Spring Surveys for Land Trusts – Lessons Learned from a Regional Spring Survey

California Council of Land Trusts Land Conservation Conference
Davis, California
March, 2017

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PARTNER
Engineering and Science, Inc.®

Agenda

- Looking back – addressing data gaps
- Moving forward – Mojave Desert spring survey
- Lessons learned:
  - Resource-related
  - Conceptual and Programatic

Prior to current efforts, how up-to-date was our knowledge of springs in the Mojave Desert?”

This is common to many areas of California!

Photo: U.S. Geological Survey

Transition Habitat Conservancy Spring Survey
San Bernardino, Los Angeles, Kern & Inyo Counties, CA

Cooperative Effort – A Key To Success

- U.S. Bureau of Land Management (Funder)
- The Nature Conservancy (Funder)
- Transition Habitat Conservancy (Project Applicant)
- Mojave Desert Land Trust
- Amargosa Conservancy
- Andy Zdon & Assoc., Inc.

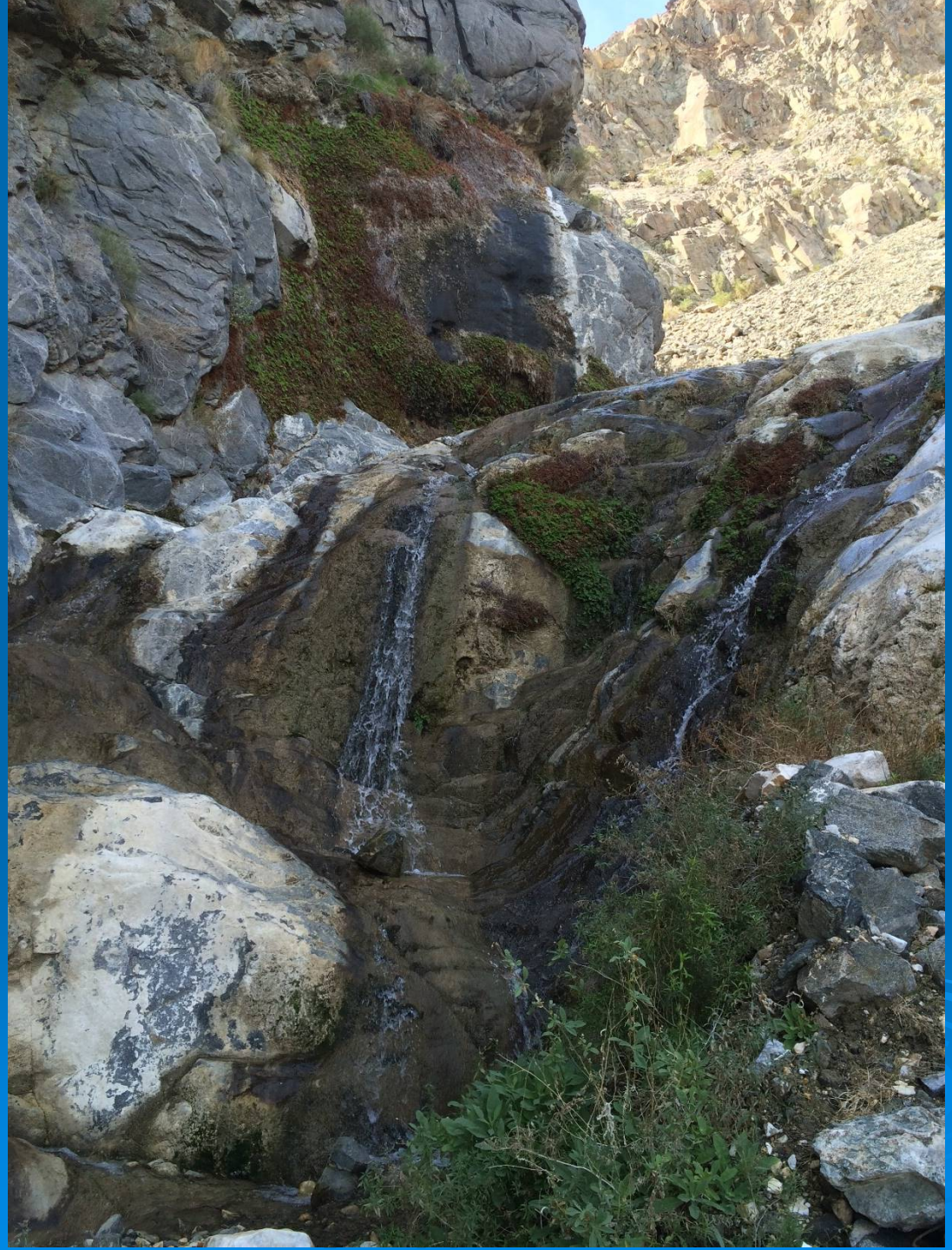
Contractor / Responsible Professional (now Partner And Science)

