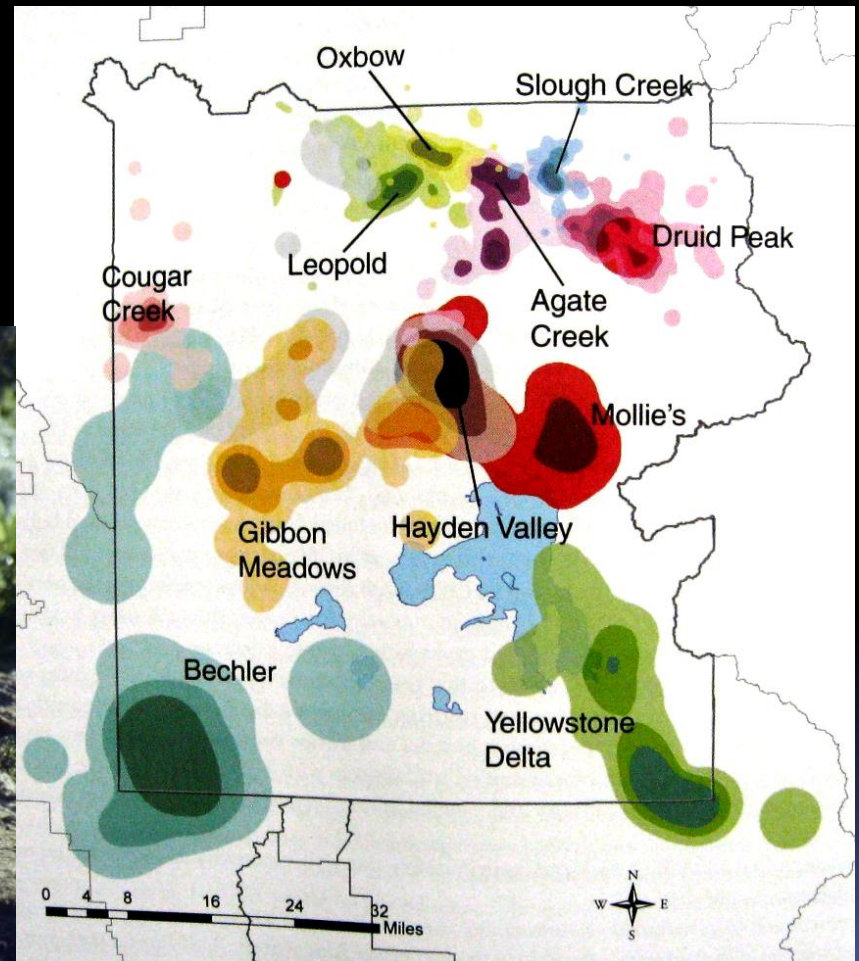


Smith et al. (1999)



