



**Wet/dry mapping on the San Pedro River:
A binational monitoring project**

Dale S. Turner
The Nature Conservancy

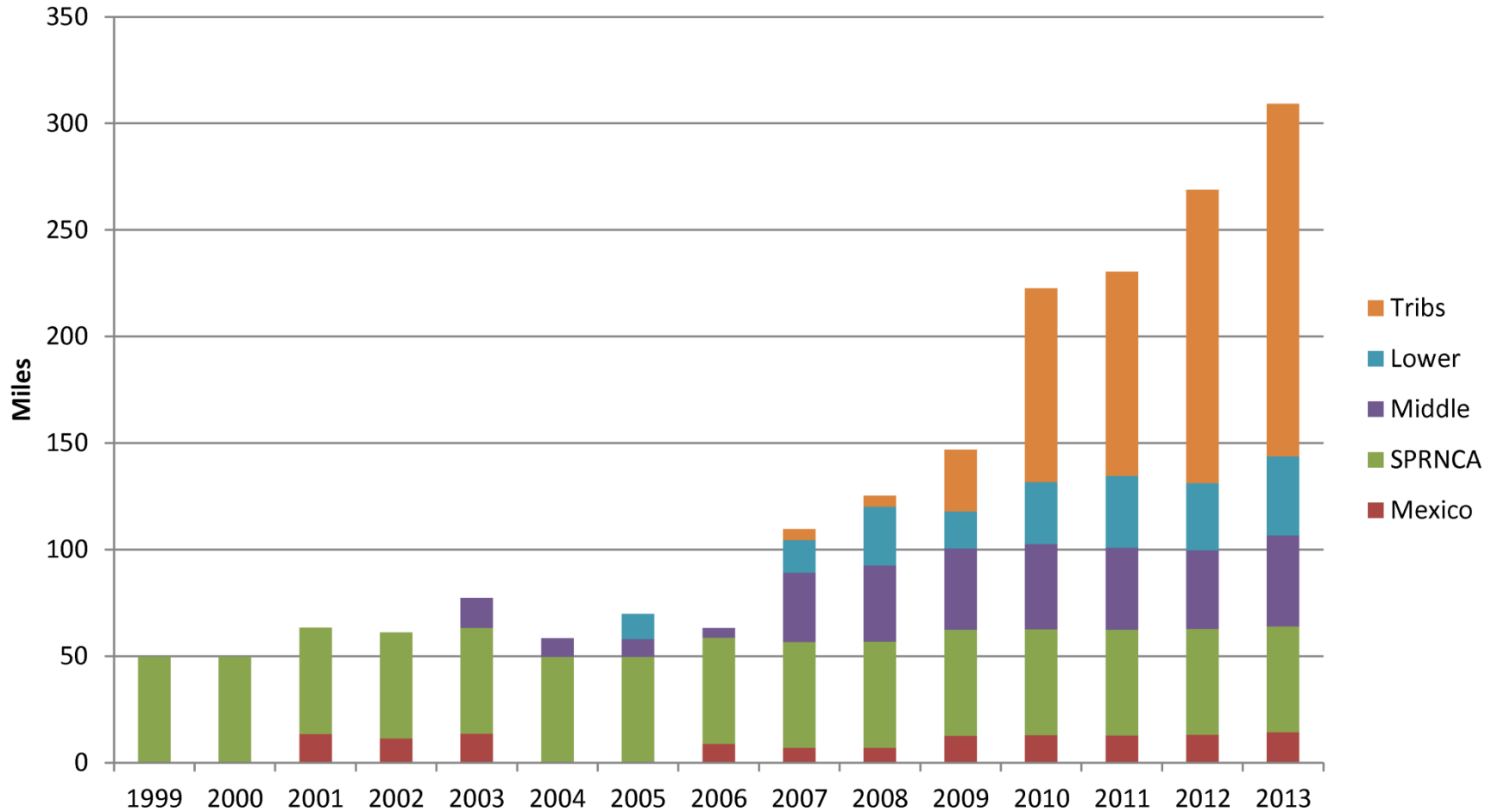


Partners in wet/dry mapping

Arizona Game & Fish Department
BHP Billiton
Bureau of Land Management
Borderlands Habitat Restoration Initiative
Community Watershed Alliance
Cascabel Volunteers
Comisión Nacional de Áreas Naturales Protegidas
Friends of the San Pedro River
National Park Service
Naturalia
Pima County



Growth of wet/dry mapping



Where does surface water persist during the driest time of year?

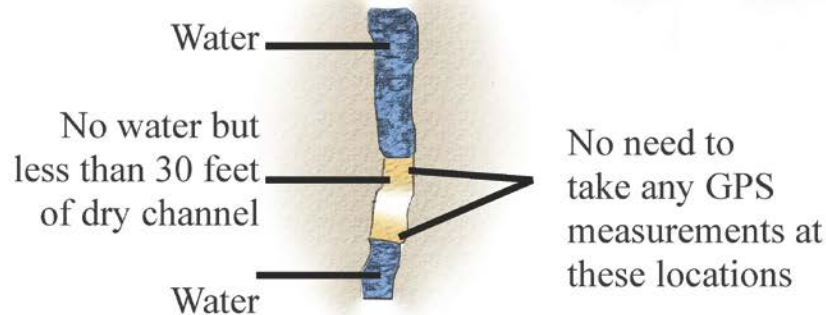
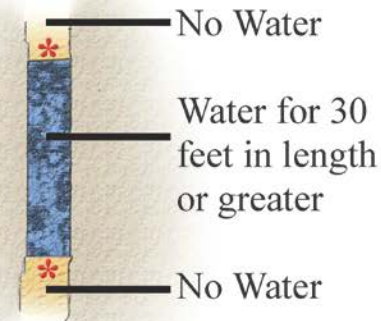
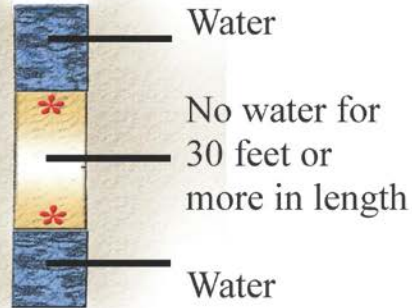




