

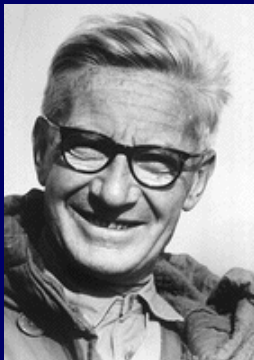
From ethology to sexual selection: trends in animal behavior research

Terry J. Ord, Emilia P. Martins
Department of Biology, Indiana University

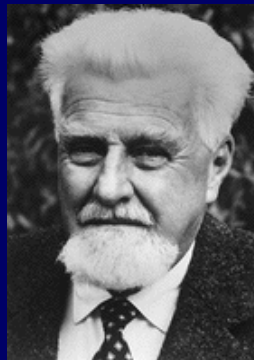
Sidharth Thakur
Computer Science Department, Indiana University

Ketan K. Mane, Katy Börner
School of Library and Information Science, Indiana University

Animal behavior – then & now



Niko Tinbergen
1907-1988

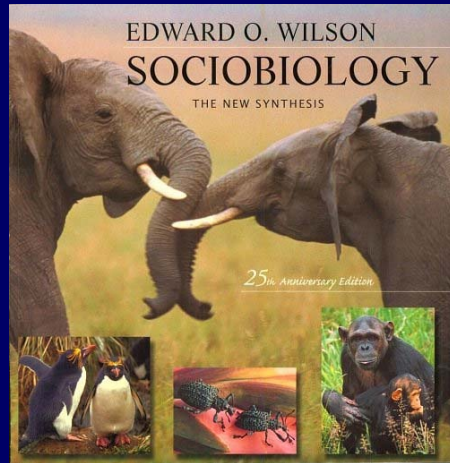


Konrad Lorenz
1903-1989



Karl von Frisch
1886-1982

Animal behavior – then & now



*1975

mechanism/
development

evolutionary theory/
population biology

Animal behavior – then & now

- Peter Klopfer (2002 - ABS newsletter)
 - 7 journals, 1st 50 papers 1950 vs 2000
 - little change
- John Alcock (2003 – ABS 50th anniversary)
 - animal behavior in texts
 - < 1975 = proximate, >1975 = ultimate

Animal behavior – then & now

1. Major trends over 30 yrs
 - research focus: 1972-1977 vs. 1996-2001
2. Journal coverage
 - 1996-2001
 - who publishes what?

Obtaining the data

- Relevant journals
 - Animal Behavior Abstracts (Camb. Sc. Abst.)
 - 228 journals = animal behavior
- Biological Abstracts (BIOSIS)
 - 219 journals, 414,739 papers, 1968-mid2002

Refining the data

- Animal Behavior Abstracts
 - CORE journals = all animal behavior
 - PRIORITY journals = <50% animal behavior
 - SELECTIVE journals = >50% animal behavior

Refining the data

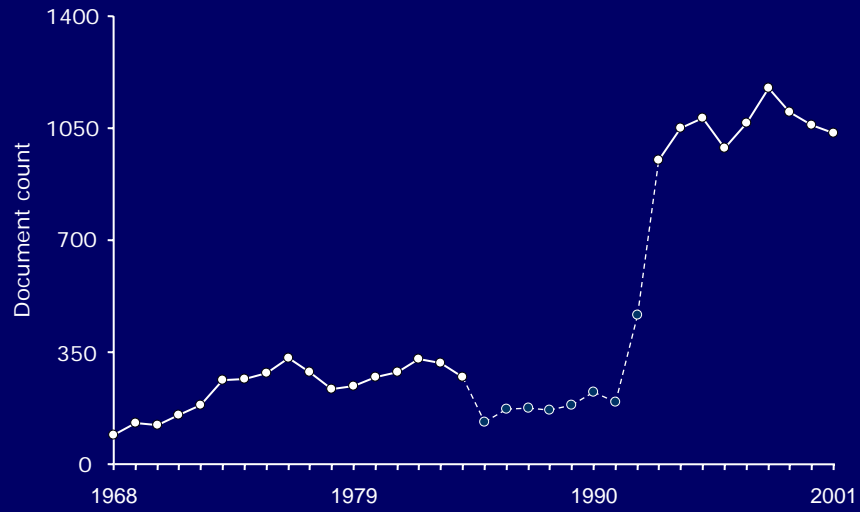
- Animal Behavior Abstracts
 - CORE journals = all animal behavior
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14 journals, 15,282 papers

