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Comparing an intensive falconry program with selective culling to prevent gulls' presence



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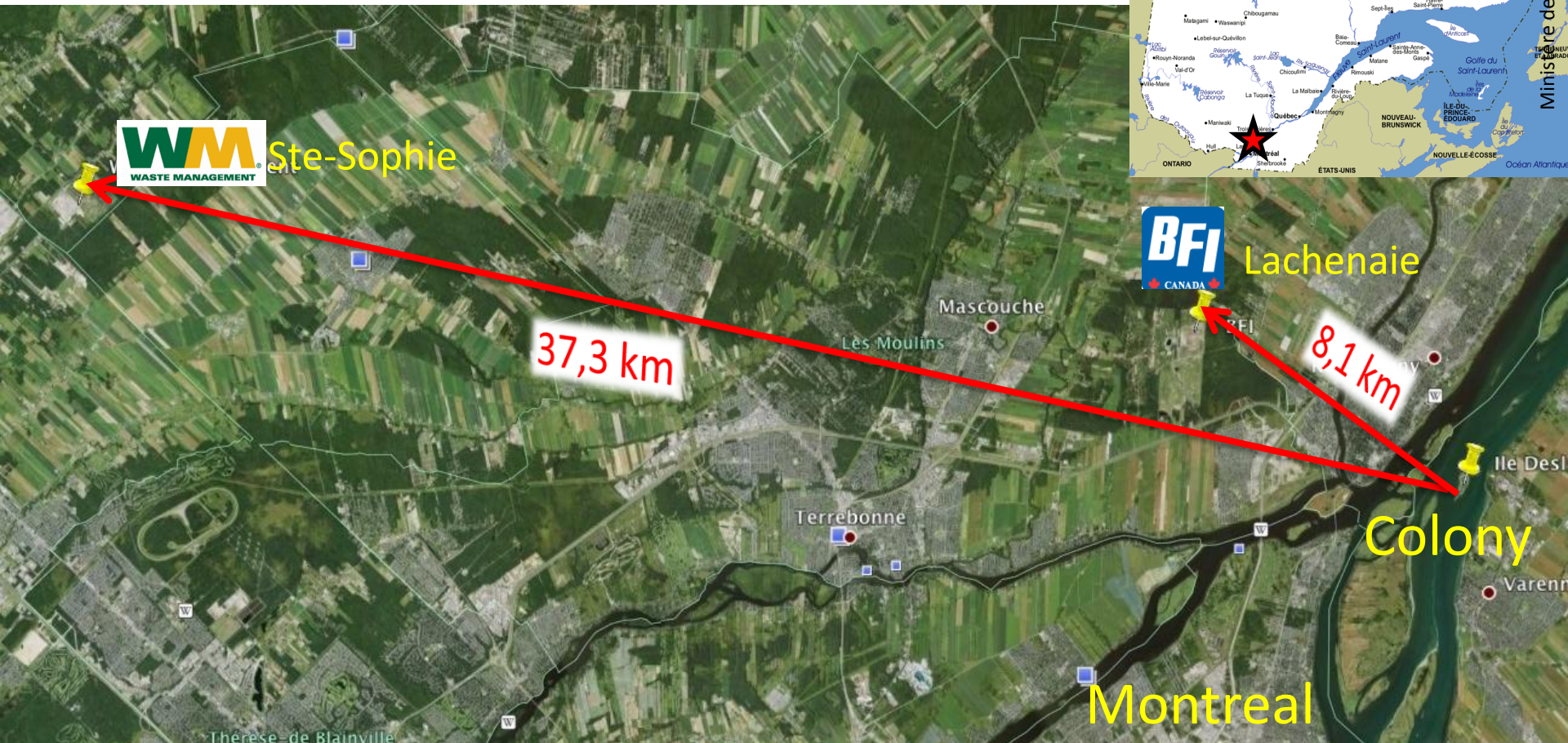
Issue with landfills near airports

- Feeding: population growth
- Nuisance for residents of the surrounding area
- Nuisance/health and safety for machinery operators

- Increased risk for aircraft
- Need for effective deterrence programs
- Landfills: ideal study sites



Issue in southern Québec



Ste-Sophie



Lachenaie

37,3 km

8,1 km

Montreal

Colony



Ministère des ressources naturelles – Québec - 2002

Objective: compare 2 deterrent programs



1 280 000 T ; 8 km

- Falconry since **1995** by Falcon Environmental Services
- Pyrotechnics and distress calls
- Up to 3 specialized employees
- 7 days/ week
- Sunrise to sunset



340 000 T ; 37 km

- Selective culling under scientific permit since **2007**
- Pyrotechnics and gas canon
- 1 non-specialized employee
- 5 days/week
- 7 am to 3 pm

