HIGHLIGHTS OF LOWER POUDRE RIVER SAMPLING, MARCH 20, 1971

Summarized by Dick Klein and Bob Behnke

The Poudre-Thompson chapter of Trout Unlimited assisted fishery biologist Dick Klein in his sampling program to gather data on the trout population in the new, lower Poudre River quality area. Regulations recently in effect manage a 4 mile stretch of river allowing only artificial lures and protecting all rainbow trout less than 12 inches.

The sampling consisted of electrofishing about 2500 ft. of stream, divided into 3 separate sections and also a comparable section in the open fishing zone just above the quality area.

It should be emphasized that electrofishing does not give a complete census of the population. Smaller fish (fingerlings and yearlings) because of body size are not readily captured in the electrical field. The numbers of small trout turned up in electrofishing sampling, would grossly underestimate their actual abundance. Large, deep pools can not be sampled with the gear used, and any trophy sized fish inhabiting such places would be untouched by the sampling. The results obtained, however, are interesting and enlightening. A substantial population of wild, naturally reproduced trout is present in the lower Poudre River despite relatively high fishing pressure throughout the year.

The accompanying table lists the results of the 1971 sampling and the findings of the 1969 survey of the same area.

It is evident that brown trout are dominant over rainbow trout in the lower Poudre River and that both species grow at about the same rate here. A significant point that can be interpreted from the data regarding the effects of the new 12 inch size limit on rainbow trout, is that the new regulation will probably provide very few extra fish larger than 12

inches that would not have been there before. Of 84 rainbow trout 6 inches or more, only 8 (less than 10%) attained the 12 inch size limit. Because of a relatively slow growth rate, natural mortality will eliminate most of the trout before they attain 12 inches. What the new regulation will do, it is hoped, will be to provide more sport by allowing an individual rainbow trout to be caught and released two or more times before it succumbs to old age or reaches 12 inches and is removed by an angler. If this assumption is correct, then there should be an increase in the abundance and the opportunity to catch and release rainbow trout in the 9-11 inch size group. Admittedly, a regulation that eliminates the bulk of the rainbow trout population from the fisherman's creel, is wasteful in terms of one form of utilization of trout flesh - that is, the eating of the meat. However, when it is understood that a pound of wild rainbow trout in the sport fishery has a value many times that of a pound of rainbow trout in the supermarket, the goals of the regulation make good sense.

Summary of Sampling, Lower Poudre River, March 20, 1971

Length in inches	BROWN TROUT Sections in quality area 1	2	3	Open zone	RAINBOW TROUT Sections in quality area 1	2	3	Open zone
3.0-3.9	0	2	0	3	0	0	0	0
4.0-4.9	3	11	3	0	0	0	0	0
5.0-5.9	0	1	0	0	0	0	0	0
6.0-6.9	1	2	6	4	1	0	5	2
7.0-7.9	5	21	23	23	1	5	7	3
8.0 8.9	8	15	30	45	1	3	9	5
9.0-9.9	13	43	10	18	3	1	6	3
10.0-10.9	4	31	4	4	1	6	6	0
11.0-11.9	1	9	2	3	1	4	1	2
12.0-12.9	1	2	0	0	1	3	2	1
13.0-13.9	0	1	0	0	1	0	0	0
Total	36	138	78	100	10	22	36	16

Sample of March 29, 1969

	Sections		
	1	2	3
Brown trout	27	92	75
Rainbow trout	7	20	6

[1988]

Colorado State University

Department of Fishery and Wildlife Biology
Fort Collins, Colorado 80523

July 25, 1988

Mr. Bud Smith
Colorado Division of Wildlife
317 West Prospect
Fort Collins, CO 80521

Dear Bud:

I have reviewed a draft copy of "Today's strategy -- tomorrow's wildlife -- A comprehensive management plan for the Colorado Division of Wildlife." My comments are a bit too detailed for oral presentation at the "open house" session, so I will put them in writing for the record.

A planning document with the identical title was published some years ago based on 1973 data (second edition 1977). At that time I pointed out some obvious discrepancies and problems with the document to Dave Lemons. The major problem with the old document concerned the cold water stream fishery and how the demand would be met. I find the same problems in the 1988 document.

A major problem concerns the virtual impossibility of providing the number of cold water stream fish, which I assume to consist entirely of brook, brown, rainbow, and cutthroat trout, to meet the estimated demand, unless unacceptable numbers of catchable trout are stocked and/or catch-and-release regulations are greatly expanded so that each trout on average is caught several times. The use of catch-and-release as a strategy to meet demand was not mentioned in the 1977 document, and I see no mention of it in the 1988 draft. The problem for attaining the goal of angler catch should be obvious with some reflection and simple arithmetic.

The 1973 data estimated there were 19,650 surface acres of cold water streams available for public fishing in Colorado. The 1988 draft gives no aerial estimates for cold water streams, so I will use 20,000 acres as a base figure. The basic question is: how many pounds and numbers of trout can 20,000 acres of Rocky Mountain streams produce for a sustained yield fishery on an annual basis? For my analysis, I will omit literature citations I used to arrive at my figures and conclusions, but I will supply them to anyone who wants to examine the matter in detail. Biomass or standing crop of trout in Colorado streams has great variation but averages about 50 pounds per acre if all streams are considered (20,000 acres at 50 lb./acre = ca. one million pounds of trout biomass in all Colorado streams). To calculate the potential angler catch to be sustained each year from biomass figures requires a relationship between biomass and production or a P/B ratio (what percent of the biomass is replaced each year as a result of growth and recruitment). Because of a relatively short growing season, a realistic P/B ratio for Colorado trout streams is about .5 (each 50 lbs of biomass produces 25 lbs. of new or additional trout flesh annually). For a best case scenario, let us assume a P.B ratio of 1.0 (50 lbs. biomass produces 50 lbs. of new or additional biomass each year). The next question becomes: what percent

of production might be caught (harvested, removed, killed) by anglers each year? Because production is inversely related to size of fish (a small fish increasing from 1 oz. to 10 oz. during one year has P/B ration of 10.0, whereas a large fish growing from 1 lb. to 1.3 lb. has P/B ratio of .3), most of the production is in small, subcatchable-size fish. Also, even in heavily fished waters, typically, more production is lost to natural mortality than to angling mortality. Thus, realistically, we might assume that 25% of annual production might be removed by anglers. Again, for a best case scenario, let us assume that 50% of annual production of trout in all Colorado streams is caught by anglers. Using the highly improbable two best case scenarios of P/B = 1.0 and 50% harvest of P, results in a potential annual catch (harvest) of 500,000 lbs. of trout from 20,000 acres of streams, if the trout in the catch average 3/lb. (ca. 9 inches), then a catch of 1.5 million trout would result. If the trout average 4/lb. (ca. 8 inches), then two million trout could be caught.

Now we come to the glaring discrepancy between what 20,000 acres of stream might potentially produce and the 1988-89 objectives to be met for the cold water stream fishery.

The objective of 7,800,000 recreational (or angler) days is proportioned as follows: 21% "warm waters," 50% "cold water lakes," and 29% "cold water streams". The "catch per day" objective is 2.8 fish. Thus, to meet these objectives, 2.26 million angler days catch 6.3 million fish (which I assume to be 100% trout) from cold water streams.

Where would these trout come from? If my calculations are "in the ballpark," the maximum annual catch of wild trout would be no more than 1.5-2.0 million.

The draft plan mentions "expanding hatchery production." Current production of catchable trout in Colorado hatcheries is given as 4,920,000 (which might increase to 5.4 million). Most catchable trout, however, are not stocked in streams. If two million catchables are stocked each year in cold water streams, even with an impossible 100% return to the creel, "cold water streams" will still fall far short of achieving a catch of 6.3 million trout.

The actual number of trout which might be caught by anglers from cold water streams appears to be clearly in disagreement with the objectives stated to be achieved. I must admit, however, this disagreement is not as great as in the old plan. According to the first plan, "cold water streams" supported 3,498,000 angler days in 1973, and 8,599,000 fish (trout) were caught for average catch of 2.5 per day. The projected objectives for 1983 were 4,656,000 angler days catching 10,631,000 fish

(trout) from cold water streams. Projecting these increases of the old plan through 1988 would have objectives of more than 5 million angler days catching more than 12 million trout from cold water streams. Thus, the current 1988 objectives of 2.26 million angler days catching 6.3 million fish is "less wrong," but still hellaciously fallacious.

The problem appears to be one of going from the generalities of putting the plan together to the specifics of the data given in the plan -- which evidently no one paid much attention to. If administrators seriously attempt to meet the objective of providing a catch of 6.3 million trout from cold water streams, what management strategies would be available? From what I read in the plan, "expanded hatchery production" is the only option available.
In good conscience, I could not support any significant increase in fishing license fees if the funding increase would be mainly diverted to increased production of catchable trout. From what I read regarding cold water stream fisheries in the present draft, the stocking of massive numbers of catchable trout would be the only way to meet the objectives. Nothing is mentioned of the potential for maintaining catch rates and high use by recycling the fish in special regulation fisheries. No innovative approaches are mentioned, such as Barry Nehring's experiment of stocking fingerling rainbow trout derived from wild Colorado River rainbows in the South Fork of the Rio Grand and successfully establishing new fishing opportunities (after domesticated hatchery rainbow trout showed no survival).

It is obvious that ponds, lakes, and reservoirs must supply the bulk of salmonid fishes to be caught by Colorado anglers (more than 100,000 surface acres of lentic waters stocked with salmonids). The put-grow-and-take management of lentic waters greatly reduces the cost per fish caught in comparison to catchable trout stocking. Even here, however, I believe great improvements are possible regarding yield and cost/benefits of numbers and pounds stocked to numbers and pounds caught in fishery if innovative management strategies are used -- for example, use of interspecific and intraspecific diversity for "niche packing," special strains from special purposes (specialized predators, etc.), and mass production of sterile fish. Also in CDOW Special Report 64 (High lake research and management in Colorado), the use of predator/prey interactions is suggested to improve the fishery quality and diversity of lakes containing populations of stunted brook trout. After lake trout were established in several lakes, the density of brook trout decreased, growth rate increased, and trophy-sized lake trout were produced. This report lists 159 mountain lakes in Colorado with monocultures of brook trout plus 106 lakes where they occur with other species. In how many of these lakes might the fishery be vastly improved and diversified with the application of an intelligent predator-prey strategy? I might add that the Wyoming Game and Fish biologists have found the stocking of predators in lakes with stunted brook trout to be a valuable management tool, and they are currently producing sterile lake trout for this purpose. I see

OPTIONAL FORM NO. 10
MAY 1962 EDITION
GSA FPMR (41 CFR) 101-11.6

Behnke

UNITED STATES GOVERNMENT

Memorandum

TO : Regional Director, Region 6, Denver (SE) **DATE:** May 18, 1978

FROM : Area Manager, Area 5, Salt Lake City

SUBJECT: Colorado Squawfish Rearing Program at the Hotchkiss NFH

Mr. Bruce Rosenlund's report on the subject program is attached for your information. Mr. Rosenlund is the Fishery Assistance Biologist for Colorado and was requested to assist the Hotchkiss Hatchery in carrying out this program.

We have distributed copies as shown below. An extra copy is included for submission by your office to the Washington Office of Endangered Species.

Copies to: Colorado River Fishes Recovery Team Members:
Bill Miller
Chuck McAda
Phoenix AO
Albuquerque RO
Sacramento AO
Denver RO (HFR)
Hotchkiss NFH
Willow Beach NFH

Attachment

Robert H. Stroud

5010-108

Progress Report on the Colorado River Squawfish
After 15 Months at the Hotchkiss National Fish Hatchery

On January 27, 1977, 100 Colorado River Squawfish (Ptychocheilus lucius) were transferred from the Willow Beach National Fish Hatchery to the Hotchkiss National Fish Hatchery. At the time of the transfer, the fish were 2½ years old and averaged 7.08" in total length and 52.7 grams in weight. Mean condition factor (K) was 0.82.

Upon arrival of the squawfish at the Hotchkiss NFH, the fish were equally divided between two, one surface acre ponds, averaging 4 to 5 feet in depth. Both ponds were seeded with fathead minnows for a forage base.

Approximately six months later, on August 9, 1977, one pond was sampled for growth by the use of a Fyke net. An over-nite set yielded 13 squawfish averaging 10.96" in total length and 151.2 grams in weight. Mean condition factor (K) was 0.69. Assuming the sample was representative, the fish appeared to have increased 3.88" in total length and 98.5 grams in weight, by apparently utilizing fathead minnows and seasonal macro-invertebrates available in the ponds. No attempt was made to feed the squawfish trout feed. Temperatures during this growth period ranged from 42° F. to 81° F., with an average near 60° F. for most of the growth period.

Early in 1978, some concern was expressed that the survival of these "river fishes" could possibly be very poor in a pond environment. Thus, to determine the survival of the squawfish after 15 months in a pond environment, both ponds were drained and the fish inventoried. The inventory also allowed for pond repairs and the removal of other fishes from the ponds.

Results of the inventory on April 19, 1978, revealed the following growth and survival after 15 months:

Pond	# Fish 4/78	Total Wt. 4/78-pounds	Percent Survival	Avg. Lgth.	Avg. Lgth. Increase	Avg. Wt. Increase/ Fish	Mean K Factor
4	49	22.89	98%	11.9"	4.82"	161.3 gm	.75
5	42	25.79	84%	12.8"	5.72	226.3 gm	.78
Totals/ Averages	91	48.68	91%	12.3"			

In addition to the 49 squawfish removed from pond 4, 442 rainbow trout weighing 225 pounds were also discovered. Pond 5 contained 22 rainbows, weighing approximately 25 pounds.

It appears difficult to simply explain an apparent conflict between pond 5, with the lowest survival and best growth and pond 4, with the best survival, poorest growth and greatest competition.

Apparently, the presence of the 225 pounds of rainbow trout up to 16" in length did not adversely effect the survival of the 9" to 12" squawfish, up to the time of the inventory. However, overall growth and condition appears significantly reduced in pond 4, even though there appeared to be an abundance of macroinvertebrates and fathead minnows, as of April 1978, (see length/weight graph). It should also be noted that in handling the fish from pond 4, two were lost, while none were lost from pond 5.

Stomachs from the two fish lost in pond 4 were examined and found void of any food. The larger rainbows in the ponds were found to be feeding mainly on fathead minnows.

Squawfish from each pond were held in separate raceways until the morning of April 25, when they were dipped in a saturated salt solution and returned to their original ponds along with several pounds of fathead minnows. Numbers and weights of squawfish returned to each pond as follows:

Pond	Number of Fish	Weight (Pounds)
4	47	22.16
5	42	25.79
Total	89	47.95

During the days the squawfish were out of the ponds, the Hotchkiss crew and YACC camp removed the excess aquatic vegetation and attempted to repair the avenues of trout contamination. Although screens had apparently been a problem and repaired in 1976, there appeared to be two year classes of hatchery trout in the squawfish ponds - 1976 and 1977. It was found that due to the age of the pipeline, there were holes in the pipe which allowed fish access into the ponds through the pond bank. In addition to the previously mentioned trout, 4 green sunfish and 5 white suckers were also removed from the squawfish ponds.

Temporary repairs were made to the pipline by carefully covering the paper thin pipe with rock and dirt. At best this repair will be short lived and problems with contamination will probably continue, if the line cannot be replaced.

Future work should include monitoring for growth of the squawfish and the possible invasion of other fishes. Growth to be checked early spring and late fall by using Fyke nets.

Due to the problems in draining the ponds, it would probably be preferable to allow the fish to remain in the ponds until nearer sexual maturity.

Nearing IV years old, Hotchkiss squawfish are nearly as large (312 mm vs 325 mm) as age group V collected from the Green River by Vanick and Krammer in 1964 to 1966. The youngest gravid female collected from the Green River by Vanick and Krammer was age VII. Northern squawfish are reported sexually mature at ages IV or V.

Report prepared by Bruce D. Rosenlund, Fisheries Assistance, from data supplied by the Hotchkiss National Fish Hatchery squawfish project.

Reviewed by:

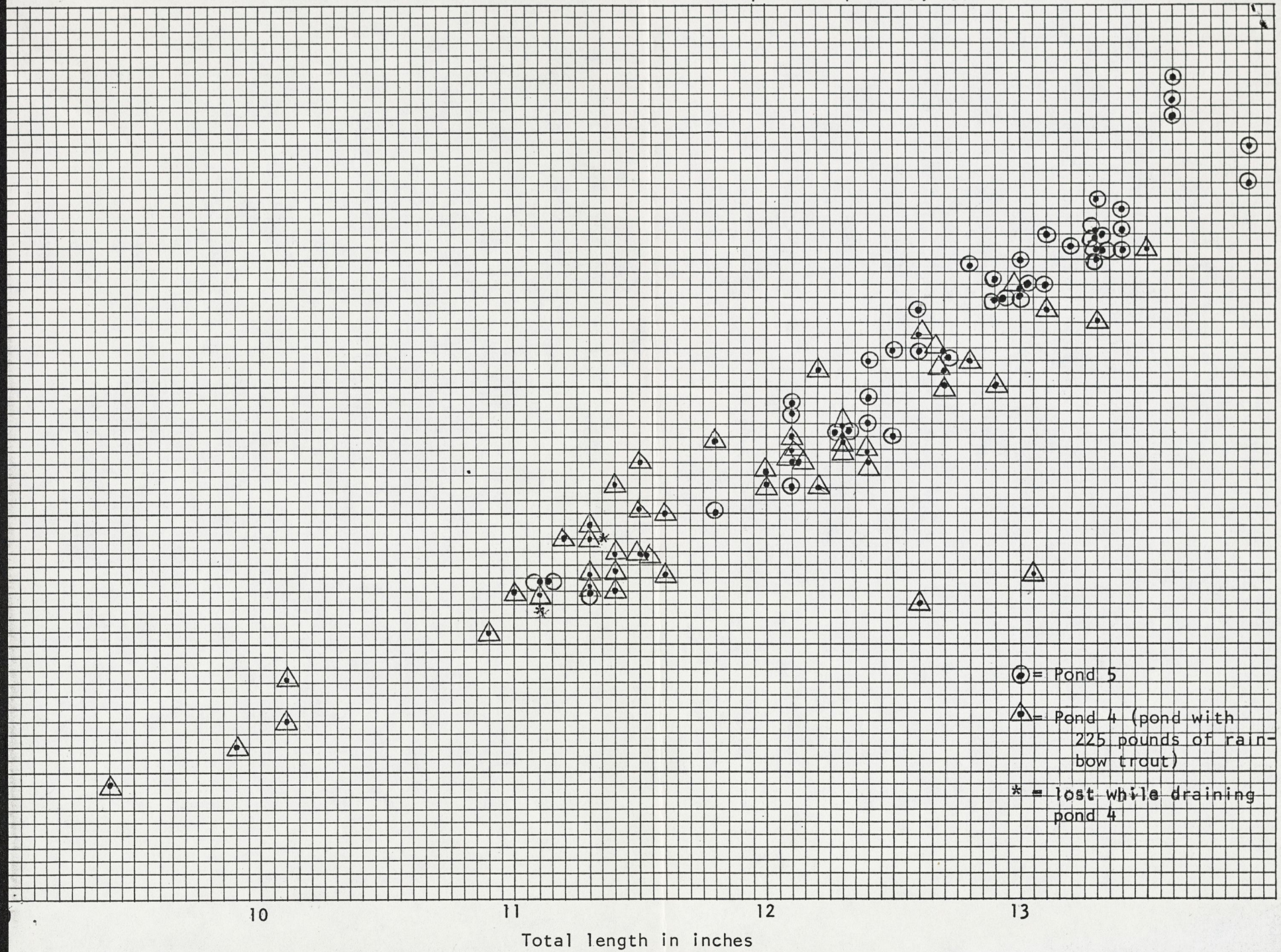
William C. White
Assistant Area Manager
Salt Lake City Area Office

Submitted by:
Bruce D. Rosenlund
Fishery Assistance Biologist
Colorado Field Office
Denver, Colorado

Distribution:

Regional Office
SLC Area Office
Hotchkiss NFH
Willow Beach NFH
Vernal Field Office
Dave Langlois, Colorado D.O.W.
Endangered Species, Region 2

Length/weight of Colorado River Squawfish (Ptychocheilus lucius)
held at the Hotchkiss National Fish Hatchery as of April 19, 1978



no indication in draft plan that any innovative management strategies are even contemplated, only "expanded hatchery production."

