

Effects of Fire in the Coastal Strand – Students and Mentors Using Science to Inform Management

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Coastal Strand Ecosystem

“The past has seen along the coast too much highway construction and improvement which ignored shore processes” (Kurz, 1942).



Forest Fires Make

IDLE LANDS
IDLE INDUSTRIES
IDLE HANDS

Stop Fires, Grow Trees
Keep Forest Land Working

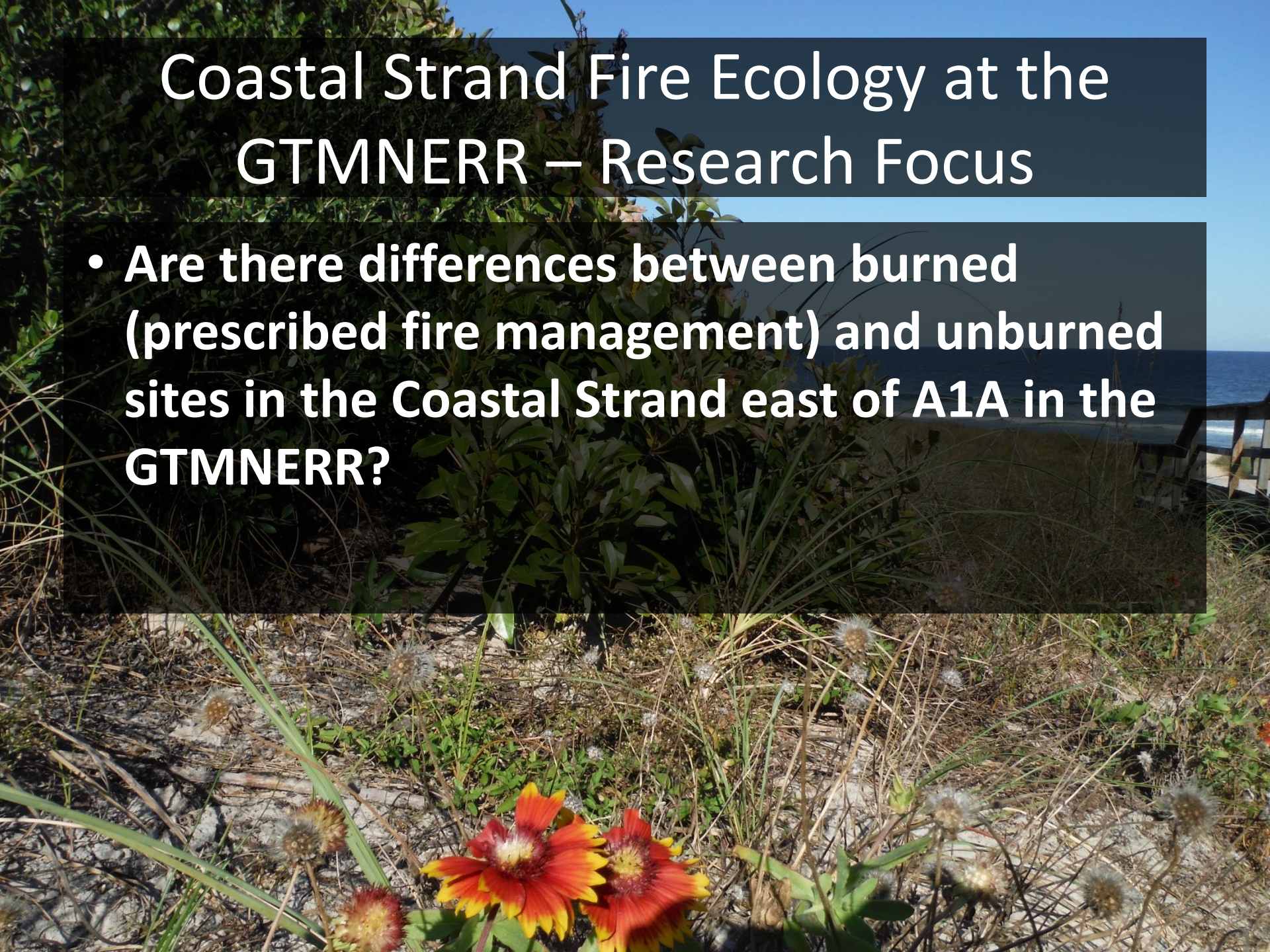
COOPERATE WITH
THE



Fire history of Coastal Strand ecosystems in Florida is largely unknown.

