

# Citizen Science as a Collaboration Tool: Meeting Public Needs and Land Management Objectives



Michelle Tamez  
Agency Crowdsourcing and Citizen Science Coordinator  
USDA Forest Service  
NOAA Ocean Exploration Advisory Board Mtg 12/04/19

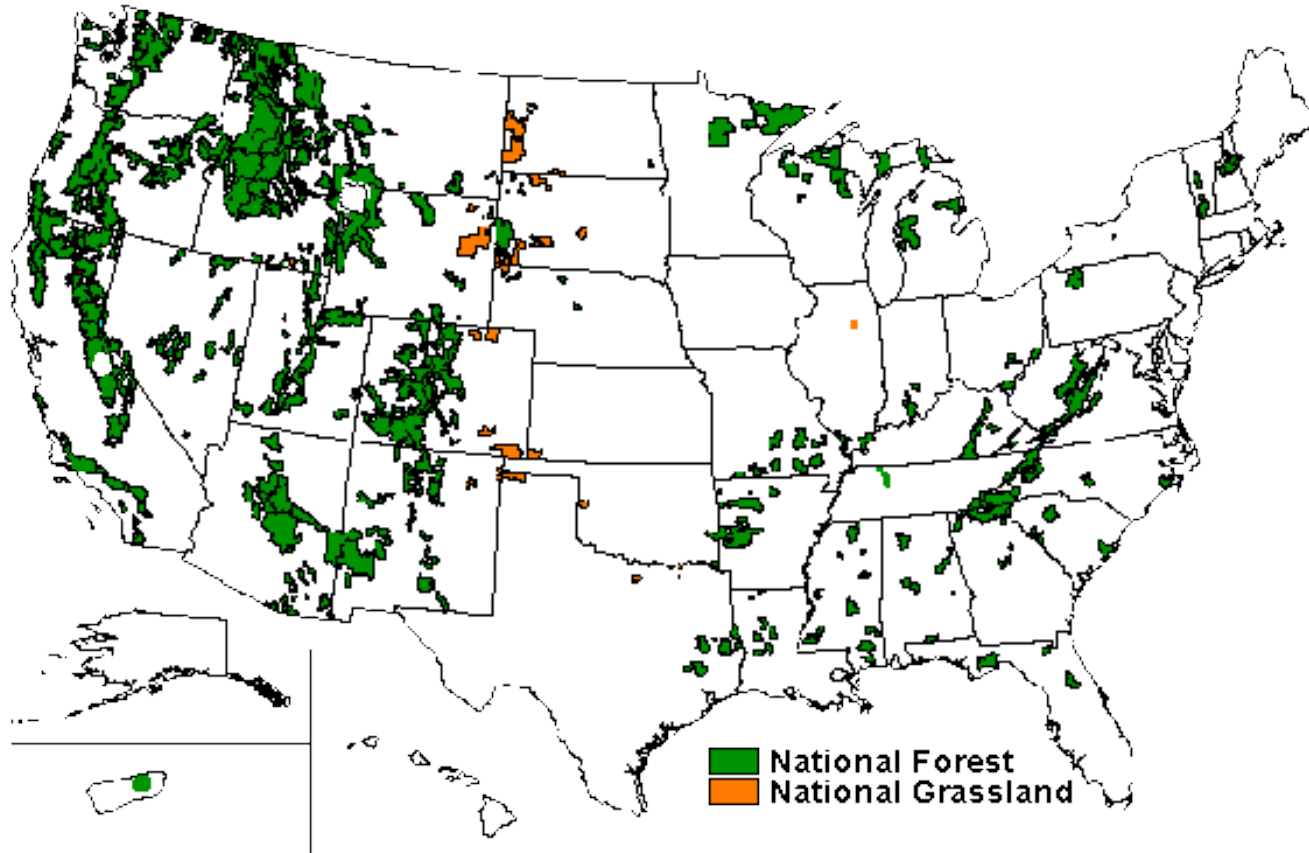


United States  
Department of  
Agriculture



Forest Service

# FOREST SERVICE



## Manage public lands

- 193 million acres of national forests and grasslands

## Diverse stakeholders:

- Recreation & tourism
- Wildlife conservation
- Cultural resource preservation
- Timber production
- Fire resiliency
- Urban forestry

Map of lands managed by the Forest Service.



United States  
Department of  
Agriculture



Forest Service

# GROWING NEEDS, LESS CAPACITY



## FOREST SERVICE MANDATE

- Foster resilient, adaptive ecosystems
- Deliver benefits to the public
- Connect people to the outdoors
- Advance knowledge
- Exchange natural resource expertise

## CAPACITY

- This requires inventory, monitoring and research data and information.
- Budget and staff time are increasingly limited

Forest Service personnel and members of the Boise Forest Coalition visit a site on the Boise National Forest in Idaho. 2018 Cohort.



