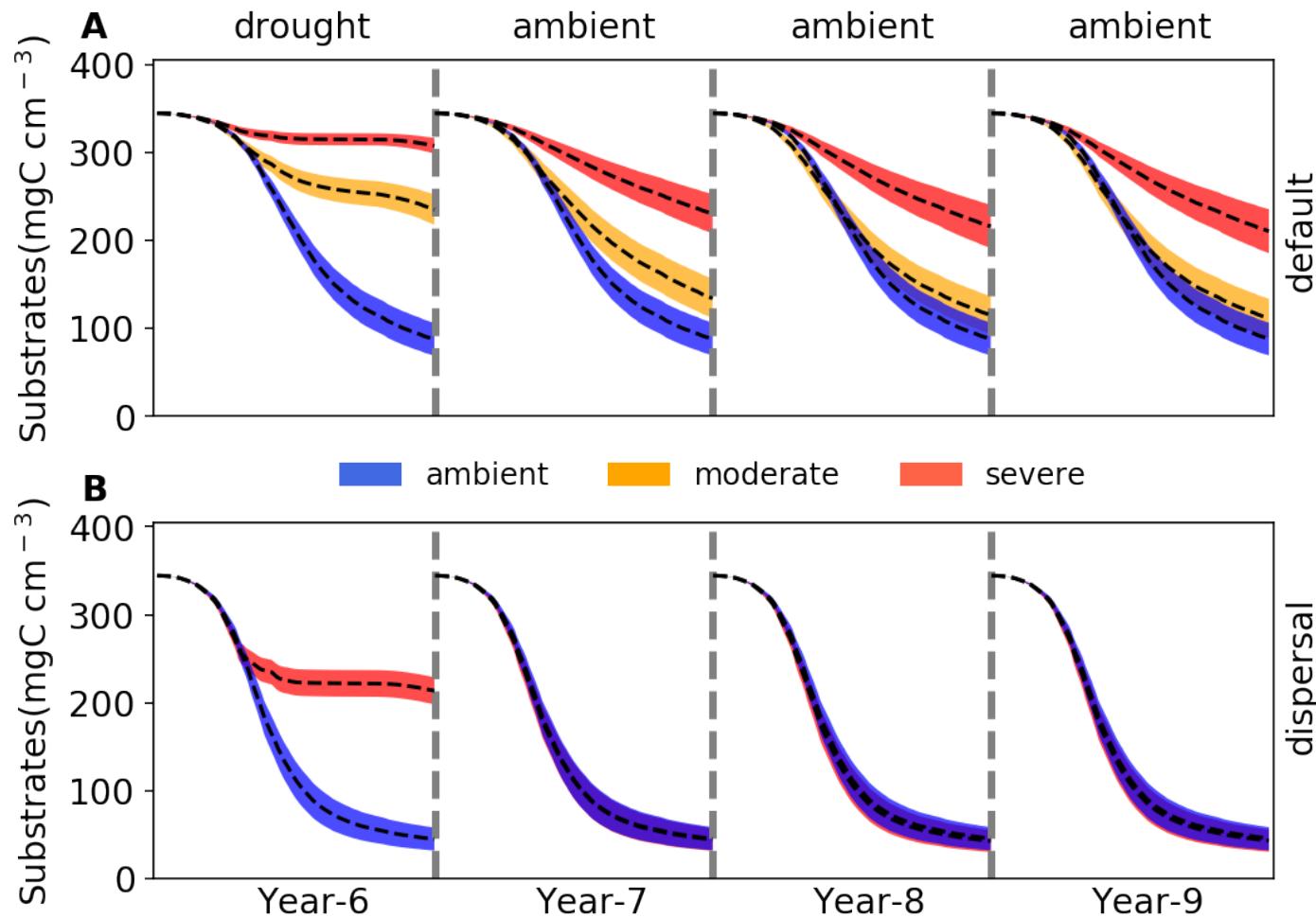


# Drought Legacy in Soil Microbiomes

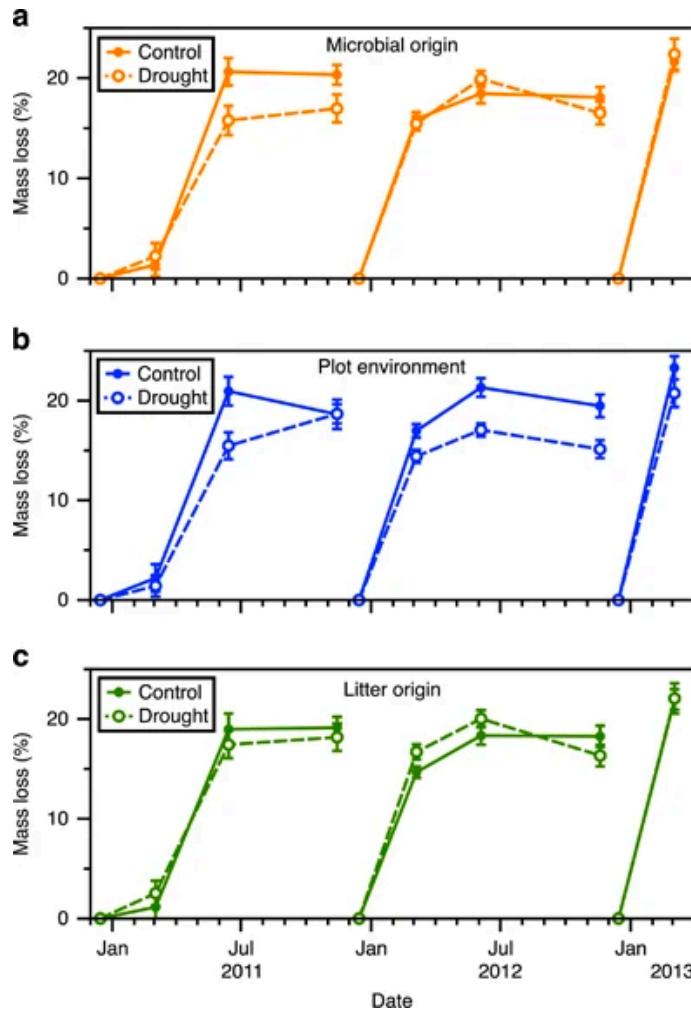
Bin Wang

May 27<sup>th</sup>, 2020

# Drought Legacy in Litter Decomposition



# Missing Mechanisms in Soil Microbiome Drought Legacy

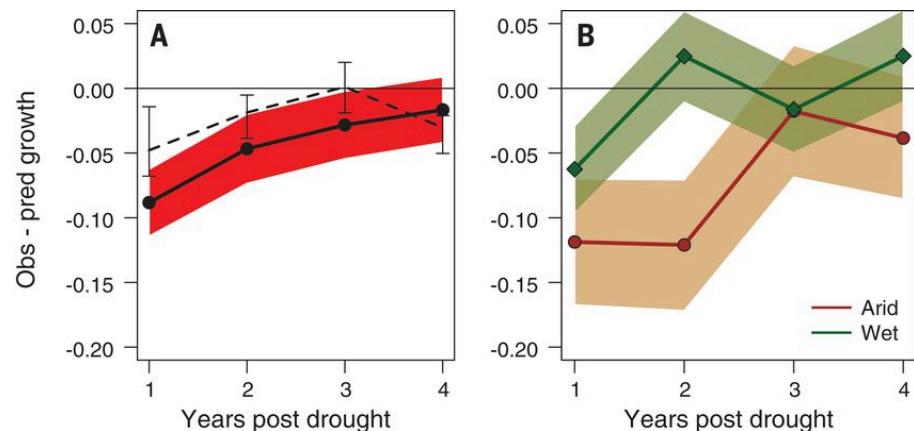


Martiny et al. 2017 The ISME

## FOREST ECOLOGY

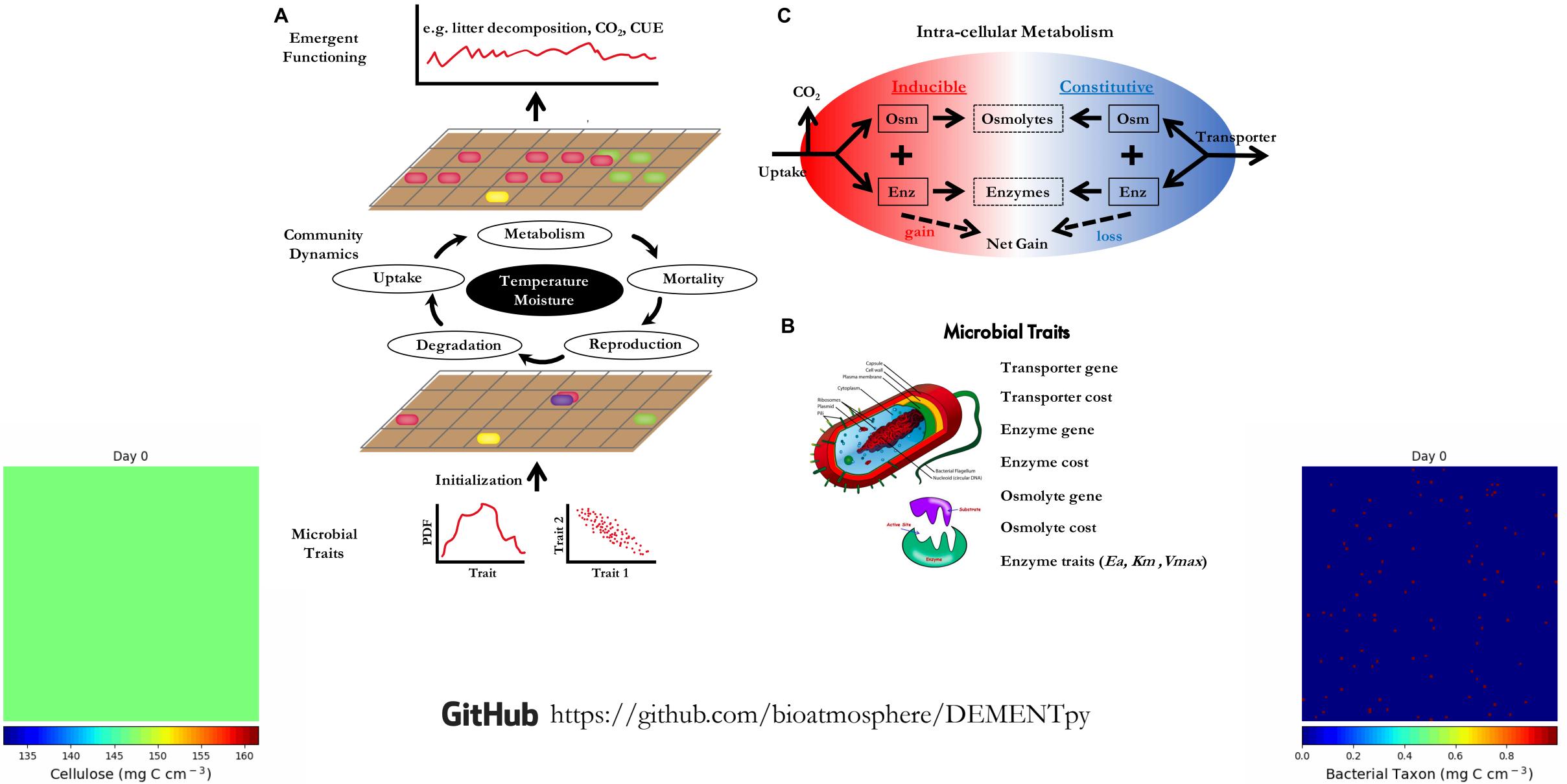
# Pervasive drought legacies in forest ecosystems and their implications for carbon cycle models

W. R. L. Anderegg,<sup>1,2\*</sup> C. Schwalm,<sup>3,4</sup> F. Biondi,<sup>5</sup> J. J. Camarero,<sup>6</sup> G. Koch,<sup>3</sup> M. Litvak,<sup>7</sup> K. Ogle,<sup>8</sup> J. D. Shaw,<sup>9</sup> E. Shevliakova,<sup>10</sup> A. P. Williams,<sup>11</sup> A. Wolf,<sup>1</sup> E. Ziaoc,<sup>5</sup> S. Pacala<sup>1</sup>

