

Monitoring of habitats and species within Sand Life

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METHODS:

Grids - *before and after*

Points - *action and control*





A GRID = 3 TRANSECTS (LINES)



Wooded dunes



"Grey" sand dunes



"White" sand dunes





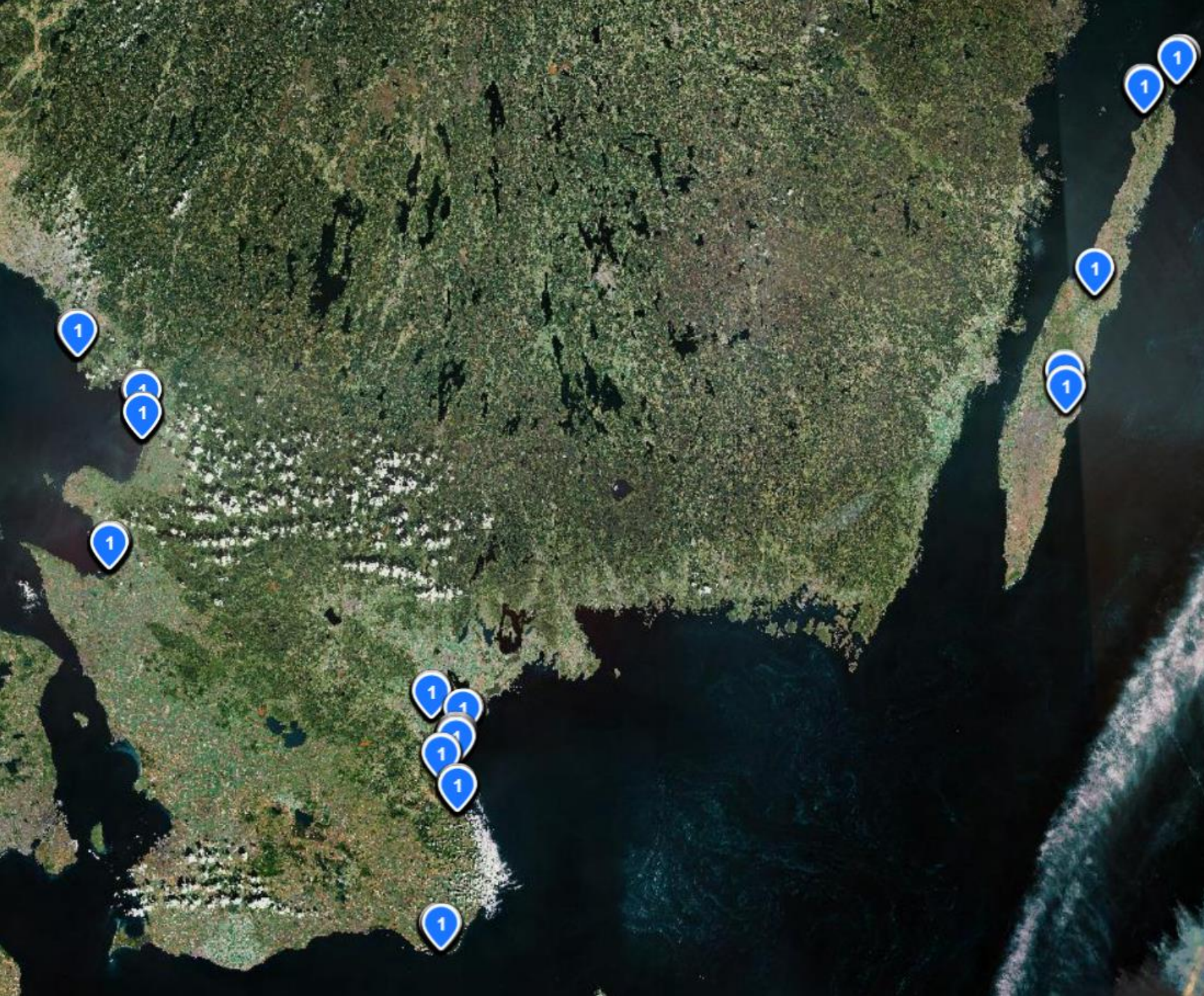
A GRID = 3 TRANSECTS (LINES)



before (~2013) and after (~2017)

