Native Suckers of the Chuska Mountains and Defiance Plateau

GLENN SELBY-FISH BIOLOGIST

Native Species on the Chuska Mts and Defiance Plateau

- Speckled Dace
- Bluehead sucker
- Zuni bluehead sucker

Native Suckers

- Catastomus discobolus, Bluehead sucker
  - Chuska Mountains
- Catastomus discobolus yarrowi, Zuni bluehead sucker
  - Subspecies of Bluehead sucker
  - Defiance Plateau
  - Federally Listed as Endangered (August 2014)

Bluehead Suckers

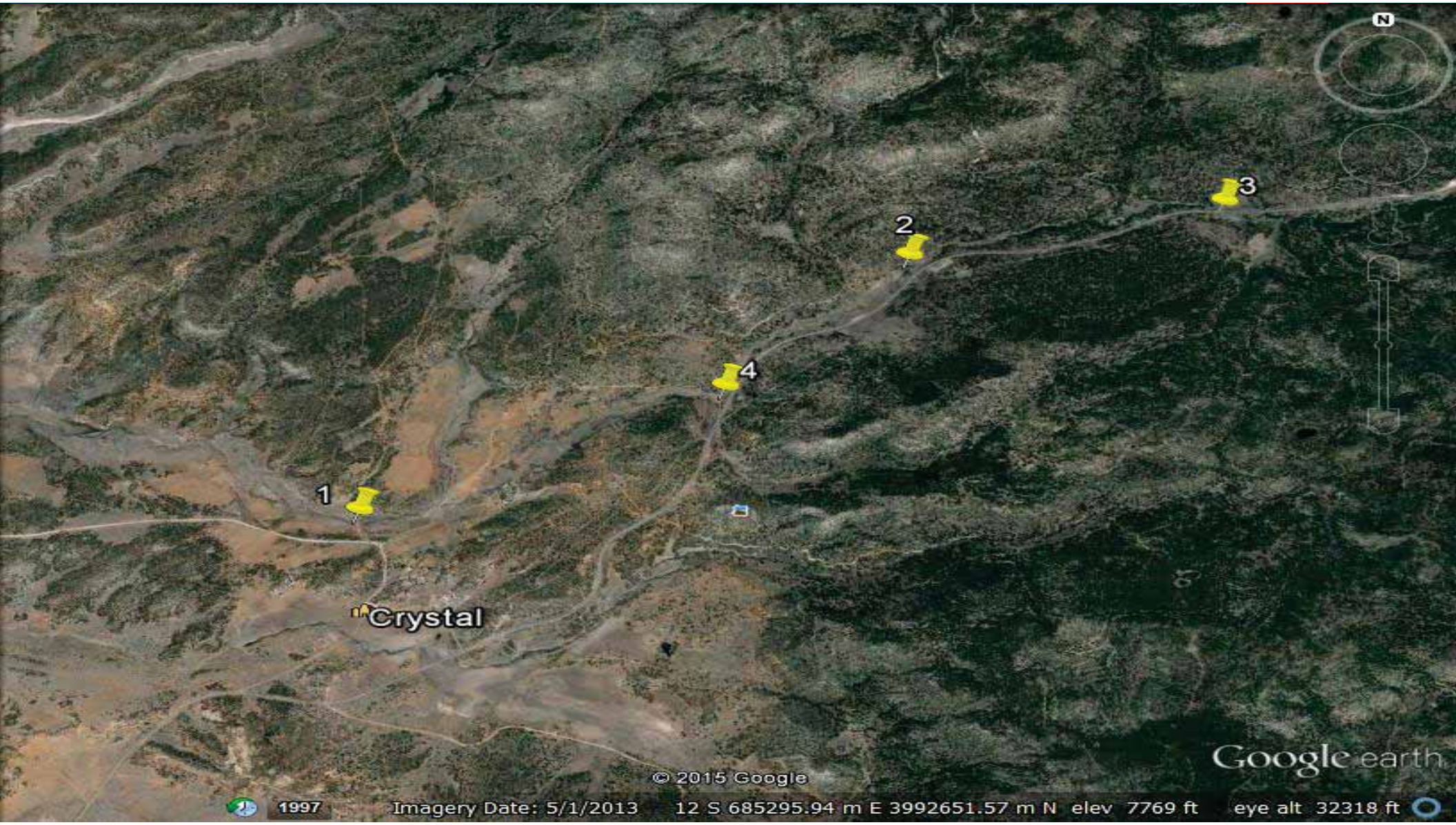
- Feed on algae, detritus, and small insects
- Native to the streams of the Chuska Mountains
  - Crystal Creek
  - Whiskey Creek
  - Wheatfield Creek
  - Tsaile Creek
  - Coyote Wash
- Reach sizes up to 9" on the Chuska Mountains
- Pools, undercut banks, overhangs, rocks and boulders
- G2 on the Navajo Endangered Species List
- Also found in the San Juan River


Tsaile Creek
Wheatfield Creek
Whiskey Creek
Coyote Wash
Crystal Creek
© 2015 Google
Google earth
Imagery Date: 5/1/2013 36°10'50.06" N 109°02'17.08" W elev 8840 ft eye alt 29.59 mi