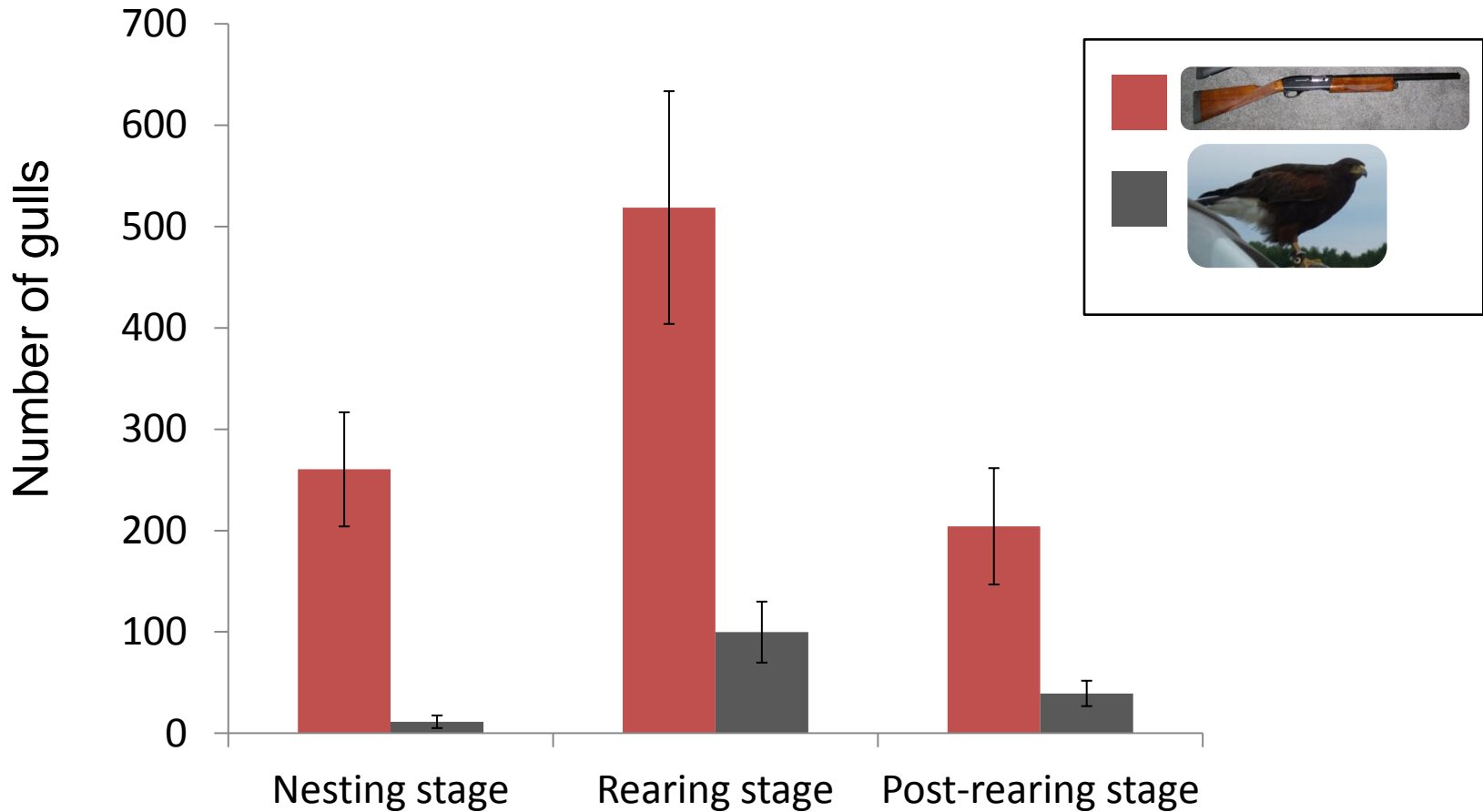


Data collection, 2010

- 29 days/site
 - Nesting (April 5-May 14)
 - Rearing (May 15-June 25)
 - Post-rearing (June 26-August 6)
- 5 hours/day
 - Morning (5 am – 10 am)
 - Mid day (10 am – 3 pm)
 - Evening (3 pm – 8 pm)
- 1 count/30 min