- Bees and Wasps
- Butterflies
- Beetles
- Spiders
- Plants

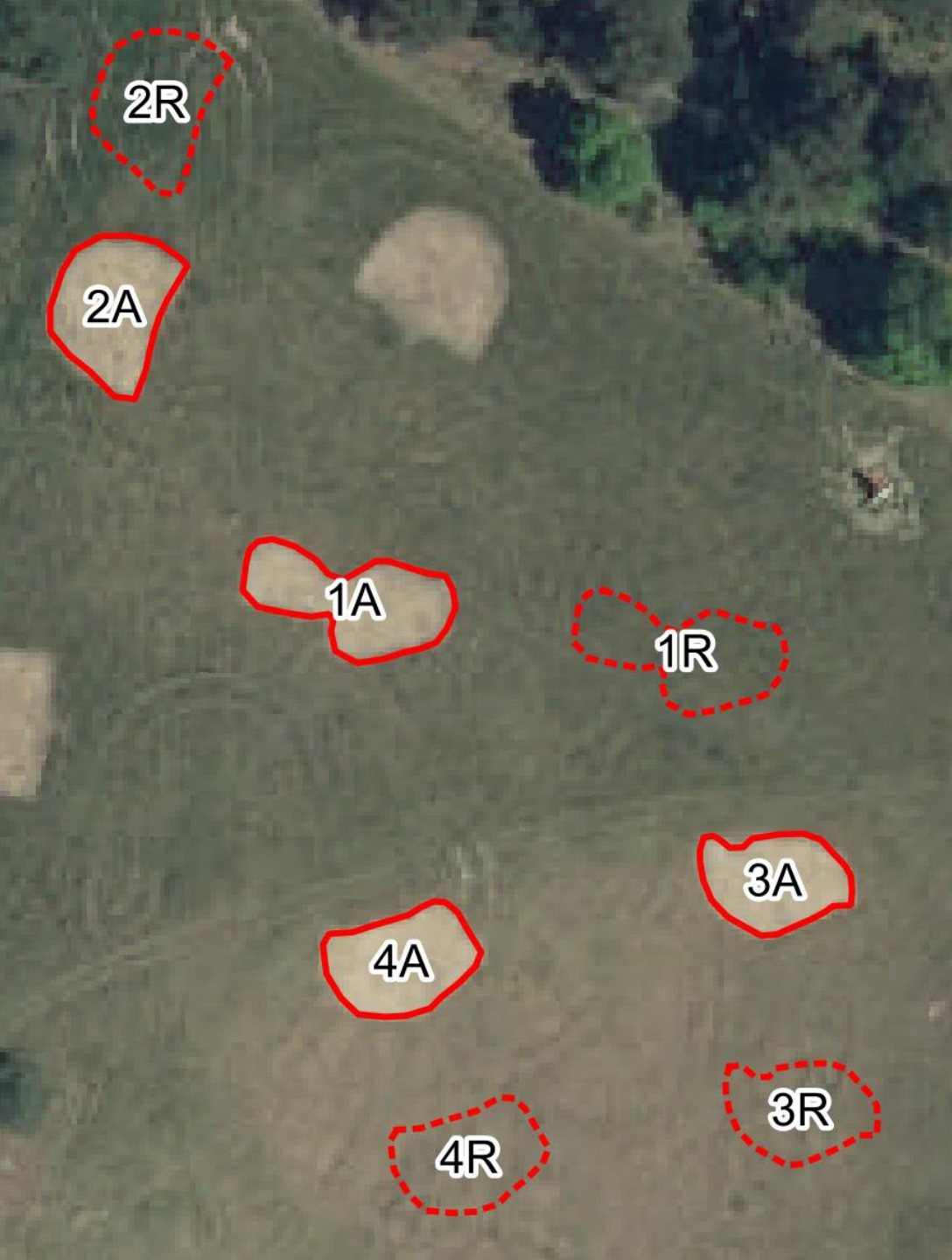




25 GRIDS

17 in sand dunes

8 in grasslands



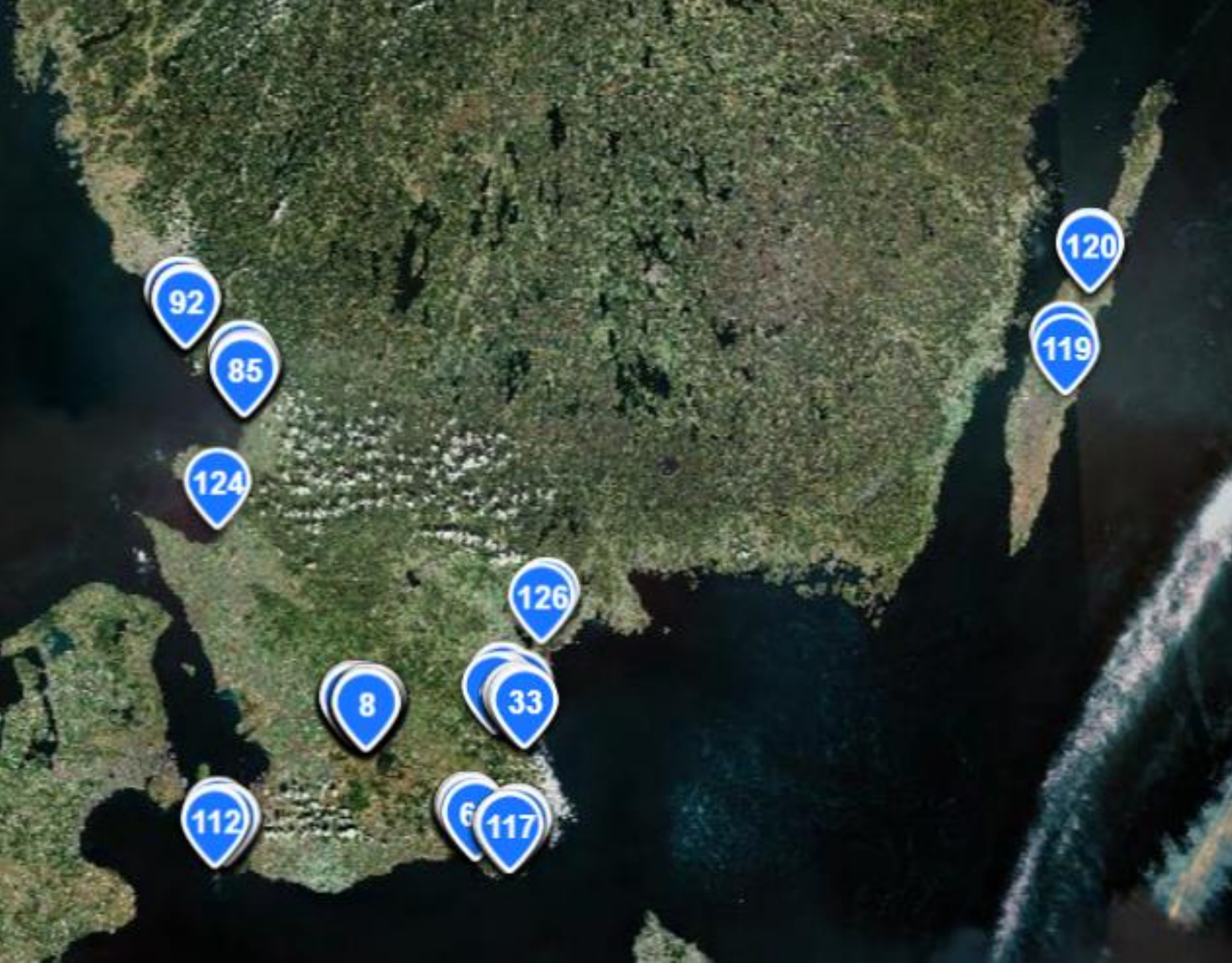
POINTS

Action e.g. "Creating Sand Plot"

Control

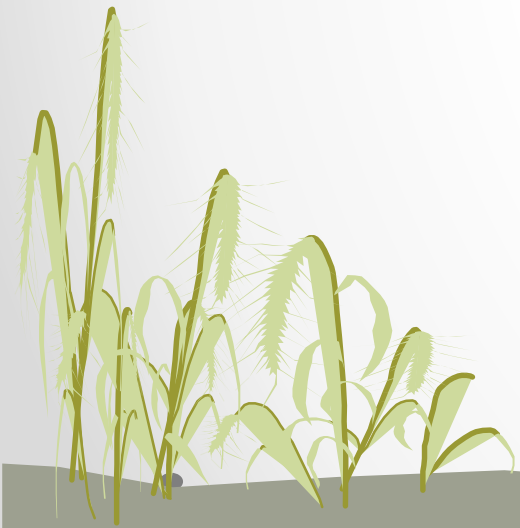
- Bees and Wasps
- Beetles
- Butterflies
- Spiders
- Plants

Birds, Moths



POINTS

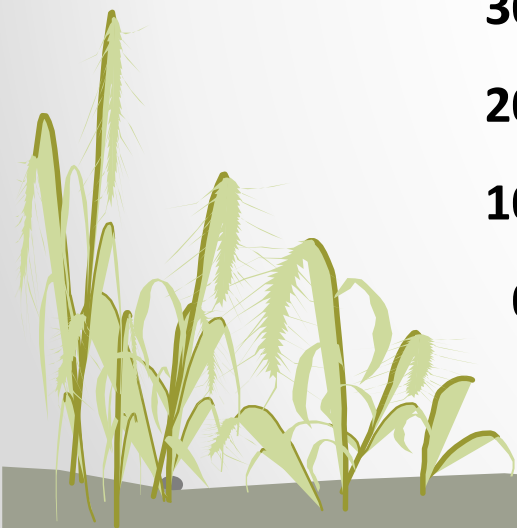
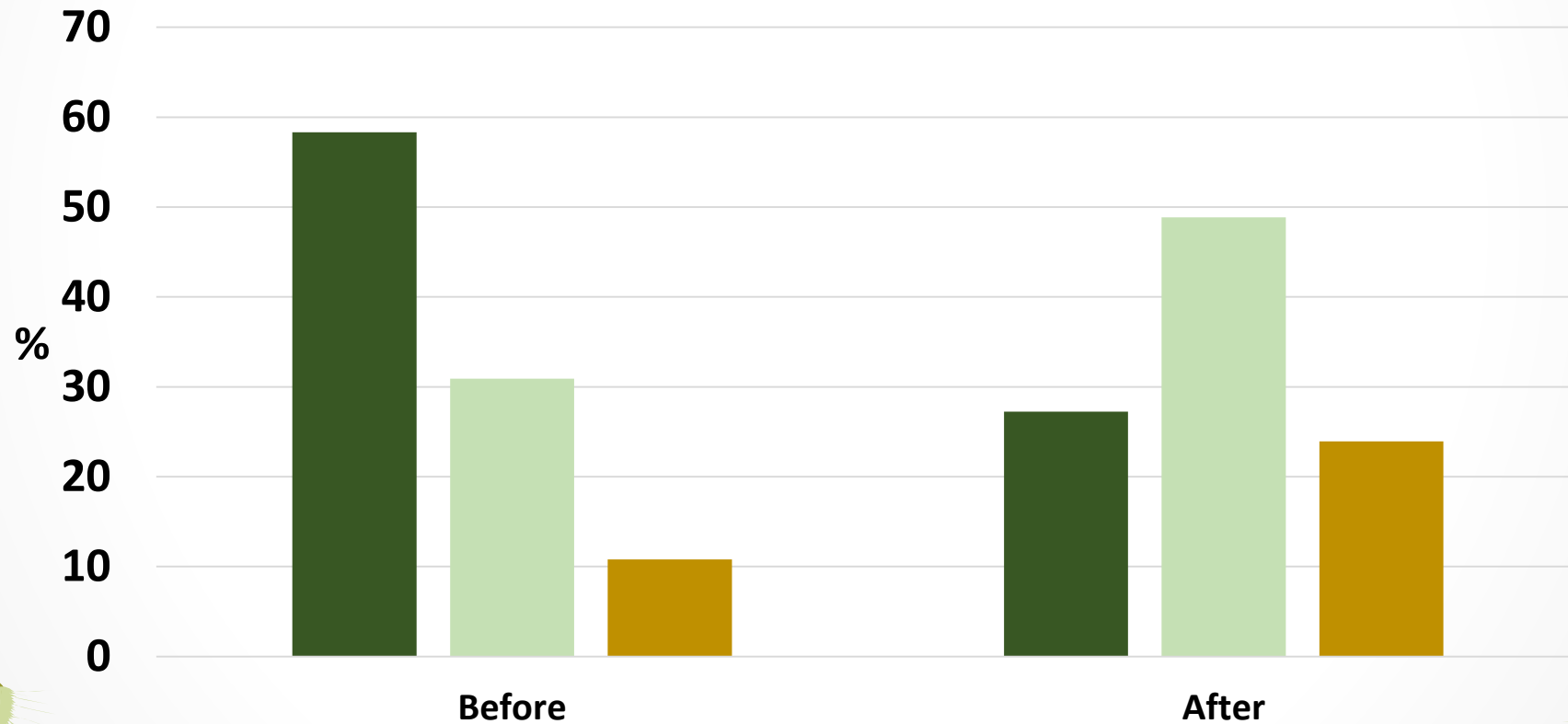
RESULTS