30 Foot Rule



TAKE GPS READINGS AT THESE LOCATIONS



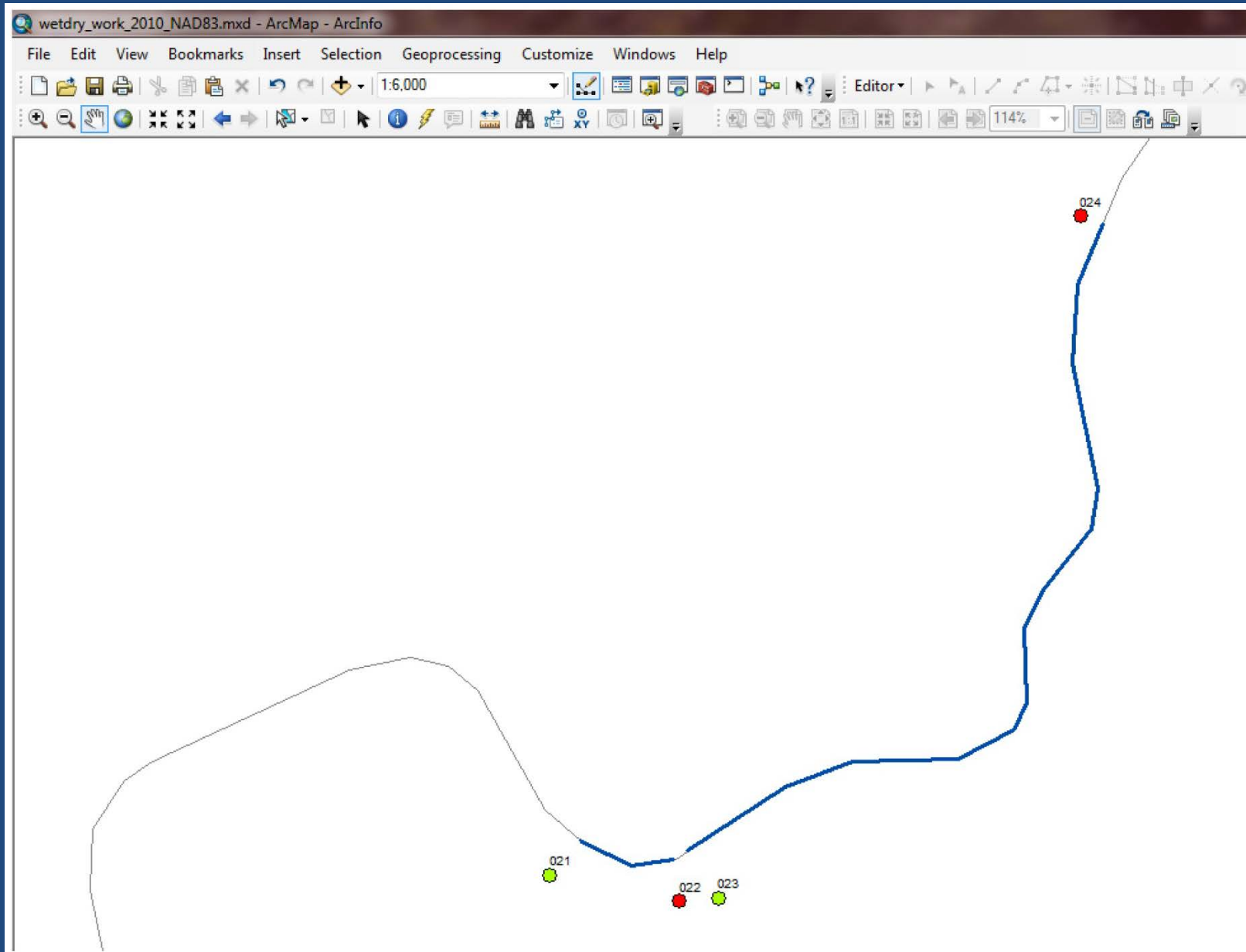
San Pedro Community Monitoring Network
Surface Flow Mapping Data Form

Date: 6-15-13

NAD 83 Format

Way Point Number	Time	Accuracy (ft)	UTM - Easting (5 digits)	UTM - Northing (7 digits)	Circle whether Water Starts or Stops	Remarks, is flowing? Ponded?
13	758	15.7	12R 05 76284	3510864	Starts Stops	Water along E edge of road
14	804	16	12R 05 76311	3510959	Starts Stops	potholes 2-30' apart point bar, fish traps, gambusia
15	809	20	12R 05 76397	3511171	Starts Stops	hugging cutbank -
16	810	20	12R 05 76395	3511192	Starts Stops	point bar here pool
17	814	21	12R 05 76371	3511252	Starts Stops	gray hawk w/ prey
18	816	15	12R 05 76368	3511277	Starts Stops	flying E-W pool
19	819	31	12R 05 76362	3511358	Starts Stops	black w/ tails pool
20	820	17	12R 05 76356	3511371	Starts Stops	carpet of cottonwood
21	821	23	12R 05 76351	3511394	Starts Stops	seedlings pool
22	823	19	12R 05 76342	3511417	Starts Stops	
33*	450	27	12R 05 76457	3511917	Starts Stops	END P w/ 316 couple
			12R 05 _____	_____	Starts Stops	
			12R 05 _____	_____	Starts Stops	
			12R 05 _____	_____	Starts Stops	
			12R 05 _____	_____	Starts Stops	
			12R 05 _____	_____	Starts Stops	
			12R 05 _____	_____	Starts Stops	
			12R 05 _____	_____	Starts Stops	

