Developing a Consistent Framework for Measuring and Reporting the Conservation Status of Coastal Cutthroat Trout

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Attributes of a good conservation tracking system

- Comprehensive
- Quantifiable
- Easily understood
- Repeatable
- Utilizes existing information
- Informs future decision making

Measuring Conservation Success

Trout Unlimited's

Conservation Success Index (CSI)

Conservation Tracking Framework

A. Comparisons between historic and current habitat

B. Population integrity

C. Habitat integrity

D. Threats: source, severity, and scope

A. Comparisons between historic and current habitat

1. Percent of historic stream habitat occupied
2. Percent of historic lake habitat occupied
3. Percent of subwatersheds occupied
4. Percent of subbasins occupied
5. Percent of habitat occupied by stream order

B. Population integrity

6. Population size
7. Population extent
8. Genetic purity
9. Disease vulnerability
10. Life history diversity

C. Habitat integrity

11. Land ownership and stewardship
12. Watershed connectivity
13. Watershed condition
14. Water quality
15. Flow regime

D. Threats: source, severity, and scope

16. Threats to water quality
17. Threats from biotic interactions
18. Threats to habitat structure
19. Threats to flow regime
20. Threats from take or overharvest

How would a range-wide perspective on Coastal Cutthroat Trout be helpful?

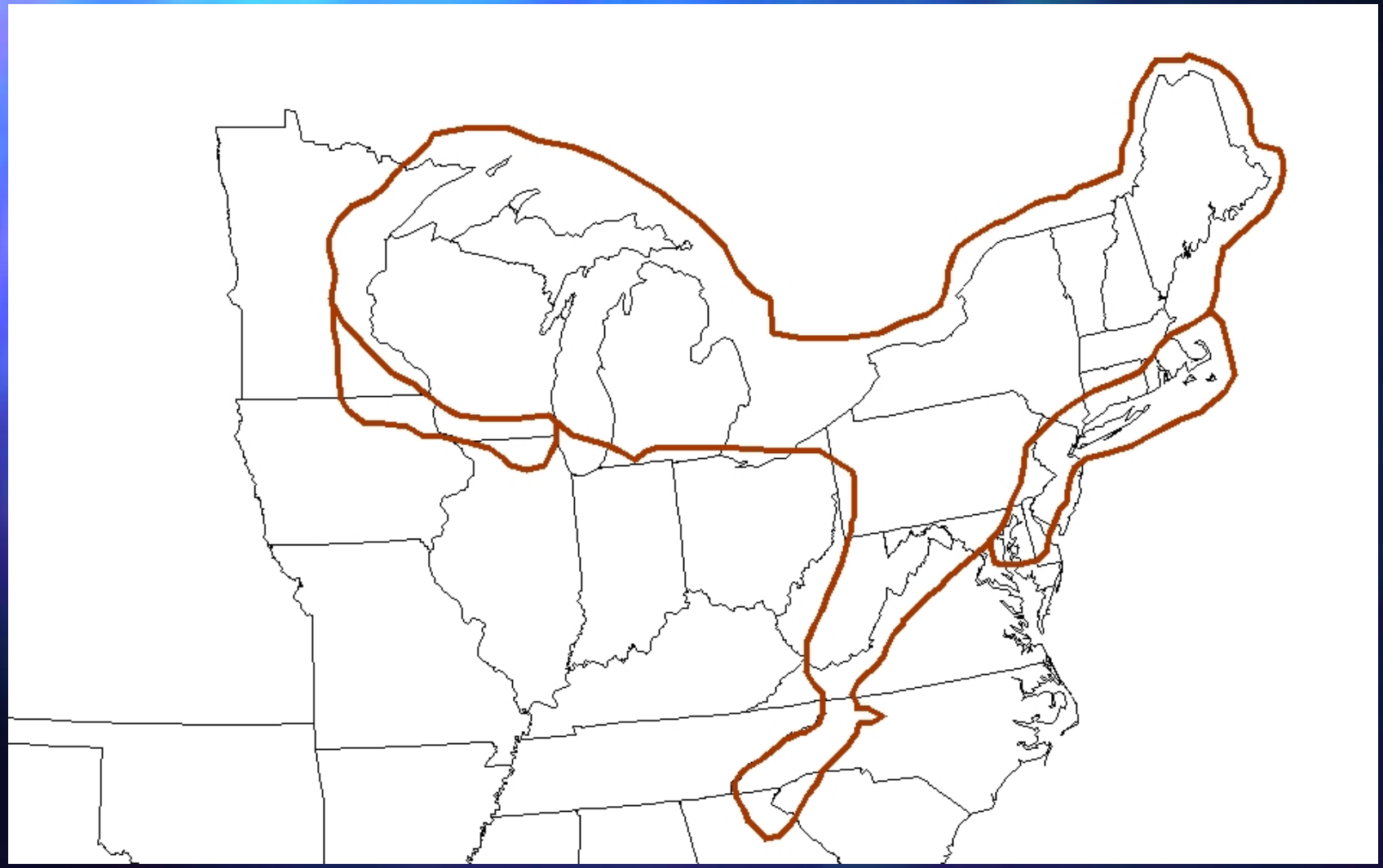
- Provide a consistent and comparable perspective on conservation from California to Alaska
- Insure comprehensive methodology and identify gaps
- Make status and threats info readily accessible and encourage its use
- More readily view larger trends while maintaining finer scale data
- GIS-based and easily repeatable