Habitat structures

Bottom layer in Dunes

■ Trees & Shrubs ■ Grass ■ Sand





Bees and Wasps

Hymenoptera





Flower-visitors



Parasites

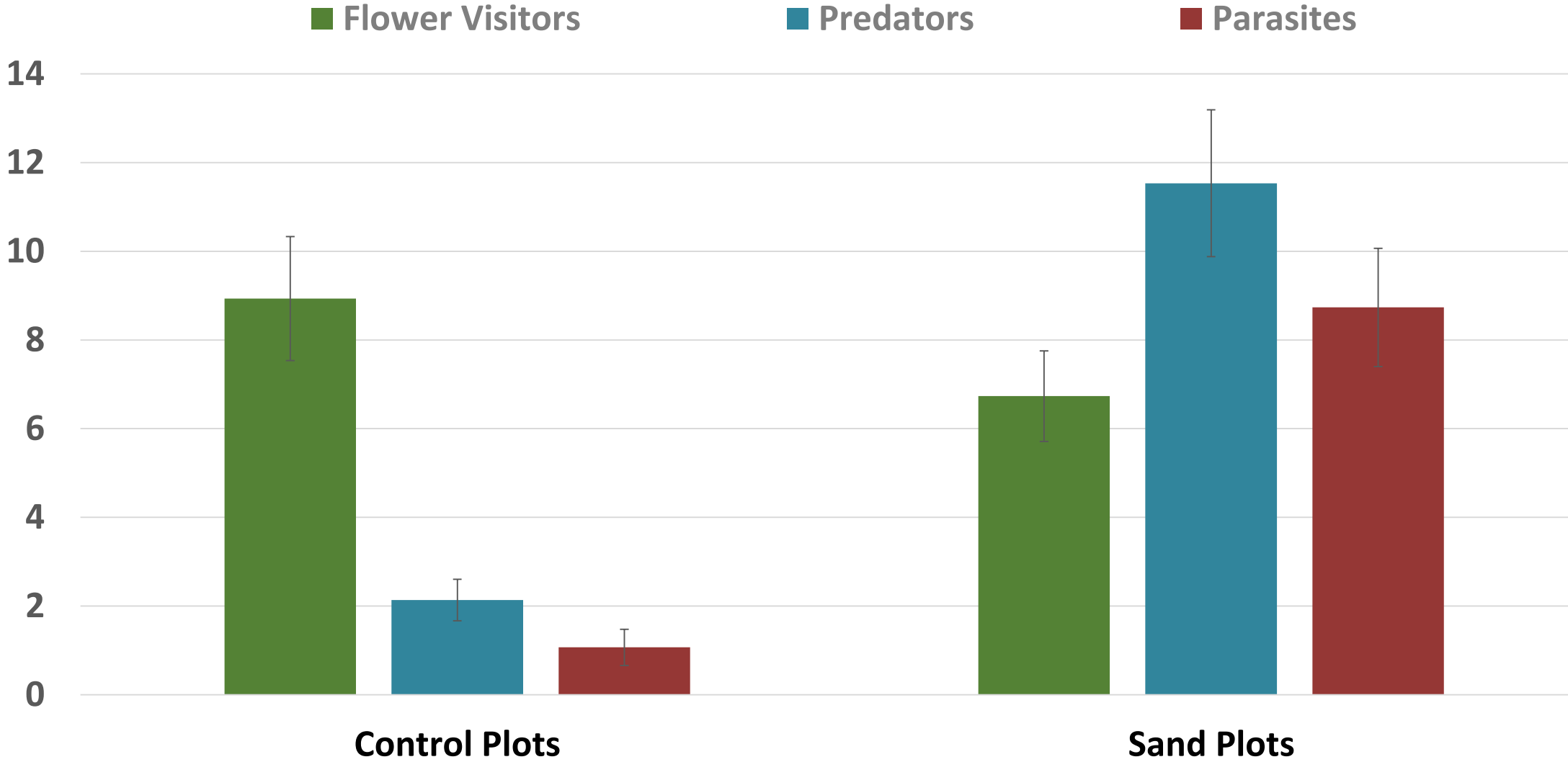
Predators



Sand plots favour predators and parasites!

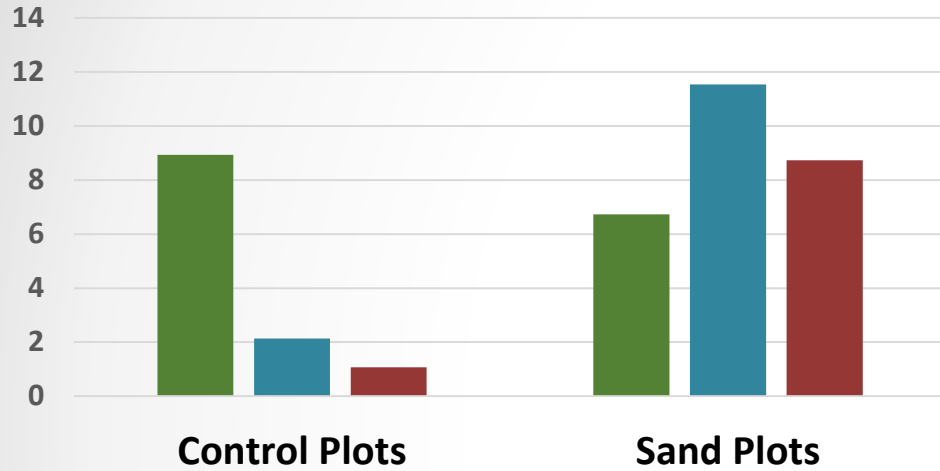


Bee and Wasp specimens per plot in Dry Grasslands

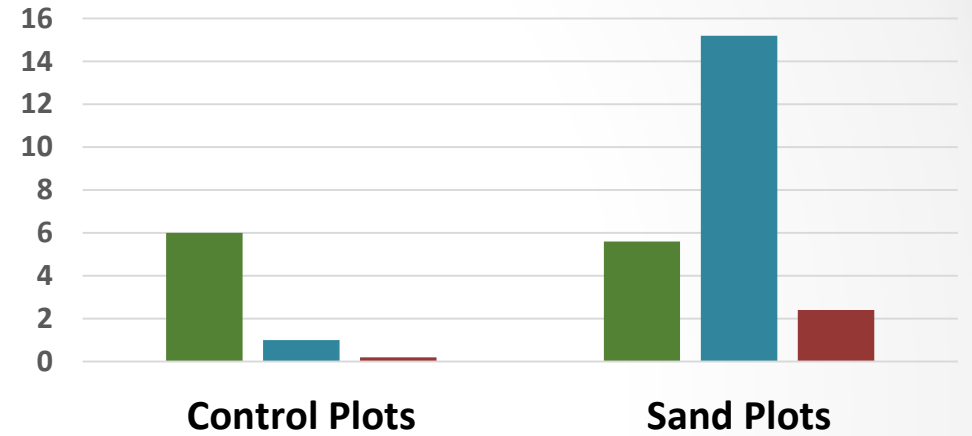


...and the results are consistent throughout habitat types!