Translating points to lines



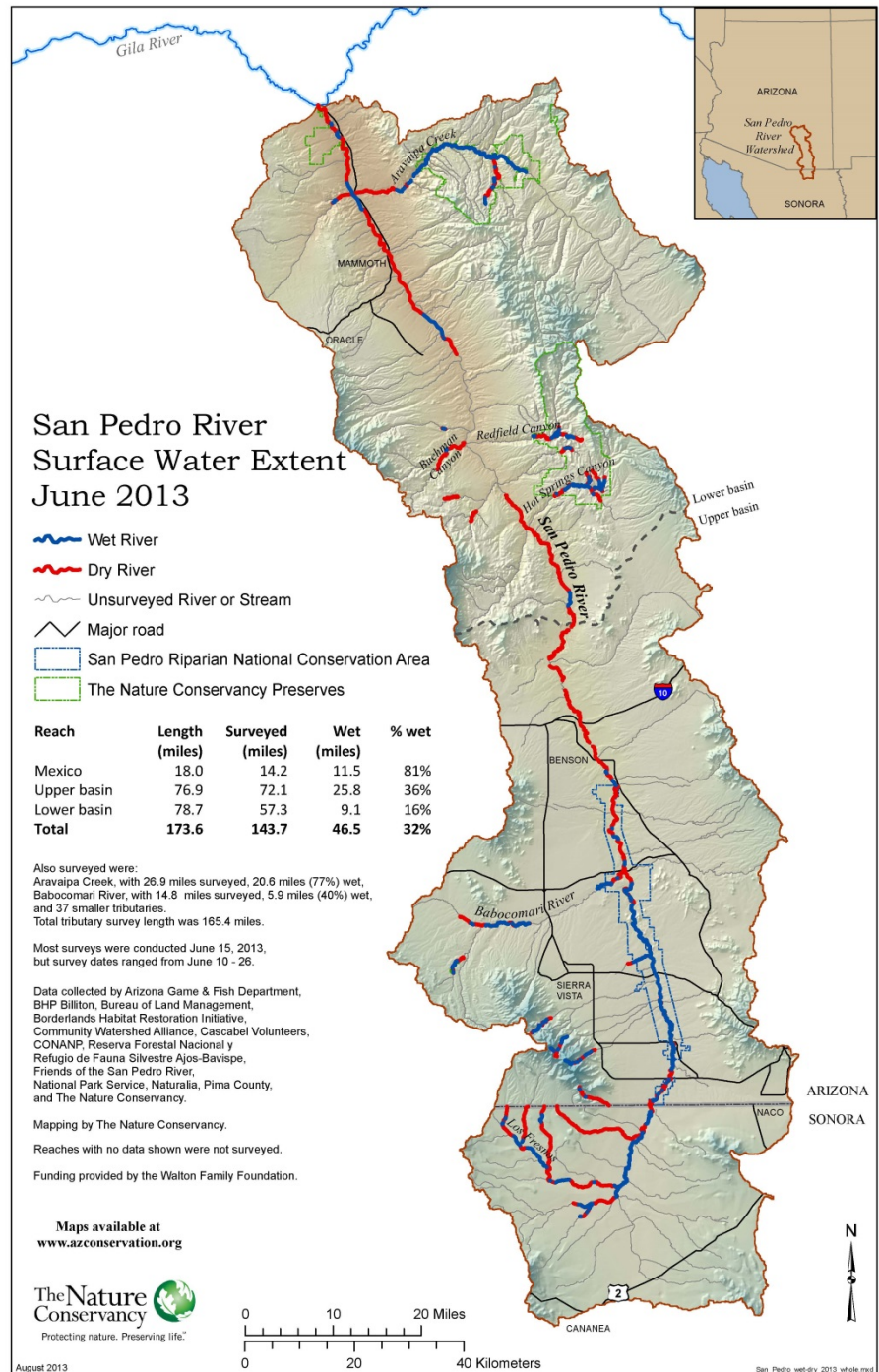
San Pedro River Surface Water Extent June 2013