Coastal Strand Fire Ecology at the GTMNERR – Research Focus

- **Are there differences between burned (prescribed fire management) and unburned sites in the Coastal Strand east of A1A in the GTMNERR?**



January, 2014 – Prescribed Fire



— Photo: Joe Burgess

Immediately post-fire:
In most locations, leaf litter and duff were completely burned off, exposing soil.



Study Sites

North Beach Access
6 Mile Landing

Middle Beach Access

South Beach Access

Environmental
Education Center



Results

Student research topics included:

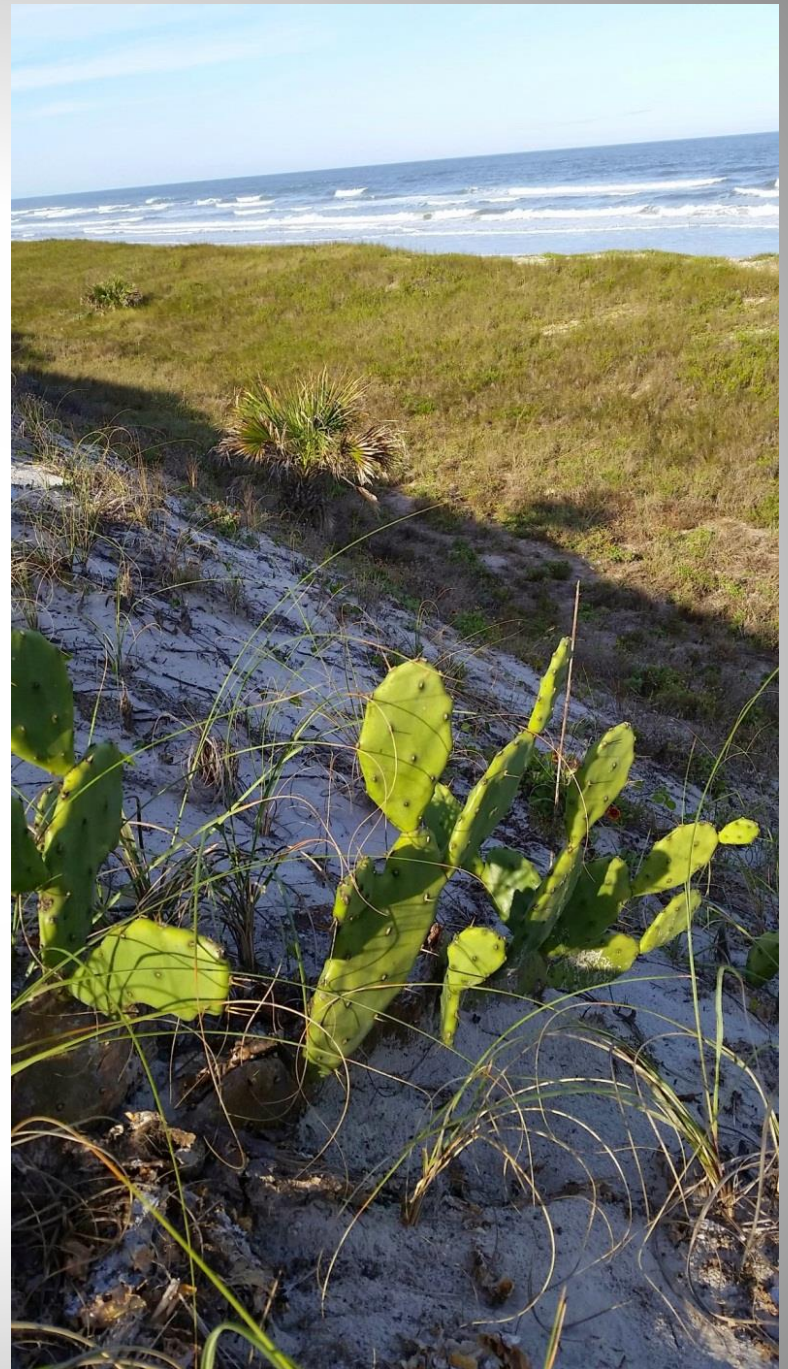
I. *New fuel model development*

& comparisons of:

