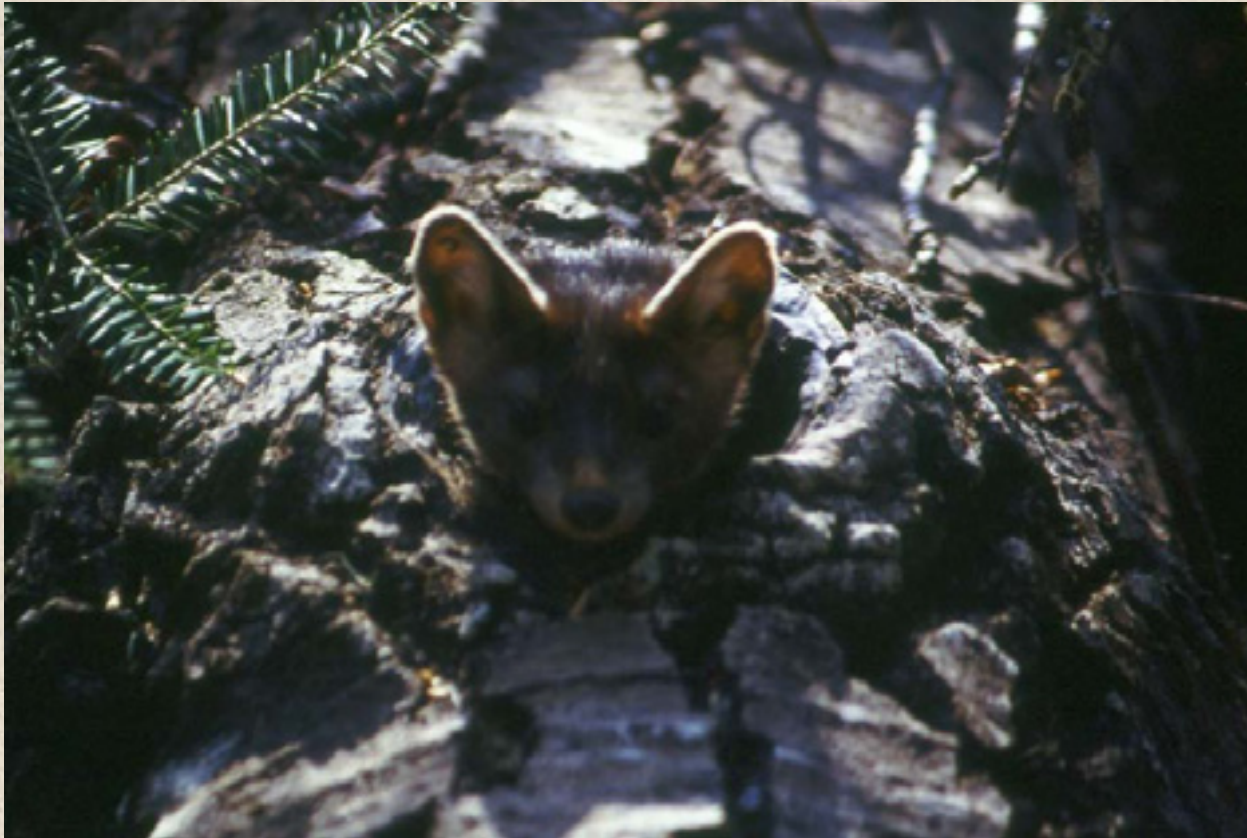


Ontario Boreal Marten Ecology Project



Natural Resources
Canada

Ressources naturelles
Canada

UNIVERSITY
of GUELPH

Ontario Ministry of
Natural Resources

The Research Partnership

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

Funded through:

- **Forest Ecosystem Science Cooperative, NSERC 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 '06)