Most states with both significant wild trout fisheries and a large-scale hatchery program have developed some sort of policy statement regarding the use of hatchery trout -- essentially to control and contain the danger of ever-increasing production of catchable trout. I would like to have CDOW also establish some guidelines regarding "optimal" use of catchable trout in relation to costs and equitable distribution of costs.

I realize that the plan must be concise and highly condensed for public consumption. An appendix or separate document might be produced which would display the knowledge and expertise that would provide the basis for progressive, innovative management strategies to be applied as alternatives to "increased hatchery production."

I hope to see some indication in the final version of "Today's strategy" of more concise and in-depth thinking as a basis for realistic planning and more assurance that a license fee increase will be a sound investment in the future.

Sincerely,

Robert J. Behnke
Professor, Fishery Biology

RJB/kc

[ca 1995]

CONSIDERATIONS AND RECOMMENDATIONS CONCERNING THE PURPOSE, APPROPRIATENESS AND SUSTAINABILITY OF TROPHY LAKE TROUT REGULATIONS
A Special Report

Considerations

Within the past decade, special regulations have been enacted in Colorado specifically to increase the number and size of trophy-sized predators in reservoir fisheries. Receiving little or no public scrutiny while becoming increasingly protective and more widely applied, these trophy regulations were often implemented without considering the impact of more and larger predators on existing fisheries. There is now a widespread belief in Colorado that protected length limits are appropriate for the management of lake trout (Table 1). However, trophy lake trout were produced before protective length limits were ever conceived or implemented.

Lake trout, especially larger ones, are highly piscivorous, and because they are long-lived, they can exert tremendous predatory demand for fish prey once they are released into a system. In most cases, the suitability of a trophy regulation for protecting lake trout and its impact to other fisheries in a particular water was not addressed. The desire to produce trophy lake trout using special regulations has proceeded regardless of individual reservoir productivity or fish population characteristics. These efforts to create, sustain, or increase trophy lake trout fisheries have not been closely monitored.

For piscivorous lake trout in Colorado, prey are primarily pelagic sport fish. The lack of natural reproduction by both kokanee and rainbow trout, principle coldwater reservoir species, means that the fish prey bases for lake trout are hatchery sustained. Lake trout and their sport fish prey are exotic species that are not coevolved leaving kokanee and rainbow trout extremely vulnerable to lake trout predation; therefore, food webs based on these species can be unstable. Despite the presence of white suckers and/or longnose suckers in reservoirs containing lake trout, bottom-oriented suckers which inhabit comparatively shallow waters are typically little utilized as prey by lake trout.

Several reservoirs currently managed for trophy lake trout rely heavily on kokanee as the primary fish prey of lake trout. Kokanee were introduced into Colorado to improve sport fish yield in fluctuating reservoirs, a role they have fulfilled by exploiting zooplankton in the open-water of reservoirs. The concept that kokanee must serve a dual role as a sport fish and as prey for other fishes has never been deeply entrenched or understood by most Colorado anglers and has led to disagreement about managing kokanee primarily for angler consumption or as prey for lake trout. Even at relatively low population densities, lake trout can consume more kokanee than are harvested by anglers.

Because kokanee are maintained exclusively by hatchery stocking in Colorado, kokanee eggs collected from its major kokanee egg sources, Blue Mesa and Granby reservoirs, are essential for maintaining kokanee populations. Due to an inadequate supply of kokanee eggs in the western United States (Table 2) and the desirable characteristics of the late-spawning strain of Colorado's kokanee, the state must preserve its own kokanee egg supply. Predation by lake trout has the potential to destabilize kokanee populations and eventually jeopardize the state's kokanee egg supply.

The presence of restrictive slot length limits for protecting and increasing numbers of trophy lake trout in Blue Mesa and Granby results in three conflicting demands from their kokanee populations: a summer kokanee fishery, a secure kokanee egg supply and an ample prey base for large lake trout. Because it is impossible to optimize all three demands, the question becomes "have management goals or priorities changed to warrant a protective trophy regulation for lake trout?" The inherent productivity of a particular reservoir, and the density-dependent nature of kokanee populations regulate the quality of kokanee fishing and egg-production. Simply stocking more kokanee is not the easy solution if kokanee numbers begin to decline.

Colorado's mountain reservoirs are oligo-mesotrophic systems of limited production. They have limited capacity to produce trout and kokanee, and therefore, the potential to produce large lake trout is also limited. Recent research in Blue Mesa, Granby, Taylor Park, and Twin Lakes reservoirs has provided estimates of fish abundance and the consumption of fish prey by piscivorous lake trout (Table 3). These reservoirs represent a range of sport fish productivity potential and illustrate the varying conditions under which lake trout are presently managed with protected slot length limits (Table 4).

Lake trout reproduce successfully in many Colorado reservoirs, but because lake trout are often stocked, there is little regulation of their densities due to prey abundance. When predation demand by lake trout exceeds a reservoir's capacity to produce fish prey, the fishery becomes unstable and may decline severely, or the excess lake trout biomass is wholly sustained and subsidized by high levels of stocking from hatcheries. The numbers of hatchery fish eaten by an individual lake trout, determined from the estimated pounds of fish consumed under average conditions in Colorado, was used to compute the cost of producing a single lake trout depending on the size of hatchery prey eaten (Table 5).

Efforts to maximize trophy lake trout numbers in any water, regardless of productivity, should be scrutinized due to the hatchery prey base and the potential reduction of other fisheries. In waters of lesser productivity, low numbers of piscivorous lake trout can exert sufficient predation to greatly limit or eliminate pelagic sport fish populations. In more productive reservoirs, production by sub-catchables may be intercepted by high levels of lake trout predation, thereby impacting valuable basic-yield fisheries. Recommendations for reservoirs currently managed with trophy lake trout regulations are discussed for kokanee populations supplying eggs and reservoirs containing *Mysis*.

Recommendations

Kokanee egg-supply reservoirs

Predator-size fish in Blue Mesa and Granby reservoirs represent about 5% of the estimated pelagic fish populations, however, the biomass of predators in both reservoir rivals the biomass of prey-size fish (Table 3). Both reservoirs receive 5 pounds or less of stocked fish/acre/year and therefore, managers expect subcatchable fish to exploit the productivity of these reservoirs to produce standing crops of fish for angler harvest. However, in both reservoirs, estimated demand for fish prey exceeds the available biomass of pelagic fish prey; therefore there is cause for concern about the stability of these fisheries and their associated kokanee egg supplies.

Blue Mesa: Current trends in kokanee and *Daphnia* (kokanee's prime food source) abundance and size indicates a reduced density of kokanee in Blue Mesa. The estimated quantity of fish required to sustain the present lake trout biomass indicates a looming crisis for prey populations, rainbow trout and kokanee (Table 3). It is estimated that over 50% of the fish biomass consumed by lake trout is eaten by age 6-9 lake trout (Table 4) that are protected from harvest by the current slot-regulation. Another 32% of the fish consumed is eaten by age 5 lake trout that would enter the protected-slot within one or two years.

Because it is infeasible to optimize kokanee harvest and egg production under high levels of predation by lake trout, it is recommended that the protected slot length limit be removed from Blue Mesa. This would emphasize management for the rainbow trout and kokanee fisheries and would serve to protect kokanee egg production. In addition, the bag limit for lake trout should be increased to four fish to encourage and achieve harvest of all sizes of lake trout, especially those under 30 inches. While only an estimated 11% of the fish consumption is attributable to lake trout over 30 inches (Table 4), this accounts for nearly 50,000 pounds of fish, potentially a significant number of 13.5 inch rainbow trout and kokanee that average about one pound each.

Because lake trout in Blue Mesa reproduce and presently display rapid growth and good condition in comparison to other lake trout populations (Table 4), large lake trout will continue to be present in the fishery without special protection of any kind. If strong opposition to removal of the slot-regulation is voiced, a compromise regulation might be a minimum size-limit, something over 32 inches, with a bag limit of only one fish over the minimum. However, any less liberalization will likely result in a significant reduction of rainbow trout and kokanee harvest and may begin to destabilize the kokanee egg supply within the next three to five years.

Granby: The current lake trout population in Granby precludes the possibility of a rebound in the kokanee population and fishery. However, observations in recent years departing from historic trends in the kokanee spawning run indicate that Granby's kokanee egg production should be the basis for recommended changes in the current lake trout regulation. The 1994 egg-take was the smallest, by nearly half, supplied by 13 inch kokanee spawners in Granby. Also, age 2 fish composed 30% of the spawners overall in the 1994 Granby run and nearly 50% by the end of the run. These unprecedented observations indicate a low density of maturing kokanee and securing the kokanee egg target may be an immediate concern.

Strong support for the Granby lake trout fishery suggests that any proposed regulation change will meet some opposition. However, it is estimated that 70% of the pelagic fish consumed by piscivorous lake trout in Granby are eaten by lake trout under the present length limit of 26-36 inches (Table 4). At a minimum, an increase in the current bag limit to three or four fish is recommended to encourage and achieve harvest of legal-size lake trout in an attempt to alleviate predation on kokanee. An ecological approach for reducing the current dense *Mysis* population in Granby (Table 4) for the benefit of kokanee would be to re-implement the 20 inch minimum length limit that was in place in 1986-1987 (Table 1) when many large lake trout were caught and harvested.

The present regulation and lake trout angling practices at Granby focus harvest most heavily on the *Mysis*-eating component of the lake trout population. Shifting the lake trout size structure toward lake trout of the size that eat

Mysis, and away from larger piscivores would be the more efficient means of exploiting the reservoir's capacity to produce sport fish. A 20 inch minimum length limit coupled with a generous lake trout bag limit would shift harvest to that portion of the lake trout population that presently accounts for over 50% of the estimated fish consumption (Table 4). Allowing harvest of the larger piscivores should slow the number of lake trout entering the older age classes, thus reducing the numbers of lake trout capable of eating adult kokanee. The largest fish in Granby account for an estimated 21% of the pelagic fish eaten or over 30,000 pounds of fish (Table 4). This is roughly equivalent to 40,000 maturing, 13 inch kokanee of about 0.75 pounds each.

While a 20 inch minimum length limit may reduce numbers of trophy-size fish, older lake trout in excess of the upper size limit of 36 inches persist in Granby as evidenced by anglers catching and releasing them and the 1994 surveys (Table 4). Despite being of legal size for harvest, all trophy fish are not removed from the population and voluntary release of trophy lake trout by anglers would preserve some trophy lake trout fishing regardless of the size or bag limit. However, body condition of larger lake trout has declined in the 1990s indicating that demand for fish prey has intensified. If sufficient harvest of piscivorous lake trout does not occur, lake trout condition may decline further, the kokanee population will be unable to rebound, and securing a kokanee egg supply from Granby will become less likely.

<u>Other reservoirs containing *Mysis*</u>

Of the seven waters in this category, Big Creek, Grand, Mt. Elbert Forebay, Ruedi, Taylor Park, Turquoise, and Twin Lakes, none possess substantial sport fish productivity. All except Taylor Park, and possibly Grand Lake, exhibit low *Mysis* densities ($\leq 100/m^2$). Low level *Mysis* populations represent between 10 and 20 pounds of *Mysis* per acre. Transferred to the next trophic level, this translates potentially into 0.5-1 pound of fish flesh per acre since lake trout cannot exploit all the mysids. Therefore, justifying trophy lake trout management based on established populations of *Mysis* in reservoirs of low productivity is unfounded. While lake trout recruitment often improves due to *Mysis*, is does not turn an otherwise unproductive reservoir into a producer of trophy lake trout. The larger lake trout in these reservoirs are produced primarily as a result of hatchery stocked fish that are their principle prey.

Taylor Park: The estimate of just over 4,000 piscivorous lake trout in Taylor Park, or 2.1/acre (Table 3), illustrates the impact of a low density lake trout population on pelagic sport fishes. The estimated annual biomass of fish prey eaten by lake trout is four times that of the estimated pelagic prey. Efforts to establish a kokanee fishery in Taylor Park by annually stocking kokanee fry will continue to be thwarted by the massive demand for pelagic fish prey by piscivorous lake trout. *Mysis* have undoubtedly contributed to natural recruitment of lake trout which have not been stocked since 1974. However, the moderate *Mysis* density does not supply the food that presently sustains the large fish component of the lake trout population (Table 4). Piscivorous lake trout in Taylor Park are highly reliant on the annual biomass of fish stocked which exceeds the estimated consumption by the piscivorous component of the population (Table 3). As a result, a reasonable summertime fishery for catchable trout persists.

The issue at Taylor Park appears to be one of maintaining a regulation that fosters a lake trout population far in excess of what the reservoir could produce without high levels of hatchery stocking. Lake trout in Taylor Park display lower body condition in comparison to Blue Mesa and Lake Granby (Table 4), probably due to the short growing season at 9,300 feet. However, some large lake trout would persist in Taylor Park without special regulations protecting them from harvest. A 20 inch minimum size limit is an ecological approach better suited to exploiting *Mysis*, while allowing increased harvest of those lake trout making the switch to a predominately fish diet. Increasing the lake trout bag limit to two is also recommended to encourage and achieve harvest of lake trout.

Twin Lakes: Despite being traditionally considered as a lake trout fishery, Twin Lakes has such limited productivity for sport fish that very few larger lake trout can be produced or sustained. In this case, the regulation protecting piscivorous lake trout misleads the public by suggesting the reservoir possesses the productive capacity to produce more larger lake trout. The piscivorous lake trout population, estimated at one fish per three acres (Table 3), does not support a good lake trout fishery, even for smaller-sized lake trout.

Mysis in Twin Lakes exhibit low population biomass, another indicator of the reservoir's inherently low productivity (Table 3). The reservoir's lake trout show comparatively poor body condition (Table 4) and it is unlikely that more than a couple of trophy fish would be harvested by anglers in a decade. Presently, no amount of special protection is going to improve the lake trout fishery. Stocking subcatchables to improve the prey base for lake trout making the switch to a fish diet would be exorbitant (Table 5) given that growth of subcatchables would be poor and would contribute little pelagic fish biomass.

Other waters: Ruedi develops a sufficient *Daphnia* population to support a minor kokanee fishery. Continued protection and stocking of lake trout will eventually preclude this management option. Protecting smaller lake trout, which feed more heavily on *Mysis*, from harvest and encouraging harvest of larger lake trout with liberal bag limits represents a more ecological approach of managing lake trout for the benefit of other fishery components and minimizes the consumption of hatchery salmonids as prey.

Special interests demanding high population levels of trophy lake trout to maximize catch rates of large fish in effect command a highly disproportionate allotment of the state's hatchery production to feed and sustain large populations of piscivores. Implementing or maintaining special regulations for trophy lake trout on waters with inherently low levels of sport fish production requires a commitment to stocking hatchery sport fish to supply a fish prey base. But even this strategy may be futile since unproductive impoundments are stocked with catchable trout that are too big to be eaten by smaller piscivores.

Liberalizing lake trout regulations allows lake trout to more efficiently contribute to a reservoir's basic yield potential, with some lake trout of larger sizes always being present. The concept that trophy regulations are appropriate for all lake trout populations, and efforts to discourage harvest of large fish, particularly in coldwater impoundments, deepens the impression that the largest fish in a population are of the greatest value. This conditioning of public's perception and attitudes can result in a tremendous trade-off for other valued fishery components and may instill a reluctance to harvest large piscivores when the need to do so becomes compelling.

Table 1. Summary of protective harvest regulations for lake trout in Colorado, 1970-1995.

Regulation period	Regulation type	Size limit in inches	Daily bag limit	Number of waters	Lake sizes in acres	
					Range	Total
1970	Minimum	15	4	1	2,471	2,471
1972	Minimum	20	2	3	145-3,405	6,021
1974	Minimum	15	2	Statewide	20-9,158	35,072
1977	Minimum	15	2	2	1,789-2,471	4,260
1979	Minimum	15	2	1	2,767	2,767
1985	Minimum	20	1	5	346-9,158	21,560
1986	Minimum	20	1	6	1,614-9,158	24,957
1988	Minimum	20	1	1	23	23
	Protected slot	20-32	1	9	506-9,158	28,515
1990	Minimum	20	1	4	23-500	1,108
	Protected slot	22-34	1	10	37-9,158	25,215
1993	Minimum	20	1	6	23-500	1,154
	Protected slot	22-34	1	9	37-9,158	17,383
	Protected slot[1]	26-36	2	2	506-7,256	7,762

[1] Regulation also protects recently stocked splake *Salvelinus namaycush x fontinalis*.

Table 2. **Summary of western United States kokanee egg supply and demand and current status of kokanee spawning runs from active or former kokanee egg collection sites. WD=whirling disease *Myxobolus cerebralis*, IHN=infectious hematopoietic necrosis, and BKD=bacterial kidney disease *Renibacterium salmoninarum*.**

U.S. western states	No. of in-state sources	Millions of eggs				Preferred out-of-state egg sources	Status of spawning runs
		Produced	Requested	Deficit	Surplus		
CA	1	1.2	2.0	0.8	None	CO, OR	Buck Lake-primary source, stunted population; Twin Lakes, Boco, and Stampede reservoirs-potential sources? (some eggs collected at Taylor Cr., Lake Tahoe)
CO	3	12.0	6.0	0	6.0	?	Lake Granby-declining; Blue Mesa Reservoir (Roaring Judy)-WD; Vallecito Reservoir-sporadic, typically lowest egg numbers collected
ID	2	12.4	13.1	0.7	No takers	CO, OR	Deadwood Reservoir-stunted early spawners, little demand; Lake Pend Orielle-desirable late spawners, IHN exposed; all Idaho stocks have residual BKD
MT	4	2.0	7.0	5.0	None	CO	Lake Mary Ronan-declining?; Swan Lake; Bitteroot Lake; Helena Reregulation Reservoir; Creston NFH-captive broodstock for Flathead Lake restoration
NM	1	2.1	3.0	0.9	Rare	CO	Heron Lake-sole source
OR	1	3.0	0.5	0	2.5	CO	Paulina Lake-sole source, mixed stock (includes Lake Granby genetics); sporadic source of surplus eggs; IHN in drainage
UT	1	0	2.1	2.1	None	CO	Sheep Creek at Flaming Gorge-early spawners (Kootenay Lake origin), may be dropped?; Porcupine Lake-dropped, WD; Strawberry Reservoir-source for 1994?
WA	1	13.0	15.0	2.0	None	OR, CO, ID	Lake Whatcom-currently sole source, BKD; instate annual request on paper is 20-22 million but present maximum hatchery capacity is about 15 million
WY	1	0.7	3.0	2.3	None	CO, NM	New Fork Lake-early spawners; Green River at Fontanelle Dam-dropped to avoid net kokanee loss to Flaming Gorge; Boulder Lake-run to hatchery developing?
Totals	15	46.4	51.7	13.8	8.5	CO first choice for eggs for seven states; OR second most common source of surplus eggs	

Table 3. Estimated number, biomass, and number and biomass per acre of prey-size fish (<16.7 in.), predator-size fish (≥ 16.7 in.), weight of fish consumed annually by piscivorous lake trout, fish stocked, and *Mysis* in the pelagic regions of Blue Mesa, Granby, Taylor Park and Twin Lakes reservoirs, 1994.

Parameter	Blue Mesa	Granby	Taylor Park	Twin Lakes
Fish abundance				
Prey	698,584	709,918	63,439	14,944
Prey/acre	77.6	101.4	31.7	5.5
Predator	48,311	32,659	4,269	735
Predator/acre	5.4	4.7	2.1	0.3
All fish	746,895	742,577	67,708	15,679
Number/acre	83.0	106.1	33.8	5.8
Fish biomass				
Prey	205,220	102,281	6,057	5,788
Prey lbs/acre	22.8	14.6	3.0	2.1
Predator	219,051	96,947	16,692	5,570
Predator lbs/acre	24.3	13.9	8.4	2.1
All fish	424,271	199,228	22,749	11,358
Pounds/acre	47.1	28.5	11.4	4.2
Demand for fish prey biomass by lake trout				
Consumption	374,652	157,591	24,332	5,085
Pounds/acre	41.6	22.5	12.2	1.9
Number stocked: subcatchables @ 1-5 in.; catchables @ 7.8-12 in.				
Subcatchables	2,248,254	1,031,442	221,779	11,380
Catchables	none	81,101	74,710	140,885
Total	2,248,254	1,112,543	296,489	152,265
Number/acre	249.8	158.9	148.2	56.4
Biomass stocked: subcatchables @ 0.0004-0.05 lbs; catchables @ 0.2-0.7 lbs				
Subcatchables	38,757	1,524	1,888	200
Catchables	none	34,521	35,632	32,585
Total pounds	38,757	36,045	37,520	32,785
Pounds/acre	4.2	5.1	18.8	12.1
Mysis biomass				
Total pounds	None present	679,137	65,828	41,108
Pounds/acre		97	33	15

Table 4. Comparison of age-growth and pounds and percent of fish consumed annually by piscivorous lake trout in Blue Mesa, Granby, Taylor Park, and Twin Lakes reservoirs, 1994.

