

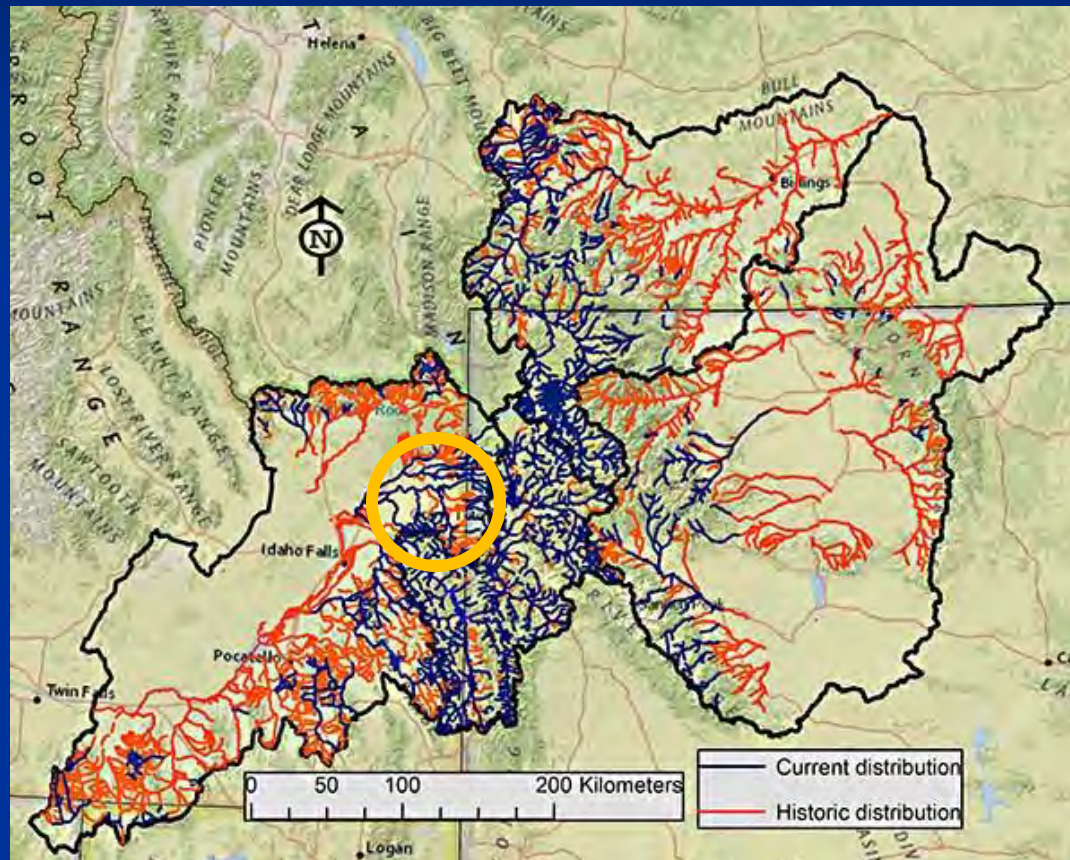
# 2020 Scope of Work

- Teton river tributary trout assessment
- Update on IDFG fisheries surveys
- PIT tag site operation and tagging efforts
- Spawning YCT Redd surveys
- Genetic sample collection
- Stream and riparian restoration

# Teton River Watershed



# Yellowstone Cutthroat Trout Distribution

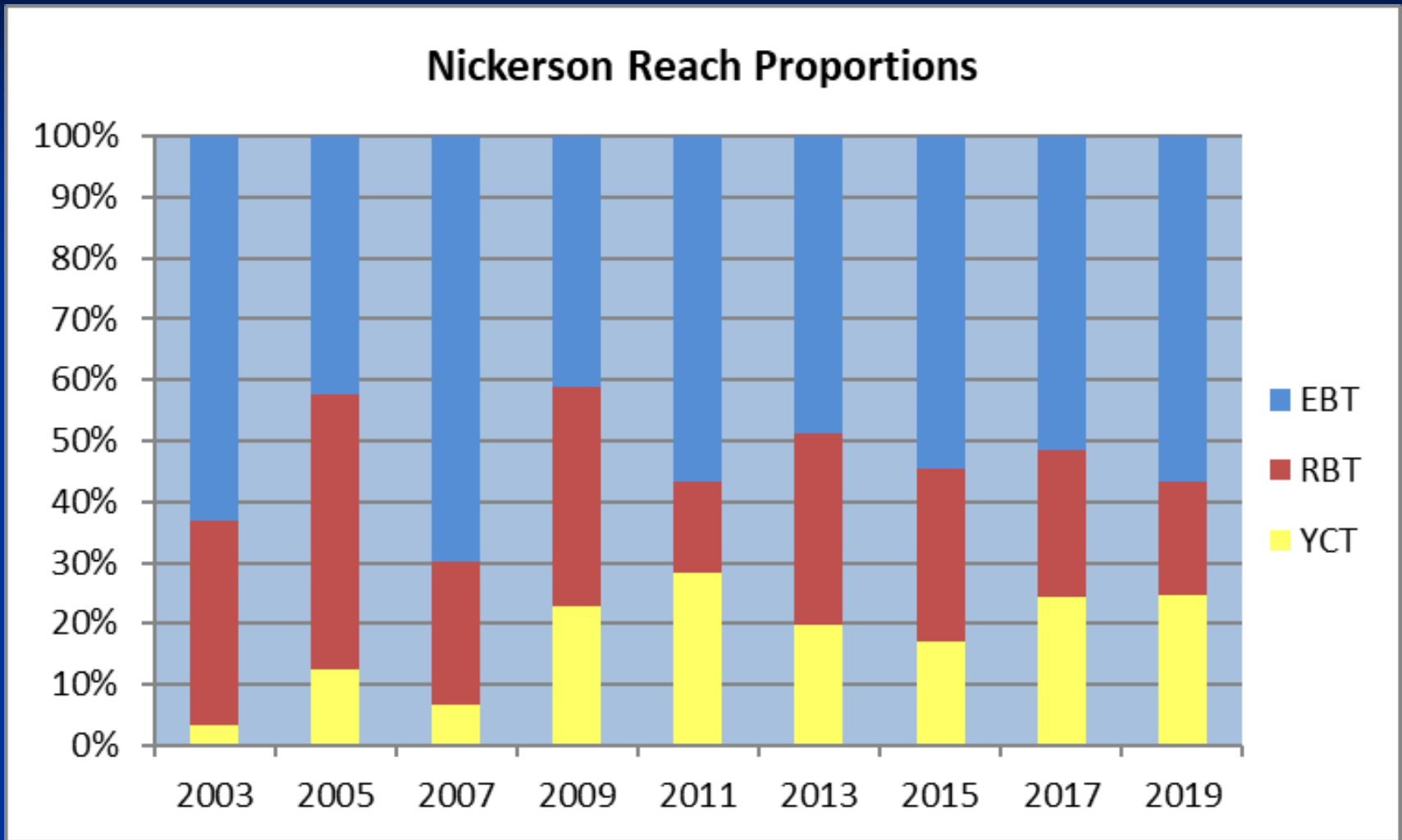


Al-Chockachy Et.Al. 2017

- 43% of historic range is currently occupied
- 23% of the current distribution is genetically unaltered



# Historic Species Composition



The data and data analysis in this graphic was created by the Idaho Fish and Game Department.



# Our Goals

- Determine long-term trout population trends
- Provide the agencies with additional data on the Teton River watershed
- Identify, prioritize and design YCT conservation projects
- Monitor the efficacy of conservation projects



Will Stubblefield Photo



# Basin Wide Electrofishing Survey



Will Stubblefield Photo



# Survey History

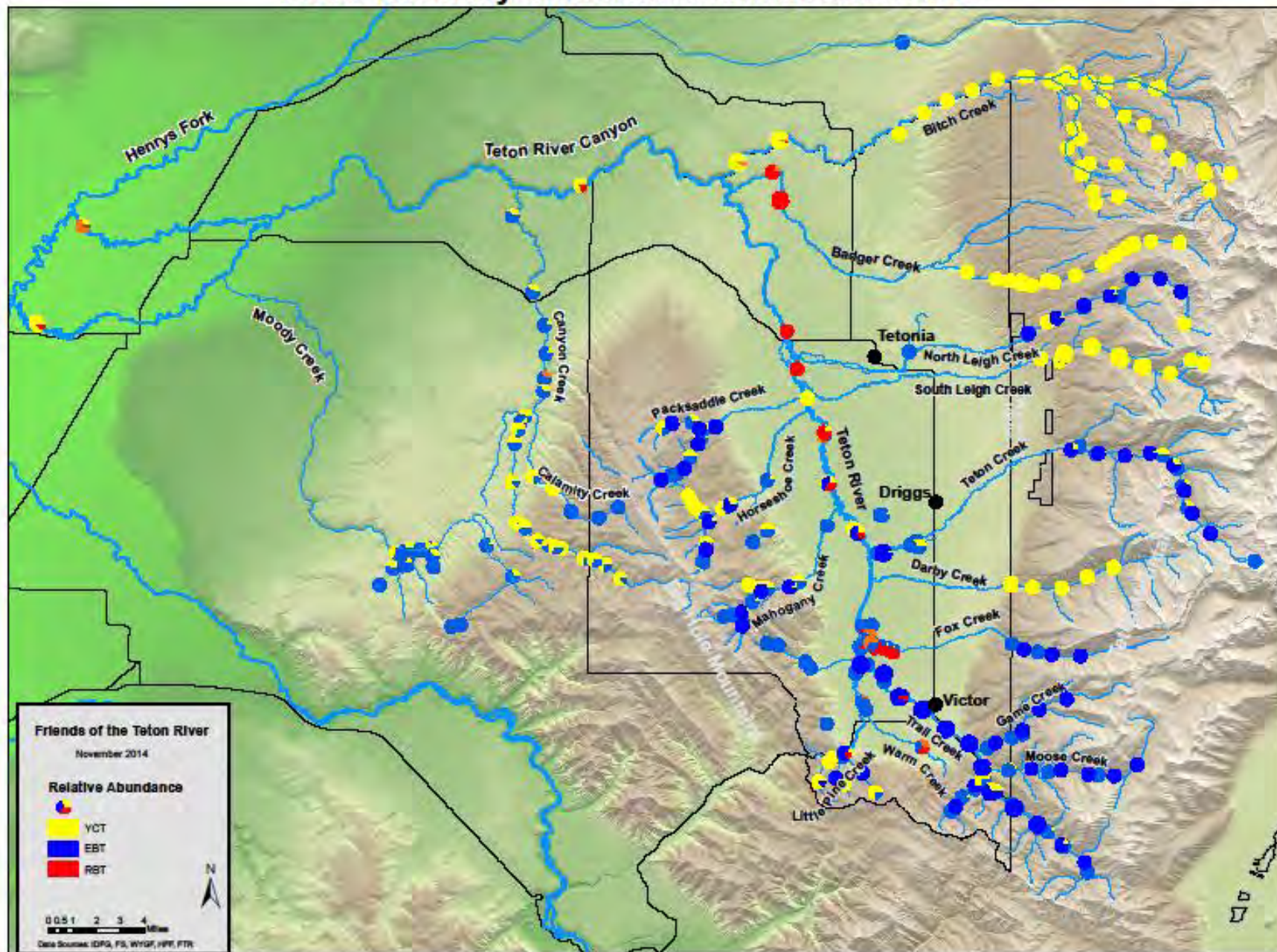


Will Stubblefield Photo

- 133, 100 Meter sites established in 2005
- Survey Methodology and Statistical analysis was Developed by Dr. Rob Van Kirk of the Henrys Fork Foundation
- Original scope of survey includes sites on 11 Teton River tributaries



# Teton Tributary Trout Assessment Sites 2015





# 2020 Survey

- 68, 100 M sites shocked during the summer of 2020
- Survey sites on Trail, Teton, South Leigh, North Leigh, Moose, Game, Canyon, Calamity, Bitch and Badger Creeks.
- FTR worked in partnership with WGFD and IDFG to complete the survey