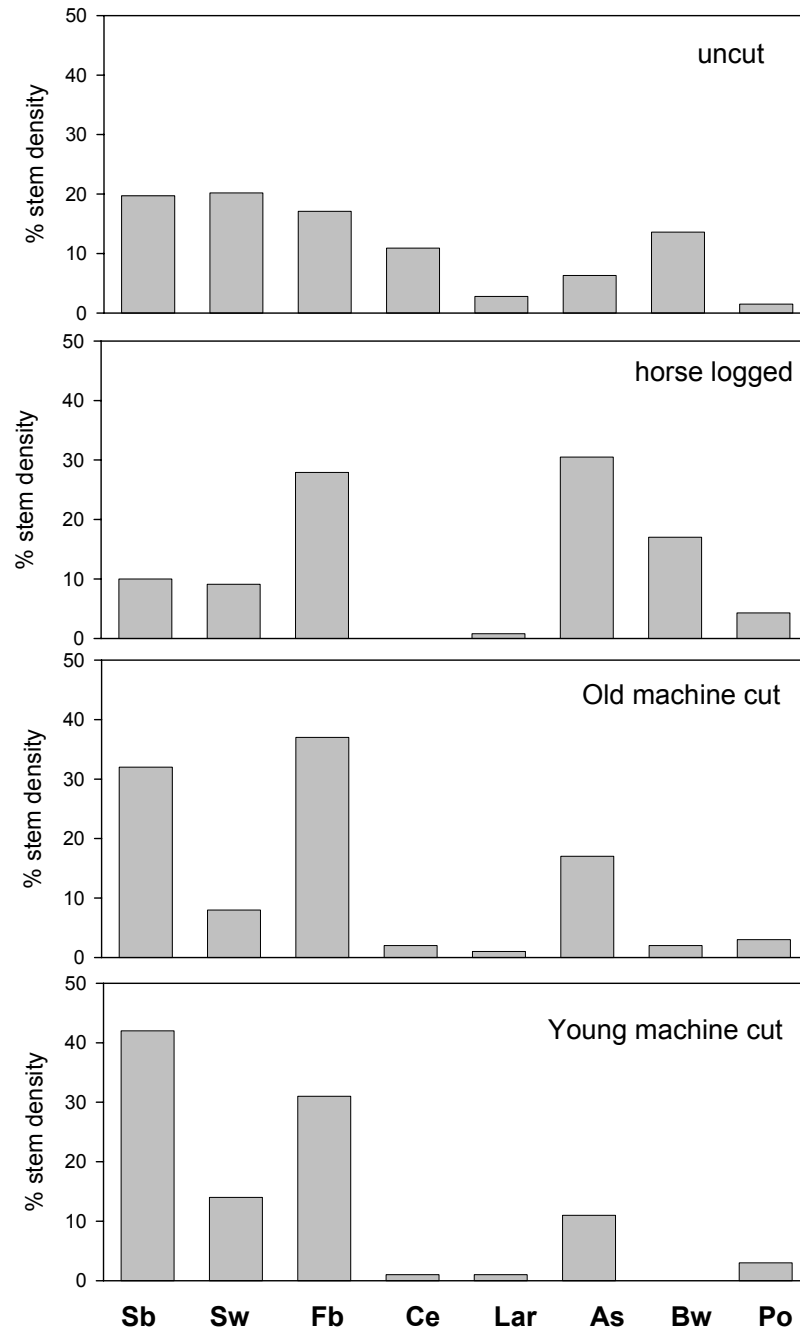
- Ear Falls study component closed November 2005
- Kapuskasing in it's 2nd full year
- 1 full time CFS biologist posted to Kap for 2 years
- 2 grad students; 3 summer assistants
- additional project funding from LLRP to carry 1 extra tech through the winters

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/et al. – dead wood dynamics, biodiversity and C accounting
 - Groot – forest growth
 - Malcolm – multi-cohort management modelling