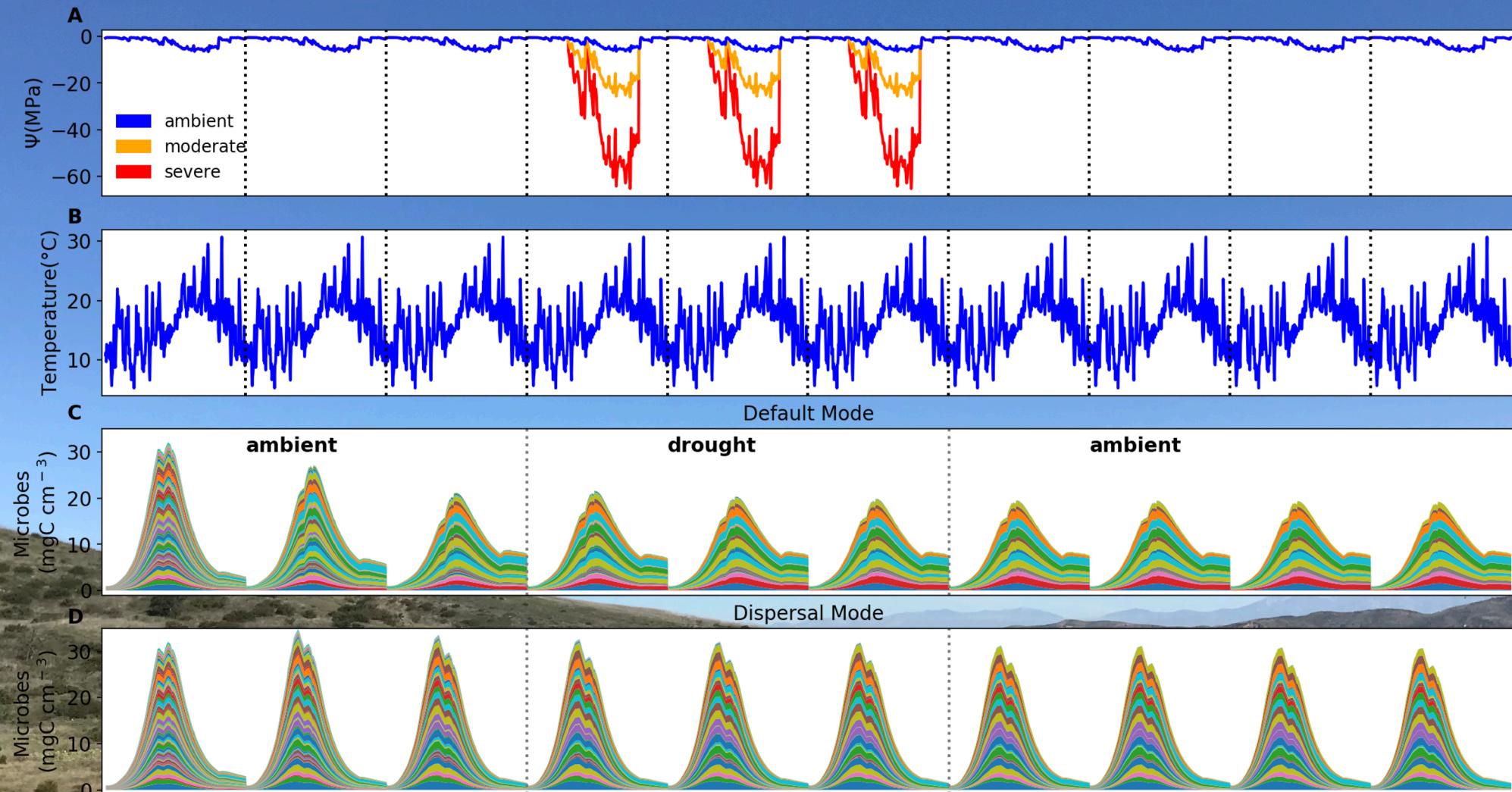


Anderegg et al. 2015 SCIENCE

# DEMENTpy

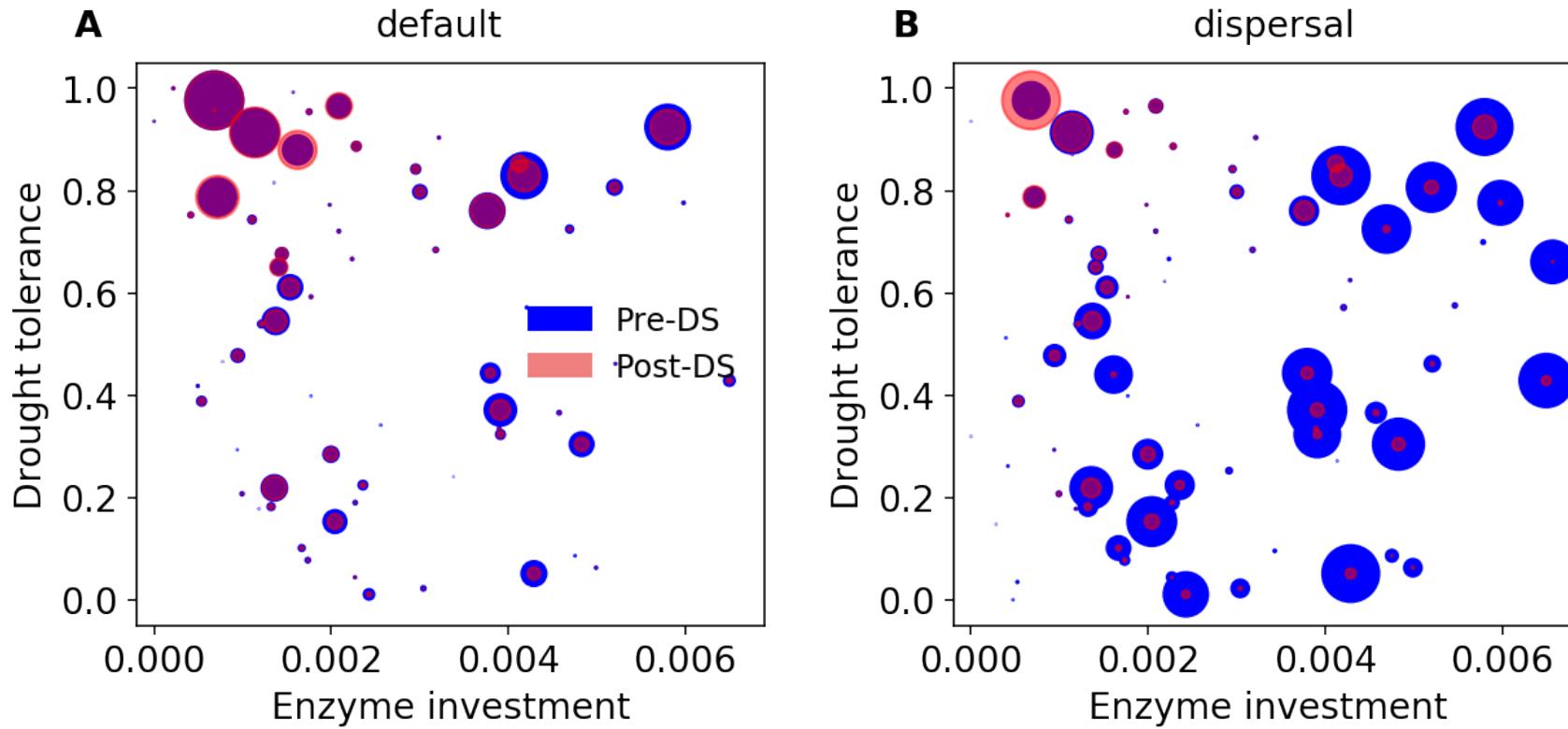


**GitHub** <https://github.com/bioatmosphere/DEMENTpy>

