

# Ontario Boreal Marten Ecology Project



Natural Resources  
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UNIVERSITY  
of GUELPH

Ontario Ministry of  
Natural Resources

# The Research Partnership

- **CFS**
- **OMNR**
- **University of Guelph**

## **Funded through:**

- **Forest Ecosystem Science Cooperative: via the NSERC, industry, and Canadian Forest Service Partnership Fund**
- **Living Legacy Trust (Oct. '03 - Mar. '04 [6 mo])**
- **Living Legacy Research Program (May '05 - Mar '08)**

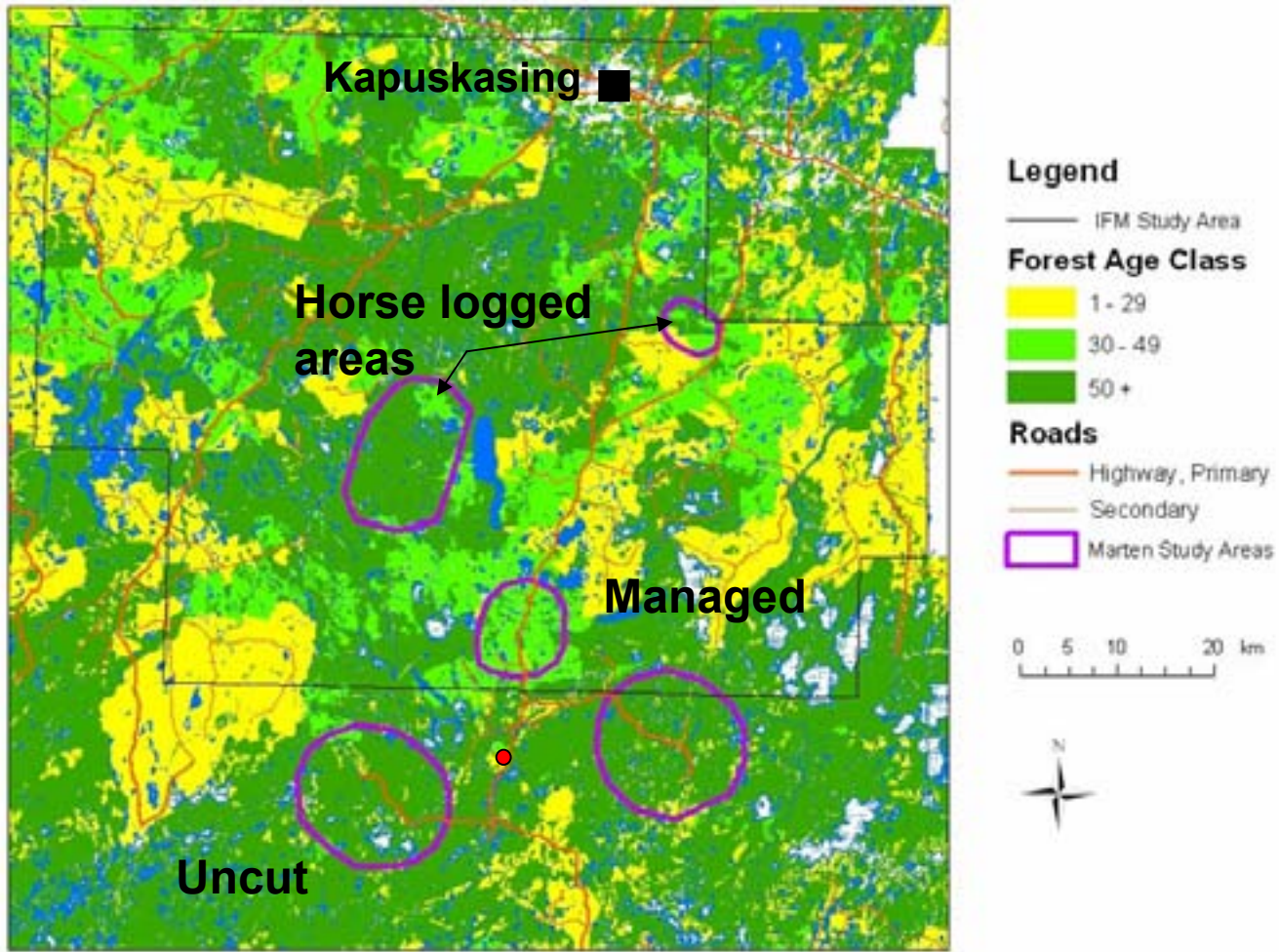
## Project Status (spring '07)