Will Stubblefield Photo

# Survey Methods

- Backpack electrofishing unit used to capture trout
- Exact site location is revisited for each survey
- All habitat changes are noted by surveyors



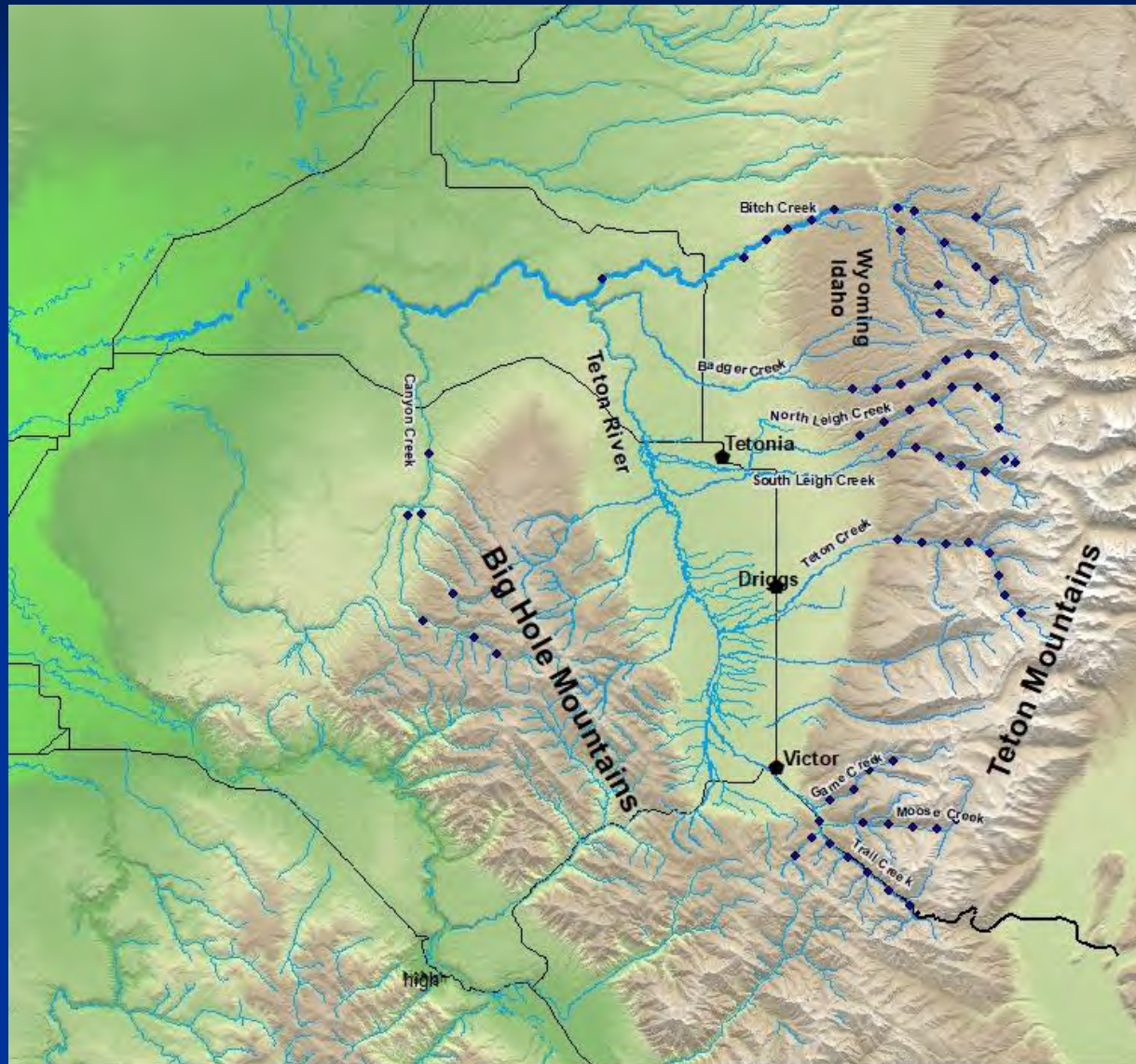
North Leigh Creek 2005



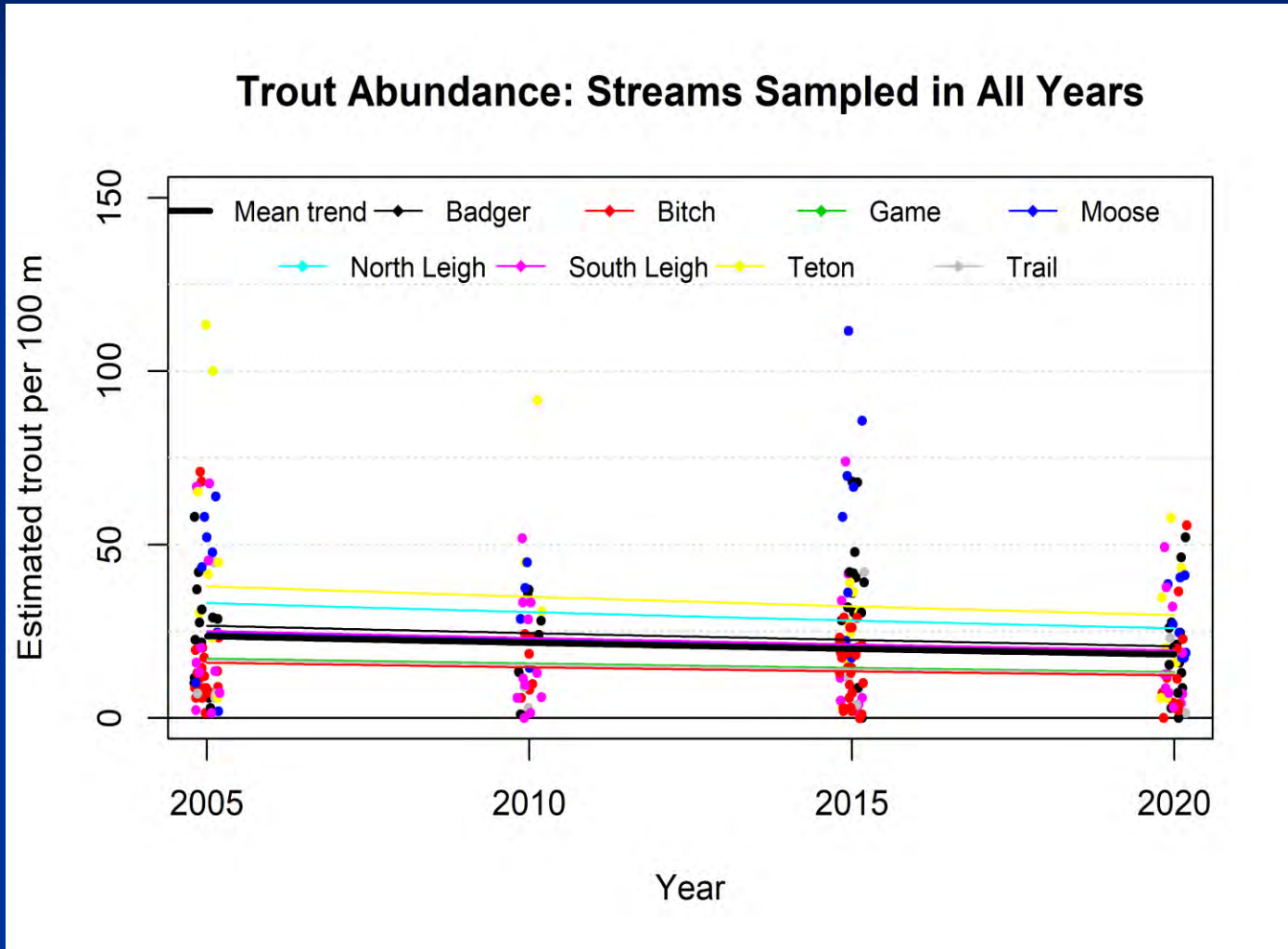
North Leigh Creek 2020



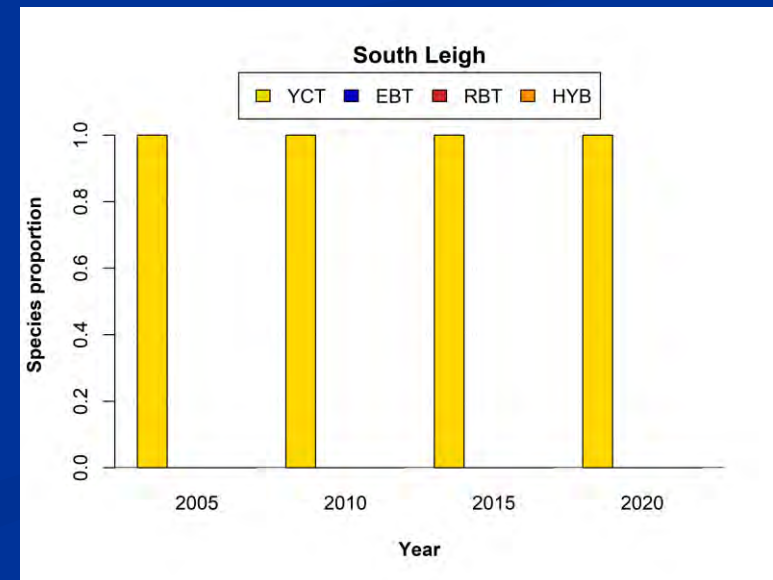
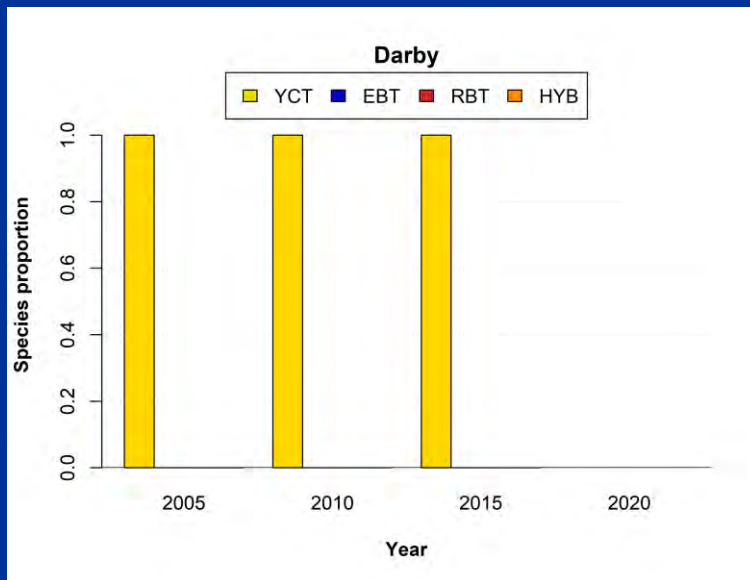
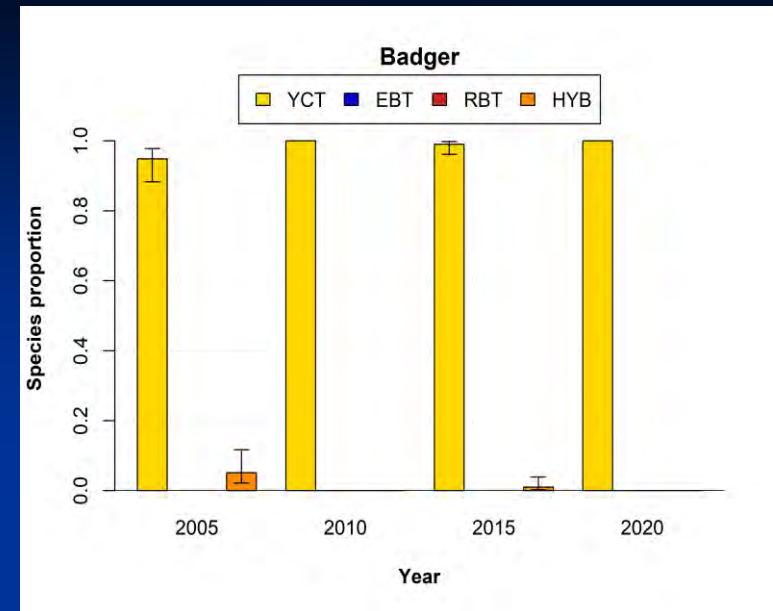
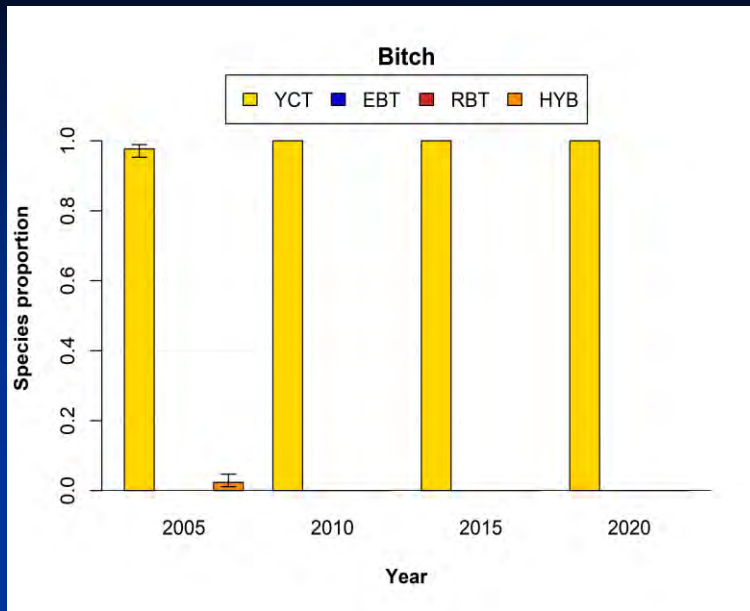
# 2020 Electrofishing Sites



