

Nevada Infrastructure for Climate Change Science, Education, and Outreach

Policy and Outreach Component

Component PI

William James Smith, Jr., Ph.D. (UNLV)

Steering Committee

Karletta Chief, Ph.D. (DRI)

Derek Kauneckis, Ph.D. (UNR)

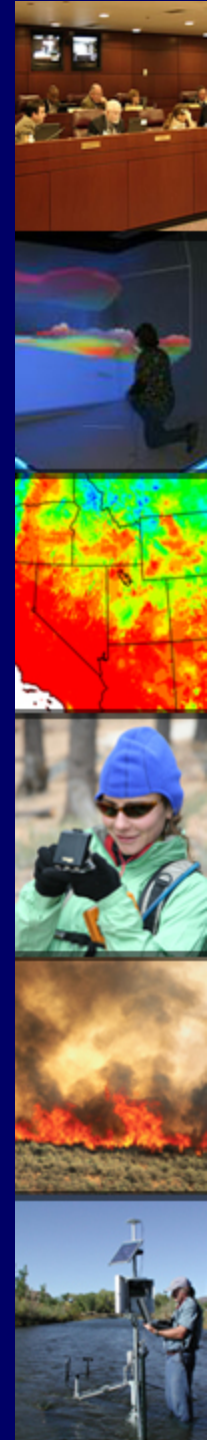
Project PI

Tom Piechota (UNLV)

Featured research

Rural Nevada: Native American and Rancher/Farmers

W. Smith, K. Chief & Zhongwei Liu Post-Docs, Ahmad Safi
Ph.D. and Fulbright Student



Rancher and Farmer Surveys



- Survey: Socioeconomic characteristics, cc perceptions, and relations with nature.
- IRB approved work generated in new cc lab.
- Packages: 4 pg back-to-back survey, holiday card with local pic, hand-signed personalized letter and a self-add. pre-paid return env.
- A list of almost all Nevada ranchers and farmers (1893) were collected from a partner academic institution.



Ranchers and Farmers Survey

- Packages sent on Dec. 29, 2009
- Till now we have
 - Approximately 300 (16%) returned surveys
 - 2 returned packages because of changing career

Climate Change Survey for Farmers and Ranchers in Nevada

Fallon, Nevada. Example of a Great Basin Curvilinear Petroglyph etched into a rock about 2-3000 yrs ago. The abstract form indicates that the artist had a sophisticated artistic sense. People who lived here fished and hunted in Lake Lahontan, which is now dry. (Source: <http://www.jimpowers.com/ptgplpb4.htm>)



The purpose of this survey is to gather information on the perspectives Nevada ranchers and farmers regarding climate change. The reason that we are conducting this survey is to help researchers in our National Science Foundation-funded research project at UNLV, UNR and DRL as well as natural resource managers in Nevada, better understand Nevada's ranchers and farmers' perceptions of climate change. This will aid researchers and managers in understanding how to best connect with Nevada ranching and farming communities regarding climate change. This is why this survey asks about your concerns, perceptions, and knowledge. The survey will take approximately 20 minutes to complete. The responses you provide are **very much appreciated**, and will be kept **confidential**. Should you have any concerns about the way the survey has been conducted, please contact Dr. William James Smith, Jr. at the School of Environmental and Public Affairs at UNLV at bill.smith@unlv.edu and (702) 895-4440, or contact the UNLV Institutional Review Board at OPRSHumanSubjects@unlv.edu and (702) 895-2794. ***Thank you very much for your time and effort during this busy holiday season!***