Brook Trout CSI

- Cooperative project with USGS, USFS and states
- Rangewide assessment from GA to ME to IA
- Condition + threats
- ~ 10,000 watershed status determinations
- Existing data from local bios
- TU projects database
- Informs broad-scale strategy for conservation

Brook trout historic range United States

(McCrimmon & Campbell 1969)



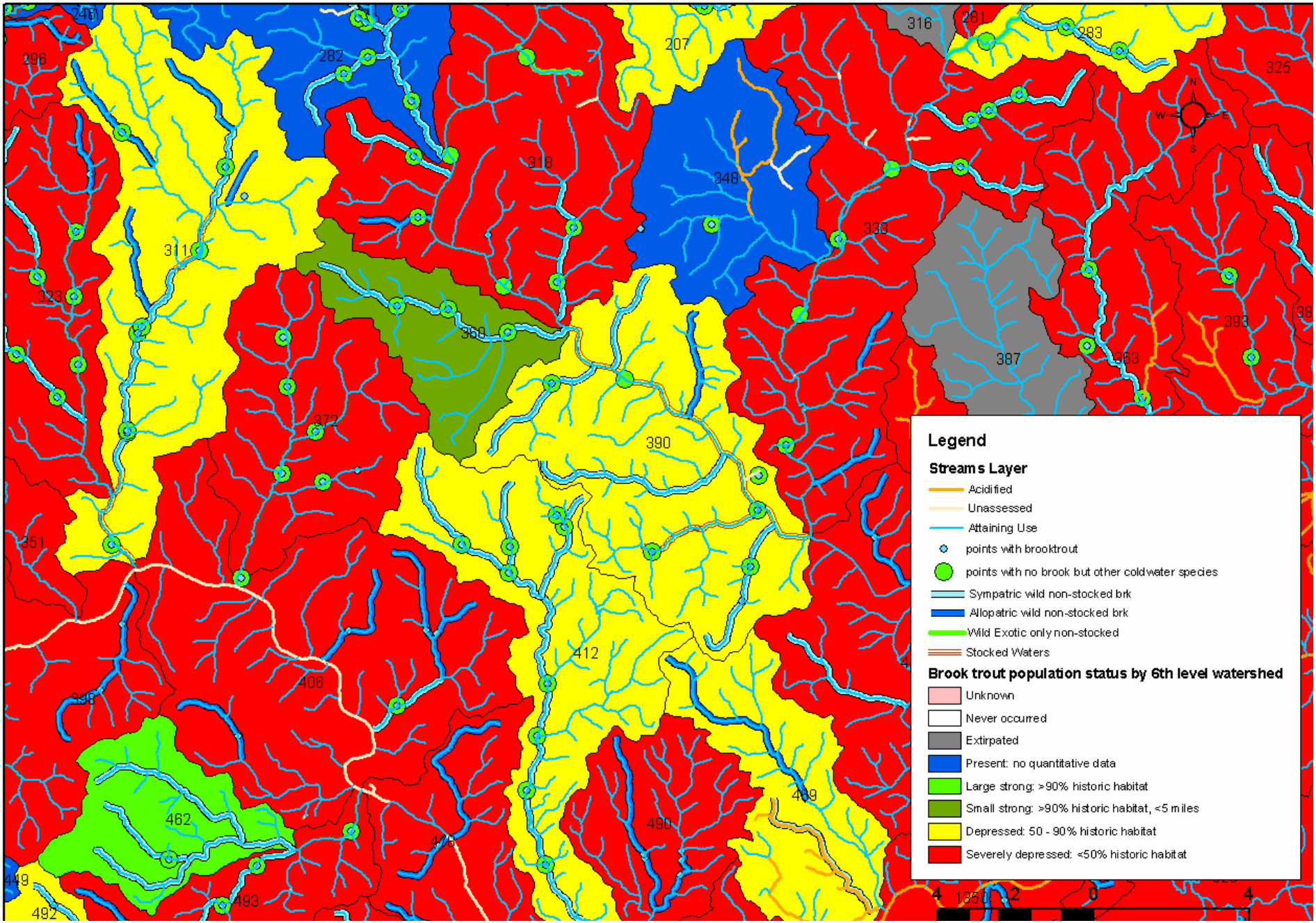
Goals of Brook Trout Assessment

- Determine population status by watershed across 17 eastern states
- Determine threats to brook trout populations & habitat
- Provide information for development of restoration strategy

Brook trout population status classifications by 6th level subwatershed

1. Present: unknown
   no quantitative data in watershed or > 10years old
2. Present: Strong
   >5,000 individuals, 500 adults and > 5 miles long
   > 90% of historic habitat occupied
3. Present: Strong /small fragmented
   < 5,000 individuals, < 500 adults and < 5 miles long, > 90% of historic habitat
4. Depressed
   50 - 90% of historic habitat occupied
5. Severely depressed
   1 - 50 % of historic habitat occupied
6. Extirpated
7. Unknown
8. Never occurred