# Results

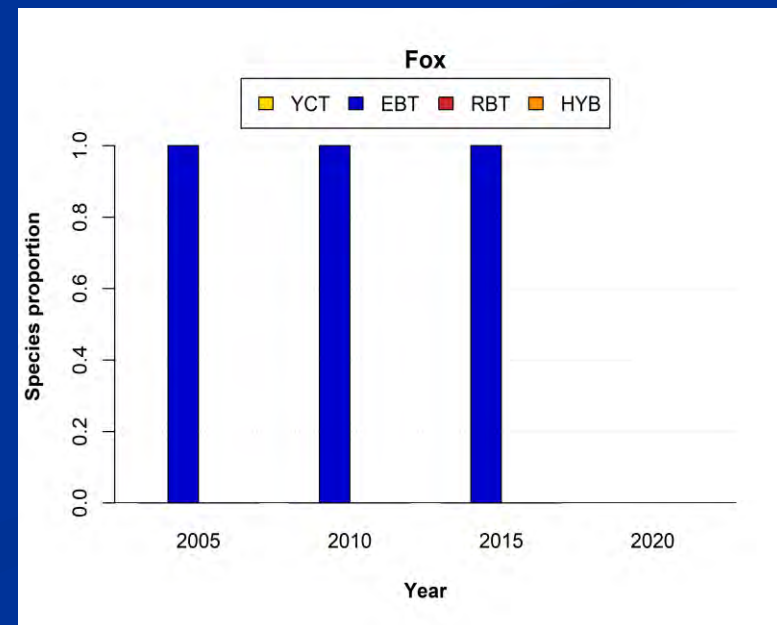
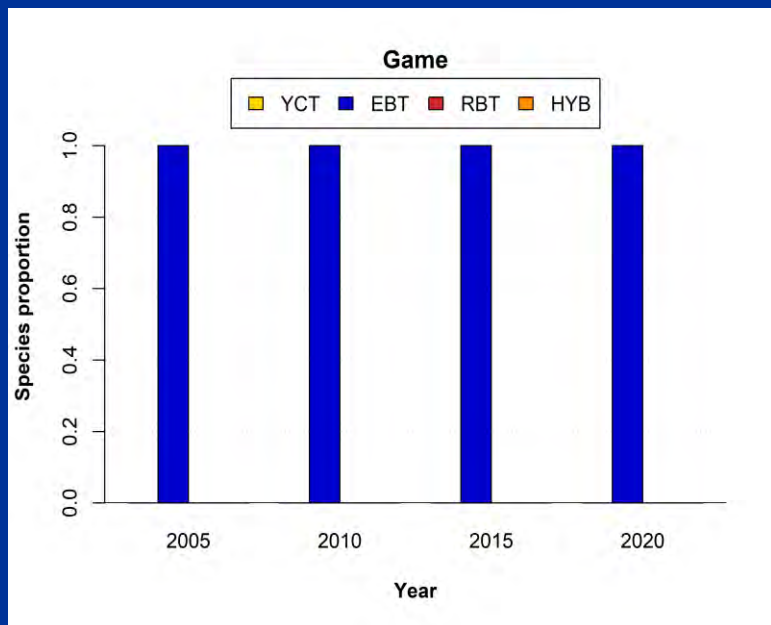
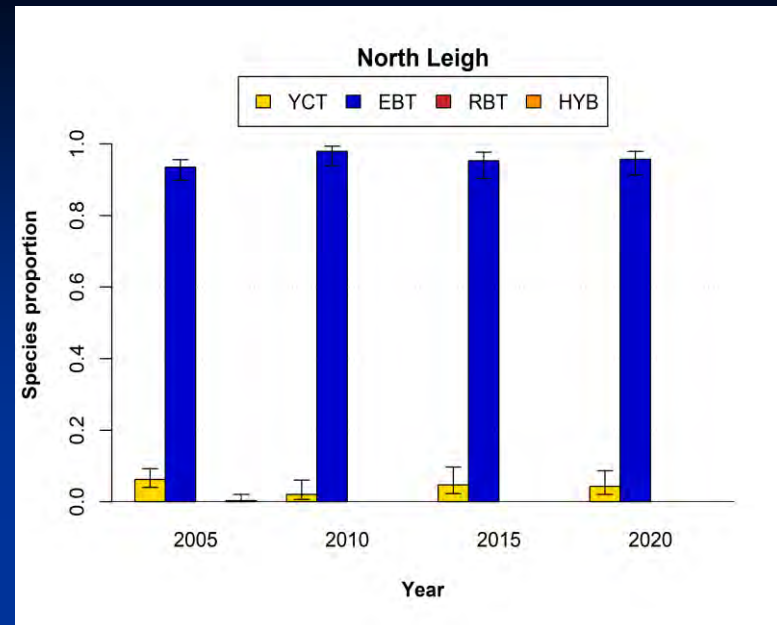
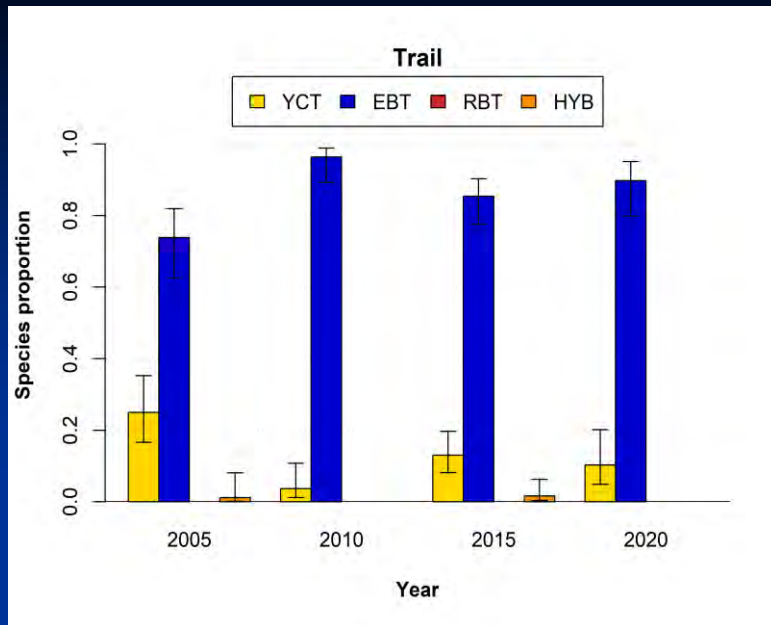


This graph and supporting statistical analysis was created by Rob Van Kirk of the Henrys Fork Foundation

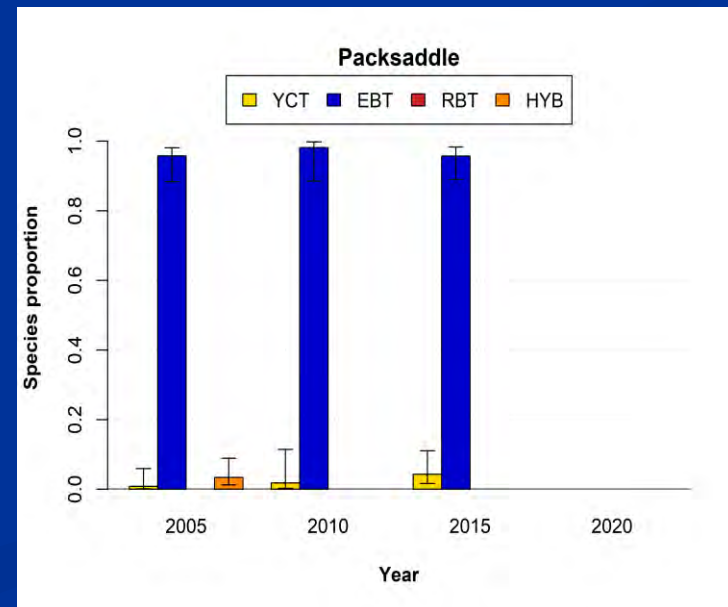
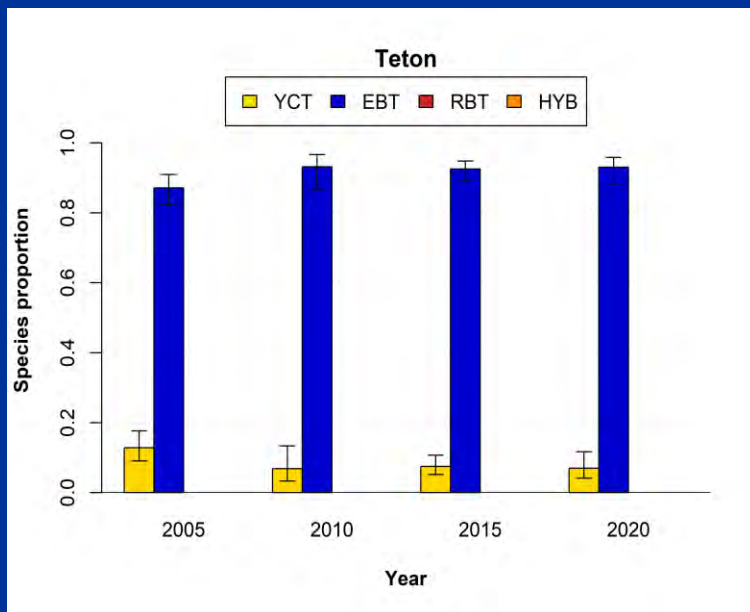
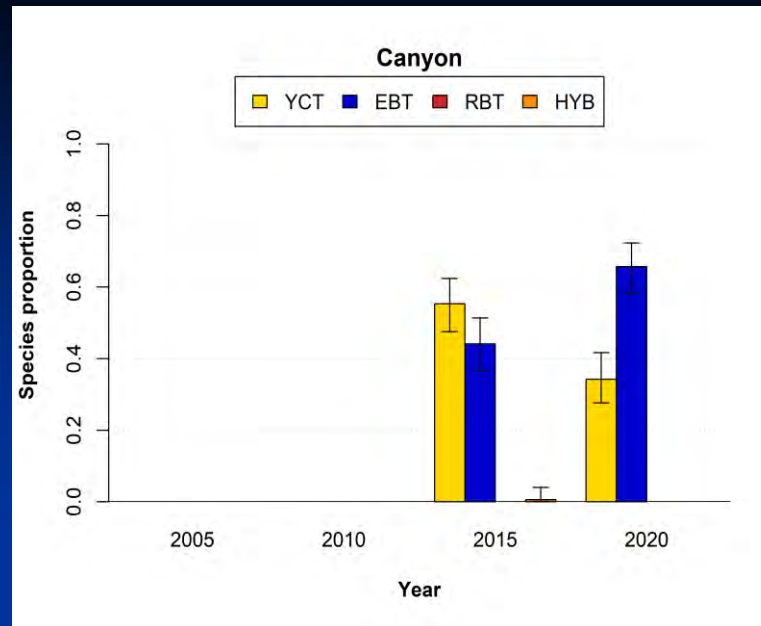