- Ear Falls study component closed November 2005
- Kapuskasing in it's last year (again)
- 1 grad student in the field and 2 summer assistants
- MNR and CFS willing to continue funding for another 11 months
- 3 MSc students graduated; 1 PhD student pending; 2 MSc students in final year

## Purpose of the Kapuskasing study component

- test generality of results from Ear Falls and Manitouwadge
- conversely, look for ecosystem-related idiosyncrasies
- link to various other studies in the Gordon Cosens forest
  - Thompson – effects of IFM
  - Malcolm/Thompson/Smith/Drapeau et al. – dead wood dynamics, biodiversity, and C accounting
  - Groot – forest growth in peatlands
  - Malcolm – multi-cohort management modelling

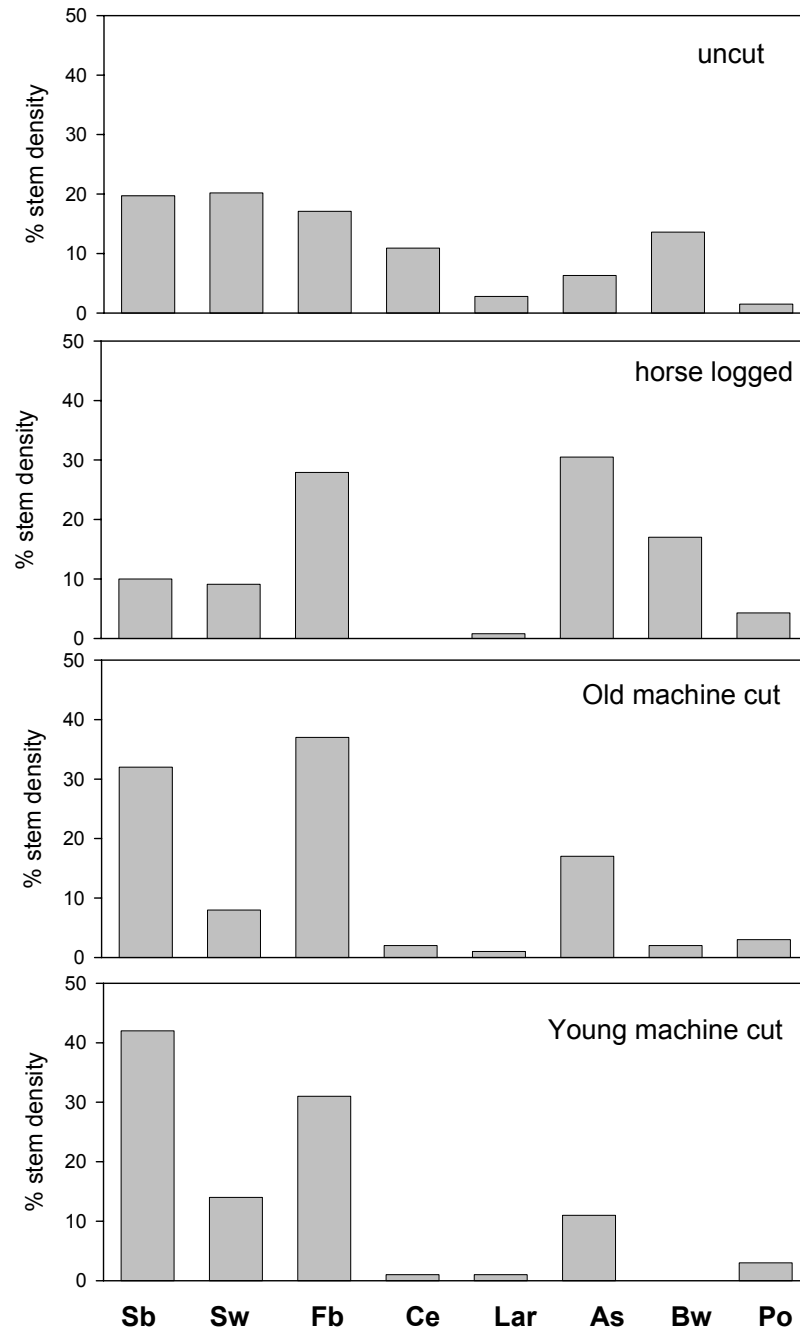
# KapusKasing Study Area



Gordon Cosens Forest

## Tree species composition by stand origin

- old forest is more mixed than all logged areas;
- horse-logged has more aspen and birch than machine logged;
- machine logged has virtually no birch and most area is planted to spruce