Demographic Information

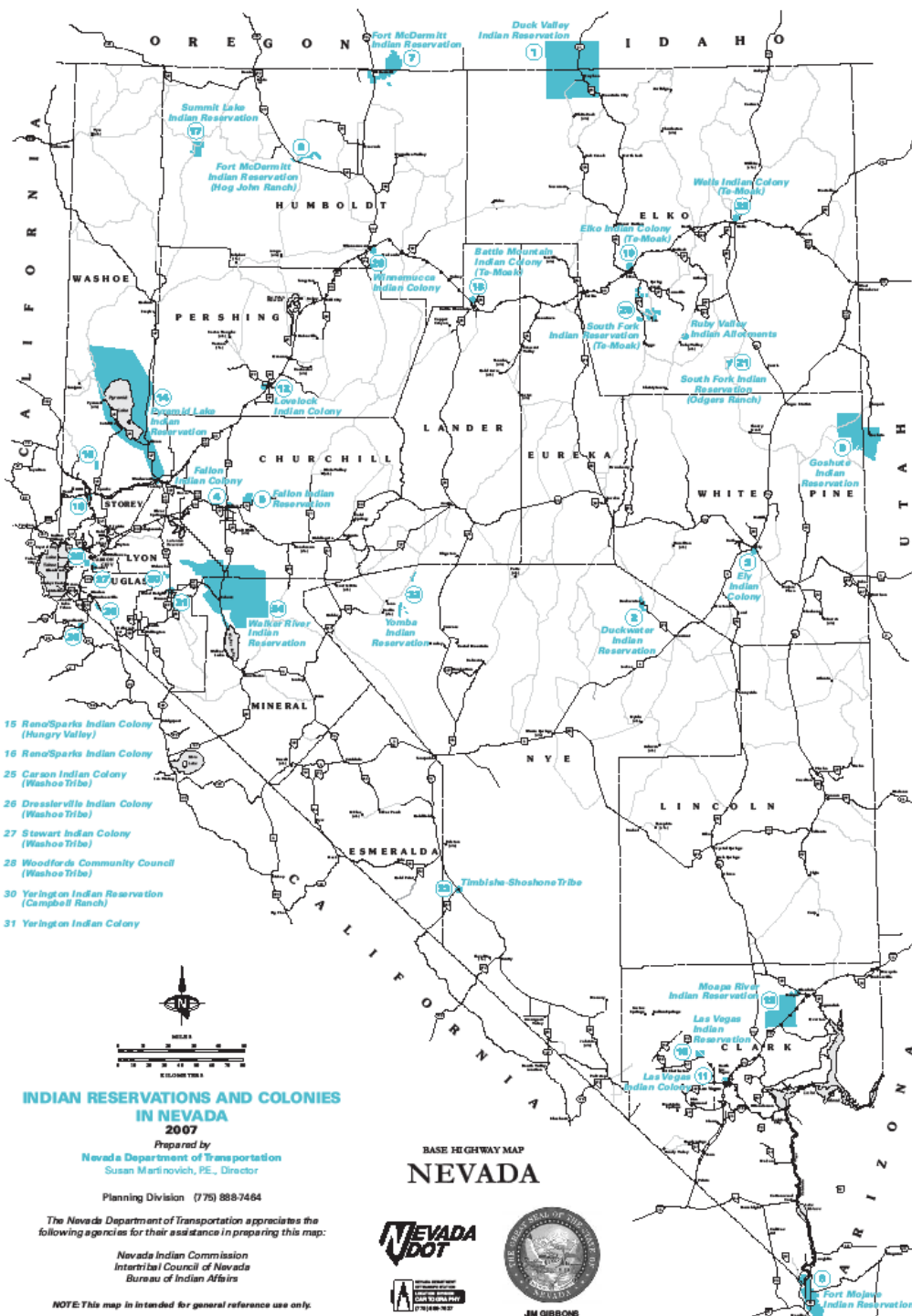
This section assesses the participant's basic demographic information.

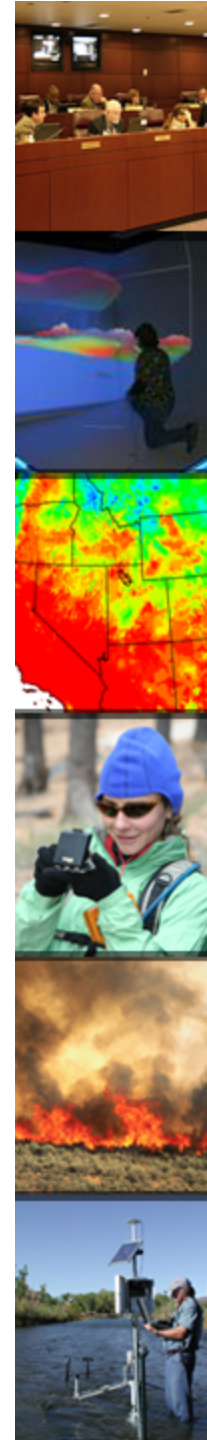
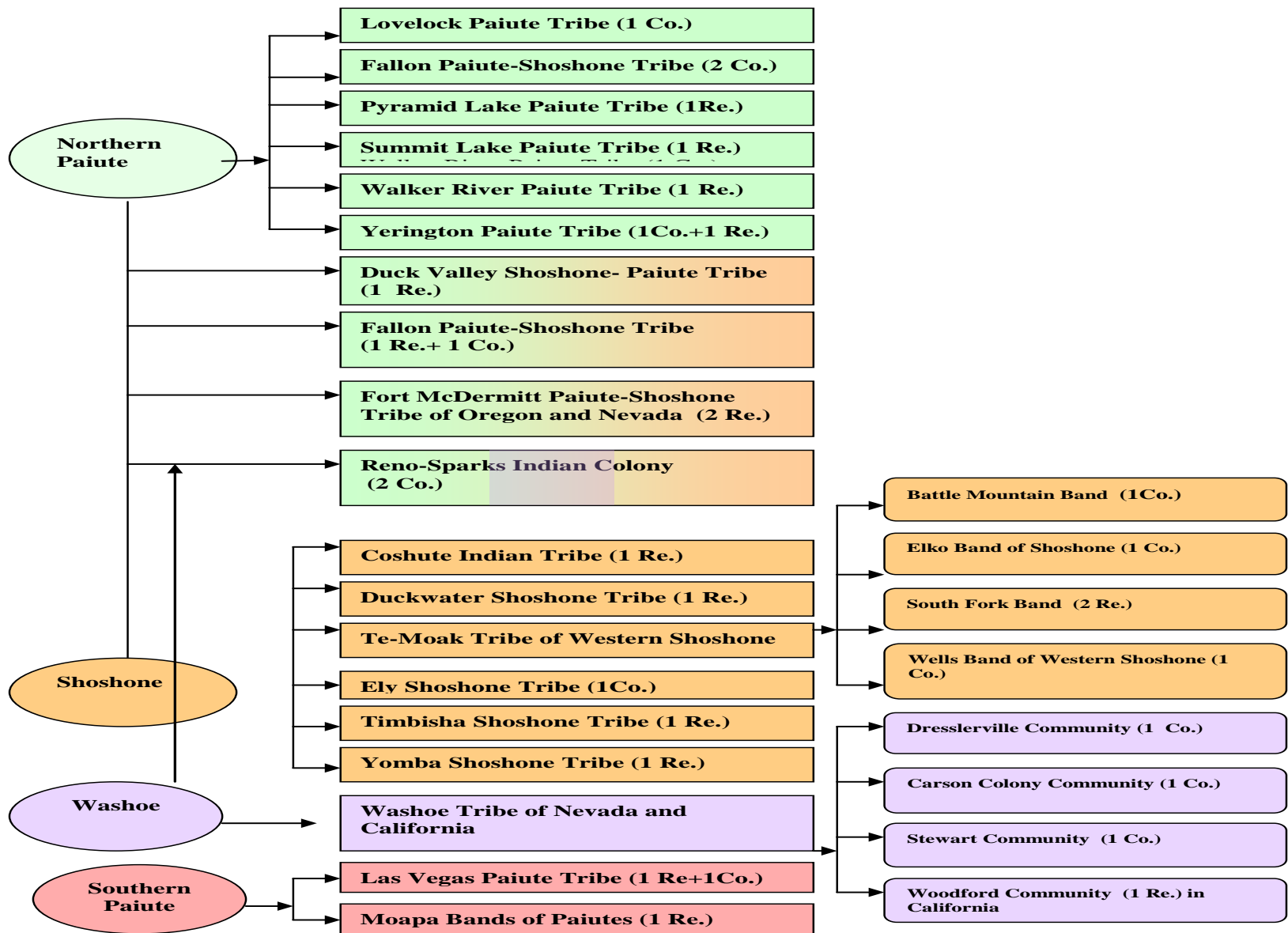
1. Age _____
2. Gender
 Female Male