This graph and supporting statistical analysis was created by Rob Van Kirk of the Henrys Fork Foundation

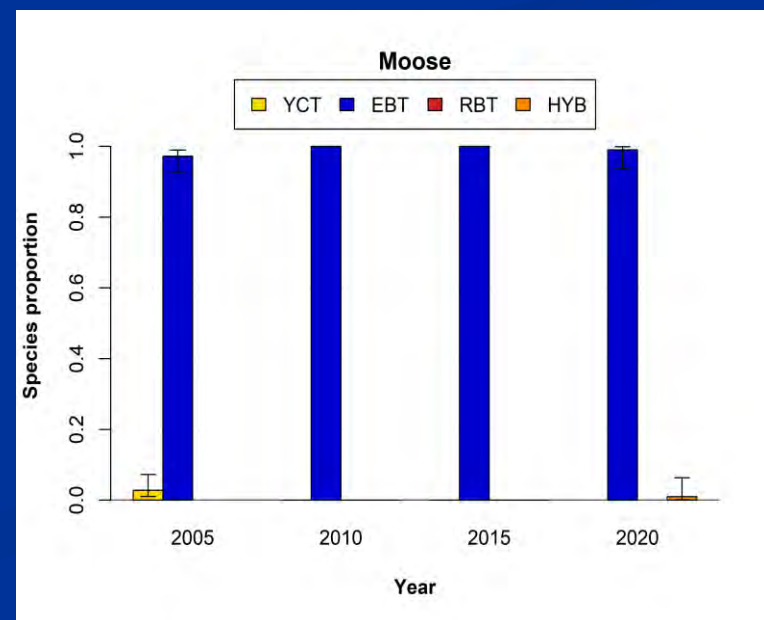
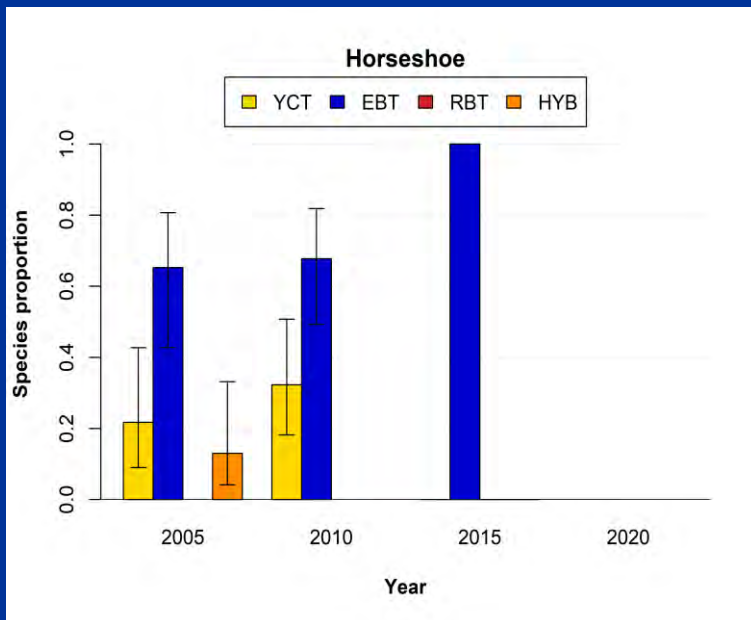
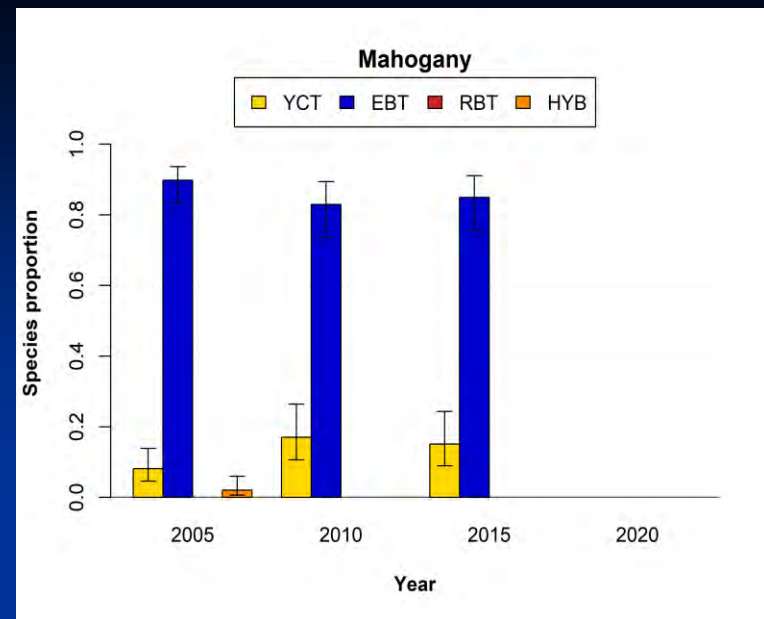
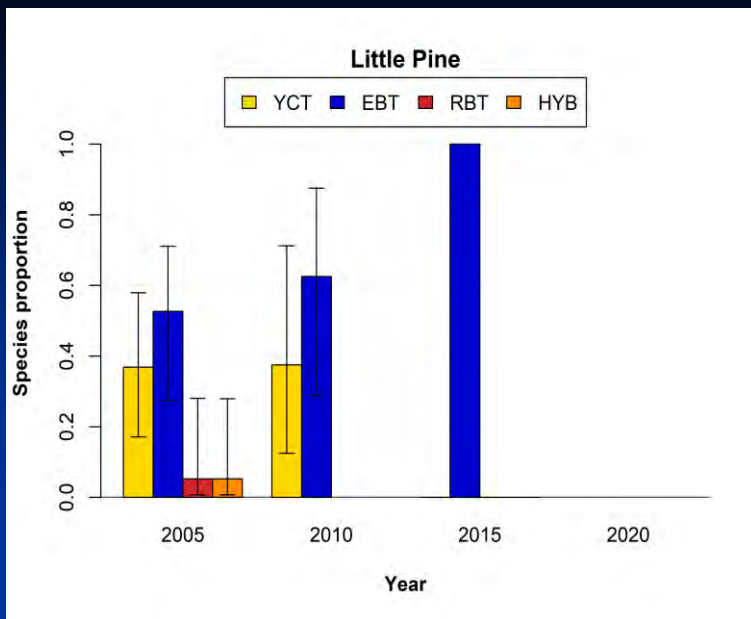




This graph and support statistical analysis was created by Rob Van Kirk of the Henrys Fork Foundation



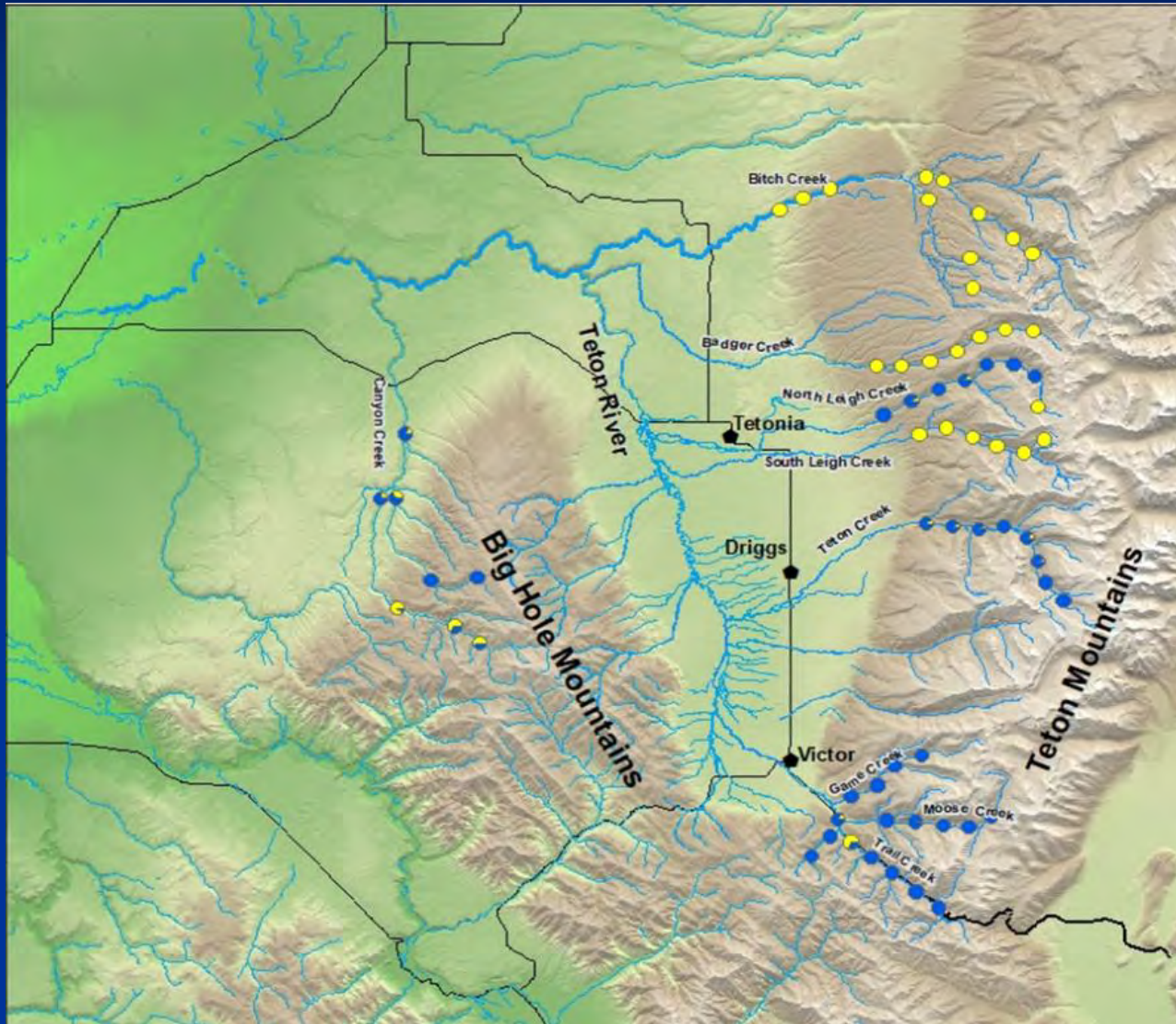
This graph and support statistical analysis was created by Rob Van Kirk of the Henrys Fork Foundation



This graph and supporting statistical analysis was created by Rob Van Kirk of the Henrys Fork Foundation