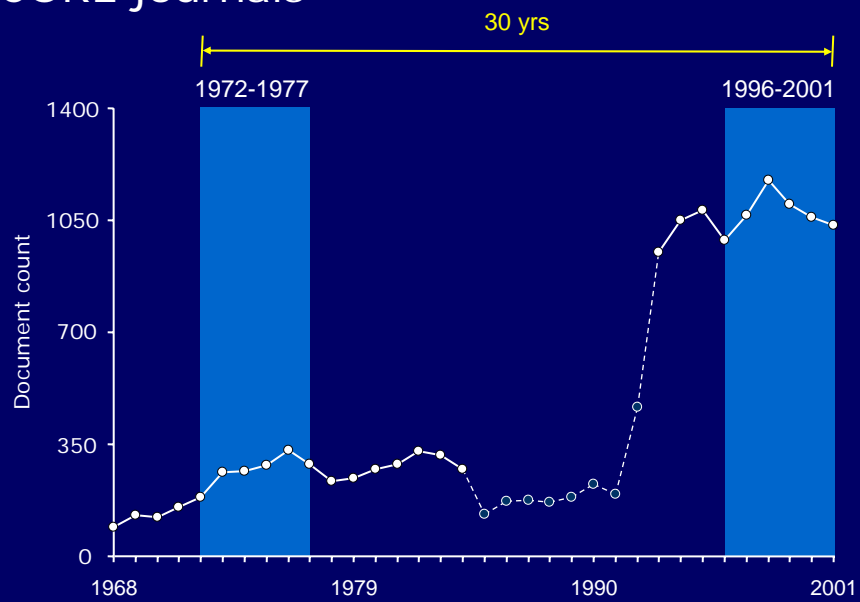
Anim. Behav.
Anim. Learn. Behav.
Appl. Anim. Behav. Sci.
Behaviour
Behav. Ecol.
Behav. Ecol. Socio.
Behav. Processes

Bird Behav.
Birds N. Am.
Ethology
J. Ethol.
J. Exp. Psychol.: Anim. Behav. Processes
J. Insect Behav.
Learn. Motiv.

CORE journals



CORE journals



Latent semantic analysis

Early handling increases lamb affinity for humans

Communicative cultures in cetaceans: big questions are unanswered, functional analyses are needed

Estimating ancestral states of a communicative display: A comparative study of *Cyclura* rock iguanas.

The maternal feeding display of domestic hens is sensitive to perceived chick error

Does sociality drive the evolution of communicative complexity? A comparative test with ground-dwelling sciurid alarm calls

Variation in chick-a-dee calls of a Carolina chickadee population, *Poecile carolinensis*: identity and redundancy within note types

Responses of foraging hedgehogs to badger odour

Latent semantic analysis

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COMMUNICATIVE cultures in cetaceans: big questions are unanswered, functional analyses are needed

Estimating ancestral states of a **COMMUNICATIVE DISPLAY** A **COMPARATIVE** study of *Cyclura* rock iguanas.

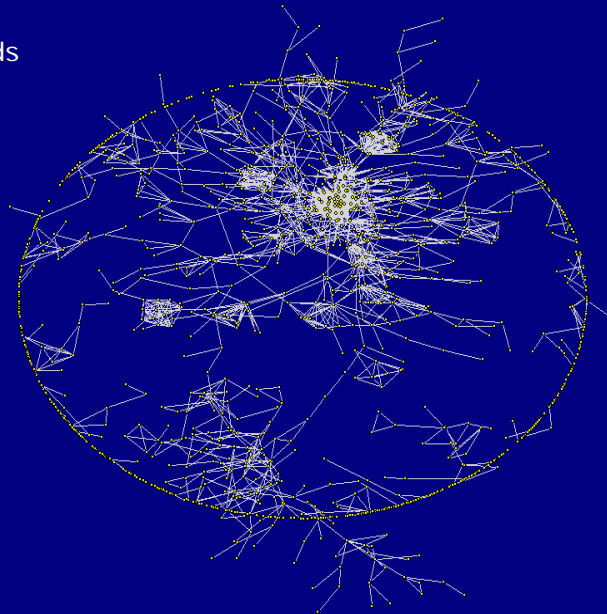
The maternal feeding **DISPLAY** of domestic hens is sensitive to perceived chick error

