WESTCARB Annual Business Meeting

Arizona State – regional characterization with focus on riparian areas

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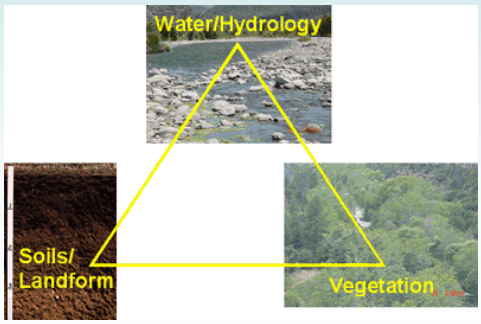
Summary

- What are riparian areas?
- Why trees in riparian areas are important?
- Arizona's riparian areas
- Regional characterization analysis (preliminary results)

What are riparian areas?

- All different definitions for riparian areas have certain common points:
  - adjacent to a water body
  - have no clearly defined boundaries
  - transition zones between aquatic and terrestrial environments
  - linear in nature

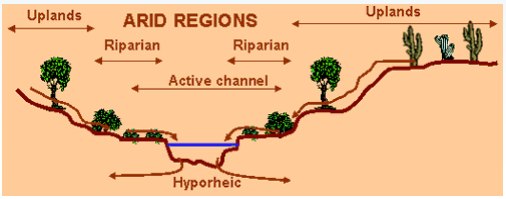
- The three main characteristics to define riparian areas are:



Source: Arizona's Riparian Areas , University of Arizona

Why trees in riparian areas are important?

- A riparian forest is the forested area of land adjacent to a body of water, stream, river, bay or marsh.
- Functions of riparian forest
  - Carbon storage
  - Sediment filtering
  - Flood control
  - Nutrient and pollutant control and water quality management
  - Shade and water temperature
  - Stream channel stability
  - Habitat and food



AZ riparian areas

Awareness of the importance of riparian areas

- University of Arizona – (Arizona's Riparian Areas learning module)
- Arizona Riparian Council

Restoration projects

- Lower Colorado River multi-species conservation plan *(funded by the Bureau of Reclamation)*
- Fossil Creek watershed and riparian restoration
- Riparian restoration efforts in the Santa Cruz River basin

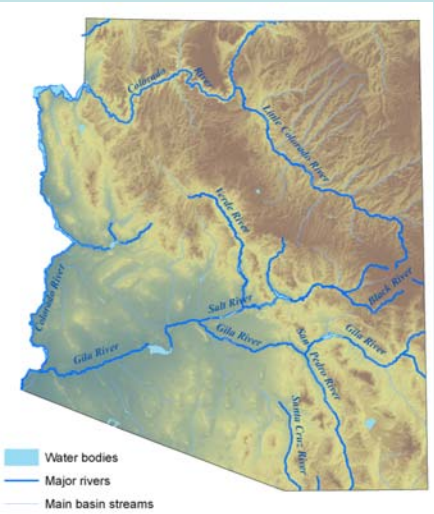
Source: Arizona's Riparian Areas , University of Arizona