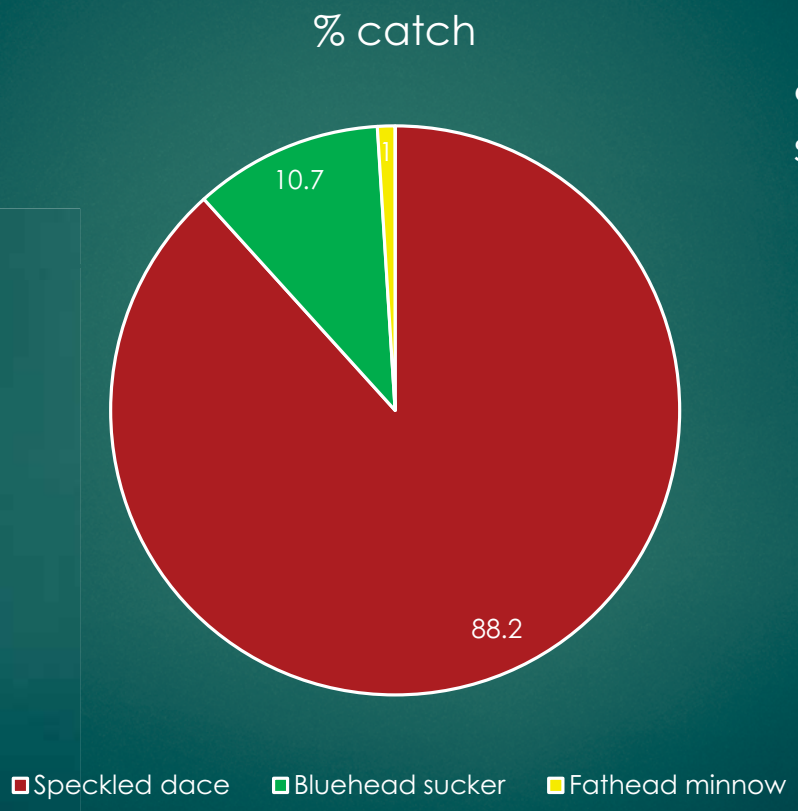
Crystal Creek

Crystal Creek

- Last sampled in Fall 2014
- Native species
  - Bluehead sucker
  - Speckled dace
- Nonnative species
  - Fathead minnow
- 68 BHS PIT tagged since 2013
- Recaptured 2 BHS in May 2014
- BHS/min = 1.04


N
1
2
3
4
Crystal
© 2015 Google
Google earth
1997
Imagery Date: 5/1/2013 12 S 685295.94 m E 3992651.57 m N elev 7769 ft eye alt 32318 ft