Nevada Tribes

- Great Basin is ancestral land of 4 major tribes
- Washoe, Northern Paiute, Southern Paiute and Western Shoshone
- 27 NV tribal councils
- 31 colonies and reservations
- Majority are in rural areas
- Total Area of 2,000 mi²
- Avg. Tribal Pop. is 400 people
- Avg. Tribal Land Area 70 mi²

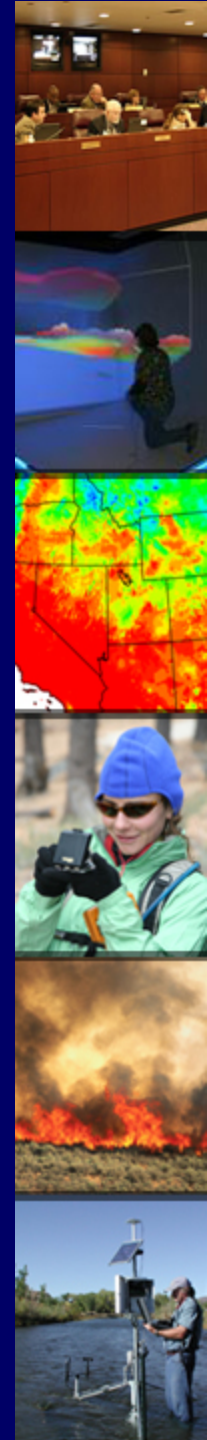




Nevada Native American General Characteristics

Characteristic	National	Nevada
Number of Native Americans		
Self Identified	2,367,505	26420
Percentage Enrolled in tribes	68%	60.2
Percentage Living in reservations	36%	32%
On reservations Poverty Level	39.4%	23%
On reservation unemployment rate	21.9%	14.1%
On reservation % of houses lack proper sanitation	12%	6.3%
On reservation Percentage of adults with higher education	11%	4.1%