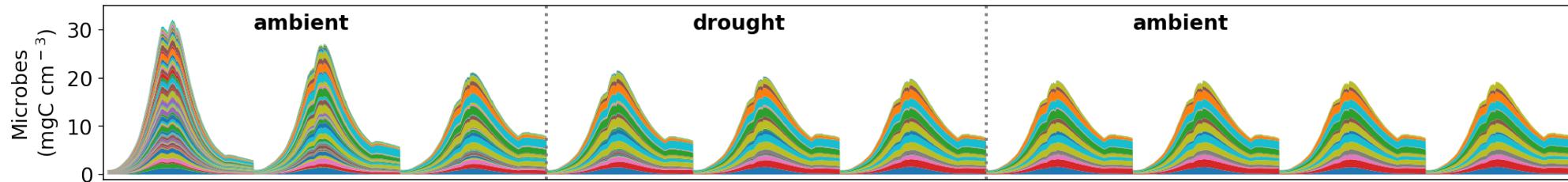
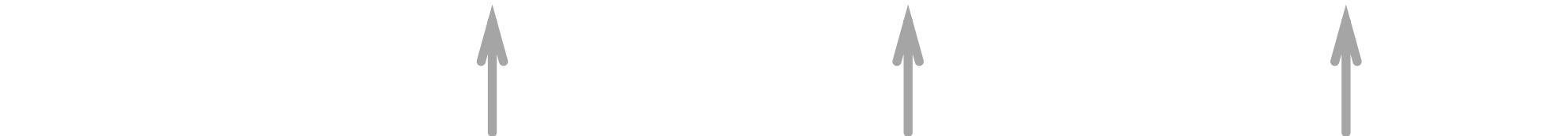
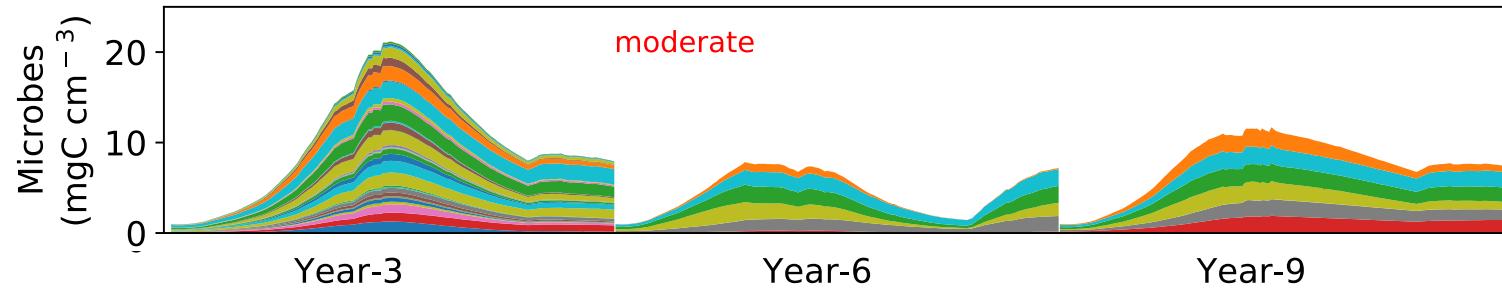
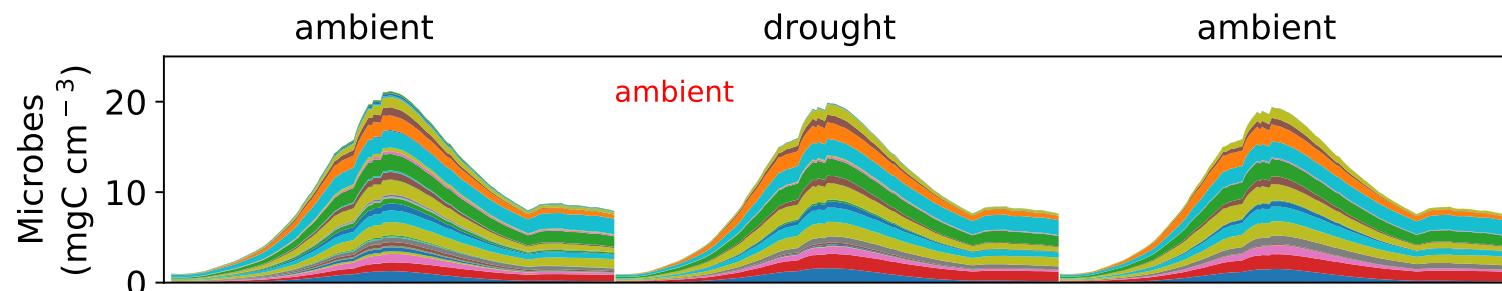