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



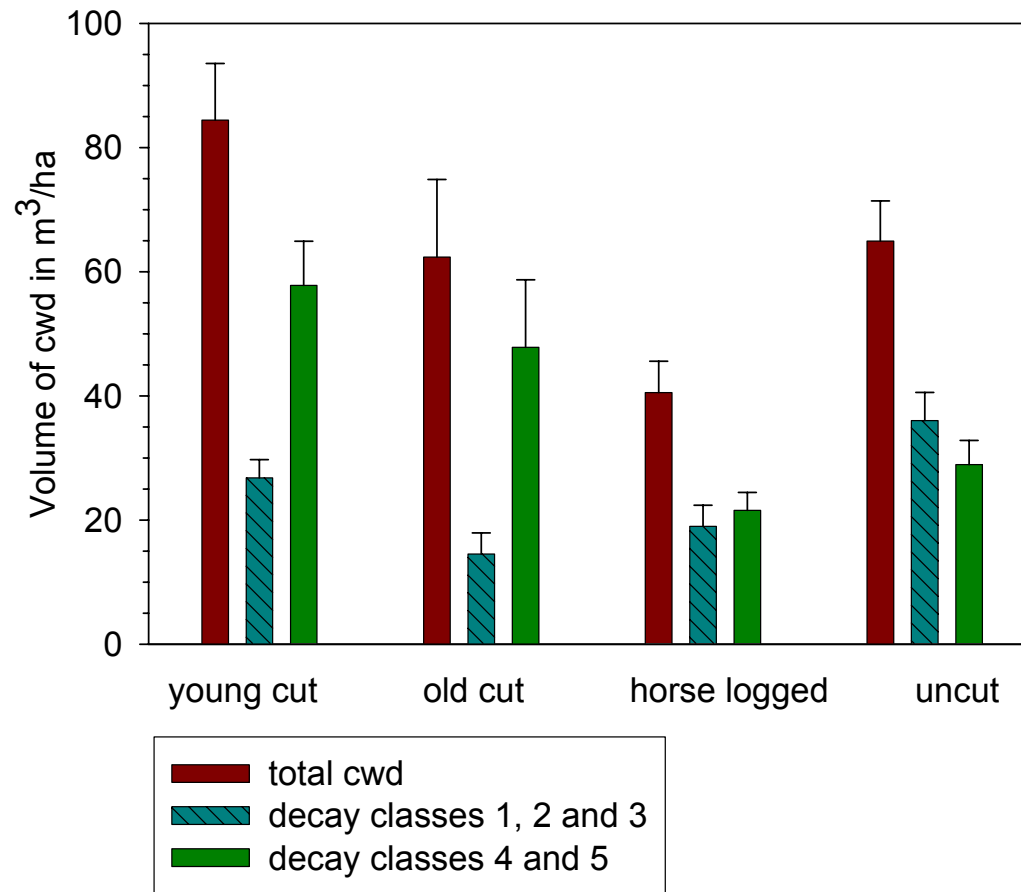
Fire origin 100-120 years old

Cut using horses 52-58 years ago

Machine logged 31-44 years ago

Machine logged 20-30 years ago

More large woody debris in class 1-3 in uncut forests than in logged forests, at Kapuskasing



Ground cover composition by stand origin

(more litter and less moss cover in machine-logged sites at 40 yrs vs. HL and uncut)