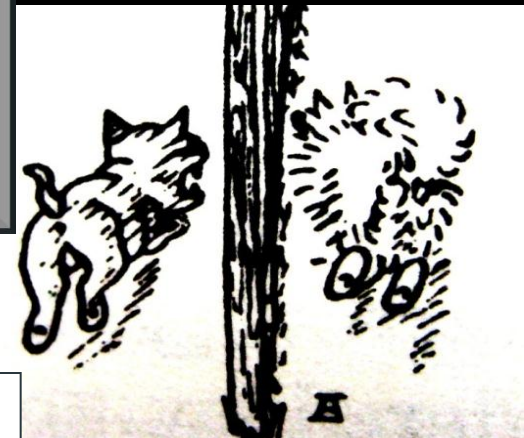
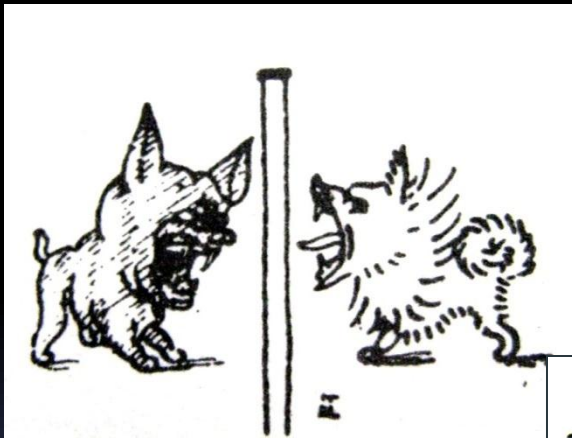
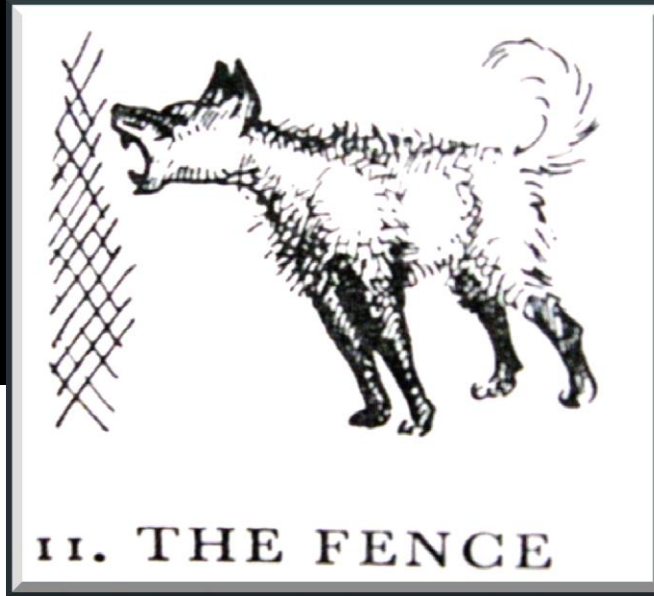
Wolf families- living room

- Yellowstone- neighborhood
- colors- separate families
- dark cores- preferred sites
- overlap=> conflict



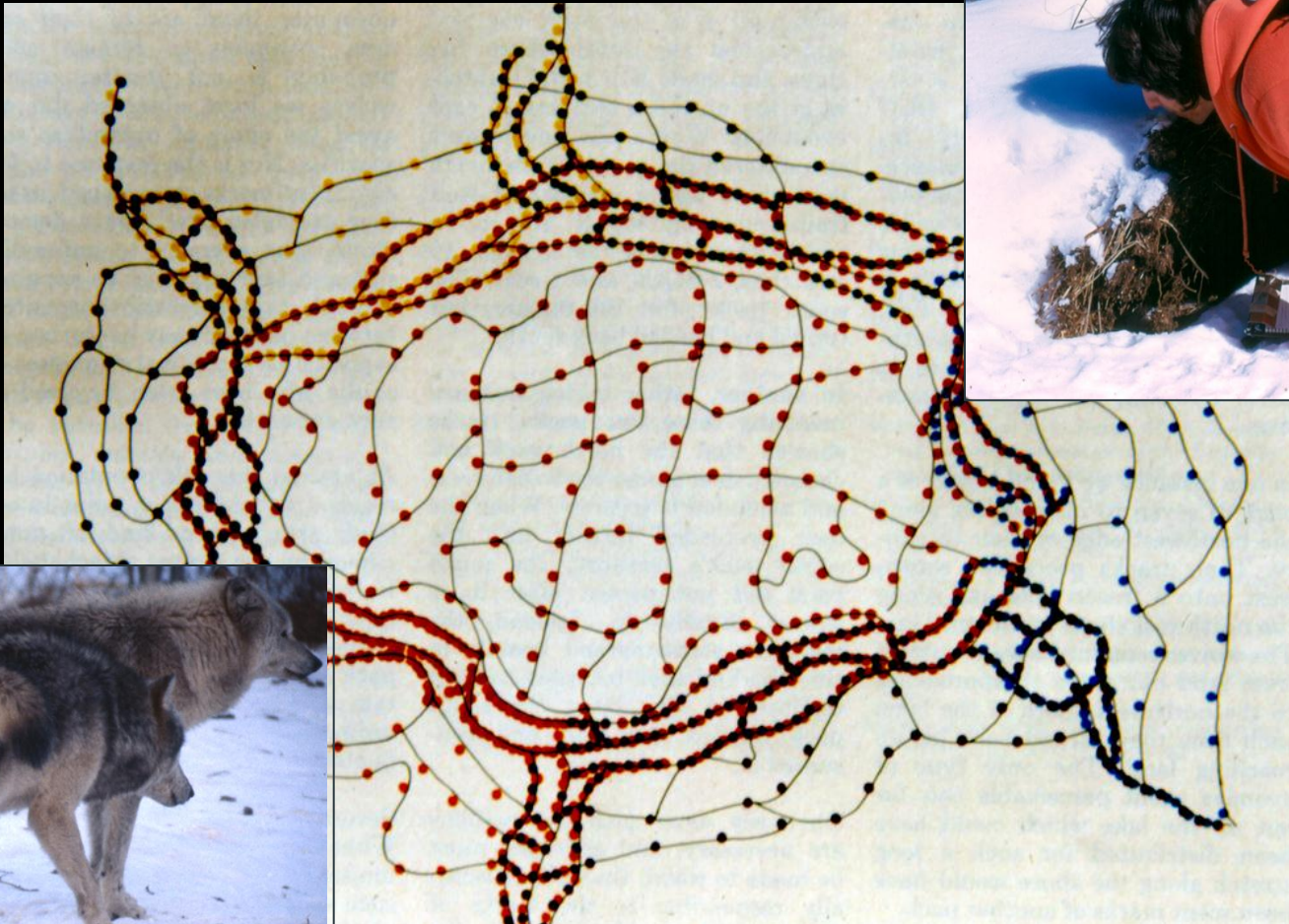
Smith et al. (2008)