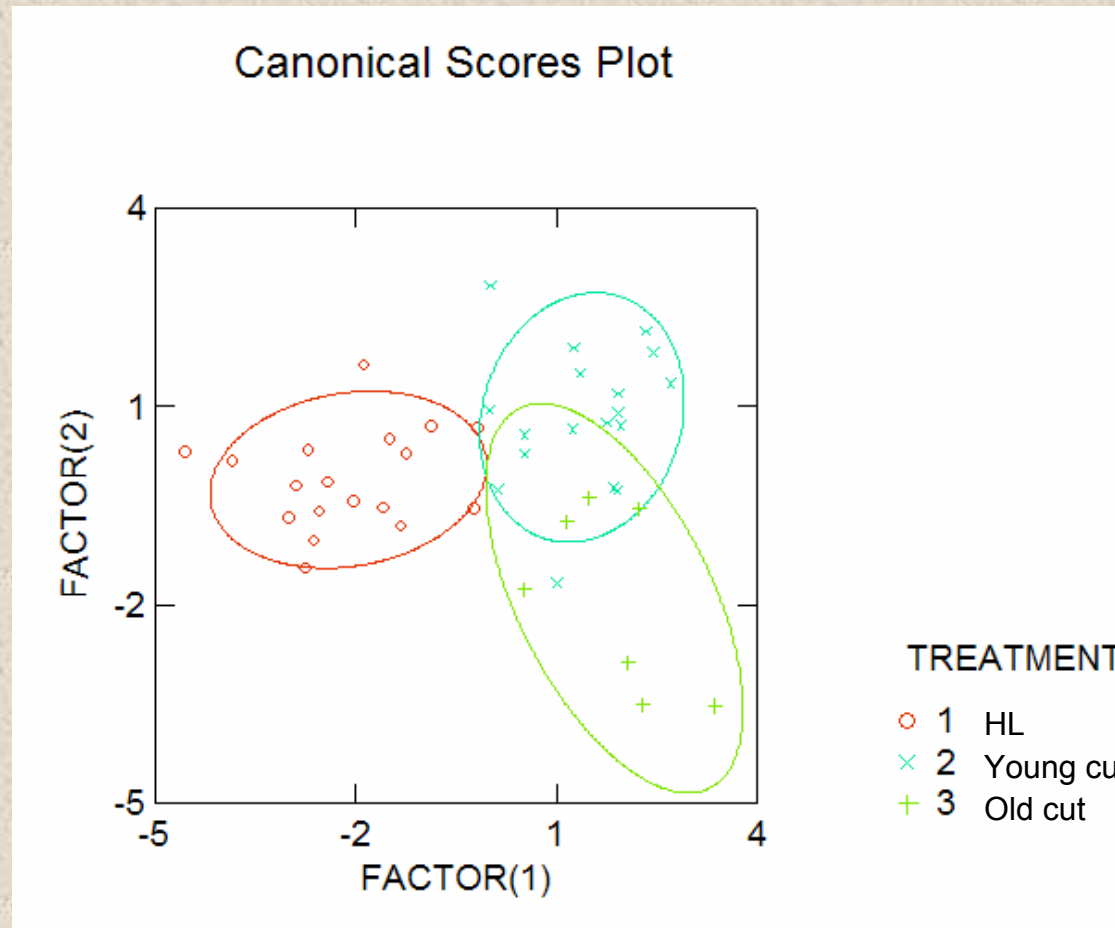
Fire origin 100-120 years old

Cut using horses 54-65 years ago

Machine logged 31-44 years ago

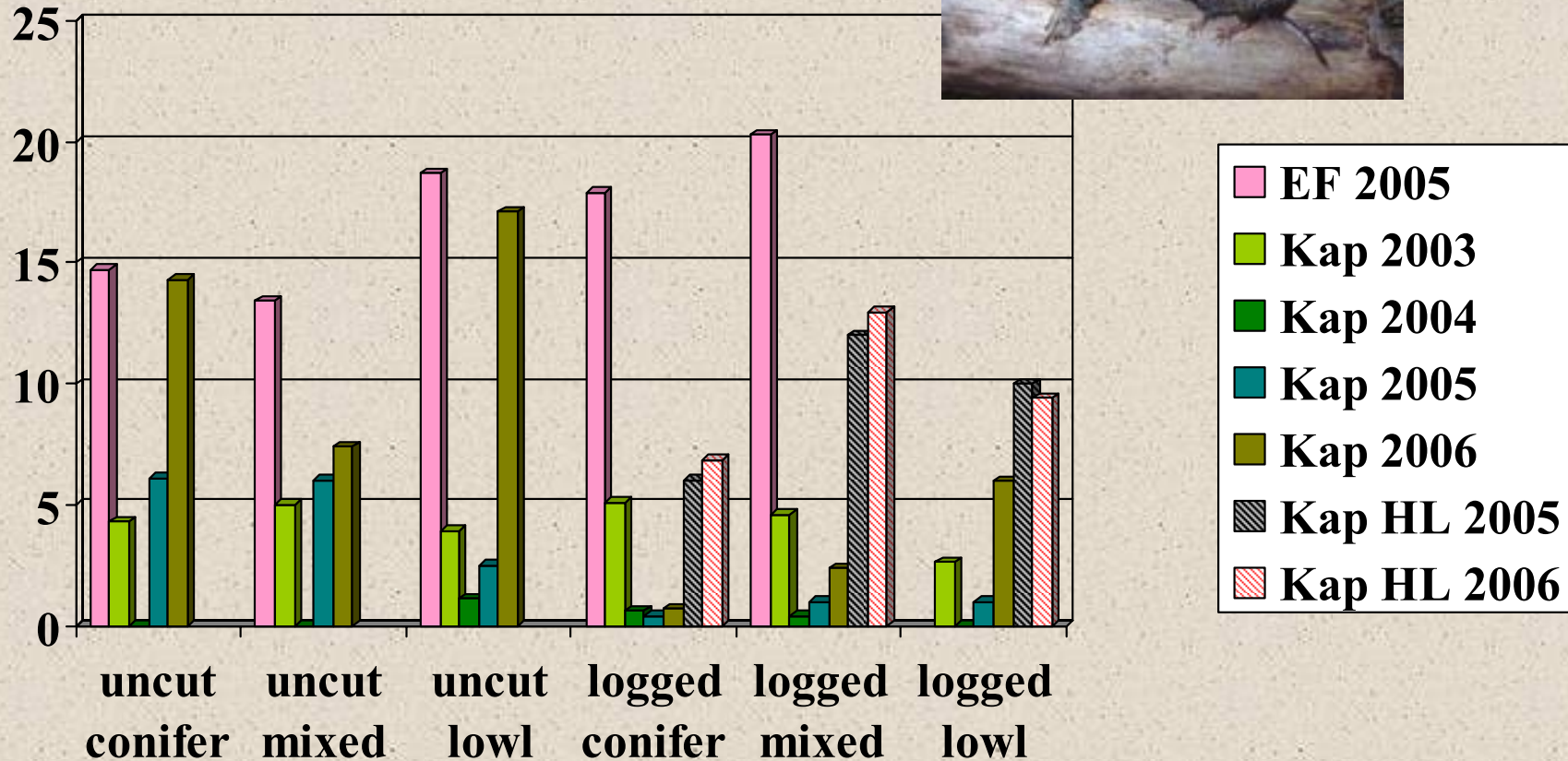
Machine logged 20-30 years ago