Watershed Coding for Wild, Reproducing Brook Trout Populations

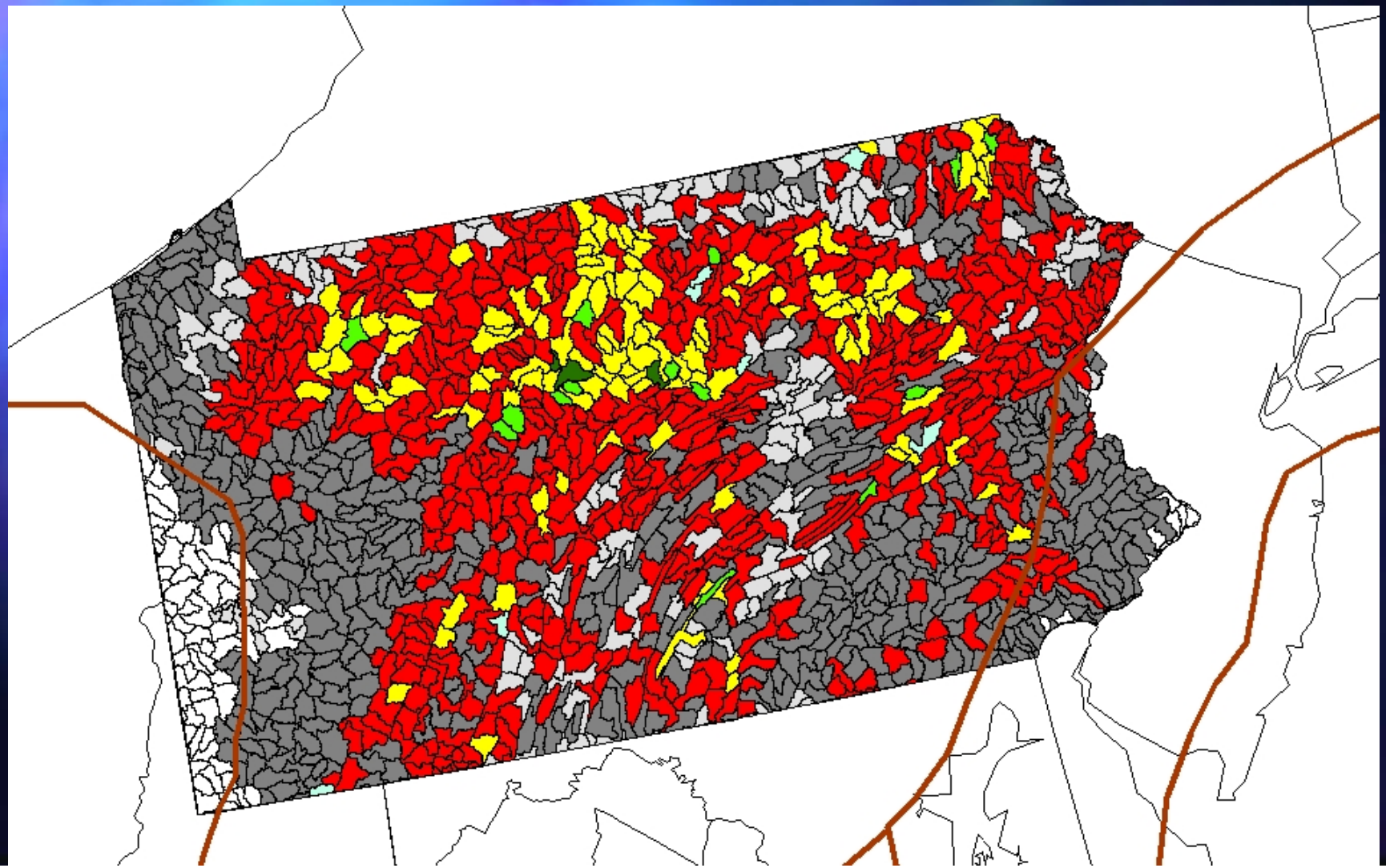


Brook trout population status across all subwatersheds so far

- *8,338 analyzed – 4,279 never occurred = 4,059 classified*
- Present - 17.7%
- Large strong - 4.8%
- Small strong - 0.3%