Estimate		Lake trout age												
		5	6	7	8	9	10	11	12	13	14	15	16	17
Blue Mesa														
Lake trout size	Length in inches	19.7	22.4	25.2	27.6	29.9	31.9	33.5	35.4	37.0	38.2	39.4	40.5	
	Weight in pounds	2.5	4.1	6.4	9.0	12.2	15.5	18.6	23.1	27.2	30.6		38.3	
Fish prey eaten	Pounds	121,032	71,486	47,165	40,352	47,849	18,522	9,314	10,266	2,756	3,749		2,161	
	Percent consumption	32	19	13	11	13	4	2	3	0.5	1		0.5	
Granby														
Lake trout size	Length in inches	17.3	20.5	23.6	26.0	28.3	30.7	32.7	34.6	36.2	37.8	39.4	40.5	
	Weight in pounds	1.7	3.0	4.8	6.6	8.7	11.4				22.4	25.7	28.3	
Fish prey eaten	Pounds	76,999	19,779	9,437	6,395	5,358	6,902				10,474	11,545	10,703	
	Percent consumption	49	13	6	4	3	4				7	7	7	
Taylor Park														
Lake trout size	Length in inches	17.3	20.5	23.6	26.0	28.3	30.7	32.7	34.6	36.2				
	Weight in pounds	1.6	2.8	4.4		7.8	8.1	12.3		17.0				
Fish prey eaten	Pounds of fish eaten	4,075	6,659	5,407		2,026	3,391	1,912		862				
	Percent consumption	17	27	22		8	14	8		4				
Twin Lakes														
Lake trout size	Length in inches		18.1	20.5	22.4	24.4	25.6	27.9	29.5	31.1	32.7	34.2	35.8	37.0
	Weight in pounds		1.6				4.9	6.1	7.7					14.4
Fish prey eaten	Pounds		576				904	862	882					1,861
	Percent consumption		11				18	17	17					37

Table 5. Estimated numbers and costs of coldwater sport fish prey eaten by medium-size lake trout to grow from 16.7 in. to 23.7 in. (50% fish diet by weight), and by large lake trout to grow from 23.7 in. to 36.7 in. (90% fish diet by weight). Costs based on the number of prey originating from kokanee fry, or trout fingerlings, subcatchables, and catchables that would have to be eaten to account for the total poundage of fish prey required to produce a single medium-sized (23.7 inches) or large (36.7 inches) lake trout under average conditions in Colorado reservoirs.

Size of fish prey stocked from hatchery	Prey fish length in inches					
	4.7	7.8	10.3	12	13.5	16.7
No. of fish totalling 12.7 lbs, the amount of fish eaten by a lake trout to grow from 16.7 in. to 23.7 in.						
No. of kokanee>>>	412	87	38	Unlikely that medium-sized lake trout would prey on fish of this size		
2" kokanee fry	$ 61.14	$ 12.91	$ 5.64			
Number of trout>>>	288	67	29			
4.7" fingerling	$ 100.44	$ 23.37	$ 10.11			
7.8 " subcatchable		$ 38.78	$ 16.78			
10.3" catchable			$ 22.16			
Average cost per prey size	$ 80.79	$ 25.02	$ 13.67			
Cost per medium lake trout	$ 39.83					
No. of fish totalling 121 lbs, the amount of fish eaten by a lake trout to grow from 23.7 in. to 36.7 in.						
No. of kokanee>>>	3920	832	361	212	147	86
2" kokanee fry	$ 581.73	$ 123.47	$ 53.57	$ 31.46	$ 21.80	$ 12.76
Number of trout>>>	2744	638	274	173	121	86
4.7" fingerling	$ 956.94	$ 222.50	$ 95.55	$ 60.28	$ 42.20	$ 29.99
7.8" subcatchable		$ 369.25	$ 158.58	$ 100.13	$ 70.03	$ 49.77
10.3" catchable			$ 209.69	$ 132.22	$ 92.48	$ 65.72
12" catchable			$ 243.97	$ 154.04	$ 107.74	$ 76.57
Average cost per prey size	$ 769.34	$ 205.07	$ 152.27	$ 95.60	$ 66.85	$ 46.96
Cost per large lake trout	$ 222.68					
Cost per trophy lake trout	$ 262.51					

TRACKING WILDLIFE

FOR COLORADO DIVISION OF WILDLIFE EMPLOYEES

Special Edition--Volume 1, No. 2 — July 10, 1995

Extra
Extra
Extra

'Dear Hairball' answers your implementation questions

By Bill Haggerty
ICT Communications Team

Dear Hairball:
What's this draft I've been hearing about? When will it occur? When will we hear who's been picked?
Signed: Roger Dodger

Dear Dodger:
The reorganization plan called for a whole mess o' changes. The Implementation Coordination Team was chosen to get this reorganization going a month ago. Who's on that team? See the fancy box insert that the fine editor of this publication provided. Employee volunteers were solicited to help. We got about 27 volunteers, and needed about 100 people. Thus, "The Draft" for additional help was held on July 5. More than 100 employees [106 people so far if precision matters to you] were drafted to help implement the new reorganization plan. That's a whole lot of us. Between July 6 and July 12, Implementation Team leaders will be calling their respective draftees, to see who's 4-F, or whatever. (For you younger readers, 4-F was a medical deferment from the draft during Vietnam and other big ol' wars.) The list of draftees will be finalized on July 12 and a complete list of names will be released that day on e-mail, and will be listed in the next edition of Tracking Wildlife. There will be a meeting of all draftees — all 106 of us — on July 19. Then, we'll start to rock n' roll. It's time to get this thing done!

By the way, just because you weren't drafted, that doesn't mean we don't need your help. We'll probably tap another 75 or 100 employees at different times to provide added input into the process. So if you didn't volunteer because you didn't think you could dedicate enough time, but you can spare a few hours or few days on a particular topic, please call any member. We want your contribution to this effort, no matter how much time you can afford to spend.

Dear Hairball:
We're bored with this project and we're losing interest. It's taking too long! Why?
Signed, Losing Interest in Denver

Dear Losing Interest: It is definitely in your own interest to keep track of what's going on. It will affect your livelihood. Bottom line here. Paycheck. Who do you trust with it? Pay attention!

But you are correct in that this thing is taking a long time. It has taken on a life of its own. It's taken way longer than anyone suspected. But then, as philosopher Tom Lytle says, "It always takes longer than it takes." Anyway, there are lots of reasons why it's taken so long. For example, the Director resigned and we're searching for a new one. We've just held "The Draft" but we can't just publish the list and demand that people start working on this new job, before we at least display common courtesy and call each individual before they read their name in Tracking. There are two good excuses, but it'd take too long to explain all the reasons why it's taking so long. So, hang in there. It's important. Change is coming. Be prepared.

Philosopher **Tom Lytle**: "It always takes longer than it takes."

see **HAIRBALL** *on page 2*

Your Implementation Team members:

Dale Lashnits, (Customer Service)	(303) 291-7287
Gary Skiba, (Organizational Structure);	(303) 291-7466
Marilyn Salazar, (Human Resources/Agency Culture)	(303) 291-7376
Rob Molloy, (Technology)	(303) 291-7270
Kris Moser, (Process)	(303) 291-7316
Steve Cassin (Planning and Budgeting)	(303) 291-7240
Team leader **Bruce McCloskey**	(303) 291-7207
David King of Deloitte & Touche	(303) 291-7255
Jim Lipscomb	(303) 291 7209
Communications sub-team:	
Bill Haggerty	(970) 248-7175 (Grand Junction)
and **Bud Smith**	(970) 484-2836 (Fort Collins)
Hotline number	(303)291-7554

from **HAIRBALL** *on page 1*

Dear Hairball:

What's the deal with engineering trying to set up its own reorganization? What's the deal with aquatic doing the same? Signed, Myxobolus cerebralis Sliderule.

Dear Myx: Ain't happenin'. Chief engineer Clyde Smith did approach Deputy Director McCloskey to see if he and his engineers could help the reorganization effort. McCloskey told Smith he didn't have a problem with the engineering section taking a look at what the reorganization would be like, but any ideas or suggestions would have to be run by Gary Skiba's Organizational Structure team.

"Basically, I told Clyde not to make a full-time job of it. That's what Skiba and his team are doing. I'd say the same thing to the Aquatic Section or any other section or region. Every section and region will be well-represented on the Implementation sub-teams," McCloskey said. He added that it's the job of the Implementation teams to reorganize these sections according to the guidelines approved in the management review.

It's not up to an individual section, such as aquatic or engineering, or an individual region or whatever. No decisions about implementation of the reorganization have been made yet. But keep a close eye on this process: If you don't think it's fair, call us. Remember, there's the hotline, (303) 291-7554. You can talk to anyone on the Implementation Coordination Team. You can write a letter to Dear Hairball. (Hey, my address is at the very end of this article, so you don't have to look it up!) If we can't be honest and open, it's not worth doing. So give us a call!

Dear Hairball:

Is it true if I'm drafted for one of these reorganization sub-committees, I'll serve, even over my bosses' dead bodies? Signed, Not that Lucky

Dear NTL?

Maybe!

Dear Hairball:

What really happens once the director's staff goes from 18 to three? Signed, Soon to be bumped and Not too happy about it!

Dear Soon:

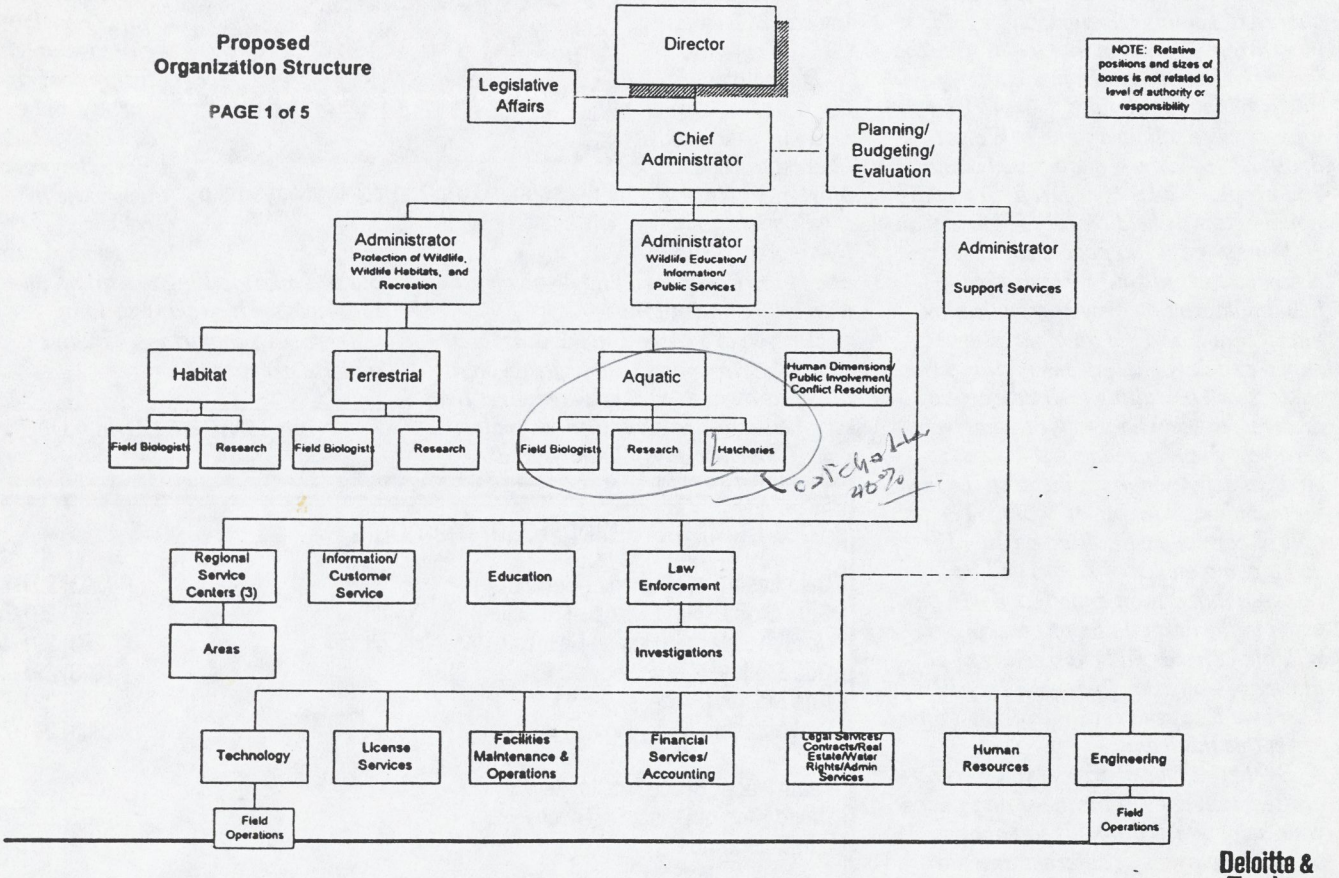
Hang on, there. Don't go off the deep end — yet! No one really knows what's going to happen. That's what this por-

see **HAIRBALL***Page 3*

Organizational Structure

Proposed Organization Structure

PAGE 1 of 5

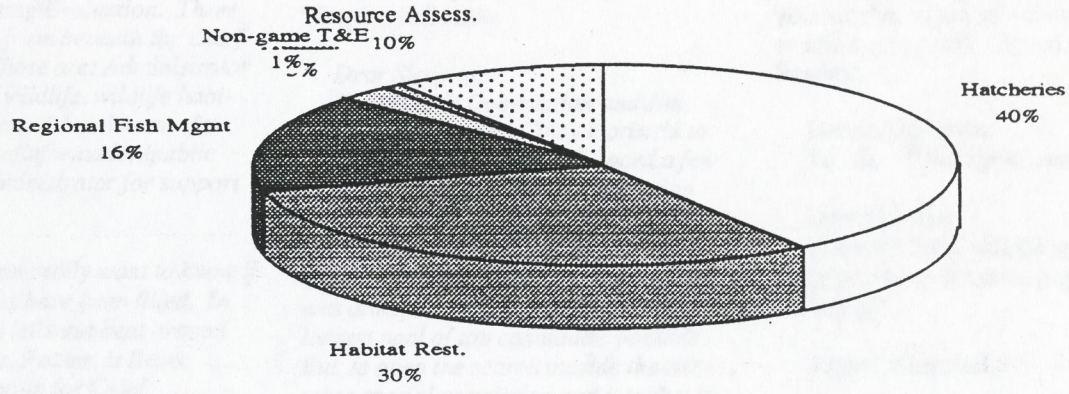


Deloitte & Touche LLP

As shown in Figure 3c, hatcheries take up the largest share of the Inland Fisheries budget area, followed closely by the Habitat Restoration Maintenance and Improvement program.. Nearly all of the Hatchery budget goes to the production of salmonids for sport fishing, but some supports the Wild and Threatened Trout Program. Fifteen state hatcheries are funded with about $15 million; one-third of the budget goes to Region 5 to support the trout stocking efforts in the Eastern Sierras (Mono and Inyo Counties). Hatchery production and stocking will be discussed in more detail later in this section of the report.

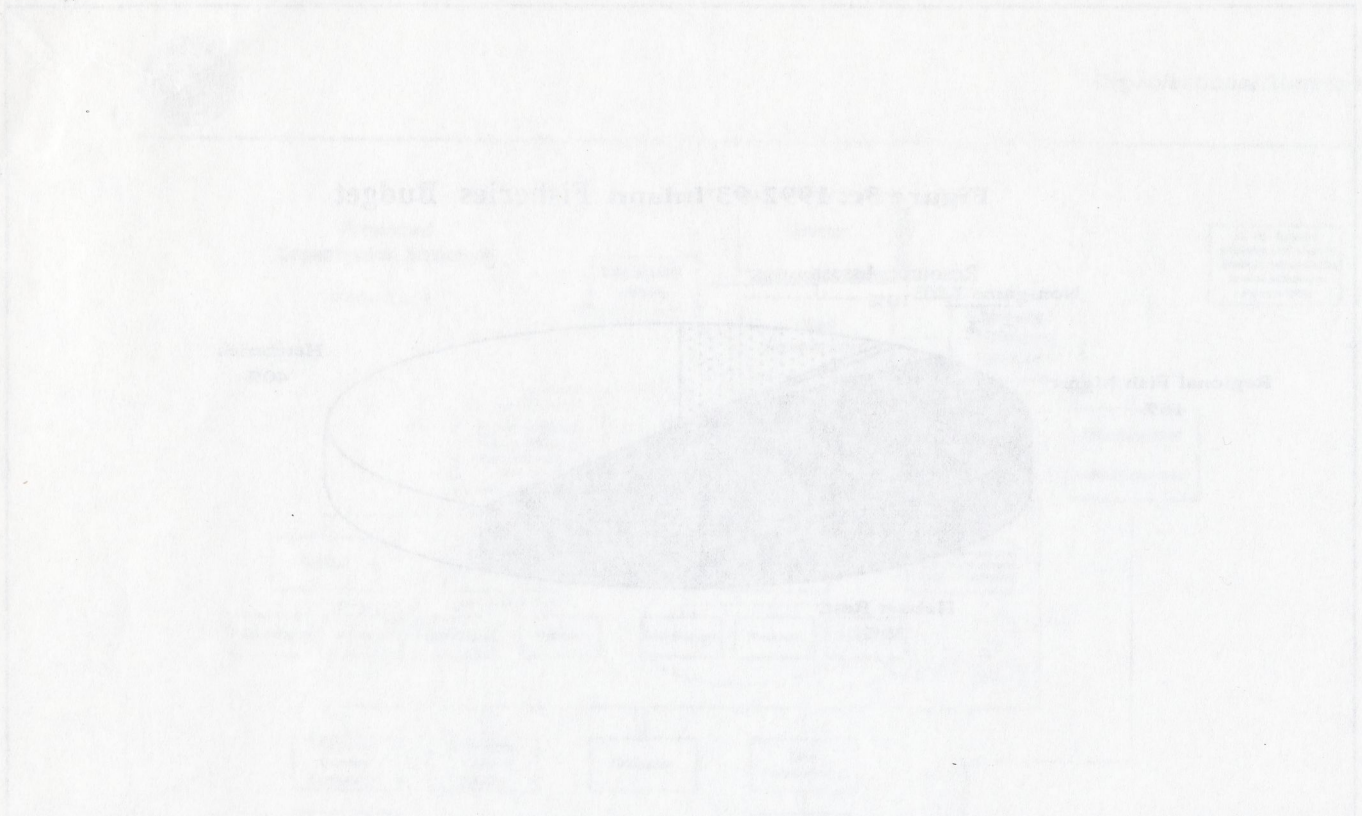
Habitat Restoration is primarily directed at improving habitats for native and non-native game species that are in high demand, mainly trout. This budget also supports efforts to study and inventory waters with the potential for habitat restoration, an issue that will be addressed further in the analysis of management alternatives to the status quo.

Figure 3c. 1992-93 Inland Fisheries Budget



Source: DFG # 1

To further understand the programmatic directions of the DFG. it is useful to evaluate the trends in the budgets for these programs, illustrated in Figure 3d.



from **HAIRBALL** *on page 2*

tion of the management review is all about — "implementing" the changes our fellow employees have already sold to forces much stronger than yours or mine.

Dear Hairball:
Tell me the truth. Are those top three boxes already filled? Signed, Fr. Degan, your grade school pastor.