United States  
Department of  
Agriculture



Forest Service

# 2017 CROWDSOURCING & CITIZEN SCIENCE ACT

**// Granting Federal science agencies the direct, explicit authority to use crowdsourcing and citizen science will encourage its appropriate use...and facilitate broader public participation in the innovation process... //**



United States  
Department of  
Agriculture



Forest Service

# Citizen Science Competitive Funding Program



United States  
Department of  
Agriculture



Forest Service



# INVEST IN COLLABORATIVE SCIENCE

## GOALS OF THE CITSCI FUND:

- Expand and strengthen the practice of citizen science in agency programs.
- Advance science and resource management through sound project design.
- Stimulate partnerships that address mutually beneficial outcomes, expand capacity, and leverage expertise and resources.
- Provide opportunities for meaningful participation by the public in agency activities.
- Offer opportunities for peer-to-peer learning for agency and partners.



Volunteers in Colorado with 2018 Cohort project, "Engaging citizen scientists in field research on American pika, an indicator species for alpine ecosystem integrity".



United States  
Department of  
Agriculture



Forest Service

# ELIGIBILITY CRITERIA

- Open to all Forest Service & partners
- Each project must have a USFS Partner Lead and a Partner Project Lead with a partnership agreement ready to be put into place upon receipt of award
- Have a genuine scientific and/or management outcome
- Meet a Forest Service information need
- Demonstrate meaningful volunteer engagement/collaboration
- Can be on any subject area (biological, social, cultural, infrastructure, etc.)
- Duration of one year or longer, involving volunteers multiple times over the course of the project



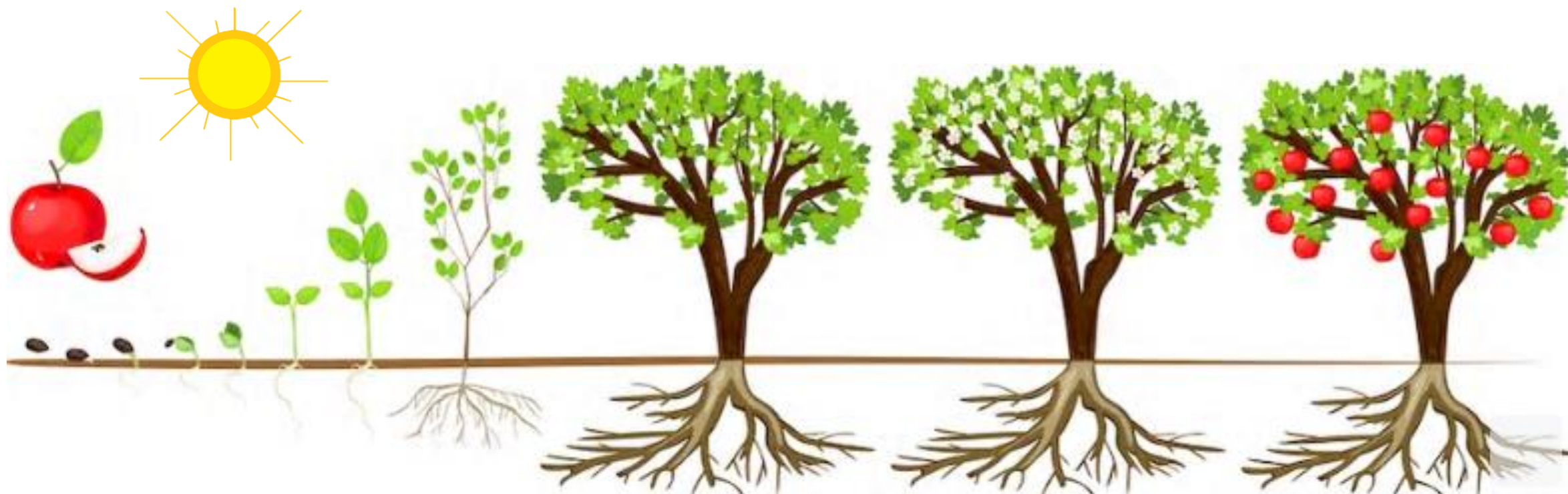
United States  
Department of  
Agriculture



Forest Service



# PROJECT INCUBATOR



Phase 1  
Ideation and Design



Phase 2  
Implementation



Phase 3  
Ongoing Implementation and Knowledge Transfer



United States  
Department of  
Agriculture



Forest Service



# LEARNING FROM EACH OTHER

Call Topic	Target Date
Welcome and introductions with project leads by Coaches	May 2019
Kick-Off Call	June 2019
Reporting training	August 2019
Show-and-tell	November 2019
Preparing for field season and volunteer recruitment	February
Report-out Ideation Projects	June/July 2020
Project evaluation training/workshop	September 2020
Report-out Project Development and Ongoing Projects	November/December 2020