- Depressed - 7.7%
- Severely depressed - 25.4%
- Extirpated - 25.6%
- Unknown - 18.2%

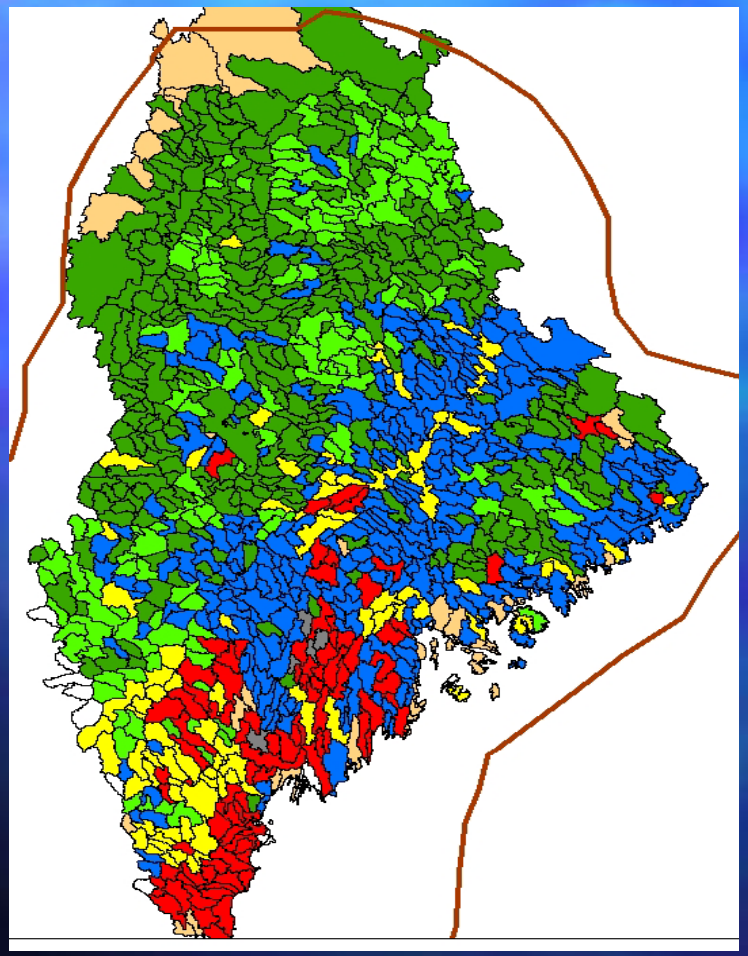
Draft – Pennsylvania Streams

Threats listed as Eliminating brook trout life cycle component include: acid mine drainage, high water temperatures, agriculture, acid rain