Bless me Father, for I have sinned. I forgot how many times I swore and disobeyed my wife.... Oh. Wait a minute. You want to know about the top three boxes in the proposed organizational structure as depicted on Page 234 of the "Management Review: Final Report". Well, actually, Father, you may notice six top boxes. Two boxes are attached to the Director — the Legislative Affairs box and the Chief Administrator box. Four boxes are directly attached symbiotically to the Chief Administrator. One box kind of dangles off the Chief Administrator's right ear. That's the position for Planning/Budgeting/Evaluation. Three other boxes flow from beneath the Chief Administrator. Those are: Administrator for protection of wildlife, wildlife habitats and recreation; Administrator for wildlife education/information/public services; and Administrator for support services.

My guess is you really want to know if any of those boxes have been filled. In other words, and let's not beat around the bush with this, Father, is Bruce McCloskey a shoo-in for Chief Administrator? Is Eddie Kochman a shoo-in for Administrator for protection of wildlife, or just a shoo-in for the new Aquatic section head. Which one?

Well, Padre, we can all speculate. It's human nature. We just can't help ourselves, but that's no sin. Nonetheless, at this point in time, I have to believe ICT member Cindy Horiuchi: none of these jobs are "shoo-ins." She said the management group questionnaire changed the levels of some of these positions. But regardless, the positions will be opened to competitive exam, with the exception of the Planning/Budgeting /Evaluation position. (State personnel still doesn't know at what level this position will land.) For some of these jobs, it's because the level changed. Or the level changed and there wasn't anybody in Wildlife working at that level eligible to transfer, so an exam would be required. Or, in some cases, because the Wildlife Commission said it would be best to have an exam. So, technically, no one is a shoo-in for any job. Now, who will end up with those jobs? Maybe the same guys who have similar jobs now. But I just don't know and that's the truth. Honest.

Dear Hairball:
Shouldn't the "hit and run" be called the "run and hit"? Signed, D. Baylor, Blake St.

Dear D: Yes.

Dear Hairball:
What's going on? How come the search for the director went nationwide two weeks before applications were due from in-state applicants? Signed, Sleeping in Seattle.

Dear Sleeping:
The Wildlife Commission and Jim Lochhead instructed Cindy Horiuchi to contact the State Personnel Board a few weeks prior to the in-state application deadline for the position. According to Lochhead AND Wildlife Commission Chairman Arnold Salazar, the intention was always to go national to get the largest pool of top candidates possible. But, to open the search outside the state takes special permission and it took a little time to get that permission, since we had to wait for the State Personnel Board to have their monthly meeting and take a vote. That's why the search opened up nationally BEFORE the state application process had closed. As of Friday, June 30, the State Dept of Personnel had received 47 applications. Three of them were qualified, a handful more "may be qualified," according to Kim Burgess. Would she tell this scribe who those people were? Hey, get real. This is a personnel thing. They can't release that information yet!

Anyway, the commission and Lochhead were committed to finding the best possible person for this high-powered job and Cindy was instructed to seek the opinion of the State Personnel Board about a nationwide search. Cindy discovered that, in fact, it was legal to open up the process, it's already been done (CBI did it a couple years ago), and with the blessing of the State Personnel Board, that's what happened. Why did it happen prior to the deadline for in-state applicants? Cindy said: "If we had waited until the end of the in-state application period, then opened it up nationwide, the exam process might not have been over until January, 1996 — and it would be even longer before we had someone on board as director." The Commission and Lochhead wanted someone in here sooner than that.

There are some applicants for the Director's job that still don't look kindly on this move. They feel like it's another "violation of trust." But that's the answer, right, wrong or indifferent.

Dear Hairball:
Does your chewing gum lose its flavor on the bedpost overnight? When your mother says don't chew it, do you swallow it in spite? Signed, Bubblegum Bennett.

Dear Bubblegum:
Ya. So. What's your point?

Dear Hairball:
Change? How will things change when you have the same guys making the decisions?

Signed, Skeptical.

Dear Skeptical: I assume the "guys" you're talking about are the Director's Staff. Well, they played a part on the reorganization team and the vision team, just like they'll play a part on the implementation team. But they aren't the "guys" who will be making the decisions. There were more than 150 employees who worked on the reorganization plan who made the decisions. For the implementation phase, there will be another 100+ employees. Those "guys" are you and me. So, at the end of this process, we can only blame ourselves, or pat our-

see **HAIRBALL** *on page 4*

from **HAIRBALL** *on page 3*

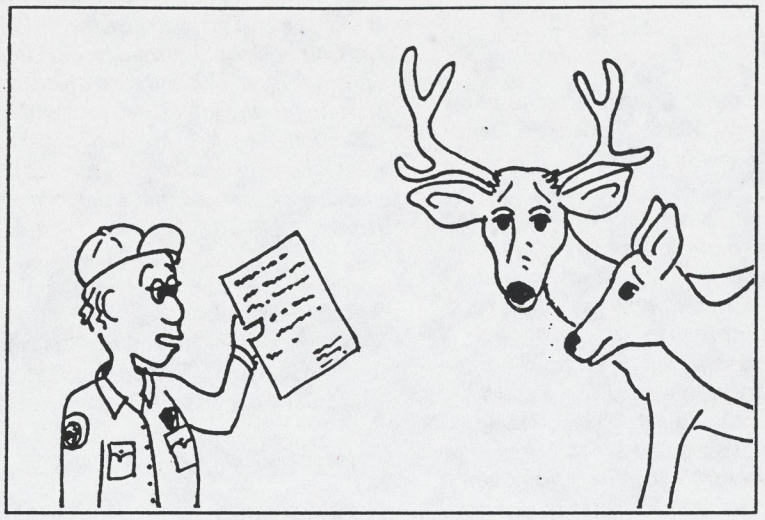
selves on the back for a job well done. P.S. Is the glass half full or half empty? My answer is that it's half full, but then, you may disagree. That's OK. Let's wait and see.....

P.S.S. Keep those cards and letters coming. Send them to Hairball, c/o DOW, 711 Independent, Grand Junction, CO 81505; send them by e-mail to Haggertb; call (970)248-7178, ext. 194, and leave a message; call the hot line (303)291-7554; or contact any member of ICT. We'll ask the question and try to get the correct answer. If you don't like the answer, restate the question and we'll try again.

In the meantime, let's all try to keep a sense of humor and lighten up a bit. It's going to be a long, hard road but remember.....you won't have to turn into kit foxes for at least another couple months or so.

DOW Wow

WRITTEN AND DRAWED BY COMMITTEE



"ACCORDING TO THE REORGANIZATION TEAM, YOU GUYS WILL HAVE TO DOUBLE AS KIT FOXES STARTING NEXT WEEK."

TRACKING WILDLIFE - *EXTRA*

Colorado Division of Wildlife
6060 Broadway
Denver, CO 80216

STATE OF COLORADO
Roy Romer, Governor
DEPARTMENT OF NATURAL RESOURCES
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COLORADO DIVISION OF WILDLIFE
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FOR WILDLIFE, FOR PEOPLE

1996 ANNUAL REPORT

Division of Wildlife implements new management strategies

The Colorado Division of Wildlife in 1996 began to implement the strategies that emerged from a two-year review of its management activities.

Anticipated in the agency's approved long range plan, the management review produced over 100 recommended changes in Division operations, all intended to identify ways in which the agency could use its resources more efficiently and more effectively.

The resulting changes made during 1996 included:

■ Streamlining agency structure by reducing top management from 17 to five positions and the overall number of supervisors in the 600-plus person organization by half.

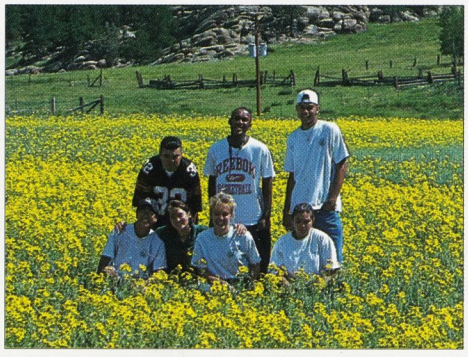


PHOTO BY SCOTT GILMORE

A Youth in Natural Resources (YNR) crew takes a break during a college visit. College visits are an integral part of the YNR program as it encourages youths to pursue careers in natural resources. This angler education crew, along with two other crews, conducted fishing clinics for more than 5,000 urban children.

■ Reducing administration of the agency's field operations from five to three regional administrative units.

■ Creating a new human dimensions unit to collect information on customer and constituent desires to be included along with biological concerns in agency decisions.

■ Accepting credit cards in payment for hunting and fishing licenses at Division offices in Colorado Springs and Montrose as a pilot project.

■ Simplifying the regulations governing hunting and fishing and the brochures explaining those regulations.

■ Making it easier for Colorado landowners who allow public access to their properties to receive payment for property damage caused by wildlife.

■ Budgeting for a new phone system, which will make it easier for people to get answers to questions about wildlife.

Even as it "reinvented" itself, the Division continued managing the state's wildlife and wildlife-related recreation during 1996.

For instance, efforts to encourage young people to participate in hunting and fishing picked up steam this fall. Colorado hunters 15 years old and younger and their adult mentors gained exclusive use of six state wildlife areas, totaling almost 4,000 acres in hopes of encouraging participation in hunting.

Recent legislation also created several hunting opportunities that young people took advantage of last year. In 1996, 11,452 youngsters under the age of 16 took advantage of a new law allowing them to purchase a small game hunting and fishing license for $1. Additionally 11,748 youngsters under the age of 16 took advantage of the youth licenses to hunt big game.

Division biologists also continued their battle against whirling disease (WD), caused by a parasite that attacks the nervous system of some fish species, especially rainbow trout.

Among the efforts combating WD last year were new Wildlife Commission policies on the use of WD-exposed fish, continued research on the impacts of WD on wild trout populations and increased fish sampling. The Division also purchased 40,000, 10-inch WD-free trout for stocking.

Wildlife habitat also drew considerable attention from Division biologists in 1996.

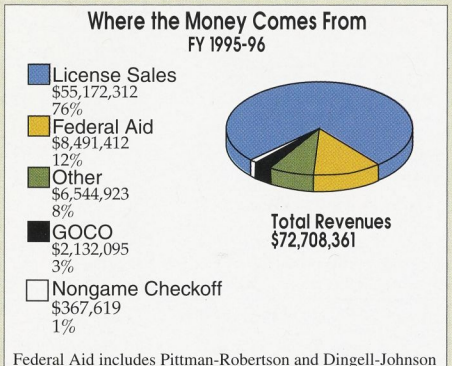
Among the more innovative approaches to habitat protection was the System for Conservation Planning. An online system, SCoP enabled officials in Summit and Larimer counties to map wildlife habitat according to its value and predict how future changes in land use will impact wildlife habitat.

The Division also continued efforts to understand the needs of and manage nongame wildlife species in the state. A multi-agency task force successfully moved several thousand boreal toads reared by Division biologists to an alpine lake in western Boulder county.

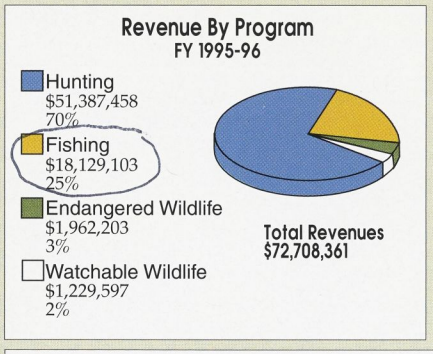
Watchable wildlife enthusiasts also benefited during 1996 with the opening of 16 interpretive wildlife viewing kiosks. There are now more than 400 wildlife viewing sites statewide.

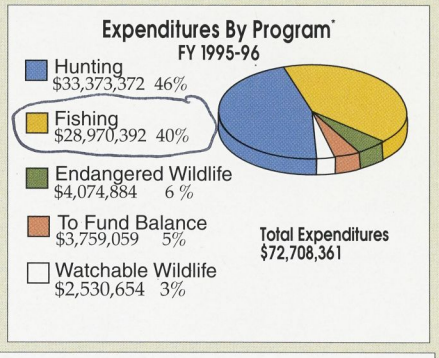
Where the money comes from

The Colorado Division of Wildlife receives no state tax money. Instead the agency is funded by the purchase of hunting and fishing licenses; by federal funds generated by an excise tax on the manufacture of arms, ammunition and other sporting equipment; by donations to the nongame fund and by federal endangered species funds.



Federal Aid includes Pittman-Robertson and Dingell-Johnson funds, grants from other federal money. Great Outdoors Colorado includes lottery proceeds. The Nongame Checkoff includes donations from the state tax form. Other includes interest, donations, rents, fines, sales from *Colorado Outdoors* magazine and other miscellaneous income.





* Expenditures include overhead costs such as services provided by other agencies, capital outlay, worker's compensation, etc. Hunting and fishing recreation funds biological research, law enforcement, regulation development, transplanting and stocking, hatchery operations and habitat protection. Watchable Wildlife pays for development of wildlife viewing sites, publications and other informational activities. Nongame and Endangered funds work to recover threatened and endangered species such as the greenback cutthroat trout, conduct research, etc.

Catch = 20mil. cut 5mil cutthroat 3 = 60% -2 mil 1.2mil total catch reduced by 6%

"New" Division of Wildlife lists accomplishments for 1996

Even with the emphasis on implementing the management review and creating a "new" Division of Wildlife, the agency continued managing the state's wildlife resources. Accomplishments for 1996 included:

■ Leasing 46 new properties from the State Land Board and opening up 94,000 acres to wildlife-related recreation as a result.

■ Stocking 451 streams and 1,211 individual lakes in Colorado. More than 65 million warm-water fish and 14.6 million cold-water fish were stocked last year. 4.8 million catchable-sized rainbow trout were also stocked.

■ Teaching 5,000 urban youth to fish through the angler education program.

■ Establishing the Wonders in Nature program in 17 pilot schools in the Denver metropolitan area. The program introduced more than 2,000 students to the wildlife and wildlife habitat in their local community.

■ Training 21,399 students in hunter safety and outdoor ethics; 320 women participated in the Becoming an Outdoors Woman program.

■ Providing meaningful employment experiences, including environmental education lessons, as well as field trips, for 99 students as part of the Youth in Natural Resources program.

■ Awarding cultural diversity scholarships totaling $50,000 to 46 students who are pursuing college degrees related to natural resources and wildlife management.

■ Transplanting 40 sharp-tailed grouse to historic habitat in southern Colorado.

■ Releasing 4,000 genetically pure Colorado River cutthroats in a stream south of Kremmling. The native trout will be used for spawn-taking in the future.

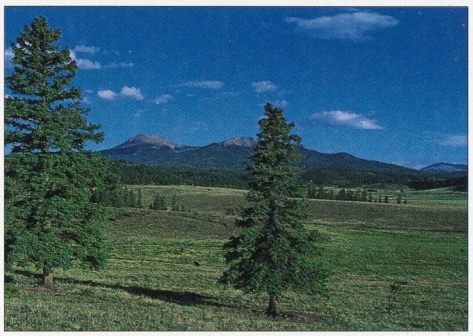


PHOTO BY JACK OLSON

The Antero property, south of Fairplay in Park County, represents more than 9,600 acres of State Trust Lands open to the public.

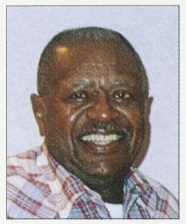
■ Monitoring the 78 breeding pairs of peregrine falcons and 26 nesting territories of bald eagles in the state.

■ Identifying 200 wetland enhancement projects and undertaking more than 400 woody and grassland plantings to improve pheasant habitat. The result was better habitat conditions during winter and nesting seasons and improving pheasant harvests.

■ Increasing the use of volunteers to help meet Division objectives. More than 36,000 volunteer hours totaling over $285,000 worth of work were recorded during 1996.

■ Dedicating the nation's only inmate-run trout-rearing unit. The Buena Vista Correctional Facility produces 50,000 catchable and 100,000 sub-catchable trout and is spring fed making it easier to keep the trout free of disease.

■ Succeeding in gaining legislation to permanently establish the Habitat Partnership Program to reduce conflicts between big game and livestock by giving authority and resources to local groups to resolve issues.



Harlan Day was named Hunter Education Instructor of the Year. Day, a volunteer, has taught more than 4,500 people how to be safe hunters.

■ Completing 11 habitat and access improvement projects through the Fishing Is Fun program. Costing more than $1.4 million, the projects provide new fishing opportunities for more than 67,000 anglers annually.

■ Naming of Baca County rancher Jess Perkins as landowner of the year for his family's efforts to develop and protect wildlife habitat on their Campo property.

■ Successfully prosecuting the high-profile case of a Denver man who poached Samson, the trophy-class elk that symbolized the importance of wildlife to both the community of Estes Park and its tourist-based economy. The poacher received a lengthy jail sentence and a large fine as a result of Division efforts.

Division GOCO projects support wetland habitat

Using its share of state lottery funds, Great Outdoors Colorado awarded the Division of Wildlife $3.8 million in 1996. That money funded 33 projects supporting habitat and species protection, wildlife education and watchable wildlife. Notable among those were wetland development projects in the San Luis Valley and other western Colorado counties. When complete, the projects will add 25 new wetland areas totalling 126 surface acres, as well as enhance 2 miles of riparian area and add 2,300 acres of shallow seasonal wetlands.

1997 marks the Centennial Year for the Colorado Division of Wildlife

Since establishment of the Department of Forestry, Game and Fish in 1897, the Division of Wildlife has an unparalleled record of stewardship of the state's wildlife resources. Moose, river otters and other species have been reintroduced in the state; the largest elk herd in North America resides here; brown and rainbow trout are among species introduced to the state; cutthroat trout and other threatened and endangered species are recovering, thanks to the work of Division biologists and others. The centennial will celebrate the hundreds of accomplishments intended to preserve the state's wildlife resources for the enjoyment of its citizens.

COLORADO DIVISION OF WILDLIFE
CELEBRATING
100
1897 YEARS 1997
OF MANAGING YOUR WILDLIFE

Mountain States Hunting Fees

Elk License Fees

	Resident	Nonresident
Colorado	$30.25	$250.25
Idaho	$24.00	$428.00
Montana	$20.00	$475.00
New Mexico	$75.00	$465.00
Utah	$55.00	$333.00
Wyoming	$28.00	$350.00

Deer License Fees

	Resident	Nonresident
Colorado	$20.25	$150.25
Idaho	$18.00	$328.00
Montana	$17.00	$243.00
New Mexico	$23.00	$180.00
Utah	$30.00	$203.00
Wyoming	$22.00	$160.00

Estimated Annual Expenditures* for Hunting, Fishing and Watching Wildlife in Colorado ($000)

	Resident	Nonresident	Total
All Hunting	$430,650	$220,020	$650,670
Deer Hunting	$137,282	$107,495	$244,777
Elk Hunting	$147,694	$111,705	$259,399
All Fishing	$578,826	$393,494	$972,320
Watching Wildlife	$746,066	$591,188	$1,337,254

*Includes secondary economic impact using a local service multiplier of 1.2.

Hunting and fishing expenditures from Browne, Bortz & Coddington, Inc., Hunting and Fishing Industries Economic Model.
Watching wildlife expenditures from Southwick Assoc.

Hunting Recreation Program

	FY93-94 Actual	FY94-95 Actual	FY95-96 Actual
ELK			
No. of Hunters (1)	236,904	211,485	231,862
Elk Population (2)	196,400	196,220	203,000
Success Rate	20%	21%	16%
Harvest	47,365	45,403	36,171
DEER			
No. of Hunters (1)	195,054	178,878	181,482
Deer Population (2)	545,200	538,917	530,364
Success Rate	32%	30%	30%
Harvest	61,515	54,780	51,899

Fishing Recreation Program

	FY93-94 Actual	FY94-95 Actual	FY95-96 Actual
No. of Anglers	751,281	765,380	756,026
Recreation Days	7,600,000	8,029,732	7,938,000
Catch per Day	2.5	2.5	2.4

Nongame/Endangered Species

	FY 93-94 Actual	FY94-95 Actual	FY95-96 Actual
Species of Undetermined Status	171	171	157
Species of Special Concern	31	31	45
Species Threatened	11	11	11
Species Endangered	15	15	15
Recovery Plans in Place	15	21	23

Watchable Wildlife Program

	FY93-94	FY94-95	FY95-96
No. of Participants (3)	3,360,000	1,322,815	1,369,115

(1) Defined as the number of licenses sold that permit the holder to engage in the specified activity.
(2) Post-hunt population.
(3) Improved methodology for estimating participants was used for FY 94-95 resulting in a reduction of participants.