Nevada Infrastructure for Climate Change Science, Education, and Outreach



Native American Lands		Pop.	Housing Units	Total Area [mi²]	Water Area [mi²]	Pop. Density [people/mi²]
1	Pyramid Lake Res.	1,734	687	725.1	171.19	3.1
2	Duck Valley Res.	1,017	371	225.46	1.16	4.5
3	Reno-Sparks Colony	881	282	3.35	0	263.3
4	Walker River Res.	853	339	531.62	1.65	1.6
5	Elko Colony	729	257	0.29	0	2,518.70
6	Fallon Paiute-Shoshone Res.	620	256	13.03	0	47.6
7	Campbell Ranch	446	80	2.58	0	173
8	Dresslerville Colony	315	116	1.2	0	263.1
9	Fort McDermitt Res.	309	119	26.14	0	11.8
10	Carson Colony	286	105	0.25	0	1,150.90
11	Moapa River Res.	206	90	111.97	0	1.8
12	Stewart Community	196	62	4.8	0	40.8
13	Duckwater Res.	149	65	6.24	0.02	24
14	Yerington Colony	139	54	0.03	0	3,991.10
15	Ely Res.	133	67	0.16	0	810.7
16	Battle Mountain Res.	124	63	1.04	0	118.8
17	South Fork Res.	123	62	26.39	0	4.7
18	Las Vegas Colony	108	37	6.19	0	17.5
19	Lovelock Colony	103	38	0.03	0	2,978.10
20	Yomba Res.	96	36	7.3	0	13.1
21	Winnemucca Colony	62	21	0.56	0	111
22	Wells Colony	54	24	0.13	0	427.9
23	Domicile VS. "pop"?		33	6.2	0.23	3.2
24	Domicile VS. "pop"?		6	109.84	0	0.1
25	Summit Lake Res.	15	15	19.33	0.71	0.8

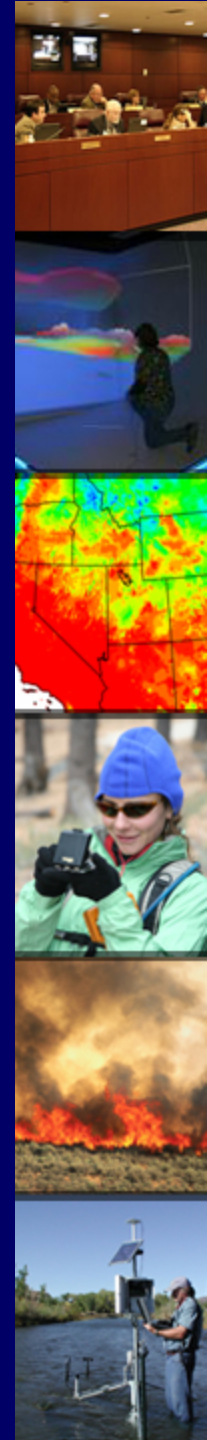
Selected Tribes



- Reasonable distance bn
- Established partnership
- Pyramid Lake Paiute largest pop. and land base
- Fort McDermitt Paiute-Shoshone medium population and land base
- Summit Lake Paiute smallest pop. and medium sized land but special resources

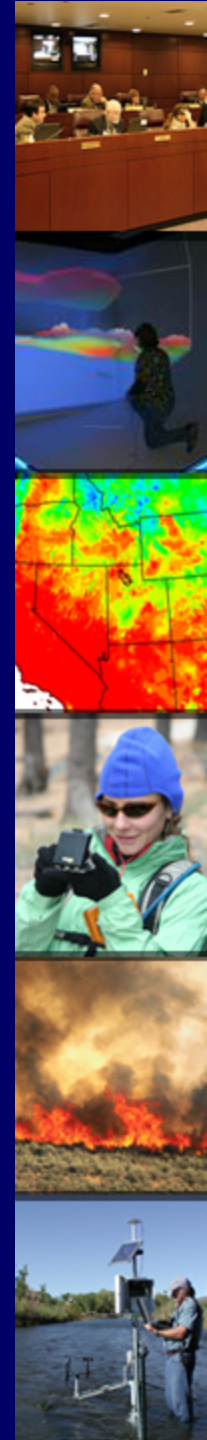
Unique dimensions of NA Collaboration

- Different epistemology
 - Complexity and connectivity versus divide and narrow-down
 - Informed elder wisdom and mythology
 - Informed by systematic experiments
- Mistrust- wariness
 - Long history of conquest, racism, and assimilation policies
 - History of science community abuses
- Sovereignty
 - Tribal nations are sovereign entities
 - Can't work on land without approval





Back Row: Mamie John, Ethel Harris, Katie Frazier, Lena Wright, Flora Greene,
 Carolyn Henry, Rosabel Tobey, Lulu Jim, Marion Paddy, Lyda Barlese & Nina Winnemucca
Front Row: Paul Wright, Willie Jim, Harrison Frazier, Kathy Frazier, Harry Winnemucca,
 Mark Jones, Louie Barlese & William Paddy **Babies:** Gina Wadsworth & Althea Dunn



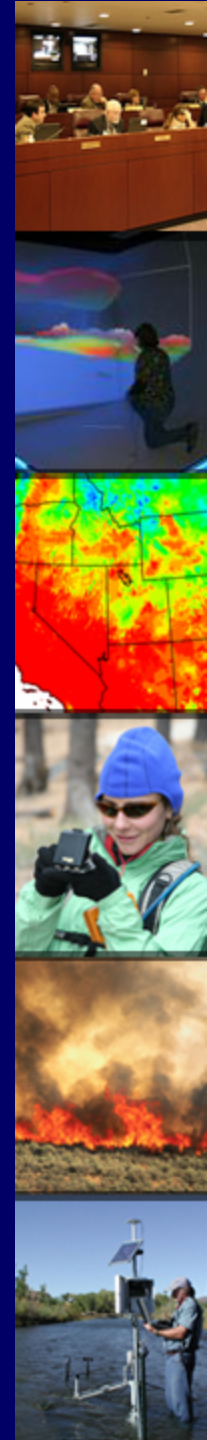


- Building rapport with tribal leaders
 - Time consuming
 - Data lacking
 - Face-to-face
 - What's in it for the community?
- Recruiting respondents
 - Emails don't work
 - Mailing survey?
 - Options
 - Community meetings
 - Powwows
 - Focus groups
 - Individual interviews with env. heads