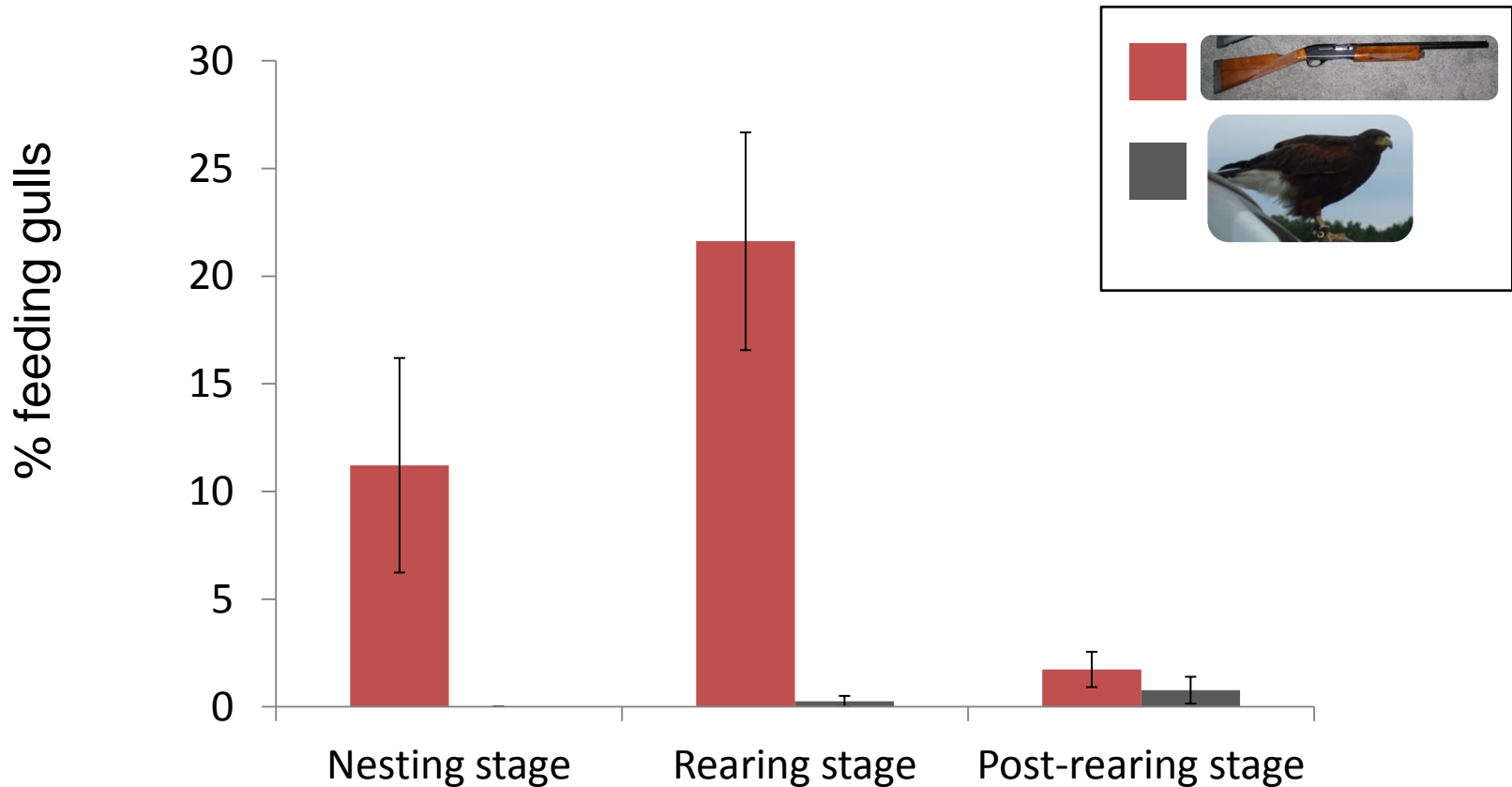
Mean number of gulls/day (\pm SE)



More gulls at the landfill with culling ($P < 0.001$)

More gulls during rearing stage ($P = 0.004$)