United States  
Department of  
Agriculture



Forest Service

# CITIZEN SCIENCE TOOLKIT

## PROJECT PLANNING GUIDE

<https://www.fs.fed.us/working-with-us/citizen-science/citizen-science-toolkit>

DETERMINE IF IT'S RIGHT FOR YOUR PROJECT

START WITH THE BASICS

BUILD YOUR TEAM

ESTABLISH PROJECT DESIGN

PREPARE FOR VOLUNTEERS

DEVELOP PROJECT EVALUATION

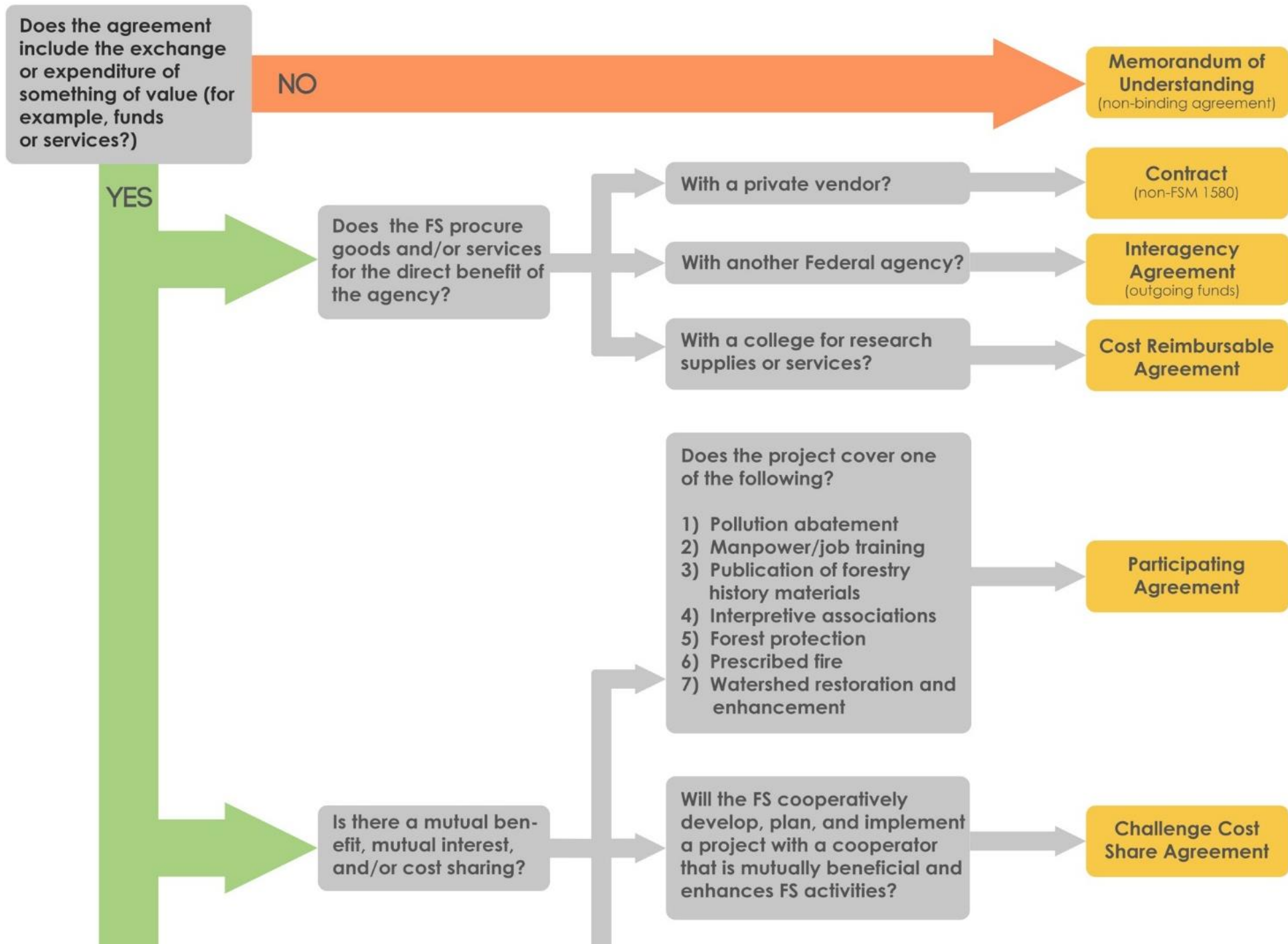
SHARE RESULTS



United States  
Department of  
Agriculture



Forest Service



# POTENTIAL RETURN ON INVESTMENT



Forest Service Funds	<b>\$127, 216</b>
Partner Funds	<b>\$106,896</b>
1,300 volunteers*	<b>\$641,940</b>

***Return on Investment = 6 to 1!***

\*Estimated number of volunteers in proposals with an estimated volunteer time of 20 hours per individual participant. Dollar value calculated using [Independent Sector Estimated National Value of Each Volunteer Hour](#). These are estimates, not final values.