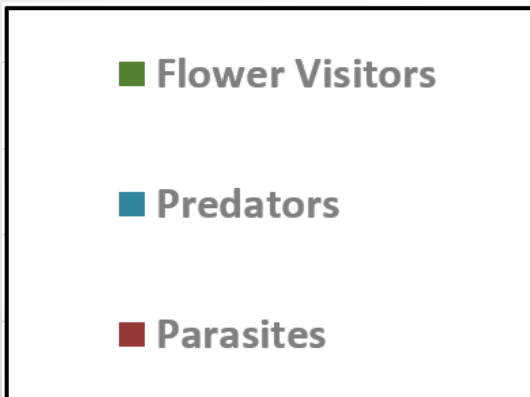
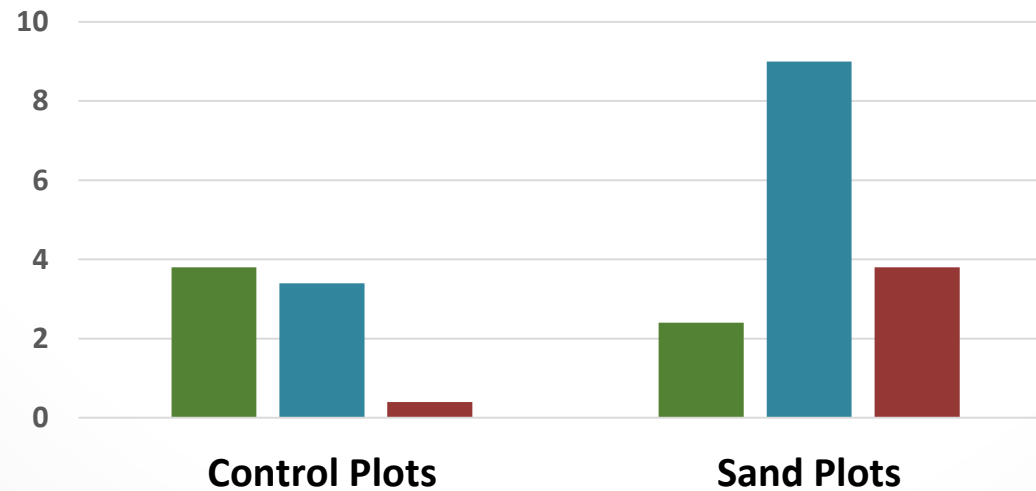
Dry Grasslands



