

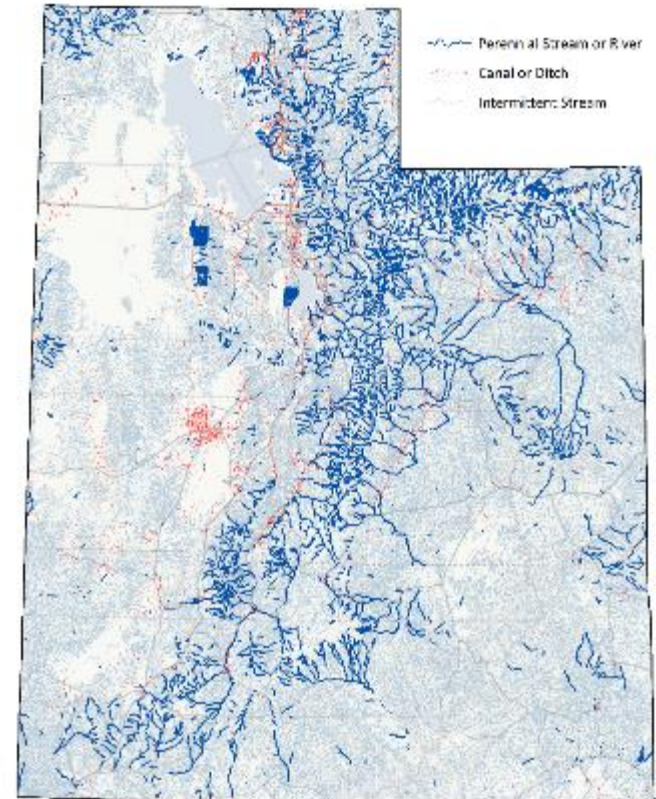
Dealing with Drought: Beaver and Restoration in the Montane West

A little theory and a little practice

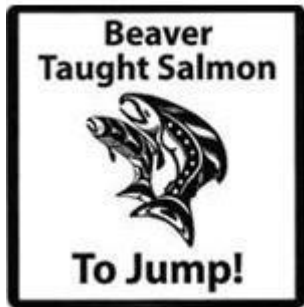


IN UTAH... EVEN THOUGH A DRY STATE

- We have over 85,000 miles of rivers and streams
 - 81% (65,000 miles) are non-perennial and/or ditches
 - 16,000 miles are perennial
 - 1980 estimate that 4,000 miles had suitable beaver habitat
- Historically...
 - Beaver were pervasive throughout this network
 - Much greater proportion perennial



POPULARITY GROWING RAPIDLY RECENTLY



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A-HED

With Trouble on the Range, Ranchers Wish They Could Leave It to Beavers

Critters, Once Reviled, Gain Popularity With 'Believers'; a Good Rodent Is Hard to Find

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INCREASING STREAM COMPLEXITY



ONE BEAVER AT A TIME

METHOW VALLEY BEAVER RELOCATION PROJECT



The Beaver Solution Team live traps beavers on properties where they are causing damage and

So the 64-year-old rancher put himself on a waiting list this year hoping state officials would bring him a beaver or two. Wyoming's Game and Fish Commission periodically plucks the rodents from drainage culverts.

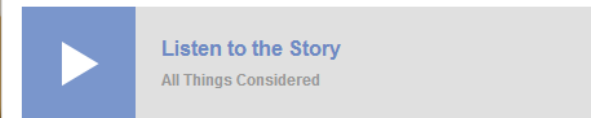
It's a bit of a turnabout in these parts, where beavers have long been considered something of a nuisance—blamed for



Beavers Offer Solution to Climate Change

by DAVID MALAKOFF

May 03, 2008 4:00 PM



In the Southwest U.S., biologists are talking about returning beavers to rivers they once inhabited in order to fight droughts — which are expected to get worse as the globe warms. Beaver dams create great sponges that store lots of water.

Transcript

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UDWR – BEAVER MANAGEMENT PLAN

- One of most progressive plans in US
- Specifically relies on beaver as a restoration tool

UTAH BEAVER MANAGEMENT PLAN 2010 - 2020

Plan Goal

Maintain healthy, functional beaver populations in ecological balance with available habitat, human needs, and associated species.

INTRODUCTION

The purpose of the Utah Beaver Management Plan is to provide direction for management of American beaver (*Castor canadensis*) in Utah and where appropriate expand the current distribution to historic range. This purpose is in accordance with the mission statement of the Utah Division of Wildlife Resources (UDWR). The mission of UDWR is:

To serve the people of Utah as trustee and guardian of the state's wildlife

UTAH BEAVER MANAGEMENT PLAN 2010 - 2020



Developed in consultation
with
BEAVER ADVISORY COMMITTEE

DWR Publication 09-29

Utah Division of Wildlife Resources
1594 West North Temple
Salt Lake City, Utah 84114

Approved by the Wildlife Board January 6, 2010

BRAT – BEAVER RESTORATION ASSESSMENT TOOL



BEAVER RESTORATION ASSESSMENT TOOL



BRAT Resources
BRAT
Vision
▼ Documentation
Manual Implementation of Capacity Models
Workshops
Escalante Pilot Project
Beaver Restoration Information
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Welcome to the BRAT website. The **Beaver Restoration Assessment Tool** will be a decision support and planning tool intended to help researchers and resource managers assess the potential for beaver as a stream conservation and restoration agent over large regions and watersheds.