Why fight across fences?

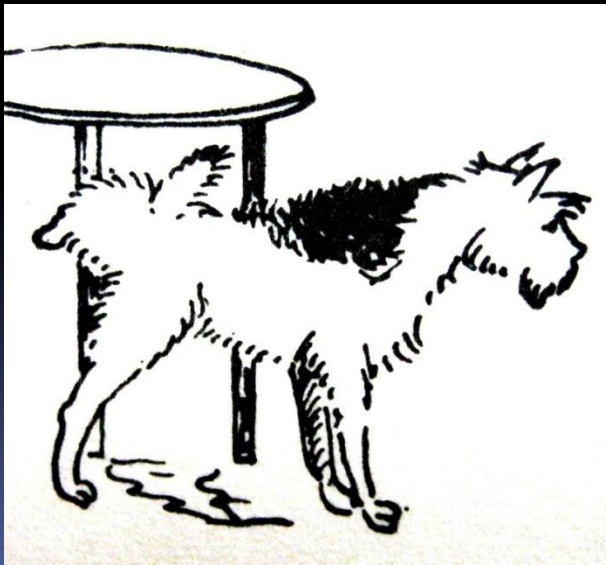




Scent marks more frequent in zones between territories



Those that advertised,
attracted mates & repelled
rivals



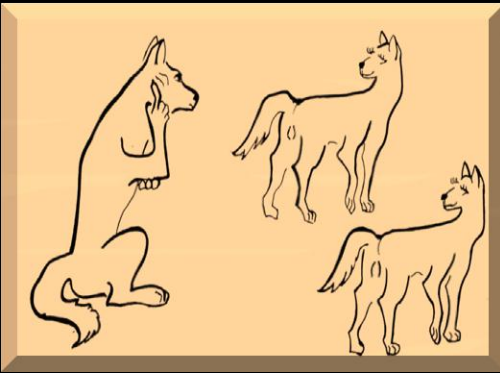


Minnesota



L.D.Mech

CAUSE: Mate choice



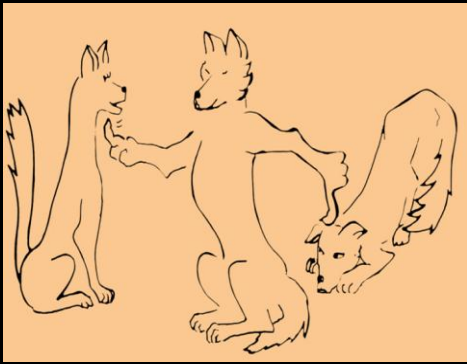
...sister solicits a brother...



Dogs- what a contrast!

...who is not interested!





CAUSE: Same-sex conflict

6-year old son challenges father...