# Ordination (DFA) among logged stands

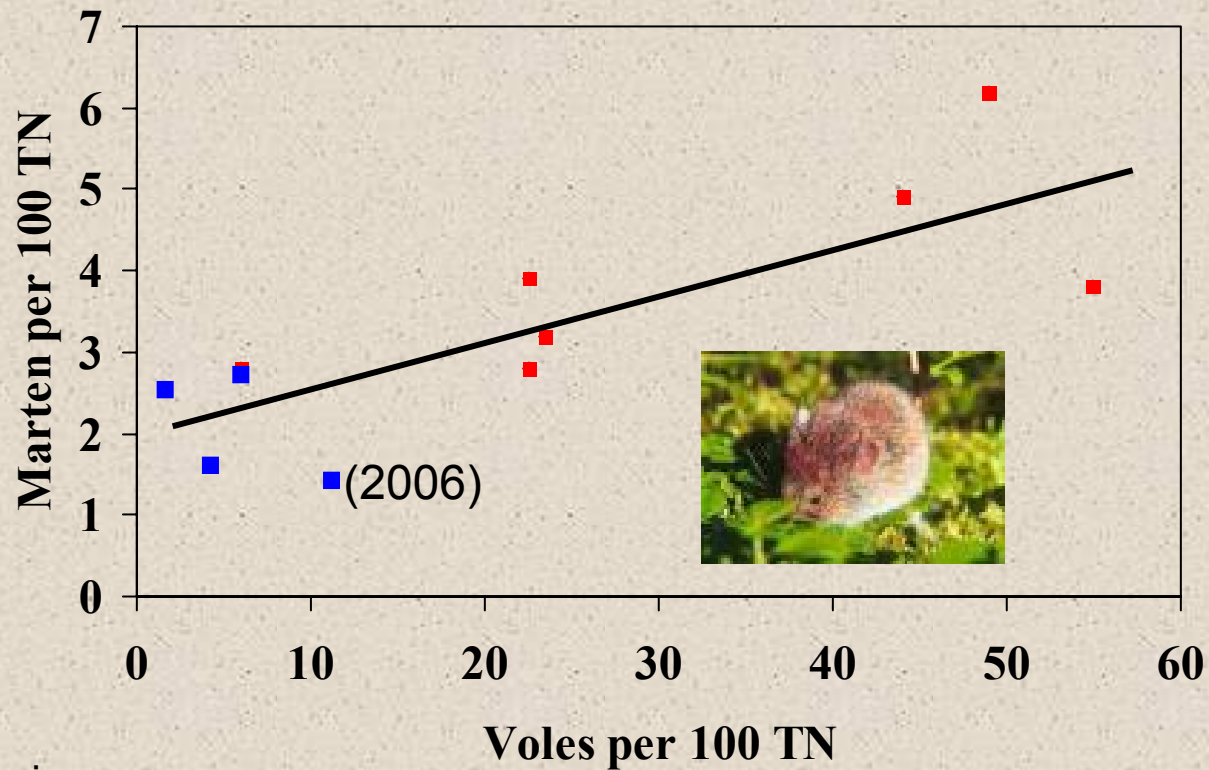


Discriminating variables: density black spruce, density balsam fir, density white birch, density snags >10 m, volume class 3 CWD