Scope

- Reconnoitered ~320 spring/seep features
- Springs within Barstow, Ridgecrest, Needles Districts of Bureau of Land Management and limited in Southern Nevada
- Springs on land owned by The Nature Conservancy, Transition Habitat Conservancy and Mojave Desert Land Trust
- Some access issues:
  - Locked gates / private land issues
  - Allotment issues
- Another ~80 spring/seeps not visited are included in report
- Refined locations

California
395
95
Las Vegas
515
Bakersfield
40
15
210
101
Google earth
N

Beveridge Canyon Springs, Inyo County, CA



China Garden Spring, Argus Range, Inyo County, California

Big Morongo Springs, Little San Bernardino Mountains

Groaner Spring, Mescal Range, San Bernardino County, CA

Short Canyon, Sierra Nevada, Kern County, CA

Pachalka Spring, Clark Mountain, San Bernardino County, CA

Bonanza Spring, Clipper Mountains, San Bernardino County, CA

Spring Description Formats

- Summary report with appendixes containing spring information
- Narrative description of spring
- Copies of field forms
- Folder – Field photos and video
- Folder – Water rights documentation from eWRIMS
- Folder – PFC reports
- Folder – Google aerial imagery
- Folder – Site-specific references and data
- Folder – Scanned BLM file notes
- Springs organized by BLM District and eco-subregion

CHINA GARDEN SPRING

Spring was field inspected during 2015-16 spring survey.

Location: North end of the Argus Range in the NE1/4 of Section 4, T19S, R41E. The spring is within the watershed, but not within the boundary of the Panamint Valley groundwater basin (6-58) in Inyo County, California.
Directions: From Darwin, drive Lucky Jim Wash to Darwin Wash Road, then north past Miller's Spring to China Garden Spring. Four-wheel drive may be needed.

Latitude: N36.31396 (NAD83)
Longitude: W-117.53197
Elevation: 3,140 ft msl

BLM Map: Darwin Hills

Description: This spring is in the bottom of Darwin Wash (above Darwin Falls) adjacent to carbonate rocks along with silicic sedimentary rocks. There are some rock improvements to the spring and the spring is highly disturbed and frequented by recreational users. The 1+ acre riparian area is comprised of cottonwoods, rushes, reeds, willow, watercress, grasses and other hydrophytic and phreatophytic shrubs. This site is frequented by wildlife and birds observed during the site inspection included 1 Northern Flicker, 1 Verdin, 2 White-crowned Sparrows, 1 Yellow-rumped Warbler, 2 House Finches, and one female Purple Finch. There are goldfish in the spring pool and signs of burro use. Overall the spring is in proper functioning condition and appears stable.

Based on the aerial imagery, pond improvements appeared to have occurred between 1995 and 2005. This appears to have resulted in a lengthening of the riparian canopy in a northwesterly direction away from the spring.

Water Quality Parameters: from discharge point. No odor noted. Data from 2005 and 2006 are from sampling conducted by the U.S. Geological Survey (U.S.G.S., 2016). For full analyses refer to past data for this spring included in this report and water quality data table.