GREENBACK CUTTHROATS

BY JEFF BUTLER

For most outdoor enthusiasts, a cutthroat trout is a cutthroat trout, but the fact is that there are some 15 recognized subspecies. Western anglers may be familiar with some: Snake River, Colorado River, Yellowstone and Lahontan, to name a few. Not many of today's anglers realize that only a little more than 100 years ago, the only trout found east of California through Montana and south to northern Mexico were the cutthroats.

ILLUSTRATION BY JACK CARR

All of Colorado's rivers renowned today for rainbow and brown trout fishing — such as the Gunnison, South Platte, Colorado, Arkansas, Eagle, ad infinitum — were mostly inhabited only by cutthroat trout.

If you're a resident of the Centennial State, it might be a good idea to acquaint yourself with a trout known as the greenback, Colorado's state fish since 1994.

These fish are truly Colorado natives. Their home was the drainages of the South Platte and Arkansas rivers and along the Front Range. Greenbacks supposedly swam in Clear Creek and the South Platte River through what is now downtown Denver.

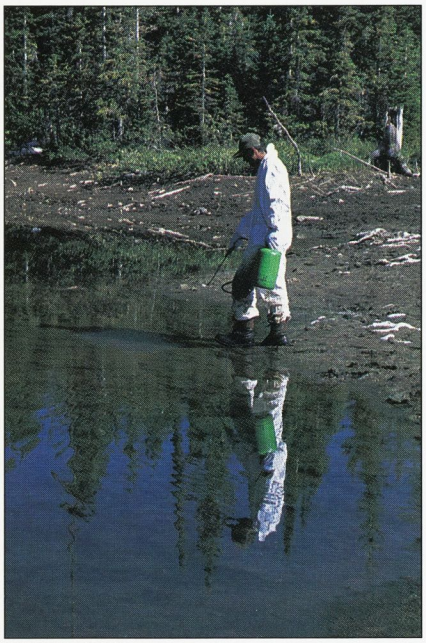
Like other cutthroats, the greenback is characterized by the red slash marks under its jaw on the gill covering. Unlike some other cuts, greenbacks have fewer black spots on their bodies, and the spots are relatively large and tend to concentrate near the tail. Mature males have red near their underbelly, and this coloration can be brilliant during the spawning season.

The usual suspects — overharvest, loss of habitat caused by water exploitation, mining, logging, agriculture and land development, combined with competition from nonnative trout species — almost led to the greenback's extinction. By the late 1930s the greenback was indeed considered extinct.

From A to ZIMMERMAN

BRIGHID KELLY

Above: DOW biologist Tom Nesler tests a stream near Zimmerman Lake while crews clear the lake of grayling.
Below: The edges of Zimmerman Lake and small inlet pools were treated by hand with chemicals.



BRIGHID KELLY

It wasn't until the 1960s, however, that two somewhat hidden populations came to light. Three others were later found. By the 1970s the Endangered Species Act had taken effect, and the greenback was declared endangered. This not only protected the fish, but the waters where they were found as well.

The Colorado Division of Wildlife, in cooperation with the U.S. Fish and Wildlife Service, National Park Service, U.S. Forest Service, Bureau of Land Management, Trout Unlimited, Fort Carson and National Wildlife Federation, have all had a hand in the greenback recovery efforts.

This endeavor has been a real wildlife success story. A fish once considered extinct went from being on the federal endangered list to its current threatened status. Today there are some 50 sites totaling more than 240 acres of lakes and more than 80 miles of streams that hold greenbacks.

The DOW has a long-range management plan that will continue to restore greenbacks in feasible areas over the next 10-15 years. The goal is to remove the greenback cutthroat from the threatened species list. This entails establishing 20 stable populations that contain multiple-age classes through natural reproduction, all within the historic native habitat.

An area that should become the major player in all of this is Zimmerman Lake, west of Fort Collins. This 11-acre, high-alpine body of water is just a mile off Colo. Hwy. 14 near Cameron Pass in the Never Summer Mountains of Roosevelt National Forest. Division biologists determined that Zimmerman would be a good spot for raising greenbacks because the lake is situated so that other fish cannot migrate in or out of it. The goal was not only for developing brood stock to be released elsewhere, but also for Colorado anglers to have the opportunity to catch the state fish. Access for both of these objectives was a prime consideration.

For years Zimmerman Lake was noted for a species that was unusual and also rare, at least for Colorado. Arctic grayling had been living in the lake since the mid-1960s. These fish are related to trout but are native to northern Canada and Alaska. They are

unique because of the large sail-like fin that extends along most of their body, and their skin appears iridescent.

Grayling have a habit of outcompeting trout for spawning habitat. Their fry are born two to three weeks earlier than cutthroats, so they also have a competitive advantage when they're small.

For whatever reason, grayling never got very big at Zimmerman. In fact they were somewhat stunted. As a result, the grayling had to be removed from the lake. In September 1995, the lake was chemically treated, and all of the grayling were gone from Zimmerman.

That's not to say, however, that grayling are gone from Colorado. Over a period of five years, more than 3,000 grayling were removed from Zimmerman and moved to other lakes around the state. Joe Wright Reservoir just downstream from Zimmerman, for example, has an excellent population of these fish and they run much bigger.

In July 1996, some 1,400 greenbacks were released into Zimmerman. These particular fish came from three separate populations in an effort to keep genetic diversity. The fish were raised at the DOW research hatchery near Fort Collins. This was a fairly light stocking rate of about 125 fish per acre to give them growing room.

DOW fisheries biologist Ken Kehmeier said he wants a faster growth rate for the greenbacks. By the end of last summer, many of these fish were approaching 12 inches. Next summer the fish are expected to be near 16 inches.

The chemical treatment of the lake may have removed the grayling, but trout food, especially fresh-water shrimp, have returned with a vengeance. The grayling may have overpopulated themselves out of house and home, but old records indicate that cutthroats weighing up to 4 pounds were common in Zimmerman at one time.

The Fort Carson Army Base near Colorado Springs has allowed the stocking of greenbacks into a number of waters there, and some of these fish have reached the 4-pound range.

"My intent is to only take a surplus of greenback eggs from Zimmerman," said Kehmeier. "I hope to manage this lake as a wild fishery and allow the fish to spawn and reproduce on their own."

BRIGHID KELLY

JEFF BUTLER

Top photo: Biologists gradually drop chemicals into the lake via boat to eliminate grayling.
Bottom photo: Young greenbacks, stocked last summer at Zimmerman, could be as large as 16 inches by this year.

A top priority has always been to develop greenback populations that reproduce naturally. In addition to helping remove the fish from the threatened species list, the idea is that once the fish have been reintroduced, they won't need constant attention.

At the same time, the DOW may look at waters where greenbacks could be stocked annually to provide fishing opportunity.

The fish in Zimmerman should be ready to spawn in the spring of 1999. Kehmeier plans to check the inlet area every year to see if some fish are running and check the health of the fish themselves.

Zimmerman now has a catch-and-release-only regulation for greenbacks. Because of their threatened status, all greenbacks must be returned to the water immediately, no matter where they are caught.

Kehmeier said greenbacks are good looking and easy to catch. "These fish offer a high catch rate per hour. You can take them with flies or lures; they're so catchable. Down the road, we may even look at regulations that allow for a limited harvest," he said. "But I'll have to look at growth and survival rates before we come to that point."

Hopefully in the not too distant future, a real Colorado native will be back once and for all. ❑

Jeff Butler is an information specialist for the Division of Wildlife in Denver and produces television and radio programming.

Compiled by
BRIGHID KELLY

OUTDOOR

GEESEN NAMED 1997 LANDOWNER OF THE YEAR

The Richard (Dick) Geesen Family of Elbert County was honored by the Colorado Division of Wildlife as the 1997 Wildlife Landowner of the Year. This award is given posthumously to Dick Geesen, who recently died, and to his surviving spouse, Elinor for their exemplary land management ethics on the family ranch in Elbert County.

The family received the award Jan. 16 at the National Western Stock Show. The Landowner of the Year recognizes efforts to create or preserve wildlife habitat, provide access for citizens to enjoy wildlife recreation and promote wildlife education.

The 12,000-acre Geesen cattle ranch and farm is one of the original in the Division of Wildlife's Ranching for Wildlife Program, in which landowners manage their property to improve wildlife habitat as well as allow the public hunting opportunities. A simple request of "May I hunt," was all the Geesens required of hunters interested in seeking access to the property. Unlike other property owners, Geesen never charged an access fee. "We don't own the wildlife, so why should we charge to hunt?" was Dick Geesen's explanation. The ranch gates also were opened to any anglers who wanted to fish on several of the Geesens' ponds.

BOB PARKER ©

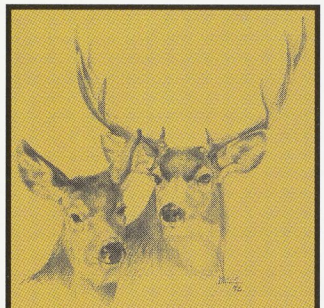
The Dick Geesen family was honored with the Landowner of the Year Award at the National Western Stock Show. Accepting the award were (from left) Rob Geesen and Elinor Geesen. Sen. Don Ament (second from right) and Wildlife Commissioner Arnold Salazar (on right) presented the award.

In addition, the Geesens have set aside 2,600 acres under the federal Conservation Reserve Program. Instead of being farmed, those acres provide food and cover for wildlife. A natural spring provides water for the wild chokecherries in the area, as well as wild plums that were planted there. Grasses also were planted to serve as additional cover and food for wildlife, and a riparian area along Bijou Creek, which has never been grazed, is home to resident and migratory species.

A former board member of Outdoor Buddies, Geesen opened his land to disabled people for antelope, deer and dove hunts. He also allowed Outdoor Buddies participants to use the ranch for a game bird farm. That wasn't all. The Geesen ranch also was used for hunter education instruction, youth hunters and programs that provide outdoor opportunities to disadvantaged youths from the urban areas.

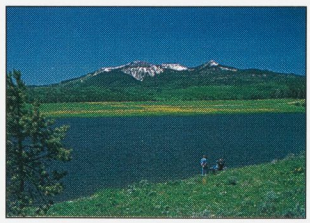
This year there were two runners-up in the Landowner of the Year competition. One award went to Gerry and Julie Ohr, who with their sons Brandon and Darrick, have dedicated themselves to improving wildlife habitat on their farm in Lindon, Colo. In fact, 48 percent of the land they own and lease in Washington County is set aside through the Conservation Reserve Program.

The other runner-up honor went to Frasier Family Farms. The Frasier family members — Marshall, Joe, Mark and Chris — manage two farms, the F-Cross Ranch in Woodrow and the River Bend Ranch in Limon, with a combined 43,000 acres. The Frasiers have applied holistic management for the past 11 years in grazing livestock, which has benefitted not only grasses and soil, but also wildlife. The numbers and variety of native species, including insects, have increased in recent years. By reclaiming farm ground and planting shelter belts, the Frasiers have improved wildlife habitat.



THE LIMITED DRAWING LICENSE APPLICATION DEADLINE IS APRIL 2, 1997

FEES UP AT SOME STATE PARKS



SHERM SPOELSTRA ©

Steamboat Lake State Park

Visitors will pay a bit more at Colorado state parks this year. The fee hikes took effect Jan. 1.

The daily pass is now $4, up from $3 last year. It allows a vehicle and its passengers entrance to any of the 40 state parks for a day. Annual passes are $40 per vehicle and allow unlimited entry for the calendar year.

The Aspen Leaf Senior Annual Pass, for Coloradans age 62 and older, remained unchanged at $10 a year. A free Aspen Leaf pass is available for people born before 1922.

Group picnic fees also increased to $25, $50 and $75 a day, depending on the park. Groups of more than 50 people also must pay an additional 50 cents for each person over the first 50.

"Our goal and legislative mandate is to raise 70 percent of the parks' operating budget from user fees, following the philosophy that those who use the parks contribute most to the cost of maintaining and protecting them," said Tom Kenyon, acting director of State Parks. "Although the Colorado Lottery contributes to building new parks and repairing existing ones, lottery dollars do not cover the day-to-day costs, such as salaries, trash collection, gas or electric."

Other changes in the State Parks' fee structure apply to buses and vans that enter the parks.

HIGHLIGHTS

W.I.N.-W.I.N. BRINGS WILDLIFE TO DENVER SCHOOLS

JOHN EDWARDS ©

Denver area second-graders learn about birds on a W.I.N.-W.I.N. field trip to Barr Lake near Brighton.

The Division of Wildlife and Denver Zoological Foundation have teamed up to bring wildlife to city schools as a way of introducing youngsters to conservation education.

The program is called Wonders in Nature/Wonders in Neighborhoods (W.I.N.-W.I.N.). It has received a $120,000 grant from the Great Outdoors Colorado program. The mission of W.I.N.-W.I.N. is to bring wildlife and natural resources into the daily lives of urban youths and families.

Currently the pilot program has been started in 17 Denver area schools. This year, second-graders are participating and there are plans to expand the program in the future.

"The number of people moving to and living in urban areas is increasing at an unprecedented pace," said Wendy Hanophy, coordinator of the program. "Many children who live in the city have few outdoor experiences and minimal opportunities to see and understand wildlife. This program is intended to inspire a sense of wonder in participants, to foster an appreciation for wildlife and their habitat and to promote the conservation of natural resources through a variety of wildlife-related learning experiences."

DUCKS UNLIMITED SHOWS HIT RADIO AIRWAVES

Ducks Unlimited Inc., has launched "The World of Ducks Unlimited," weekly radio shows on a wide range of outdoor subjects.

The programs began airing in January and February, featuring award-winning veteran radio producers Tony Dean and Mike Walker. There are two shows, a one-hour weekend program and a three-minute weekday series, with topics such as fishing, hunting, other outdoor activities and conservation.

"Radio gives us the opportunity to reach targeted, local markets across the country," said Chris Dorsey, of DU.

For a list of radio stations airing the programs in your area, call Mike Walker at 1-800-248-9687.

Ducks Unlimited also plans to introduce a weekly outdoor television show on The Nashville Network next summer.

NEW REGULATIONS ADOPTED FOR WASTING DISEASE

Hunters will not be able to buy deer licenses over the counter next fall in specific units where chronic wasting disease has been found in north-central Colorado.

Surveys in 1996 showed 6 percent of deer and less than 1 percent of antlerless elk in Larimer County had tested positive for chronic wasting disease. As part of a long-term research project on the disease, the Wildlife Commission decided that all deer hunting licenses in units 7, 8, 9, 19, 20, 87, 94, 95, 96, 191 and 951 will be issued only through the limited license drawing in 1997.

In addition, hunters who harvest deer and elk in specific units must submit the animals' heads to the DOW for testing. For more information on chronic wasting disease regulations new for 1997, consult a copy of the DOW's big game hunting season brochure, available at DOW offices and license agencies in early March.

Chronic wasting disease (CWD) results in progressive loss of body condition in deer and elk, excessive salivation, apparent depression, increased urination and behavior changes. There is no evidence that CWD affects humans.

BAG LIMITS LIFTED FOR WARM-WATER FISH ON WESTERN SLOPE

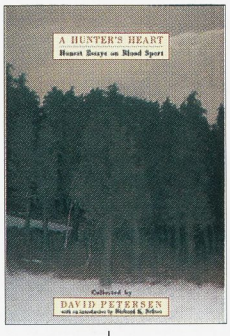
Colorado anglers now can keep an unlimited number of warm-water fish from five Western Slope rivers, as part of the Division of Wildlife's efforts to save native endangered fish.

Bag limits were lifted for channel catfish, large and smallmouth bass, pike, walleyes, green sunfish, bluegills, bullheads, yellow perch and crappies on parts of the Colorado, Gunnison, Green, Yampa and White rivers.

DOW fisheries biologist Robin Knox said the agency made the recommendation to support federal efforts to restore Colorado squawfish, humpback chubs, razorback suckers and bonytail chubs to their native habitat in Western Slope rivers.

DOW BEAR EXPERT FEATURED IN BOOK

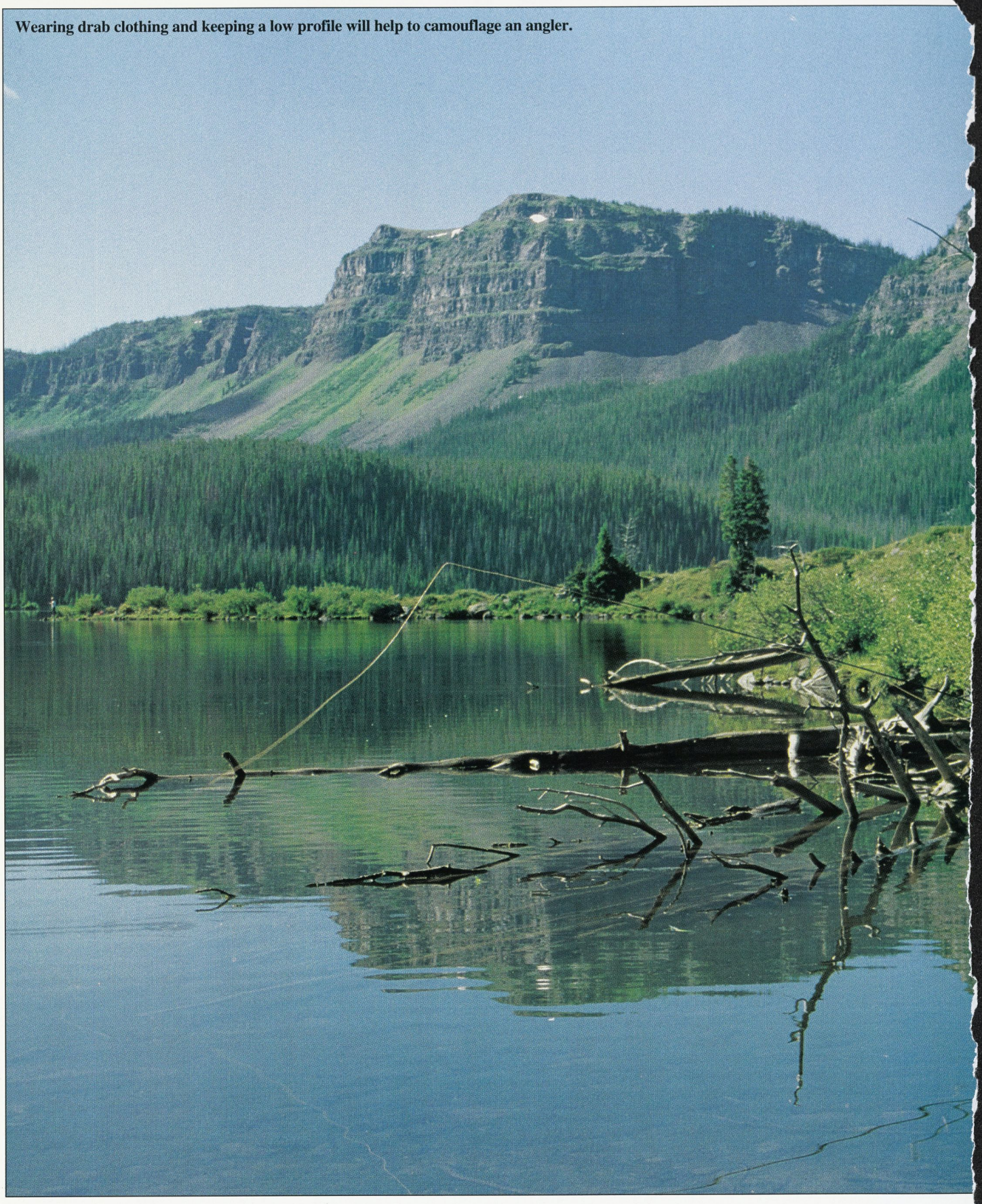
An essay by DOW bear biologist Tom Beck has been published in a new book, *A Hunter's Heart, Honest Essays on Blood Sport.*



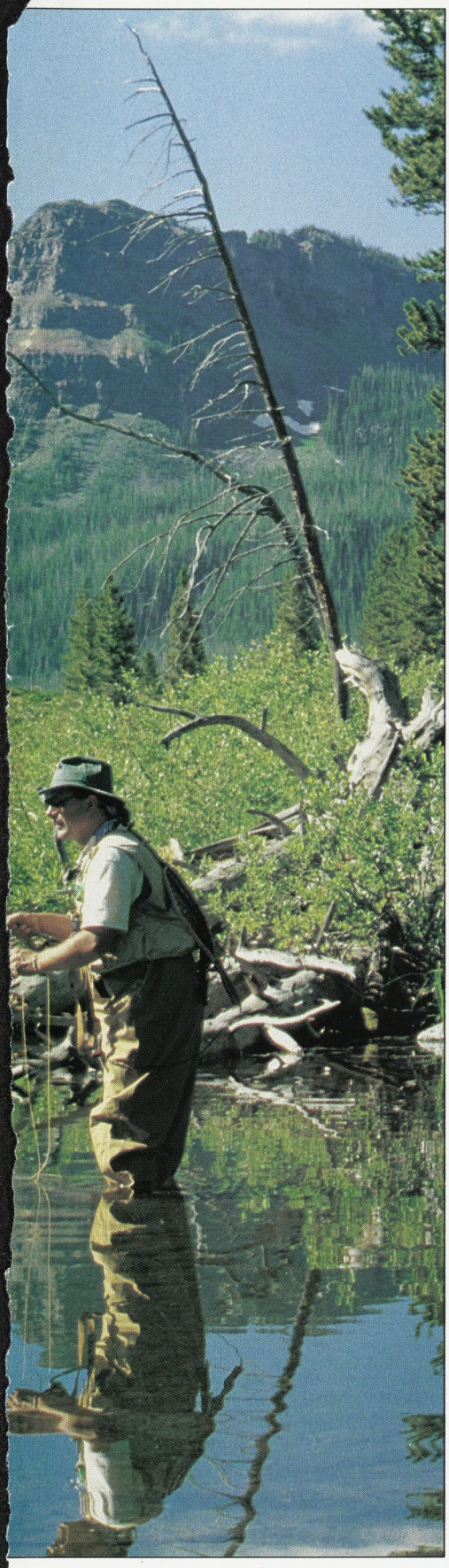
Beck's piece, "A Failure of Spirit," addresses the use of bait and dogs to hunt bears, a practice that is illegal in many states.