Calcareous Grasslands



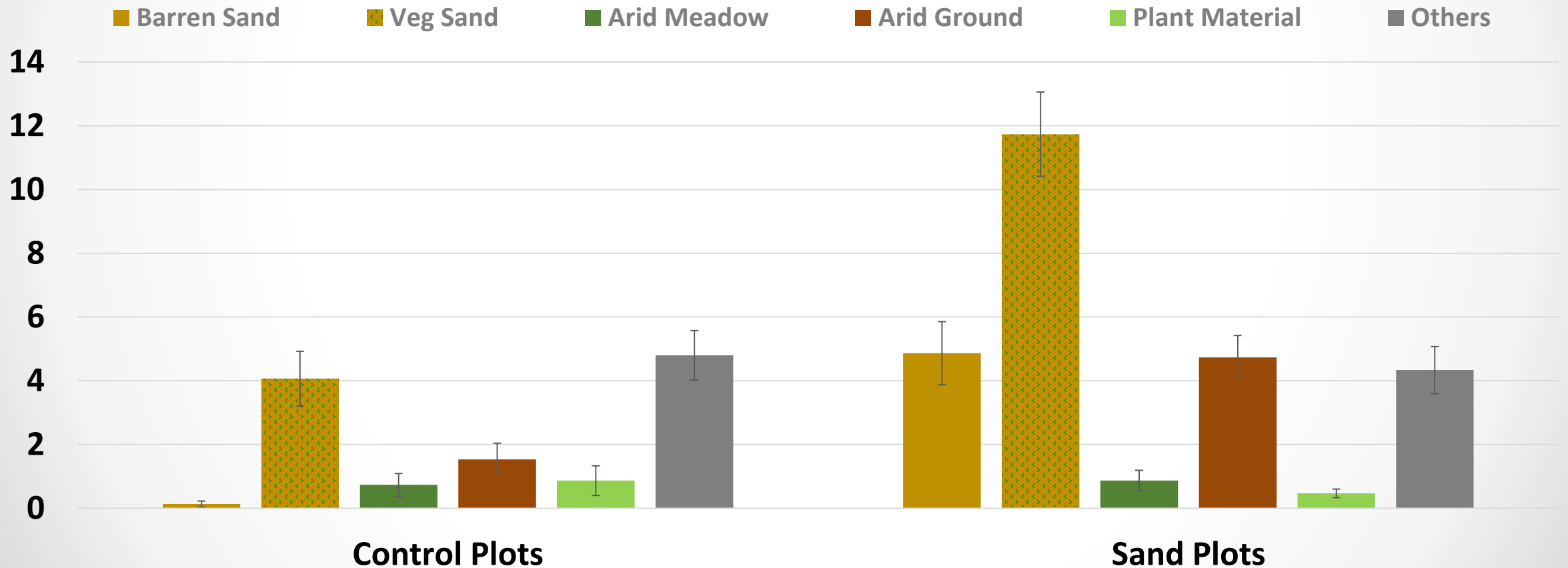
Fixed\Grey Coastal Dunes



NEST BUILDING DEMANDS



Specimens per plot in Dry Grasslands, grouped by Nest Building Demands





**Sand
Favoured**

**Sand
Specialists**



Others

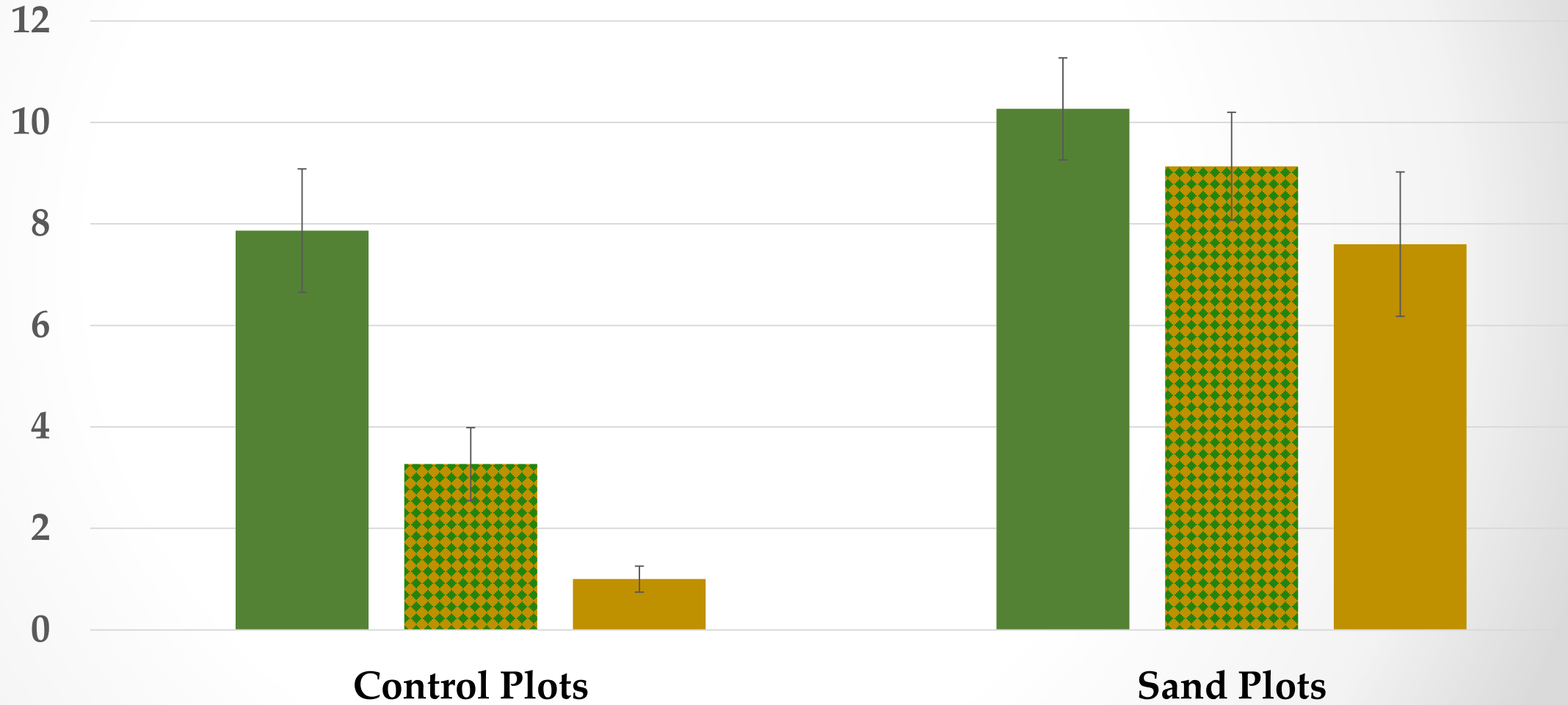




Sand plots favour sand specialists

Specimens per plot in Dry Grasslands, grouped by sand affinity

■ Other Bees and Wasps ■ Sand Favoured ■ Sand Specialists



DUNE GRIDS



Wooded dunes



"Grey" sand dunes

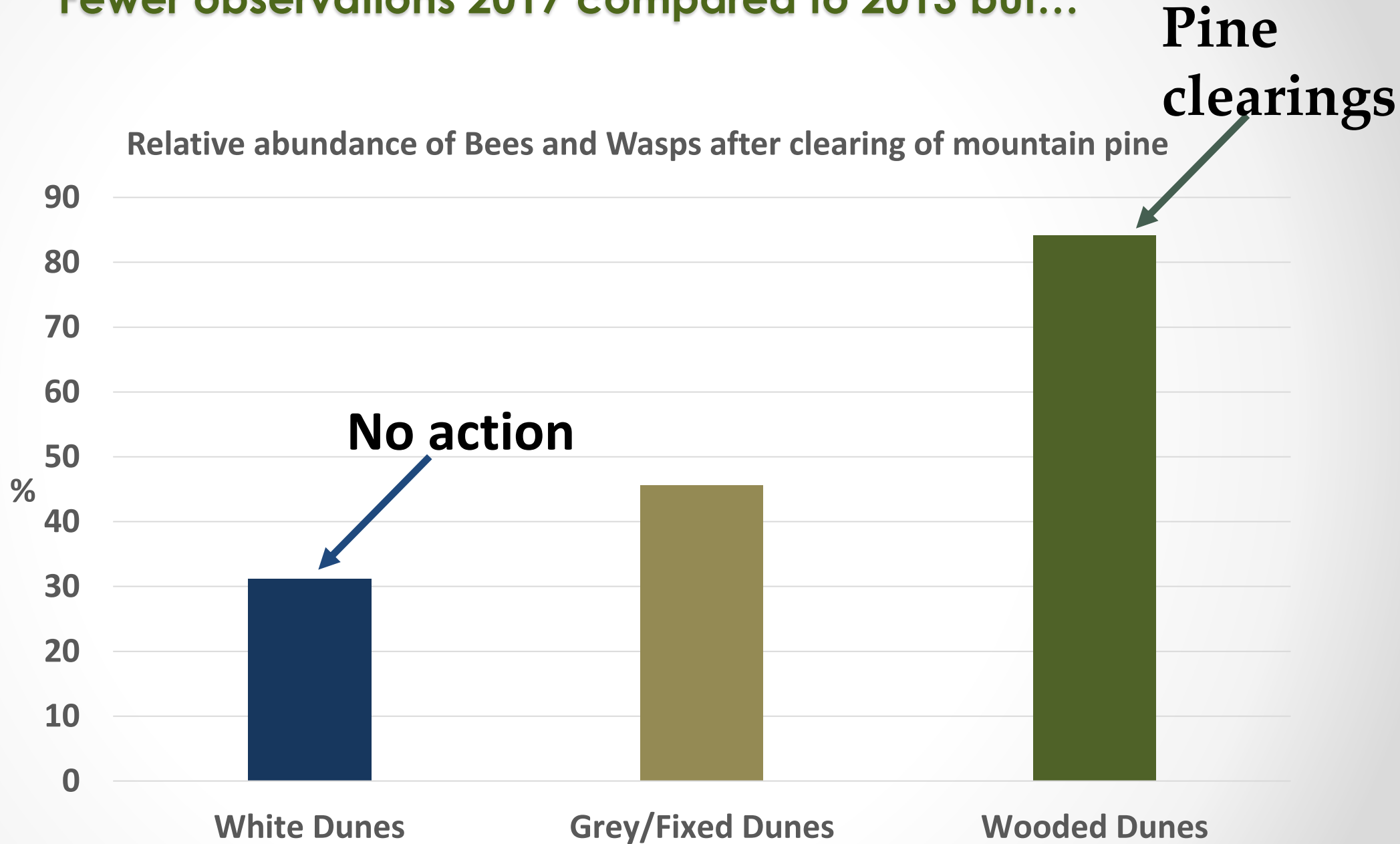


"White" sand dunes





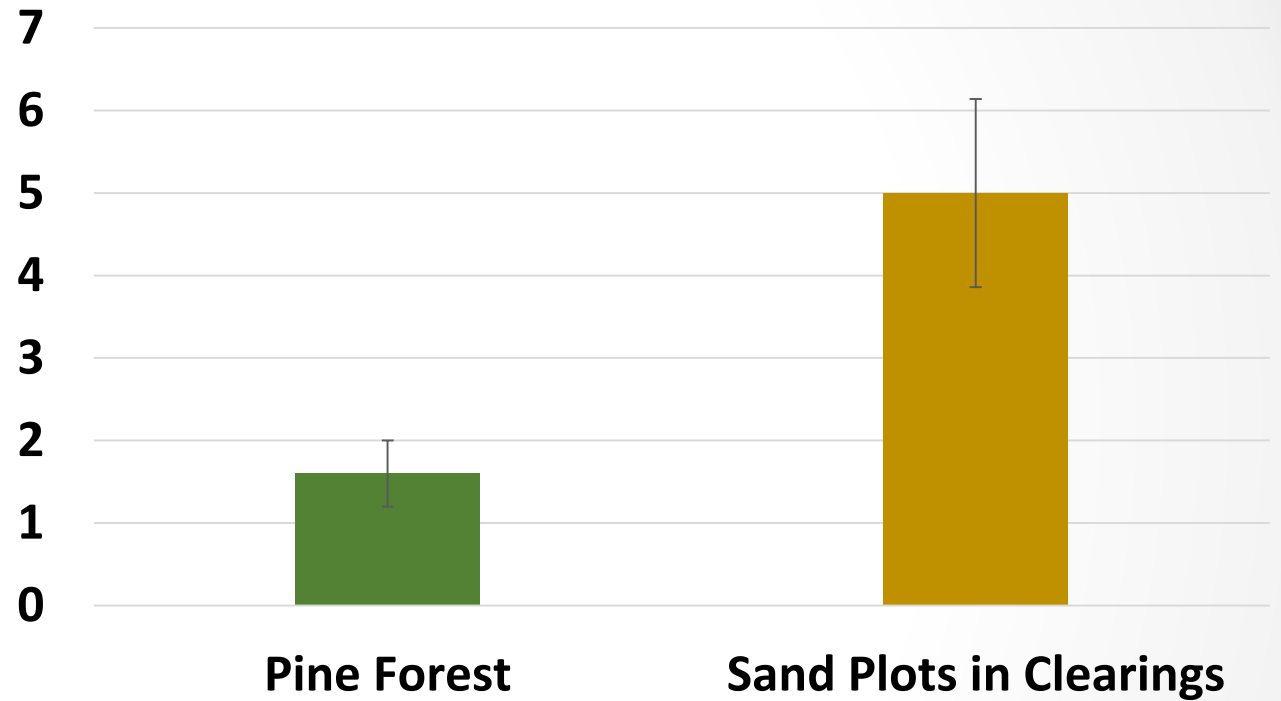
Fewer observations 2017 compared to 2013 but...