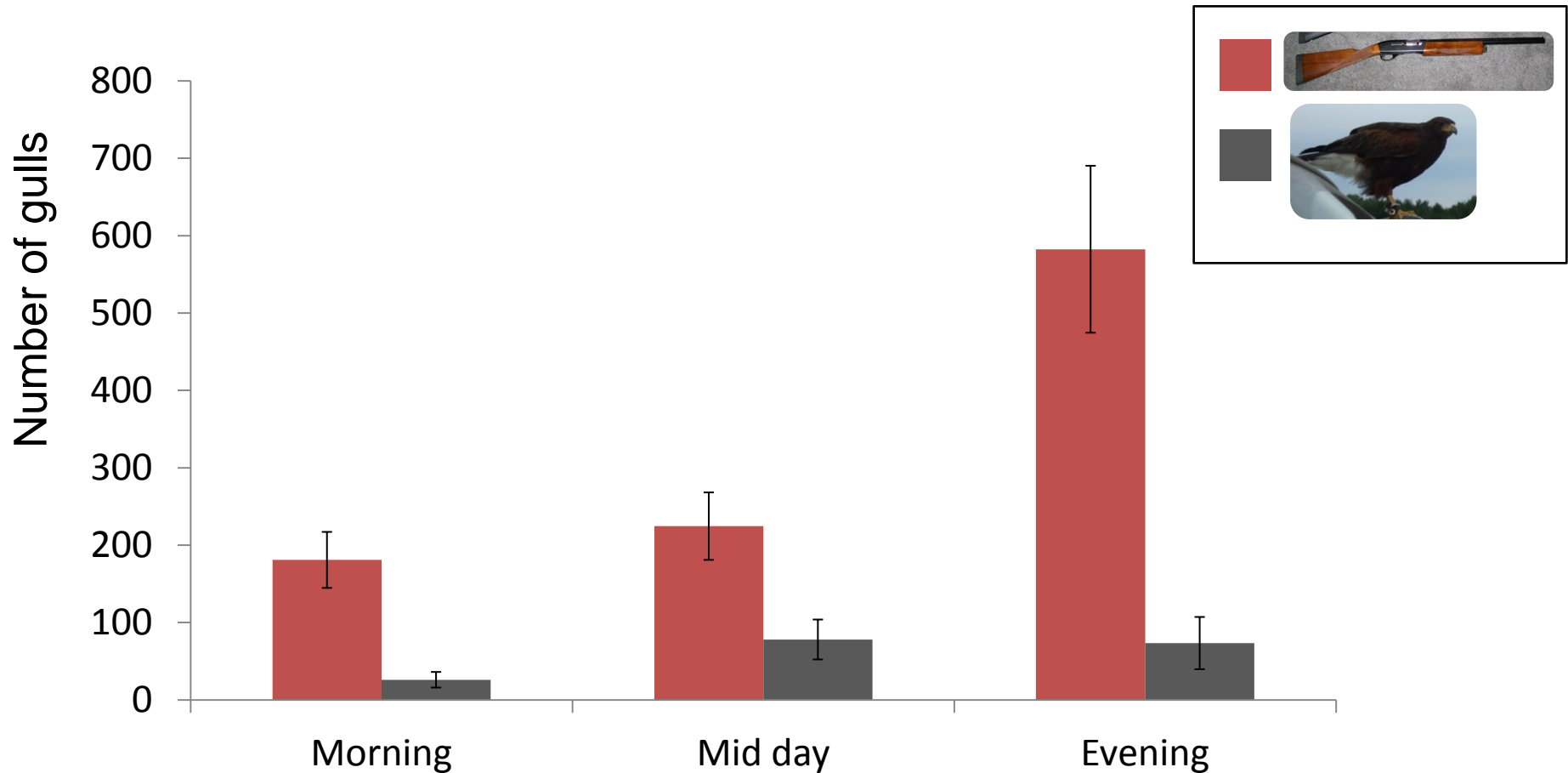
Mean percentage of feeding gulls (\pm SE)



More feeding with culling program ($P < 0.001$)

More feeding during rearing stage ($P = 0.005$)

Mean number of gulls/day (\pm SE)



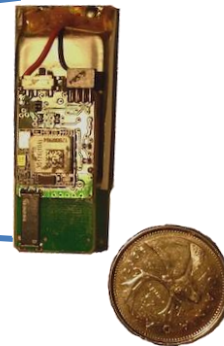
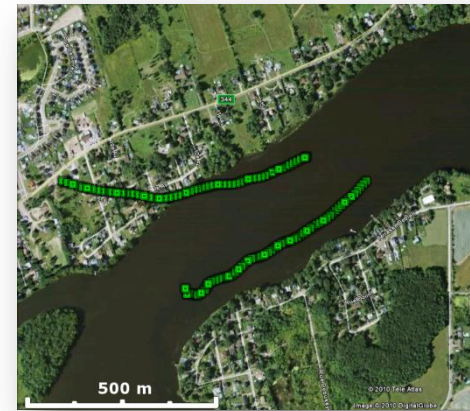
More gulls during evening at the landfill with culling ($P=0.001$)
No difference at the landfill with falconry ($P=0.253$)

GPS-tracking

GPS locations @ 4 min (\approx 2-3 km)

Foraging trips in proximity of each landfill

- Without stopover (1 location above the site)
- **With stopover: \geq 2 locations**