Crystal Creek



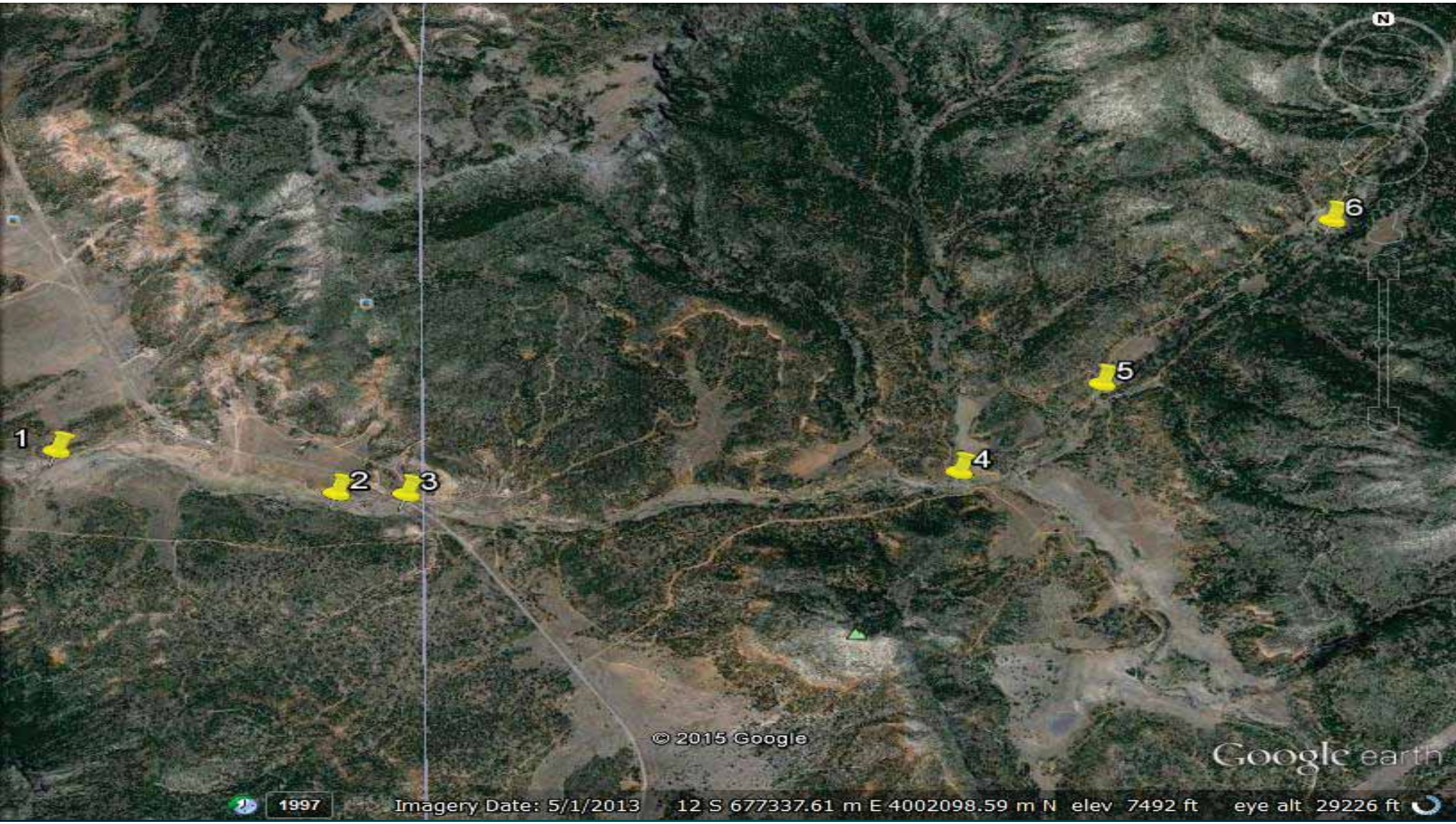
98.9% of catch native species

SPD-=419
BHS=51
FHM=5

Whiskey Creek

Whiskey Creek

- Native Species
  - Bluehead sucker
  - Speckled dace
- Nonnative Species
  - Brown trout
- Last sampled in Fall 2014
- .06 BHS/min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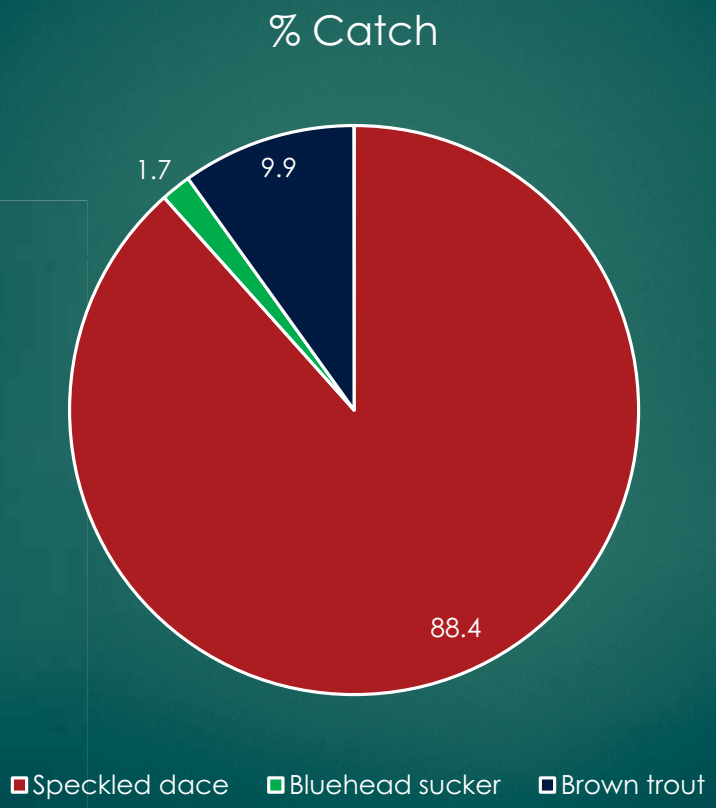
© 2015 Google
Google earth
1997
Imagery Date: 5/1/2013
12 S 677337.61 m E 4002098.59 m N
elev 7492 ft
eye alt 29226 ft

Whiskey Creek



90.1% of catch native species

SPD=152
BHS=3
BNT=17

Coyote Wash

- Native Species
  - Bluehead sucker
- Nonnative species
  - Fathead minnow
- Last sampled in Spring 2014
- 0.24 BHS/min


Start
Approximately 1.3 miles
End
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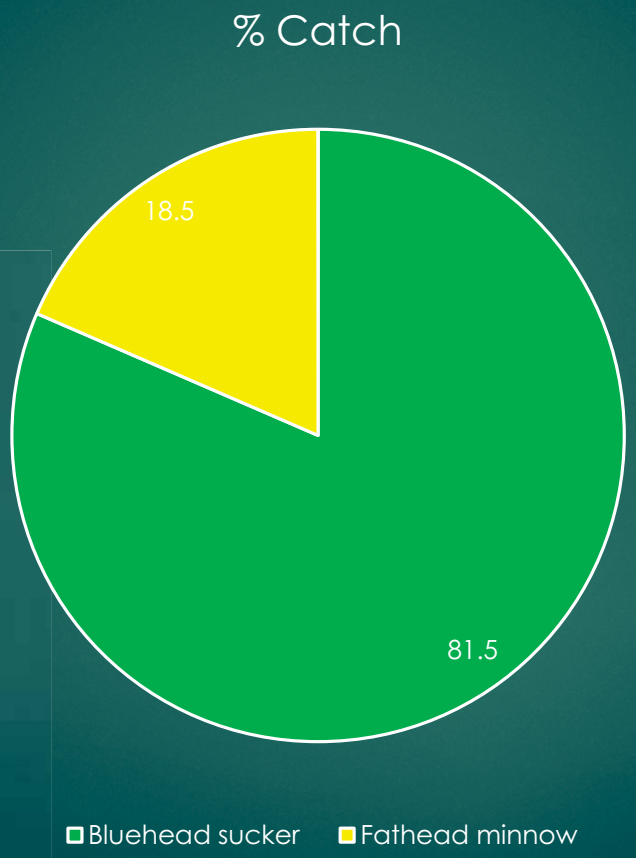
Google earth
1997
Imagery Date: 5/1/2013
12 S 665968.89 m E 3998148.04 m N elev 6977 ft
eye alt 18076 ft