Another look at clearings and sand plots...



Bee and Wasp Specimens per plot





Beetles

Coleoptera



Sand Specialists



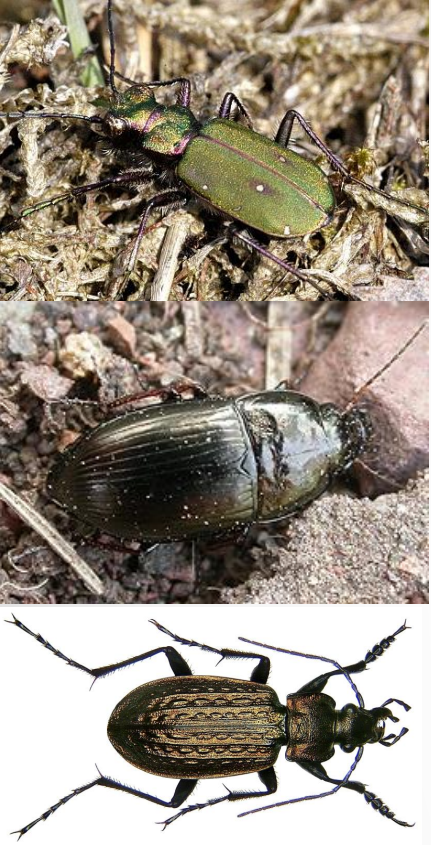
Other Beetles



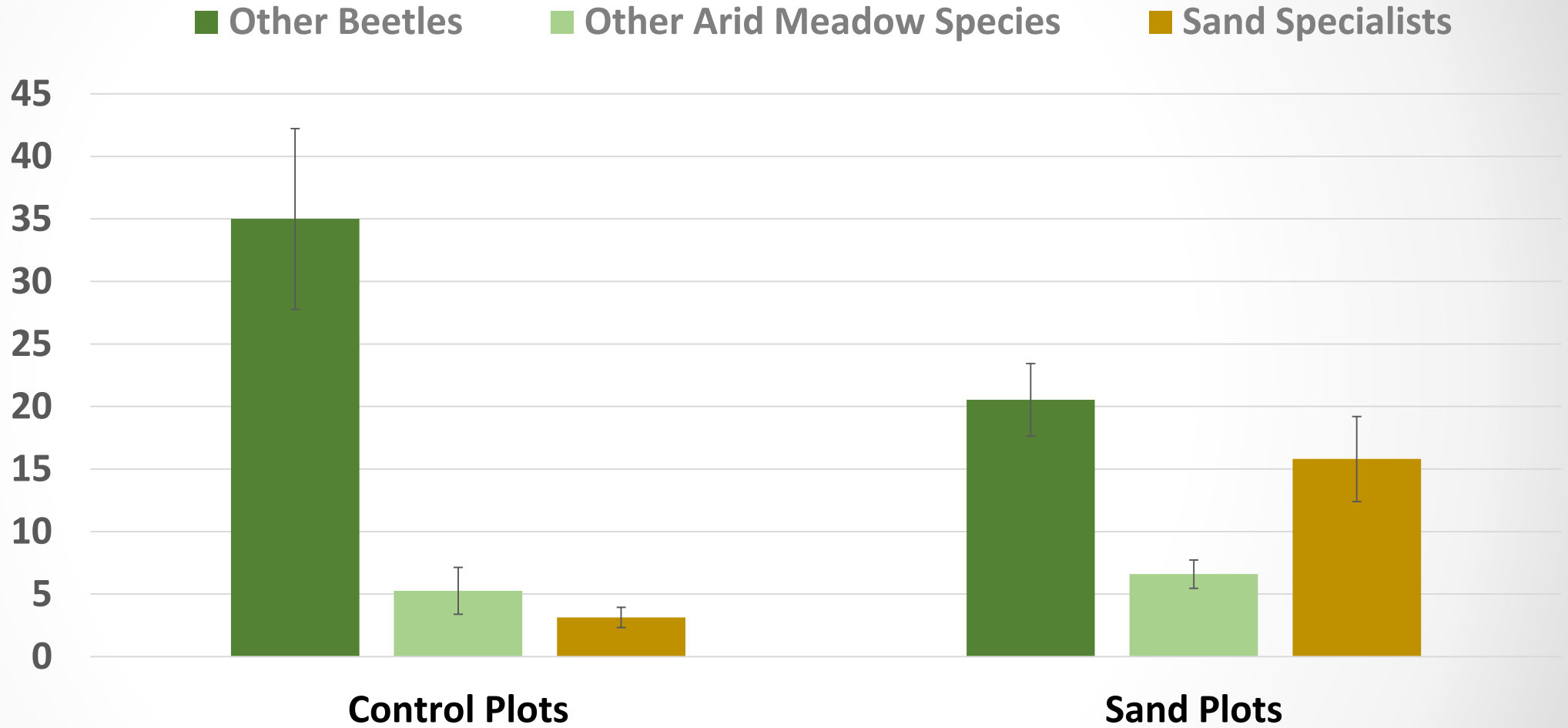
Other Arid Meadow Species



Sand plots favour Sand Specialist Beetles!



