

# A trait-based monitoring approach: Biological and edaphic filters influencing longer-term plant community assembly on reclaimed well pads

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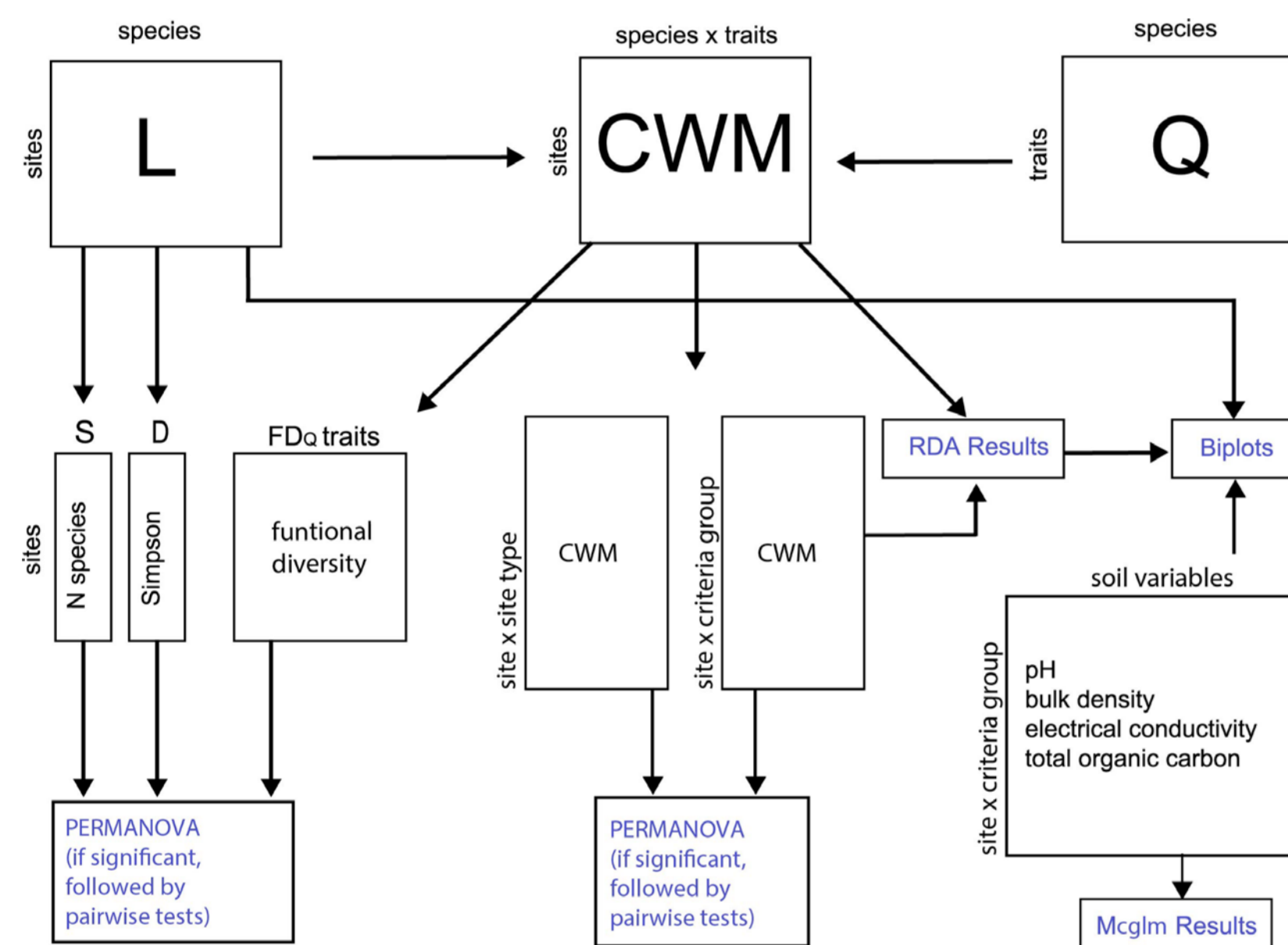
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## Motivation

- Identify differences in taxonomic, trait and functional diversity (FD<sub>Q</sub>) metrics between well pads reclaimed under old or new criteria and adjacent reference sites
- Determine if there are trait-environment relationships indicating long-term biological and edaphic legacy effects across reclamation criteria

## Methods

Collected plant and soil data on dry, mixedgrass prairie sites (18 Reference, 12 old criteria, 6 new criteria) in southern Alberta, Canada. Statistical flow chart below.



## Results and Implications

- Biological and edaphic filters influenced community assembly post reclamation
- New and old criteria well pads had different plant trait composition from reference
- Old well pads had high introduced species and low trait functional diversity (FD<sub>Q</sub>)
- Old well pads may be considered in an arrested successional state
- Short, native, xeric species with large seeds should be sown on future reclaimed sites
- Seeding with native species does not suffice - the traits of these native species matter too



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# Seeding reclaimed well pads with native grassland species is not *enough*; functional traits of species matter!



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