Date	Flow (gpm)	Temp (°C)	Cond (µS/cm)	TDS (mg/L)	DO (mg/L)	pH	Salinity (ppt)
3/22/1995	nm	nm	579	nm	nm	nm	nm
9/23/2005	nm	19.5	574	nm	nm	7.5	nm
4/14/2006	nm	19.1	563	408	6.4	7.9	nm
10/21/2015	20	20.3	602	301	1.36	7.26	0.272

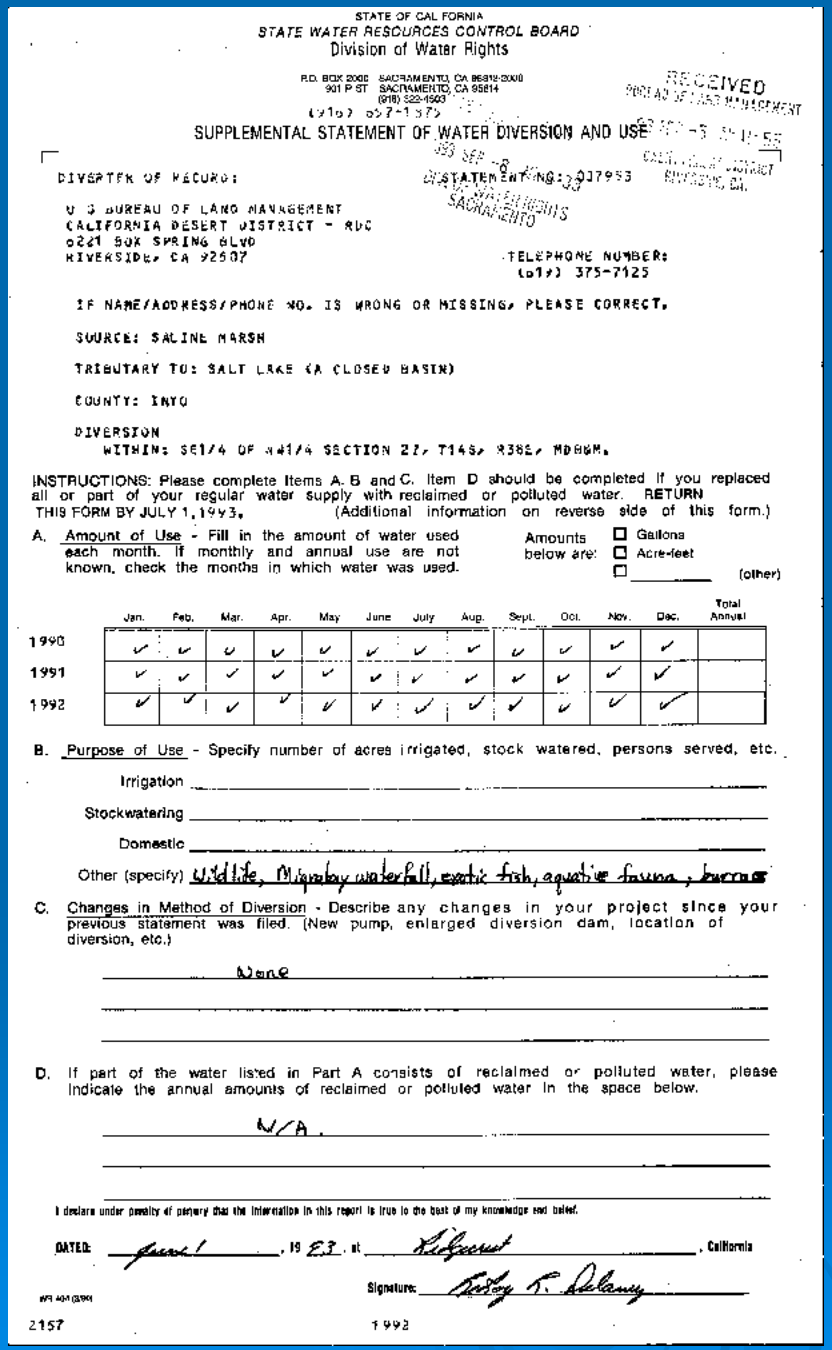
Use: The spring is currently not in use other than for wildlife and recreation. There are no water rights filings with the State of California for this spring.

Access: The spring is not fenced and is on BLM land.

Spring narrative

Include pre-made spring data sheets that include all data you might want to record!

