BLM Utah Technical Support, Data, Tools, Training and Advisement to Improve Decision-Making for Springs and Springs-Dependent Species Management, Grand Staircase Escalante National Monument, Utah

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Project Tasks

1. Compile, QA/QC GSENM springs into Springs Online

2. Provide technical support and training for inventory and assessment to support habitat restoration planning

3. Conduct springs inventory and assessment of high priority springs (Springs Online; geodatabase).

4. Provide online technical support and advisement to develop a prioritized list of sites for management and rehabilitation
Reported, Verified, 2019 Inventoried GSENM Springs

169 reported, 316 added
445 springs recognized
Data sources: NHD, SSI, PFC
3. Inventory and Provide Data

Inventory high priority springs (areas not well-inventoried)
- 43 PFC “downward trend”
- 48 selected for potential site visits, ≤ 2km of a road
- 33 visited, Level 2 inventories on 24 springs

Protocols: SSI (SpringStewardshipInstitute.org)
- Inventories 19 May 14-19, August 3-4, Oct 4
- 11 categories of physical, biological, human influences
- Springs Ecosystem Assessment Protocol used
- Report synthesizes these data

Data in Springs Online, geodatabase provided to BLM
Springs Online (SpringsData.org)

- Solar radiation budget
- Bedrock geology
- Climate
- Flow
- Water quality
- Geomorphology
- Human impacts: SEAP
- Admin Context
- Temporal change
- Aquatic fauna
- Riparian fauna
- AQ & Terr. Vegetation: Composition Function Structure
- Trophic Cascades/Feedback

Springs Online is a collaborative project developed and administered by the Springs Stewardship Institute of the Museum of Northern Arizona. The Springs Online database contains information about springs with a focus on the goal of improving global springs stewardship. The database provides a comprehensive survey of springs in the region, including information on their locations, characteristics, and the species dependent upon them. The database is intended for use by scientists, natural resource managers, and the general public. Information on the Springs Online database can be found at SpringsOnline.org. Springs Online provides access to a database of springs inventory data, making it accessible for research and conservation efforts. The database includes information on the species and ecosystems that depend on springs, as well as the physical characteristics of the springs themselves. The database is available online at SpringsOnline.org.
Selected Results

• Springs Types:
  Rheocrene > Hanging Garden > Hillslope = Helocrene > Anthropogenic > Exposure = Hypocrene

• 14 springs with measurable flow: 0.002 L/sec (Little Red Rock Spring) to 2.6 L/sec (Highway 12 Ciénega Spring)

• 22 sites sampled: $T_w$ 10.4° to 27.5°; SC 301 to 7900 µS/cm; TDS 0.201 to 1.542 ppt; pH 6.7 to 8.7; DO 0.09 to 8.71 mg/L

• 171 vascular plant taxa, mixed aquatic, wetland, riparian, upland taxa, variation in composition and structure among springs types

• 10 orders of aquatic invertebrates

• 22 vertebrate species detected, much livestock and impact
2020 SSI Springs Inventories in Grand Staircase-Escalante National Monument

26 springs or NHD points visited in 2020
18 (69.2%) of which are or were springs
23 springs visited in 2019

Mean Q = 0.05 L/s (15.9 gpm), 1 sd = 0.07 L/s
(highly variable)

63 vertebrate species detected: cows and Scrub Jays at 61% of sites

Data on vegetation, invertebrates, WQ
still being entered

Preliminary data, reporting in progress