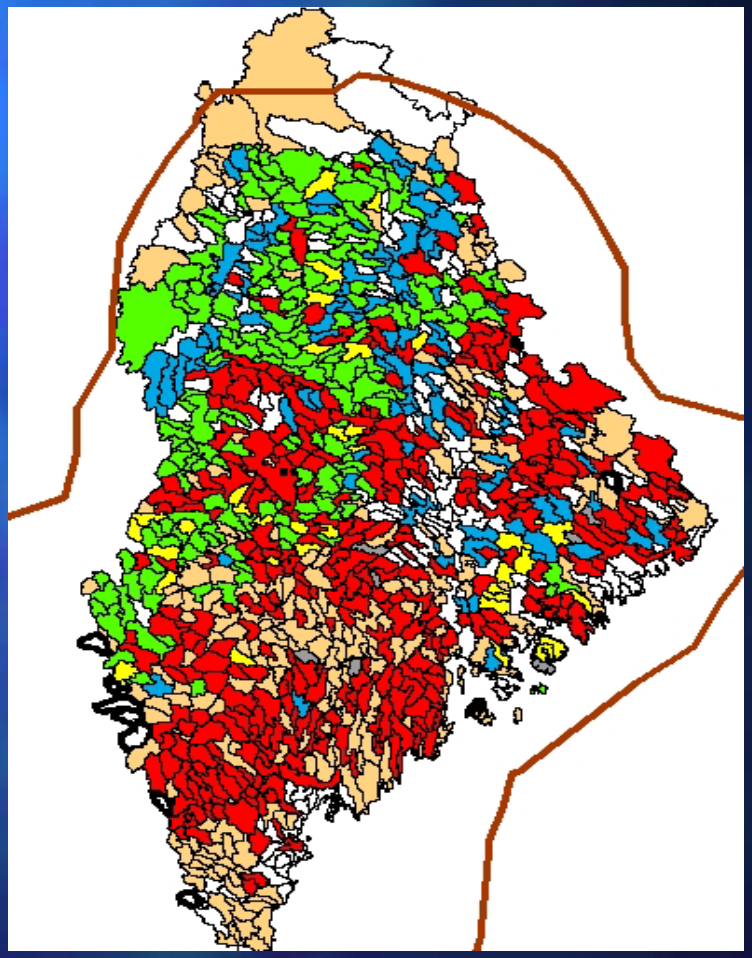


Draft Classification for Maine Brook Trout by Watershed