Field photos and video



STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD
Division of Water Rights

P.O. BOX 2000 SACRAMENTO, CA 95812-2000
901 P ST SACRAMENTO, CA 95814
(916) 322-4503
(916) 657-1571

RECEIVED
BUREAU OF LAND MANAGEMENT

SUPPLEMENTAL STATEMENT OF WATER DIVERSION AND USE

DIVERTER OF RECORD:

U S BUREAU OF LAND MANAGEMENT
CALIFORNIA DESERT DISTRICT - RDC
6221 BOX SPRING BLVD
RIVERSIDE, CA 92507

STATEMENT NO: 037953

TELEPHONE NUMBER:
(619) 375-7125

IF NAME/ADDRESS/PHONE NO. IS WRONG OR MISSING, PLEASE CORRECT.

SOURCE: SALINE MARSH

TRIBUTARY TO: SALT LAKE (A CLOSED BASIN)

COUNTY: INYO

DIVERSION
WITHIN: SE1/4 OF NW1/4 SECTION 27, T14S, R38E, MDB&M.

INSTRUCTIONS: Please complete Items A, B and C. Item D should be completed if you replaced all or part of your regular water supply with reclaimed or polluted water. RETURN THIS FORM BY JULY 1, 1993. (Additional information on reverse side of this form.)

A. Amount of Use - Fill in the amount of water used each month. If monthly and annual use are not known, check the months in which water was used.

Amounts below are: ☐ Gallons ☐ Acre-feet ☐ _____ (other)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total Annual
1990	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
1991	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
1992	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

B. Purpose of Use - Specify number of acres irrigated, stock watered, persons served, etc.

Irrigation _____

Stockwatering _____

Domestic _____

Other (specify) Wildlife, Mojave waterfall, exotic fish, aquatic fauna, burros

C. Changes in Method of Diversion - Describe any changes in your project since your previous statement was filed. (New pump, enlarged diversion dam, location of diversion, etc.)

None

D. If part of the water listed in Part A consists of reclaimed or polluted water, please indicate the annual amounts of reclaimed or polluted water in the space below.

N/A.

I declare under penalty of perjury that the information in this report is true to the best of my knowledge and belief.

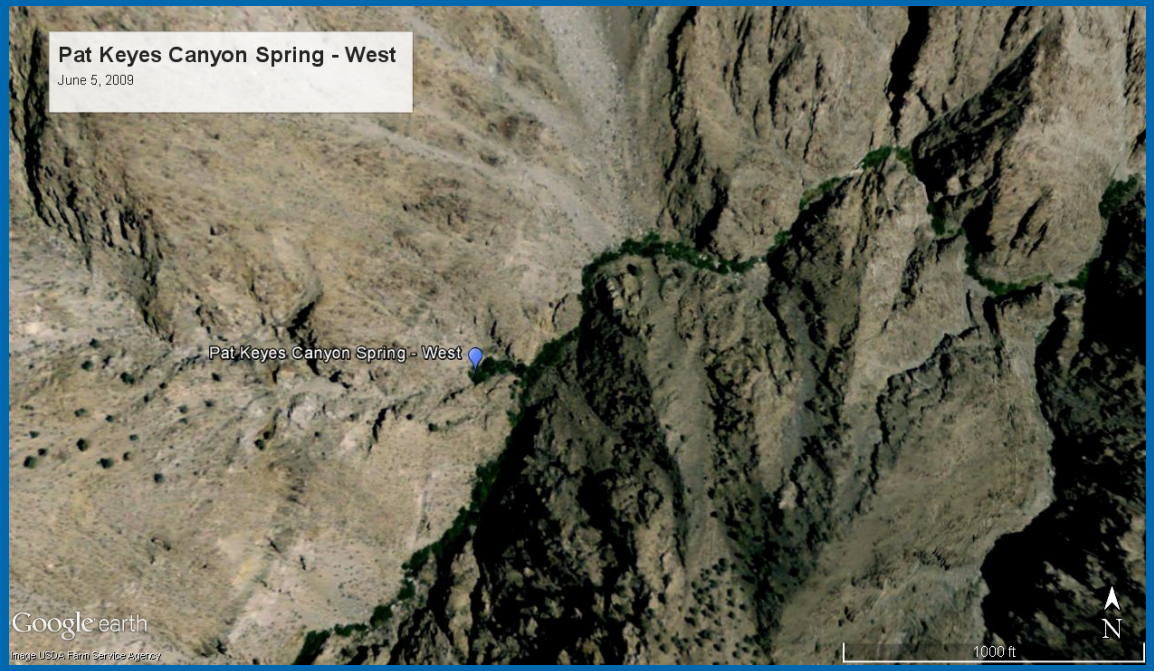
DATED: June 1, 19 93, at Ridgecrest, California