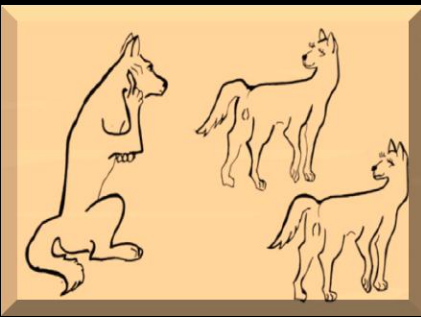


“she was petting me!”
“no, me”

...re. attention from mom

JMP





CAUSE: only one female breeds in a family?

~~• NOT:
physiological
suppression due
to stress~~

• Moms are more attractive

• only if there is no other choice

Adult offspring ovulate, don't copulate...



Mother pins daughter, who rolls....



...she is conditioned to de-escalate conflict

Father is with his mate, when he sees....



....something going on in the back woods...

...a 2-year old son is mounting his younger sister, behind a tree ...



...Father breaks up the interaction among his offspring...



...returns to guard his mate...



....when he sees the son “misbehaving” again...

....this time Father need only approach...



...and the son is conditioned to roll over,

....showing he “knows his place” ...

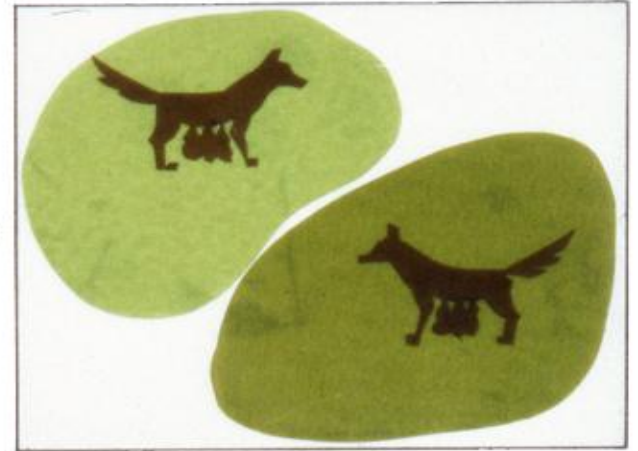
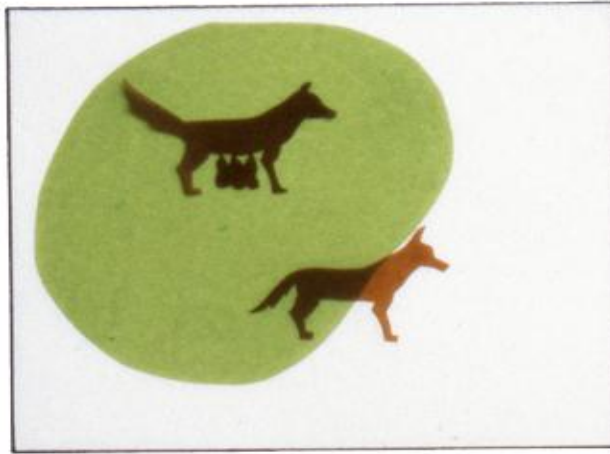


....and has learned when it is better to de-escalate conflict!

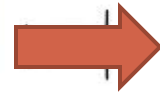


FUNCTION: changing density

LOW
DENSITY
N.W. Minn



HIGH
DENSITY
N.E. Minn.





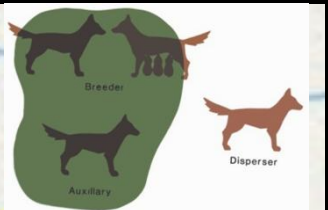
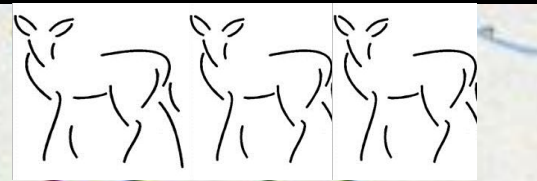
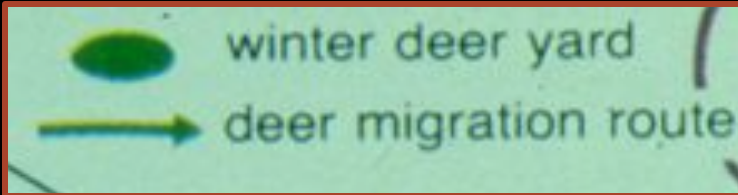
Trespassing - Lethal fights between strangers