Beetle specimens per plot in Dry Grasslands





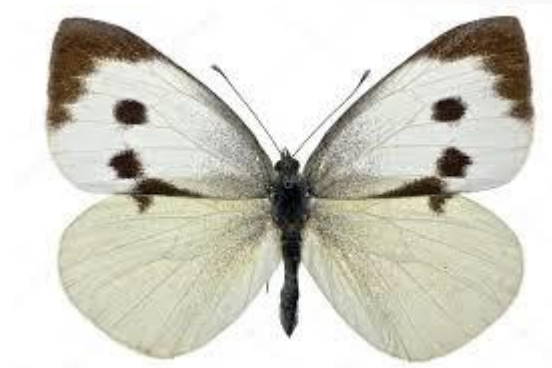
Sand Favoured

Butterflies

Lepidoptera



Sand Specialists

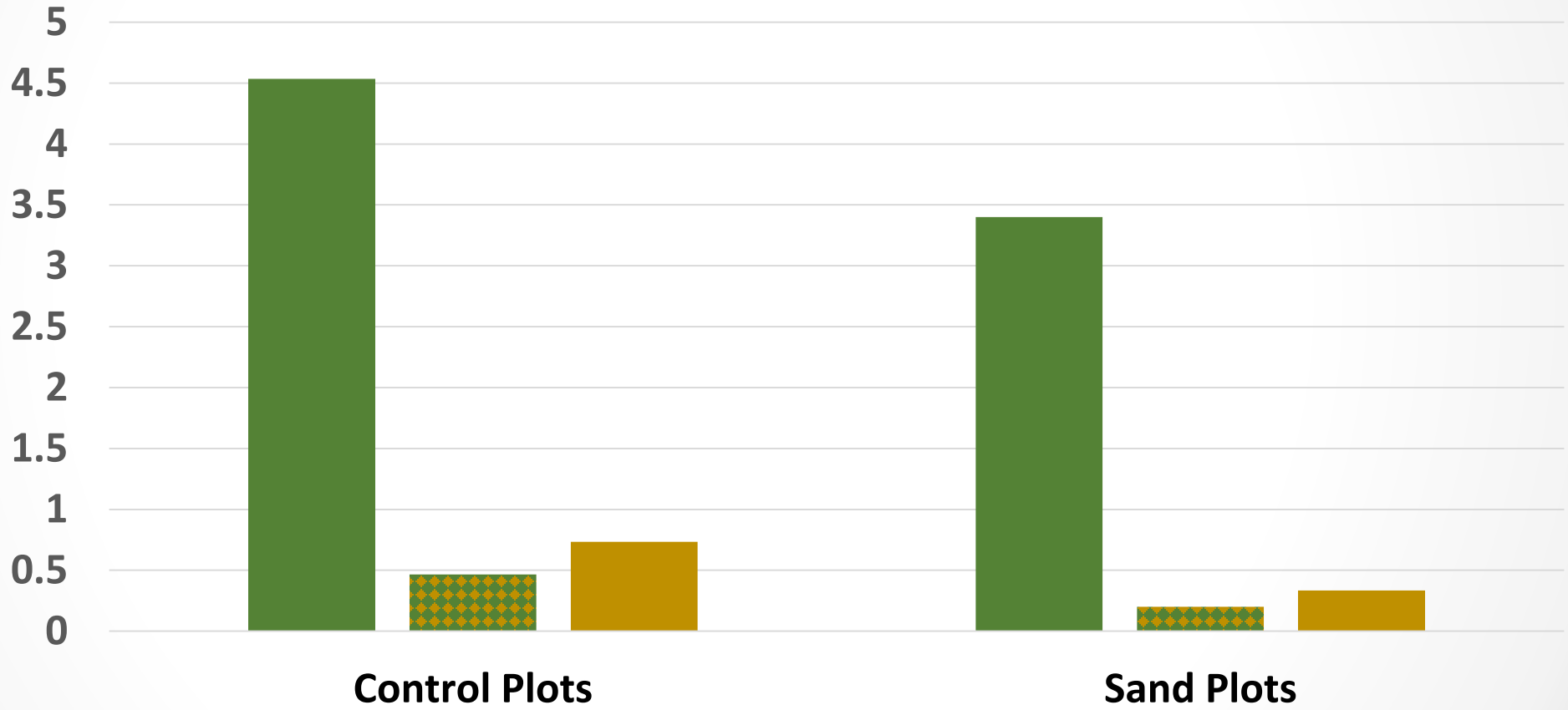


Other Butterflies



Butterfly specimens per plot in Dry Grasslands

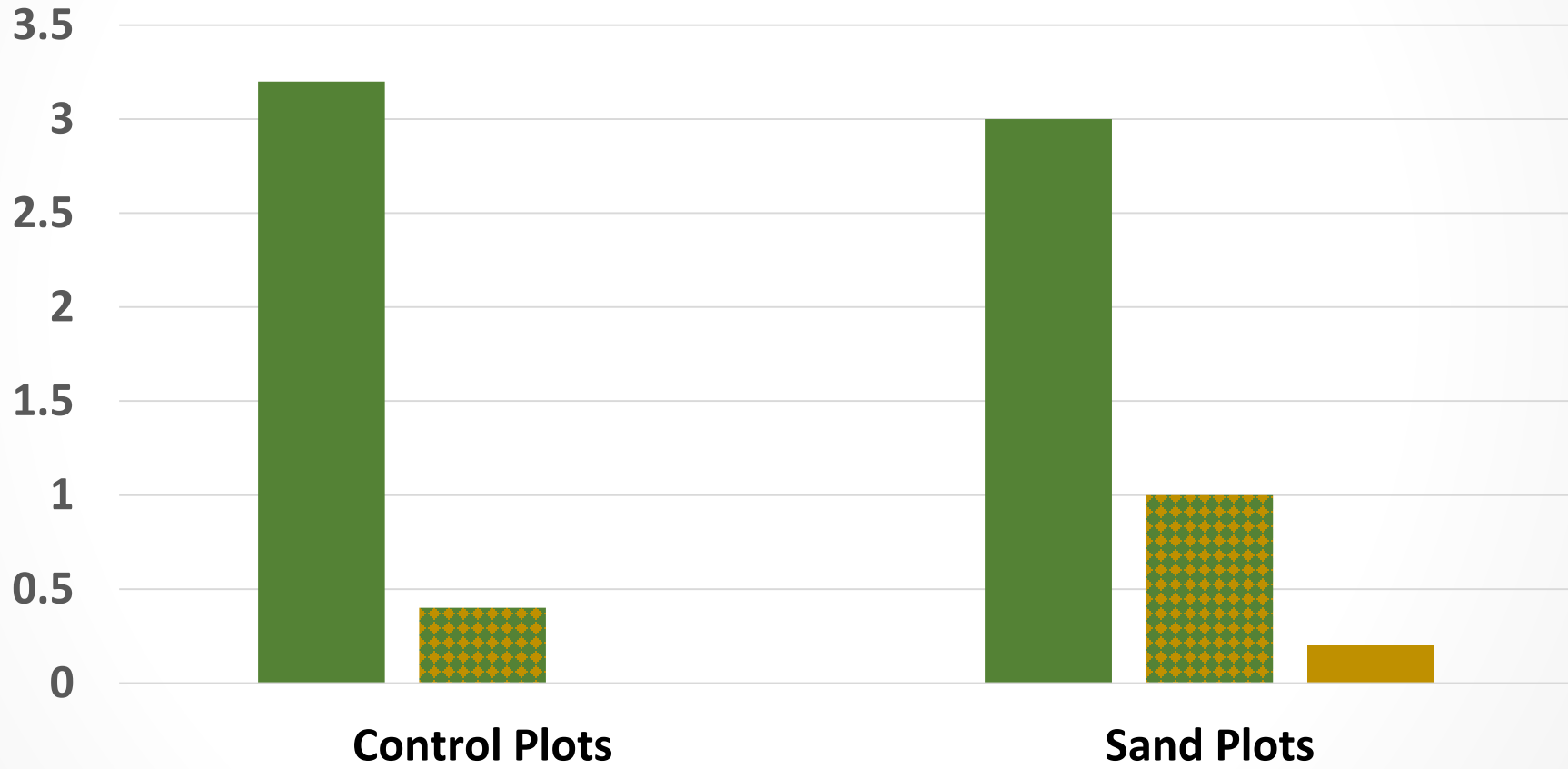
■ Other Butterflies ■ Sand Favoured ■ Sand Specialists