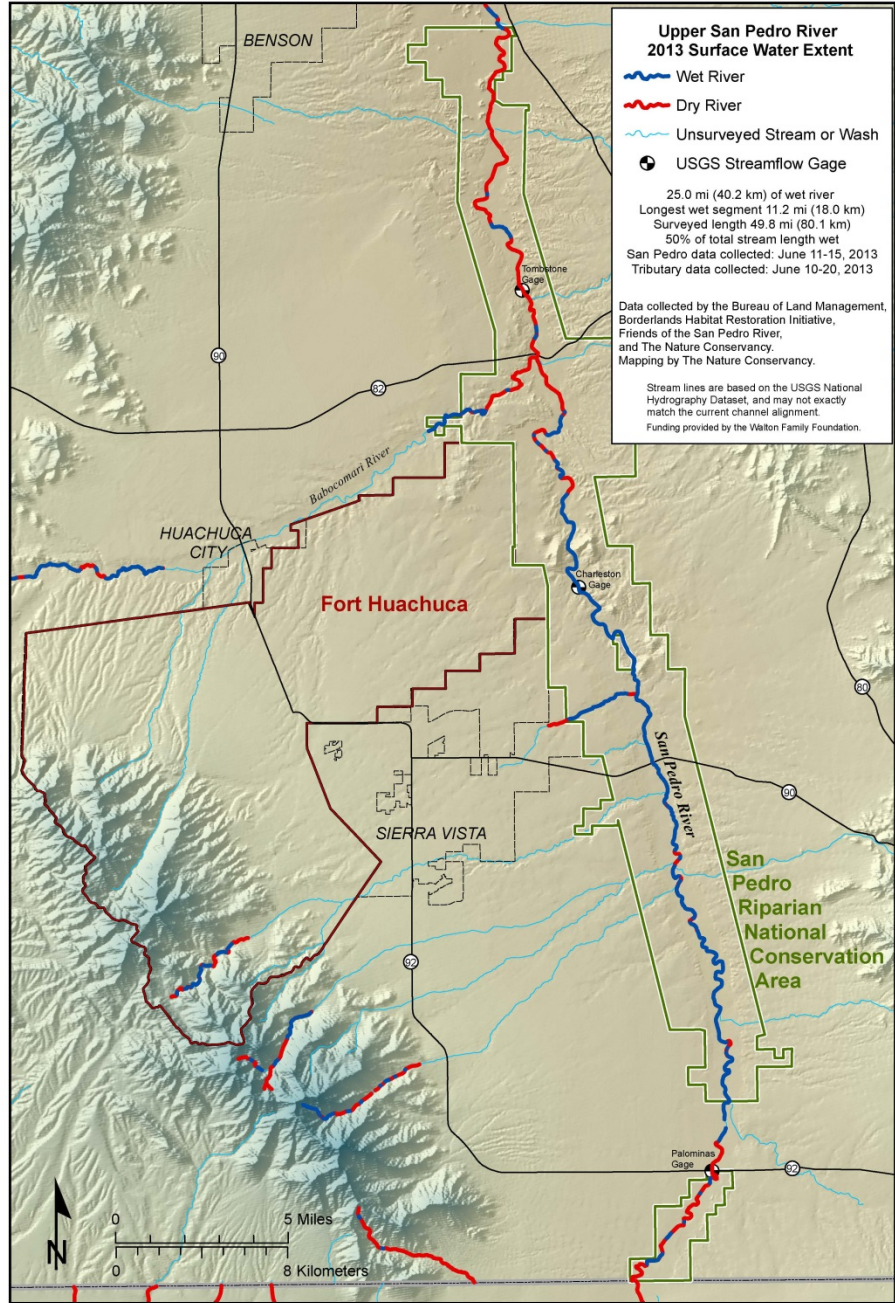
Overall survey

144 miles of mainstem
165 miles of tributaries

Surface water

47 miles of mainstem
51 miles of tributaries





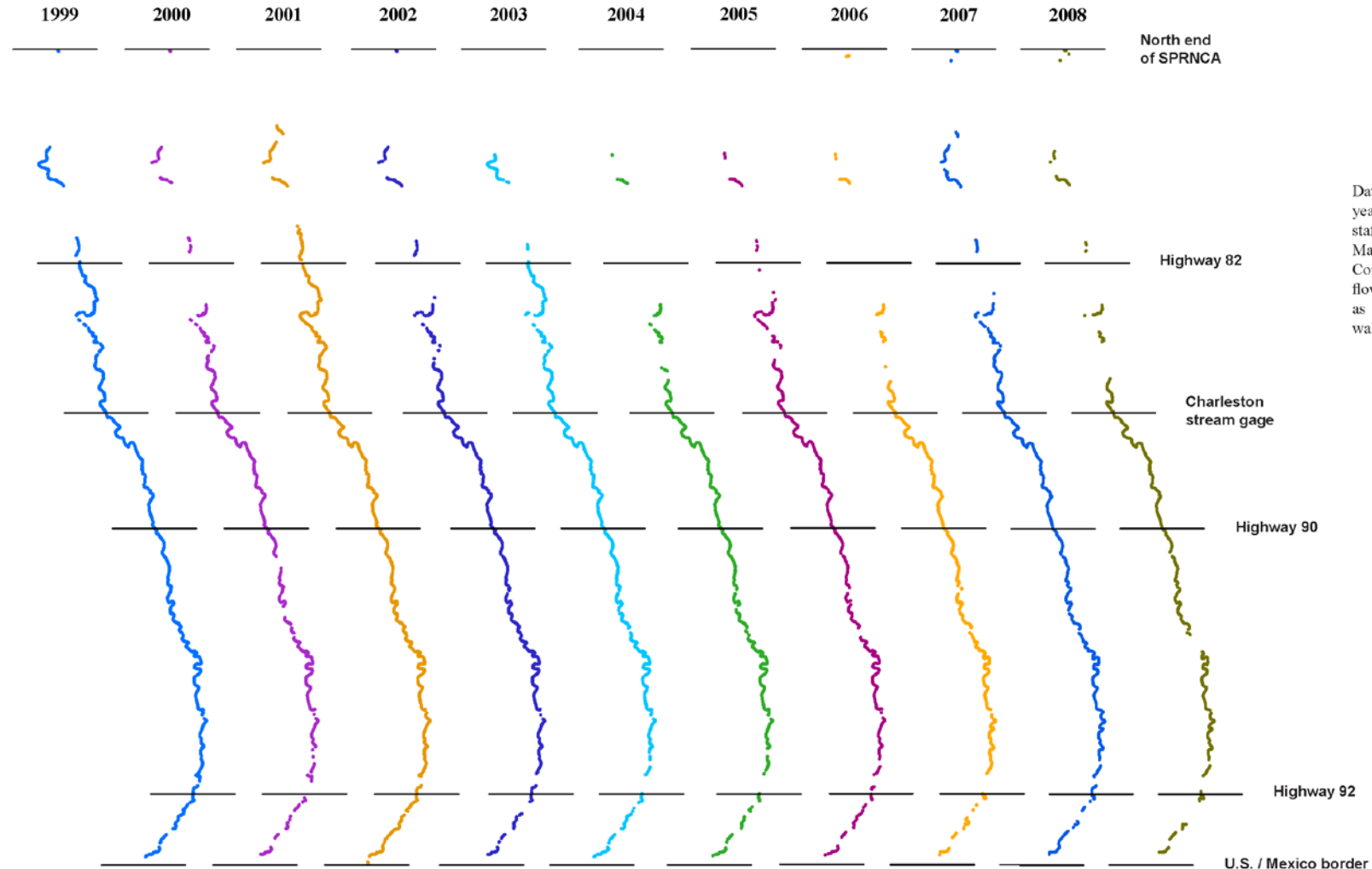
San Pedro Community Monitoring Network
 Surface Water Map, 2013



Midsummer Surface Water Extent in the San Pedro Riparian National Conservation Area, 1999-2008