Streams

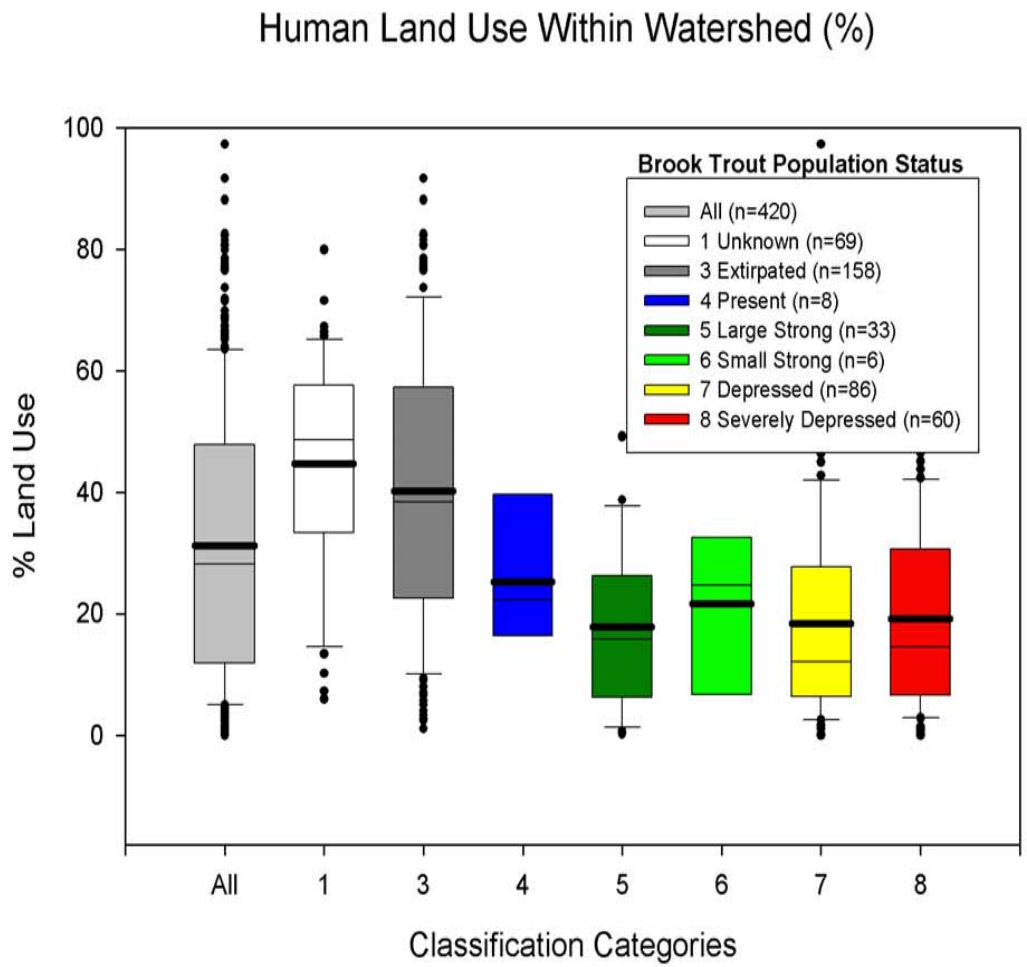


Lakes

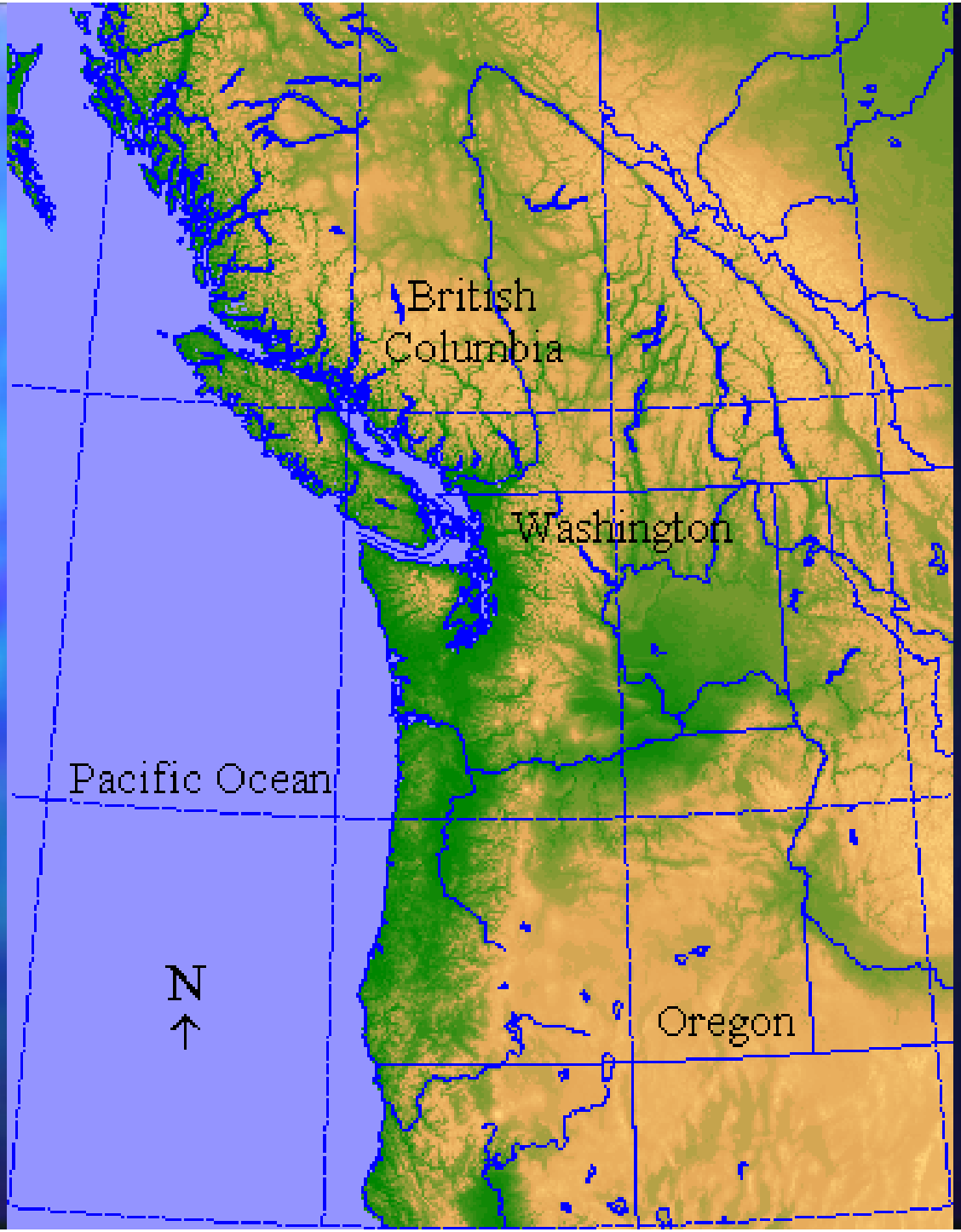