Does sociality drive the evolution of **COMMUNICATIVE** complexity? A **COMPARATIVE** test with ground-dwelling sciurid alarm **CALL**s

Variation in chick-a-dee **CALL**s of a Carolina chickadee population, *Poecile carolinensis*: identity and redundancy within note types

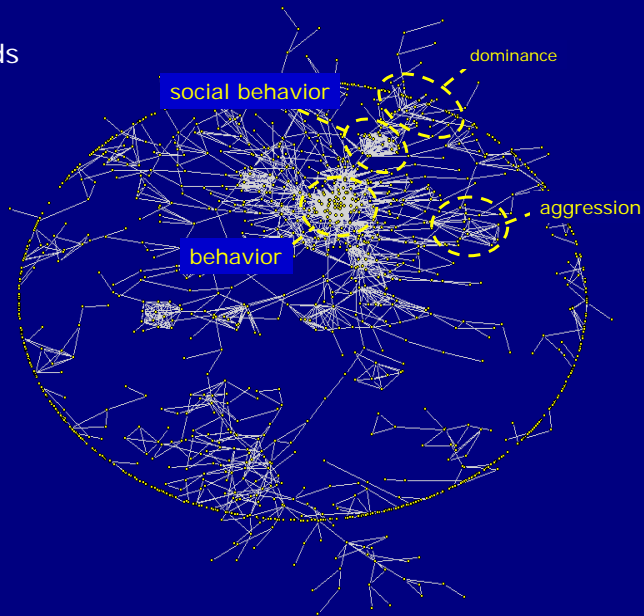
Responses of foraging hedgehogs to badger odour