Coyote Wash

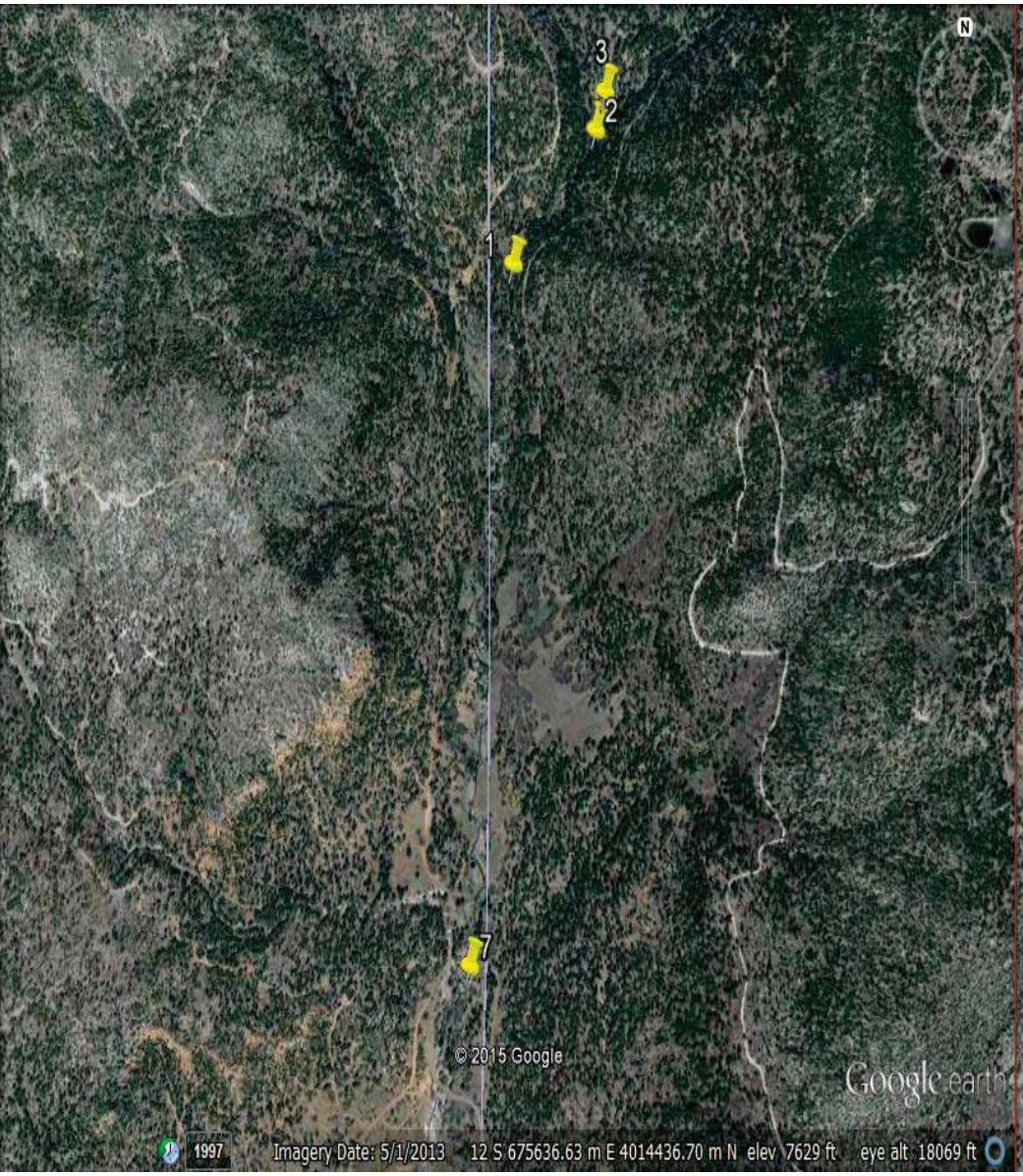


81.5% of catch native species

BHS=22
FHM=5

Wheatfield Creek

- Native Species
  - Bluehead sucker
  - Speckled dace
- Nonnative Species
  - Rainbow trout
  - Fathead minnow
- Last sampled in Fall 2014
- BHS/min = .07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© 2015 Google