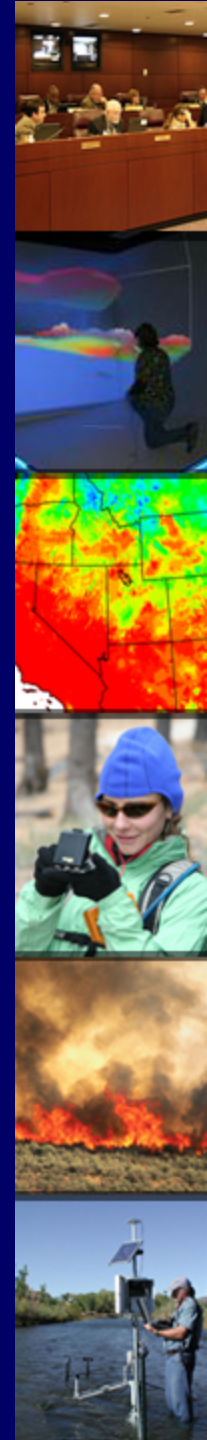
Opportunities

- Tribes have a close connection to land through cultural and religious practices that allow observation of nature.
- Tribes lived in ancestral land for thousands of years and have unique and sustainable relationship with the land.
- Consideration of tribal perspective on climate change will allow tribe inclusion in future cc planning and research.
- Tribes gain information to leverage scientific research on their land.
- Unique path to research questions – i.e.



Challenges

- Tribal staff understaffed with limited resources.
- Tribes are more vulnerable to impacts to natural resources.
- Financially poor and little economic development.
- No or limited internet access and phone communication.
- Wariness based on history.
- Paucity of technology and data
- No tribal colleges or major system NA programs



Native American Surveys

Climate Change Survey for Native Americans in Nevada

Fallen, Nevada. Example of a Great Basin Curvilinear Petroglyph etched into a rock about 2-3000 yrs ago. The abstract form indicates that the artist had a sophisticated artistic sense. People who lived here fished and hunted in Lake Lahontan, which is now dry. (Source: <http://www.jimpowers.com/peghph4.htm>)



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Demographic Information

This section assesses the participant's basic demographic information.

- Revised to consider Native American culture and demographics.
 - Changed educational and income.
 - How will climate change impact cultural and traditional practices?
 - e.g. Lahontan Cutthroat trout for Summit Lake.
- Modified by Tribal partners.
- Approved by IRB.
- Built Native American contacts.
- Focused on 3 tribes.

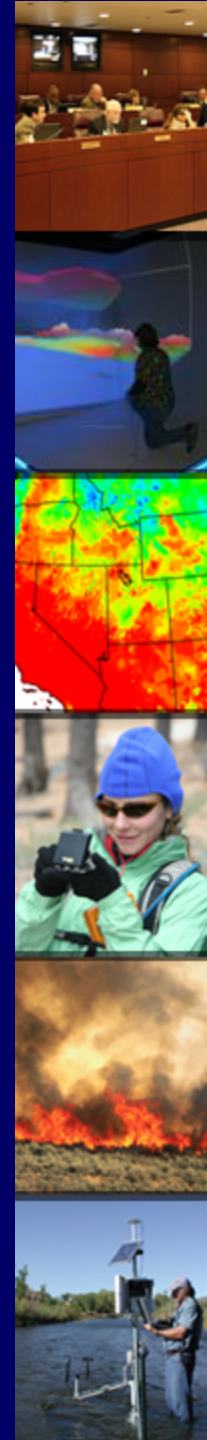


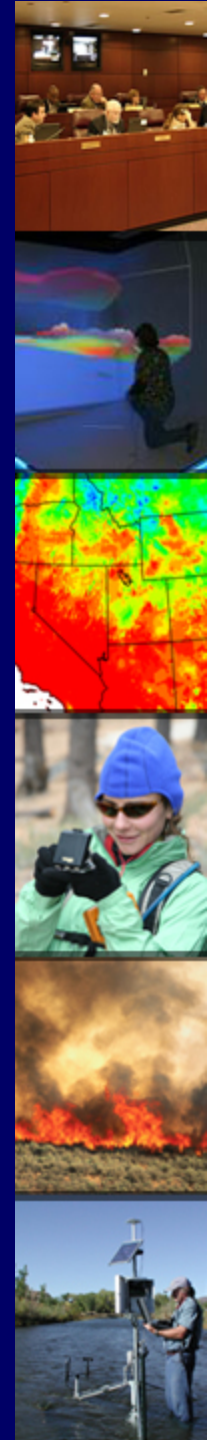
Study areas



Pyramid Lake Paiute Tribe

- Met with tribal Chief on September 11, 2009
- Met with tribal council on December 18, 2009
- Presented cc study to 10 council members and over 30 community members
- Survey Approved
- 614 surveys to be sent households through Housing Dept.