1972-1977
- 1,612 records



*title-words

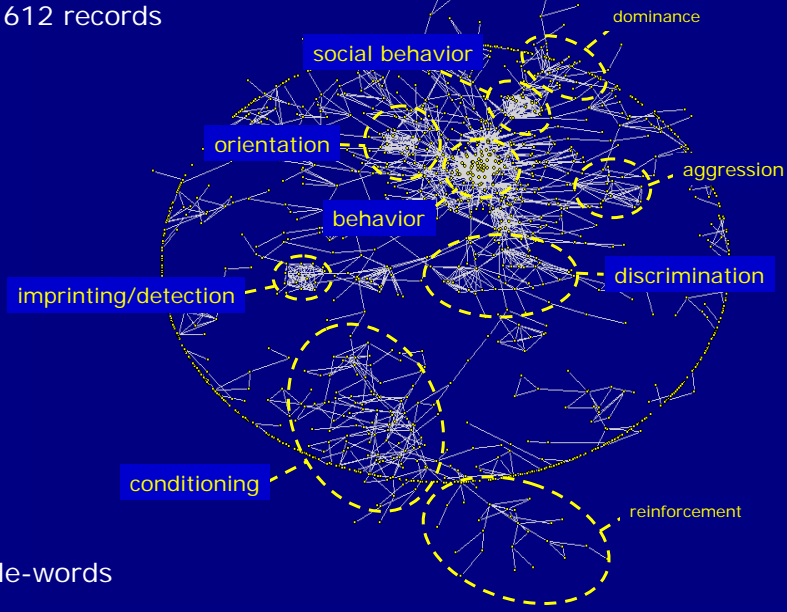
1972-1977
- 1,612 records



*title-words

1972-1977