Simulations at Loma Ridge

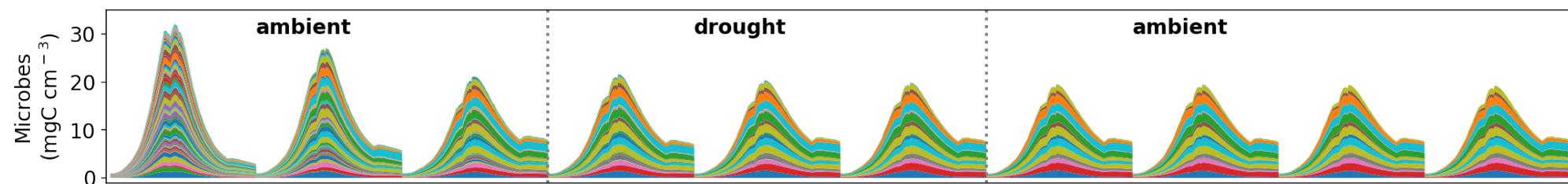
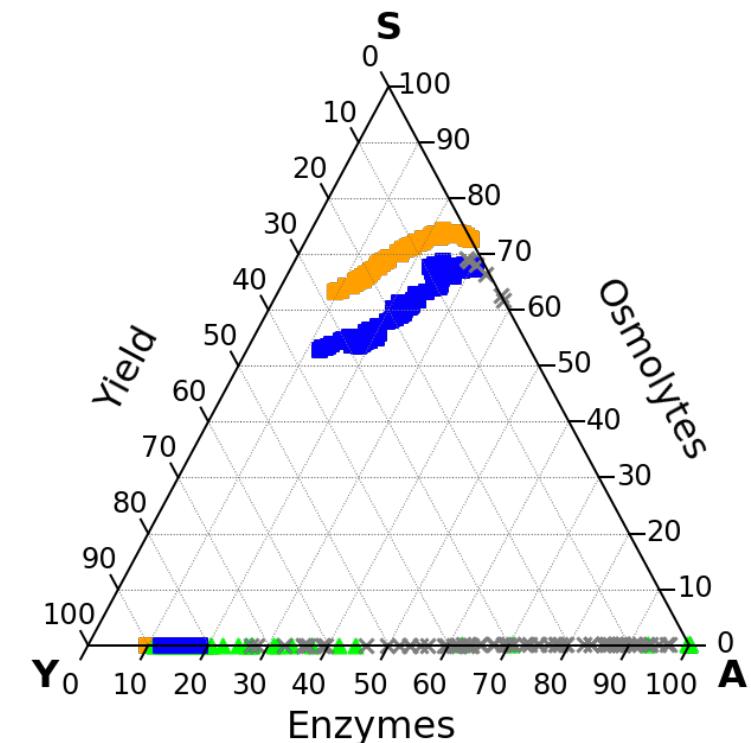
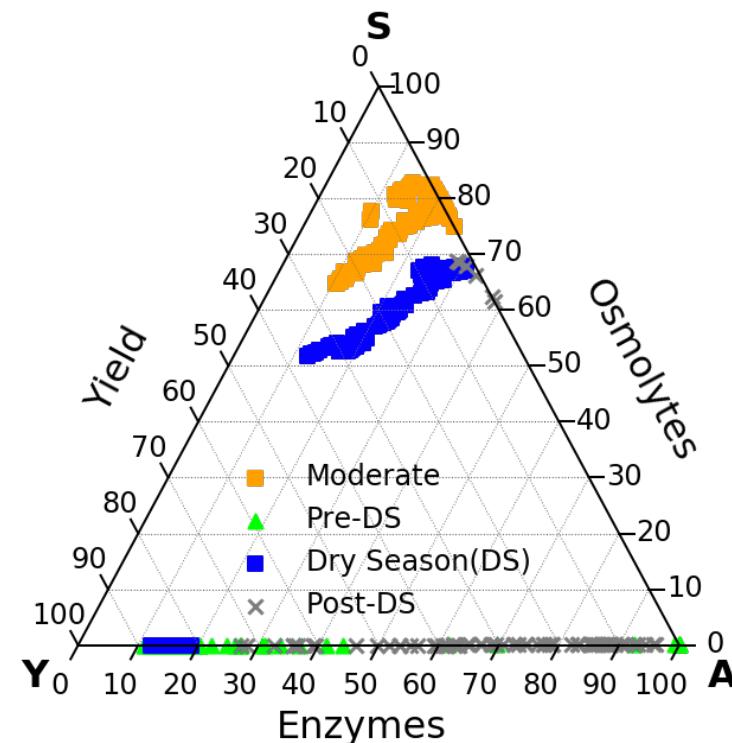
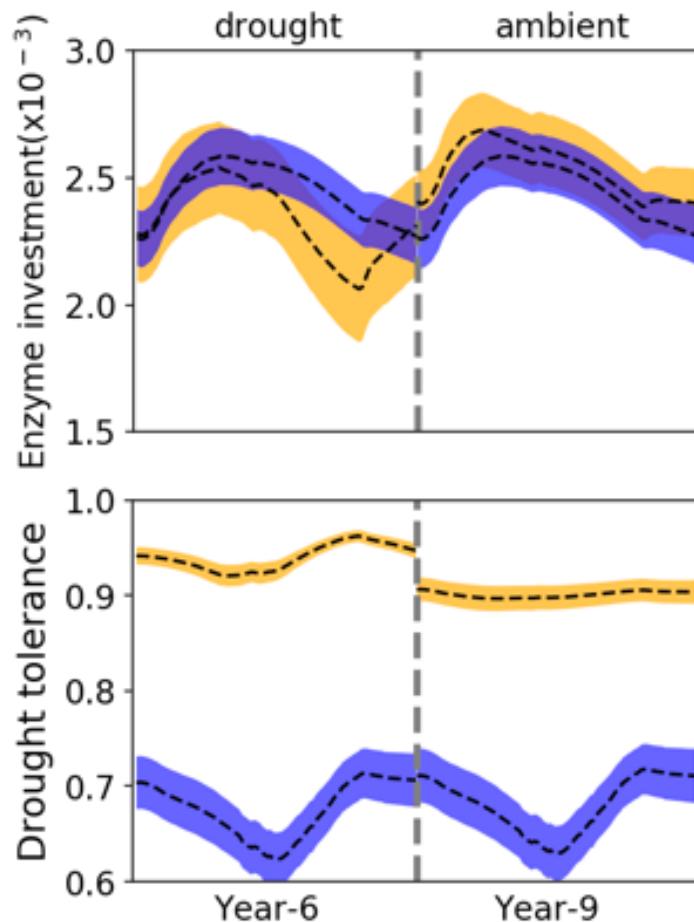
# Drought-driven taxonomic shift toward more drought-tolerant ones across dry season



