Vulnerability and Resilience Across Oklahoma: A Summary of Data from a Multi-Year Socio-Ecological Assessment of Climate Change Threats to Communities in Four Watersheds in Oklahoma

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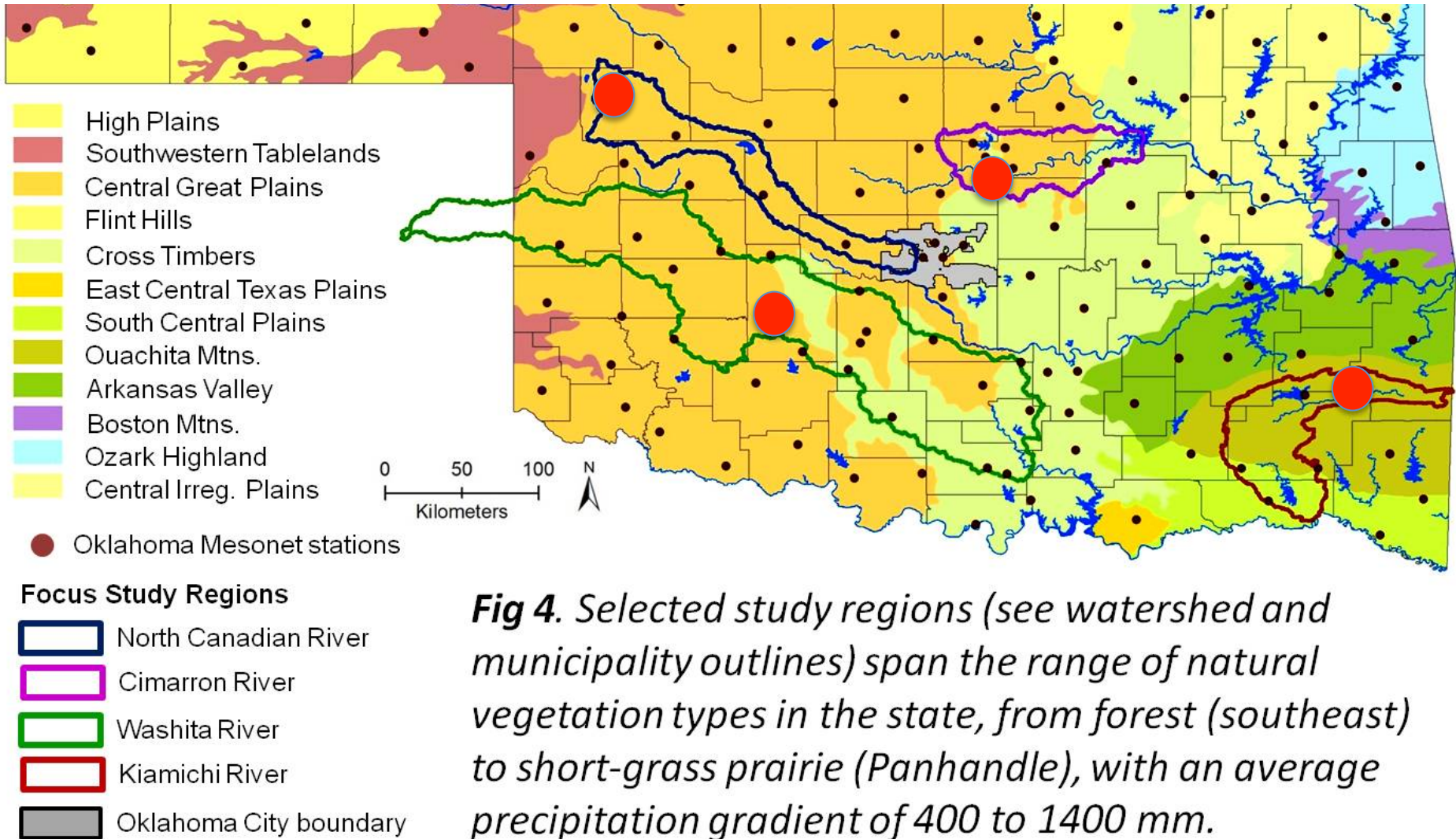
STUDY REGIONS

Legend:

High Plains
Southwestern Tablelands
Central Great Plains
Flint Hills
Cross Timbers
East Central Texas Plains
South Central Plains
Ouachita Mtns.
Arkansas Valley
Boston Mtns.
Ozark Highland
Central Irreg. Plains

● Oklahoma Mesonet stations

0   50   100   N
Kilometers

Focus Study Regions

North Canadian River
Cimarron River
Washita River
Kiamichi River
Oklahoma City boundary

Fig 4. *Selected study regions (see watershed and municipality outlines) span the range of natural vegetation types in the state, from forest (southeast) to short-grass prairie (Panhandle), with an average precipitation gradient of 400 to 1400 mm.*