Butterfly specimens per plot in Calcareous Grasslands

■ Other Butterflies ■ Sand Favoured ■ Sand Specialists





**Sand
Favoured**

Spiders

Araneae



**Sand
Specialists**

**Other
Spiders**



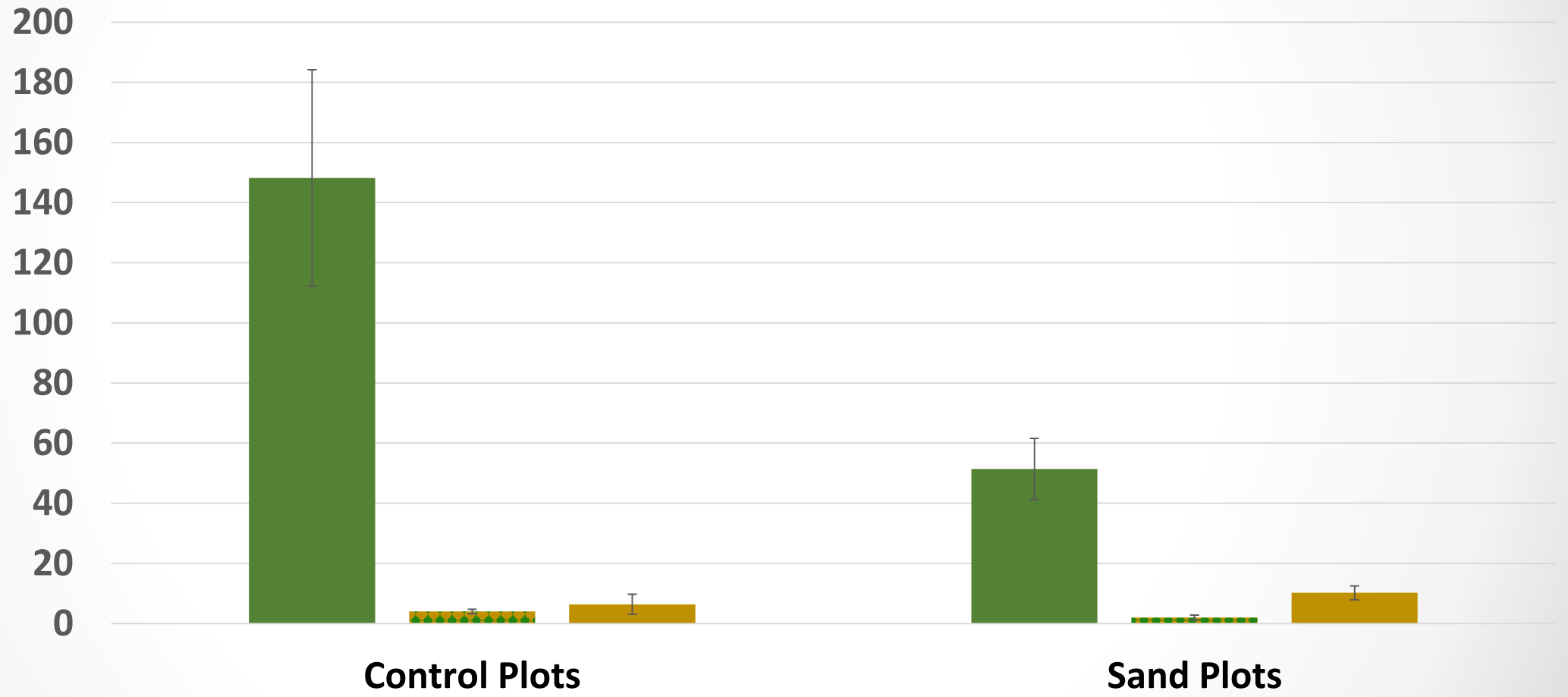
Macrargus rufus male

Photo: Glenn Halvorson

Spider Community Shift in Sand Plots

Number of spiders per plot in Dry Grasslands

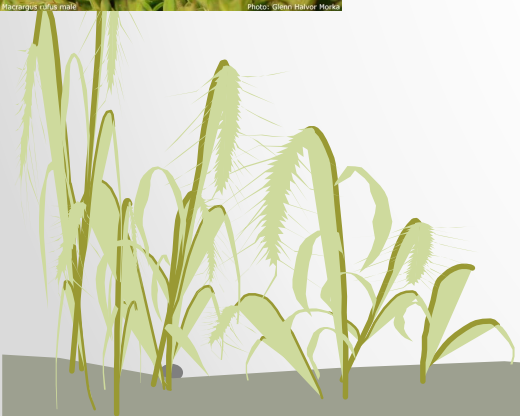
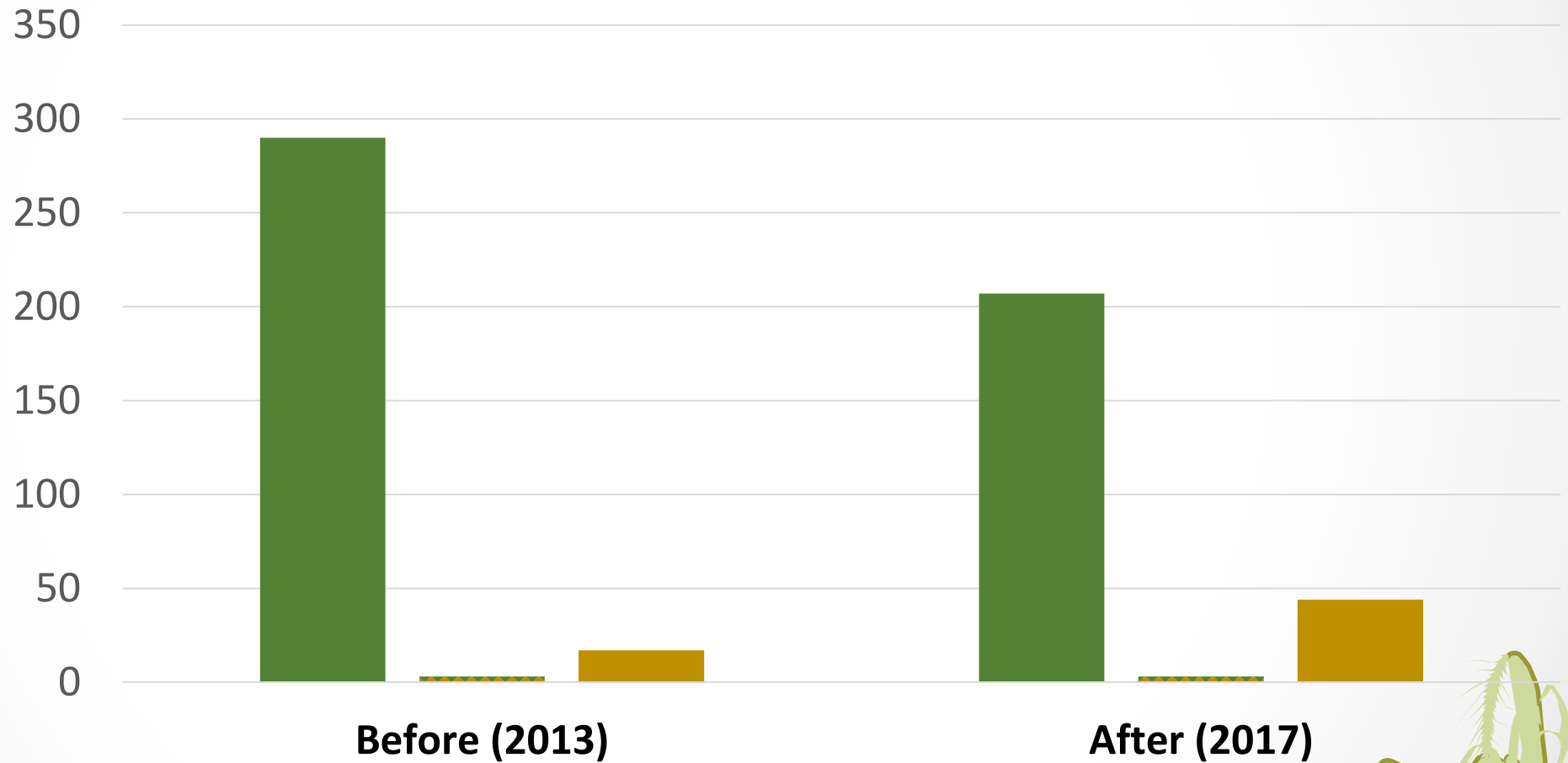
■ Other Spiders ▣ Sand Favoured ■ Sand Specialists



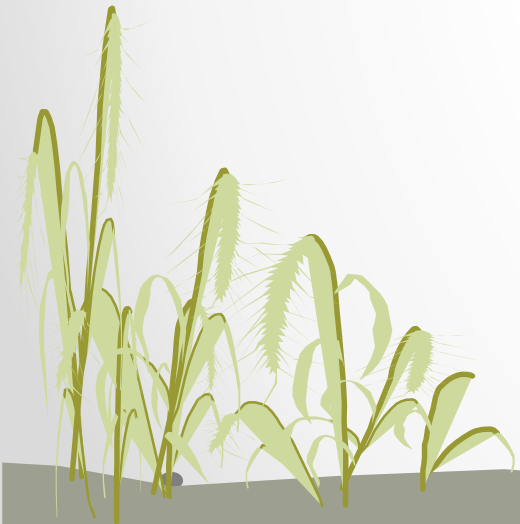
Spider Community Shift in Sand Plots

Abundance of spiders before and after clearings

■ Other Spiders ■ Sand Favoured ■ Sand Specialists



**Remember:
these are early results!**





Thank you!