The BRAT models can be run with widely available existing data sets, and used to identify opportunities, potential conflicts and constraints through a mix of assessment of existing resources and scenario-based assessment of potential futures. The primary backbone to BRAT are some spatial models that predict the capacity of riverscapes to support dam-building activity by beaver. These models have been tested in a pilot project in Utah and are ready for broader implementation. The rest of the decision support tool is under development (read [Vision here](#)).



- Wally MacFarlane
- Martha Jensen
- Jordan Gilbert
- Jordan Burningham

BRAT IN A NUTSHELL

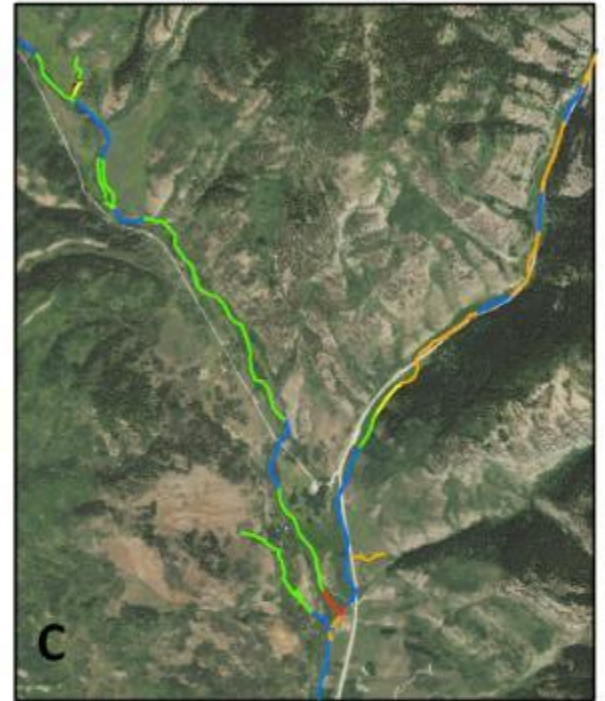
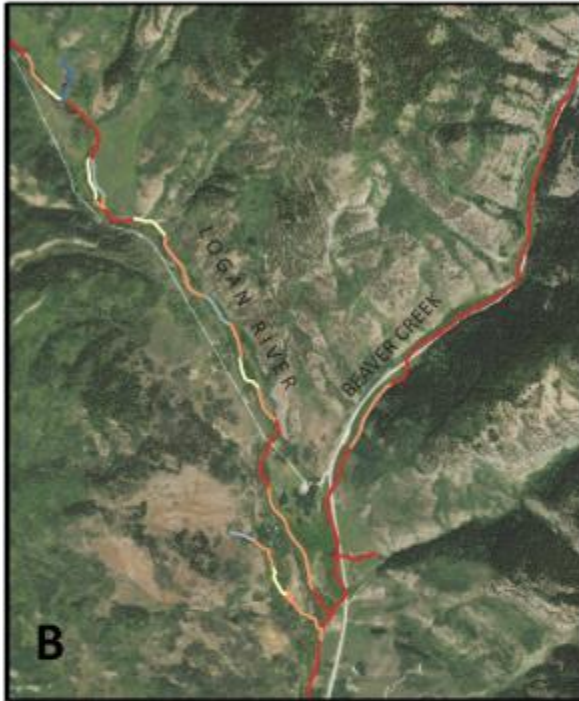
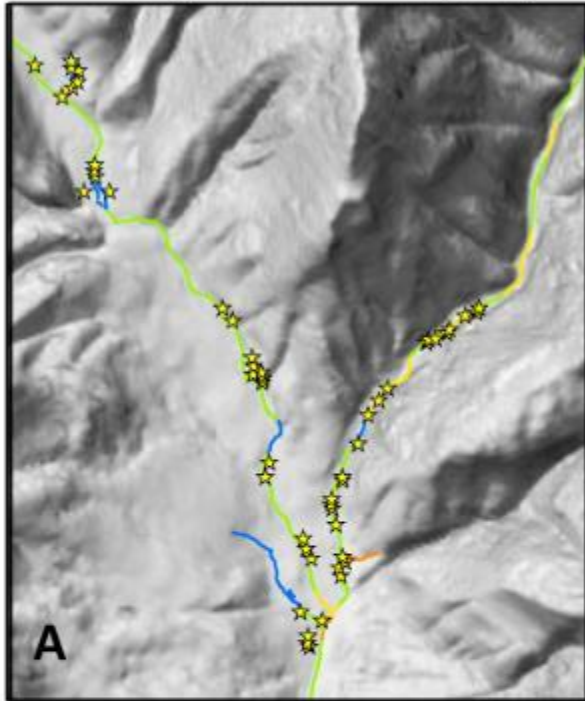