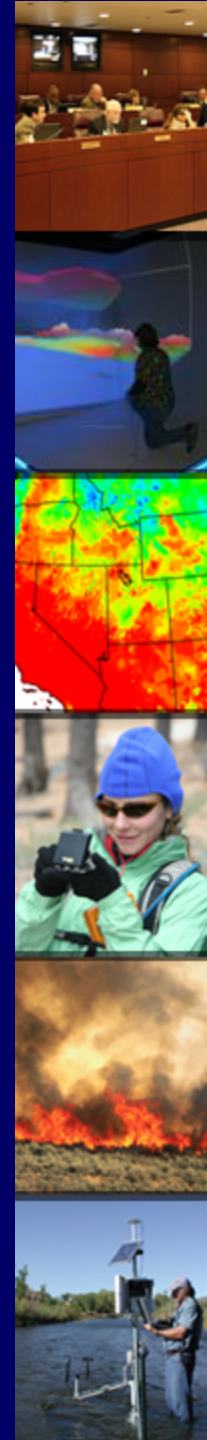




Summit Lake Paiute Tribe



- Visited the reservation and met the Environmental Coordinator on September 13, 2009
- Met with tribal council on December 19, 2009
- Presented Climate Change study to 5 council members
- Survey Approved
- 120 surveys sent to members through tribal council
- 5 return surveys received so far