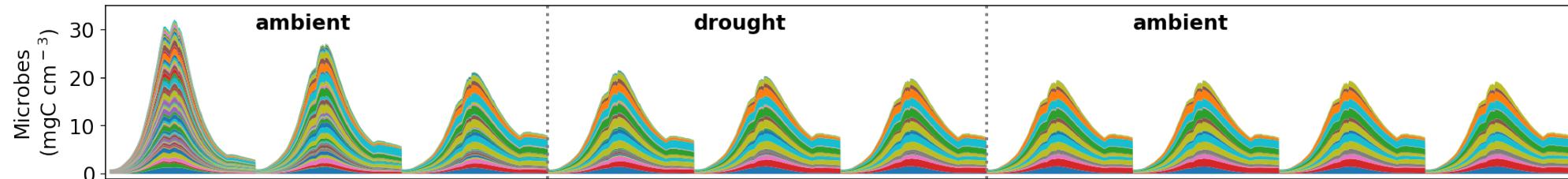
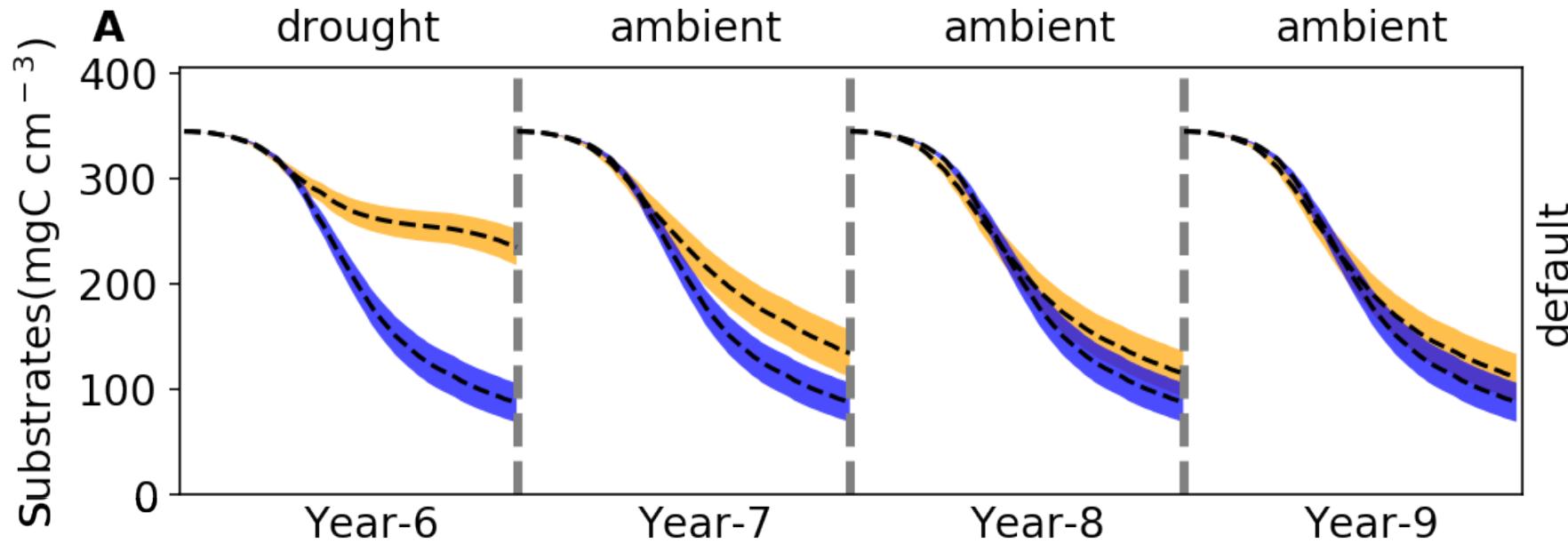
# Community Changes under Moderate Drought



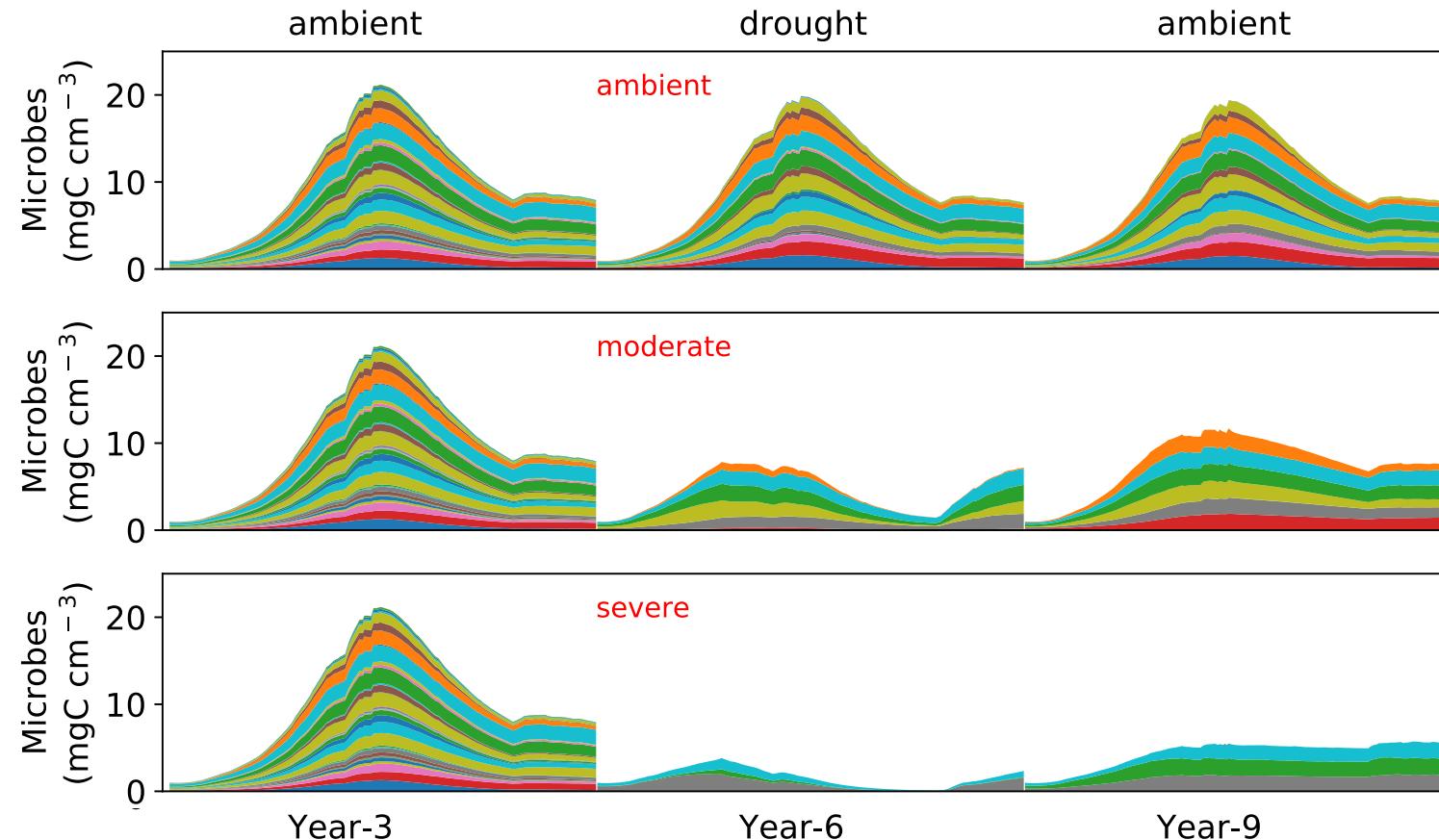
# Community-level Traits and Resource Allocation