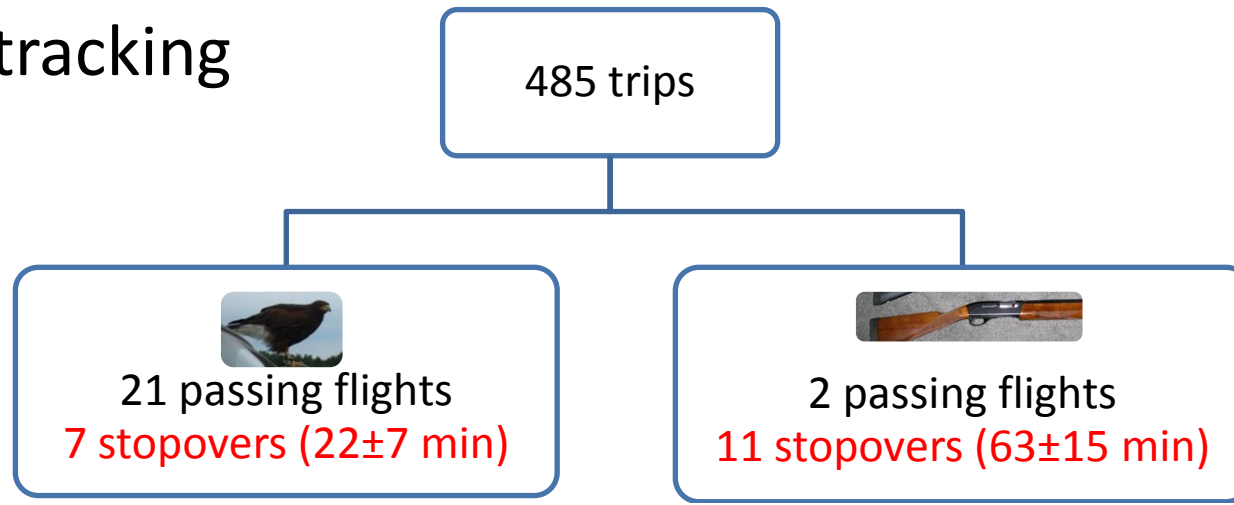


122 tracked gulls

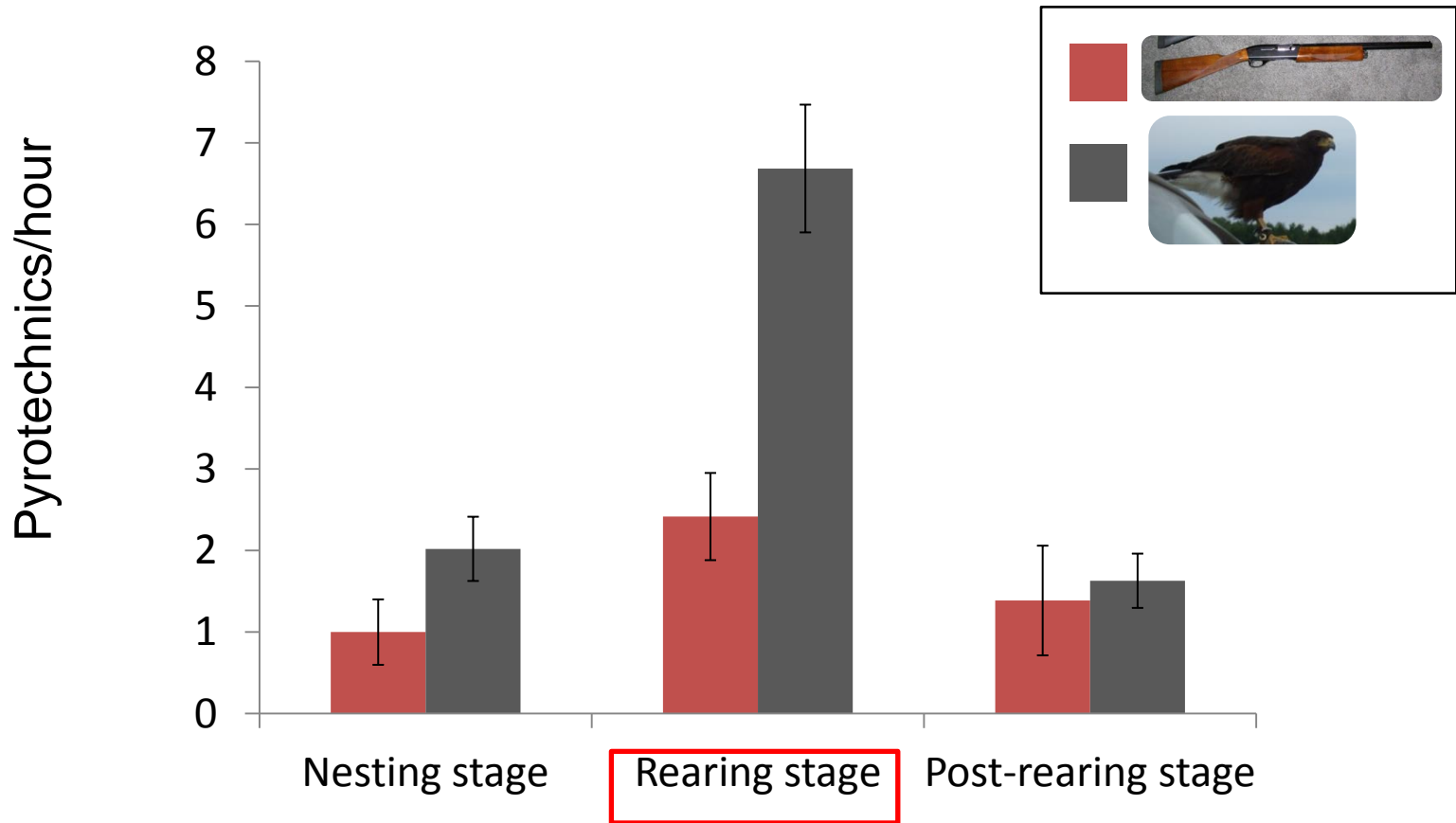