The book is a collection of essays on hunting. Writer, hunter and naturalist David Petersen has assembled the group of writers to share their thoughts on hunting and field experiences. The conflicting issues raised in the book go to the heart of controversies over wildlife management. .

The 331-page hardback was published by Henry Holt and Co., 115 W. 18th St., New York, NY 10011, (212) 866-9200. It also is available at bookstores for $25.



Wearing drab clothing and keeping a low profile will help to camouflage an angler.



Topwater Tactics for Trout

Dry-fly anglers can improve their fortune by avoiding common mistakes and by seeing their flies through the eyes of the trout.

ARTICLE & PHOTOS BY RON BELAK

Enough is enough. We chucked so much lead at spawning kokanee that our arms were sore. Visions of brightly colored indicators danced in my head. When we took a break from the spawners to fish for trout in the Black Canyon of the Gunnison, you couldn't pay me to toss another split shot. On that crisp autumn day, I was going to fish dries to rising trout, or I wouldn't fish at all.

At 2 p.m., I finally landed my first trout, but I finished the day catching as many fish as my companions.

Most fly fishermen prefer dry flies. Trout caught on dries always seem to be bigger, appear to fight harder and are more rewarding to deceive. Dry-fly fishing has a mystique to it, and the sight of rising trout gives anglers an adrenaline rush. However, dry-fly fishing is often one of the last techniques learned, taking a back seat to casting lessons and short-line nymphing. Yet it is one of the most rewarding methods of fishing because anglers can clearly see the take and often are directly responsible for hooking the trout. Anglers can improve their dry-fly skills by avoiding some common mistakes and by seeing their flies through the eyes of the trout.

Trout take surface flies because they are easy prey and their heavy concentration during hatches makes the repetitive motion of rising an efficient way to feed. Dries are best fished when water temperatures rise above 50 degrees, but die-hards fish midges year-round on tailwater fisheries. During spring and fall, the best time for dries is usually mid-day or early afternoon when water temperatures are warmest. During the summer, dawn and dusk are best for dries on streams and rivers, but mid-day and dusk are better on high-mountain lakes.

Dry-fly fishing requires soft, slow action rods, which delicately present small dries and are less prone to breaking off fish when setting the hook. Any type of floating line is adequate, but anglers should tie their own leaders because the tippet end of commercially available knotless leaders is too short and too stiff to adequately drift a dry fly without drag. Leaders must be at least 9 feet and up to 12 feet on high lakes, including at least 2 feet of 5X tippet. Leader-shy trout and flies smaller than No. 18 may require 6X tippet.

Most anglers fail in catching trout on dry flies for a variety of reasons, including spooking fish, presenting flies poorly, choosing wrong patterns and missing strikes. Spooking trout is a universal problem on all types of water, while poor presentation is usually the main reason for failing on running water. Choosing an incorrect pattern reduces success in all situations, and everyone misses strikes at least occasionally.

Since the most effective dry-fly fishing requires locating and stalking feeding trout, anglers must get close to fish, usually within 30 feet. Casting beyond this distance results in drag, which ruins presentations on moving water. It also puts too much line on still water, which makes it difficult to set the hook.

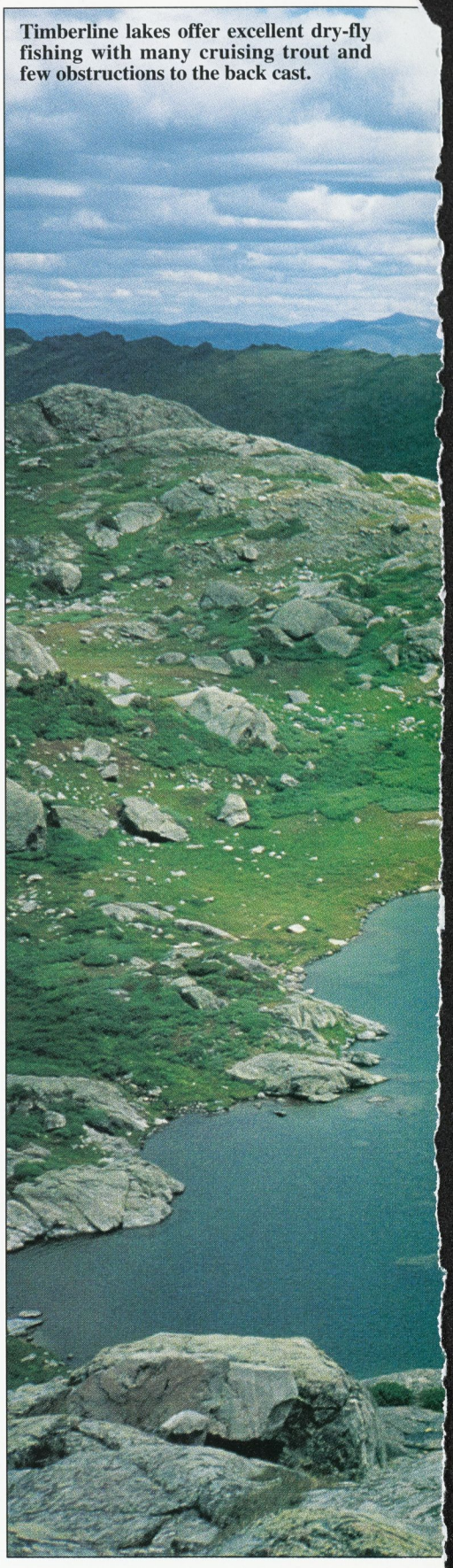
Within 30 feet, trout can readily see fishermen, and any sudden movement spooks them. Even raising a rod can send fish scurrying for cover, so movement must be slow and deliberate both on land and when wading. Wearing drab-colored clothing and keeping a low profile will help to conceal motion. Anglers should also tread lightly on shore because the sound of stomping feet is readily transmitted from bank to water.

Poor presentations also scatter trout. Excessive false casting, slapping the fly on the water and dragging flies through pods of rising trout all contribute to failure. On moving water, drag created by the leader and line intersecting currents of varying speed, pulls a fly in a wake across the surface and contrasts markedly to the delicate dead-drift of a natural.

An upstream cast with slack in the leader, however, can minimize drag. Should drag occur prior to completing a drift over trout, anglers should refrain from picking up the line until it has floated past the fish.

When making presentations, knowing how a trout sees will allow placement of a fly within the trout's field of vision. Trout see much like us, but they lack the ability to see objects at a distance because in water, turbidity often obscures objects farther than about 40 feet. Trout, however, have excellent close-up vision, being able to focus on and carefully scrutinize dry flies within a couple of inches. Trout also see a wider range of colors than we do and see well under dimly lit conditions, a phenomenon that explains why trout take dries during darkness.

On the sides of their head, each of a trout's eyes sees in a 180-degree arc. These arcs overlap in front to create a zone, about 45 degrees wide, in which the trout has binocular vision and therefore, depth perception. Trout need depth perception to capture food and consequently attack prey head on, but a trout's clearest vision is actually along



Timberline lakes offer excellent dry-fly fishing with many cruising trout and few obstructions to the back cast.

its sides. Often a dry fly presented alongside a trout is seen better than one placed directly in front of its nose.

The depth at which trout hold also affects their ability to see surface food and should dictate where flies are placed. The trout's field of vision is called a "window," and on smooth water it's roughly equal in width to 1½ times the depth of the fish. The closer a fish holds to the surface, the narrower the window.

Trout selectively feeding on extensive hatches generally hold close to the surface because bugs are plentiful enough to be seen in their narrow window. If hatches are more sporadic, however, a trout in running water will widen its window by dropping deeper. In still water where trout are constantly moving in search of food, cruisers often swim several feet below the surface to create a wide window.

Many anglers have been careful in their approach and presentation only to have trout refuse their offer. This is caused by choosing a pattern that trout do not recognize as food, and learning how trout perceive dry flies often solves this problem.

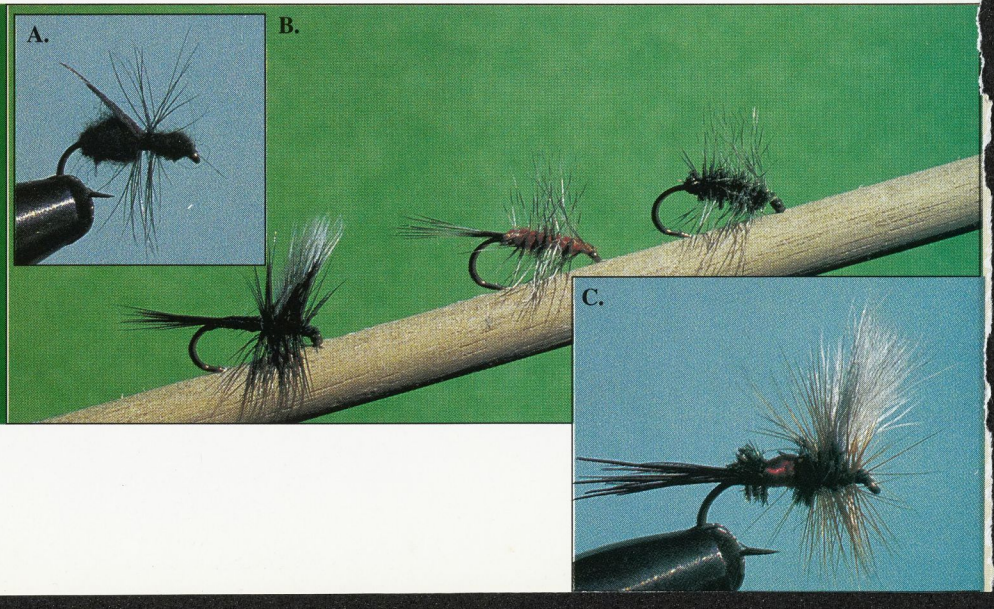
In his book *The Dry Fly - New Angles,* Gary LaFontaine explains that any material entering a feeding trout's window attracts its attention by the indentation and change in light pattern on the water undersurface. The object triggers a trout's interest if it possesses a strong primary characteristic that identifies it as food. Primary characteristics are usually solitary features visible from a distance, such as the tall, upright wings of a mayfly dun, the trailing shuck of an emerging midge or the sparkling bubble within a caddis pupa. If a trout completely ignores an angler's fly, LaFontaine believes it is because the fly lacks one of these primary characteristics.

Upon recognition, however, a trout moves to within several inches for closer inspection of secondary features, such as size, shape and color, generally in this order. On running water, this period of inspection may be brief because trout must strike quickly before the object floats out of their window. On still water, however, the trout may scrutinize a fly for what seems like an eternity, so secondary characteristics are much more critical.

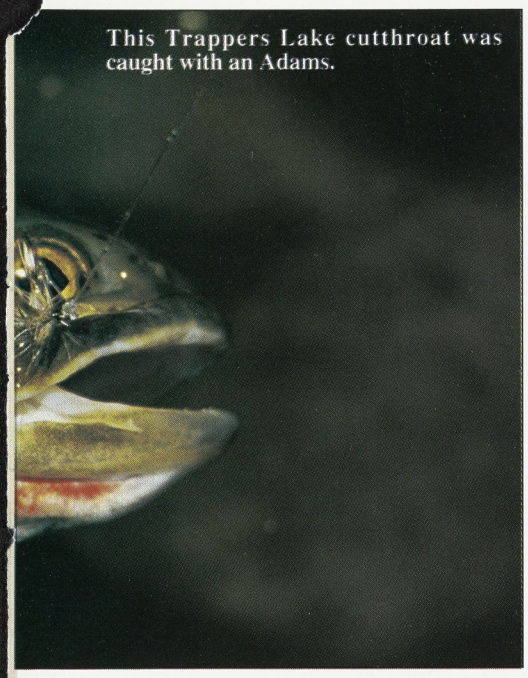
When trout actively feed on surface insects, anglers should work hard to match the hatch. The insect can be identified by either collecting it, carefully observing the nature of the trout's rise or by pumping the stomach of a captured fish. Most mistakes occur when anglers misidentify the stage of the insect and then choose a fly with the wrong profile.

For example, the most common mistake is confusing an emerging nymph for an mayfly dun. Because emergers lie flush in the surface film, trout key on their wide body as the primary characteristic and ignore the high-riding dry fly. Anglers can avoid this mistake by recognizing that trout feeding on emergers often break the surface with their dorsal fins or tails, and to catch these trout, flies must be sunk and fished wet.

Generally, Catskill dry flies best imitate high-riding duns on calm water. Comparaduns ride flush in the water, mimicking the nymph-dun transition, and trout readily see them in rough or



Topwater Flies: A. This Chocolate Ant imitates flying ants. B. Effective midge patterns (left to right) Black Gnat, Orange Asher, and Griffith's Gnat. C. The Royal Wulff, with its brilliant colors, is a perfect attractor pattern. D. Two of the best searching patterns on high lakes are the Adams (left) and the Elk Hair Caddis (right). E. The white posts on parachute patterns make them highly visible (left to right) Pale Morning Dun Parachute, Blue Wing Olive Parachute, and Black Parachute. F. All patterns imitate Blue Wing Olives (left to right) Baetis nymph, Comparadun, Catskill dry, parachute, and spinner. G. White Quill.



This Trappers Lake cutthroat was caught with an Adams.

rippled water. Parachute patterns sit low in the water and imitate drowned adults, but they are also effective adult midge imitations.

When trout are not selectively feeding, attractor patterns are often productive, but attractors must realistically look like food. Trout that are searching for food but have not yet keyed on specific targets are prime candidates for attractors. Attractors should vary from specific imitations, usually exaggerating only one of the secondary features, such as being one size larger, having an elongated body or being brightly colored. Good attractor patterns on both still and running water include the Orange Asher, Humpy, Royal Wulff and Royal Coachman.

When trout break off a rise, it is because something about the secondary characteristics is unfamiliar. Most commonly, the fly is too large, and anglers should compensate by fishing smaller patterns. Switching to a brighter colored pattern may also work because certain trout have color preferences, like cutthroat favoring orange.

At other times, twitching the fly or plopping it down can initiate strikes, but this should only be done at the edge of the window to avoid spooking trout. Likewise, caddis are more effectively fished by skating them across the surface, a move that imitates highly active adults.

When trout cannot be seen actively feeding or cruising, they can still be caught on searching patterns, but trout should be at depths no greater than about 6 feet. Searching patterns are the same flies used to imitate hatches, and their presence on the water usually triggers a trout's memory. On still water, Adams and elk hair caddis are good searching patterns. On streams and rivers, anglers should use patterns that imitate the last hatch.

There is nothing more frustrating in dry-fly fishing than missing a trout that has taken one's fly. Knowing how trout ingest prey, however, can increase hook ups and bring more trout to the net. Trout approach dry flies with closed gill covers and open mouths, and they suck in the flies by shutting their mouth and expelling water through their gills.

Missing a take but feeling resistance means the hook was set too quickly, before the trout fully closed its mouth. Missing without resistance means the hook was set too slowly, and the trout already spit out the imitation. Anglers should allow trout enough time to take flies underwater and turn downward before setting the hook.

The pause between take and set varies with the type of rise. The pause for trout rising slowly and deliberately to mayfly duns should be longer than the pause for trout quickly slapping at surface caddis. Similarly, sipping risers require taught lines and quick sets, but body rollers require gentle sets to avoid breaking off fish.

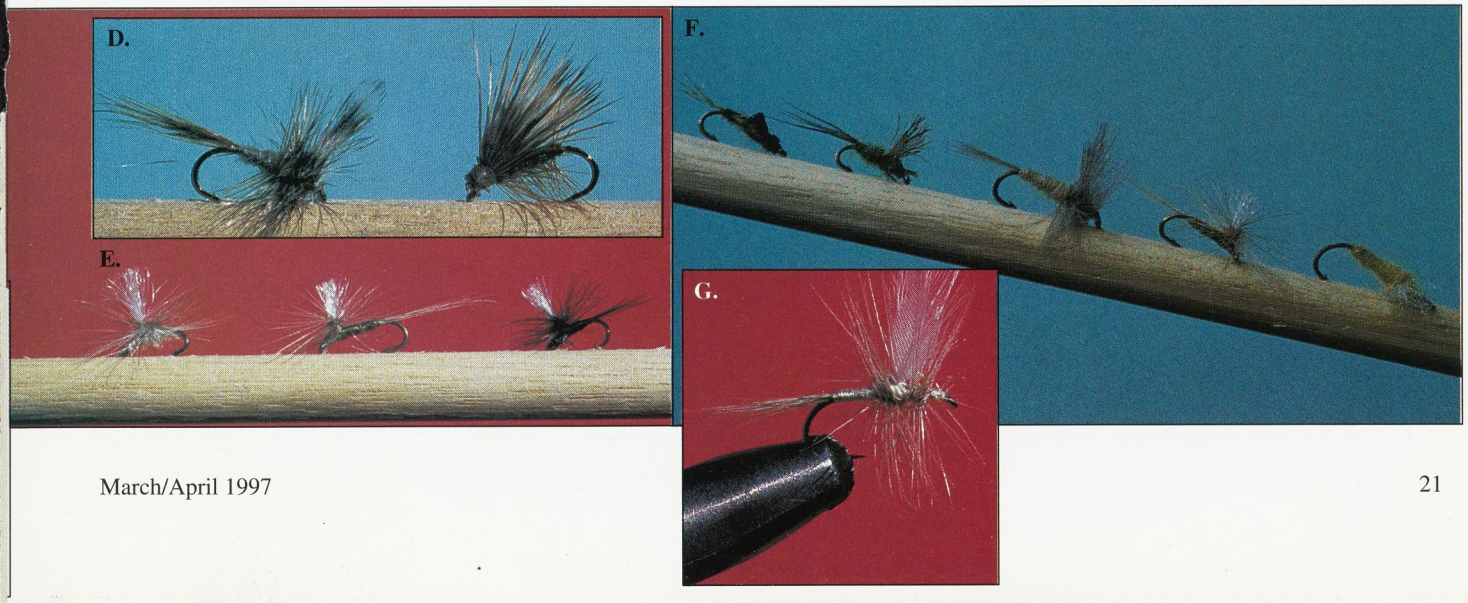
When one has more than 30 feet of line on the water, any take must be followed by a quick set because of the longer time necessary to transfer energy down the line to the hook. Also, using wide gap hooks, such as the Partridge L3A or Tiemco 100, increases hooking potential.