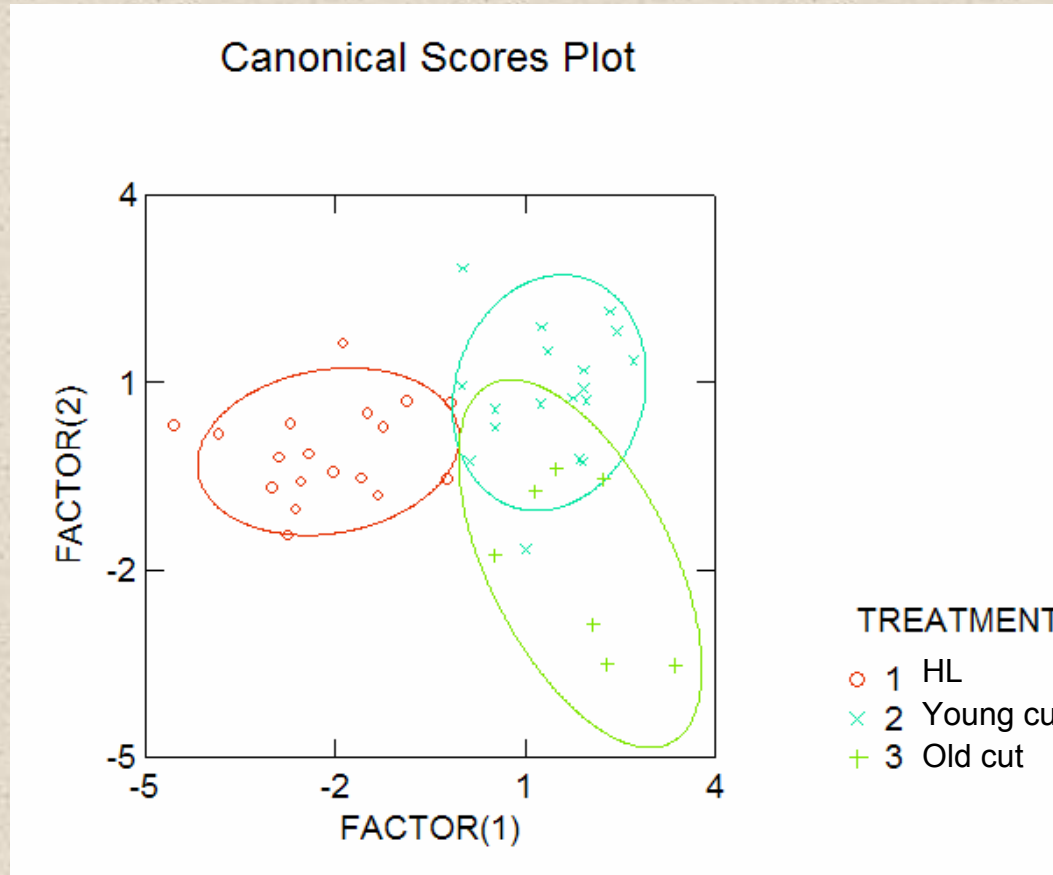
Fire origin
100-120 years

Cut using horses
52-58 years ago

Machine logged
31-44 years ago

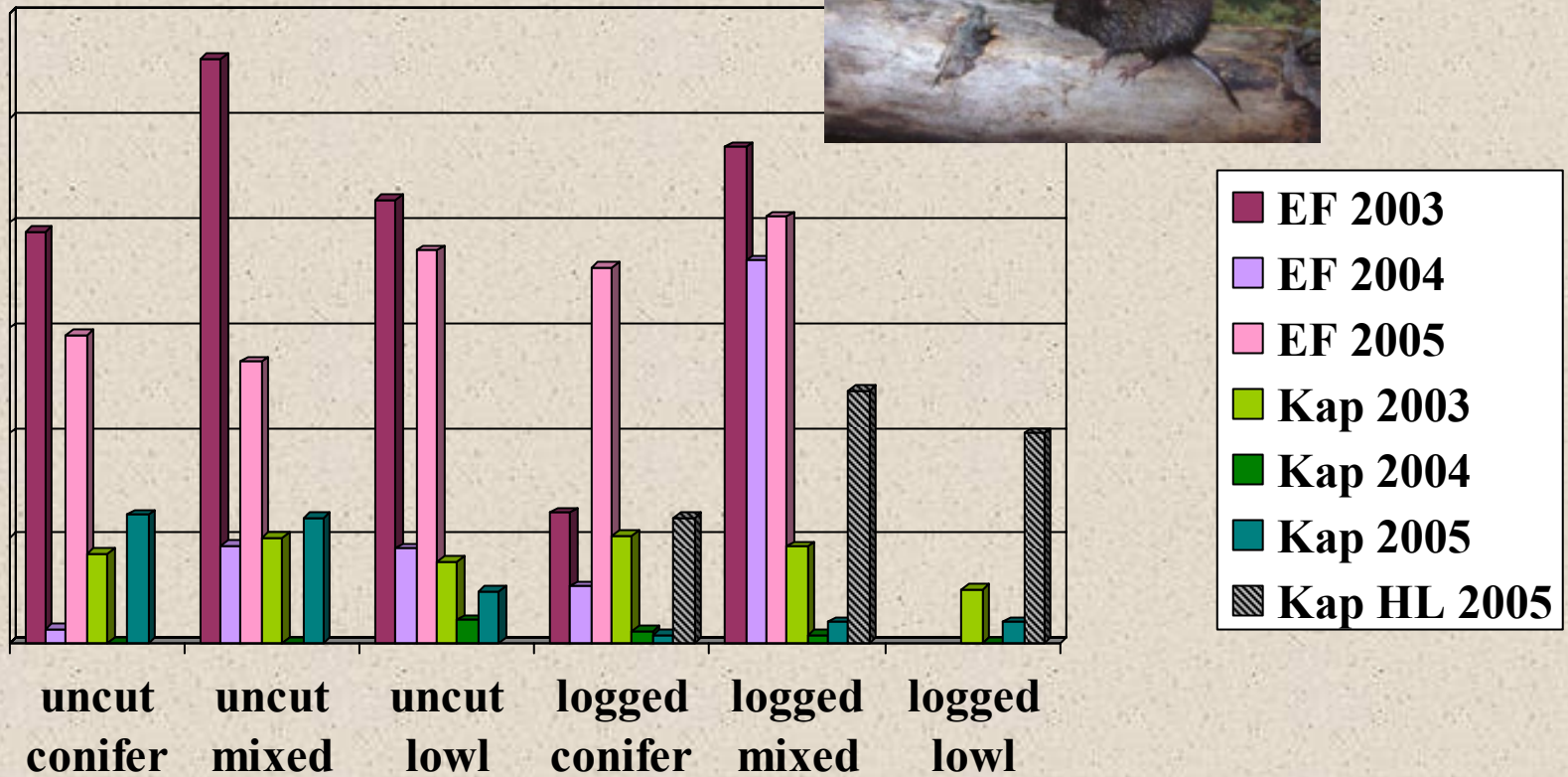
Machine logged
20-30 years ago