485 trips

GPS-tracking

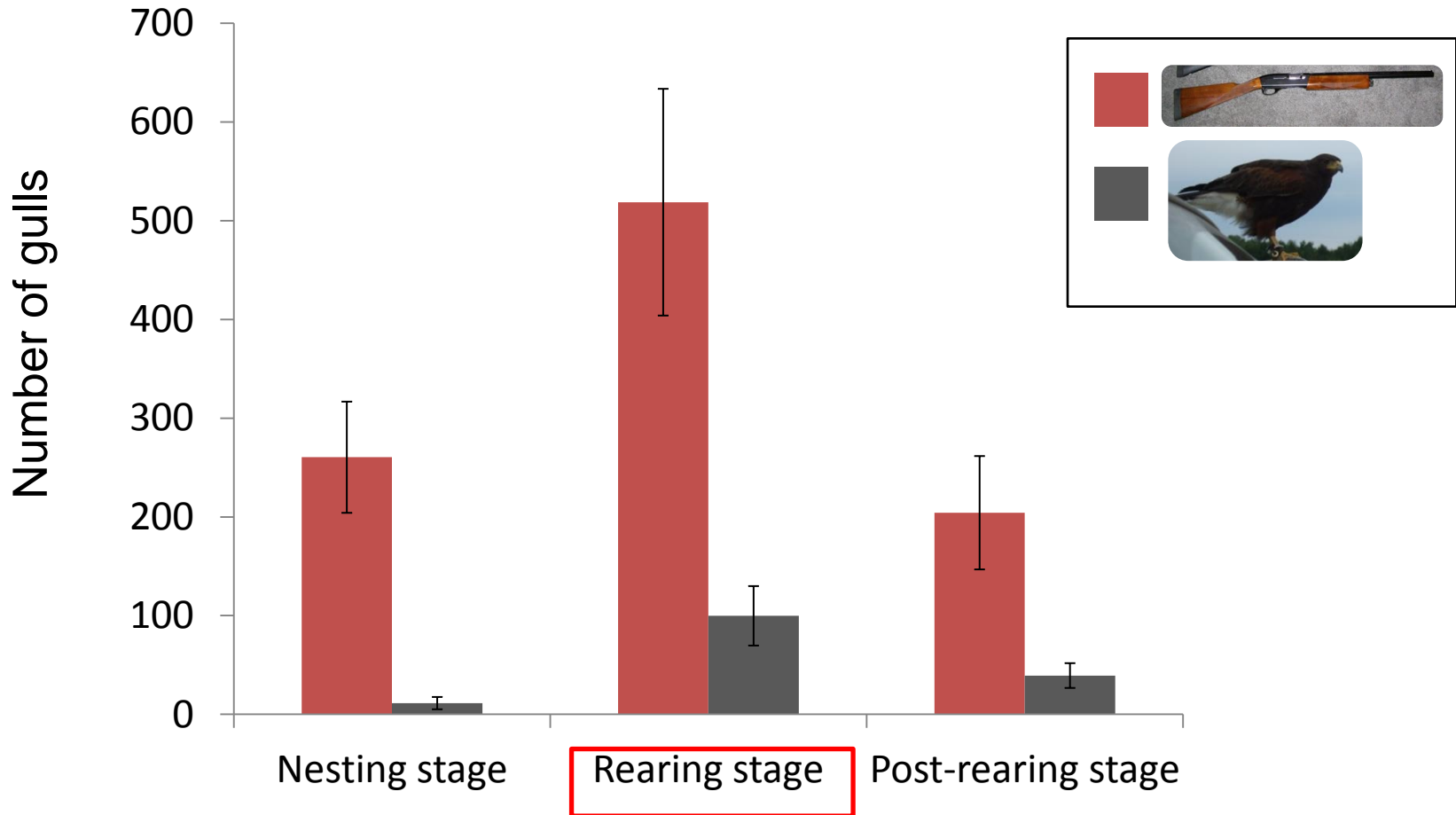


Mean number of pyrotechnics /hour (\pm SE)