# Watershed Composition



# IDFG Survey Sites





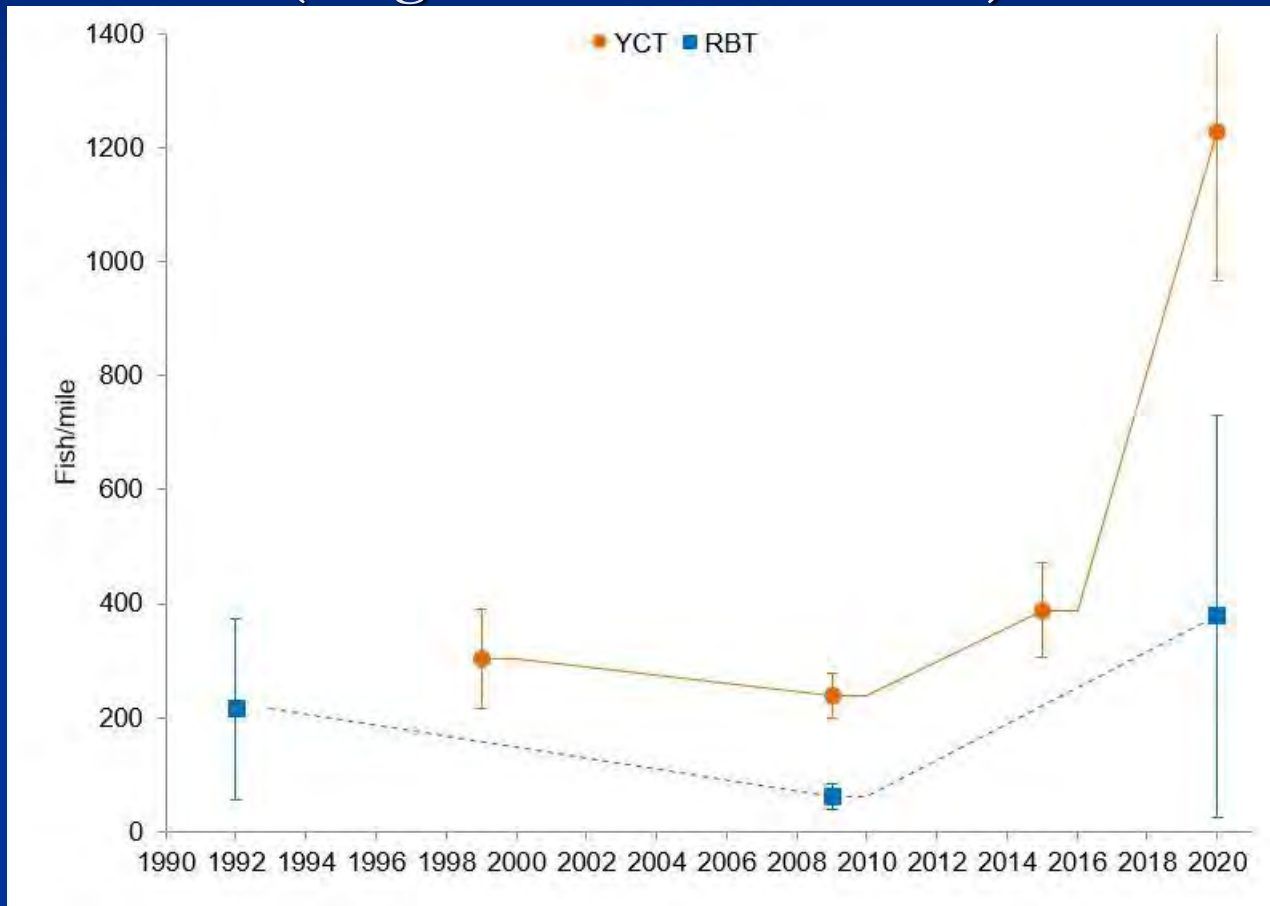
# Teton River Canyon Electrofishing



Will Stubblefield Photo

# YCT, on the Rise in the Parkinson Reach!

(Hog Hollow to Felt Dam)

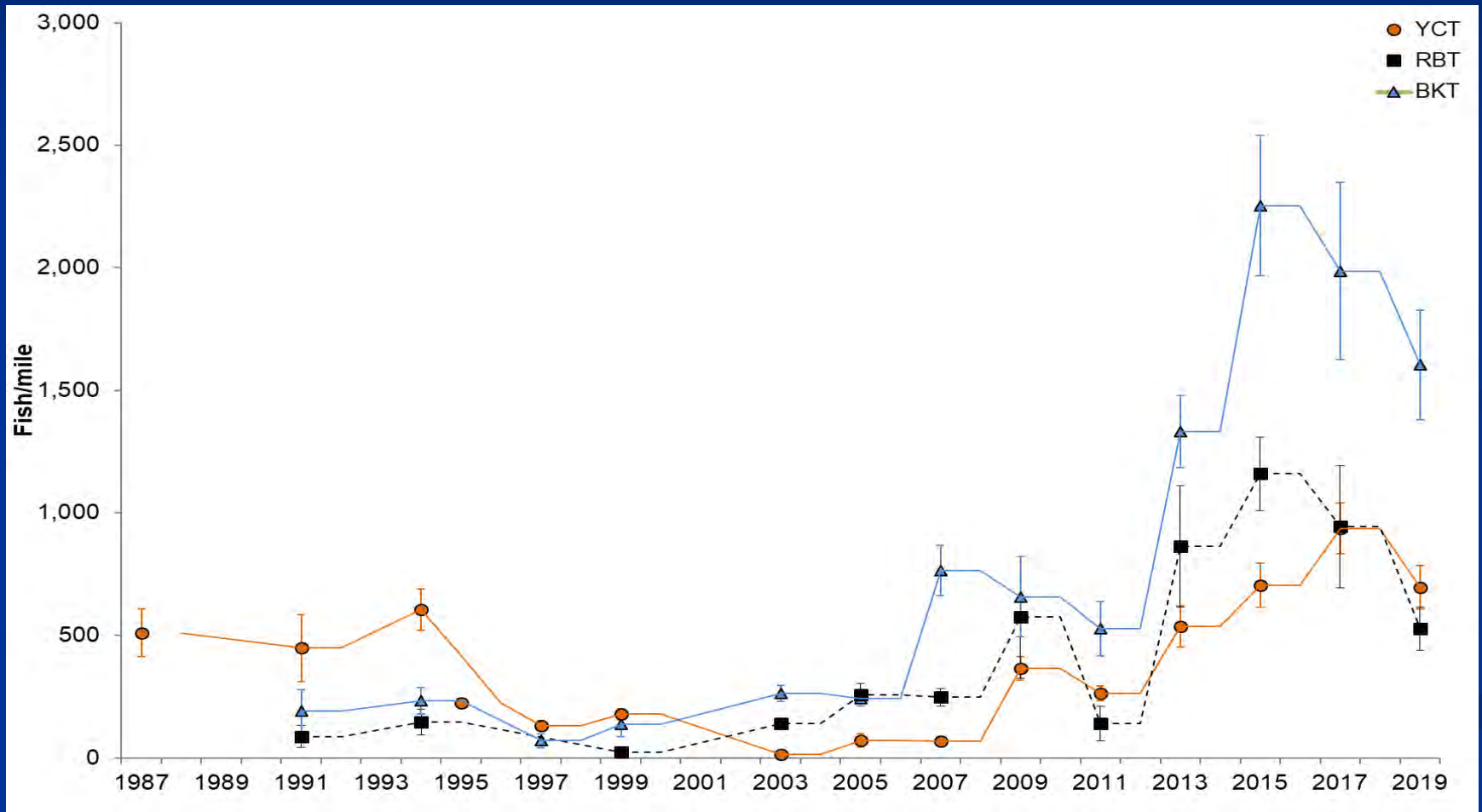


The data, graph, and data analysis in this graphic was created by the Idaho Fish and Game Department.



# Nickerson Reach

(S. Bates to Bates)



The data, graph, and data analysis in this graphic was created by the Idaho Fish and Game Department.