# Fall red-backed voles/100TN in stand types at Kapuskasing, 2003-06



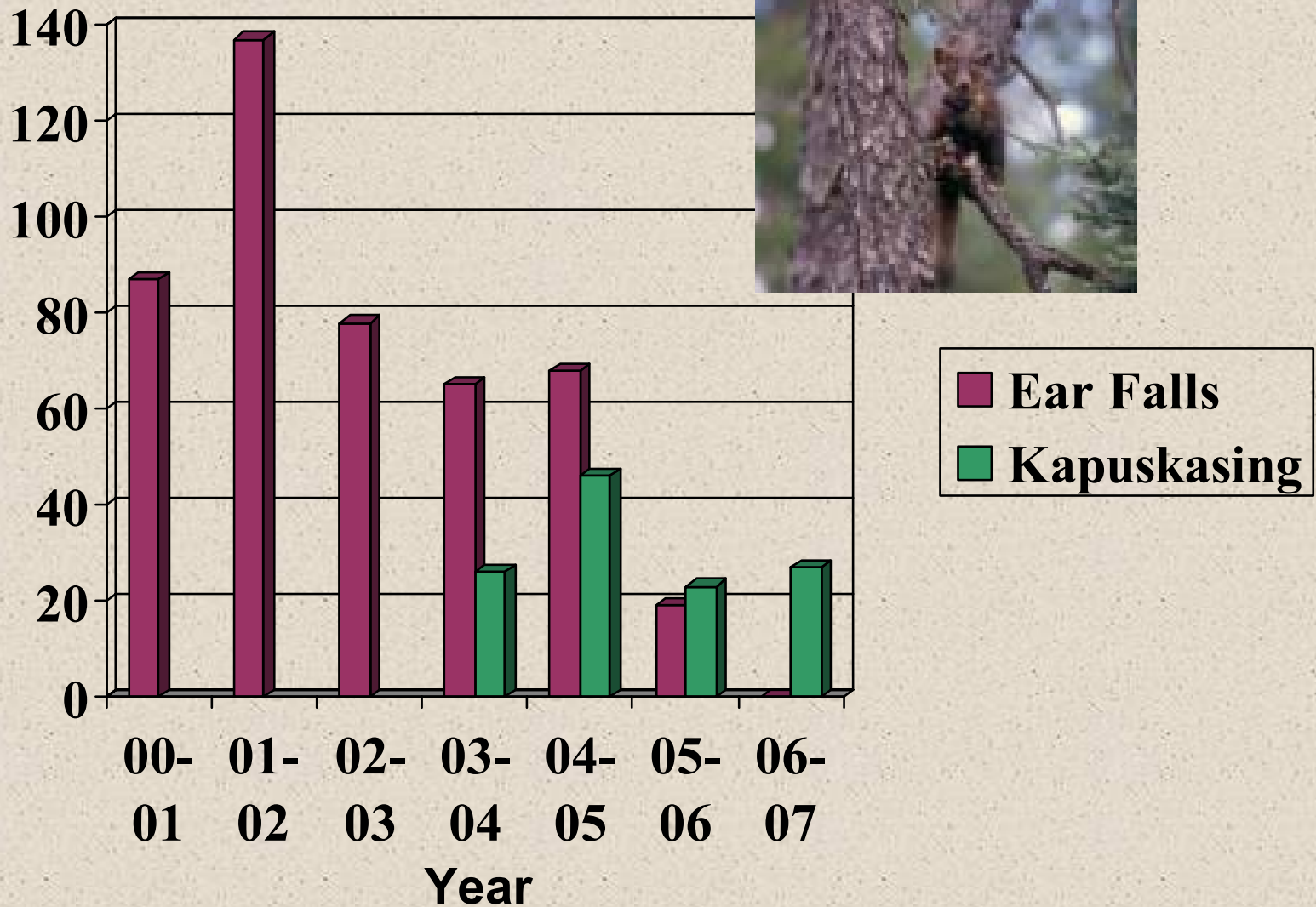
## Marten captures as a function of red-backed voles caught in the fall