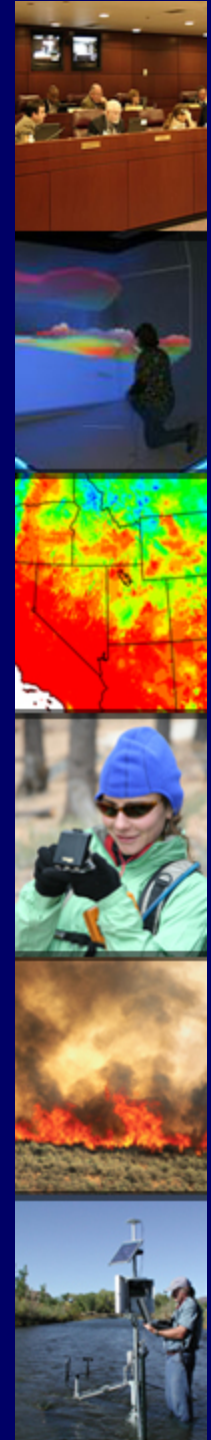
Nevada NATIVE FISHES



08/11/2009

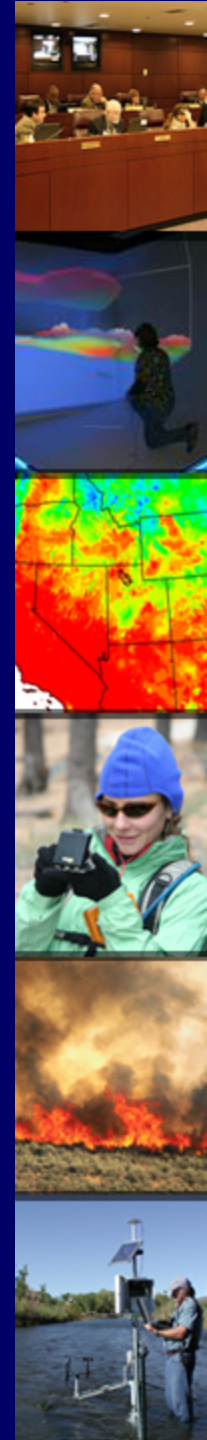
Illustrations by
JOSEPH R. TOMELLERI

NATIVE FISHES OF NEVADA GROUPINGS BY FAMILY



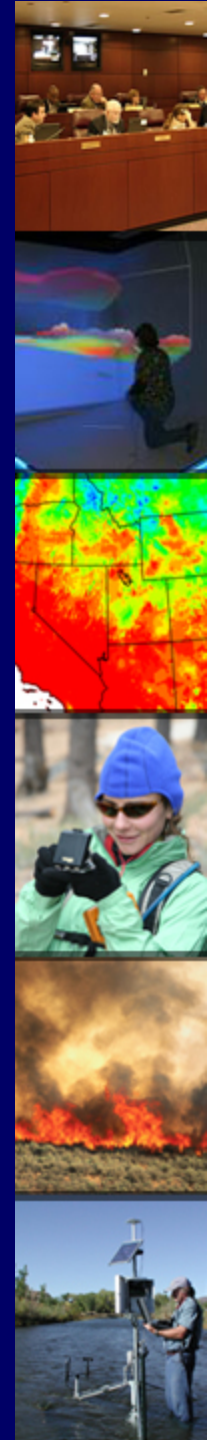


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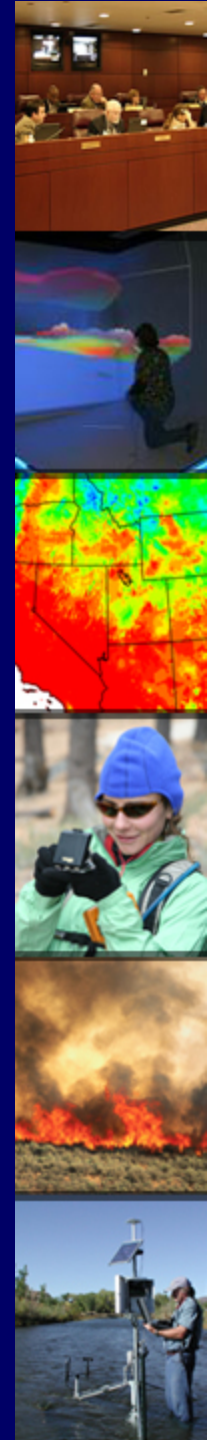


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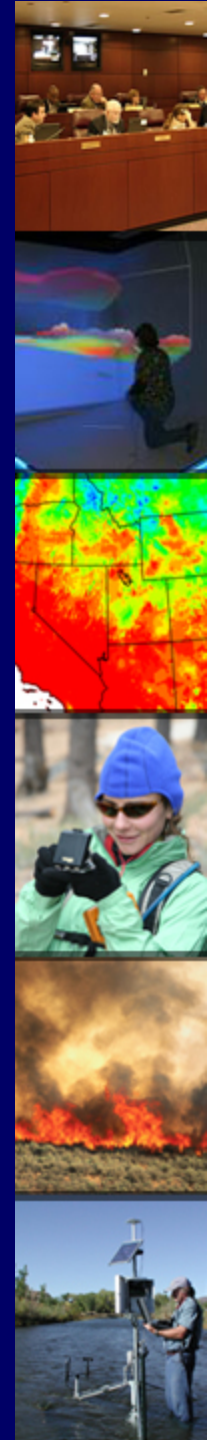


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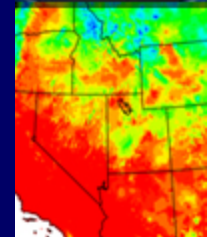




Photo Credit: U.S. FWS

Class: Actinopterygii
Order: Salmoniformes
Family: Salmonidae
Genus: Oncorhynchus
Species: clarki
Subspecies: henshawi

Length: up to 50 inches
Weight: up to 40 pounds
Lifespan: 5-14 years
Feed: aquatic insects and smaller fish

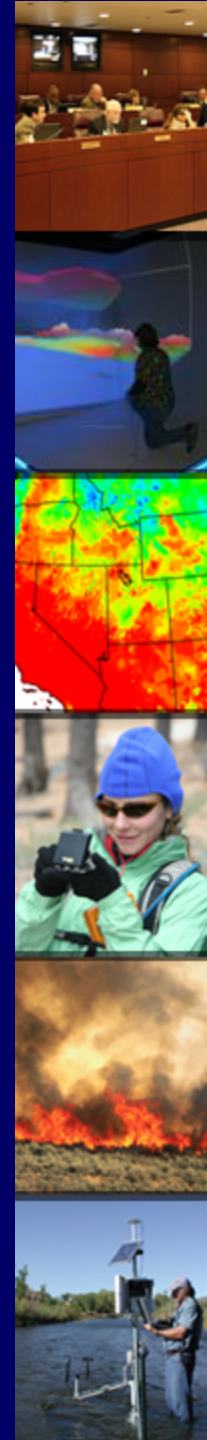
- Lahontan cutthroat trout are the only trout native to Nevada
- the lake-dwelling form are the biggest cutthroat in the world
- these fish inhabited ancient Lake Lahontan and its tributaries

