

I. Project Title:

Nonnative fish control: Translocation of northern pike from the Yampa River.

II. Principal Investigators:

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III. Project Summary:

Northern pike, *Esox lucius*, is a nonnative species originally introduced as a game fish in Elkhead Reservoir, upstream of Craig, Colorado. The species escaped the reservoir and has established a reproducing population in the upper Yampa River and has expanded its number and range within the Yampa and Green rivers. Many large adult pike have moved into occupied critical habitat where they pose a competitive and predatory threat to endangered fishes.

The Recovery Program for Endangered Fishes in the Upper Colorado River Basin (Recovery Program) has determined that control of nonnative fishes is necessary for recovery of the endangered fishes in the Upper Basin. The Colorado Division of Wildlife (CDOW) has an Aquatic Wildlife Management Plan for the Yampa River Basin (Yampa Aquatic Plan) that recommends trapping and translocation of northern pike, smallmouth bass, channel catfish, and white sucker.

This project removed northern pike from two general areas in 1999: 1) the Hayden Reach, which is one of the primary spawning areas for northern pike in the Yampa River; and 2) the Critical Habitat Reach for Colorado pikeminnow (previously the Colorado squawfish), which is from Craig downstream to Dinosaur National Monument. Sampling occurred from April through June when pike are seeking off-channel habitat for spawning or for pre- and post-spawning feeding and resting. The goal of this project is to improve the survival of endangered fishes in the Yampa and Green Rivers by reducing the number and preventing successful reproduction of northern pike in the Yampa River.

IV. Study Schedule:

- a. Initial year: 1999
- b. Final year: 2003

V. Relationship to RIPRAP:

Green River Action Plan: Yampa and Little Snake rivers

I.A.4.a.(3)(f). Develop basinwide aquatic management plan to reduce nonnative fish impacts while providing sportfishing opportunities.

I.A.4.a.(3)(f)(i). Implement Yampa Basin fish plan.

III.A.. Reduce negative impacts of nonnative fishes and sportfish management activities (Nonnative and sportfish management).

VI. Accomplishment of FY 99 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

We planned to sample the Hayden Reach in from April through May to coincide with spawning movements of northern pike into the reach and to sample the Critical Habitat Reach from May through June as backwaters flooded. In spring 1999, the Colorado Division of Wildlife submitted a stocking plan as per Nonnative Fish Stocking Procedures developed by the Recovery Program. The plan recommended moving northern pike to several receiving waters within the Yampa River Basin including ponds at the Yampa State Wildlife Area (YSWA), Elkhead Reservoir, and a pond on BLM property west of Maybell. Only the ponds at the YSWA were approved for use in translocating northern pike. The approval did not occur until the middle of June, therefore, the removal of northern pike did not occur until after this approval.

From April 15 until July 8, we captured a total of 164 northern pike, 80 of these were moved to the YSWA ponds, 72 were returned to the Yampa River alive, 7 were young-of-year (fry) that we killed, preserved, and brought back to the lab for further study, and 5 were adult fish that died in holding pens prior to translocation. We sampled sloughs in April and early June at the Hayden Reach to test our equipment and identify if pike were attempting to spawn. We caught 72 northern pike that were returned alive back into the Yampa River because at that time there were no ponds approved for their relocation. Other than the 7 young pike, we did not intentionally kill any northern pike during this study.

Most of the pike (n=92) were caught during their spawning run at the Hayden Reach, 37 were caught between Little Yampa Canyon and Juniper, 29 in the Maybell Reach, and 6 at Lily Park. These numbers were lower than expected because of our late start. As planned, we sampled only backwaters and sloughs and many of these held high concentrations of pike. For example, during spawning in mid-April, we captured 42 pike from one backwater during a three day set with a fyke net. The net was checked twice daily and contained about 10 pike for each 12 hour period. In the Critical Habitat Reach, pike also congregated in backwaters. At Morgan Gulch we captured 8 pike in one

afternoon, along with 14 Colorado pikeminnow. Both species occurred together in most backwaters that we sampled. Twenty-four Colorado pikeminnow were captured in 1999.

Northern pike ranged from 285-953 mm total length (11-38 inches) and averaged 570 mm (22 inches). Other species of interest included smallmouth bass, pumpkinseed, and black crappie. Most of the smallmouth were young-of-year or yearling. Black crappie, a relatively new introduced species in the Yampa River, were abundant in all backwaters in the Critical Habitat Reaches. It is likely that smallmouth bass and black crappie were introduced with the draw-down of Elkhead Reservoir in the mid-1990s.

A very interesting finding was that several fish had bite wounds probably caused by northern pike. These included suckers, other pike and even large, Colorado pikeminnow including one Colorado pikeminnow that was 533-mm total length. All had severe wounds from the attack but escaped. Another fish that was not so fortunate was a 457-mm rainbow trout that had been eaten by a 635-mm northern pike. The trout was partially digested and was regurgitated by the pike while trapped in a fyke net. Both fish were dead in the holding part of the net. This pike had eaten a prey item that was 72% of its length. The largest pike caught was 965 mm and could possibly eat fish up to 724 mm, which would include most all fish in the Yampa River, including Colorado pikeminnow.

All pike that were translocated were marked with numbered floy tags. There were no reports of tag returns from fish captured in the ponds, but this is probably due to the fact that we did not have signs instructing anglers about the tags or how to report capture information. Unfortunately there were three angler returns from northern pike that were captured in the river. It appears that the three recaptured pike either escaped or were returned to the river by fishermen after being translocated into the YSWA ponds.

## VII. Recommendations:

1. Transport northern pike to locations outside the Yampa Basin until other suitable locations are found within the Yampa Basin. Rio Blanco Reservoir in the White River basin would be a suitable location that would meet the requirements of the Nonnative Stocking Procedures.
2. Place signs at all ponds where northern pike are placed to inform anglers about the program and to encourage them to report tagged fish captures.
3. Continue to use YSWA ponds for transplanting northern pike after water levels disconnect the ponds from the river.
4. Monitor YSWA ponds closely to insure that they do not reconnect after northern pike are placed there.

## VIII. Project Status:

This project was delayed due to problems locating suitable ponds that were acceptable under the nonnative stocking procedures, but it is currently on-track and on-going.

IX. FY 99 Budget Status:

- A. Funds Provided: \$95,715
- B. Funds Expended: \$75,715
- C. Difference: \$20,000
- D. Percent of the FY 99 work completed, and projected costs to complete: 80%  
balance needed for evaluation of ponds selected for translocation and for salvage  
of northern pike from YSWA ponds prior to spring 2000 runoff.
- E. Recovery Program funds spent for publication charges: \$0

X. Status of Data Submission:

Colorado pikeminnow PIT tag data will be submitted to Database manager in Dec 1999.

- XI. Signed: John Hawkins      12/7/99  
Principal Investigator      Date