Many anglers miss strikes because they simply don't see their fly. Small flies are hard to see, but visibility is greater for parachute patterns with white wing posts. At dusk, fishing a black gnat with white wings fashioned from the tips of chicken feathers creates a pattern that is always visible because the black body stands out on rippled surfaces, while the white wings are clearly visible on glassy water.

When the action is slow, it is embarrassing to say that daydreaming results in missing more strikes than any other phenomenon, no matter how visible the fly.

Perfecting one's timing requires practice, and there is no better place to hone one's skills than on a high-mountain lake. Hatches are common, drag is not a problem and there is a vast amount of surface water, all combining to give a beginner ample opportunity to hook some lip. And who knows, one may have the pleasure of sticking a 3-pound cutthroat. ❑

Ron Belak, a dry-fly aficionado, is a frequent contributor to Colorado Outdoors. *This article is copyrighted by the author.*



Early game wardens were few in number and were paid little, if anything, for their efforts to enforce Colorado game laws

BY JUDITH HOLMES

COLORADO DIVISION OF WILDLIFE
CELEBRATING
100
1897 YEARS 1997
OF MANAGING
YOUR WILDLIFE

"Believe it or not, we didn't have a hunting season from 1912 to 1918. Of course in the early days, at the time of the hide hunters, there were lots of deer in the valley. There were lots more than now. When the valley was first settled, there were no seasons and the settlers went out in the fall and killed their winter meat.

"Pretty near any of the old timers can tell you, if it hadn't been for buckskin and potatoes, the homesteaders wouldn't have existed. However, about 1910, the deer herd was being threatened with extinction and so the season was closed from 1912 to 1918.

"I remember Cleve Gentry, old-time game warden, telling about a bunch of millionaire oil men on a hunting trip in the early twenties. The season then was the first four days of October. They thought they had done real good when they got four deer."

So recalls Dick Lyttle, a Colorado wildlife commissioner from the 1930s to the 1950s.

Before the Colorado Department of Forestry, Game and Fish was established in 1897, there were a few locally appointed wardens. Early Game and Fish Commissioner Gordon Land sang the praises of one officer who took charge of his district, and "taking with him his own horses and spending his own money, enduring the privations and hardships of exposure in the field at all seasons ... has kept his large district so free from game violations, that it has convinced me that the state can secure better results from one good, clear-headed man, who is intelligent enough to know when and how to act, than from an army of less capable persons."

But Colorado needed an army, and it was slow to evolve. In 1897, the department hired three forest and game wardens at a salary of $900 per year, with reasonable traveling expenses not to exceed $300 per year. When the leg-

© CONNIE HWANG

Youth Fishing Clinic crew leader Eddie Bracken lends a hand to Boy Scouts from Littleton , Colo.

Bowhunter education classes graduated 200 more students and 500 students completed the hunter education home study course.

The Division also granted a total of $20,000 to pay for improvements at 21 shooting ranges in communities throughout the state. Also, 152 women participated in the Division-sponsored Becoming an Outdoor Woman workshops last year.

Division managers also focused on young anglers last year. Nearly 17,000 kids, many from metropolitan Denver's inner city neighborhoods, participated in fishing clinics sponsored by the agency. The clinics not only taught fishing skills but also offered the young students opportunities to learn about outdoor ethics, aquatic wildlife and habitat.

Division employees were also active providing environmental education for students in formal school settings during 1999 through Project WILD. An interdisciplinary approach, Project WILD integrates wildlife-related information into a teaching curriculum. Last year, the Division trained 1,223 teachers in the Project WILD discipline, bringing the total number of Colorado teachers who have received Project WILD training to more than 20,200. With class sizes between 25-30 students, Project WILD teachers have a chance to provide wildlife-related educational opportunities for a lot of young people.

In addition, the Division-sponsored Wonders In Nature-Wonders In Neighborhoods (WIN-WIN) provided educational opportunities for about 16,000 Denver area students from pre-school through grade 5. Students in the program study habitat and the environment at an off-school site, natural area. WIN-WIN is offered in Spanish and Vietnamese as well as English.

The Division also sponsored 88 students as part of the Youth in Natural Resources Program during 1999. The nine-week environmental program provides high school-aged students with both summer employment and learning experiences, working in the field of natural resources. Those students contributed more than 1,500 hours to removing noxious weeds from wildlife habitat as part of their activities.

Finally, the Division continued to respond to literally hundreds of thousands of requests for information from constituents. Its Web site alone was among the most popular in state government receiving an average of 4,500 hits a day. Similarly, the eight agents who staffed the Division call center answered almost 99,000 phone calls during 1999, including more than 21,000 during the big game limited hunting license application period from March to the first week in April. Exhibits at the Colorado State Fair and several sportsmen's shows along the Front Range also allowed Division managers to talk with thousands of other constituents.

"The opportunity for hunters to get involved [with the free-year hunting season structure], to voice their concerns and to listen to the responses made them part of the process. The interchange of ideas between the average hunter and the Division is healthy and important… Thanks for a job well done.

☞ Conrad Dreher
Colorado
Bowhunters Assn.

© MARTIN CATTOOR

Rainbow trout

© DOW PHOTO

Fishing Is Fun project Riverside Park on the Dolores River

LIMON STUDENTS GET DOW GRANT TO RAISE TIGER MUSKIES

The Division of Wildlife's Fishing Is Fun Program provided a match for local funding to enable Limon public school students to raise tiger muskies at the school's new hatchery. With the aid of $44,000 from the Division, the students will test water quality, feed the 650, 10-inch tiger muskies and watch them double in size. The fish will be released in reservoirs this spring. Tiger muskies are sterile hybrids of muskellunge-northern pike and can grow to 40 lbs. or more.

RESPONSIVE MANAGEMENT

Overall, Customers Give Division High Marks

One of the goals of its Long Range Plan requires the Division to regularly monitor public satisfaction with the responsiveness and performance of the Division. When Division managers did that in 1999, they had to be happy with the answers the public provided.

The Division completed a major survey of Colorado anglers last year. Almost 60 percent of anglers who fished reported being satisfied with their experiences and a majority said that the Division was doing a good job of protecting aquatic resources and habitat. Nearly half of the respondents to that survey told Division managers that fishing was their most important recreational activity. However, they also indicated that they were concerned about the overall health of fish populations and willing to accept lower bag limits or season closures to maintain the health of those populations. Survey data was collected in 1998 and the analysis completed last spring.

Division Human Dimensions staff also completed a survey of constituents on Division law enforcement efforts last year and began analyzing the data; the results will be available next year.

And, in a spring opinion survey, three out of four Colorado residents said wildlife was important to their quality of life. In that sample, two out of three also rated the performance of the Division as excellent or good.

Overall, increasing public participation in the agency's decision-making process was a major focus of Division managers in 1999. As described above, agency staff collected input from thousands of constituents to guide Division managers in developing a new, five-year big game hunting season structure. "The process to establish season frameworks for the years 2000-04… has been executed with all the care and concern of a space launch," observed *Denver Post* outdoor writer Charlie Meyers.

In April, the Division convened the first-ever Greater Prairie Chicken Working Group to develop alternatives for hunting seasons for the greater prairie chicken, a species whose status has improved sufficiently to enable it to be delisted from the state's threatened and endangered species list. Using technical information from Division biologists, the group included landowners, sportsmen and women and community and conservation interests. The group reached a consensus and will make hunting season recommendations to the Colorado Wildlife Commission next year.

The Division also continued its series of "roundtable" meetings with interest groups statewide to enhance communication and discuss issues. Human Dimensions (HD) staff and terrestrial and aquatic biologists conducted five meetings with the Sportsmen Advisory Group, which included representatives from various hunting and angling organizations. HD staff also conducted nine Environmental Roundtable meetings while aquatic wildlife managers met with anglers in roundtable discussions 35 times. All groups provided interested citizens with opportunities to discuss issues and concerns.

Also during 1999, Division staff continued to work with the Wildlife Management Education Council to help the group reach its goal of designing a media-based public information program to educate the general public about the benefits of wildlife, wildlife management and wildlife-related recreation. The Council will kick off its efforts with a checkoff box on all 2000 license application forms allowing hunters and anglers to donate to the fund. Those donations, in turn, will fund the media-based information campaign.

The Division also continued to respond to customers with improved services last year. For the second year, Division customer service managers used a wristband drawing process instead of a first-come, first-served process to enable more than 2,300 hunters to obtain leftover hunting licenses at the agency's major service centers in Brush, Ft. Collins and Denver.

"You guys are doing a stand-up job there at the DOW…"

☞ Danimalson
E-mail

ALERT EMPLOYEES HALT INVASIVE WEEDS

Two DOW employees earned commendations for important discoveries of noxious weeds during the summer of 1999.

Lamar biologist Jeff Yost found purple loosestrife, a wetlands noxious weed, growing around a pond at the Rocky Ford State Wildlife Area in Otero County. A serious problem in the Denver area, the weed had not been found in the southeastern part of the state.

Likewise, Wildlife Technician Jerry Brinker located a population of the invasive rangeland plant, orange hawkweed, on a state Land Board tract in southern Douglas County. It is only the third known population of the weed in the state.

Wildlife technicians quickly eradicated both weed populations.

Brinker was named "1999 Weed Manager of the Year"and habitat biologist Dave Weber "1999 Pacesetter of the Year"by the Colorado Weed Management Association for their work to control noxious weeds.

EFFICIENCY

Tweaking Organization Structure Produces Conservation Section

The Division tweaked its organization structure a bit during 1999 to create a species conservation section to implement Governor Bill Owens' 1999 executive order requiring coordination of endangered species issues at an interdepartmental level. Last year alone, various interests proposed protecting the Rio Grande cutthroat trout, mountain plover,

© MARTIN CATTOOR

Sharp-tailed grouse

lynx, black-tailed prairie dog, Columbia sharp-tailed grouse and others under the Endangered Species Act. Governor Owens' order created a statewide management team, which will include a representative of the Division to deal with issues relating to the ultimate recovery of threatened and endangered species as well as those proposed for such designation.

The new section will consist of a manager and five biologists and will enable the Division to provide more focus on threatened and endangered and declining species. The section would allow for improved planning, coordination and integration of management activities intended to recover those species.

Internally, the Division leadership team also began implementing a policy of reviewing all full-time employee vacancies as they occurred. The intent, in part, is to ensure available positions are used for the highest priority activities and that administrative staff did not increase.

These "tweakings" continued the streamlining of the agency that began with management review that reduced administrative regions from five to three, cut top staff from 17 to seven, increased supervisors span of control, reduced mid-level supervisors by half and transferred 30 positions to field operations.

Also in 1999, the Division responded to Governor Owens' New Century Colorado (NCC) project by assigning a full-time employee to work with the NCC taskforce charged with improving the uses of technology within the state and making state government itself more efficient.

ACCOUNTABILITY

Four-year Financial Plan Is Ultimate in Accountability

The bottom line, Division financial managers said, is simply that the agency can't spend more than it earns. When the Wildlife Commission decided that limiting deer hunting was key to improving deer populations, it also decided to reduce Division revenues and expenditures in future years.

Again after soliciting public input, Division managers responded last year by drafting a four-year financial plan that would drastically reduce agency expenditures in future years, but also enable it to operate within its revenues.

Roughly three-fourths of the Division's revenue in any given year comes from fishing and hunting license sales. About 11 percent comes from federal funds. Interest on the wildlife cash funds adds another 6 percent; GOCO and other grants account for 5 percent and the sales of publications, rents and other activities add the final 4 percent. The Division receives no state tax money.

Over the next five years, however, the mix of revenue sources will change with license revenues expected to decline by $8 million annually, primarily because of the limits on deer hunting and other sources such as GOCO increasing. While total revenues are expected to grow, Division financial managers began preparing for the effects of this changing mix of funding on Division programs.

The result was the four-year financial plan. Depending on the actual revenues from the 1999 hunting seasons, potential legislative changes and other factors, the plan will need to be approved by the Colorado Wildlife Commission this spring. If approved and implemented, the plan will result in scaling back a number of Division programs.

To help with budgeting and planning activities, the Division fully implemented use of its new BRASS financial software during 1999. The software not only makes budgeting more efficient, it also allows individual managers to check on expenditures and products produced as a result of those expenditures.

WORK FORCE

Wildlife Groups Cite Division Employees

The Division of Wildlife continued to emphasize a team approach to both work and decision making during 1999.

Even so, the work of several individuals stood out as wildlife and conservation groups took opportunities to recognize Division of Wildlife Employees during 1999.

Tops on that list may have been The Wildlife Society's decision to present an

"I trust the Division to manage the wildlife of this state . . . [for] stable and healthy herds."

☞ Mfelder
E-mail

"I was impressed by, and thankful for, the courtesy, assistance and professionalism shown to me. . ."

☞ James L. Thornton
Sedalia

© DOW PHOTO

Division Director John W. Mumma

honorary membership to Division of Wildlife Director John Mumma. Only one such membership is issued per year and Mumma was recognized for his "dedication to wildlife resources and the wildlife profession." Earlier, Mumma who has 40 years experience working with wildlife, received the International Association of Fish and Wildlife Agencies' Ernest Thompson Seton Award, recognizing his leadership in the discipline

Also receiving recognition last year were: Assistant Chief of Law Enforcement Dave Croonquist from Shikar Safari International, which recognized his efforts to get the anti-poaching "Sampson Law" enacted by the Legislature; Gunnison Area Wildlife Manager Jim Young, who was honored by the Colorado Wildlife Federation for innovative elk management in the Gunnison Basin and Area Wildlife Manager Larry Budde from Brush who was recognized by the Colorado Riparian Society for his extensive effort in preserving wetland along the South Platte River.

WILDLIFE OFFICERS CREDITED WITH LIFE-SAVING EFFORT

A southern Colorado woman is pretty sure that Division District Wildlife Managers Brian Bechaver and Jerry Pacheco saved her family's lives.

It seems that she was a victim of on-going violence at the hands of Abad Martinez. Martinez, a suspect in the murder of her common-law husband, had threatened to kill the woman's grandchildren. He had escaped custody and was evidently on his way to make good on that threat when stopped and arrested by Bechaver.

Bechaver was responding to a request for assistance from the local sheriff's office.

"My grand kids are the most important thing in my life and, if not for you, they would be gone now," the woman said in a letter to the two Division officers. "You gave me the best gift I could ever receive—their lives."

The arrest capped both officers' ongoing efforts to help the woman after the death of her husband. "Wildlife has been there for me when no one else was," she said. "You have a great crew."

STATE OF COLORADO
Bill Owens . . . . . Governor

DEPARTMENT OF NATURAL RESOURCES
Greg E. Walcher. . . . . Executive Director

DIVISION OF WILDLIFE
John W. Mumma . . . . . Director

WILDLIFE COMMISSION
Charles D. Lewis, Chair . . . . . Kremmling
Mark LeValley, Vice-Chair . . . . . Hotchkiss
Bernard L. Black, Jr., Secretary . . . . . Denver
Rick Enstrom . . . . . Denver
Philip J. James . . . . . Fort Collins
Marianna Raftopoulos . . . . . Craig
Arnold Salazar . . . . . Alamosa
Robert Shoemaker . . . . . Canon City

EX OFFICIO MEMBERS
(Effective 1/1/00)
Greg E. Walcher
Don Ament

COLORADO DIVISION OF WILDLIFE OFFICES
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Denver, CO 80216
(303) 291-7227
Headquarters: (303) 297-1192

West Region and Grand Junction Service Center
711 Independent Avenue
Grand Junction, CO 81505
(970) 255-6100

Southeast Region and Colorado Springs Service Center
2126 N. Weber
Colorado Springs, CO 80907
(719) 227-5200

Web Site: www.dnr.state.co.us/wildlife

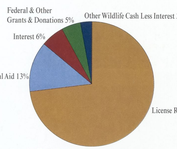
FINANCIAL STATEMENTS

The Division of Wildlife uses the state fiscal year for accounting and reporting financial data. The fiscal year is the period July 1 through June 30 of the following year.

Statement of Revenue, FY 1998-99

Revenues are all sources of income the Division has — primarily license fees, Colorado's share of federal taxes on hunting and fishing equipment (Federal Aid), Great Outdoors Colorado (lottery) grants, and interest on fund balances.

Source	*Prior Year Actual*	*FY 98-99 Actual*
License Revenue	$58,821,479	$61,904,292
Federal Aid	8,887,684	12,797,315
Interest	4,752,545	4,569,179
Federal & Other Grants & Donations	4,002,987	4,415,984
Other Wildlife Cash Less Interest	2,695,595	1,577,417
Total	**$79,160,290**	**$85,264,187**

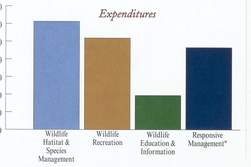


Two-Year Average Revenues

Expenditures, FY 1998-99

Expenditures are all those payments made within a fiscal year for salaries and benefits, materials and supplies, services, acquisitions, leases, and construction and are shown below according to the Strategic Areas that incurred them.

Strategic Area	*FY 98-99 Expenditures*
Wildlife Habitat & Species Management	$30,610,968
Wildlife Recreation	25,931,604
Wildlife Education & Information	9,688,224
Responsive Management*	23,258,793
Total	**$89,489,589**



*Includes expenditures for services to support core Division programs, such as vehicle, facilities, O&M, public involvement, telephone, computer, office support, purchasing and accounting, legal services, and engineering.

COLORADO DIVISION OF WILDLIFE · 1999 ANNUAL REPORT

The mission of the Colorado Division of Wildlife is to perpetuate the wildlife resources of the state and provide people the opportunity to enjoy them.

Maybe the start of a new millennium is a good time to pause in our many debates about what the Division of Wildlife should or should not be doing to reflect on the big picture — that is, on the resource itself. From any point of view, Colorado's wildlife and the opportunities to enjoy them are more diverse and more abundant than ever.

We enjoy large herds of elk. Bears, lions, moose, bighorn sheep, mountain goats, songbirds and nearly a thousand other species inhabit Colorado from the plains to the high country.

Fishing — and especially warm-water fishing — remains good in Colorado. Modernization projects at five state fish hatcheries are producing positive results while experiments with whirling disease-resistant strains of fish like the Snake River cutthroat and other hybrids also appear promising. It may just be that we are beginning to turn the corner in the fight against whirling disease.

Colorado has also been pro-active in managing nongame, threatened and endangered species as well. Though not everyone agreed, the reintroduction of 41 lynx to what is the southernmost extent of their range not only fills a biological niche, it also is intended to give the state greater control over wildlife management decisions if the federal government were to decide to protect the lynx under the Endangered Species Act (ESA).

Peregrine falcons, bald eagles and other species have been removed from the threatened and endangered list; and biologists continue to work to recover boreal toads, Preble's meadow jumping mouse and other species. Populations of greenback cutthroat trout have been restored to levels that even allow for some catch-and-release fishing opportunities for the state fish.

The Division of Wildlife also continues to work to protect habitat and provide opportunities for the public to enjoy wildlife. Last year, the 30,000-acre Bosque del Oso property in Las Animas County and the 5,600-acre Bitter Brush Ranch in Moffat County both opened to public use. Since 1990, the Division has acted to protect more than 143,000 acres and 50 miles of stream. The Habitat Partnership Program enabled the Division to work with landowners in local communities to improve wildlife habitat while the Division's Wetlands Initiative moved closer to its goal of protecting 25,000 acres of wetlands by 2005, which provide critical habitat for many of the state's wildlife species.

All of these successes come at a time when the Division is trying harder than ever to listen to and respond to the public. There are lots of controversial issues associated with doing so. But in survey after survey, Coloradans continue to say that wildlife is important to them and that the Division is doing a good job of managing the resource.

The key to the future is providing good scientific information for a public that is very interested in what we do. Professional wildlife management and working with our constituents has proven to be a very successful combination.

They say an ounce of prevention is worth a pound of cure. In the new millennium, wildlife managers will need to be proactive to ensure that we maintain viable levels of wildlife populations so that species do not need the protection of a federal ESA listing. At the end of the year, several groups proposed that the Colorado River cutthroat receive such protection. However, an agreement between Colorado, Utah, Wyoming and the U.S. Fish and Wildlife Service has led to successful efforts to restore the species. As a result of restoration efforts, the cutthroat is now found in 87 streams and nine lakes in Colorado; the goal is to increase that to 111 streams and 15 lakes. We think those efforts make a listing in Colorado unnecessary.