II. *Plant Community Composition;*

III. *Oak mortality; and*

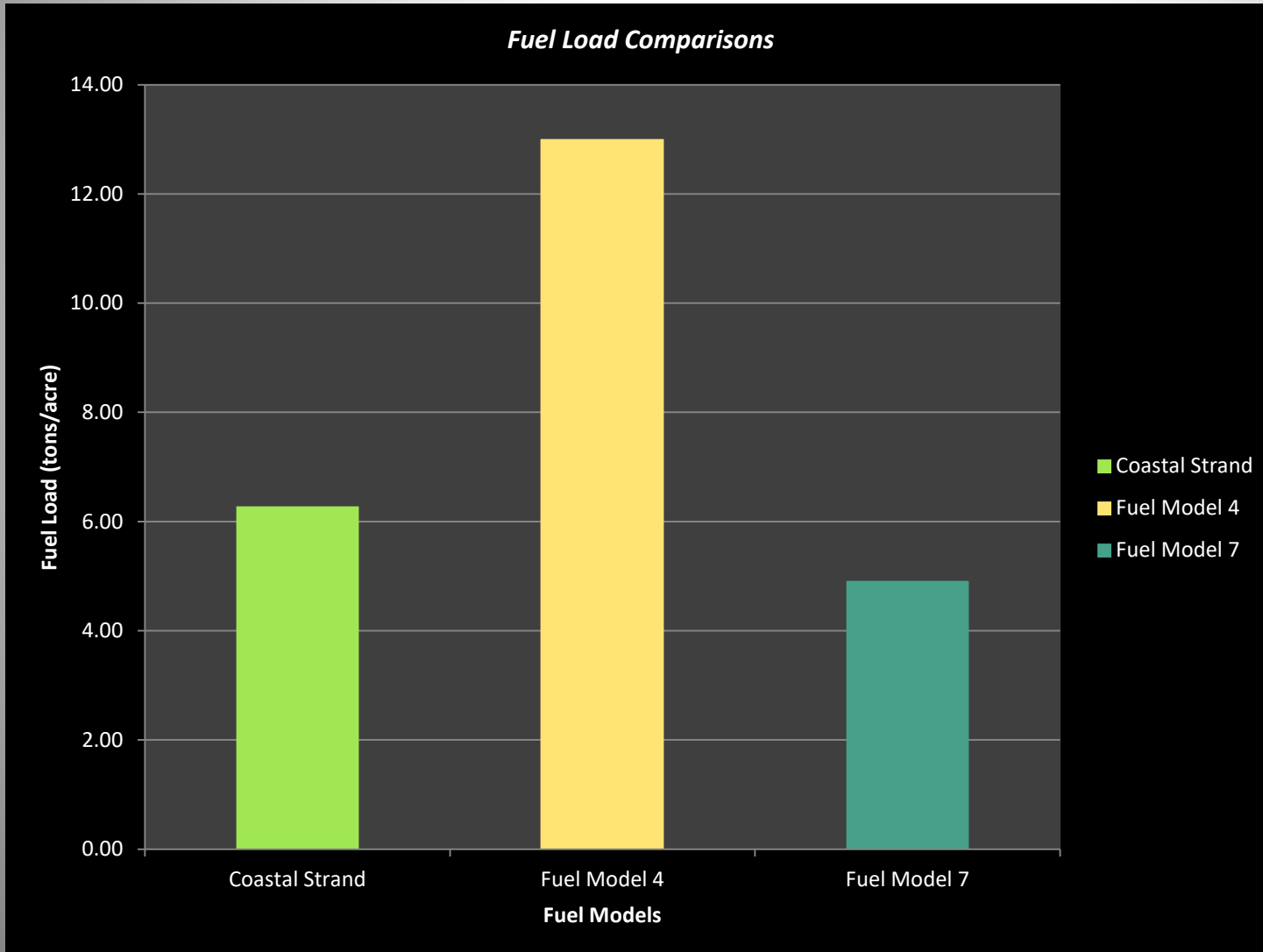
IV. *Cryptic Fauna.*



Fuel Loads in GTMNERR Coastal Strand, East of A1A (Rolland, Simons and Molloy)