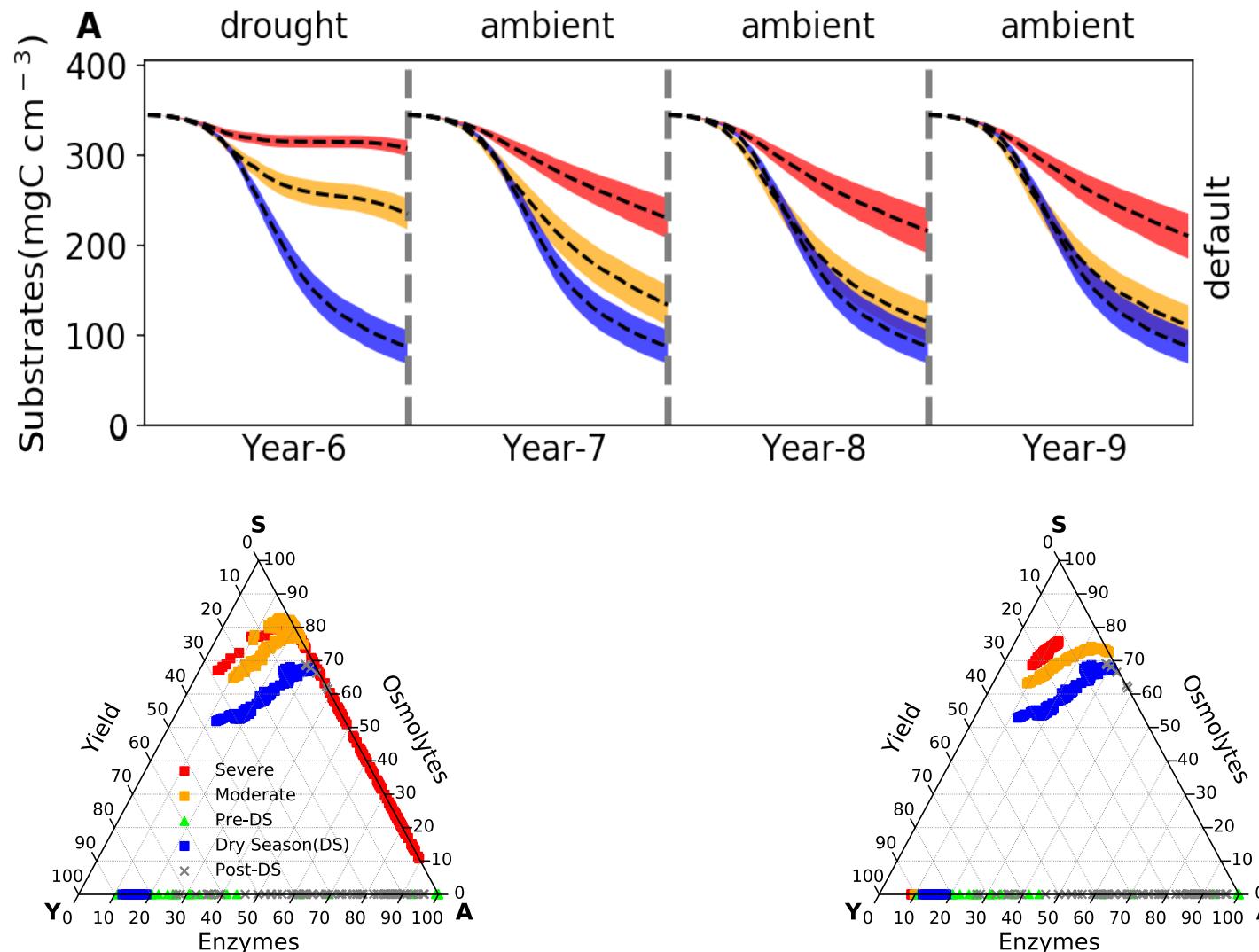
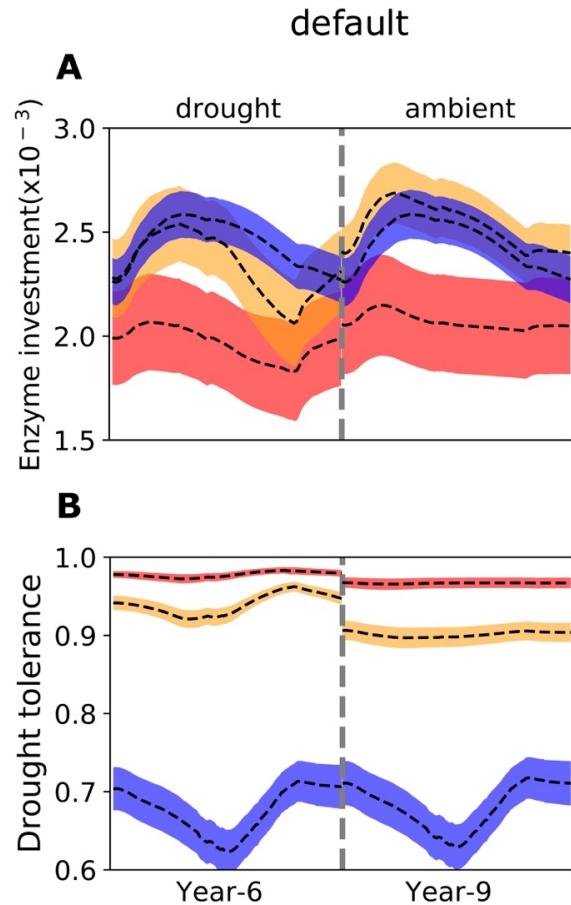
# Transient Legacy under Moderate Drought



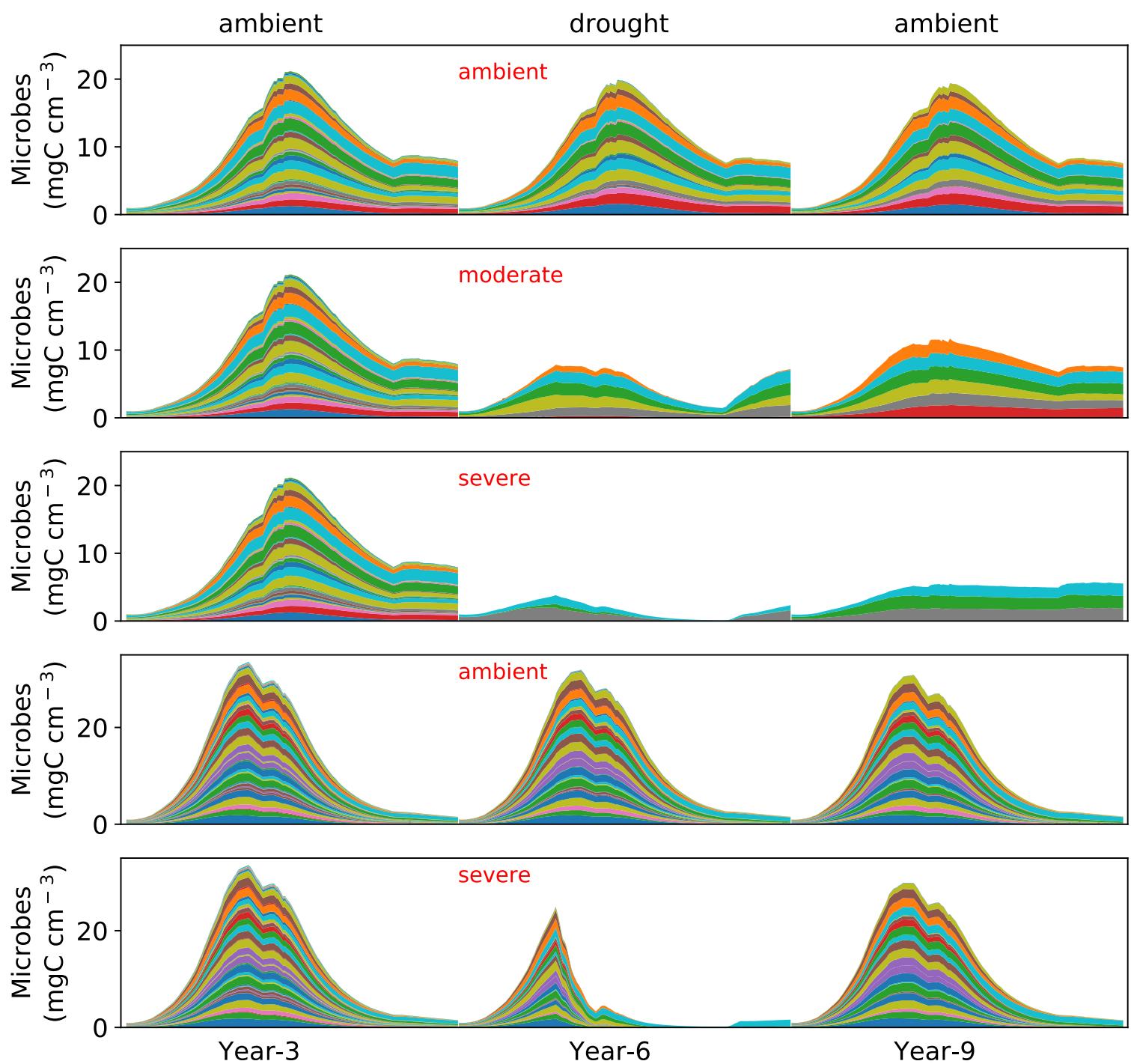
# Community Dynamics under Severe Drought