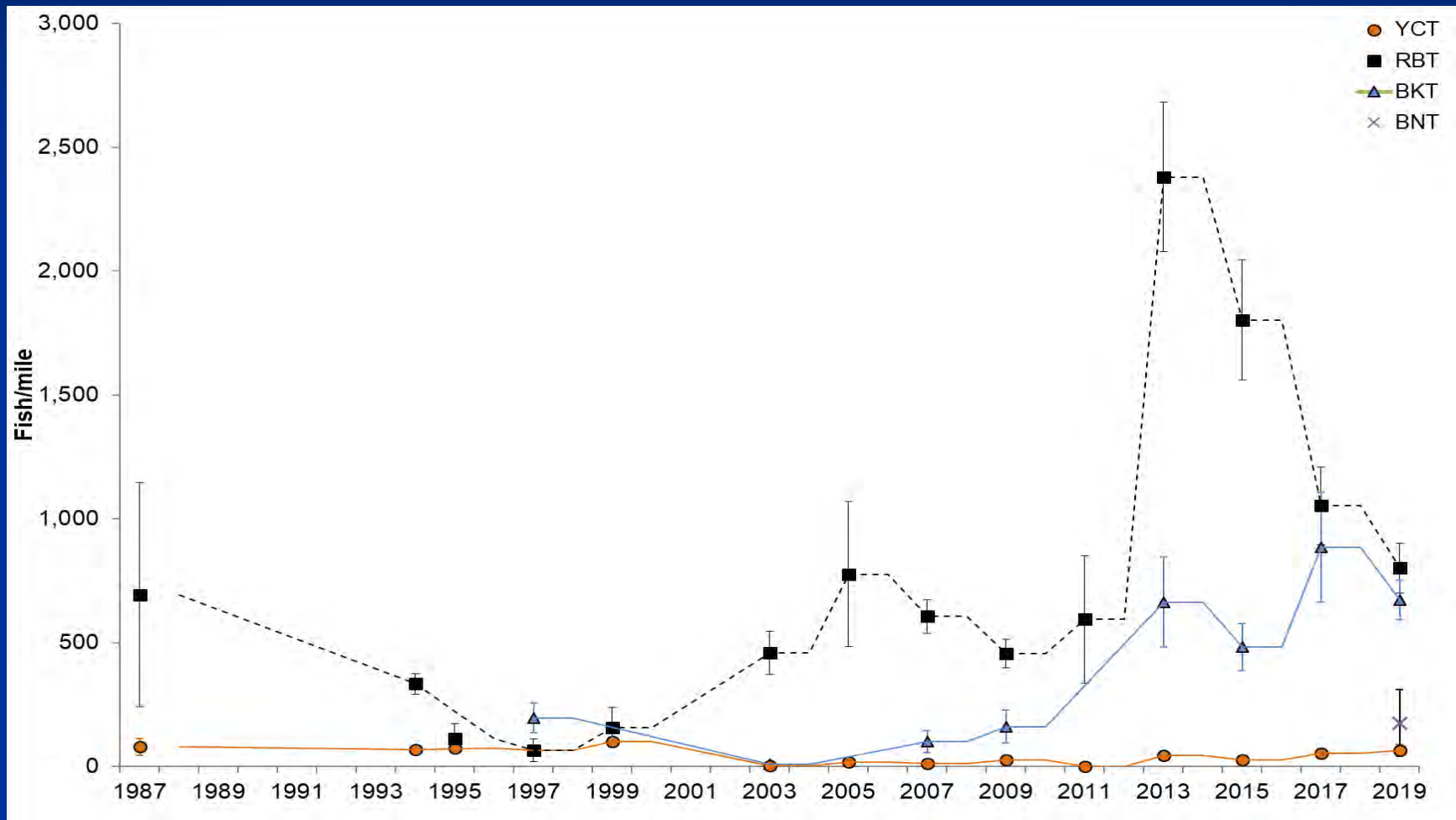






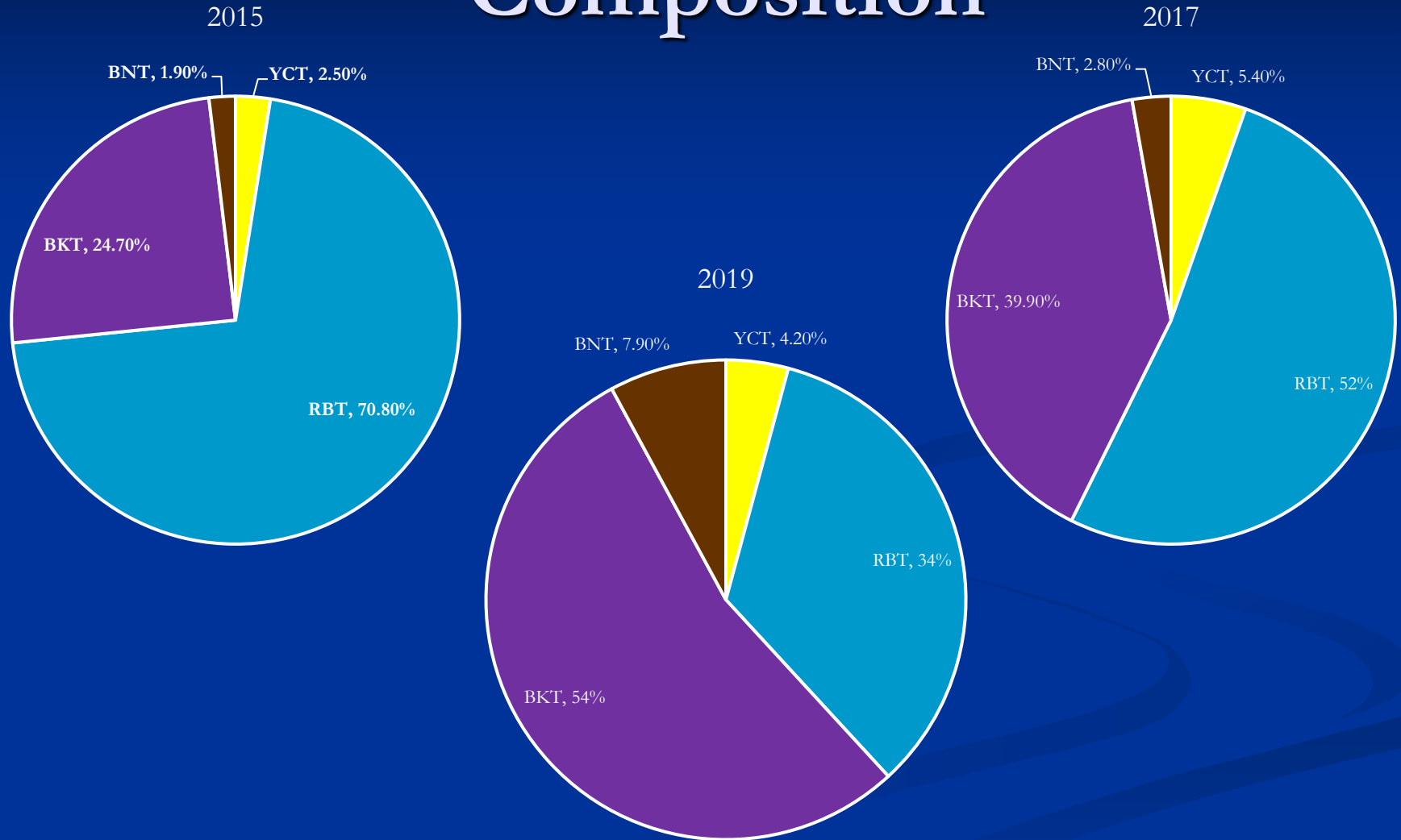
# Breckenridge Reach

## (Packsaddle to Harrop's)



The data, graph, and data analysis in this graphic was created by the Idaho Fish and Game Department.

# Breckenridge Species Composition

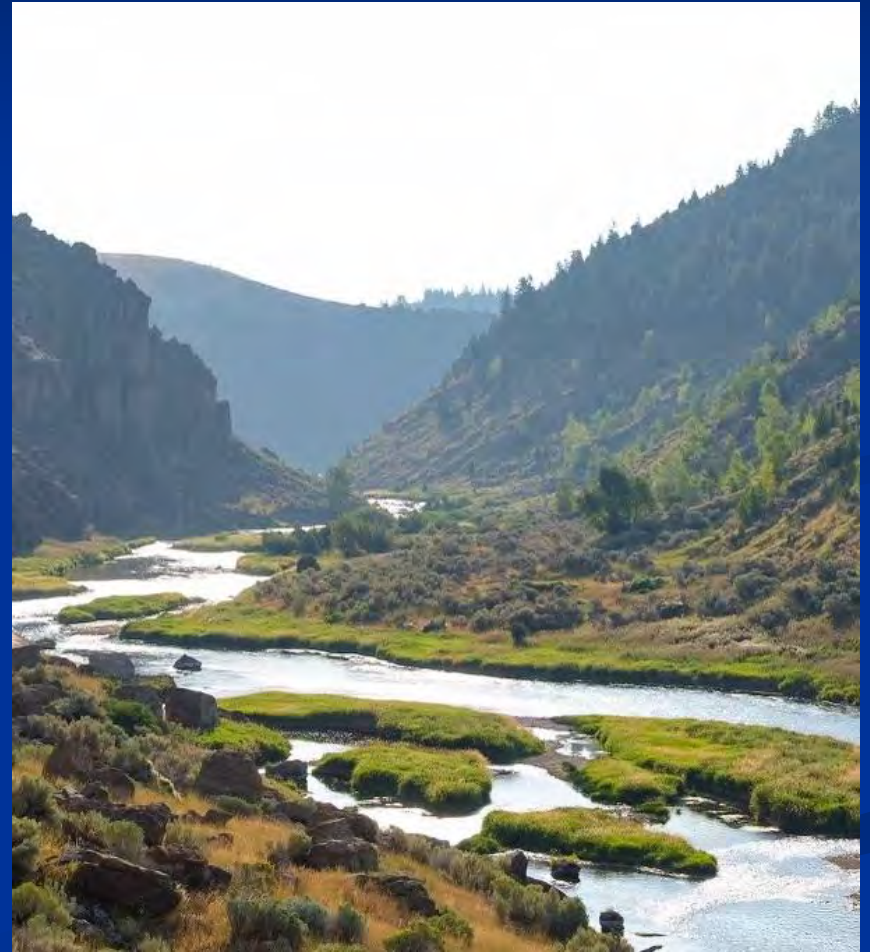


The data, graph, and data analysis in this graphic was created by the Idaho Fish and Game Department.



# Annual Monitoring

- PIT tagging
- PIT tag array maintenance
- YCT Redd Surveys
- Fish Screen maintenance



Will Stubblefield Photo

# PIT Tagging

- Over 5,000 fish have been PIT tagged in the watershed
- Tags monitor fish movements and effectiveness of watershed restoration