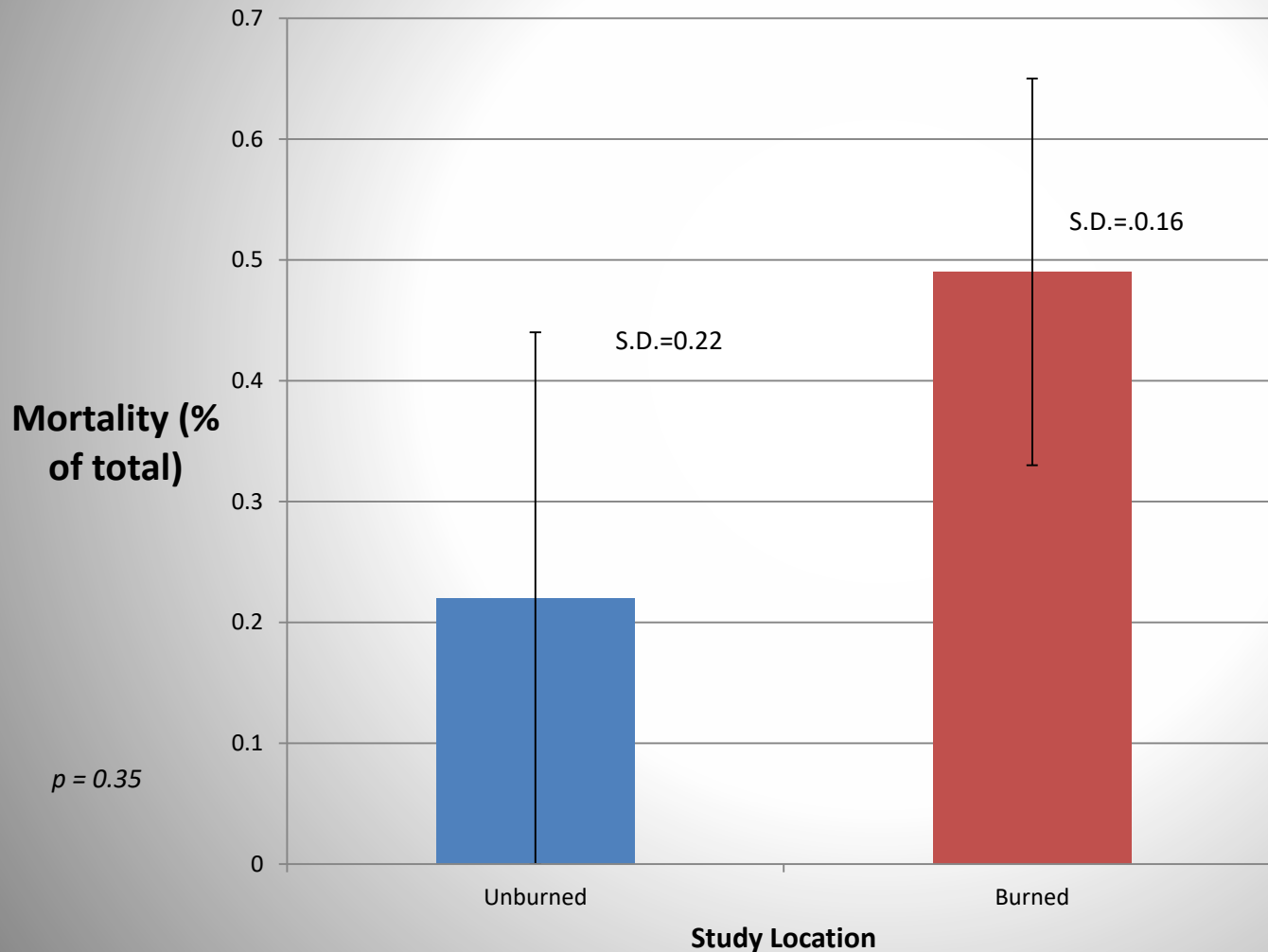
Findings:

New Fuel Model intermediate between Anderson's Fuel Model 4 (Chaparral) and Fuel Model 7 (Southern Rough).