Four Watershed-Focus

- **Washita watershed** (2015-16) – intensive agriculture and ranching, special focus on groundwater vs. dryland factors and how they influence practices and perceptions, complicated land tenure/Native American relationships

- **Kiamichi watershed** (2015-16) – conflict over water rights in a forested regions in the southeast, tourism, a strong tribal representation (Choctaw Nation)

- **Cimarron watershed** (2016-17) – wildfire risks, redcedar encroachment, and rural development

- **North Canadian watershed** (2016-17) – most arid region, multiple conflicting uses of water (agriculture, ranching, mining, and OKC's drawing down Canton Lake), greatest climate change skepticism

Year 5 Overview

- Completed All Transcriptions
- Completed Thematic Coding of all interviews
- Completed 4 ESRI ArcGIS Story Maps (one for each watershed)
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By the numbers …

- Total Interviews: 202
  - Total Interview Time: 205 hours, 44 minutes, 35 seconds
  - Total Transcription Pages: 5,601 pages
  - Coding Software: TAMS Analyzer
  - Total Number of Codes: 66
  - Total Codes Fragments: 13,165
- Field Observation Forms: 315
- Mini-MSISNet Surveys: 67

Archival and Local History

- Newspaper archive research (targeted, purposive archival recording of relevant newspaper articles from regional newspapers in the study regions)
    - 1712 recorded and archived articles
    - Other archives include: Oklahoma Historical Museum, Antlers Historical Society, Poteau/Leflore County Historical Society, Western History Collection (Univ. of Oklahoma), Carl Albert Center (congressional records held at Univ. of Oklahoma), Doris Duke Collection, Minutes of the South Caddo Conservation District Board of Directors (1982-1992)
- Local plat books and tribal jurisdictional maps with individual allotments for Kiowa-Comanche-Apache (KCA) and Wichita-Caddo-Delaware (WCD) Tribes.

Code Occurrences

List of codes, the number of their occurrences, and a summation of the total fragments found.

Code	#	Code	#
PersonalBackground_FamilyHistory	797	SocialHelpingBehavior_General	160
Ag_LivestockandPastureManagement	778	EnvironmentalDegradation_General	142
Conservation_General	584	Water_HealthConcerns	142
PersonalBackground_EmploymentWork	526	SevereWeather_SourceofPersonalInformation	140
LocalHistory_General	466	Nature_Memories	137
Water_Origins	450	Fire	130
Ag_CropProfiles	416	SevereWeather_Definition	127
SevereWeather_PersonalExperiences	409	Tourism	126
Economics_General	355	SevereWeather_ForecastingPrediction	120
Stressors_General	353	SocialMediaOnlineCommunities	117
GeneralPersonalBackground	345	LandscapeResidence_General	96
LandTenure_General	314	NativeAmerican_General	96
Nature_HuntingFishing	285	Conservation_Stewardship	91
Nature_ExperiencesPersonal	282	ClimateChangeGlobalWarming	90
PersonalBackground_OtherDroughts	269	PersonalBackground_Tribal	88
COOL	260	Wildfire	88
PersonalHealthandHealthProblems_General	255	NativeAmerican_History	87
GasOil	254	Earthquakes	86
Ag_Irrigation	253	Timber	82
SocialAffiliationOutsideFamily	243	SevereWeather_Mesonet	81
RedCedar	237	WindEnergy	81
Water_Regulation	233	NativeAmerican_Water	72
LandscapeResidence_Landscaping	211	FeralHogs	61
NativeAmerican_MentionedTribes	201	PrairieChickens	59
Sardis_Lake	198	Sardis_Township	57
SevereWeather_General	196	InvasiveSpecies	51
Politics	190	NativeAmerican_Spiritual	42
PrescribedBurnTech	185	SevereWeather_Causes	26
PrescribedBurnAssociations	178	Christian_Definition	25
Water_Ownership_Contention	177	PersonalHealthandHealthProblems_Seasonality	21
Ag_RiskManagement	176	what	21
PersonalBackground_DustBowlor1950sDrought	166	Oklahoman_Definition	12
NativeAmerican_Land	165	AmericanCitizen_Definition	4

Total Coded Fragments	13165

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See Linked Websites

- Main Story Map Page:
  - http://www.okepscor.org/ethnographic-story-maps
- Cimarron Watershed:
  - https://www.arcgis.com/apps/MapJournal/index.html?appid=49db1d2c9c004f75937a16a69b2a2a3c
- Washita Watershed:
  - https://www.arcgis.com/apps/MapJournal/index.html?appid=80fe281d7b004a6a992f41ad886f59e5
- Kiamichi Watershed:
  - https://www.arcgis.com/apps/MapJournal/index.html?appid=0cc0290ba2b94318a9575633ab0221c4
- North Canadian Watershed:
  - https://www.arcgis.com/apps/MapJournal/index.html?appid=eaca6be79c4f4e22b7c3c75371d91555

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Thank you!!!

- Questions?

- Special thanks to Samantha Jung for her extraordinary work on the QGIS Spatial Database.