- Loner killed by pack
- Pack leader killed in trespass, family break up; loner settles in empty site, starts new family
- Loner avoids trespass, killed by humans

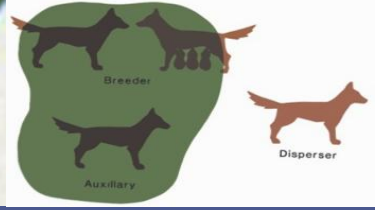




Deer survive where wolves seldom go?



borders of pack territories with
"no wolf's land" area of overlap





CAUSE? families feed pups






FUNCTION: varying prey

- bigger predators can kill big prey that is not available to smaller predators
- when big prey leave, predators compete for small prey



L.D. Mech



FUNCTION: adaptation to a changing environment

- in times of **plenty**- everyone fed
- during food **scarcity**- only the good learners survived

*Those that learned when to escalate....
... and when to de-escalate during conflict.*



Ellesmere Island



DEVELOPMENT? Pups learn in a social context “follow family members who bring food”



L.D. Mech





DEVELOPMENT: individuals learn what to expect from the specific environment into which they are born

- Social- who delivers?
Who steals?
- physical- what is prey? How to catch it?
- ability to learn
conditional cues over a wide range of environmental conditions

..watching for parents to deliver....



A hare carcass is delivered...



....one pup takes possession...

...a second pup watches for a chance ...



.....to get a bite on the side...

...third pup waits....



...while the other two feed...

....when a squabble breaks out ...



...between pups feeding at the carcass..

...third pup seizes the window of opportunity...



...while the others are distracted...

...the patient pup steals the food..

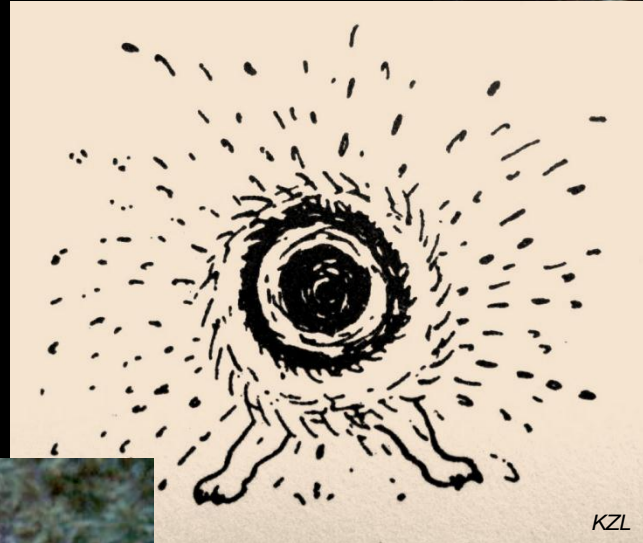


...and the others learn the consequences of their actions!





This end is your beginning!



KZL



KZL/JMP



CAUSE: how do we learn body language?