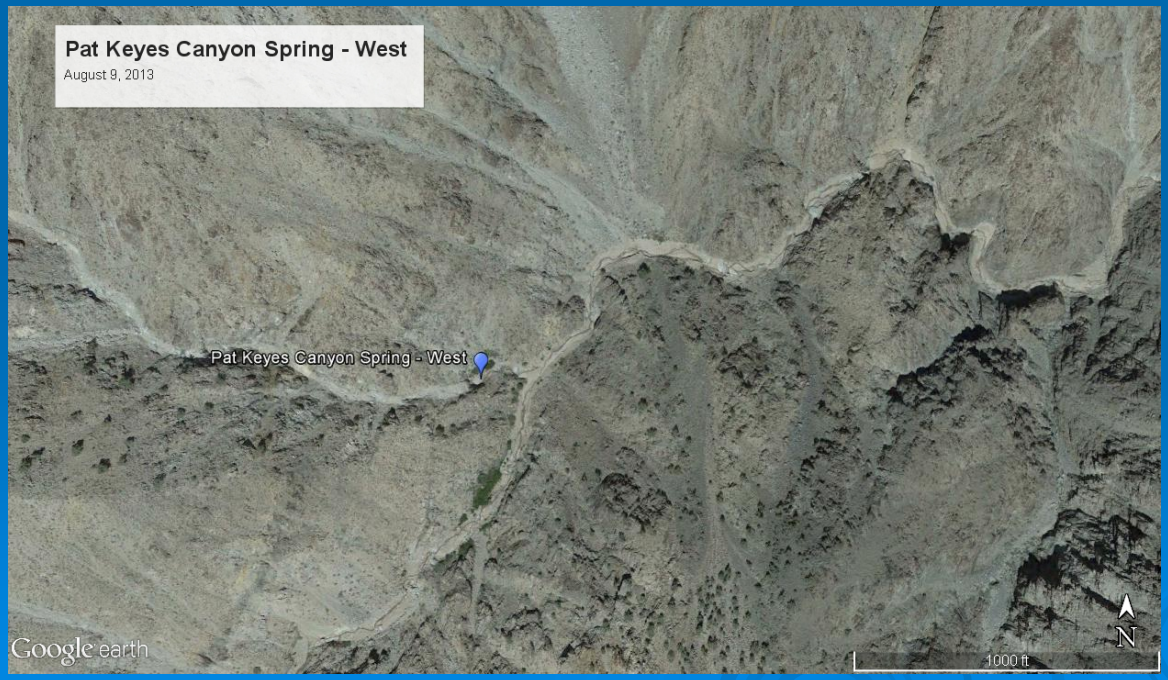
Signature: Kathy F. Delany

WR 401 (3/90)

2157 1992

Supporting water rights information





Aerial imagery

So….lessons learned – resource related!

- The ecology of the Mojave Desert region is in a state of change (and is the case in most places!!)
- Most springs have been altered (particularly larger springs)
- Many spring "improvements" have provided short-term increased spring yield, resulting in long-term impacts (some appear irreversible) – a warning to land trusts!
- Springs are the life-blood for mammalian and avian wildlife in the region – documenting springs and surface water critical
- Even some of the smallest waterholes are key for regional wildlife (e.g. McDonald Well)

Big Picture and Programatic

- Good communication is critical
- Plan ahead for uncomfortable issues
- Think bigger than your property – it may be possible to identify a problem and fix it before it hits you!
- Just because a scientific report is published doesn't mean it's right – new data can lead to new understanding – avoid "group think"
- Have properly licensed professionals work on your projects - defensibility
- Your efforts will be rewarded with benefits not originally planned to achieve!