Google earth
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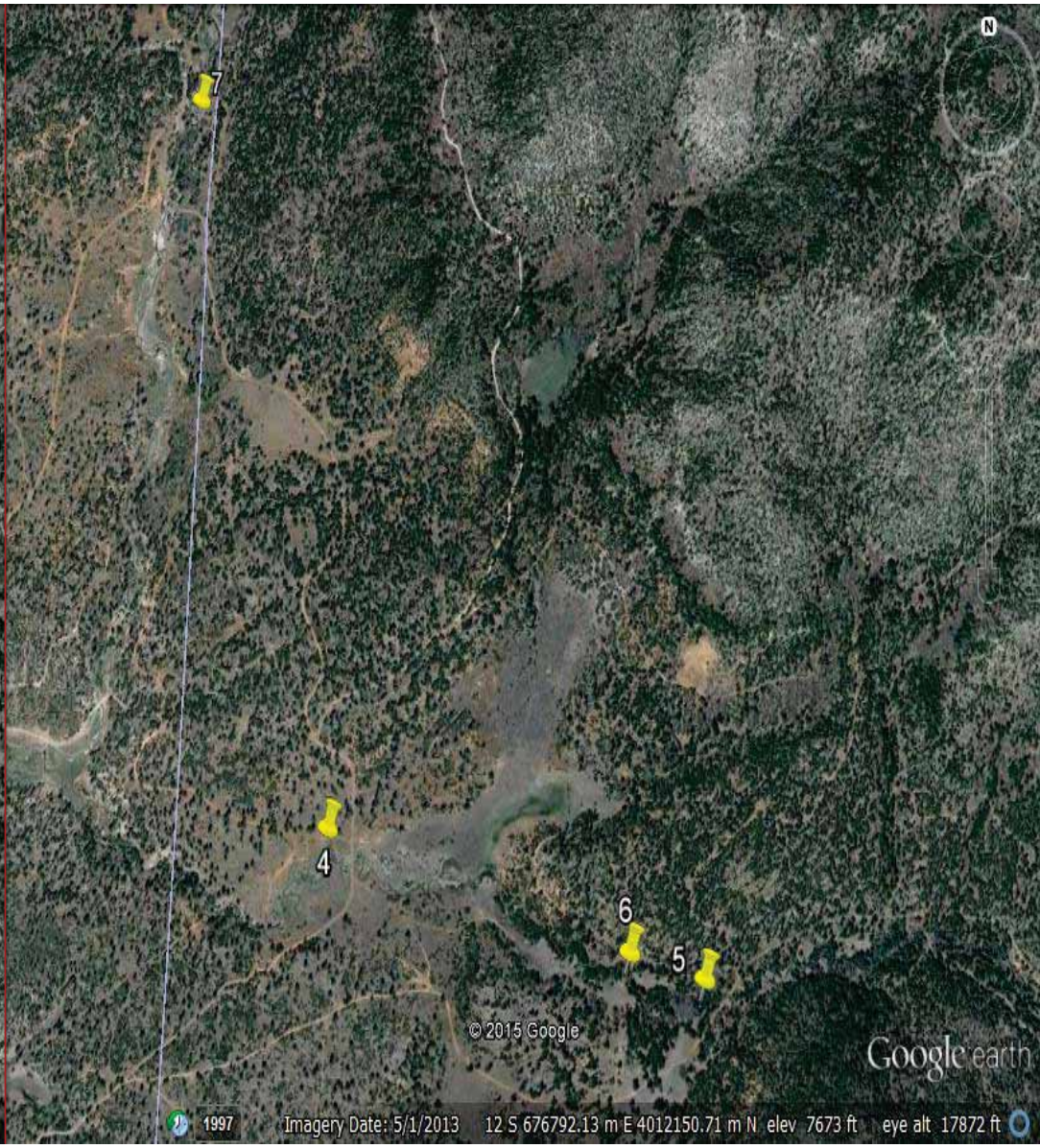
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© 2015 Google
Google earth
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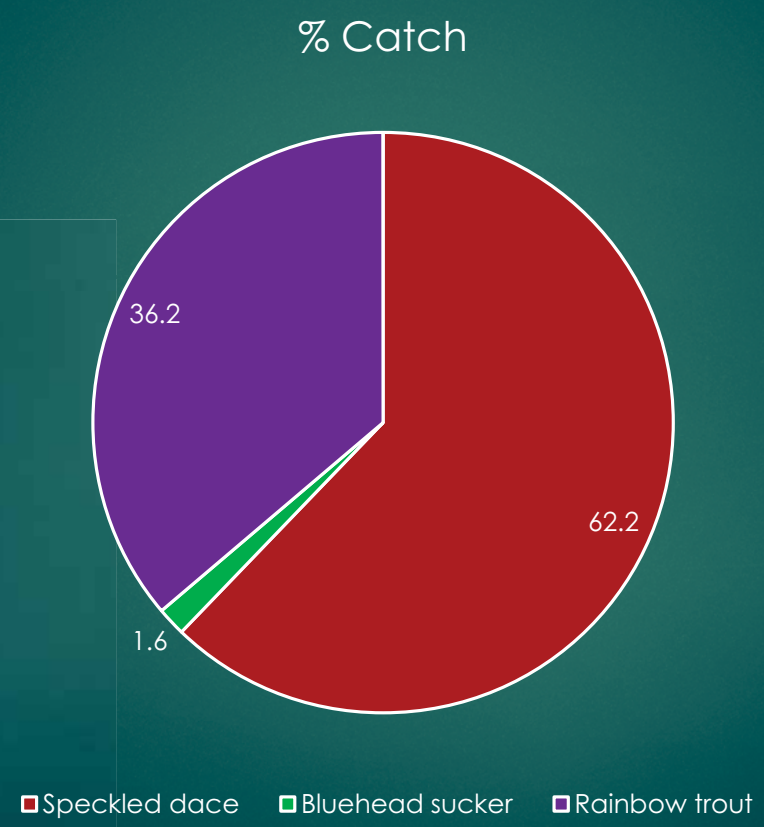
Wheatfield Creek