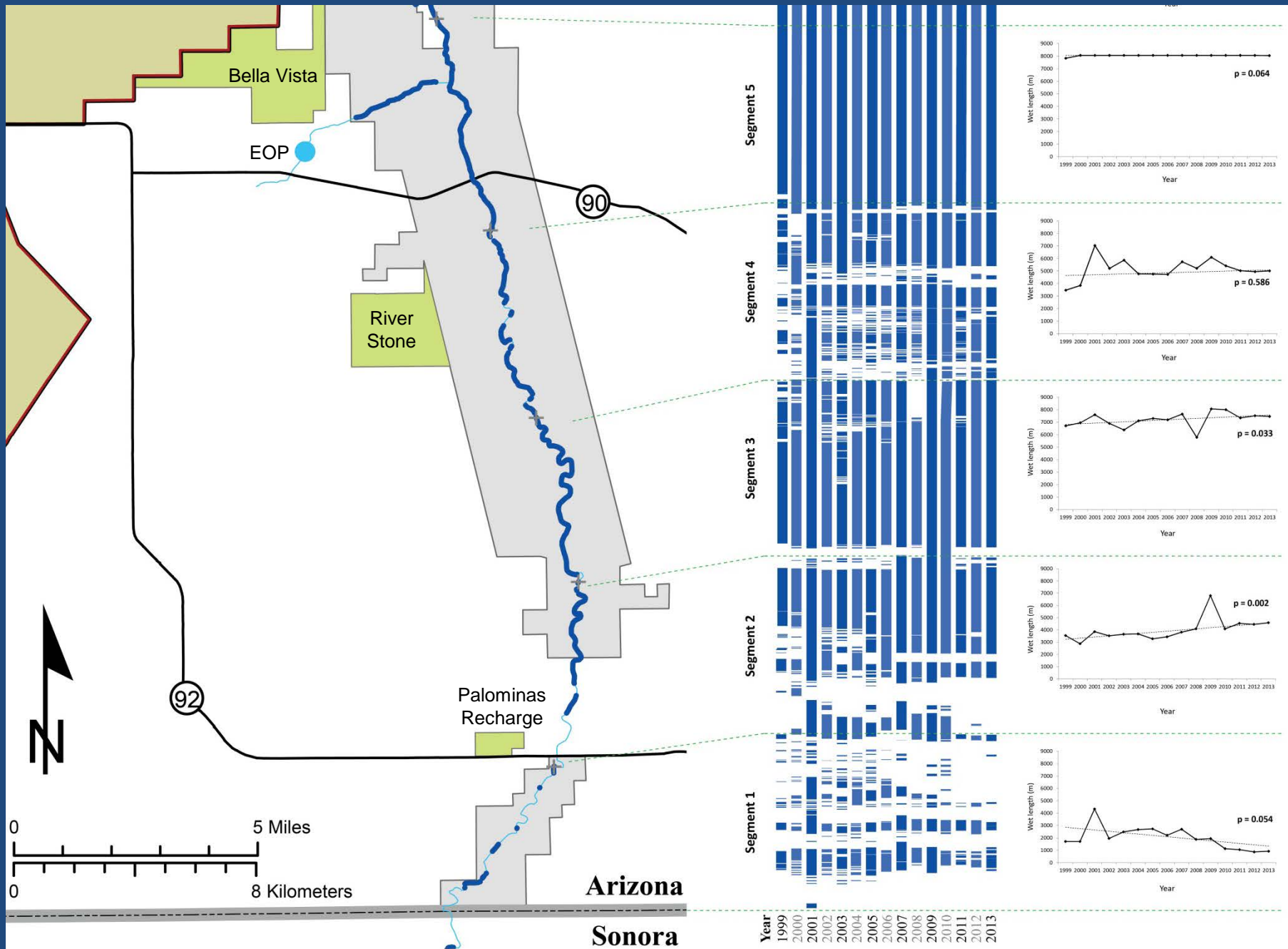


Data collected during June each year by many volunteers and staff from the Bureau of Land Management and The Nature Conservancy. The lines represent flowing or standing surface water as determined by surveyors walking the length of the river.

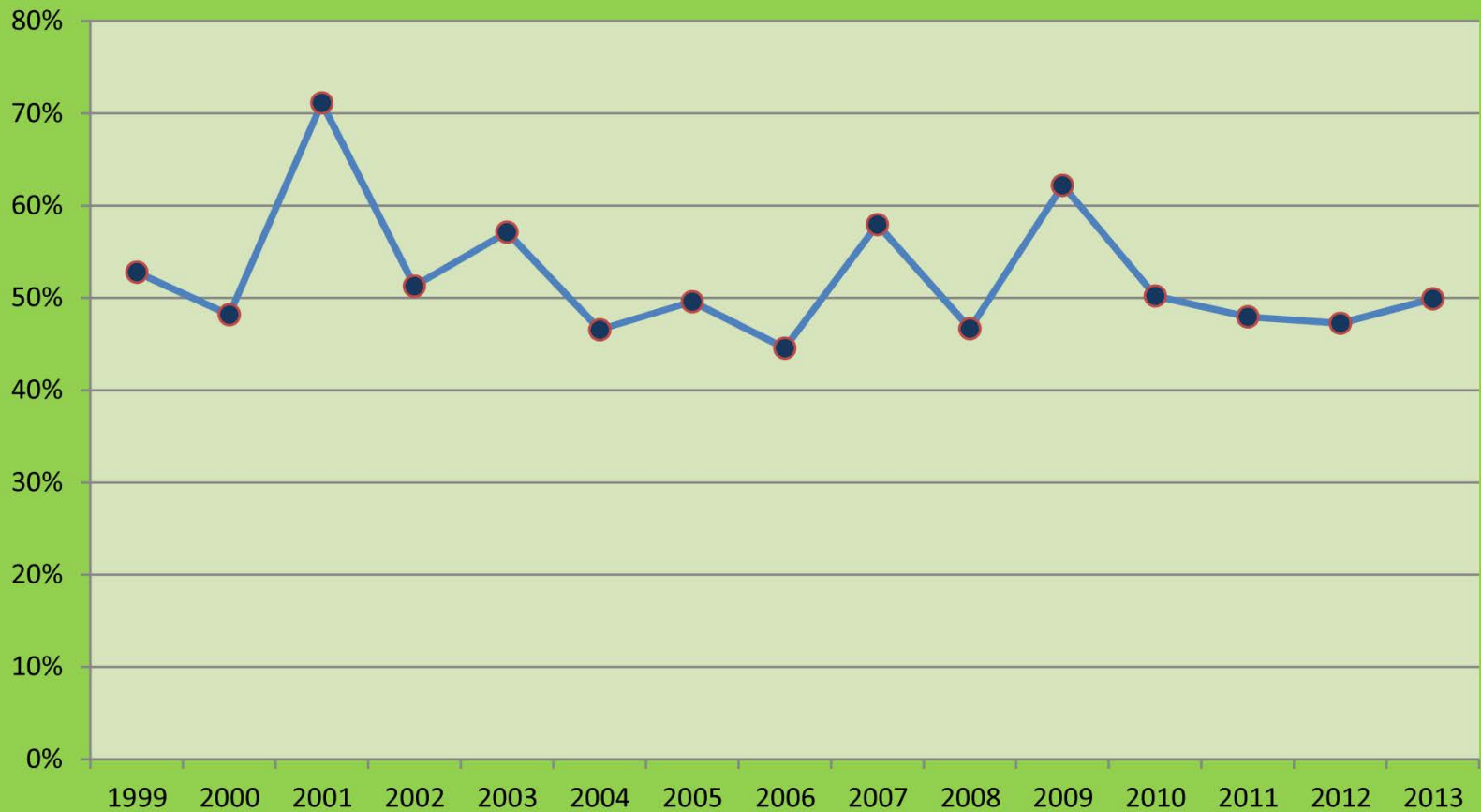


	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Wet channel (miles)	25.8	25.1	37.8	26.9	28.8	23.2	25.4	23.5	30.7	24.6
Proportion wet	52%	50%	76%	54%	56%	47%	51%	47%	62%	49%
Charleston flow (cfs)	1.9	1.7	3.1	1.5	1.1	1.2	0.84	0.28	1.27	0.63