Ordination (DFA) among logged stands

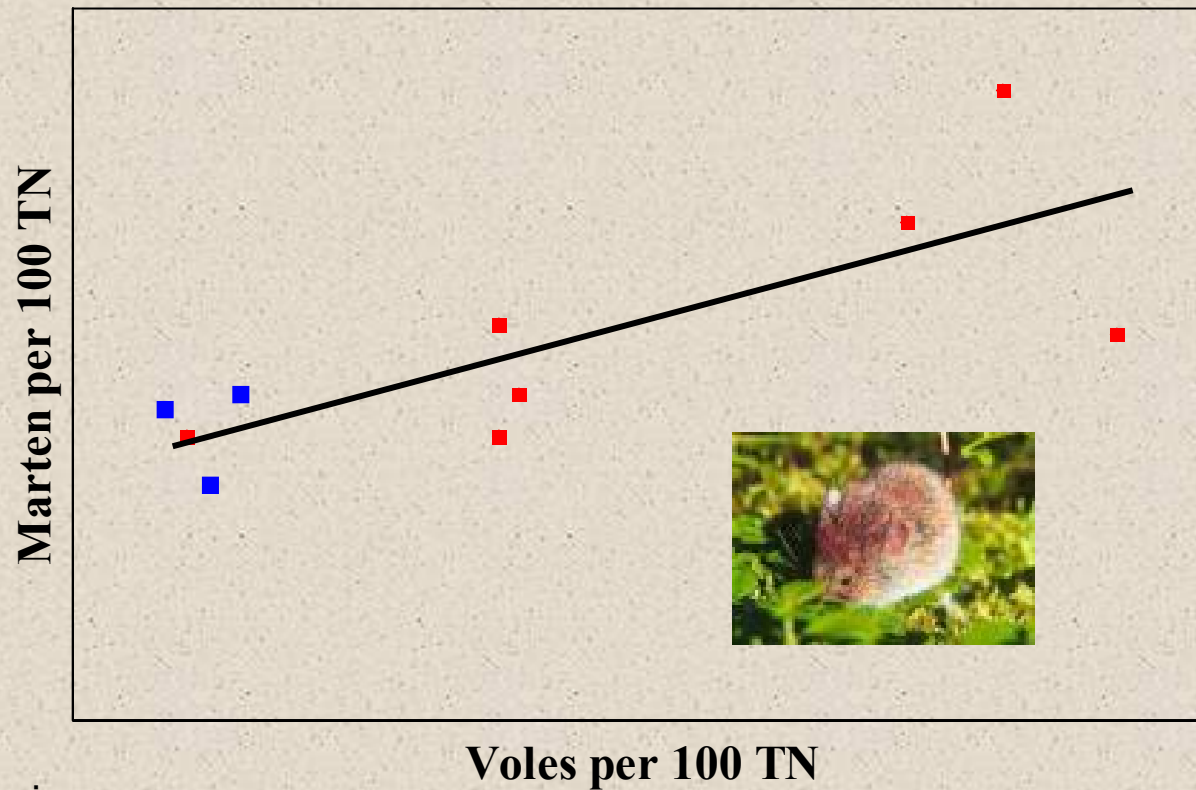


Discriminating variables: density black spruce, density balsam fir, density white birch, density snags >10 m, volume class 3 CWD