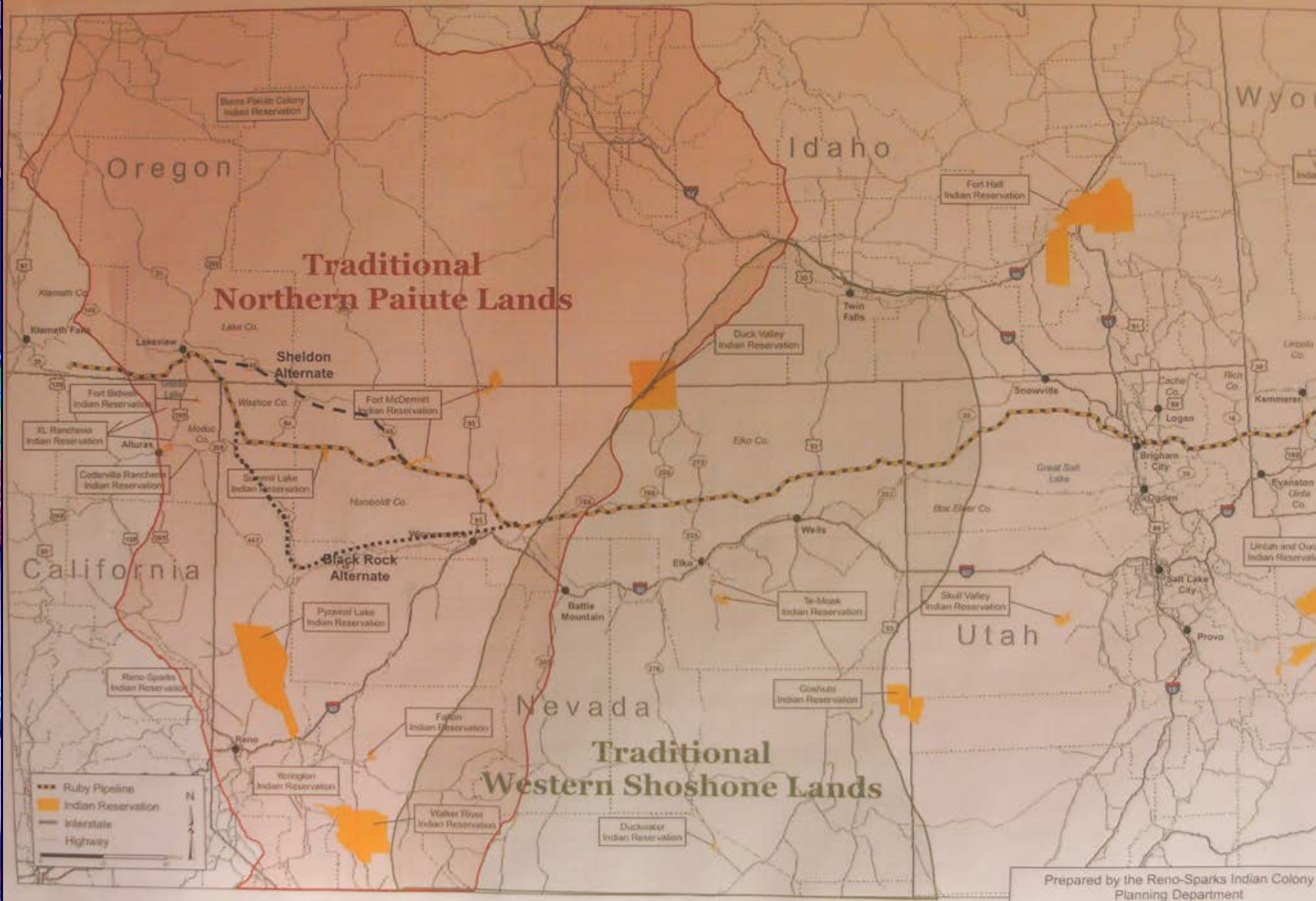
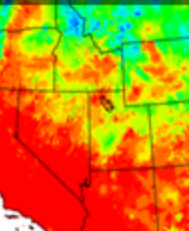
USFW, 2010

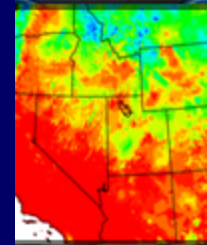


Fort McDermott Tribe

- Visited the reservation and met with the Chief on September 11, 2009.
- Chief has been replaced so more communication is needed for further steps.
- Learned much regarding cosmology.
- Asked to move very slowly.
- May interview leadership.



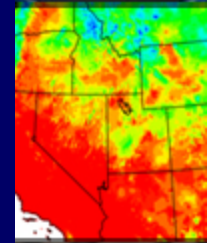




NV Tribal Environmental Managers

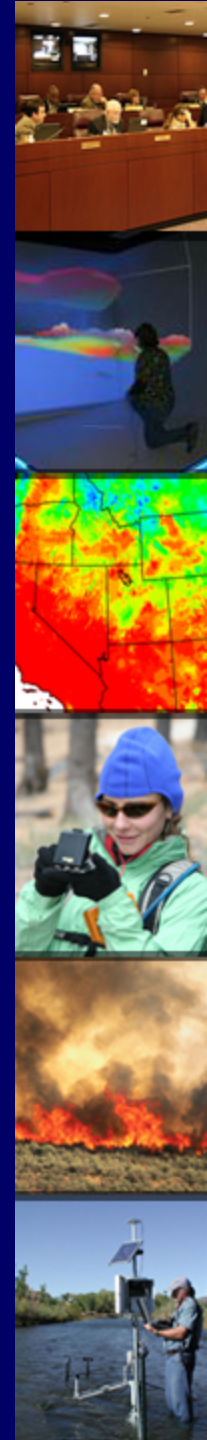


- Coordinating with T. Smith, Tribal-State Environmental Liaison of the Intertribal Council of Nevada.
- Met with tribal environmental managers on January 13, 2010.
- Presented Climate Change study to 8 managers for different tribes.
- Survey being brought back to more tribes for consideration.
- Washoe Tribe has been hosting climate change sessions - willing to participate.



Next Steps for Ranchers/Farmers and NA

- Follow up on Surveys
- Invite leaders to join SAC
- Depending on return, may conduct additional survey efforts (i.e. local powwow)
- Collaborative grant writing?
- Alternative strategies
 - Community meetings
 - Focus groups
 - Individual interviews with leaders



Questions?
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