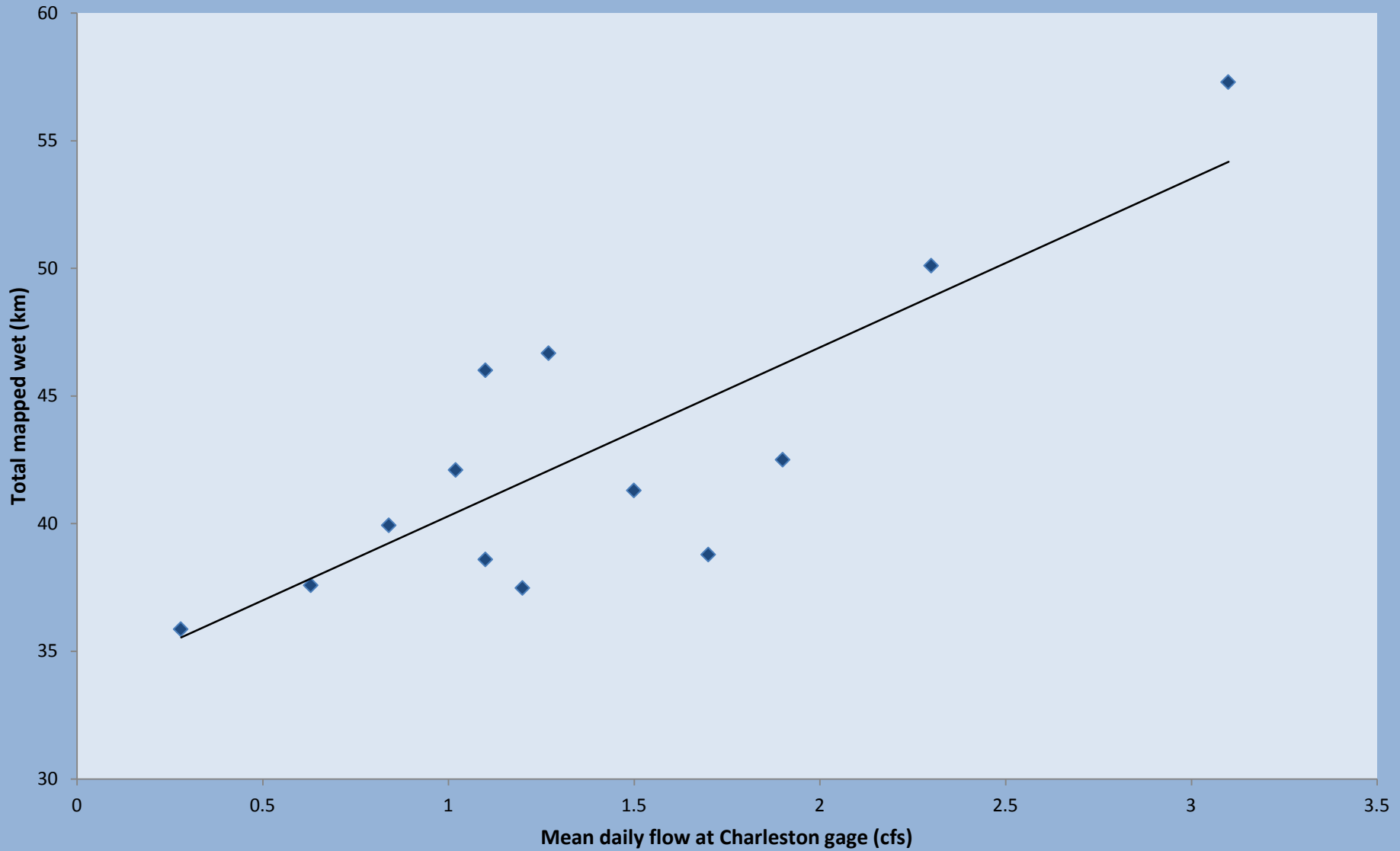




% wet in SPRNCA



SPRNCA wet length vs. stream flow





Other wet/dry monitoring sites

Saguaro National Park