Fall red-backed voles/100TN in stand types at Ear Falls and Kapuskasing, 2003-05



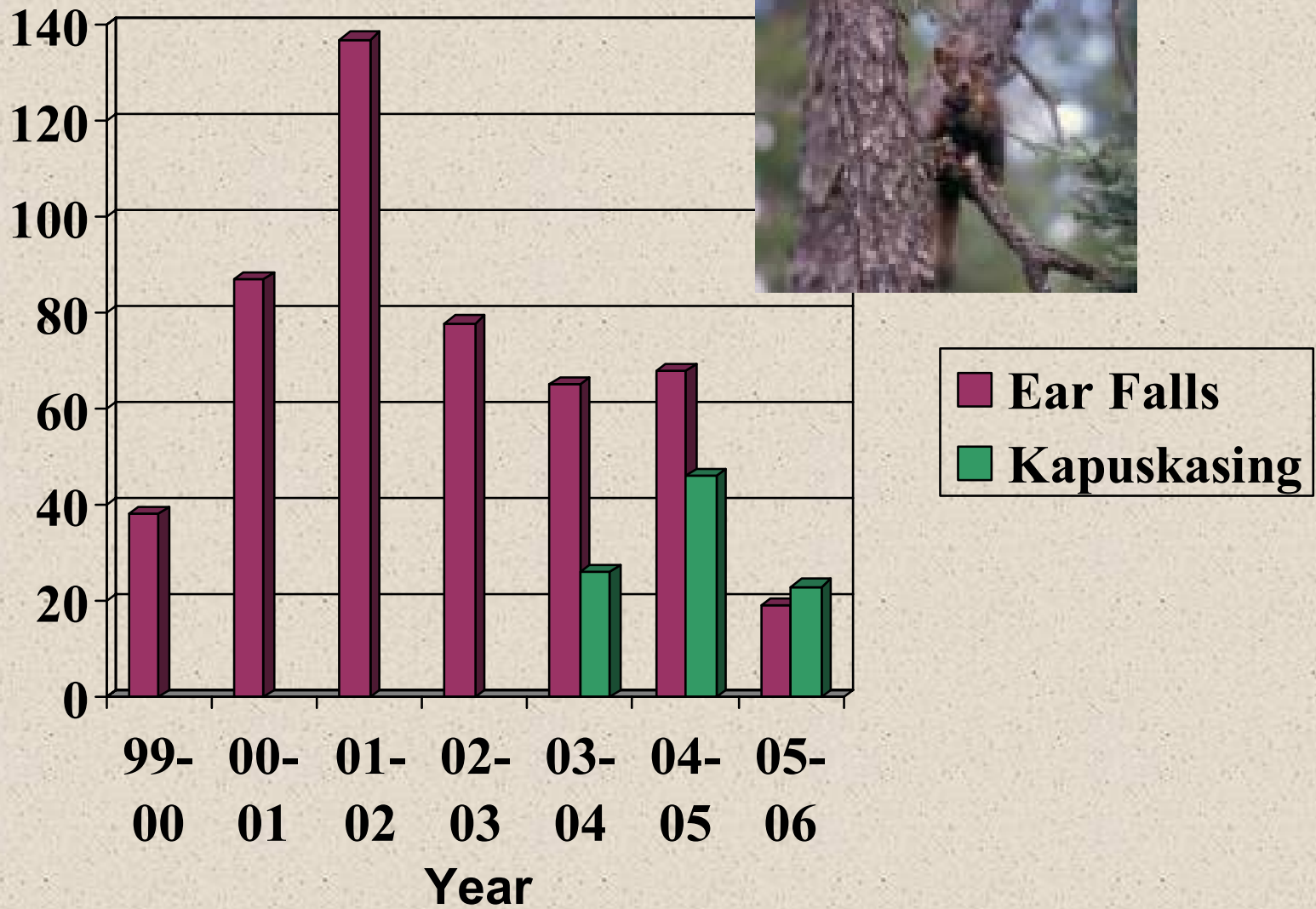
Marten captures as a function of red-backed voles caught in the fall