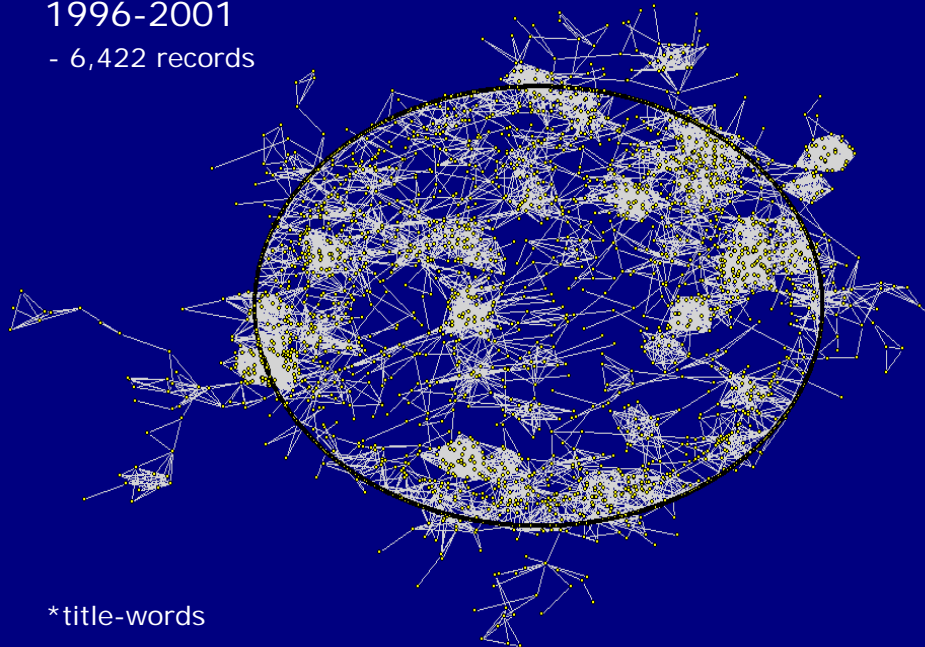
- 1,612 records



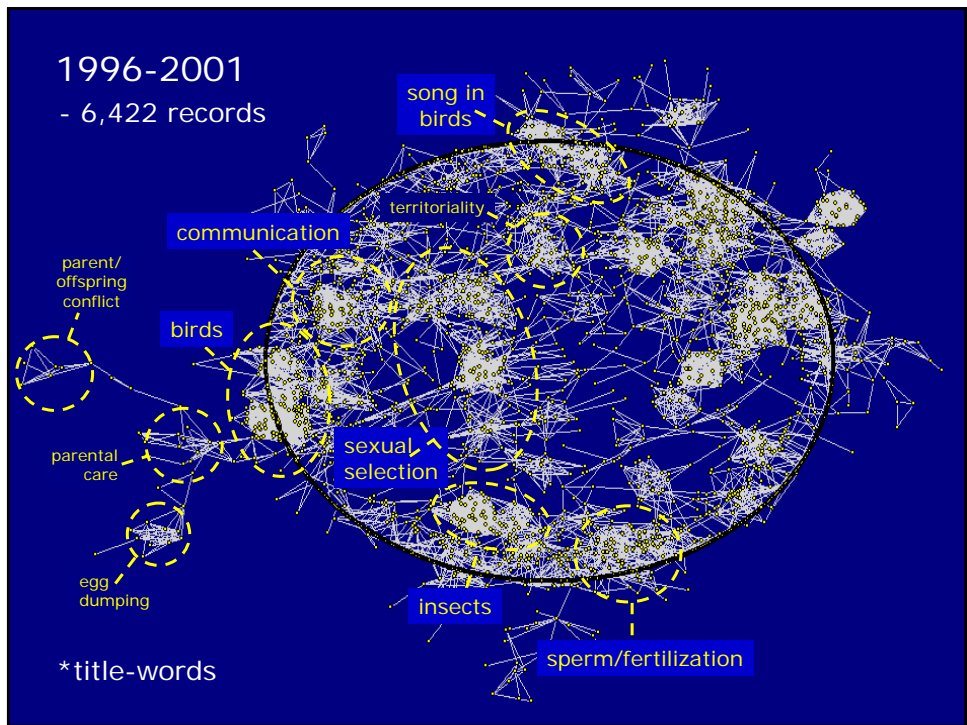
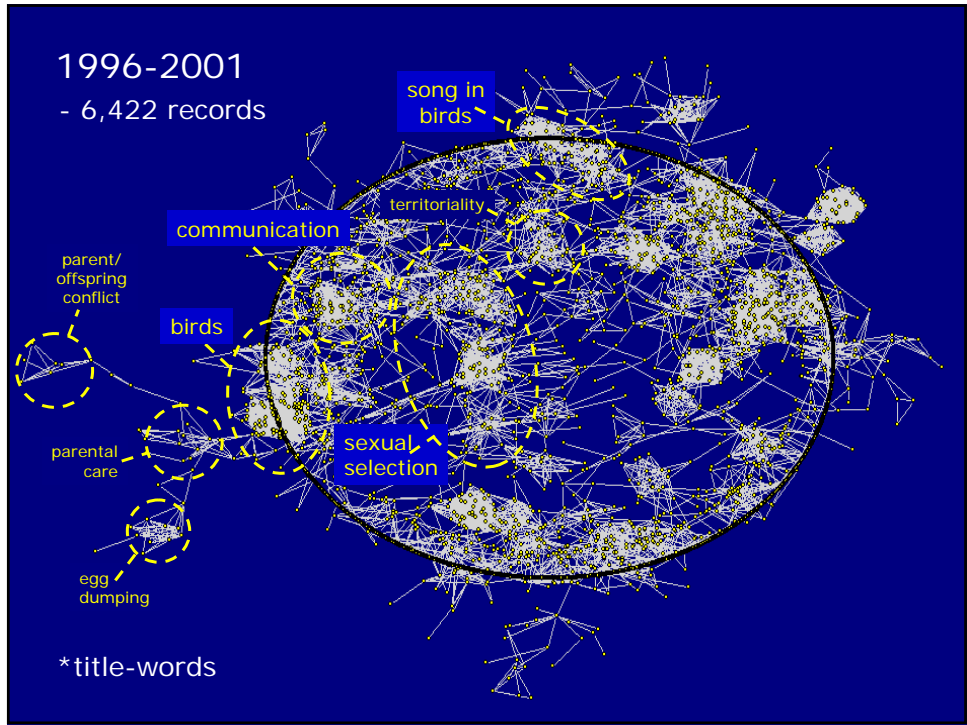
*title-words