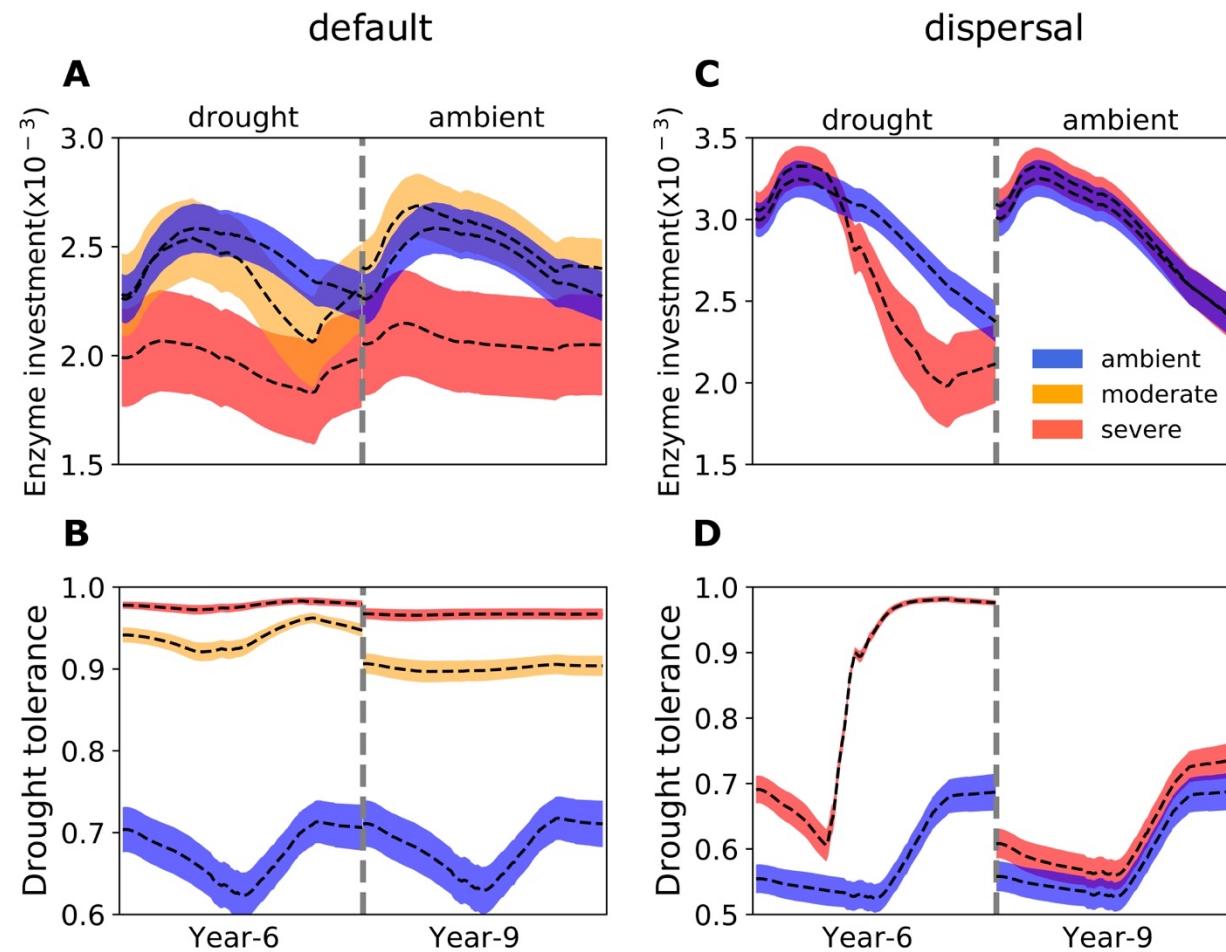
# Persistent Legacy under Severe Drought



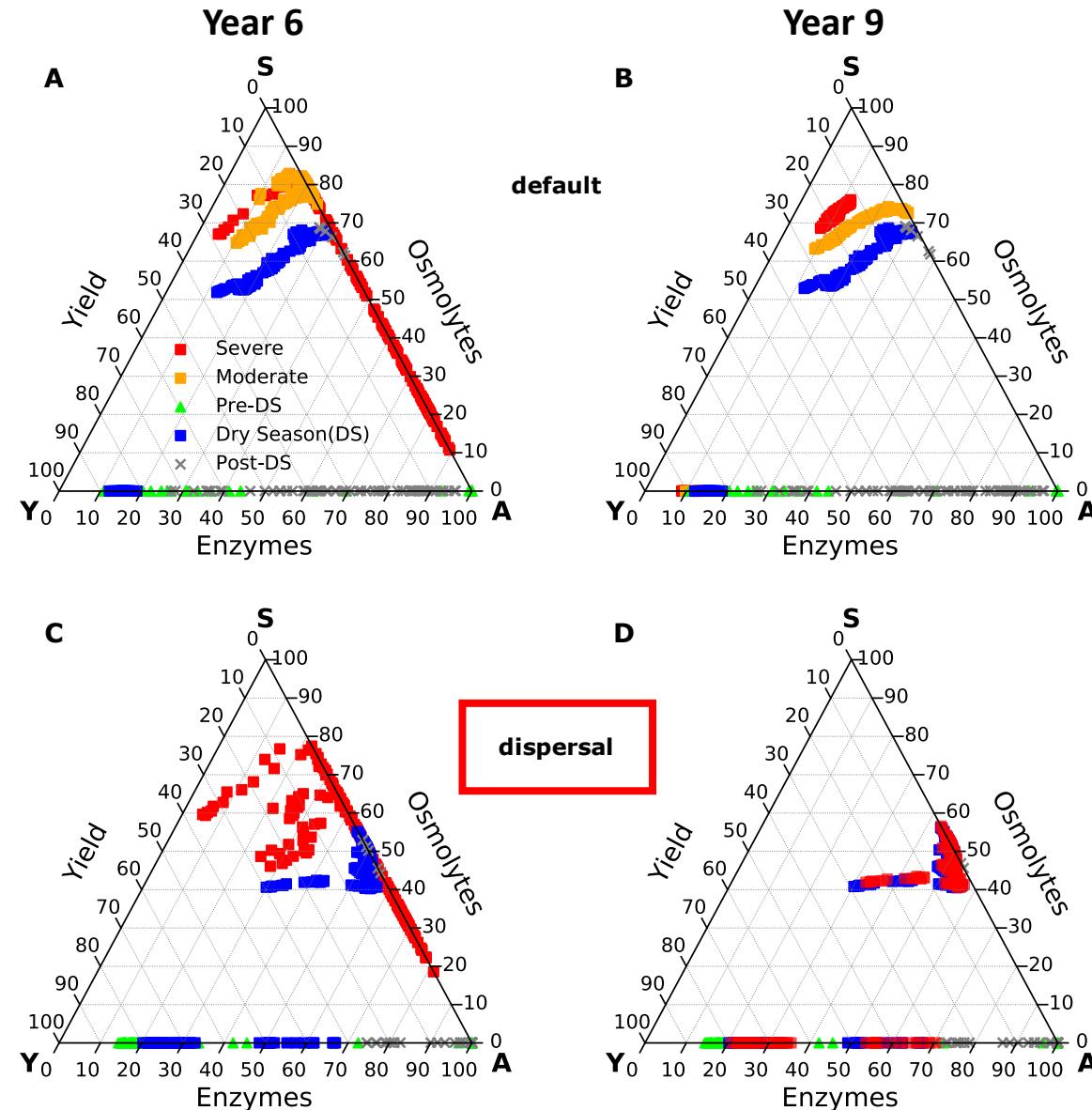
# Drought legacy overwhelmed by dispersal