United States  
Department of  
Agriculture



Forest Service



# TWO STAKEHOLDER CASE STUDIES



United States  
Department of  
Agriculture



Forest Service

# CULTURAL IMPORTANCE

**Survey of plants  
traditionally  
used by Arizona  
tribes to improve  
management  
across 4FRI**

*Apache-Sitgreaves,  
Coconino, Kaibab,  
and Tonto National  
Forests  
Central Arizona*

## PARTNERS

- Arizona and New Mexico tribes, Northern Arizona University, Forest Service Tribal Liaisons and Botanists

## VOLUNTEERS

- Tribal elders and youth, at-risk youth, underserved communities, Tribal communities, natural resource partners, Forest Service silviculturists



United States  
Department of  
Agriculture



Forest Service

# “WE ARE NEIGHBORS”

4FRI = 2.4 million acres

Across NM and AZ:

- 11 National Forests, 20 mil acres
- 51 federally recognized tribes, 20 mil acres
- 637 miles of shared land boundary

“Anything that happens on the Forest Service side has an effect to Tribal lands and vice versa.”



United States  
Department of  
Agriculture



Forest Service



# CULTURALLY, MEDICINALLY, ECONOMICALLY IMPORTANT PLANTS



“The tribes continually emphasize plant resources that are incredibly important to them, but most [Forest Service] funding and time go to threatened, endangered and sensitive species.”



United States  
Department of  
Agriculture



Forest Service



# ECOLOGICAL KNOWLEDGE → RESTORATION PROTOCOLS

iNaturalist



Explore

Community

More

Log In or Sign Up



## Tribal Nations Botanical Research Collaborative

### About

Members

5

This Forest Service Citizen Science program collects information on traditionally used plants that have cultural, medicinal, or economic values important to tribal communities. Volunteers will record observations of these plants using the iNaturalist app on their cellular phones; data

[Read More](#)

NEWS

Overview

686

OBSERVATIONS

34

SPECIES

131

IDENTIFIERS

229

OBSERVERS

Stats



United States  
Department of  
Agriculture



Forest Service

# RECREATION NEEDS

## **Cache Creek Study: Monitoring a heavily used recreation area**

*Bridger-Teton National  
Forest  
Jackson, WY*

## **PARTNERS**

- Jackson Hole Wildlife Foundation, Wildflower Watch, and Friends of Pathways, Forest Service Recreation Lead

## **VOLUNTEERS**

- Outdoor recreationists, Teton County Middle School, Teton Science School, the Teton Chapter of the Native Plants Society, Teton Botanical Garden, and the Sierra Club



United States  
Department of  
Agriculture



Forest Service



# A GROWING COMMUNITY



“Jackson is a quintessential mountain town, experiencing growth like a lot of towns in the West. Grappling with managing growth and maintaining open space.”



United States  
Department of  
Agriculture



Forest Service



# RECREATION VS. WILDLIFE



“In the Jackson town survey, maintaining wildlife populations always comes up as a priority value. At the same time, we have a blossoming recreation community of mountain bikers, dog walkers, runners - and the reason people are moving here is because of the access out their back door.”



United States  
Department of  
Agriculture



Forest Service



# BUILDING CONSENSUS IN A COMMUNITY



“People are polarized, we need a place to start the conversation.”

## CREATING A DATA BASELINE

- Trail counters
- Wildlife movements
- Phenological observations  
ten species of native and  
invasive plants



United States  
Department of  
Agriculture



Forest Service



# ARE WE ACHIEVING WHAT WE SET OUT TO?

PROGRAM REPORT COMING 2020

- **Inspire & Promote Citizen Science**
- **Demonstrate Mission Results**
  - Increased collection & analysis of usable data & information
  - Enhanced collaboration between units, partners & public
- **Model a Project Incubator**
  - Accelerate project growth and success through peer-to-peer learning



United States  
Department of  
Agriculture



Forest Service

# MORE INFORMATION

Citizen Science Toolkit: <https://www.fs.fed.us/working-with-us/citizen-science/citizen-science-toolkit>

CitSci Fund Webpage: <https://www.fs.fed.us/working-with-us/citizen-science/competitive-funding-program>

Mailing list sign-up: [www.eepurl.com/c5H8db](http://www.eepurl.com/c5H8db)

Email Us! [sm.fs.fscs@usda.gov](mailto:sm.fs.fscs@usda.gov)