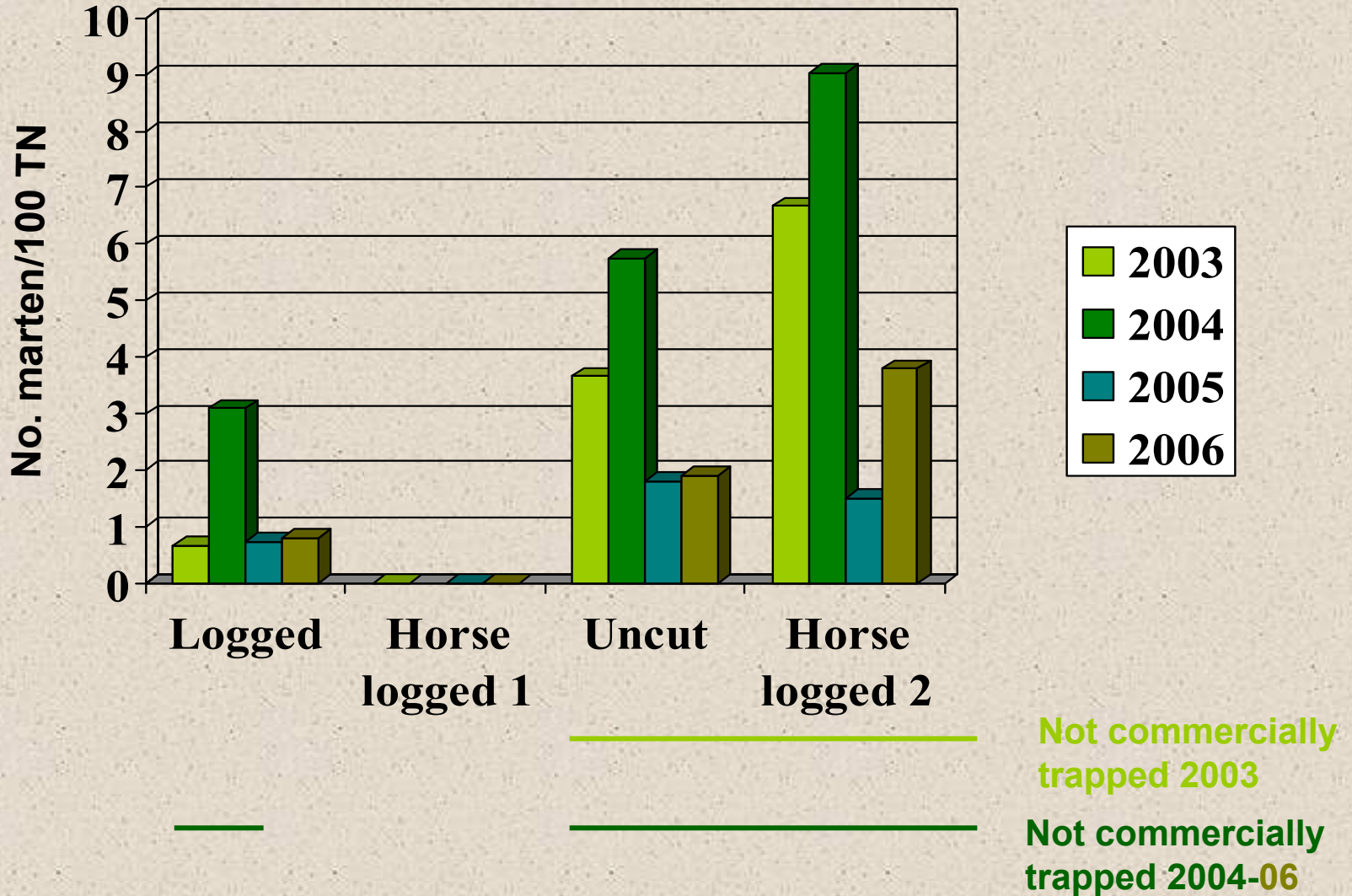
■ Kapuskasing

■ Ear Falls