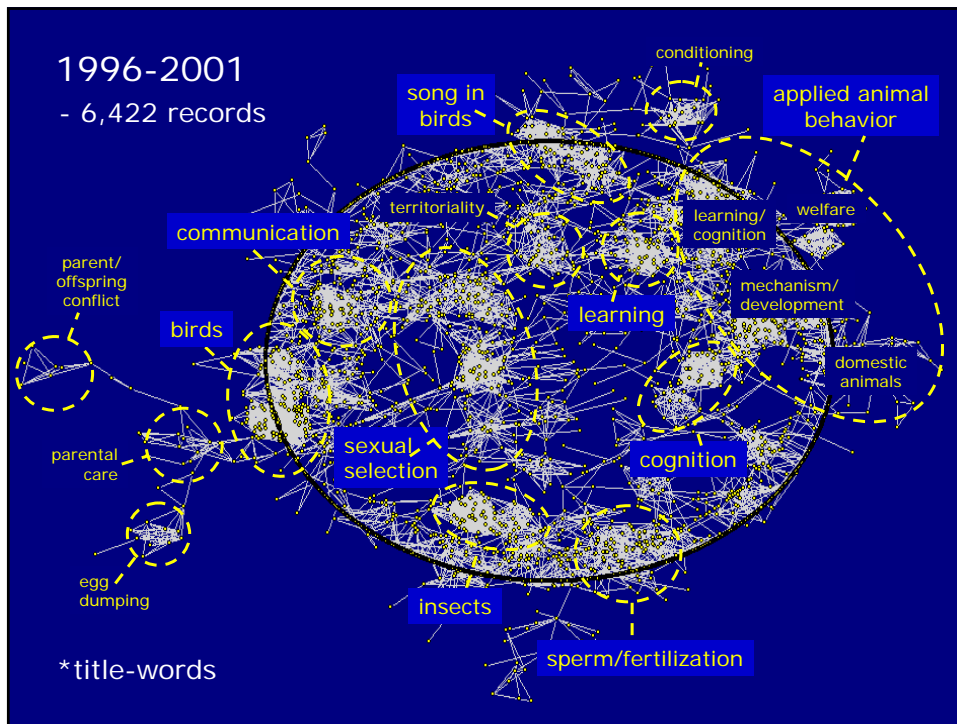
1996-2001

- 6,422 records



*title-words

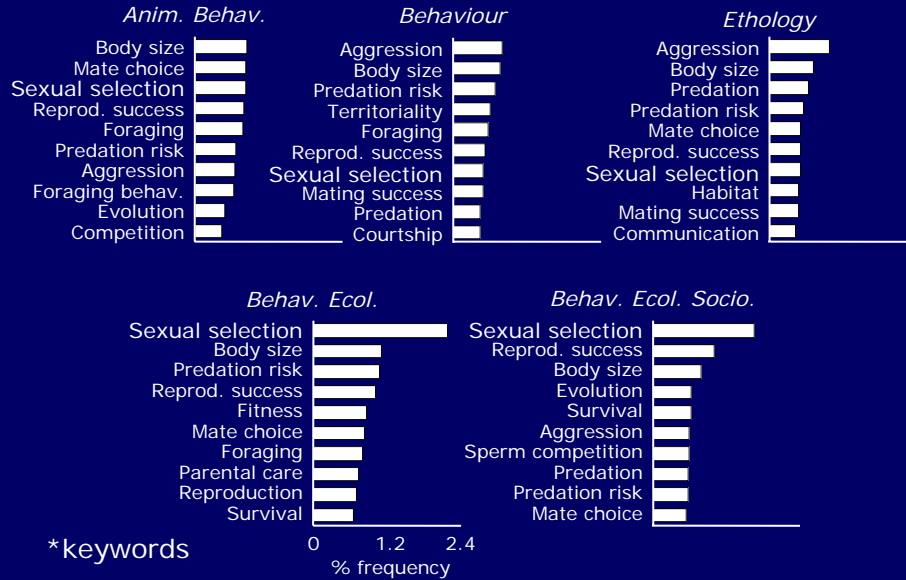




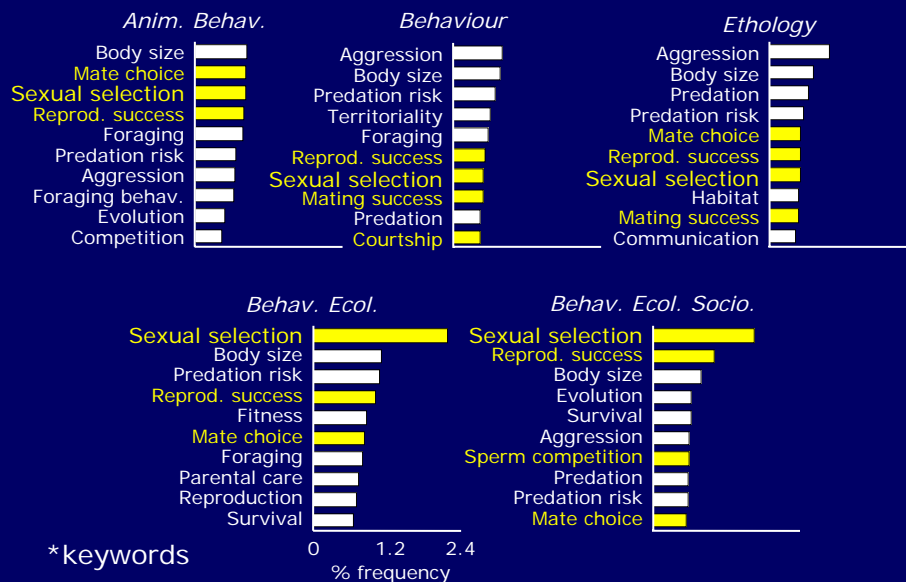
Summary – major trends

- 1972-1977
 - ethology
 - comparative psychology
- 1996-2001
 - broader vocabulary
 - taxonomic split
 - applied animal behavior
 - mechanism/development...

Journal focus (1996-2001)



Journal focus – sexual selection



Journal focus = big 4

	<i>Anim. Behav.</i>	<i>Behaviour</i>	<i>Ethology</i>	<i>Behav. Ecol.</i>	<i>Behav. Ecol. Socio.</i>
sexual selection	✓	✓	✓	✓	✓
predation	✓	✓	✓	✓	✓
aggression	✓	✓	✓		✓
foraging	✓	✓		✓	
body size	✓	✓	✓	✓	✓
evolution	✓				✓
communication			✓		
fitness/reproduction				✓	
habitat			✓		
parental care				✓	
survival				✓	✓

*keywords

Summary – journal focus (1996-2001)

- 4 dominant areas of study
 1. sexual selection
 2. predation
 3. aggression
 4. foraging
- Mechanism/development not in top10
- Journal coverage
 - *Anim. Behav.*, *Behaviour*, *Ethology* = ~diverse
 - *Behav. Ecol.*, *Behav. Ecol. Socio.* = sexual selection

Conclusion

- General research shift
 - today, ethology =
 - sexual selection, social behavior, birds
 - applied animal behavior