Agua Fria National Monument

Las Cienegas National Conservation Area

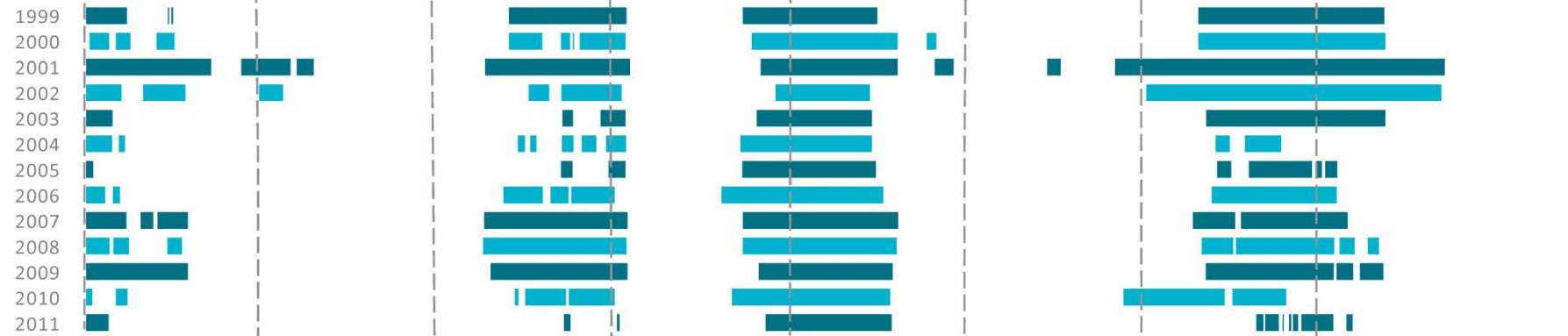
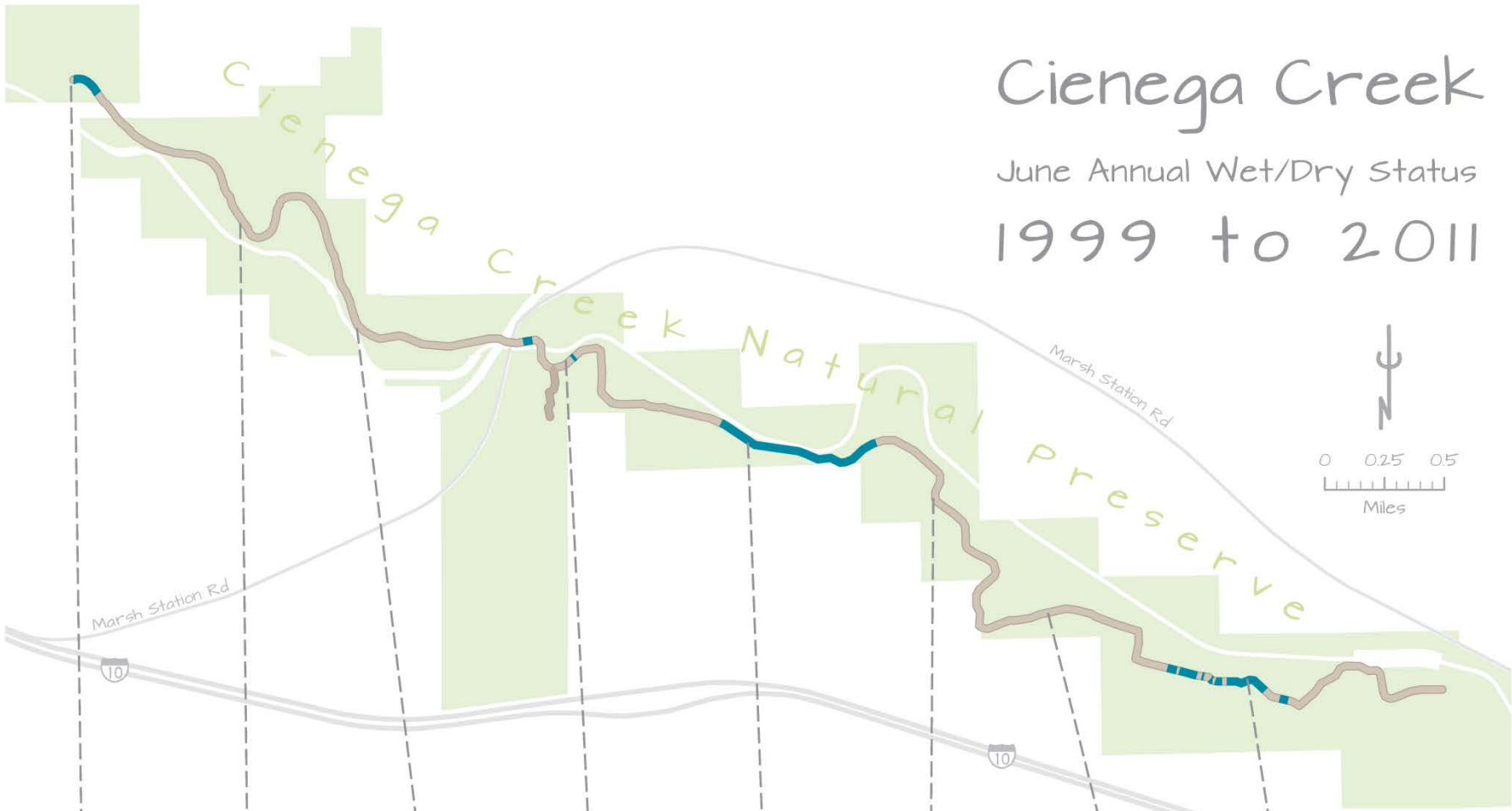
Cienega Creek Natural Preserve