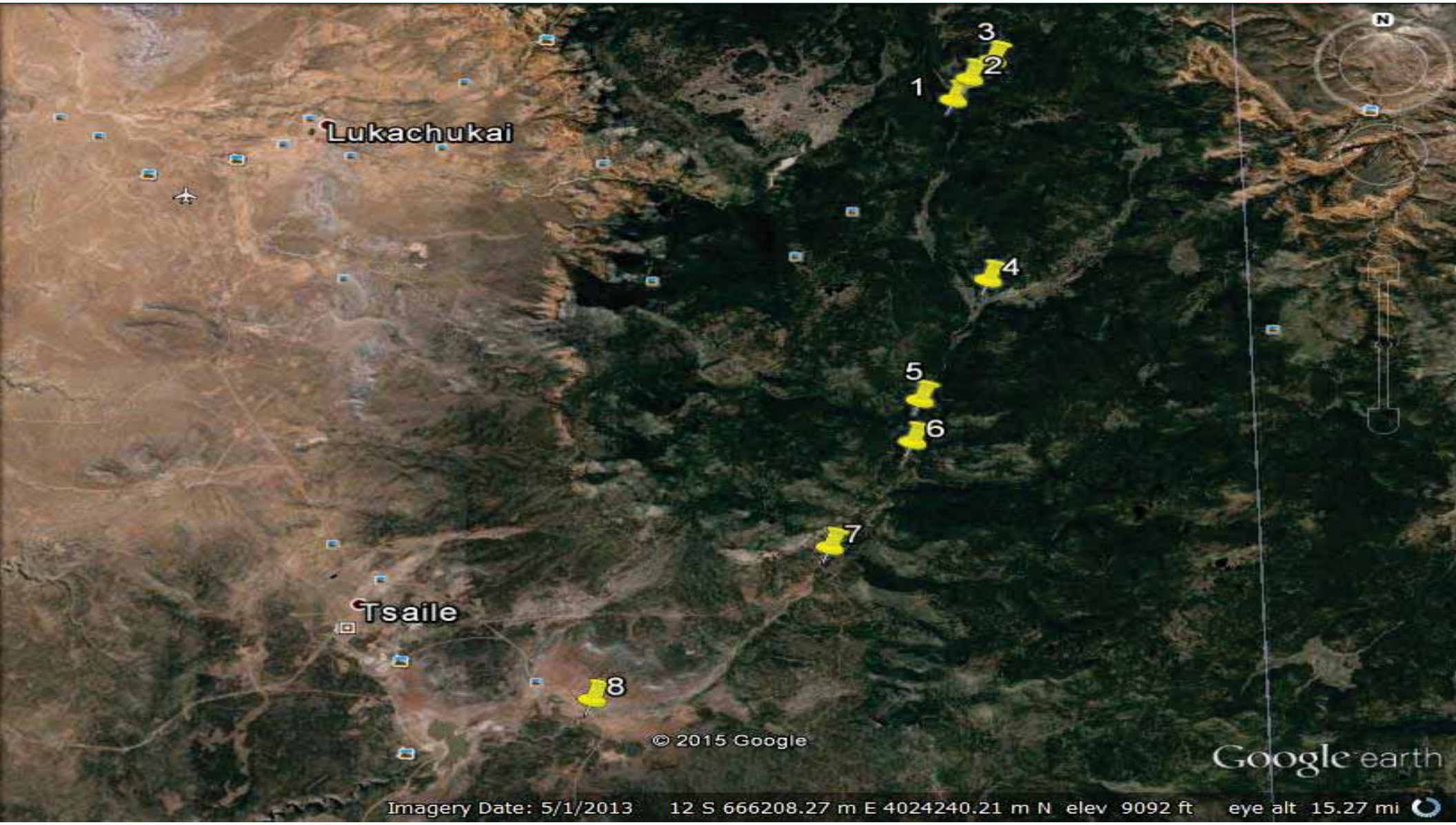


63.8% of catch native species

SPD=237
BHS=6
RBT=138

Tsaile Creek

- Native Species
  - Bluehead sucker
  - Speckled dace
- Nonnative Species
  - Rainbow trout
  - Fathead minnow
  - Green sunfish
  - Goldfish
- Last sampled in Spring 2014
- BHS/min = 0.25


3
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1
Lukachukai
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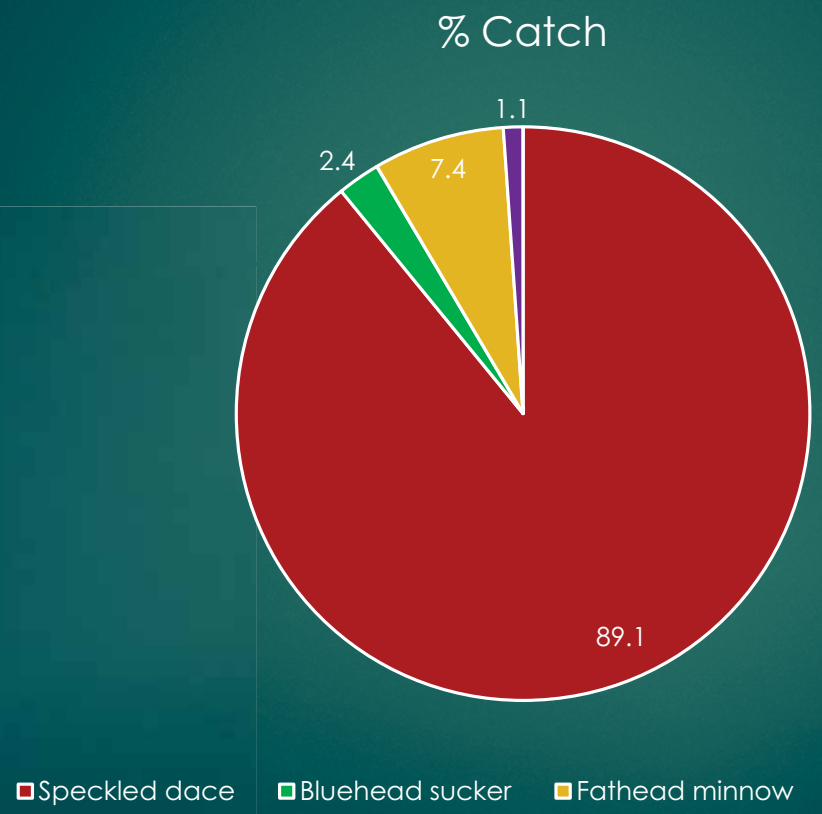
6
7
Tsaile
8
© 2015 Google
Google earth
Imagery Date: 5/1/2013 12 S 666208.27 m E 4024240.21 m N elev 9092 ft eye alt 15.27 mi

Tsaile Creek



91.5% of catch native species

SPD=754
BHS=20
FHM=63
RBT=9

Zuni Bluehead Sucker

- Feed on algae and invertebrates
- Found only in portions of NM/AZ
- Native to the streams of the Defiance Plateau
  - Kinlichee Creek
  - Black Soil Springs
  - Scattered Willow Wash
  - Willow Creek?
- Federally listed as endangered in Aug 2014
- G2 on the Navajo Endangered Species List
- Subspecies of Bluehead sucker (Bluehead sucker x Rio Grande sucker)


Upper Black Soil
Willow Creek
BlackSoil
ScatteredWillow1
KinLiChee
Bear Canyon
© 2014 Google
Google earth
Imagery Date: 6/4/2014 35°45'48.42" N 109°18'57.40" W elev 7397 ft eye alt 13.68 mi

Kinlichee Creek/Bear Canyon

Kinlichee Creek/Bear Canyon

- Native Species
  - Zuni bluehead sucker
- Nonnative Species
  - Fathead minnows (Kinlichee)
- Kinlichee site last sampled in July 2014
  - 1 ZBS captured
- Bear Canyon last sampled in July 2014
- Bear Canyon is only 2 pools within Kinlichee Creek
  - 42 ZBS caught in May 2014 (29 PIT tagged)
  - No suckers caught in July 2014 and pools nearly dry


N
KinLiChee
Kinlichee
Bear Canyon
© 2015 Google
Google earth
Imagery Date: 6/4/2014 12 S 649025.90 m E 3955324.75 m N elev 7204 ft eye alt 52152 ft