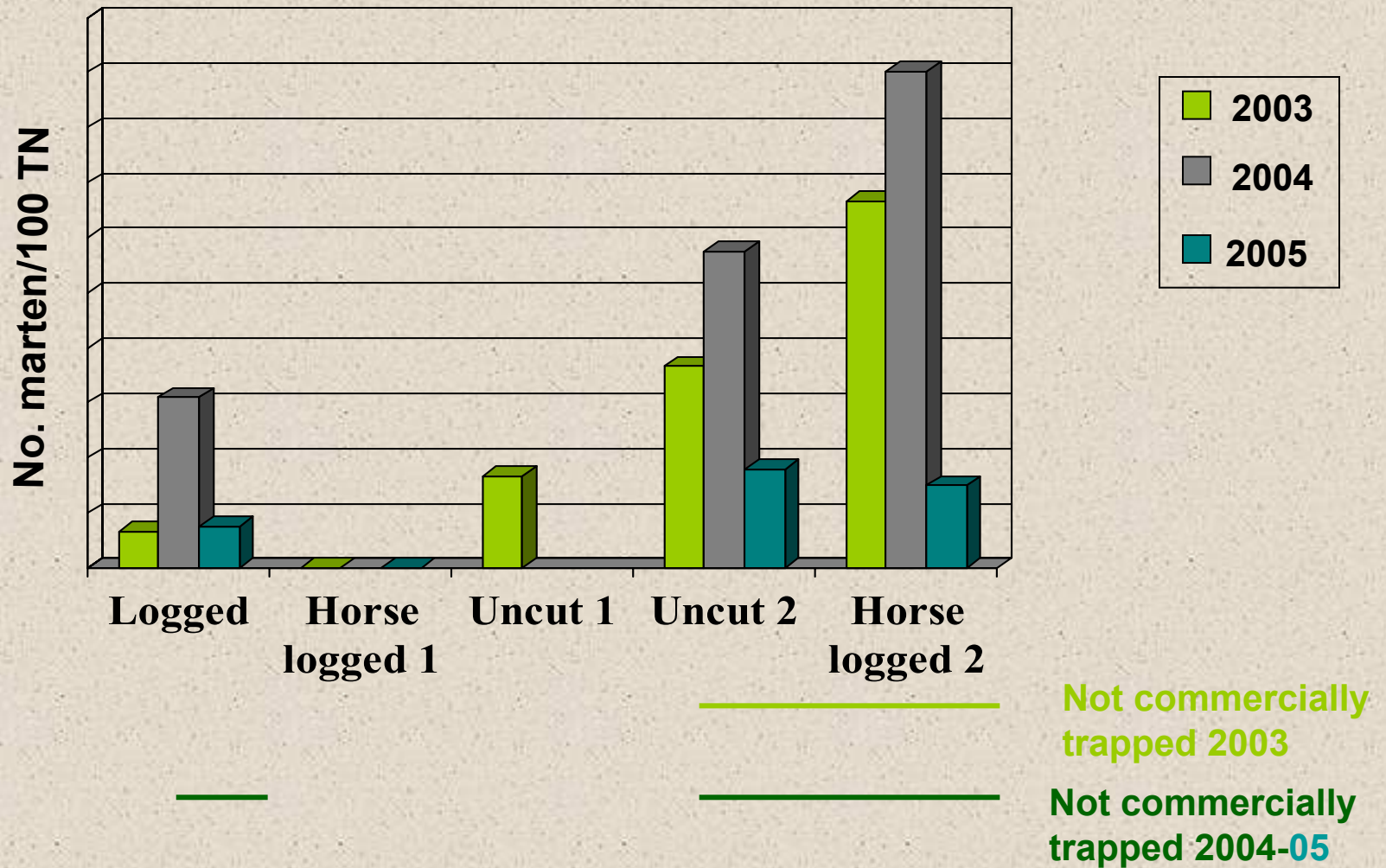
■ Kapuskasing

■ Ear Falls

Number of marten equipped with radio-collars

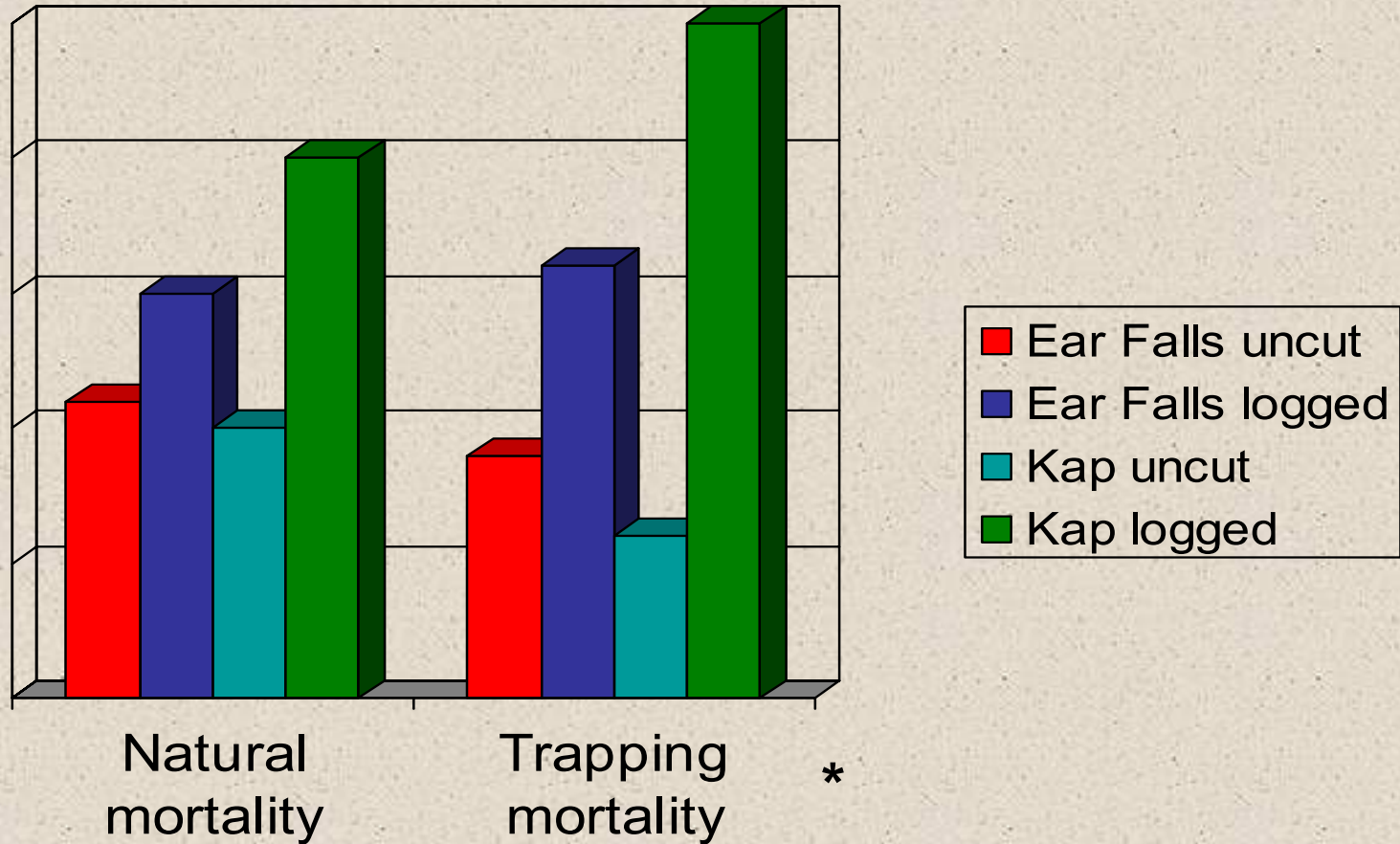


Marten captures by forest type at Kapuskasing, Fall 2003 - 2005



(Note: 'uncut 1' was cut in 2004)

Marten mortalities



*low because trappers are paid not to trap

Plans for the remaining 2-3 years at Kapuskasing

- continue the core marten studies: home ranges, productivity, mortality, food base, diet, dispersal
- two masters students:
 - Tanya Pulfer: red-backed vole habitat
 - Curtis McKague: fine-scale use of home ranges by marten
- LLRP – project to assess the value of CLAAG* - harvest stands as future marten habitat in comparison to horse logged areas