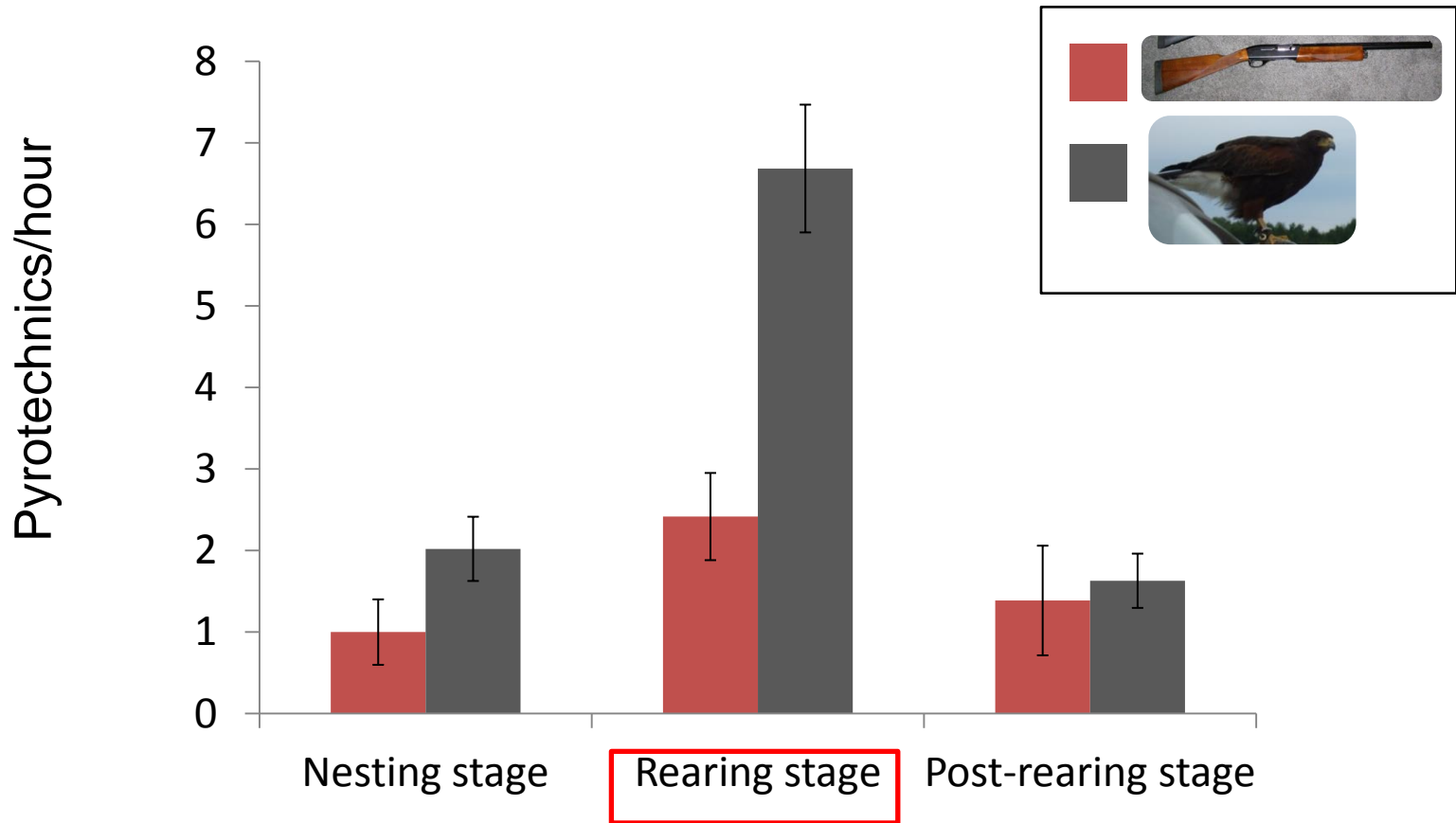
More pyrotechnics used in the falconry program (P=0.001)
More pyrotechnics used during rearing stage (P<0.001)

Mean number of gulls/day (\pm SE)



More gulls at the landfill with culling ($P < 0.001$)
More gulls during rearing stage ($P = 0.004$)

Mean number of pyrotechnics /hour (\pm SE)



More pyrotechnics used in the falconry program (P=0.001)
More pyrotechnics used during rearing stage (P<0.001)