1972-1977 → 1996-2001

ethology

comparative
psychology

sexual selection/
communication

applied animal
behavior

Conclusion

- General research shift
 - today, ethology =
 - sexual selection, social behavior, birds
 - applied animal behavior
- Journal focus = 'Big 4'
 1. sexual selection
 2. predation
 3. aggression
 4. foraging

Conclusion

- General research shift
 - today, ethology =
 - sexual selection, social behavior, birds
 - applied animal behavior

- Journal focus = 'Big 4'

ethology

- *Behaviour*
- *Ethology*

mixed

- *Anim. Behav.*

sexual selection

- *Behav. Ecol.*
- *Behav. Ecol. Socio.*

Conclusion

- General research shift
 - today, ethology =
 - sexual selection, social behavior, birds
 - applied animal behavior
- Journal focus = 'Big 4'
- Mechanism/development...?
 - specialized journals, e.g., *Horm. Behav.*
 - change in vocabulary

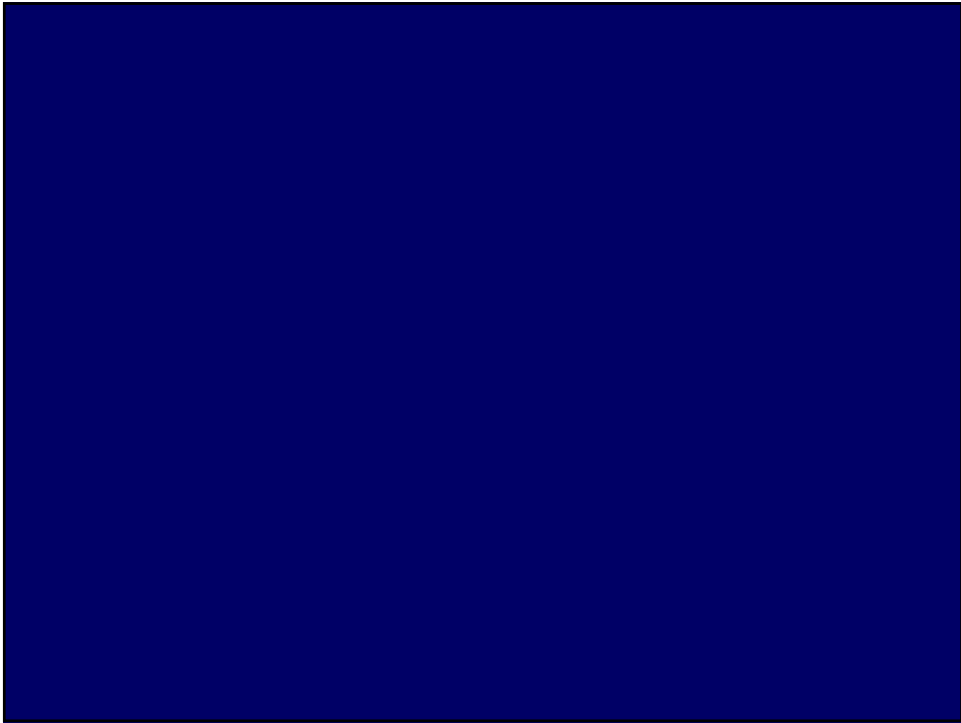
Future work

- PRIORITY & SELECTIVE journals
 - isolate animal behavior papers by keywords
- Author affiliation data
 - geographic trends
- Funding trends (NIH, NSF, society awards)
- Automation

Acknowledgements

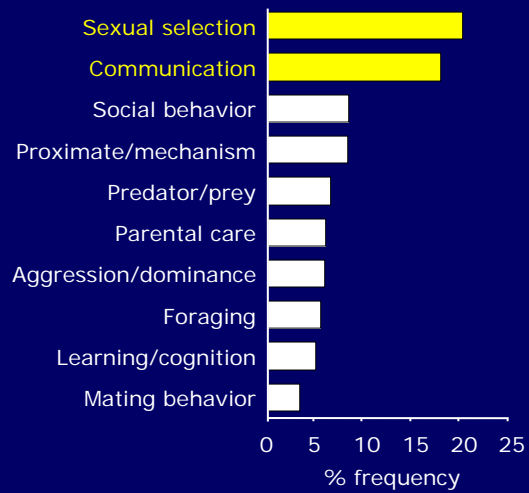
- Roger Beckman
IU Life Sciences Library
- Ann Bristow
IU Main Library
- Peter H. Klopfer
Duke University
- Ralph Quarles
IU Library Information Technology