Santa Cruz near Marana, AZ

Fossil Creak, AZ

Red Rock Creek near Patagonia, AZ

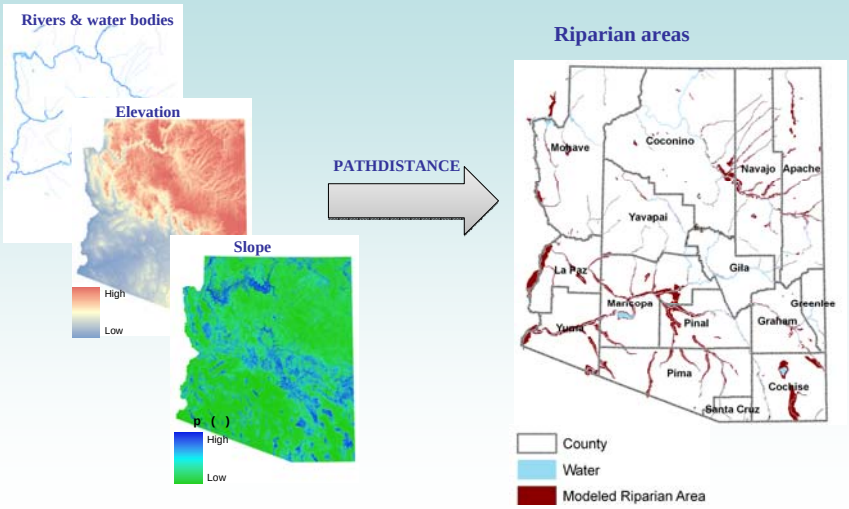
Regional characterization analysis



Analysis on potential riparian areas for afforestation

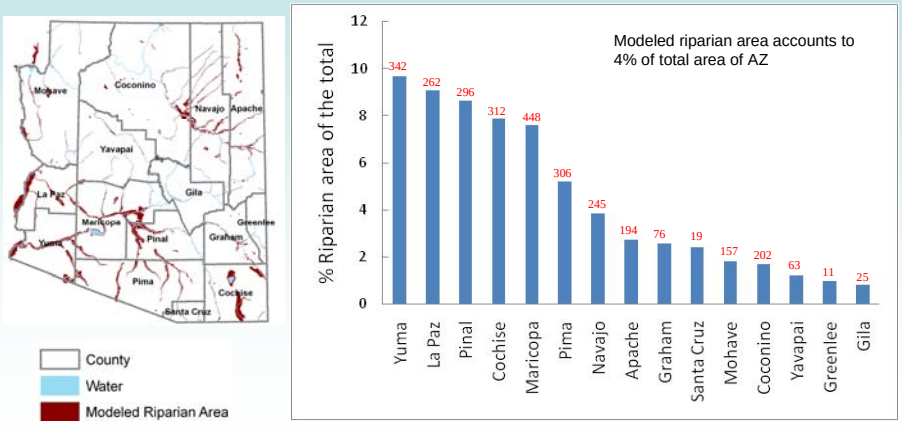
1. Modeling the extent of riparian areas
2. Defining geophysical likelihood for woody riparian vegetation
3. Identifying carbon opportunity areas

1. Modeling the extent of riparian areas



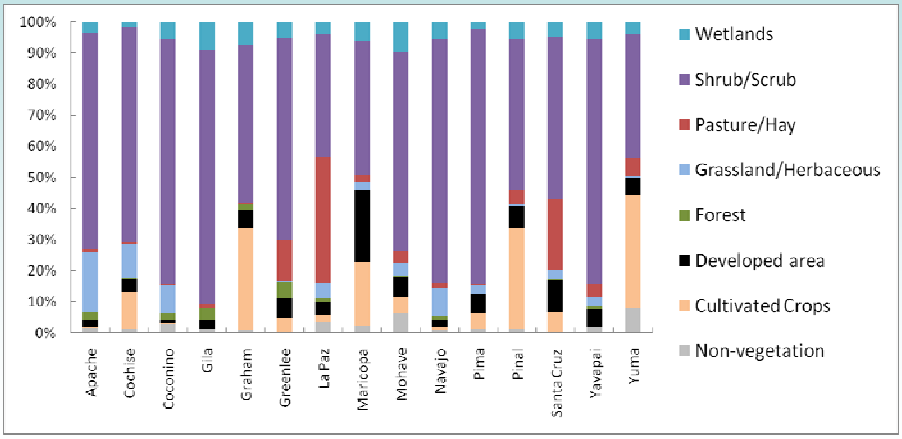
PATHDISTANCE calculates the accumulative "cost" or difficulties of moving from river cell through neighboring cells considering the slope

1. Modeling the extent of riparian areas- preliminary results



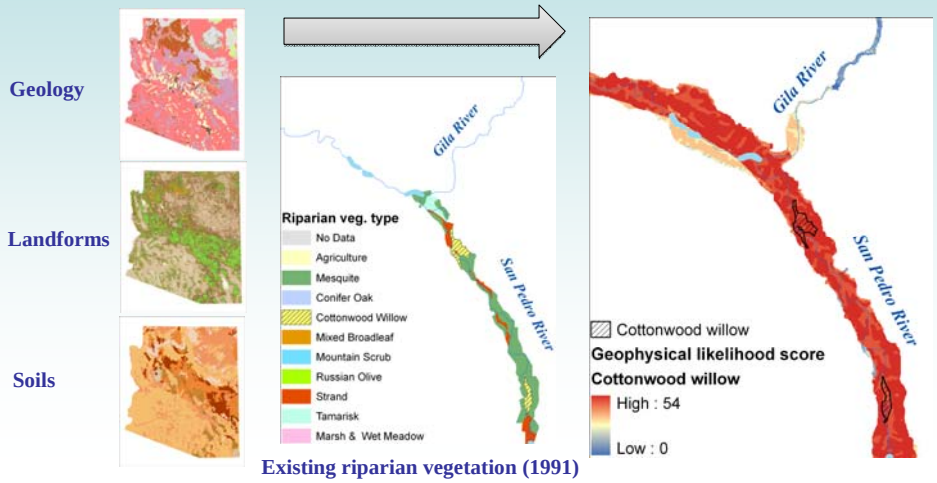
*Numbers above the bars represent thousands of acres of modeled riparian area per county