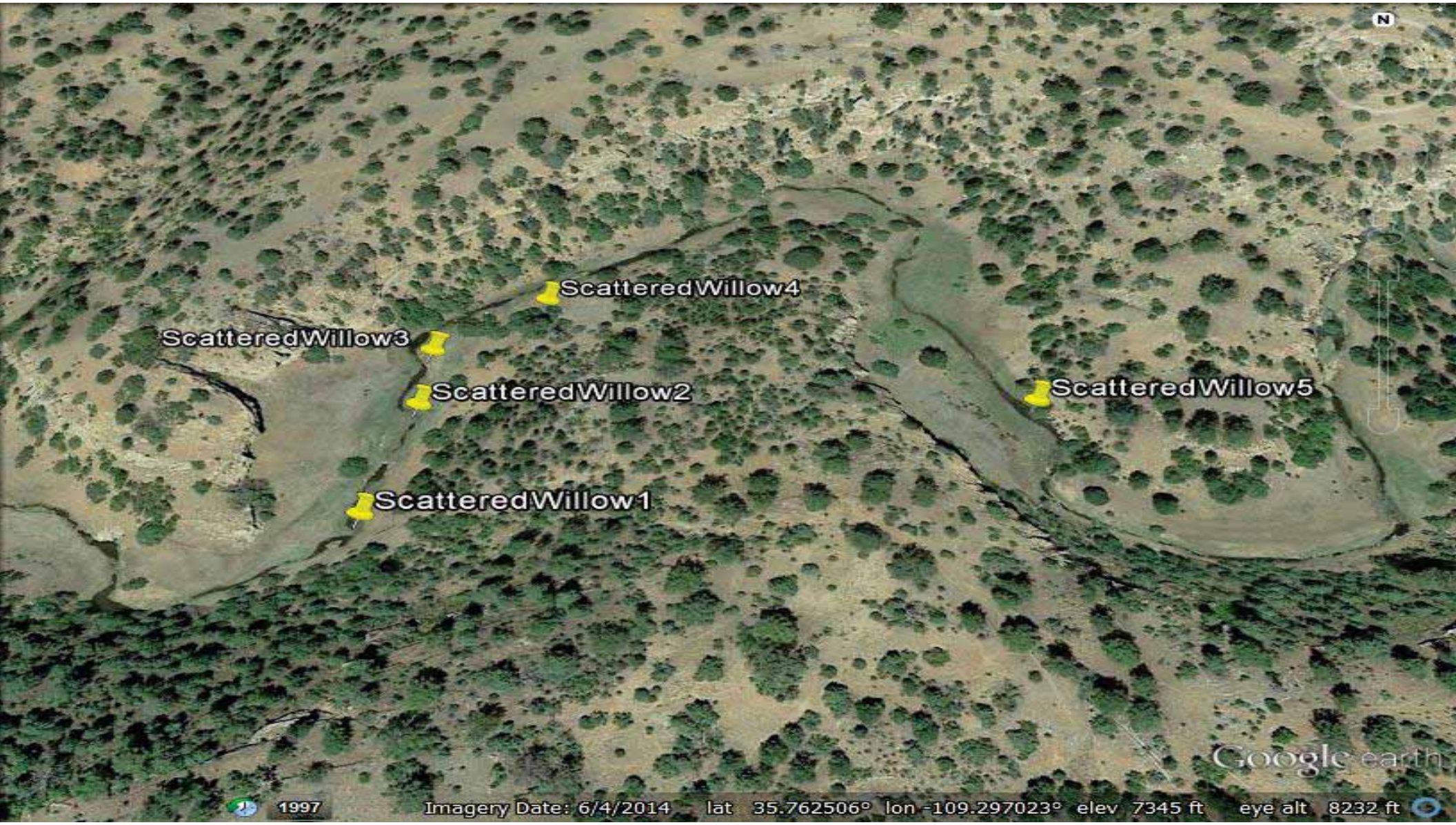
Scattered Willow Wash






Scattered Willow Wash

- Native Species
  - Zuni bluehead sucker
- Sampled for first time in Fall 2014
- Previous efforts made but no water could be located
- Best population of ZBS on Navajo
- All size classes present
- ZBS/min = 7.9
- 166 ZBS captured


N
ScatteredWillow4
ScatteredWillow3
ScatteredWillow2
ScatteredWillow5
ScatteredWillow1
Google earth
1997
Imagery Date: 6/4/2014 lat 35.762506° lon -109.297023° elev 7345 ft eye alt 8232 ft

Black Soil Springs

Black Soil Springs

- Native Species
  - Zuni bluehead sucker
- Last sampled in July 2014
- 22 ZBS captured
- All size classes present
- Documented presence of ZBS in a new area approximately 5 miles upstream of normal sampling location


N
Upper Black Soil
BlackSoil
Google earth
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Imagery Date: 6/4/2014 lat 35.780087° lon -109.300754° elev 7493 ft eye alt 48181 ft

Willow Creek

Willow Creek

- ???
- Located potential habitat for fish in 11/14
- Will sample for presence of ZBS in 2015
- Potential site for relocation of ZBS?