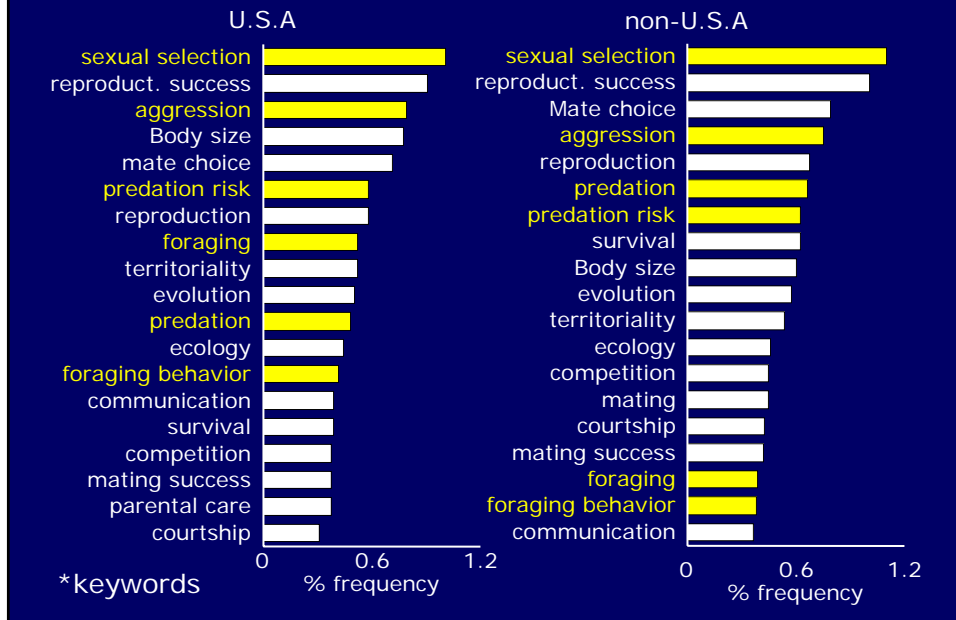


ABS conferences 1999-2003

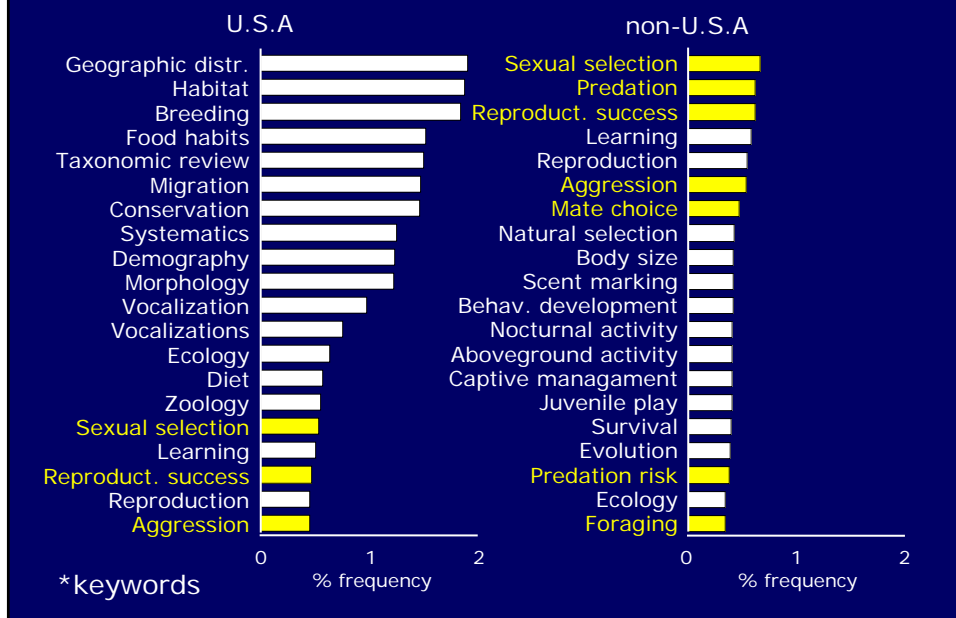
*Regular 12 min talks only



Geographic trends (5 journals, 1996-2001)



Geographic trends (CORE, 1996-2001)



Author affiliations (U.S.A)

- appearing in CORE animal behavior journals