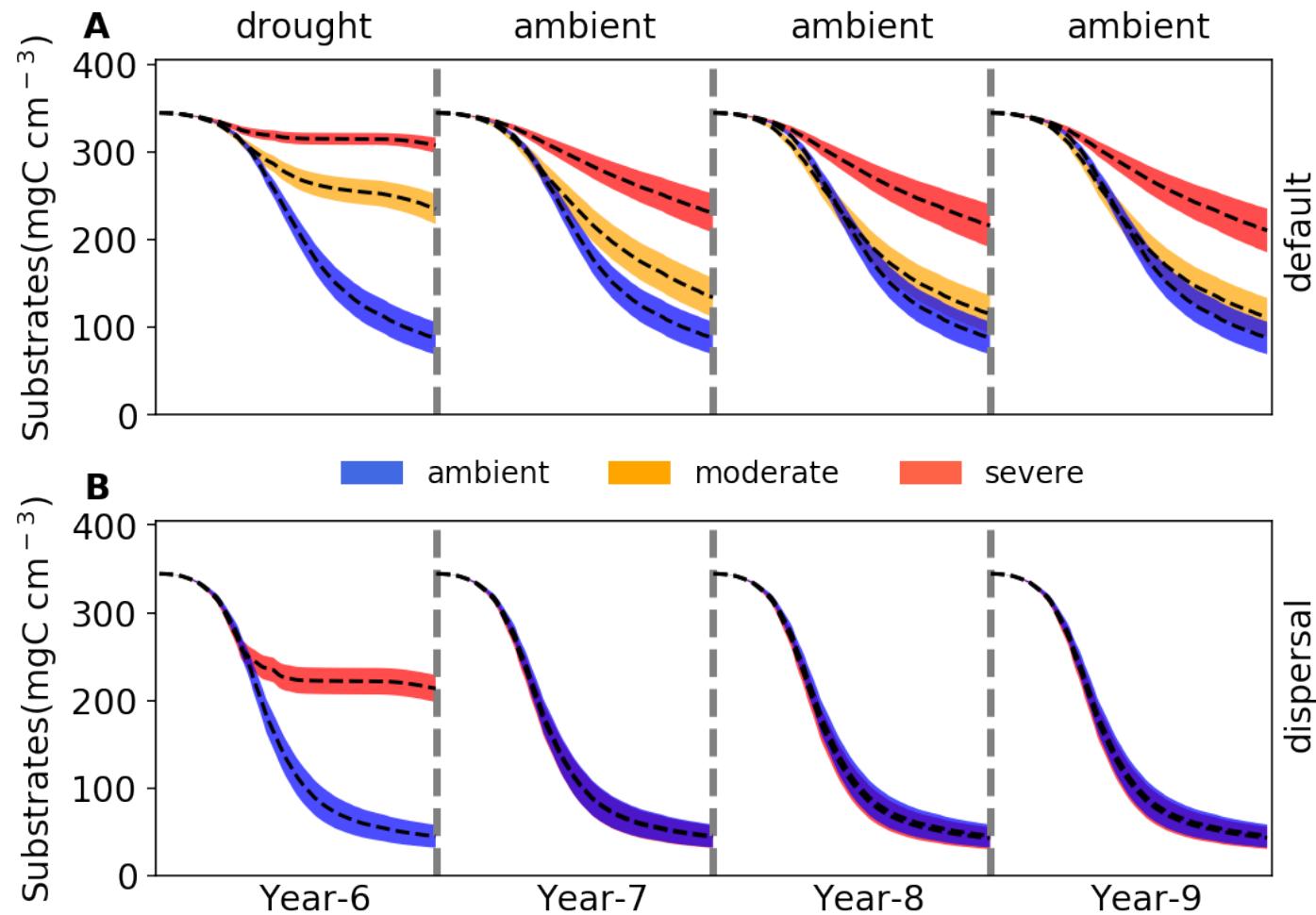
# No changes in community-level traits



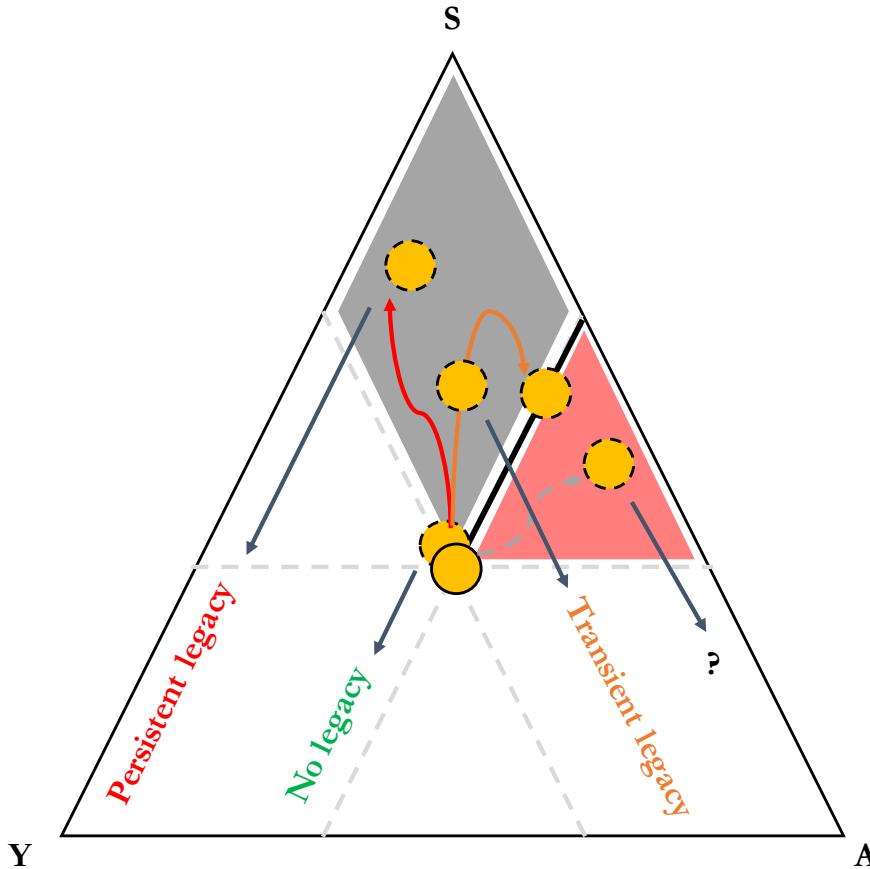
# Resource allocation unchanged



# No legacy in decomposition with dispersal



# Drought legacy depends on community trajectory on the Y-A-S space



# Tradeoff-mediated Legacy