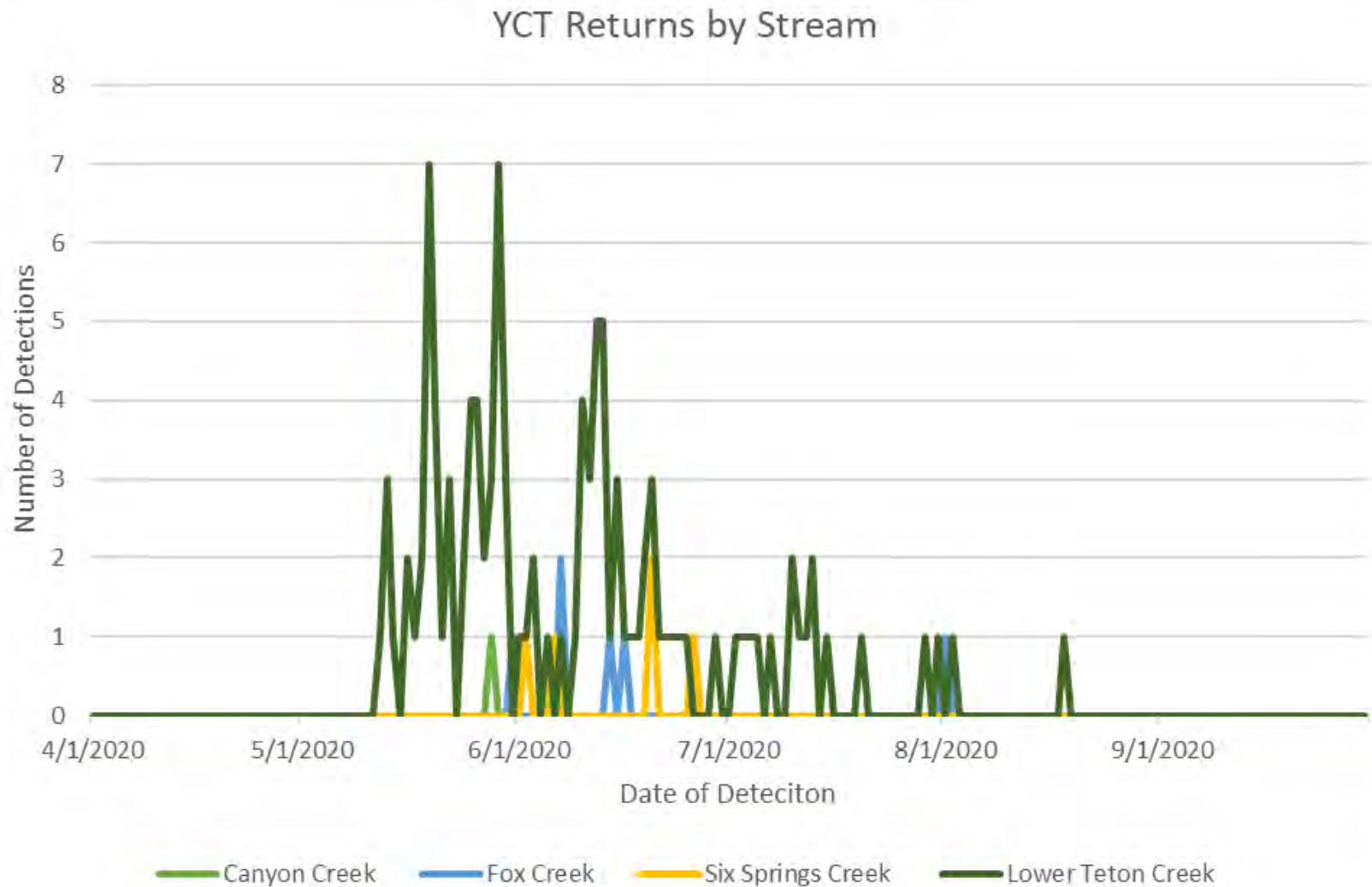




# PIT Array Maintenance

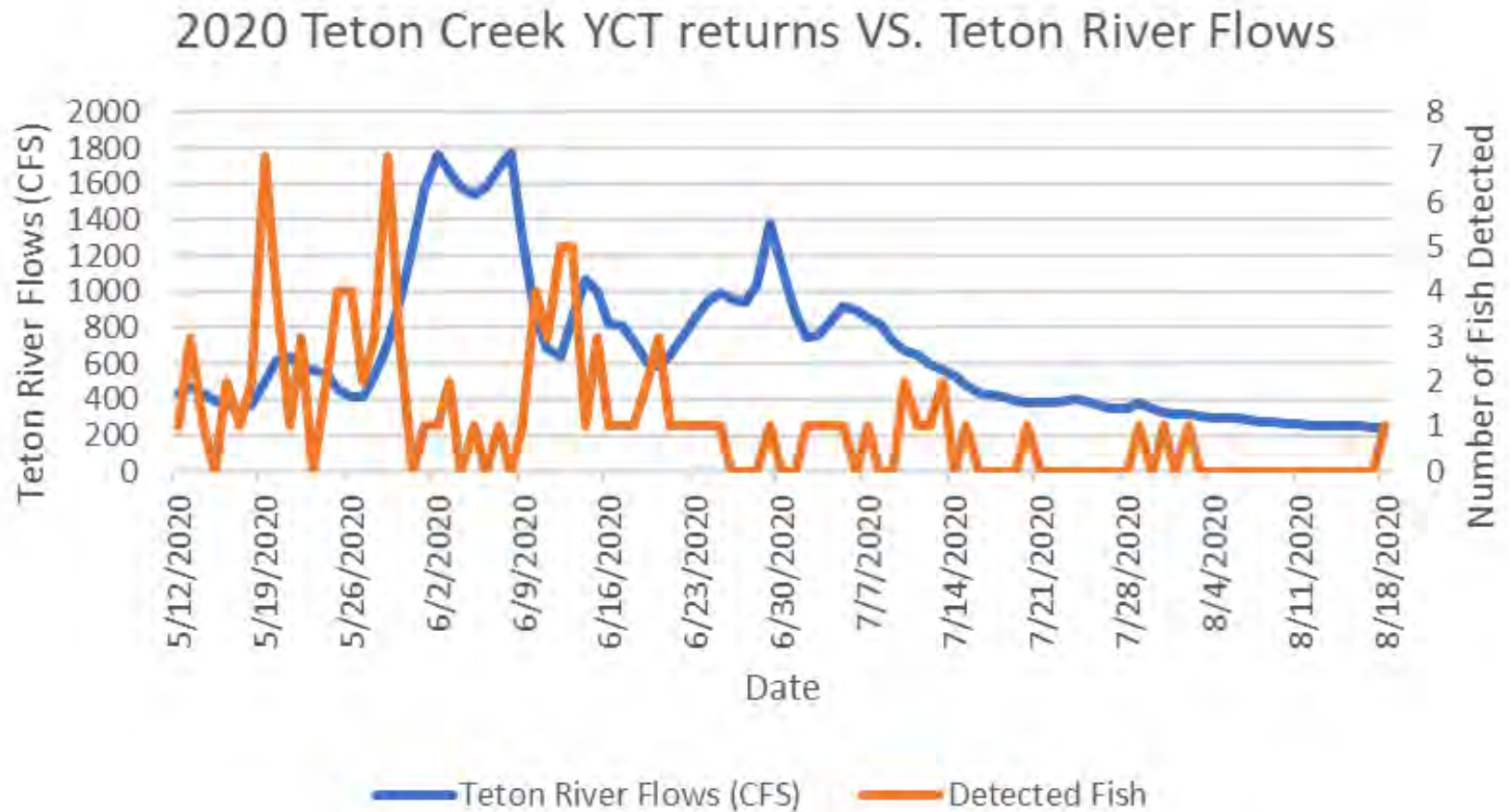


# PIT Array Findings



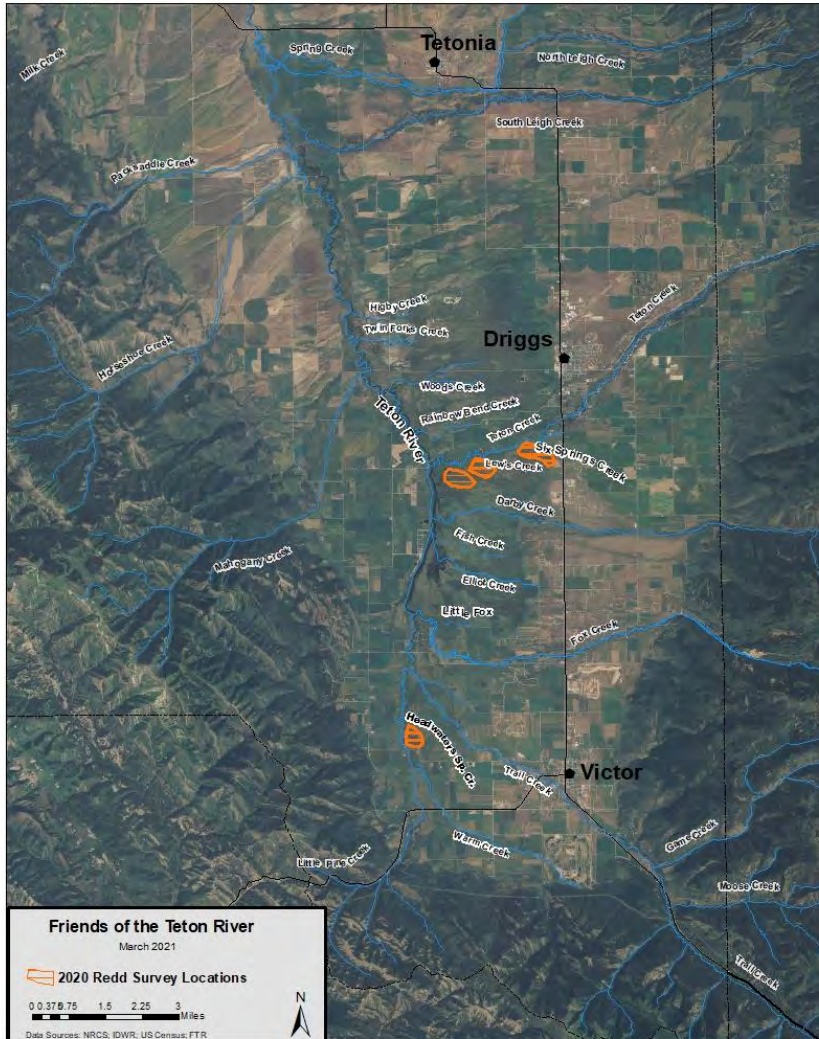


# Spawning Timing

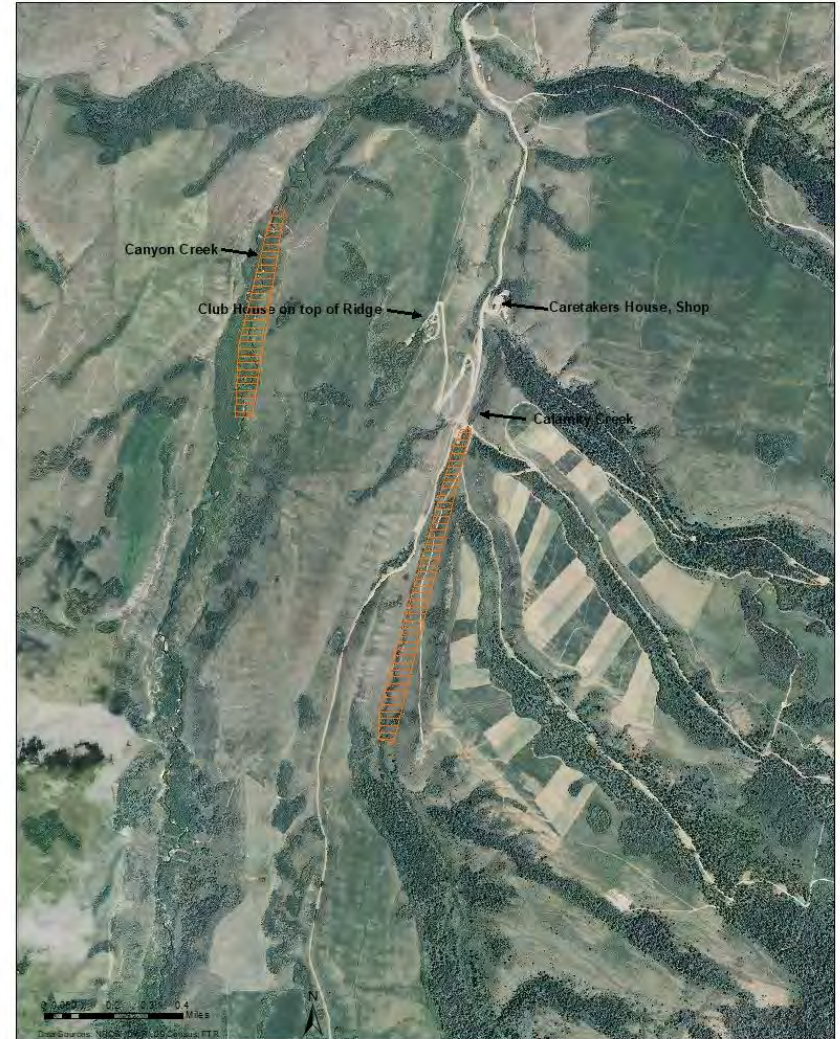


# Redd Surveys

Redd Surveys on the Upper Teton River 2020



Redd Surveys on Canyon-Calamity Creeks 2020





# Redd Count Results

Stream Name	2020	2019	2018	2017
Six Springs Creek	26	9	28	6
Lews Spring Creek	3	N/A	N/A	0
Headwaters Spring Creek	0	N/A	N/A	N/A
Canyon Creek	0	N/A	N/A	0
Calamity Creek	3	N/A	N/A	N/A

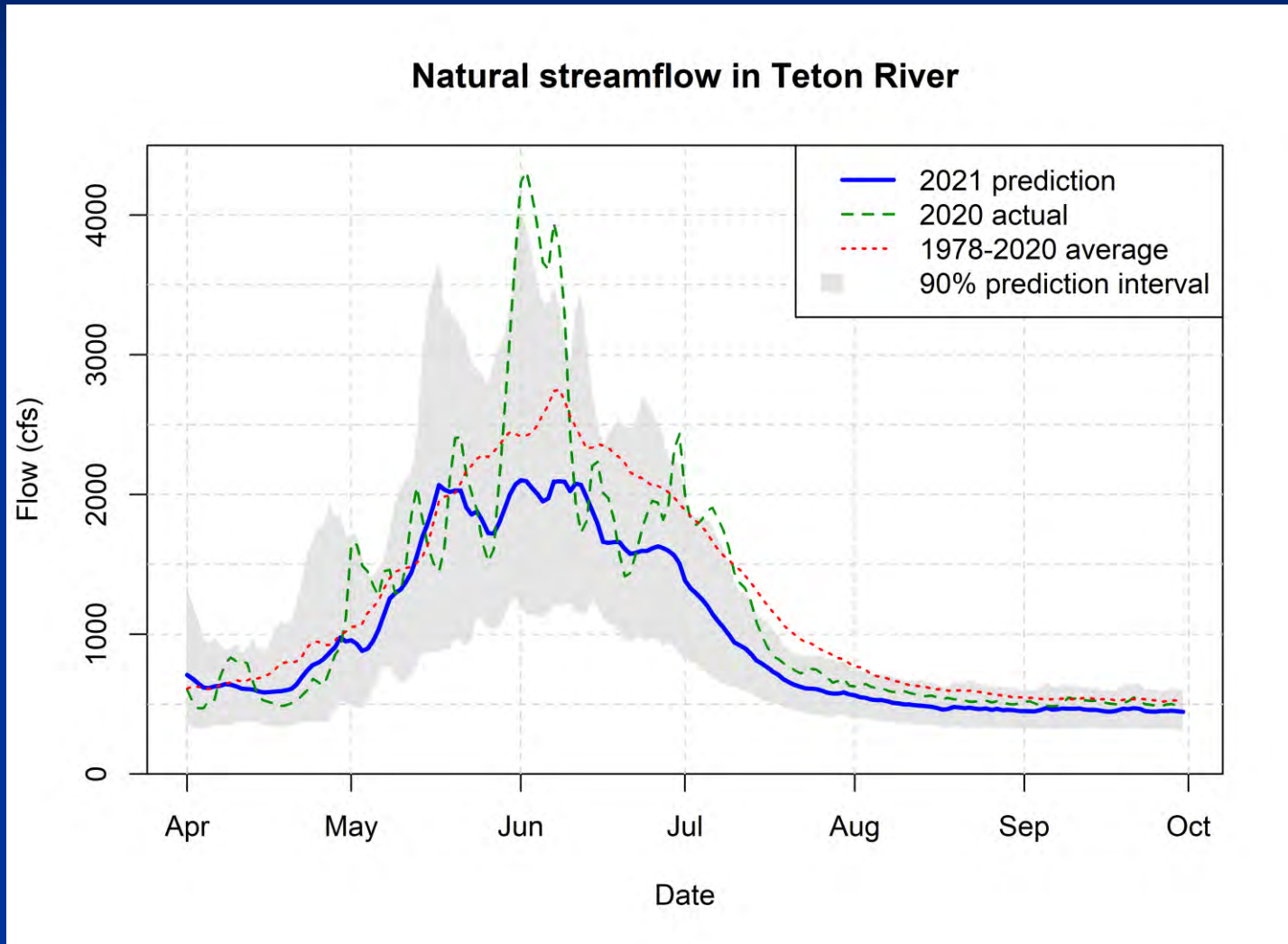
# Genetic Sample Collection

- Electrofishing and Rod and Reel collection methods
- Samples shared with the IDFG genetics lab