(*CLAAG – silvicultural system of ‘careful logging around advanced growth’)

Forests at Kapuskasing

Old fire-origin black spruce



Machine clearcut forest in 1975

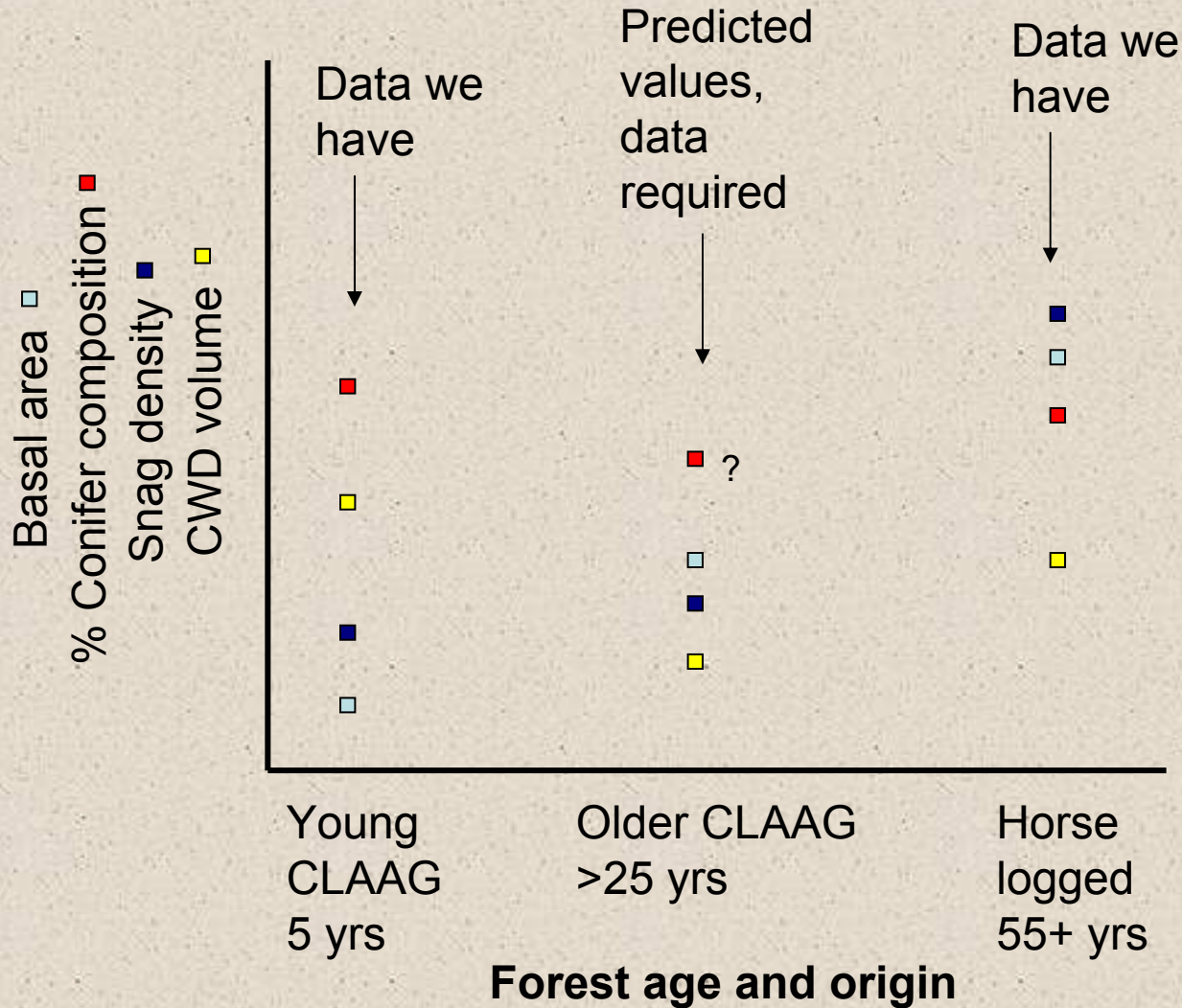


Area horse-logged in 1945

Recent CLAAG harvest - Kapuskasing



Can we model/project habitat components to predict if CLAAG = horse logging result?



Some conclusions at Kap

- **Accessible areas are probably not self-sustaining for marten under the current trapping regime**
- **While there is some generality, forest ecosystems are not equivalent in mammal production**
- **There is regional-scale asynchrony in small mammal cycling**
- **There is substantial local variance among habitats in small mammal numbers during a decline**
- **Old boreal forests provide superior habitat vs. 45 year-old commercially-trapped (or not) second-growth forest**
- **Untrapped claybelt horse-logged forests may be as productive as uncut forests for marten**
- **From Ear Falls - Pj forests on sandy-clay soils appear to be as productive as mixedwoods for marten**