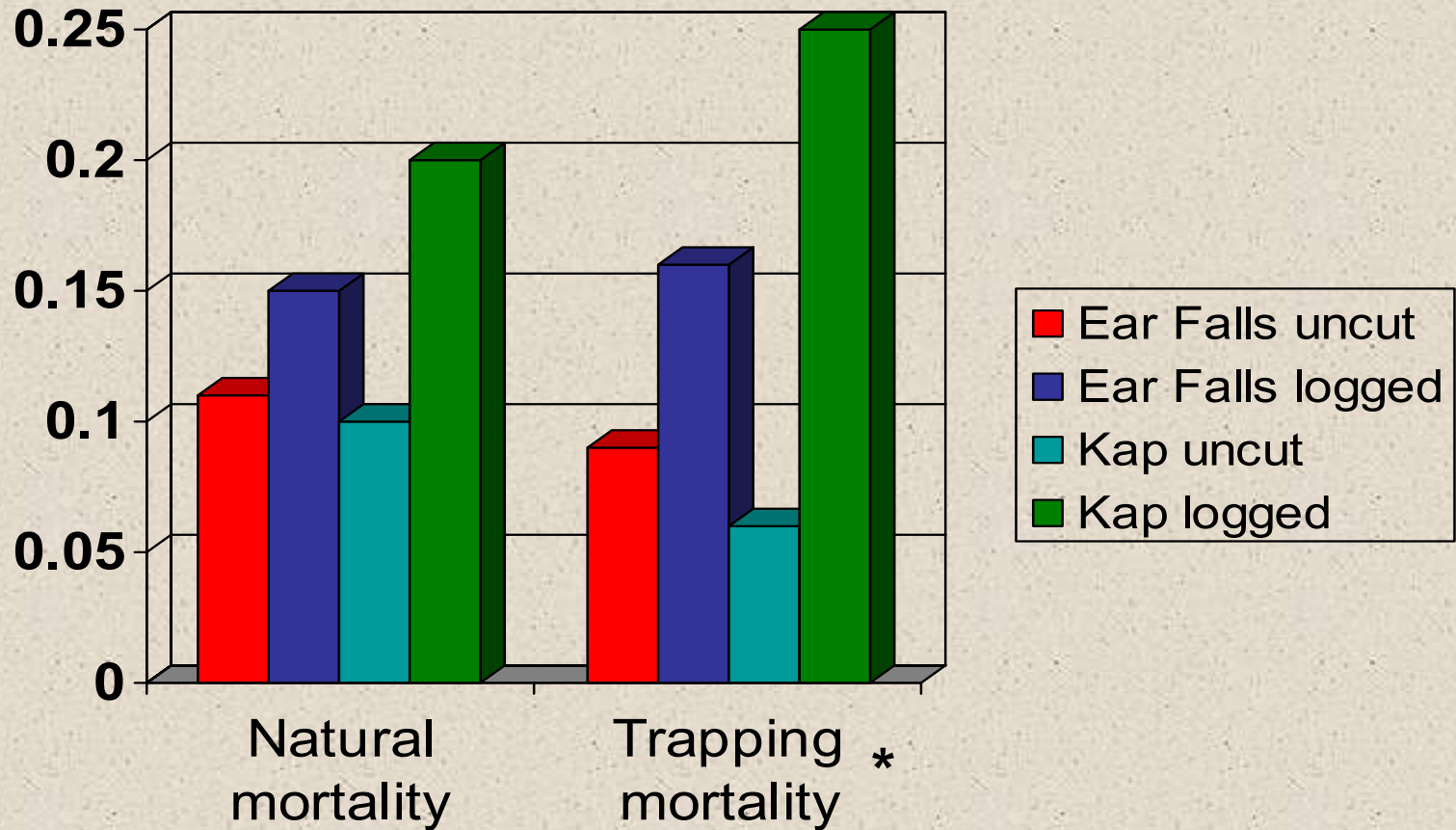
## Number of marten equipped with radio-collars