- Existing & Historic Capacities → Potential Conflict → Management

Existing Beaver Dam Capacity

Potential for Human Beaver Conflict

Ecosystem Management



☆ Actual Beaver Dams

Maximum Dam Density (dams/km)

0 - None 0 - 1 Rare 1 - 4 Occasional

5 - 15 Frequent 16 - 40 Pervasive

Probability of Conflict

0 - 10% 50 - 75%

10 - 25% > 75%

25 - 50%

Beaver Management Zones

Unsuitable: Naturally Limited

Unsuitable: Anthropogenically Limited

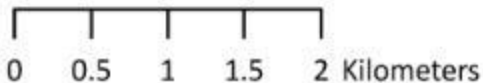
Quick Return Restoration Zone

Low Hanging Fruit

Long-Term Restoration Zone

Living with Beaver (Low Source)

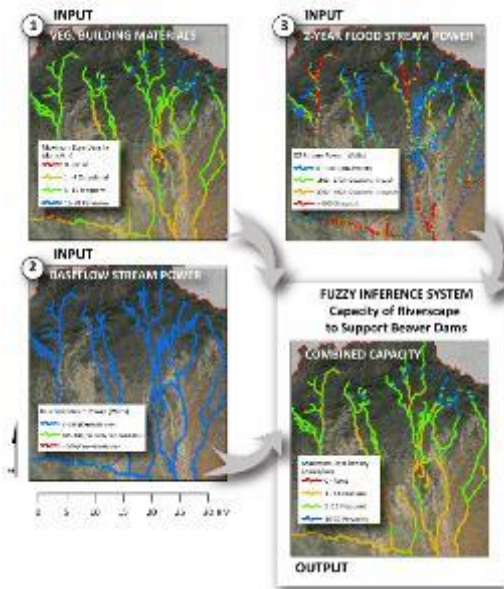
Living with Beaver (High Source)



WHAT WE DID WITH BRAT...



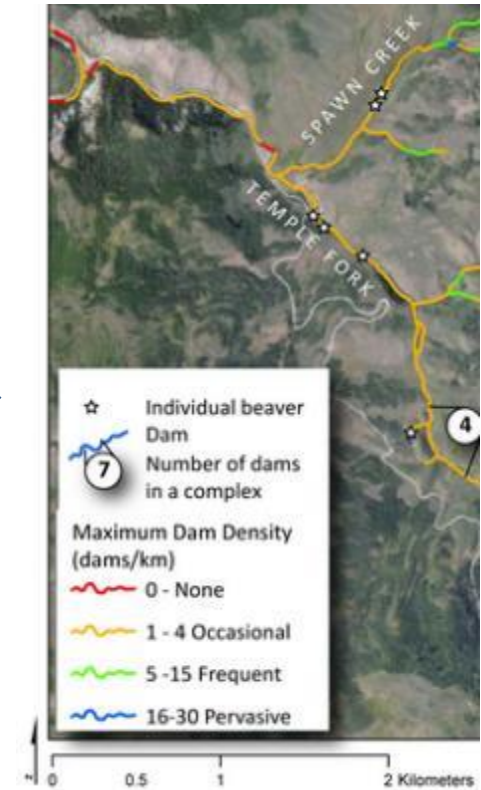
- Ran BRAT for whole state
- Created a decision support elements of BRAT in bespoke manner for UDWR



Run Model with Nationally Available Datasets



STATE OF UTAH (> 225,000 km²)



Resolved at every 250 m long reach within State (27,000 km)

WHAT I REALLY WANT...

- Healthy Riparian Ecosystems and Watersheds
- The scope of the degradation problem is enormous – I want to help you find pragmatic approaches to fix it!
- I propose that ‘cheap and cheerful’ restoration is the *only* way we’re realistically make meaningful progress towards recovery
- I see
 - beaver as one critical tool
 - sustainable grazing as another critical tool



Practical application

- Increase flow duration later into the year
- Increase width of riparian corridor
- Alter plant community by changing water availability



Getting by until they get there...



Beaver surrogates



If you build it...





If you bring them...



TAKE AWAYS — BEAVER RESTORATION

- Tremendous potential for beaver as a ‘cheap & cheerful’ restoration tool
- Expectation management is important... they are not appropriate everywhere
- Statewide BRAT provides realistic scoping, planning and implementation tool
- Policy is already in place...
- Beaver’s track record is proven... ours is not... BUT you could help them