Barbara Packard



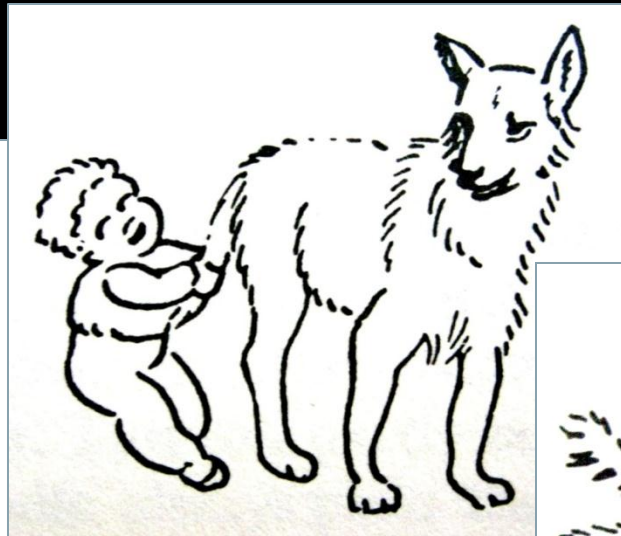
Barbara Packard



Barbara Packard



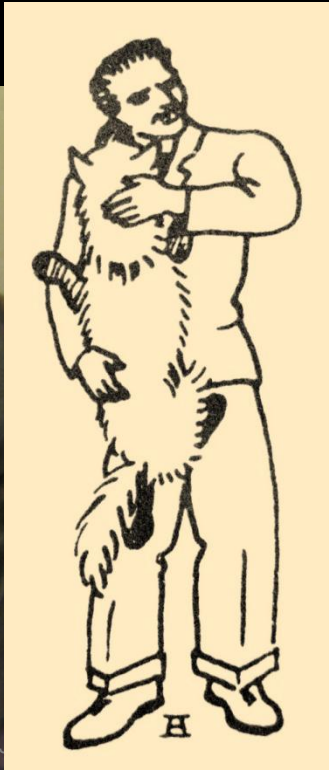
DEVELOPMENT: do we learn languages most easily during a sensitive period?



Lorenz (1953)

Why were wolves pre-adapted for life with humans?

- was it their family life...
- or our family life....
- ...or both?



FUNCTION: is the ability to “learn languages” an adaptation to a fluctuating environment?



Biosphere 2/JMP



I. HOW IT MAY HAVE STARTED

KLZ

EVOLUTIONARY HISTORY: why did the ancestors of dogs and humans co-evolve?



KLZ

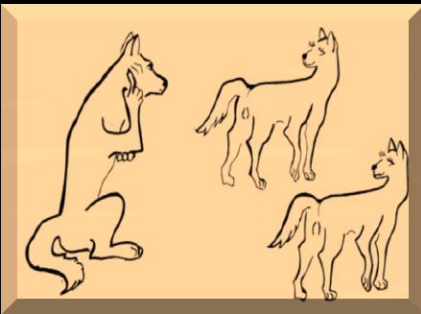


KZL/JMP

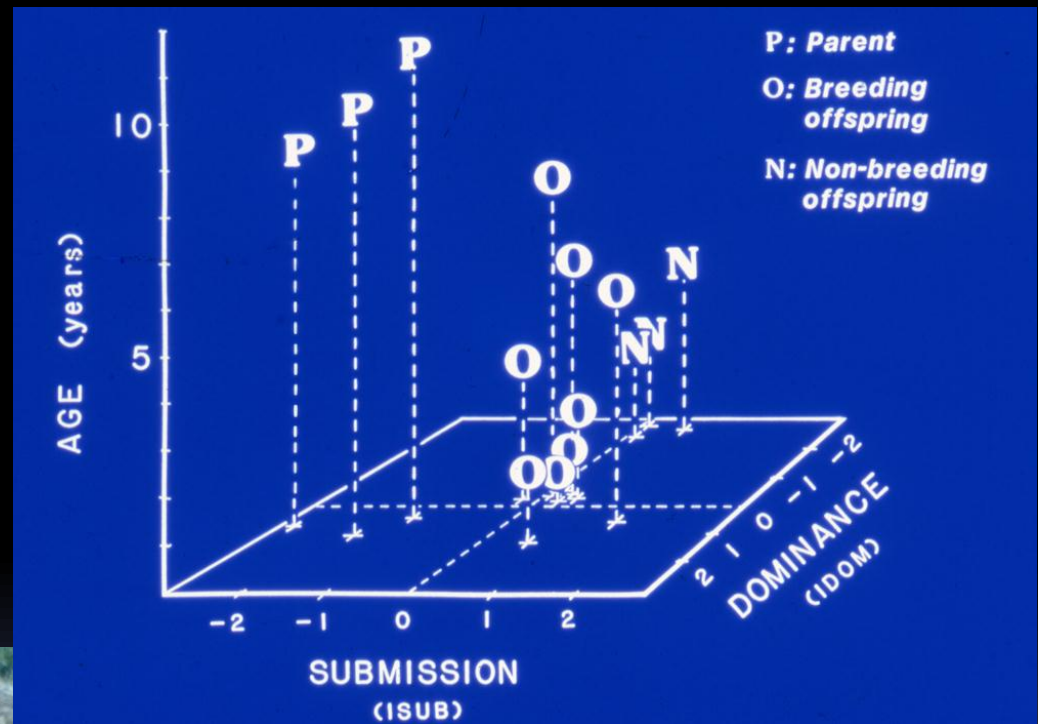
Many times in many places!!