Our commitment to you is to keep it that way in the future.

John W. Mumma
Director,
Colorado Division of
Wildlife

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[Editor's Note: Adopted by the Colorado Wildlife Commission in 1994, the Division's Long Range Plan (LRP) organizes the agency's 33 goals into the following major categories: protection of wildlife and wildlife habitat, wildlife-related recreation, wildlife information and education, responsive management, accountability, efficiency and work force. The annual report for 1999 reports on activities in support of those goals. A copy of the LRP is available from the Division at 6060 Broadway, Denver, CO 80216. This annual report cost 10 cents each to print.]

> *"One of the sweetest things about living in Colorado is feeling part of a beautiful place that still has the rich environment where coyotes, foxes, deer, elk, bighorn sheep, bears and even mountain lions can thrive."*
>
> ☞ Diane Carmen
> *Denver Post*

PROTECT WILDLIFE AND WILDLIFE HABITAT

Lynx Reintroduction Headlines Species Conservation for 1999

Biologists believe 26 of the 41 lynx reintroduced to the state of Colorado during 1999 survived to see the year 2000.

The lynx were trapped in Alaska and Canada and released in southwestern Colorado in the winter and early spring. Division biologists had cautioned that, in any transplant program, more than half of the animals being reintroduced might die. After some initial fatalities, biologists changed the protocols of the releases, holding the animals longer in Colorado and allowing them to become more familiar with their new environment.

The changes in release protocols brought increased success as the year closed.

"We've lost fewer animals than expected, especially since we changed our initial release protocol, and we've plowed a lot of new ground in lynx research," John Mumma, Division of Wildlife Director, said.

Of the transplanted animals that died: five starved, three were shot, two were victims of automobiles, five died of uncertain causes. While most of the lynx stayed in the general vicinity of the release sites, some surprised biologists with their travels: one lynx was shot in Nebraska; another died of unknown causes in New Mexico.

© DOW PHOTO

DOW biologists reintroduced 41 lynx to Colorado last year.

The reintroduction program proved controversial as some agricultural interests worried that reintroduction of a state-endangered species might affect land use, and animal rights activists expressed concerns about the overall mortality rate.

The U.S. Fish and Wildlife Service (USFWS) is considering a proposal to protect the lynx under the federal Endangered Species Act. By being proactive in reintroducing the cats and then seeking federal designation of the Colorado lynx as a separate and distinct population, wildlife managers argued that they would, in fact, be in a better position to protect residents' interests.

A Lynx Advisory Team that included not only wildlife managers but also university researchers, scientists and other citizens from both the U.S. and Canada also worked to improve the transplant effort.

The Colorado Wildlife Commission decided during its January 2000 meeting to allow biologists to reintroduce another 50 lynx to Colorado.

Weighing between 20-40 lbs., lynx are carnivores and prey primarily on snowshoe hares and other small mammals. Lynx virtually disappeared from Colorado in the 1970's, probably as a result of loss of habitat. The state is regarded as the southernmost extreme of the animal's range.

The state's mule deer population also drew increased attention from state wildlife managers during 1999. At the request of the State Legislature, biologists completed a comprehensive report on the deer herds.

Though Colorado still has more than 500,000 deer, the report noted that the population is only half of peak levels during the 1940s and 1950s. That decline prompted the Colorado Wildlife Commission to limit all deer hunting in the state for the 1999 hunting seasons.

According to the Division's report, fluctuating numbers of deer have historically characterized deer populations.

Suspected causes of the current decline include: conversion of habitat to other uses and lowering of the carrying capacity of existing habitat, competition with elk and predation, particularly by coyotes. According to the report, neither disease, including chronic wasting disease, nor excessive harvests appeared to be major factors in the decline.

The report noted that the available evidence did not point to any single factor as the cause of the decline.

Over the last two years, wildlife biologists trying to understand the causes of the deer decline have implemented extensive population monitoring studies in the Uncompahgre, Middle Park and Red Feather Lakes areas and have increased the number of deer counts in western Colorado. During 1999, the Division reallocated $1.3 million and received an additional $225,000 from the Legislature to expand research, inventory and habitat improvement work to help recover the state's mule deer herds. A $10,000 gift from the Western Colorado Chapter of Safari Club International allowed Division researchers for the first time to use eartags rather than neck-collar transmitters to study natural mortality rates in bucks and does. Deer hunting will also remain totally limited for the next five years as well, under a new hunting season structure approved by the Wildlife Commission in 1999.

© DOW PHOTO

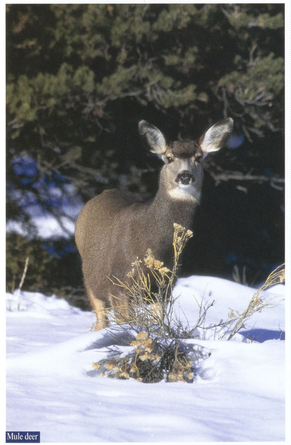
A Preble's meadow jumping mouse is outfitted with a radio collar.

GOCO GRANTS HELP WILDLIFE CONSERVATION

Great Outdoors Colorado (GOCO) continued to support management of Colorado's wildlife resources by approving nearly $16 million in grants to support Division activities for the coming fiscal year (FY 00-01). Among such proposed projects are acquisition of the 5,400-acre Circle Ranch, which is located between and contiguous to existing Lone Pine and Lower Cherokee Park SWAs northwest of Ft. Collins. When completed, the acquisition will enable protection of more than 15,700 contiguous acres of habitat for elk, deer, the Preble's meadow jumping mouse and other species.

Another significant portion of the GOCO grant will be used to acquire water resources along the lower Arkansas River in southeastern Colorado. When completed, this acquisition will allow comprehensive water management and wetland habitat development at John Martin Reservoir, at the new Great Plains State Park and along the river itself. Among species expected to benefit are the piping plover, interior least tern, the sucker-mouth minnow, the Plains minnow, the Arkansas darter and others. The project is also expected to be an asset in implementing the work of Governor Bill Owens' new Interdepartmental Management Team on Endangered Species, which is charged with developing and implementing a strategy to recover such federally listed threatened and endangered species as soon as possible..

The Division plans to leverage GOCO grants through partnerships with The Nature Conservancy, the U.S. Fish and Wildlife Service, Colorado State University and others.



© MARTIN CATTOOR

Mule deer

students to develop a management plan for the property. A land exchange among the Division, the BLM and the Ute Water Conservancy District culminated nearly 20 years of negotiation and opened Jerry Creek Reservoirs #1 and #2 near Grand Junction to public fishing. The Division also acquired 105 acres of riparian habitat along the Colorado River near Palisade as part of the GOCO-sponsored Colorado Riverfront Greenway Legacy project. The acquisition protects riparian habitat and offers riverfront access to anglers and waterfowl hunters.

Overall, Division easements and leases protect a total of 241,000 acres; the Division also owns 256 properties, totaling 348,000 acres. State School Trust Lands (SLT) leased by the agency protect habitat and provide for public uses on another 432,000 acres.

Two new state wildlife areas, the Bitter Brush SWA near Maybell and the Bosque del Oso SWA in Las Animas County, opened to public use for the first time last year.

The Division frequently earned plaudits for its efforts to manage noxious weeds on state wildlife areas during 1999. A report to the State Legislature assessing how agencies were doing on weed management ranked the Division fifth highest out of the 14 agencies/categories surveyed. The Division ranked above average in all categories surveyed and significantly higher than private landowners. Invasive weeds threaten to degrade wildlife habitat.

Also during 1999, the Fishing Is Fun Program completed projects — ranging from in-stream habitat improvements at Riverside Park on the Dolores River to construction of a handicapped fishing pier at Ranger Lakes in the Colorado State Forest—in 10 different communities throughout the state. Agency officials estimated that the projects combined to provide new fishing opportunities for more than 18,000 anglers annually. Through Fishing Is Fun, the Division provides grants matching local funds to improve fish habitat and angler access.

A partnership between the Division and the South Platte Lower River Group allowed the agency to drill water wells on the Tamarack and Pony Express SWAs in northeastern Colorado. The well water was used to create wetlands on the wildlife areas and manage populations of sucker mouth and brassy minnows in an artificial stream, making federal listing of the fish under the Endangered Species Act unnecessary. The effort supports Colorado's commitment under a memorandum of agreement with Nebraska and Wyoming and is very important to the continued operations of reservoirs and water development projects along the South Platte.

The Pheasant Habitat Improvement Program (PHIP) is a joint project between the Division and local chapters of Pheasants Forever and Quail Unlimited and is designed to improve habitat in eastern Colorado. During 1999, volunteers ranging from landowners to Scouts planted 174 shrub thickets, nearly 28 miles of wind breaks and 587 acres of food/cover plots to improve upland game bird habitat in 10 counties throughout eastern Colorado. With the encouragement of PHIP, local farmers planted a total of more than 10,000 acres with a pheasant grass mix as part of the Conservation Reserve Program, which pays landowners to convert cropland to wildlife habitat.

At Highline Lake on the Colorado River, the Division, State Parks, the Bureau of Reclamation, the USFWS and the Colorado River Water Conservancy District cooperated to install a 360-foot-long, 19-foot-deep net, intended to hold nonnative sport fish in the lake. Doing so prevents competition with the River's four threatened and endangered fish species, which are the object of a federal/state recovery project. Once the net was up, the Division stocked 15,000 bluegill and 7,000 largemouth bass to meet demands of local anglers for warm-water fishing opportunities.

© DOUNDT YOUNG

For more that two decades, District Wildlife Manager Bob Holder had his eye on the Bosque del Oso land as valuable wildlife habitat.

WILDLIFE-RELATED RECREATION

Division Manages Old and New Hunting Season Structures

Big game hunting, both for the autumn of 1999 and for the next five years as well, got a lot of attention from wildlife managers last year.

In response to concerns about the state's deer herds, Colorado limited all deer hunting during the 1999 seasons. Preliminary data indicated that the Division sold 132,660 resident and 108,073 nonresident elk licenses and 59,474 resident and 33,318 nonresident deer licenses for all 1999 seasons. Final license sales and harvest data will not be available until spring.

> *"The Colorado Division of Wildlife is years ahead of other states that I've dealt with from a customer service and knowledge standpoint."*
>
> ☞ Josh Cook
> E-mail

The results from the previous year, however, showed one of the largest elk harvests on record: 254,913 hunters harvested 51,500 elk (a 20 percent success rate), including a record of 26,000 cows.

Terrestrial Wildlife Manager Jim Lipscomb assessed the 1998 harvest: "Elk population goals are established on a herd-by-herd basis, and many herds in the state were higher than the set objective. The high cow harvest rate should bring us closer to these objectives."

Colorado has about 215,000 elk — the largest elk herd in North America. A benefit to hunters, outfitters, businesses and others, the large herd can also be a threat to habitat and increase the conflicts between wildlife and private landowners and livestock.

The deer harvest in 1998 was down as 150,000 hunters killed 40,500 deer (a 27 percent success rate).

Wildlife managers and the Colorado Wildlife Commission also invested considerable effort developing a new five-year big game season structure. To gather public input on issues related to big game hunting, a team of Division terrestrial, human dimensions and public service staff designed and conducted 75 public forums and accepted comments via e-mail, letters and testimony before the Wildlife Commission over a 10-month period. About 4,000 people and groups took advantage of the multiple opportunities to comment.

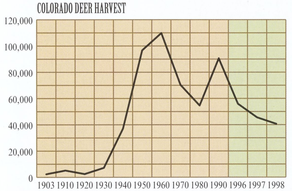
A cooperative effort between the Division and the Human Dimensions in Natural Resources Unit at Colorado State University also surveyed 3,000 Colorado residents and nonresident hunters using their input to help shape management objectives for the types and quantities of hunting opportunities to be offered in the five-year season structure.

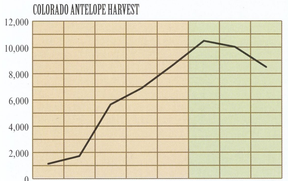
The chart below describes the new big game season structure for 2000-04.

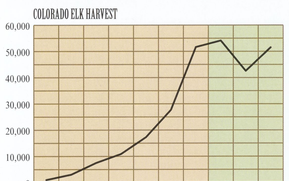
© CLAUDE STEELMAN WILDLIFE

Bull elk

HARVEST TOTALS FOR DEER, ANTELOPE & ELK







COLORADO BIG GAME SEASON DATES

	2000	2001
ARCHERY		
Deer/elk west of I-25, (and Unit 140):	Aug. 26-Sept. 24	Aug.25-Sept. 23
Deer east of I-25, (except Unit 140):	Oct. 1-27 and Nov.8-Dec. 31	Oct. 1-26 and Nov.7-Dec. 31
Antelope: Bucks only:	Aug.15-31	Aug. 15-31
Either sex:	Sept. 1-20	Sept. 1-20
MUZZLELOADING RIFLE		
Deer/elk (by drawing only):	Sept. 9-17	Sept.8-16
Plains Deer - east of I-25:	Oct. 14-22	Oct. 13-21
Antelope:	Oct. 21-29	Oct. 21-29
RIFLE COMBINED DEER/ELK		
SEPARATE LIMITED ELK		
Combined (deer/elk):	Oct. 14-18	Oct. 13-17
Combined (deer/elk):	Oct. 21-27	Oct. 20-26
Combined (deer/elk):	Nov. 4-10	Nov. 3-9
	Nov. 11-15	Nov. 10-14
RIFLE DEER (east of I-25):	Oct. 28-Nov. 7	Oct. 27-Nov. 6
LATE RIFLE DEER (east of I-25):	Dec. 1-14	Dec. 1-14
RIFLE ANTELOPE (by drawing only):	Sept. 30-Oct. 6 or Oct. 7-13	Sept. 29-Oct. 5 Oct. 6-12
BLACK BEAR*		
Limited (by drawing only)	Sept. 2-30	Sept. 2-30
Archery (unlimited):	Sept. 2-24	Sept. 2-23
Muzzleloading (unlimited):	Sept. 9-17	Sept. 8-16
Rifle (unlimited): concurrent combined deer/elk rifle seasons		

*To participate in the unlimited bear seasons a hunter must also hold a deer or elk license for the same unit(s) and season.

Also during 1999, the Division continued to be on the cutting edge of efforts to combat whirling disease (WD) – the parasitic infection that attacks cartilage in rainbow trout causing the fish to swim in circles when stressed. The best news was that modernization projects at five Division fish hatcheries resulted in tests showing no evidence of the WD organism. Most of the modernization involves protecting groundwater sources from surface water contamination. At Bellvue Fish Hatchery, for example, Division engineers developed a recirculation system that alternately pumps water between ponds, allowing those to be cleaned periodically and effectively breaking the WD life cycle. The result was negative tests for WD.

Biologists expected that, if the hatcheries continue to show no signs of the disease, they would be able to produce several hundred thousand more WD-negative trout for stocking next summer.

Division hatcheries are replacing some rainbow trout production with Snake River cutthroats, which are more resistant to WD. Biologists, in cooperation with federal officials, also continued to investigate the ability of hybrid and other strains of trout to resist WD.

Testing hatchery and feral fish for WD kept fish pathologists at the Division's Aquatic Animal Health Lab in Brush busy with nearly 1,100 samples a month being tested.

"I think we are 50 to 75 percent of the way there in learning how to manage our fisheries and hatcheries to drastically reduce the impact of whirling disease," Barry Nehring, the Division's wild trout researcher, said.

Overall, the Division stocked more than 18.3 million cold-water and 62 million warm-water fish, fry-sized and larger, in Colorado's waters last year. That includes 3.1 million catchable-sized rainbow trout, including some from federal hatcheries and fish purchased from private hatcheries as well.

© CHARLIE ZIEZ

The Division's Aquatic Animal Health Lab in Brush test nearly 1,100 trout samples a month for whirling disease.

For their part, anglers continued to set fishing records during the year. The state sauger record fell three times in 1999, first in February to Bradley Brack of Aurora, then in June to Colorado Wildlife Commissioner Rick Enstrom of Lakewood and finally in November to Bruce Henry of Englewood who took an 8-lb., 12-oz. saugeye from John Martin Reservoir near Lamar. An excellent sport-fish, saugeye are a hybrid of the female walleye and male sauger and were first stocked in southeastern Colorado in 1990.

Frank Davis of Colorado Springs set the tiger trout record with a 3-lb, 5-oz., catch at a private pond on the Yampa River Drainage. Tiger trout are a hybrid of brown and brook trout and were originally stocked in the Yampa River Basin.

And Leo Marquez of San Antonio, Texas, reset the state grass carp record with a 42-lb. fish taken from Bear Creek Pond.

Colorado's Master Angler Award Program reeled in 285 entries for potential awards for fish caught in state waters. Of those, 133 were for record-sized fish that anglers released back into the water. The Master Angler Program recognizes anglers who catch trophy-size fish and encourages them to conserve their catch by releasing the fish.

Division law enforcement officers were also busy with several high-profile cases during 1999. Among those: a North Dakota man and two Colorado men faced jail time/probation and stiff fines after pleading guilty to multiple felony counts of willful destruction of wildlife for their roles in slaughtering as many as 100 pronghorns and deer in Routt and Moffat counties in 1998; a Pueblo man was fined $50,000 and jailed for a year for illegal possession of five bighorn sheep; and two Texas men were charged with multiple violations for illegal possession of a desert bighorn, a deer and an elk under the "Sampson Law" that provides an additional surcharge for the illegal killing of trophy-quality animals.

Final tabulation of citations issued in 1999 was underway at press time, but were expected to be comparable to 1998 when wildlife violations totaled 4,943. The Division has 200 multi-purpose employees whose jobs include a law-enforcement component.

As a result of efforts by Division wildlife managers, nearly all of the state's 40 state parks provided opportunities for visitors to watch and learn about wildlife as part of the Watchable Wildlife in Parks Program. The program provides each state park with wildlife interpretive programs, nature hikes and hands-on exhibits for children. Each is keyed to the unique landscapes, habitats and species of the individual parks.

The watchable wildlife program also received two awards for publications from the National Association of Interpretation, the sixth and seventh consecutive awards the program has received in the last three years.

In cooperation with the ColoWyo and Peabody Coal companies, Division field staff hosted five young hunters from the Denver metro area for a deer and elk hunt on the Morgan Creek and Williams Fork ranches near Hayden in northwestern Colorado. All five harvested an animal. This was the third year of this cooperative effort.

Other joint efforts to recruit young hunters during 1999 included: the Youth Hunter Ed Challenge, an upland game bird hunt sponsored by Pheasants Forever, several waterfowl hunts sponsored by USA Outdoors, a big game hunt sponsored by the Rocky Mountain Elk Foundation and a youth trapshoot sponsored by the Metropolitan Wildlife Association. The Division sponsored a youth rabbit hunt and a "Youth Hunter Gathering" that included dinner and survival-skill training.

The Division's 450 volunteer education instructors taught 850 classes providing 18,000 new and mostly young hunters with hunter safety and ethics training.

Leo Marquez of San Antonio, Texas, with the state record grass carp, a 42-lb. fish taken from Bear Creek Pond.

> *"You really have a GREAT Web page. It is impressive to be able to access so much info, latest fishing updates, big game drawing results and on and on..."*
>
> ☞ RoWEB
> E-mail

WILDLIFE EDUCATION AND INFORMATION

Diverse Education Efforts Help Interest Youngsters in Wildlife

The Division of Wildlife provided a variety of hunting opportunities, including hunter recruitment and training, during 1999 as part of its diverse education and information efforts. A state law authorizes low-cost youth hunting licenses for small game, waterfowl, elk, deer and antelope. About 28,000 youth licenses were sold last year. Another law gives the Colorado Wildlife Commission the authority to offer youth and mobility impaired preference on some deer, elk and antelope licenses. The Division's Youth Mentor Hunting Program encourages family participation in outdoor activities and offers adult hunters opportunities to mentor young participants. More than 150 families participated during 1999. The agency has also set aside 11 state wildlife areas specifically for youth/mentor hunting, with about 4,000 acres in 10 counties now providing big and small game opportunities just for young hunters.