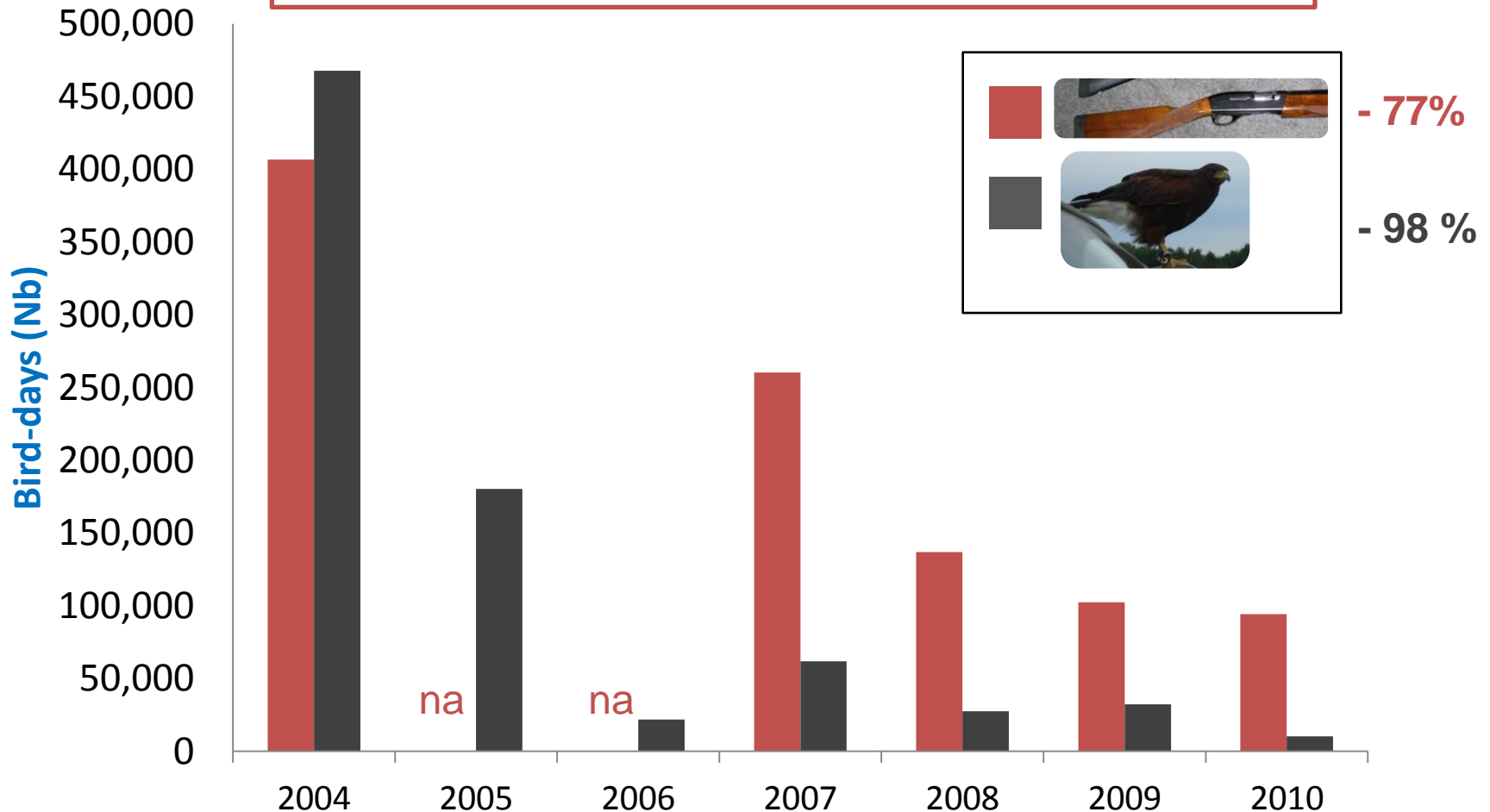
Number of gulls killed

		
Nb gulls	180	10
Nb days	35	124
Nb gulls/day	5	0.1

50 times less

Landfill use by gulls (2004- 2010)

Bird-days =
 $\Sigma(\text{daily maximum})$ from April 1st to August 31





Conclusions

- Falconry & culling: effective in the long term
- Intensive falconry program more effective than selective culling
- Results can be generalized to airports that are less attractive than landfills



Recommendations

- Deterrence effort sustained and adapted
 - Gull rearing stage (mid May – late June)
 - Dawn to dusk
- Choice of methods depending on...
 - Objectives (acceptable number of gulls)
 - Costs
 - Ethics
- Need of integrated wildlife management programs



Acknowledgements

- Martin Patenaude-Monette
- Philippe Joyal and Mathieu Tremblay for field work
- All the lab members



<http://gull.uqam.ca/>