Oak Mortality (Alexander and Fanara)

Oak Mortality Burned vs. Unburned

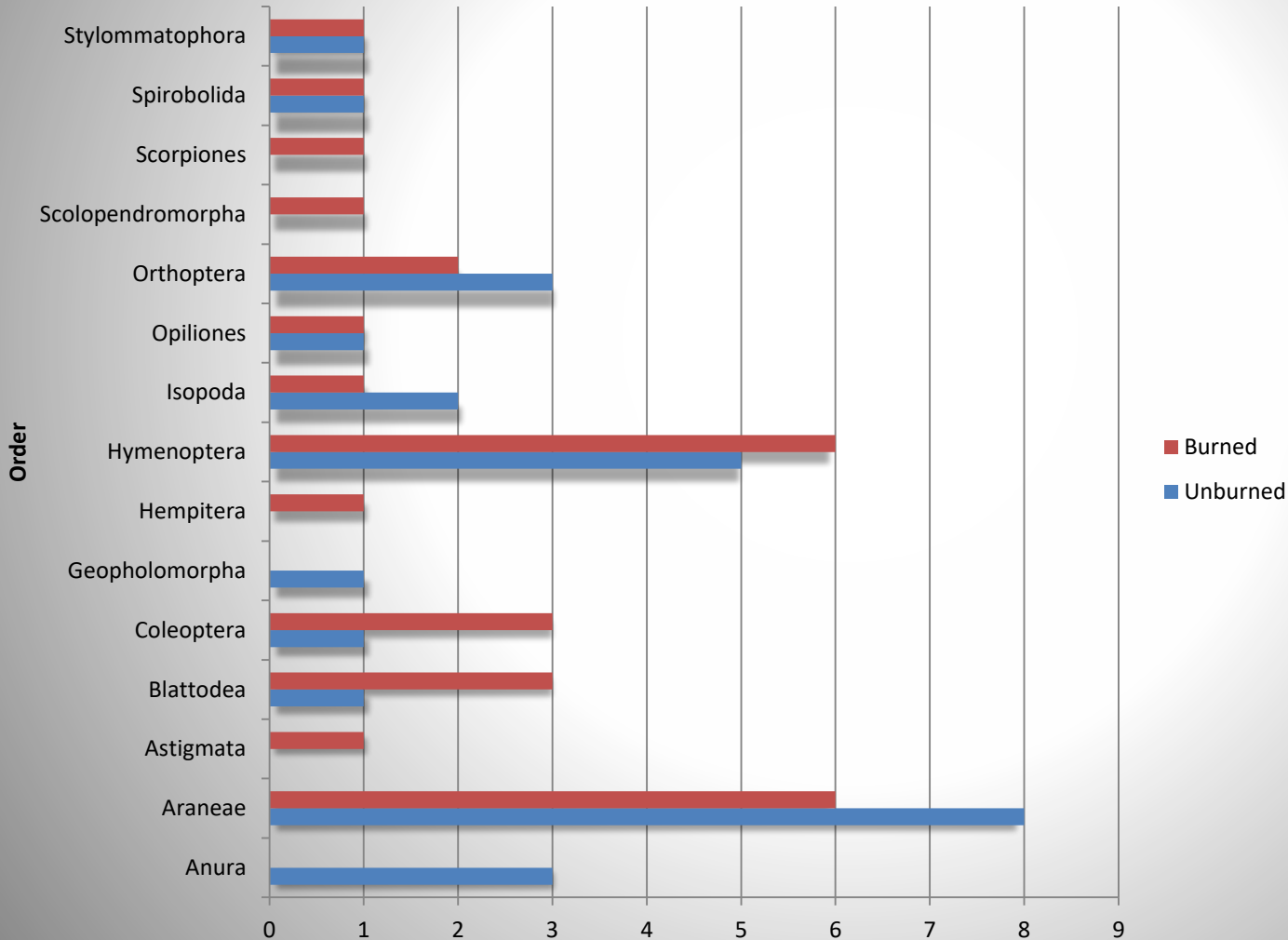


Findings:

Preliminarily, oak mortality, as a % of total, higher in burned sites.