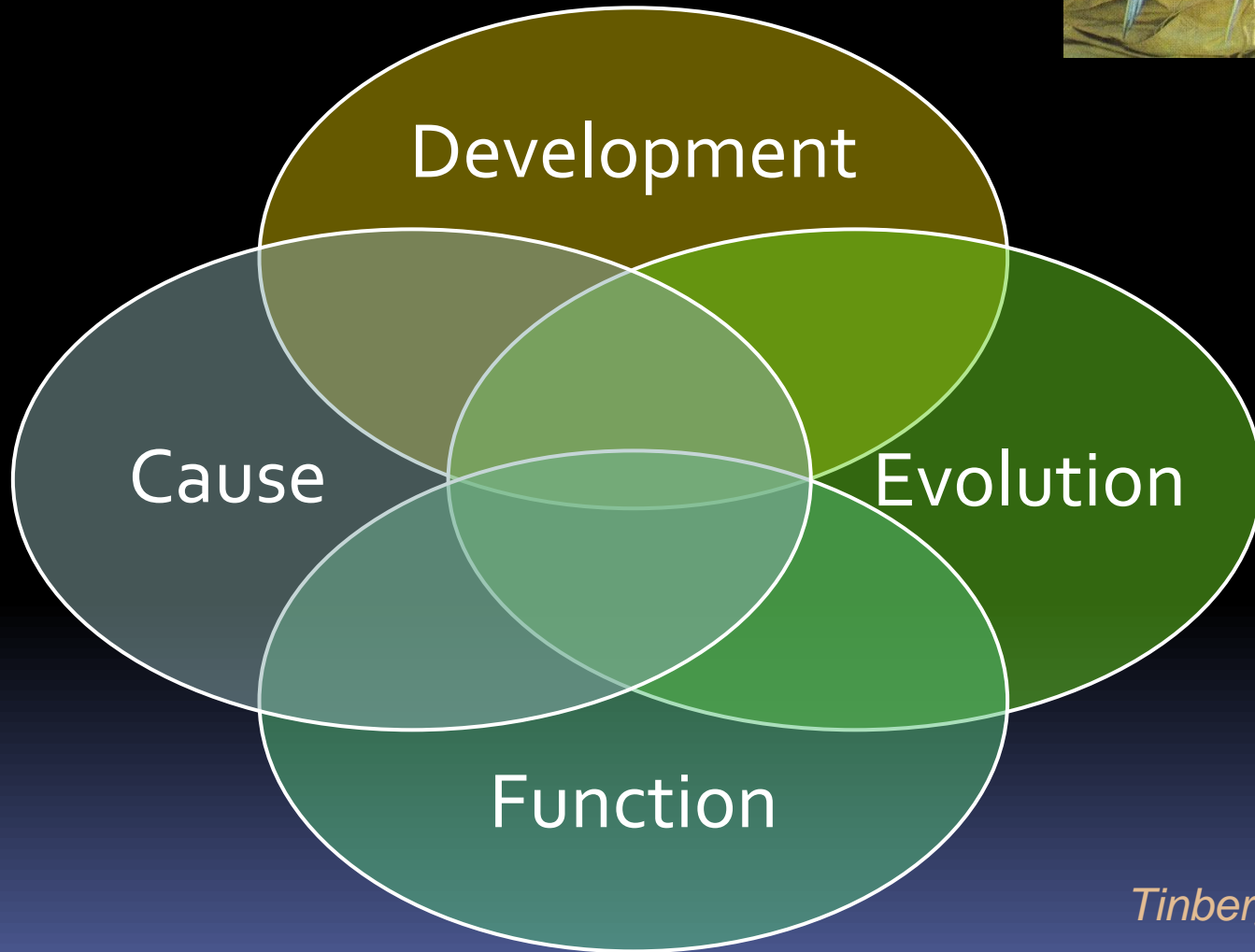
CAUSE: Mate choice



- Behavioral profiles change with age
- experienced parents are more attractive



Ethological questions



Tinbergen 1952