Issues Facing NN Suckers

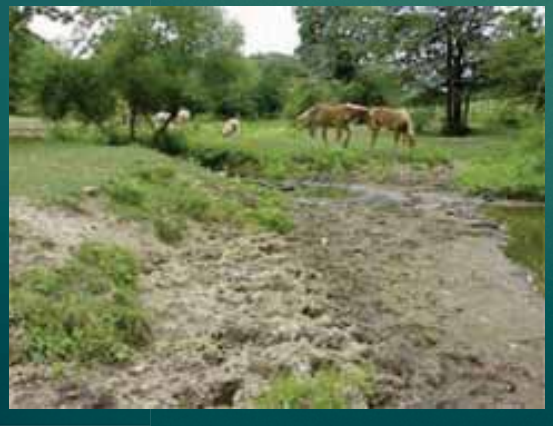
- Drought/Loss of water
- Overgrazing
- Nonnative Species
- Wildfire

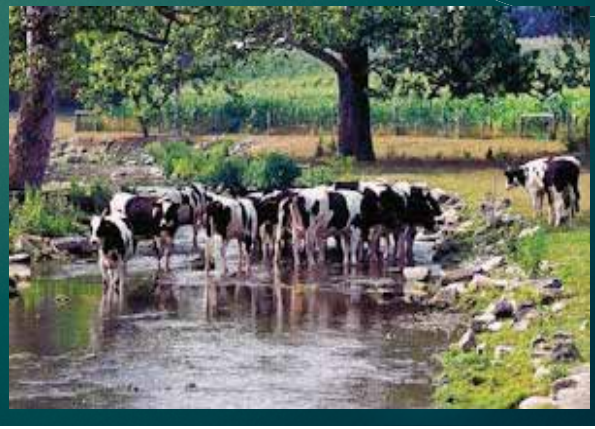
Drought/Loss of water

- Water diversions
- Groundwater pumping
- Drought
  - Limited run-off can lead to dewatering and lack of fish habitat
- Climate change

Overgrazing

- Poorly managed grazing of stream banks exposes banks to soil erosion from wind and water
- Discharge of fecal matter causes nutrient loads and algae blooms; therefore altering water chemistry and water quality
- Trampling of stream banks and stream beds alters stream channel morphology and stream habitats; reducing habitat availability and quantity





Nonnative Species

- Predation on eggs and young-of year suckers
- Competition for available space and resources
  - Rainbow trout
  - Brown trout
  - Fathead minnow
  - Goldfish
  - Crayfish
  - Green sunfish
- Never move fish from one body of water to another

Wildfire

- Limited range of suckers, especially ZBS makes it extremely susceptible to stochastic events such as wildfire
- Fires can destroy riparian habitat, increase sediment loads, and cause loss of overhead vegetation leading to increased stream temperatures
- Ash from fires may suffocate eggs and fish and alter water chemistry and water quality

Current/Upcoming Projects

- Crystal Creek Fathead minnow removal
- Kinlichee Creek Fathead minnow removal
- Whiskey Creek Brown trout removal
- Habitat suitability graduate project
- Bluehead sucker aging study
- Locating more potential areas where ZBS reside
- Tsaile Creek renovation below Tsaile dam
- Multiple stream crossing improvements
- Begin "Native Fish in Schools" program

Crystal Creek Fathead Minnow Removal

- Most FHM in a series of pools created by beaver dams
- Removed 2,021 FHM during October 2014
- Will continue to remove FHM and monitoring sucker populations in this reach
- Seining and minnow traps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Google earth
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Imagery Date: 5/1/2013 lat 36.057798° lon -108.953152° elev 7614 ft eye alt 9697 ft

Kinlichee Fathead Minnow Removal

- Will begin in 2015
- Reduce competition between ZBS and FHM
- Seines and minnow traps
- FHM primarily in a series of pools


N
1997
Imagery Date: 6/4/2014 lat 35.752471° lon -109.426785° elev 6608 ft eye alt 7238 ft
Google earth

Whiskey Creek Brown Trout Removal

- Remove Brown trout from Whiskey Creek to reduce competition with and predation on Bluehead suckers
- Backpack Electrofishing and block off nets
- Brown trout currently found in Whiskey Creek from Rt 12 to headwaters

Habitat Suitability Project

- NNDFW, USFWS, University of Arizona
- Kinlichee, Black Soil Springs, Scattered Willow Wash, Whiskey, Crystal, Tsaile
- Develop Habitat Suitability Criteria to identify and manage optimal and suitable habitat for Zuni Bluehead Sucker and bluehead sucker, specifically identifying optimal and suitable flow, depths, substrate type and imbedded sediment levels, instream and overhead cover, and temperature for the species
- Evaluate transferability of HSC for Zuni Bluehead Sucker and bluehead sucker among streams

THE UNIVERSITY OF ARIZONA

NAVAJO FISH & WILDLIFE

U.S. FISH & WILDLIFE SERVICE
DEPARTMENT OF THE INTERIOR

Bluehead Sucker Aging Study

- Age suckers from Crystal Creek using otoliths and operculum
- Introduce SIPI students to natural resource careers and give them the opportunity to age fish
- Not much age data on bluehead suckers
- Life history, age at length, growth data

Locate Potential Areas with Zuni Bluehead Sucker

- Located additional sites in Black Soil Springs and Scattered Willow Wash
- Located potential sites in Willow Creek in 2014
- Need to locate and determine presence/absence of ZBS in other areas of Black Soil Springs, Kinlichee Creek, Scattered Willow Wash, Willow Creek
- Other creeks?
  - Ruin Wash?
  - Sage House Wash?
  - Lone Tule Wash?

Tsaile Creek Renovation Below Tsaile Dam

- 99% nonnative species captured in last sampling
  - Goldfish
  - Fathead minnow
  - Green sunfish
- Relocate any suckers present to upper portions of Tsaile Creek
- Use rotenone to eliminate nonnative species
- Reintroduce native species below dam (bluehead sucker, speckled dace)

Stream Crossing Renovations

- Improve fish habitat and fish passage
- Decrease stream disturbance and sedimentation from vehicles
- Whiskey, Wheatfield, Crystal

Native Fish in Schools Program

- 3-4 4th-6th grade classes to participate in the program
- Modeled after USFWS Native Fish in Schools program
- Introduce students to native fish species, native fish conservation, and careers in natural resources
- Each classroom would be provided with a tank, filter, food, fish, and necessary equipment and supplies
- Worksheets for teachers aid, but teachers are primarily responsible for lessons
- Periodic visits from Fish Biologist to discuss fisheries related topics and careers in natural resources
- Option for field trip to release fish back into their home creek at the end of the semester

Native Fish in Schools Program

Questions???