Cryptic Fauna Comparisons (Sikkema and Fulton)

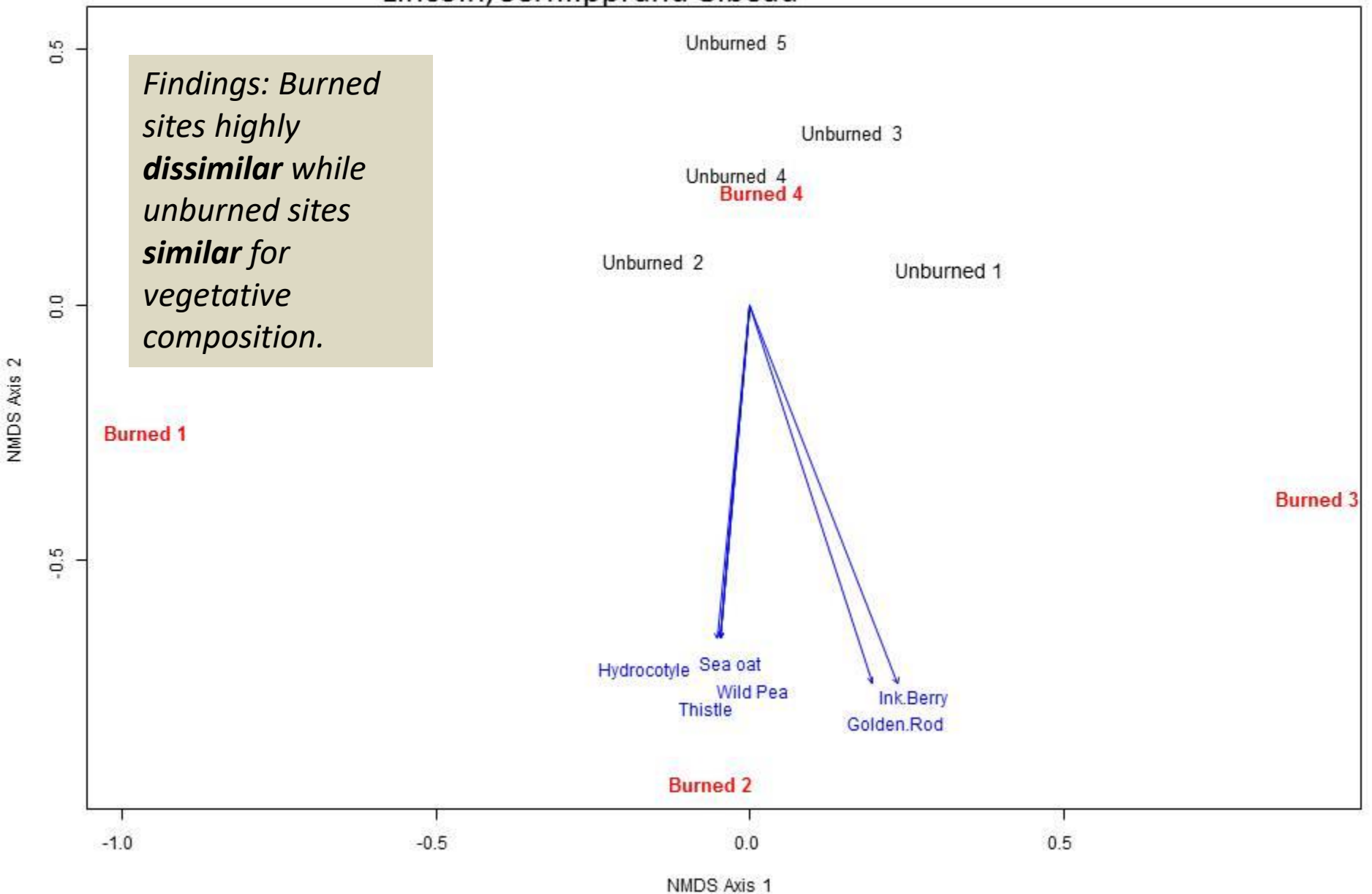
Order Comparison Between Sites



Findings:

15 different Orders, with some variation between burned & unburned sites. Provides new species inventory.

Non-Metric Multidimensional Scaling Ordination – Backdune sites. Lincoln, Serfilippi and Gibeau



Conclusions

- Results are preliminary.
- Not statistically significant for these initial studies.
- However, there are patterns that could inform management:
 - New Fuel Model developed (plans for publication) → informs fire management planning.
 - Heterogeneity in vegetative composition of burned sites → does this imply greater diversity?

Conclusions (cont.)

- Interesting patterns in oak response to fire → if objective is to control oaks, fire may be reducing this overstory species.
- Rapid recovery of vegetation in burned sites → reduced concern about dune destabilization due to Rx fire.
- Even short-term student research can help inform resource management.

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Thank you, Flagler College
Biodiversity & Conservation Students,
Fall 2014