Cienega Creek

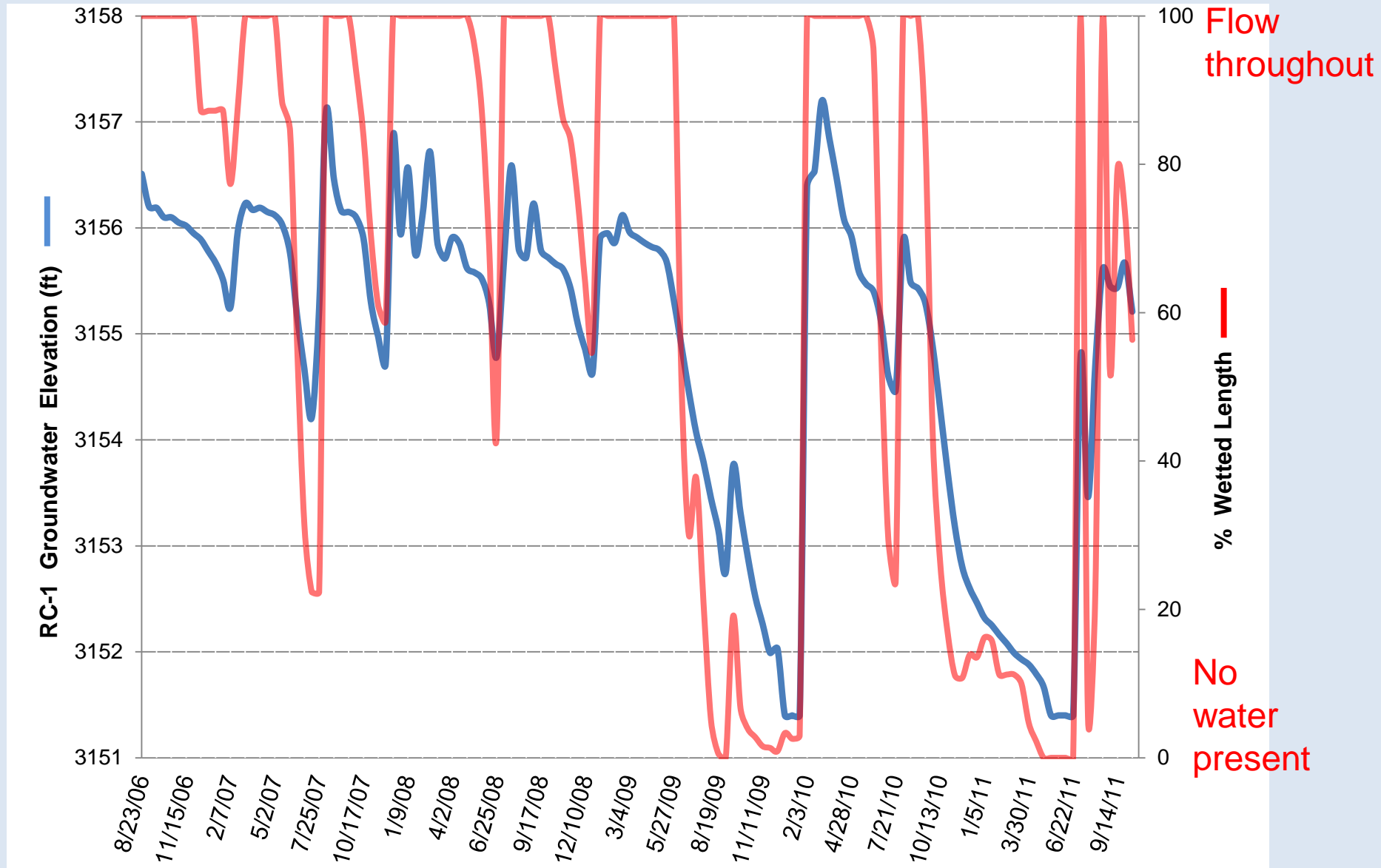
June Annual Wet/Dry Status

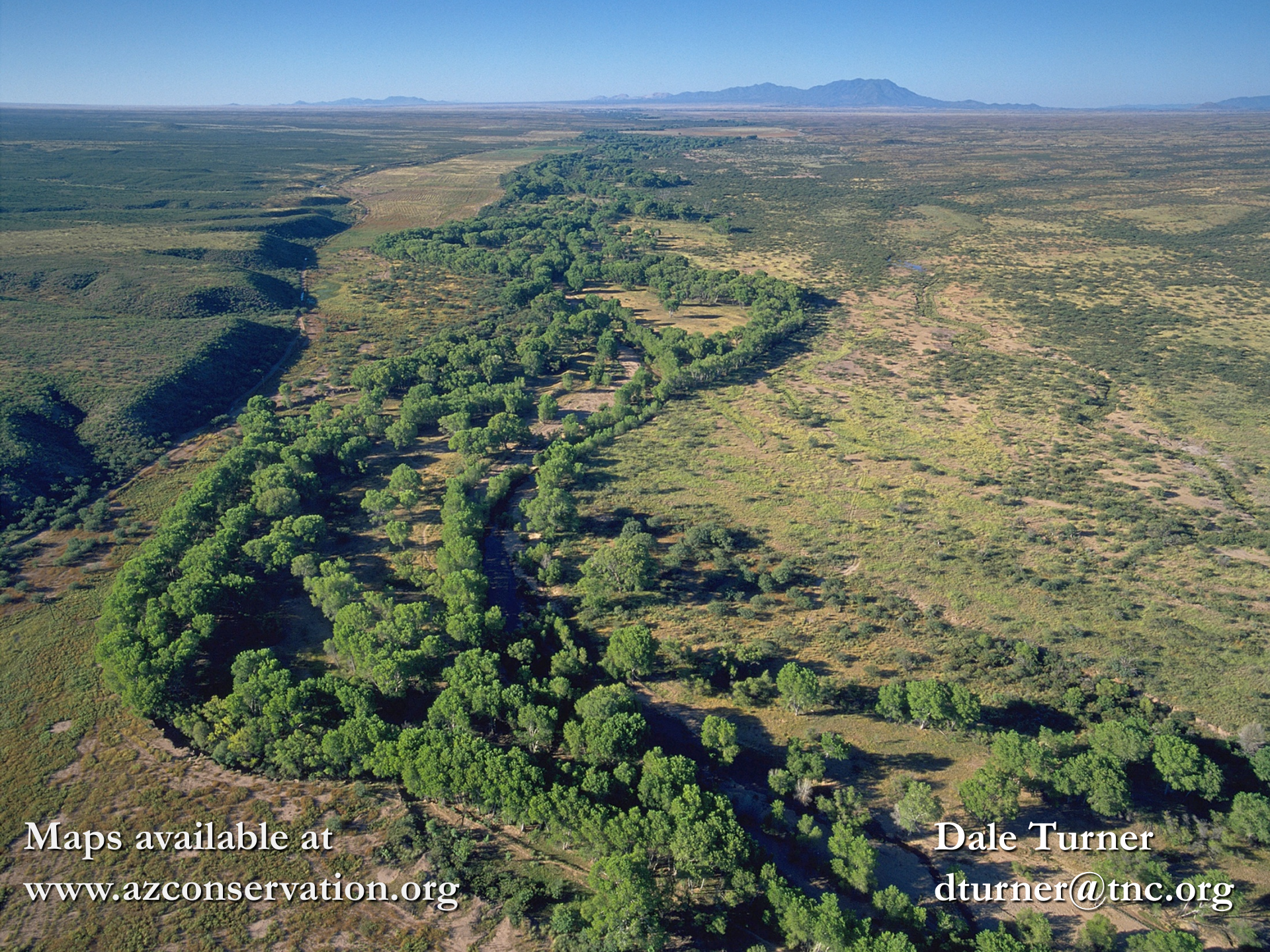
1999 to 2011



Wetted length and alluvial groundwater elevation

Rincon Creek, Saguaro National Park, Arizona





Maps available at
www.azconservation.org

Dale Turner
dturner@tnc.org