Percentage of land cover categories (NLCD 2001) for modeled riparian areas per county

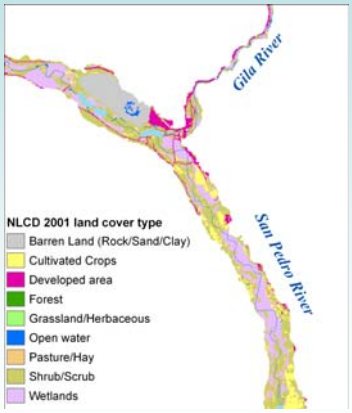


2. Geophysical likelihood for growing woody riparian vegetation

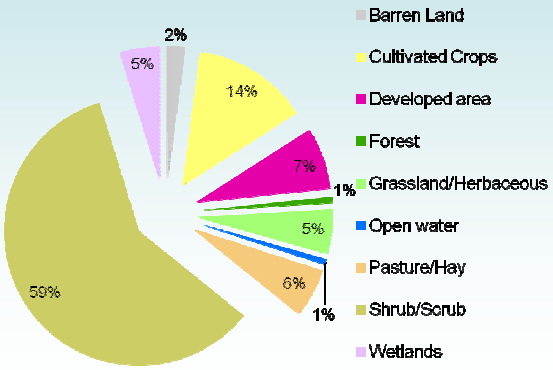
Location of existing riparian vegetation areas were used to extract geophysical characteristics for each woody riparian vegetation type



3. Potential opportunity for reforestation of riparian areas

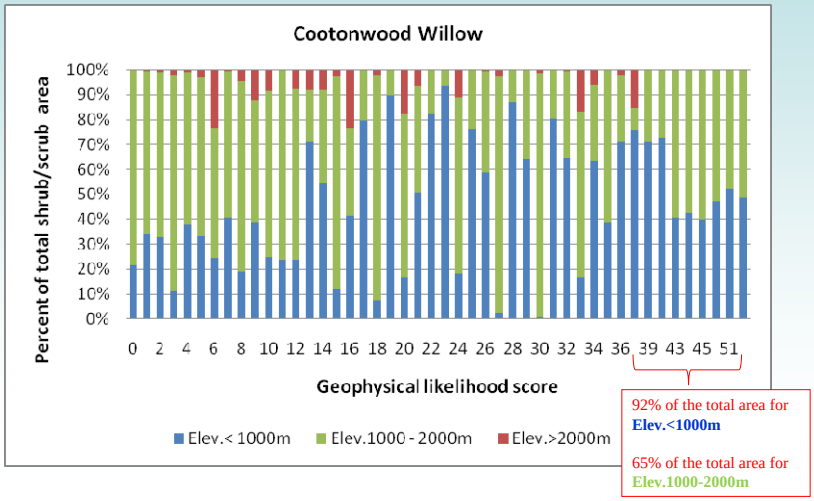


NLCD 2001 land cover classes distribution across modeled riparian areas in Arizona



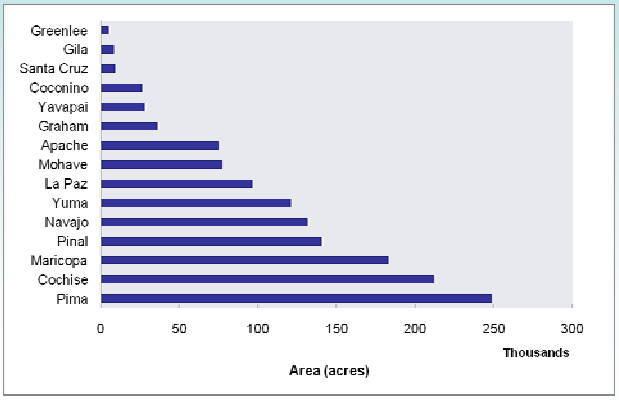
WEST COAST REGIONAL CARBON SEQUESTRATION PARTNERSHIP 11

Potential opportunity for afforestation of riparian areas with Cottonwood Willow



WEST COAST REGIONAL CARBON SEQUESTRATION PARTNERSHIP 12

Suitable riparian area for afforestation with Cottonwood Willow



Next steps of the analysis

- To identify suitable riparian area for afforestation with remaining woody riparian types (mesquite, conifer oak, mixed broadleaf, etc)
- To estimate the potential accumulated carbon for 20 years for each woody riparian type
- To examine the link between identified riparian areas afforestation and Arizona Statewide Freshwater Assessment by the Nature Conservancy


West Coast Regional Carbon Sequestration Partnership
westcarb.org
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Thank you!
For questions:
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