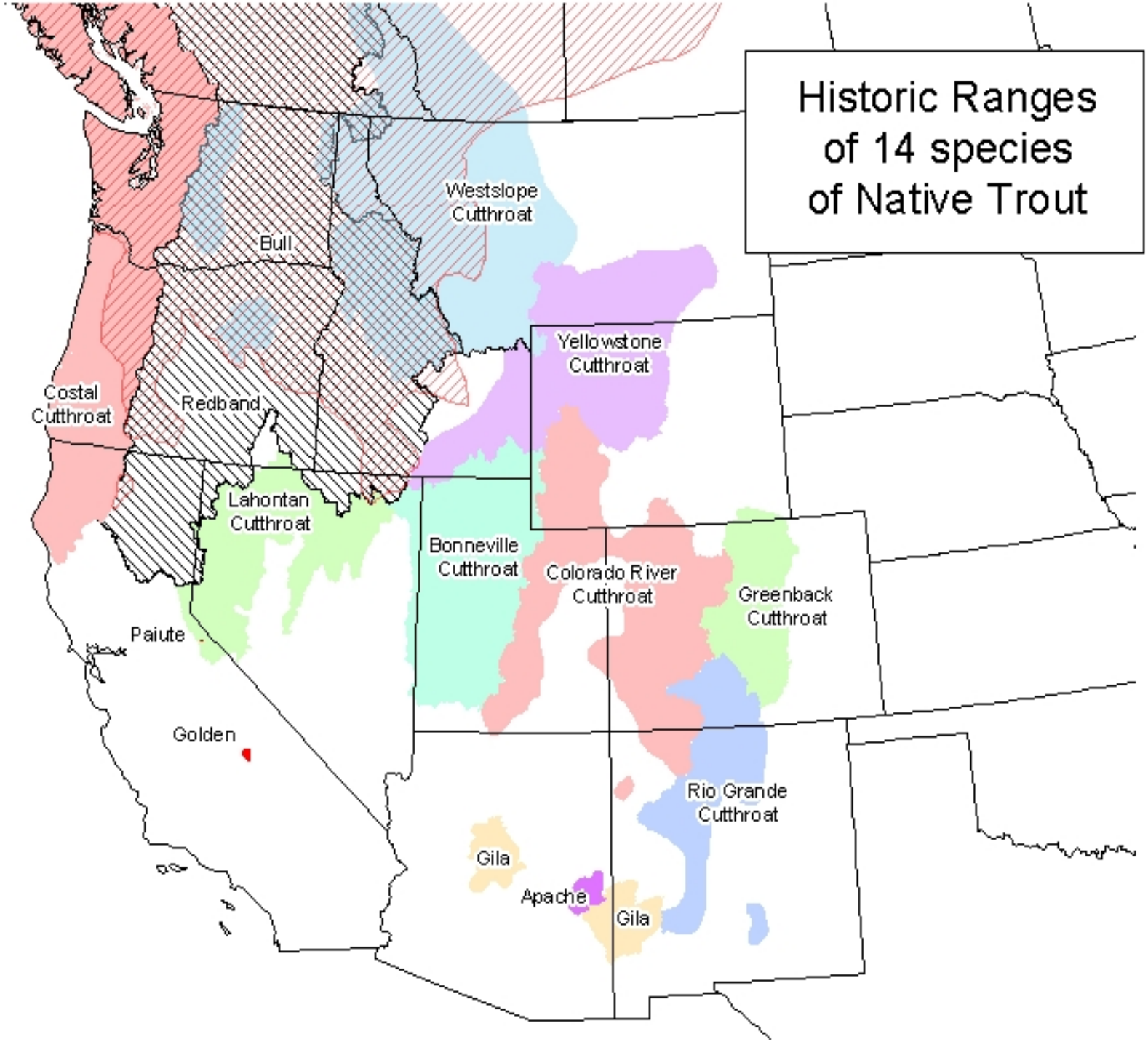
GIS-based Statistical Analysis of Various Datasets