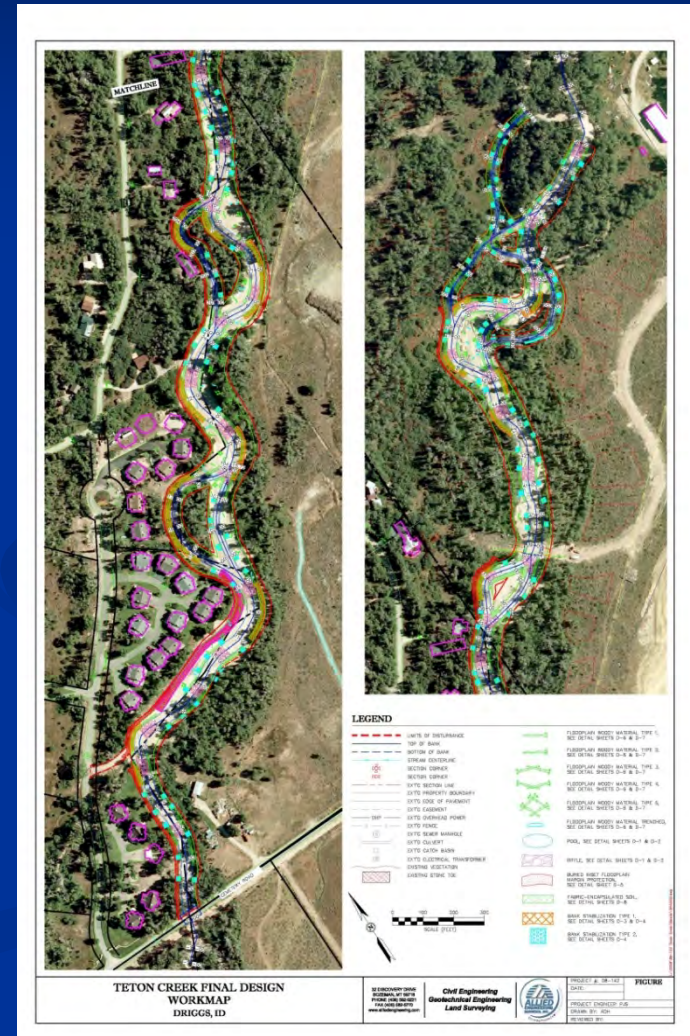
# 2021 Water Year and Angling Projections



This graph and supporting statistical analysis was created by Rob Van Kirk of the Henrys Fork Foundation

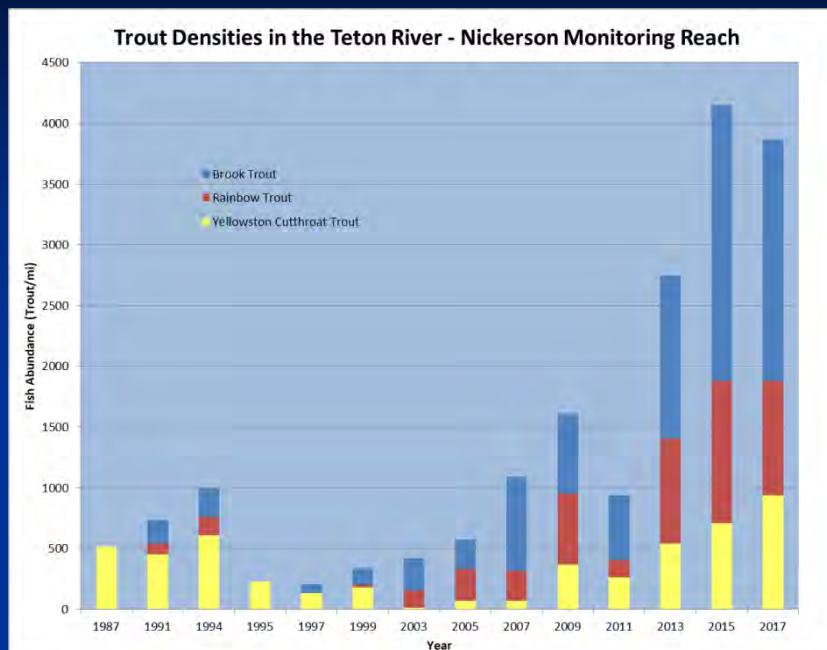
# Significant Conservation Projects Started in Earnest in 2003:

- 27 stream restoration projects: 5.7 miles of streams. Sediment load reduction: 4,600 tons/year (260 dump truck loads/year)
- 3 fish screens
- 8 Fish ladders/fish passage projects
- Restored flow=more water
- Management of canals (slow ramp-down)

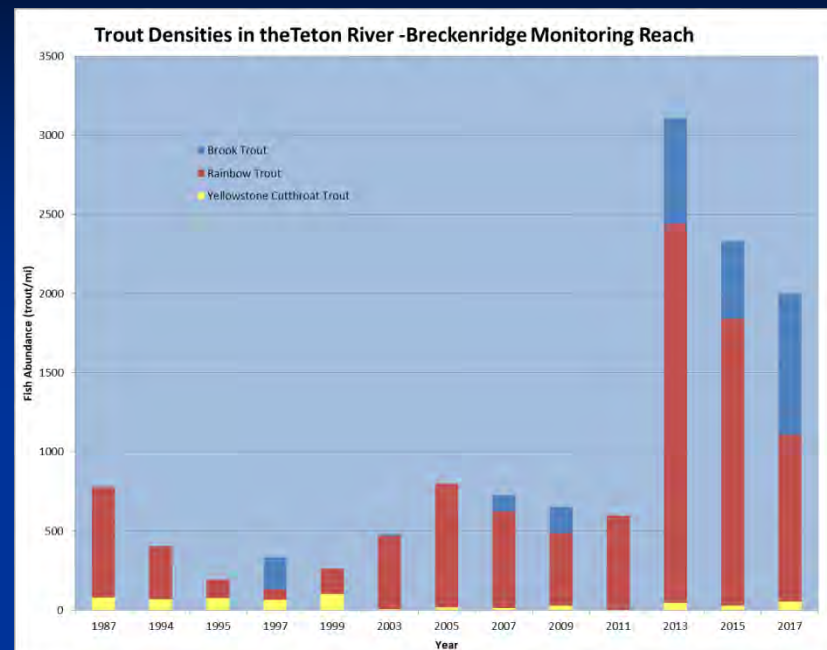




# Upper Teton River Trout Population Trends: A Strong Correlation!



2003=420 trout/mi      2017=3867 trout/mi  
 YCT=14/mi              YCT=936/mi



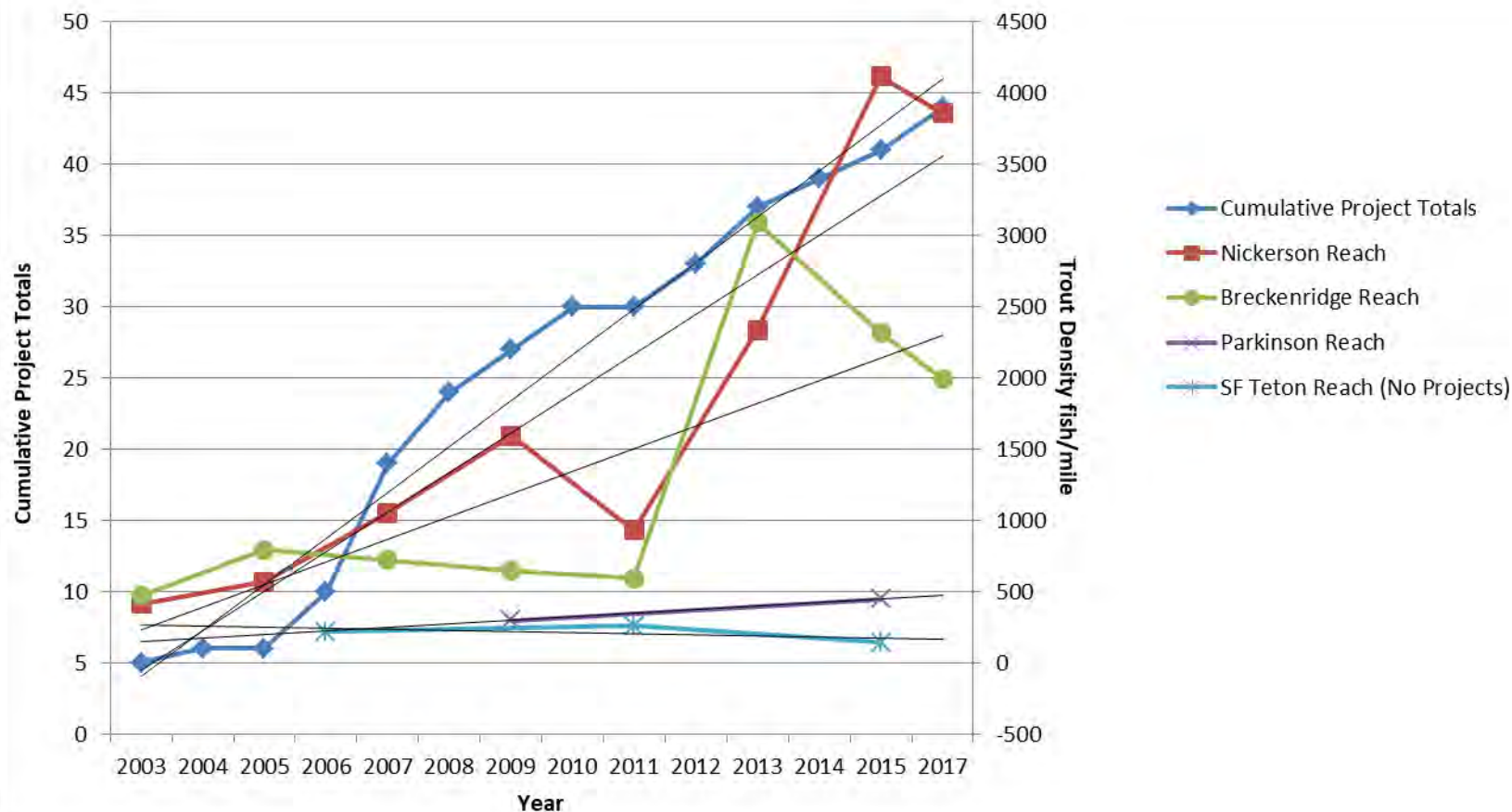
2003=478 trout/mi      2017=1993 trout/mi

Nickerson Densities similar to SF of the Snake Conant Reach

\*Stocking stopped in 1994. Significant conservation efforts started in earnest in 2003. IDFG Dan Garren: not due fisheries management. USGS Robert Al-Chokhachy: not due to hydrology or temperature influence. Natural variance or conservation projects?

# Fisheries Response to Conservation Projects\*

IDFG Teton River Electro-fishing Sites: All Trout Species





# Fish Screens



Badger Splitter Before



Badger Splitter After



# Fish Screens



1) Screens: Prevent Entrainment of YCT (up to 5% of population/year)

1) Functioning Headgates: Improve Instream Flows

Hog Canal With Fish Screens

# Fish Passage Projects





# Fish Passage Projects





# Habitat Restoration



Fox Creek Before Restoration



Fox Creek Six Years After Restoration



# The Teton Creek Project: Channelization: 1980-2004



**Reference Reach under  
Natural Conditions**



**Developer Disturbance Reach**

**6,000 Linear Feet Disturbed,  
120,000 Tons of Sediment Displaced**



# Teton Creek Project: Inset Floodplain Design

Side Channel Pre-Construction



Side Channel After Construction



**\$2.85 Million Project**  
**Fish Habitat Increased by 80%**  
**Sediment Reduction: 2,800 tons/year**



# Project Examples: Bates



Eroding Bank at Boat Ramp Before

Phase 1 2020: 845ft

Final Phase 2022: 920ft





# Flow Restoration Program









## ***Water Users Group Vision:***

- Keep working lands working by securing and maintaining a reliable and affordable supply of water to sustain agriculture
- Protect and restore stream flows and water quality in the Teton River and its tributaries, for the benefit of people, wildlife, and fish
- Secure and maintain a safe, affordable, and high quality water supply for municipalities and residential water users



# Questions?



Will Stubblefield Photo

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