# Marten captures by forest type at Kapuskasing, Fall 2003 - 2006



## Marten mortalities



\*low because trappers are paid not to trap

# Plans for the remaining year at Kapuskasung

- continue the core marten studies: home ranges, productivity, mortality, food base, diet, dispersal
- master's thesis on comparison of marten habitat and trapper selection based on 'catch per unit effort' equation
- LLRP – project to assess the value of CLAAG\* - harvest stands as future marten habitat in comparison to horse logged areas – increase data and conduct modelling
- Stephen Mills' (OMNR - Timmins) den sites study (FFT funded) – assess den sites used by females

(\*CLAAG – silvicultural system of 'careful logging around advanced growth')

## Scientific journal papers submitted

- factors influencing marten foraging success (Andruskiw et al.)
- marten home range behaviour and social system (Johnson et al.)
- accuracy of FRI vs. ground surveys for stand composition (Thompson et al.)

## Some conclusions from Kapuskasing

- Accessible areas are not self-sustaining for marten under the current trapping regime
- There is substantial local variance within forest types in small mammal numbers during a decline and again during the initial increase phase
- Older (>55 years) boreal forests provide superior habitat vs. 45 year-old second-growth forest
- Untrapped claybelt horse-logged forests (ca. 60 yrs old) may be as productive as uncut forests for marten

# Some general preliminary study conclusions

- Accessible areas are not self-sustaining for marten under the current trapping regimes – the only way these areas maintain marten is through immigration
- There is substantial variance in small mammal numbers among regions, among forest types, and within forest types (i.e., across stands within types)
- Older (>55 years) boreal forests provide superior habitat to 30-40 year-old second-growth forest
- Horse-logged forests (ca. 60 yrs old) maintain high quality, and amounts, of structures required by marten
- Marten are more responsive to food than to habitat, if ‘minimal’ habitat requirements are met

# Why another year at Kapuskasing?

## Ear Falls and Kapuskasing compared

	<b>Ear Falls</b>	<b>Kapuskasing</b>
Mean vole abundance:		
managed forest	14.8	2.1
unmanaged forest	13.9	5.6
HR size	3-8 km <sup>2</sup>	8-24 km <sup>2</sup>
Marten abundance:		
managed forest	3.0	1.3
uncut forest	5.5	3.2
HL forest	-	2.9

## Predictions for Kapuskasing marten in '07-08

### We expect:

- a lagged recovery by marten this year, assuming food supply remains high
- a decrease in home range size
- high mortality from commercial trapping
- a convergence of Kapuskasing and Ear Falls demographics

# Schedule for completion of the project

## Students:

- Pulfer master's thesis: August '07
- Johnson PhD thesis: August '07
- Wiebe master's thesis: April '08

## Project:

- modelling workshop May '07
- NSERC final report: December '07
- Kapuskasing field work: April '08
- various results papers: May '07 through '09
- various presentations and workshops: through '08