In Virginia, 40% or greater human land use correlates highly with extirpation (category 3 below) of wild brook trout

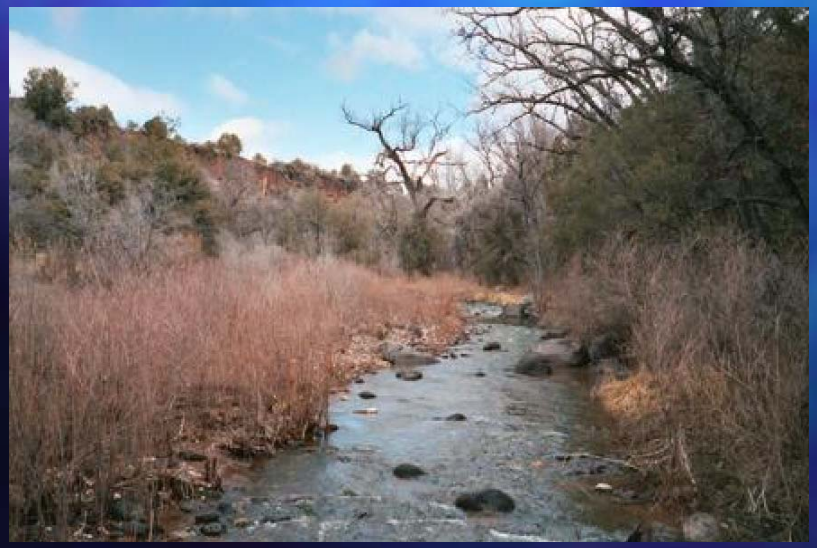


In order to develop a coordinated management plan for coastal cutthroat trout, we first need a consistent status, threat and data gap assessment across the entire range




Historic Ranges
of 14 species
of Native Trout
Westslope
Cutthroat
Bull
Yellowstone
Cutthroat
Costal
Cutthroat
Redband
Lahontan
Cutthroat
Bonneville
Cutthroat
Colorado River
Cutthroat
Greenback
Cutthroat
Paiute
Golden
Rio Grande
Cutthroat
Gila
Apache
Gila

Lahontan cutthroat trout CSI



- Listed as Threatened pursuant to ESA
- Partners with US Forest Service, BLM, FWS and Recovery Team
- Applied to Population and 5th hydrologic unit level
- 3 Distinct Population Segments
  - Western (Walker, Carson)
  - Northwestern (Quinn, Alvord)
  - Humboldt (Marys, Humboldt)

Bonneville Cutthroat Trout

- Utilize 2004 range-wide assessment by State of Utah
- BCT occupy 35% of historic stream miles
- 52% of populations are at least 90% genetically pure
- Concern: loss of migratory life history form
- 9% with disease problems another 10% at moderate risk of disease

The bottom line is having the best information available to inform management and restoration strategies

- Identify remaining areas of high integrity
- Identify opportunities to reconnect fragmented populations
- Identify restoration needs and limiting factors
- Identify critical conservation thresholds
- Maintain future options by identifying well-distributed network of intact populations and habitats